

Nutrien Ltd.

**Annual Information Form
Year Ended December 31, 2022**

February 16, 2023

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Following is a table of contents of this Annual Information Form (“AIF”) referencing the applicable requirements of Form 51-102F2 – Annual Information Form of the Canadian Securities Administrators. Certain information required to be disclosed in this AIF is contained in Nutrien Ltd.’s Management’s Discussion & Analysis (“2022 MD&A”), and Consolidated Financial Statements for the years ended December 31, 2022 and 2021 (“2022 Consolidated Financial Statements”) and is incorporated by reference herein to the extent noted below and throughout this AIF; these documents are available under Nutrien’s corporate profile on the Canadian Securities Administrators’ SEDAR website at www.sedar.com and on the EDGAR section of the United States (“US”) Securities and Exchange Commission’s (“SEC”) website at www.sec.gov.

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2 – Advisories

2.1 Forward-Looking Information

Certain statements and other information included in this AIF, including within the documents incorporated by reference, constitute “forward-looking information” or “forward-looking statements” (collectively, “forward-looking statements”) under applicable securities laws (such statements are often accompanied by words such as “anticipate”, “forecast”, “expect”, “believe”, “may”, “will”, “should”, “estimate”, “intend” or other similar words). All statements in this document, other than those relating to historical information or current conditions, are forward-looking statements, including, but not limited to:

- our business strategies, plans, prospects and opportunities, and our sustainability, climate change and Environmental, Social and Governance (“ESG”) initiatives and proposed responses to climate change and ESG policies and regulations;
- expectations regarding performance of our operating segments;
- our market outlook for 2023, including agriculture and crop nutrient markets, anticipated supply and demand for our products and services, expected market and industry conditions with respect to crop nutrient application rates, planted acres, crop mix, prices, and the impact of import and export volumes;
- expectations concerning future product offerings, including the planned expansion of our digital platform to markets in Australia and South America;
- expectations regarding continued natural gas curtailments at our Trinidad nitrogen facility;
- expectations regarding changes in the agriculture space, including continued farm consolidation in the US and other developed markets and the continued advancement and adoption of technology and digital innovations;
- expectations regarding acquisitions and divestitures;
- expectations regarding environmental compliance requirements and costs, including estimates of asset retirement obligations, federal and provincial carbon pricing, and site assessment and remediation costs;
- expectations regarding our sustainability, climate change and greenhouse gas (“GHG”) emissions reduction strategy and related programs and initiatives, including our various ESG performance goals, targets, commitments, and aspirations as set out in our Feeding the Future Plan and the ESG Report;
- our evaluation of the clean ammonia facility project at Geismar, Louisiana;
- our GHG emissions reduction target, including our plans with respect thereto and estimated capital expenditures required to achieve such target;
- the negotiation of sales and other contracts, including the anticipated expiry of existing contracts;
- initiatives to promote sustainable and productive agriculture; and
- expectations regarding our mineral reserve and resource estimates, and the annual nameplate capacity and annual operational capability of our mines and associated mine life estimates.

These forward-looking statements are subject to a number of assumptions, risks and uncertainties, many of which are beyond our control, which could cause actual results to differ materially from such forward-looking statements. As such, undue reliance should not be placed on these forward-looking statements.

All of the forward-looking statements are qualified by the assumptions that are stated or inherent in such forward-looking statements, including the assumptions referred to below and elsewhere in this document. Although we believe that these assumptions are reasonable, having regard to our experience and our perception of historical trends, the assumptions set forth below are not exhaustive of the factors that may affect any of the forward-looking statements and the reader should not place undue reliance on these assumptions and such forward-looking statements. Current conditions, economic and otherwise, render assumptions, although reasonable when made, subject to greater uncertainty.

In respect of our GHG emissions reduction and other sustainability and climate-related initiatives and targets, we have made assumptions with respect to, among other things: that such target is achievable by deploying capital into nitrous oxide (“N₂O”) abatement at our nitric acid production facilities, energy efficiency improvements, carbon capture, utilization and storage, use of natural gas to generate electricity and waste heat recovery; our ability to successfully deploy capital and pursue other operational measures, including the successful application to our current and future operations of existing and new technologies; the successful implementation by us of proposed or potential plans in respect thereof; projected capital investment levels, the flexibility of our capital spending plans and the associated sources of funding; our ability to otherwise implement all technology necessary to achieve our GHG emissions reduction and other sustainability and climate-related initiatives and targets; and the development, availability, and performance of technology and technological innovations and associated expected future results.

Additional key assumptions that have been made in relation to the operation of our business as currently planned and our ability to achieve our business objectives include, among other things:

- assumptions with respect to our ability to successfully complete, integrate and realize the anticipated benefits of our already completed and future acquisitions and divestitures, and that we will be able to implement our standards, controls, procedures and policies in respect of any acquired businesses and realize the expected synergies;
- that future business, regulatory and industry conditions will be within the parameters expected by us, including with respect to prices, margins, demand, supply, product availability, supplier agreements, product distribution agreements, availability and cost of labor, and interest, exchange, inflation and effective tax rates;
- assumptions with respect to global economic conditions and the accuracy of our market outlook expectations for 2023 and in the future;
- our expectations regarding the impacts, direct and indirect, of the Ukraine and Russia war and the COVID-19 pandemic on our business, customers, business partners, employees, supply chain, other stakeholders and the overall economy;
- the adequacy of our cash generated from operations and our ability to access our credit facilities or capital markets for additional sources of financing;
- our ability to identify suitable candidates for acquisitions and divestitures and negotiate acceptable terms;
- our ability to maintain investment-grade ratings and achieve our performance targets;
- assumptions with respect to our intention to complete share repurchases under our share repurchase program, including Toronto Stock Exchange (“TSX”) approval and funding of such share repurchases;
- our ability to successfully negotiate sales and other contracts; and
- our ability to successfully implement new initiatives and programs.

Events or circumstances could cause actual results to differ materially from those in the forward-looking statements.

With respect to our GHG emissions reduction and other sustainability and climate-related initiatives and targets, such events or circumstances include, but are not limited to: our ability to deploy sufficient capital to fund the necessary expenditures to implement the necessary operational changes to achieve these initiatives and targets; our ability to implement requisite operational changes; our ability to implement some or all of the technology necessary to efficiently and effectively achieve expected future results, including in respect of such GHG emissions reduction target; the availability and commercial viability and scalability of emissions reduction strategies and related technology and products; and the development and execution of implementing strategies to meet such GHG emissions reduction target.

With respect to our business generally and our ability to meet the other targets, commitments, goals, strategies and related milestones and schedules disclosed in this document, such events or circumstances include, but are not limited to:

- general global economic, market and business conditions;
- failure to complete announced and future acquisitions or divestitures at all or on the expected terms and within the expected timeline;
- climate change and weather conditions, including impacts from regional flooding and/or drought conditions;
- crop planted acreage, yield and prices;
- the supply and demand and price levels for our products;
- governmental and regulatory requirements and actions by governmental authorities, including changes in government policy (including tariffs, trade restrictions and climate change initiatives), government ownership requirements, and changes in environmental, tax, antitrust, and other laws or regulations and the interpretation thereof;
- political risks, including civil unrest, actions by armed groups or conflict and malicious acts including terrorism;
- our ability to access sufficient, cost-effective and timely transportation, distribution and storage of products;
- the occurrence of a major environmental or safety incident or becoming subject to legal or regulatory proceedings;
- innovation and cybersecurity risks related to our systems, including our costs of addressing or mitigating such risks;
- counterparty and sovereign risk;
- delays in completion of turnarounds at our major facilities;
- interruptions of or constraints in availability of key inputs, including natural gas and sulfur;
- any significant impairment of the carrying amount of certain assets;
- risks related to reputational loss;
- risks related to impairment of assets or goodwill attributed to certain cash generating units;
- certain complications that may arise in our mining processes;
- the ability to attract, engage and retain skilled employees, and strikes or other forms of work stoppages;
- the war between Ukraine and Russia and the COVID-19 pandemic and their potential impact on, among other things, global market conditions and supply and demand, energy and commodity prices; interest rates, supply chains and the global economy generally; and

- other risk factors detailed from time to time in Nutrien reports filed with the Canadian securities regulators and the SEC in the US.

For additional details regarding the risks listed above, see “Risk Factors” discussed in this AIF for a description of other risk factors affecting forward-looking statements.

The forward-looking statements in this document are made as of the date hereof and we disclaim any intention or obligation to update or revise any forward-looking statements in this AIF as a result of new information or future events, except as may be required under applicable Canadian securities legislation or applicable US federal securities laws.

2.2 Basis of Presentation

Nutrien’s consolidated financial information for 2022, 2021 and 2020 presented and discussed in this AIF is prepared in accordance with International Financial Reporting Standards (“IFRS”) as issued by the International Accounting Standards Board. This AIF is dated February 16, 2023, and the information contained herein is current as of such date, unless otherwise specified.

Unless expressly stated, the information contained on, or accessible from, our website or any other website or any other report or document we file with or furnish to applicable Canadian or US securities regulatory authorities is not incorporated by reference into this AIF.

3 – Corporate Structure

In this AIF, unless otherwise specified, the term “Nutrien” refers to Nutrien Ltd. and, unless the context requires otherwise, the terms “we”, “us”, “our”, “Nutrien” and the “Company” refer to Nutrien and its direct and indirect subsidiaries, individually or in any combination, as applicable. Financial information in this AIF is presented in United States dollars and references to “dollars”, “\$”, and “US\$” are to United States dollars and references to “CAD\$” are to Canadian dollars.

3.1 Name, Address and Incorporation

Nutrien is a corporation incorporated under the *Canada Business Corporations Act* (“CBCA”).

Nutrien’s registered head office is Suite 1700, 211 19th Street East, Saskatoon, Saskatchewan, Canada S7K 5R6. We also have corporate offices at 13131 Lake Fraser Drive SE, Calgary, Alberta, Canada T2J 7E8 and 5296 Harvest Lake Drive, Loveland, Colorado, US 80538.

3.2 Intercorporate Relationships

Principal Subsidiaries ¹	Jurisdiction of Incorporation, Formation or Organization	Ownership
Potash Corporation of Saskatchewan Inc. (“PotashCorp”)	Canada	100%
Nutrien (Canada) Holdings ULC	British Columbia, Canada	100%
Agrium Canada Partnership	Alberta, Canada	100%
Agrium Potash Ltd.	Canada	100%
Nutrien US LLC	Colorado, US	100%
Cominco Fertilizer Partnership	Texas, US	100%
Loveland Products Inc.	Colorado, US	100%
Nutrien Ag Solutions (Canada) Inc.	Canada	100%
Nutrien Ag Solutions, Inc.	Delaware, US	100%
Nutrien Ag Solutions Limited	Western Australia, Australia	100%
PCS Nitrogen Fertilizer, LP	Delaware, US	100%
PCS Nitrogen Trinidad Limited	Trinidad	100%
PCS Phosphate Company, Inc.	Delaware, US	100%
PCS Sales (USA) Inc.	Delaware, US	100%
Nutrien Holding Company LLC	Delaware, US	100%

¹ In aggregate, our remaining subsidiaries not listed herein accounted for less than 20 percent of our consolidated assets and less than 20 percent of our consolidated sales as at and for the year ended December 31, 2022.

4 – General Development of the Business

4.1 Three-Year History

Acquisitions

The table below provides information on our acquisitions of Nutrien Ag Solutions (“Retail”) businesses, including Casa do Adubo S.A. (“Casa do Adubo”), completed during the last three fiscal years.

Acquisition date	Casa do Adubo	Other Acquisitions		
	October 1, 2022	2022	2021	2020
Purchase price, net of cash and cash equivalents acquired, and amounts held in escrow (US\$ millions)	231 (preliminary) ¹	176	88	233
Number of Retail operating locations	39 retail locations and 10 distribution centers	43	36	43
Description	Agriculture retailer in Brazil	Various retail agricultural services and one wholesale warehouse location	Various retail digital agriculture, proprietary products, retail and agricultural services businesses in North America, South America and Australia	

¹ The purchase price for Casa do Adubo is subject to adjustment as we are continuing to obtain and verify information required to finalize closing working capital and net debt adjustments. We expect to finalize the amounts recognized and the purchase price prior to October 1, 2023.

Dispositions

In 2020, due to a strategic decision, we sold our 26 percent equity investment in Misr Fertilizers Production Company S.A.E. (“MOPCO”), a nitrogen producer based in Egypt.

Company Name	Proceeds ¹ (US\$ millions)
MOPCO	540

¹ Cash proceeds resulting from the sale of shares and settlement of legal claims.

Asset Impairment and Reversals

In the second and third quarters of 2022, we revised our pricing forecasts to reflect higher forecasted global prices and a more favorable outlook for phosphate margins. This resulted in a review of our previously impaired Phosphate cash-generating units (“CGUs”). As a result, in 2022, we recorded a full impairment reversal, net of depreciation, at Aurora, North Carolina and White Springs, Florida of \$450 million and \$330 million, respectively, in the statement of earnings relating to our property, plant and equipment.

In 2020, we identified an impairment indicator in our Phosphate CGUs due to lower long-term forecasted global phosphate prices. We recorded impairments to our property, plant and equipment at our Aurora and White Springs facilities of \$545 million and \$215 million, respectively.

Normal Course Issuer Bid (“NCIB”)

The table below provides information on our share repurchase programs.

	Commencement Date	Expiry	Maximum Shares for Repurchase
2023 NCIB ¹	March 1, 2023	February 29, 2024	24,962,194
2022 NCIB ²	March 1, 2022	February 7, 2023	55,111,110
2021 NCIB	March 1, 2021	February 28, 2022	28,468,448
2020 NCIB	February 27, 2020	February 26, 2021	28,572,458

¹ On February 15, 2023, our Board of Directors (“Board”) approved a share repurchase program for up to 5 percent of our outstanding common shares (the “2023” NCIB). The 2023 NCIB, which is subject to acceptance by the TSX, will expire earlier than the date above if we acquire the maximum number of common shares allowable or otherwise decide not to make any further repurchases.

2 The original expiry date of the 2022 NCIB was February 28, 2023, but we acquired the maximum aggregate number of common shares allowable thereunder on February 7, 2023.

The table below sets forth the number of common shares we have repurchased during the last three fiscal years, in each case, under the applicable NCIB through open market purchases at market prices.

Common shares repurchased	2022	2021	2020
Total amount (US\$ millions)	4,496	1,105	160
Number of shares	53,312,559	15,982,154	3,832,580

Notes Issuances and Repayments

In March 2022, we filed a base shelf prospectus in Canada and the US qualifying the issuance of up to \$5 billion of common shares, debt securities and other securities during a period of 25 months from March 11, 2022. On November 7, 2022, we issued an aggregate of \$1.0 billion of notes, as described below, pursuant to the base shelf prospectus and a prospectus supplement.

The following tables summarize our long-term debt issuances and repayment activities during the last three fiscal years.

	Rate of Interest (%)	Maturity Date	Amount (US\$ millions)
Notes issued 2022	5.900	November 7, 2024	500
Notes issued 2022	5.950	November 7, 2025	500
Notes issued 2020	1.900	May 13, 2023	500
Notes issued 2020	2.950	May 13, 2030	500
Notes issued 2020	3.950	May 13, 2050	500

The notes issued in 2022 and 2020 are unsecured, rank equally with our existing unsecured debt and have no sinking fund requirements prior to maturity. Each series is redeemable and provides for redemption prior to maturity, at our option, at specified prices. We did not issue any notes in 2021.

	Rate of Interest (%)	Maturity Date	Principal Amount Repaid/Redeemed (US\$ millions)
Notes repaid 2022	3.150	October 1, 2022	500
Notes repaid 2021 ¹	3.500	June 1, 2023	500
Notes repaid 2021 ¹	3.625	March 15, 2024	750
Notes repaid 2021 ¹	3.375	March 15, 2025	550
Notes repaid 2020	4.875	March 30, 2020	500

¹ In 2021, we redeemed the entire outstanding principal amount of these notes in accordance with the optional redemption provisions provided in the indentures governing these notes.

In 2021, we also completed a cash tender offer to purchase the following debentures and notes up to a maximum aggregate purchase price of \$300 million.

	Rate of Interest (%)	Maturity Date	Principal Amount Redeemed (US\$ millions)
Debentures	7.800	February 1, 2027	5
Notes	7.125	May 23, 2036	88
Notes	6.125	January 15, 2041	99
Notes	5.250	January 15, 2045	11

The 2021 redemption and cash tender offer were funded by using cash on hand and proceeds from the issuance of commercial paper. The total cash spend for the early redemption and tender offer, including accrued interest was \$2.2 billion.

Credit Facilities

In 2022, we entered into a new \$2.0 billion unsecured revolving term credit facility, with the same principal covenants and events of default as our existing \$4.5 billion unsecured revolving term credit facility. In addition, we increased our uncommitted revolving demand facility credit limit by \$500 million to \$1.0 billion.

In July 2022, to help temporarily manage normal seasonal working capital swings, we entered into non-revolving term credit facilities with an aggregate principal amount of \$2.0 billion and fully repaid and terminated such credit facilities in September 2022 after the new \$2.0 billion unsecured revolving term credit facility was established as described above.

In the third quarter of 2022, we amended the terms of our existing \$4.5 billion unsecured revolving term credit facility to extend the maturity date from June 4, 2026 to September 14, 2027. The new maturity date is subject to extension at our request, provided that the resulting maturity date may not exceed five years from the date of such extension.

In 2021, we amended the terms of our existing \$4.5 billion unsecured revolving term credit facility to extend the maturity date from April 10, 2023 to June 4, 2026.

In the first half of 2020, in response to the COVID-19 pandemic, we took steps to enhance our liquidity position. We added \$1.5 billion of new credit facilities in March and April 2020, which we subsequently closed in May 2020 after the issuance of the new notes in 2020 described above.

5 – Description of the Business

We are an integrated provider of crop inputs and services, playing a critical role in helping growers around the globe increase food production in a sustainable manner. We supply growers through our leading global Retail network – including crop nutrients, crop protection products, seed and merchandise, as well as agronomic and application services. We operate more than 2,000 retail locations across the US, Canada, Australia and South America, servicing approximately 500,000 grower accounts.

Nutrien is the world's largest provider of crop inputs and services, producing the three crop nutrients: potash, nitrogen and phosphate. We sold approximately 25 million tonnes of crop nutrient products from our facilities in Canada, the US and Trinidad.

As of December 31, 2022, we estimate our Potash operations represented 21 percent of global potash nameplate capacity, our Nitrogen operations represented 3 percent of global nitrogen nameplate capacity and our Phosphate operations represented 3 percent of global phosphate nameplate capacity.

We report our results in four operating segments: Retail, Potash, Nitrogen and Phosphate. Our reporting structure reflects how we manage our business. Sales classified by operating segment and applicable category of products and services are provided in Note 3 of the 2022 Consolidated Financial Statements. Sales or transfers to certain entities in which the Company has an investment that is accounted for under the equity method are provided in Note 3 of the 2022 Consolidated Financial Statements.

5.1 Nutrien Ag Solutions (“Retail”) Operations

Overview

Our Retail segment markets crop nutrients, crop protection products, seed and merchandise, as well as agronomic application services and solutions through more than 2,000 retail locations across the US, Canada, Australia and South America. In 2022, our total Retail sales represented 56 percent of our total consolidated sales (2021 – 64 percent). Retail's products and services are as follows:

Product	% of Retail Sales	Description
Crop nutrients	2022 – 47 2021 – 41	<ul style="list-style-type: none"> - dry and liquid macronutrient products, which include potash, nitrogen and phosphate, proprietary liquid micronutrient products, and nutrient application services, which are sold globally: <ul style="list-style-type: none"> o custom blended to suit specific nutrient requirements for each grower's field typically based on soil fertility tests or plant tissue sampling o custom crop nutrient application services using a large fleet of application equipment to apply these nutrients at prescribed rates
Crop protection products	2022 – 33 2021 – 35	<ul style="list-style-type: none"> - third-party supplier and proprietary products designed to maintain crop quality and manage plant diseases, weeds and other pests - private label and proprietary crop protection products through our Loveland Products, Inc. business across North America, South America and Australia

Product	% of Retail Sales	Description
Seed	2022 – 10 2021 – 11	<ul style="list-style-type: none"> - third-party supplier seed brands and proprietary seed product lines, which are sold globally - private label seed product line under the brand names Dyna-Gro® and Proven™ - proprietary seed product line in Brazil under the brand name Sementes Goiás - seed treatment applying chemicals to seeds prior to planting to protect them from pests and disease
Nutrien Financial	2022 – 1 2021 – 1	<ul style="list-style-type: none"> - flexible financing solutions offered to our customers in the US and Australia: <ul style="list-style-type: none"> o extended payment terms, typically up to one year, to facilitate alignment of grower crop cycles with cash flows - revenue primarily earned through interest and service fees charged to our Retail branches
Merchandise	2022 – 5 2021 – 6	<ul style="list-style-type: none"> - livestock-related merchandise including fencing, feed supplements, animal identification merchandise and various animal health products and services - storage and irrigation equipment and other products - primarily offered in Australia
Services and other	2022 – 4 2021 – 6	<ul style="list-style-type: none"> - custom application services, crop scouting and precision agriculture services, soil and leaf testing - precision application using global positioning system (“GPS”) technology, which allows nutrient application rates to be adjusted when required, based on GPS grid soil sample test results and other data - performance of soil and leaf testing for growers in the US - monitoring of crop disease conditions and irrigation requirements for high-value crops using a system of weather tracking stations in Western US - digital tools that provide customer account management, online ordering, agronomic insights and hands-on customer support that drive economic value and can provide environmental benefits for our growers, including our Echelon® precision agriculture offering, which includes services such as yield data mapping, record keeping, soil fertility management, variable-rate fertility and variable-rate seeding recommendations - various other services, including wool sales and marketing, livestock marketing and auction services, water services, insurance products, and real estate agency services in Australia - primarily offered in the US and Australia

Transportation, Storage and Distribution

We have an extensive infrastructure system to store and transport our Retail products, strategically located across distribution points in regions where we operate to serve our customers across the US, Canada, Australia and South America.

Number	Nature	Description
95	Terminals	<ul style="list-style-type: none"> - used to receive large quantities of crop nutrients for redistribution to Retail centers and to growers directly
33	Distribution centers	<ul style="list-style-type: none"> - used to effectively distribute crop protection products and seed - used to coordinate product supply to the Retail centers and allow us to manage inventory levels across our distribution network
2,113	Branches, satellites, others	
30,544	Vehicles and application equipment	

Supply chain management, utilizing our extensive storage and distribution network and transportation capabilities, allows us to efficiently deliver crop nutrients and seed products to our customers as growers have a short application and planting window, the precise timing of which is unpredictable due to both the seasonal nature of crop planting and the impact of weather. We regularly review our suppliers to maintain critical feedstocks, and we believe we can leverage our diverse retail distribution network and expansive fertilizer terminal network to effectively manage product logistic challenges.

Competitive Position

The market for Nutrien’s Retail products and services is highly competitive in the countries in which we operate. The principal competitors in the distribution of crop production inputs include agricultural co-operatives, other major agriculture retailers, and smaller independent retailers and distributors. Retail also produces a range of high-quality proprietary crop protection, seed and crop nutrient products that generate higher margins for our Retail segment. Retail offers a digital platform in North America that provides customer

account management and online ordering, and leverages field data to drive agronomic insights, which we believe drives economic value for our growers. We expect to continue to expand and enhance the functionality of our digital platform while growing its capabilities in Australia and South America, including introducing a digital platform for Nutrien Financial offerings and tools to advance our livestock agency business.

5.2 Potash Operations

Overview

Our Potash operations include the mining and processing of potash, which is predominantly used as fertilizer. The Saskatchewan Ministry of Energy and Resources has granted Nutrien the exclusive right to mine potash on approximately 383,000 hectares (or approximately 947,000 acres) of Crown land pursuant to subsurface mineral leases. Of the 383,000 hectares leased from the Crown, approximately 282,000 hectares comprise our Potash operations at the Allan, Cory, Lanigan, Patience Lake, Rocanville and Vanscoy mines. Leases also exist with freehold mineral rights owners within the Crown subsurface mineral lease areas and elsewhere in Saskatchewan.

Subsurface mineral leases with the Province of Saskatchewan are for 21-year terms, renewable at our option at each of our producing mines. Our subsurface mineral leases with other parties are also for 21-year terms. Such other leases are renewable at our option, provided generally that production is continuing and that there is continuation of the applicable lease with the Province of Saskatchewan.

The potash we produce in Canada for sale to destinations outside Canada and the US is sold exclusively to Canpotex Limited ("Canpotex"). Canpotex is owned in equal shares by us and another potash producer in Canada. Canpotex, which was incorporated in 1970 and commenced operations in 1972, acts as an export company providing integrated sales, marketing and distribution for all Canadian potash produced by its shareholders/producers that is exported to destinations outside the US and Canada. Each shareholder of Canpotex has an equal voting interest as a shareholder and a right to equal representation on the Canpotex board of directors. In 2022, our total Potash sales represented 22 percent of our total consolidated sales (2021 – 16 percent). Our total offshore sales in 2022 represented 66 percent of our total potash sales (2021 – 54 percent).

In general, Canpotex sales volumes are allocated among Canpotex producers based on production capacity. In 2022, Nutrien supplied approximately 64 percent of Canpotex's product supply requirements (2021 – approximately 67 percent). Canpotex sells potash to buyers in export markets pursuant to term and spot contracts at agreed upon prices. Canpotex has a long history of being a reliable supplier of potash to international markets and of proven logistics and marketing capabilities. Other major potash exporting countries include Russia, Belarus, Israel and Germany.

Transportation, Storage and Distribution

Transportation costs can be a significant component of the total cost of potash. Producers may have an advantage in serving markets close to their sources of supply depending on prevailing transportation costs. International shipping cost variances permit offshore producers to effectively compete with our potash production in many geographies.

Most of our potash for North American customers is shipped by rail. We believe we have a strategic advantage in this market with approximately 285 owned or leased potash distribution points and a fleet of approximately 5,900 owned or leased railcars as at December 31, 2022. We believe this is the most extensive domestic distribution network in the potash business. Shipments are also made by rail from each of our Saskatchewan mines to Thunder Bay, Ontario for shipment by lake vessel to our warehouses and storage facilities in Canada and the US.

In the case of our sales to Canpotex, Canpotex is responsible for managing and directing all aspects of its logistics infrastructure platform, including the transportation of its potash by way of rail to marine facilities where it is handled, stored and loaded onto ocean-going vessels. We have an equity interest in Canpotex Bulk Terminals Limited, which is a part owner of the marine facilities utilized by Canpotex in Vancouver, British Columbia. Canpotex also utilizes marine facilities in Portland, Oregon, Saint John, New Brunswick and Thunder Bay, Ontario.

Production Methods

We generally produce potash primarily using conventional mining methods, except for our Patience Lake mine, which was originally a conventional underground mine, but began employing a solution mining method in 1989. In conventional operations, shafts are sunk to the ore body, which is approximately one kilometer below the surface. Mining machines cut the ore, which is then hoisted to the surface for processing. The ore is a mixture of potassium chloride, salt and insoluble particles. In solution mining, the potash is dissolved in warm brine and pumped to the surface for processing. Removing salt and insoluble particles through a milling process produces saleable potash. Six grades of potash are produced to suit different preferences of the various markets we serve.

In 2022, our nameplate capacity represented 55 percent of the North American total capacity (based on our nameplate capacity, see the table below for further information) and our potash production represented 57 percent of North American production. We allocate production among our mines on the basis of various factors, including cost efficiency and the grades of product that can be produced.

The following table sets forth, for each of the past two years, the production of ore, mill feed grade and finished product for each of our potash mines in Saskatchewan.

	Annual Nameplate Capacity ¹	Annual Operational Capability ²		2022 Production			2021 Production		
		2023	2022	Ore (millions of tonnes)	Grade % K ₂ O	Finished Product (millions of tonnes)	Ore (millions of tonnes)	Grade % K ₂ O	Finished Product (millions of tonnes)
Rocanville	6.5	5.2	5.2	16.34	21.7	4.89	16.64	21.8	5.00
Allan	4.0	3.0	2.9	6.96	25.0	2.50	7.74	25.3	2.78
Vanscoy	3.0	1.4	1.3	3.03	25.2	1.01	2.98	26.3	1.05
Lanigan	3.8	3.1	2.8	7.55	24.8	2.46	9.22	23.9	2.91
Cory	3.0	2.2	2.1	6.07	23.3	1.89	5.77	22.7	1.77
Patience Lake	0.3	0.3	0.3	–	–	0.26	–	–	0.28
Totals ³	20.6	15.2	14.6	39.95		13.01	42.35		13.79

¹ Represents estimates of capacity as of December 31, 2022. Estimates are based on capacity as per design specifications or Canpotex entitlements once determined. Estimates do not necessarily represent operational capability.

² Estimated annual achievable production level at current staffing and operational readiness (estimated at beginning of year and may vary during the year and year-to-year including between our facilities). Estimate does not include inventory-related shutdowns and unplanned downtime.

³ 2022 average mineral grade of 23.36 percent potassium oxide (“K₂O”) mined and an average grade of 60.84 percent K₂O produced. Averages are weighted proportionately to tonnes produced at our conventional mines.

The mining of potash is a capital-intensive business subject to the normal risks and capital expenditure requirements associated with mining operations. The production and processing of ore may be subject to delays and costs resulting from mechanical failures and hazards, such as unusual or unexpected geological conditions, subsidence, water inflows, and other conditions involved in mining potash ore.

Competitive Position

Potash is a commodity, characterized by minimal product differentiation, and, consequently, producers compete based on price, quality and service. We price competitively, sell high-quality products and provide high-quality service to our customers. Our service includes maintaining warehouses, leasing railcars and chartering vessels to enhance our delivery capabilities. The high cost of transporting potash affects competition in various geographic areas.

In 2022, our principal competitors in North America included EuroChem Group AG, Intrepid Potash Inc., K+S Group, The Mosaic Company (“Mosaic”), ICL Group Ltd. (“ICL”) and PJSC Uralkali. In 2022, Canpotex competed with producers such as Arab Potash Company, PA Belaruskali, EuroChem Group AG, ICL, K+S Group, SQM and PJSC Uralkali. In 2022, potash production and exports from Eastern Europe were impacted by sanctions on Belarus and restrictions on Russia relating to the war between Ukraine and Russia, which have caused significant supply uncertainties in the marketplace.

Sources of Raw Materials

The production of potash requires a sustained fresh water supply for the milling process, which comes from nearby sources including subsurface aquifers, reservoirs and the Saskatchewan River.

5.3 Nitrogen Operations

Overview

We own and operate nitrogen production facilities at which we produce the following products:

Plant Locations	Nitrogen Products Produced
Augusta, Georgia	Ammonia, urea, urea ammonium nitrate (“UAN”), urea solutions, nitric acid and ammonium nitrate
Borger, Texas	Ammonia, urea and urea solutions
Carseland, Alberta	Ammonia and urea
Fort Saskatchewan, Alberta	Ammonia and urea
Geismar, Louisiana	Ammonia, UAN, urea solutions and nitric acid
Joffre, Alberta	Ammonia
Lima, Ohio	Ammonia, urea, UAN, urea solutions, nitric acid and ammonium nitrate
Point Lisas, Trinidad	Ammonia and urea
Redwater, Alberta	Ammonia, urea, ammonium nitrate liquor, UAN and ammonium sulfate

We operate a number of facilities that upgrade ammonia and urea to other products such as UAN, ammonium nitrate, nitric acid and Environmentally Smart Nitrogen® (“ESN®”).

Plant Locations	Nitrogen Products Produced
Carseland, Alberta	ESN®
Granum, Alberta	UAN
Kennewick, Washington	UAN, ammonium nitrate liquor and nitric acid
New Madrid, Missouri	ESN®
Standard, Alberta	UAN

Our owned and operated facilities have a combined annual gross ammonia nameplate capacity of approximately 7.1 million tonnes.

We also have a 50 percent joint venture ownership in Profertil S.A. (“Profertil”), a joint venture that owns a nitrogen facility in Bahia Blanca, Argentina.

Transportation, Storage and Distribution

We distribute our nitrogen products by vessel, barge, railcar and truck to our customers and, in high-consumption areas, through our strategically located storage terminals. In North America, as at December 31, 2022, we owned or leased approximately 190 nitrogen distribution points, as well as a fleet of approximately 5,500 leased railcars. We also lease dry and liquid storage capacity in Europe. These locations provide a network of field and production site storage capacity sufficient to serve local dealers during the peak seasonal demand period and are also used to provide off-season storage.

We distribute products from Trinidad primarily to markets in the US, South America, Europe and North Africa. We employ five long-term chartered ocean-going vessels and utilize short-term and spot charters as necessary for the transportation of ammonia for our marine distribution operations in Trinidad. All bulk urea production from Trinidad is shipped through third-party carriers. In addition, Profertil’s terminal on the Parana River includes a dedicated berth and two 100,000 tonne dry storage buildings in a key agricultural region of Argentina.

Production Methods

Ammonia is produced by taking nitrogen from the air and reacting it with a hydrogen source, usually natural gas reformed with steam. Carbon dioxide is produced in ammonia production in two primary ways – first, as a product of the chemical reactions involved and, second, as a product of burning fuels that generate the heat required to make those chemical reactions occur. In most plants, the carbon dioxide produced as a chemical by-product is captured and used as an input to urea production.

Ammonia is the feedstock used to produce a full line of upgraded products, including urea, ammonium nitrate, nitric acid and nitrogen solutions, including both UAN solutions and urea solution products, ammonium sulfate and ESN®. Urea is produced by combining ammonia with carbon dioxide (“CO₂”) and forming liquid urea, which can be further processed into a solid form. UAN solutions are liquid fertilizers that are produced by combining urea, liquid ammonium nitrate and water. Urea liquor is a urea liquid solution sold into the diesel exhaust fluid market. When combined with diesel in larger vehicles and machinery, it can improve fuel efficiency and reduce emissions. Urea liquid solutions are produced by combining liquid urea with water. Ammonium sulfate is produced by reacting ammonia and sulfuric acid, which is then granulated to form a solid granular product. We produce sulfuric acid from purchased sulfur

at our Redwater, Alberta facility. ESN® is a patented coated-fertilizer product that is made by coating the urea substrate with layers of polymers, allowing for more efficient delivery of nitrogen to the plant.

Ammonia, urea and nitrogen solutions are sold as fertilizers to agricultural customers and to industrial customers for various applications. Nitric acid and ammonium nitrate are sold to industrial customers for various applications. Urea is also sold for feed applications. ESN® is sold to agricultural customers. Urea solution is sold to industrial and agricultural customers.

Competitive Position

Nitrogen-based fertilizer is a global commodity, and customers, including end-users, dealers, and other fertilizer producers and distributors, base their purchasing decisions principally on the delivered price and availability of the product. The relative cost of, and availability of transportation for, raw materials and finished products to manufacturing facilities are also important competitive factors.

Within North America, transportation costs play a factor in regional price differences and we compete with other domestic producers, including CF Industries Holdings, Inc., CVR Partners, L.P., Koch Industries, Inc., LSB Industries, Inc., Incitec Pivot Ltd., OCI N.V., and Yara International ASA, and with imported product from suppliers in the Middle East, North Africa, Trinidad, Central and Eastern Europe, and Russia. In the offshore market, we compete with a wide range of offshore and domestic producers. Nitrogen is also an input into industrial production of a wide range of products. Many manufacturers want consistent quality and just-in-time delivery to keep their plants running.

Our North American plants are geographically well positioned to service agriculture, industrial and feed customers across Canada and the US. Our robust North American distribution network provides in-market support, during seasonal peak demand, ensuring timely product availability. Trinidad mainly supplies our international fertilizer and industrial customers.

Our US production has continued to benefit from the low cost of natural gas and, to a greater extent, our Western Canadian production, which utilizes natural gas indexed to the Alberta benchmark price, has also benefited from the low cost of natural gas. In Trinidad, the price at which we purchase natural gas varies primarily with ammonia market prices, and annual escalating floor prices. Ammonia and urea predominate our offshore sales of nitrogen and originate primarily from Trinidad, with other sales coming from purchased product locations. In 2022, our total Nitrogen sales represented 21 percent of our total consolidated sales (2021 – 19 percent). For 2022, our offshore sales of nitrogen products represented 29 percent (2021 – 22 percent) of our total nitrogen sales.

Sources of Raw Materials

Natural gas is the primary raw material used for producing ammonia, which is the base for virtually all nitrogen products. Our Joffre, Alberta facility uses hydrogen as its raw material to produce ammonia.

In North America, we may enter into natural gas hedging transactions with the goal of minimizing risk from volatile gas prices. We purchase most of our natural gas from producers or marketers at the point of delivery of the natural gas into the pipeline system, then pay the pipeline company and, where applicable, the local distribution company to transport the natural gas to our nitrogen facilities. Approximately 90 percent of our North American consumption of natural gas by our Nitrogen operations is delivered pursuant to firm transportation contracts, which do not permit the pipeline or local distribution company to interrupt service to, or divert natural gas from, the plant.

In Trinidad, natural gas is purchased under contract using a pricing formula related to the market price of ammonia. We are currently operating under a five-year gas supply contract, set to expire in 2023, which includes minimum take or pay requirements, to provide the entire Trinidad ammonia complex with approximately 90 percent of its expected requirements for 2019 through 2023. In 2022, the Trinidad facility received force majeure notices from its gas supplier and has been operating at reduced rates.

Profertil has various gas contracts denominated in US dollars that account for virtually all of Profertil's gas requirements. The gas contracts are renewed on a periodic basis and are scheduled to expire in December 2023. Negotiations are currently ongoing to renew these gas contracts. YPF S.A., our joint venture partner in Profertil, supplies approximately 70 percent of the gas under these contracts.

5.4 Phosphate Operations

Overview

Our Phosphate operations include the manufacture and sale of solid and liquid phosphate fertilizers, phosphate feed, and purified phosphoric acid, which is used in feed and industrial products. We have phosphate mines and mineral processing plant complexes in Aurora, North Carolina and White Springs, Florida. We also have three phosphate feed plants in the US.

Our Phosphate properties include:

Plant Locations	Primary Products Produced ¹
Aurora, North Carolina	MAP, SPA, liquid fertilizer, purified acid, merchant grade phosphoric acid ("MGA"), hydrofluorosilicic acid ("HFSA"), defluorinated merchant grade acid, low magnesium SPA ("LOMAG") and anhydrous hydrogen fluoride ("AHF") ²
Cincinnati, Ohio	Blended purified acid products
Joplin, Missouri	Animal feed
Marseilles, Illinois	Animal feed
Weeping Water, Nebraska	Animal feed
White Springs, Florida	SPA, MGA ³ , LOMAG, HFSA ⁴ , MAP and MAP MST

¹ The following scientific terms have the following meanings:

MAP monoammonium phosphate, 52 percent P₂O₅ (solid)
MAP MST sulfur enhanced MAP
SPA superphosphoric acid, 70 percent P₂O₅ (liquid)

² Production of AHF is expected to commence in the first half of 2023.

³ All of the MGA from White Springs is consumed internally in the production of additional products.

⁴ HFSA production commenced in January 2022.

We have long-term supply and offtake agreements with Itafos Conda LLC, which extend through 2023. Under these agreements, we expect to market an estimated 330,000 tonnes per year of MAP produced at Conda, Idaho.

We execute offshore marketing and sales of our solid phosphate fertilizer through PCS Sales (USA), Inc.

Transportation, Storage and Distribution

As at December 31, 2022, we had approximately 120 owned or leased phosphate distribution points and a fleet of approximately 5,000 owned or leased railcars. We have access to ocean-based shipping terminal capacity in North Carolina through which we store the Aurora facility's finished product. Most of our offshore phosphate sales are shipped through the terminal at Morehead City. We use barges and tugboats to transport solid products and phosphoric acid between the Aurora facility and shipping terminals. Raw materials and products, including sulfur, are also transported to and from the Aurora facility by rail and truck.

Sulfur is delivered to the White Springs facility by rail and truck from Canada and the US. Most of the phosphoric acid and chemical fertilizers produced at the White Springs facility are shipped to North American destinations by rail. Ammonia for the Aurora and White Springs facilities is supplied by rail and truck from our production facilities in Lima, Ohio and Augusta, Georgia.

Production Methods

We extract phosphate ore using surface mining techniques. At each mine site, the ore is mixed with recycled water to form a slurry, which is pumped from the mine site to our processing facilities. The ore is then screened to remove coarse materials, washed to remove clay and floated to remove sand to produce phosphate "rock." The annual production capacity of our mines is currently 7.4 million tonnes of phosphate rock. During 2022, the Aurora facility's total production of phosphate rock was 3.43 million tonnes and the White Springs facility's total production of phosphate rock was 1.42 million tonnes. The sequence for mining portions of the Aurora property was identified in the permit issued by the US Army Corps of Engineers in June 2009. The permit authorizes mining in excess of 20 years, although the mine life has been estimated at 20 years at current production rates. Phosphate rock is the major input in our phosphate processing operations. Substantially all the phosphate rock produced is used internally for the production of phosphoric acid, SPA, chemical fertilizers, purified phosphoric acid and animal feed products.

In addition to phosphate ore, the other principal raw materials we require are sulfur and ammonia. We produce sulfuric acid at the Aurora and White Springs facilities from purchased sulfur.

Our Phosphate operations purchase all their ammonia at market rates from or through our Nitrogen sales subsidiaries. Phosphoric acid is reacted with ammonia to produce MAP and MAP MST as well as liquid fertilizers.

We produce MGA at our Aurora and White Springs facilities. Some MGA from the Aurora facility is sold to foreign and domestic fertilizer producers and industrial customers. We further process the balance of the MGA to make solid fertilizers (MAP), liquid fertilizers, animal feed supplements for the poultry and livestock markets, and purified phosphoric acid for use in a wide variety of food, technical and industrial applications.

Competitive Position

Markets for phosphate fertilizer products are highly competitive and based largely on price, reliability and deliverability. Significant low-cost capacity has been commissioned over the past few years, most notably in Morocco and Saudi Arabia. The ability of these countries to add low-cost capacity and operate under less restrictive environmental regulation is resulting in a long-term oversupply in the global market. Our principal advantages at the Aurora and White Springs facilities are that we produce higher-value, diversified products and that we operate integrated phosphate mine and phosphate processing complexes. Our in-market distribution network ensures product supply during peak demand periods.

Our key competitors for North American phosphate fertilizer sales are Mosaic, J.R. Simplot Company, and offshore imports primarily from Mexico, Russia, Australia, Saudi Arabia and various other smaller importers. A petition for countervailing duties filed in 2020 by Mosaic with the US Department of Commerce led to Morocco and Russia stopping shipments to the US and a resultant increase in phosphate fertilizer prices. A final ruling on this matter was issued in March 2021, with the US Department of Commerce issuing countervailing duty orders on imports of phosphate fertilizers from Morocco and Russia, which will remain in place for at least five years.

In offshore markets, we compete primarily with OCP S.A. ("OCP") from Morocco and other producers from Africa, China, the Middle East and Russia. In 2022, our total Phosphate sales represented 7 percent of our total consolidated sales (2021 – 7 percent). For 2022, our offshore sales of phosphate products represented 20 percent (2021 – 11 percent) of our total phosphate sales.

Within the animal feed supplement business in the Phosphate segment opportunities exist to differentiate products based on nutritional content. We have a significant presence in the domestic feed supplement market segments. We compete with Mosaic, J.R. Simplot Company, OCP, and Chinese and Russian producers for feed sales.

Industrial products are the least commodity-like of the phosphate products as product quality is a more significant consideration for customer buying decisions. We market industrial phosphate products principally in the US and we compete with ICL, Innophos Holdings, Inc., Prayon Group, Emaphos and Chinese producers for North American industrial sales.

Sources of Raw Materials

Phosphate rock is the major input in our phosphate processing operations and is mined at our Aurora and White Springs facilities.

In addition to phosphate ore, the other principal raw materials we require are sulfur and ammonia. The production of phosphoric acid requires substantial quantities of sulfur, which we purchase from third parties. Any significant disruption in our sulfur supply to the phosphate facilities could adversely impact our financial results. We produce sulfuric acid at the Aurora and White Springs facilities from purchased sulfur. Ammonia for our Aurora facility is supplied by rail and truck from our production facilities in Lima, Ohio and Augusta, Georgia. Ammonia for our White Springs facility is primarily supplied by truck from our Augusta nitrogen plant.

5.5 Specialized Skill and Knowledge

We believe our success is dependent on the performance of our management and key operational employees, many of whom have specialized skills and knowledge relating to the retail, potash, nitrogen and phosphate industries, and to the conduct of the Retail, Potash, Nitrogen and Phosphate operations. We believe that we have adequate personnel with the specialized skills and knowledge to successfully carry out our business and operations.

5.6 Intangible Properties

We have registered and pending trademarks and patents in Canada, the US and other countries where our products are sold. In addition, it has been our practice to seek patent protection for inventions and improvements that are likely to be incorporated into our products, where appropriate, and to protect the freedom to use our inventions in our manufacturing processes. We consider several factors in assessing the materiality of our patents including, but not limited to, scope and breadth of claims, sales volumes of products incorporating the technology, strategic importance, and patent duration.

While these trademarks and patents constitute valuable assets, we do not regard any single trademark or patent as being material to our operations as a whole. See Note 14 of the 2022 Consolidated Financial Statements for disclosure on estimated useful lives of intangible assets.

5.7 Seasonality

The agricultural products business is seasonal. Crop input sales are generally higher in the spring and fall application seasons. Crop nutrient inventories are normally accumulated leading up to each application season. Our cash collections generally occur after the application season is complete, while customer prepayments made to us are concentrated in December and January and inventory prepayments paid to our vendors are typically concentrated in the period from November to January. Feed and industrial sales are more evenly distributed throughout the year. See “Risk Factors” below for a description of the risks related to seasonality.

5.8 Environmental Matters

Our operations are subject to numerous environmental requirements under federal, provincial, state and local laws, regulations and permits of the countries in which we operate. These laws, regulations and permits govern matters such as air emissions, wastewater discharges, land use and reclamation, groundwater quality, soil and groundwater remediation, and solid and hazardous waste management. Many of these laws, regulations and permit requirements continue to become increasingly stringent, and the cost of compliance with these requirements can be expected to increase over time.

Future environmental capital expenditures are subject to a number of uncertainties, including changes to environmental laws and regulations and interpretations by regulatory authorities or changes in circumstances affecting the Company’s operations. At this time, we are unable to estimate the capital expenditures we may make in future years to meet pollution prevention and emissions control objectives, as well as other environmental requirements.

Environmental Requirements, Permits and Regulatory Approvals

Many of our operations and facilities are subject to a variety of regulatory requirements, permits and approvals, all of which vary depending on the specific operation. Licenses, permits and approvals at operating sites are obtained in accordance with applicable laws and regulations, which may limit or regulate: operating conditions, rates and efficiency; land, water and raw material use and management; product storage, quality and transportation; waste storage and disposal; and emissions and other discharges. Additional legal requirements may apply where site impacts predate the current applicable regulatory framework, where remediation is ongoing or where there is otherwise evidence that historic remediation activities have not been successful in minimizing impacts to the environment. These additional requirements may result in an environmental remediation liability that must be mitigated.

We believe that we are currently in material compliance with existing regulatory requirements, permits and approvals. Permits and approvals are typically required to be renewed or reissued periodically. We may also become subject to new laws or regulations that impose new requirements or require us to obtain new or additional permits or approvals; however, there can be no assurance that such permits or approvals will be issued in the ordinary course of operations. Further, the terms and conditions of future regulations, permits and approvals may be more stringent and may require increased expenditures by the Company.

Air Quality

With respect to air emissions, we anticipate that additional actions and expenditures may be required to meet increasingly stringent federal, provincial and state regulatory and permit requirements in the areas in which we operate, including existing and anticipated regulations under the US federal *Clean Air Act*. We continue to monitor developments in these various programs and assess their potential impact on our operations. In 2015, we entered a consent decree with the US Environmental Protection Agency (“EPA”) that requires reductions in sulfur dioxide emissions at specified sulfuric acid plants with the final compliance dates occurring in 2020. All such emission limits have been met by the dates specified in the consent decree schedule. As such, we have requested termination of the sulfuric acid consent decree.

In Canada, the *Multi-Sector Air Pollutant Regulations* (“MSAPR”) were issued in 2016. These regulations established oxides of nitrogen (“NOx”) emission standards for gas-fired boilers, heaters and stationary spark-ignition engines. Facilities must ensure regulated equipment meets mandated emission standards by either 2026 or 2036, depending on the equipment’s baseline emission levels. Our Canadian nitrogen and potash facilities operate equipment subject to the regulations. Equipment testing is ongoing to assess the baseline emission levels in order to determine if any equipment will require replacement or modification. Testing has confirmed that boiler replacement is required by 2026 at one of our Potash facilities. In 2019, we replaced a boiler at our Redwater nitrogen facility with a low-NOx alternative and installed a new MSAPR-compliant ammonia loadout heater at the Fort Saskatchewan nitrogen facility in 2021.

In late 2022, a medium pressure condensate stripper was installed in the ammonia plant at the Carseland Nitrogen facility. This project is expected to reduce NOx and ammonia emissions at the Carseland facility.

Water Quality

There are international, federal, provincial and state regulatory initiatives underway that may result in new regulatory restrictions on discharges of nutrients, including discharges of nitrogen and phosphorus to waters in the US ("Nutrient Criteria"). There are also ongoing litigation efforts in several jurisdictions of the US that seek to require US environmental agencies to develop new Nutrient Criteria. These litigation and regulatory proceedings may result in new Nutrient Criteria that apply to water discharges from several of the Company's facilities in the US. Some of the proposed restrictions imposed through Nutrient Criteria also have the potential to require our customers to reduce or eliminate their uses of the Company's products. These Nutrient Criteria could have a material effect on either the Company or its customers, but the impact is not currently predictable or quantifiable with reasonable certainty because many of these initiatives are in relatively early stages and compliance alternatives may be available that do not create material impacts. We are closely monitoring and evaluating the impact of these initiatives on our operations.

Waste Management

In 2003, the US EPA began investigating the phosphate industry as part of its National Enforcement Initiative regarding the mineral processing industry. The purpose of the EPA's National Enforcement Initiative is to ensure that waste resulting from mineral processing is managed in accordance with regulations under *The Resource Conservation and Recovery Act*, which is the US federal statute that governs the generation, transportation, treatment, storage and disposal of hazardous wastes. The EPA is also evaluating the mineral processing industry's compliance with the *Emergency Planning and Community Right to Know Act* and the *Comprehensive Environmental Response, Compensation and Liability Act of 1980* ("CERCLA").

Several of the Company's phosphoric acid production facilities have received notices of violation or entered orders with the EPA as a result of the EPA's National Enforcement Initiative. These facilities include the Aurora, North Carolina, White Springs, Florida, and Geismar, Louisiana facilities, as well as the Conda, Idaho Phosphate production facility divested in 2018, for which we retain environmental liabilities attributable to our historic activities. Nutrien settled with the EPA and the Louisiana Department of Environmental Quality at our former Geismar phosphoric acid production facility in October 2022. We are negotiating with the EPA and the relevant state environmental agencies to resolve the outstanding matters relating to the other facilities, and these negotiations are ongoing. In these negotiations, we are seeking to minimize the costs and impacts to our future operations consistent with applicable legal requirements, including financial assurance for the future closure, maintenance and monitoring of phosphogypsum stack systems. The full scope of the costs that we may ultimately incur to bring these matters to a conclusion could be material to our operations but are not currently predictable or quantifiable with reasonable certainty. See Note 29 of the 2022 Consolidated Financial Statements for additional information.

Asset Retirement Obligations

Provisions are recognized when: (i) the Company has a present legal or constructive obligation as a result of past events; (ii) it is probable that an outflow of resources will be required to settle the obligation; and (iii) the amount can be reliably estimated.

The major categories of our asset retirement obligations include reclamation and restoration expenditures at our Potash and Phosphate mining operations (phosphate mining, in particular), including the management of materials generated by mining and mineral processing, such as: various mine tailings and phosphogypsum stacks; land reclamation and revegetation programs; decommissioning of underground and surface operating facilities; general clean-up activities aimed at returning the areas to an environmentally acceptable condition; and post-closure care and maintenance.

The estimation of the costs of asset retirement obligations depends on the development of environmentally acceptable closure and post-closure plans. In some cases, this may require significant research and development to identify preferred methods for such plans that are economically sound and that, in most cases, may not be implemented or completed for several decades. We continue to use appropriate technical resources, including outside consultants, to develop specific site closure and post-closure plans in accordance with the requirements of the various jurisdictions in which we operate.

Asset retirement obligations are generally incurred over an extended period. As of December 31, 2022, we had accrued a total of \$1,187 million for asset retirement obligations, the current portion of which totaled \$165 million. For additional information, see Note 22 of the 2022 Consolidated Financial Statements.

Site Assessment and Remediation

We are also subject to environmental statutes that may require investigation and, where appropriate, remediation of impacted properties. Canadian federal and provincial laws as well as CERCLA and other US federal and state laws impose liability on, among others, past and present owners and operators of properties or facilities at which hazardous substances have been released into the environment. Liability under these laws may be imposed jointly and severally and without regard to fault or the legality of the original actions, although such liability may be divided or allocated according to various equitable and other factors. We have incurred and

expect to continue to incur costs and liabilities in respect of our current and former operations, including those of divested and acquired businesses. We have generated and, with respect to our current operations, continue to generate substances that could result in liability for us under these laws.

As at December 31, 2022, we had accrued environmental costs of \$450 million for expenditures associated with site assessment and remediation, including consulting fees, related to the clean-up of impacted sites currently or formerly associated with the Company or its predecessors' businesses. As at December 31, 2022, the current portion of these costs totaled \$69 million. The accrued amounts include the Company's and its subsidiaries' expected final share of the costs for the site assessment and remediation matters to the extent future outflow of resources is probable and can be reliably estimated. For additional information, see Note 22 of the 2022 Consolidated Financial Statements.

It is often difficult to estimate and predict all of the potential costs and liabilities, including natural resource damages, associated with our current and former operations, and there is no guarantee that we will not in the future be identified as potentially responsible for additional costs associated with our operations, either as a result of changes in existing laws and regulations or as a result of the identification of additional matters or properties subject to environmental costs. For certain matters, we are unable to make a reliable estimate of the amount and timing of any financial effect in excess of the amounts accrued for various reasons including: complexity of the matters; early phases of most proceedings; lack of information on the nature and timing of future actions in the matters; dependency on the completion and findings of investigations and assessments; and the lack of specific information as to the nature, extent, timing and cost of future remediation with respect to those matters. Until we have greater clarity as to our liability and the extent of our financial exposure, it is not practicable to make a reliable estimate of the financial effect. For additional information, see Note 29 of the 2022 Consolidated Financial Statements.

Climate Change and GHG Emissions

Nutrien generates GHG emissions directly and indirectly through the production, distribution and use of its products. Some of these emissions are subject to climate change policies and regulations, all of which are developing in unique ways within various federal, provincial and state jurisdictions. Increasing regulation of GHG emissions may impact our operations by requiring changes to our production processes or increasing raw material, energy, production or transportation costs in order to ensure compliance. There are also significant differences in the climate change policies of countries where Nutrien operates as only some are parties to the Paris Agreement, negotiated in December 2015, under the United Nations Framework Convention on Climate Change. Furthermore, even when Nutrien operates in a country that is a party to the Paris Agreement, different jurisdictions have different compliance obligations.

Sources of GHG emissions from our production operations include emissions from the reforming of natural gas to produce hydrogen, which is used to synthesize ammonia, as well as process emissions from some of our nitric acid plants. We estimate that the production stage of our operations accounts for approximately 95 percent of our overall Scope 1 and Scope 2 GHG emissions. Approximately two-thirds of the natural gas required to produce ammonia – the basic building block of all nitrogen fertilizer – is used to provide the necessary hydrogen for the process. The remaining one-third is used as fuel to provide heat for the ammonia production process. Given current economically viable technologies, the CO₂ emissions related to this process are fixed by the laws of chemistry and cannot be reduced. We have developed strategies to attempt to improve energy efficiency in our production operations, capture and store carbon, generate lower-carbon energy, and reduce the amount of N₂O emissions from our nitric acid facilities. We are also investing in developing new precision agriculture technologies and agronomic services that are expected to improve the efficiency of fertilizer applications within our Retail operations, so more grain can be produced with the same amount of fertilizer and with reduced impact to the environment. We are also investing in initiatives focused on autonomous mining and tele-remote mining, and other advanced technologies to continue to reduce our environmental impact, and improve our safety performance, lower our production costs, and optimize throughput.

Our Canadian manufacturing facilities are primarily located in the provinces of Alberta and Saskatchewan and are subject to a variety of federal and provincial requirements to reduce GHG emissions ranging from carbon taxes to emissions intensity reduction requirements. We attempt to minimize our Canadian compliance costs through the implementation of various efficiency and emissions reduction projects, including: overall efforts to increase operational efficiency; operating a cogeneration facility in partnership with TransCanada Energy Ltd., a subsidiary of TC Energy Corporation, at Carseland, Alberta that captures waste heat and produces emission performance credits; operating a cogeneration facility in partnership with SaskPower at our Cory, Saskatchewan potash mine that captures waste heat and provides all of the mine's steam requirements; and the implementation of the Quantification Protocol for Agricultural Nitrous Oxide Emissions Reduction designed to generate emission offset credits for Alberta growers who reduce their N₂O emissions. We have also partnered with Enhance Energy Inc. to supply CO₂ from the Redwater Nitrogen facility to the Alberta Carbon Trunk Line to be captured and used for enhanced oil recovery in Central Alberta. The project began its first CO₂ injection in December 2019 and continues to supply CO₂ for enhanced oil recovery. The Redwater facility sent approximately 160,000 tonnes of CO₂ to the Alberta Carbon Trunk Line in 2022.

In 2018, Canada enacted the *Greenhouse Gas Pollution Pricing Act* ("GGPPA"), which establishes minimum standards for carbon pricing that makes up part of Canada's strategy for meeting its commitments under the Paris Agreement. The GGPPA is designed to

act as a backstop to apply in provinces that do not establish their own carbon pricing systems that meet the minimum federal stringency criteria. The GGPPA is comprised of two parts: a federal fuel charge that was CAD\$50 per tonne of carbon dioxide equivalents (“CO₂e”) in 2022 (“Federal Fuel Charge”), and an output-based pricing system (“OBPS”) for large industrial emitters. The Federal Fuel Charge applies to all carbon-based fuels in provincial jurisdictions that have not implemented their own provincial carbon tax. Similarly, the federal OBPS applies in those provinces that have not enacted systems deemed equivalent to the federal OBPS. Large emitting facilities regulated under an acceptable OBPS are exempt from the Federal Fuel Charge. On October 29, 2022, the Canadian federal government issued an Order that amended Schedule 4 of the GGPPA. Under the Order, the Federal Fuel Charge will increase by an additional CAD\$15 per CO₂e tonne per year for the years 2023 to 2030, resulting in a Federal Fuel Charge of CAD\$65 in 2023 and a final Federal Fuel Charge of CAD\$170 per CO₂e tonne in 2030.

Nutrien is currently evaluating Geismar, Louisiana as the site to build potentially the world’s largest clean ammonia facility. Building on the Company’s expertise in low-carbon ammonia production, the facility, if built, is intended to manufacture clean ammonia using innovative technology. The project is currently in the front-end engineering design phase, with a final investment decision expected to follow in the second half of 2023. If approved, construction of the approximately US\$2 billion facility is anticipated to begin in 2024 with full production expected by 2027. The new clean ammonia plant is expected to leverage low-cost natural gas, tidewater access to world markets, and high-quality carbon capture and sequestration infrastructure at the Company’s Geismar, Louisiana facility to serve growing demand in agriculture, industrial and emerging energy markets. The plant is expected to have an annual production capacity of 1.2 million metric tonnes of clean ammonia and capture at least 90 percent of CO₂ emissions, permanently sequestering more than 1.8 million metric tonnes of CO₂ in dedicated geological storage per annum. The new plant is expected to use autothermal reforming technology to achieve the lowest carbon footprint of any plant at this scale as of the date hereof and has the potential to transition to net zero emissions with future modifications.

Application of Federal Fuel Charge in Alberta and Saskatchewan

As of January 1, 2023, Ontario, Manitoba, Saskatchewan, Alberta, Yukon and Nunavut have the Federal Fuel Charge in place, while the remaining provinces and territory have provincial/ territorial fuel levies.

Application of Federal OBPS in Alberta and Saskatchewan

As of January 1, 2023, the federal OBPS applies in Manitoba, Prince Edward Island, Saskatchewan (for electricity generation and natural gas transmission only), Yukon and Nunavut, while the other provinces and territory have provincial/territorial systems that have been deemed equivalent to the federal OBPS. In 2018, the Province of Saskatchewan proclaimed the *Management and Reduction of Greenhouse Gases Act*, which provided the authority to establish a provincial output-based emissions management framework. This legislation, along with its supporting regulations, was considered to meet the stringency criteria of the federal GGPPA for large industrial facilities. As such, all six of our potash facilities received exemptions from the federal GGPPA fuel charge. Under the Saskatchewan framework, potash facilities must achieve a 5 percent emissions intensity reduction from a site-specific three-year baseline by 2030. Beginning in 2019, the facility intensity baseline benchmark will decline 0.42 percent per year until the full 5 percent intensity reduction target is established in 2030. All six of our potash facilities submitted third-party verified baseline applications in 2019, which were subsequently approved by the Saskatchewan Ministry of Environment in the fall of 2020. The 2019 emissions year was the first compliance year under the Saskatchewan output-based framework, and our 2019 potash facility emission returns were submitted in the fourth quarter of 2020 and approved in the fourth quarter of 2021. The 2020 emissions returns were submitted in the fourth quarter of 2021 and subsequently approved by the Saskatchewan Ministry of Environment in the third quarter of 2022. Emission returns and compliance payments will be submitted every second year per the provincially established Emissions and Compliance Return Schedule. As the Saskatchewan provincial framework that will create a credit trading system and provincial technology fund for meeting emission compliance obligations is still under development as of December 1, 2022, details around payment and credit options are not yet fully known; however, our aggregated potash compliance obligation for the 2019 and 2020 emission years are due on February 28, 2023 and will be a maximum of CAD\$848,000. The compliance obligation for the 2021 emission year is estimated to be a maximum of CAD\$483,000 based on the 2021 regulated carbon price of CAD\$40 per CO₂e tonne. Emissions for 2022 are still subject to final data collection and third-party verification, but the associated compliance obligation for 2022 is estimated to be approximately CAD\$270,000.

In Alberta, large emitters (industrial facilities emitting over 100,000 tonnes of CO₂e per year) have been subject to emissions reduction requirements and a GHG pricing system in various forms since 2007. The current large emitter regime is the *Technology Innovation and Emissions Reduction (“TIER”) Regulation*, which has been in place since January 1, 2020. Under this program, facilities that emit 100,000 tonnes or more of CO₂e per year are subject to the less stringent of a product-specific high-performance benchmark based on the emissions intensity of the most efficient facilities, or a facility-specific benchmark based on a 10 percent emissions intensity reduction relative to the facility’s own historical baseline. The stringency of facility-specific benchmarks increased by 1 percent annually through 2022. Following a regulatory review and December 2022 amendment to the TIER Regulation, a 2 percent annual tightening rate will be applied to facility-specific benchmarks and high-performance benchmarks beginning in 2023. The tightening rate does not apply to industrial process emissions, which are fixed by chemistry and cannot be reduced through efficiency improvements. The TIER Regulation has been deemed equivalent to the federal OBPS under the GGPPA. Emissions in excess of the facility emission benchmark allowance are subject to a compliance obligation, including use of provincially generated offset or

performance credits, or payment into a TIER fund. In 2022, the carbon price for TIER fund payments was CAD\$50 per CO₂e tonne. This cost will rise by CAD\$15 per year to \$170 by 2030, consistent with the Federal Fuel Charge schedule. By aligning TIER compliance costs with the Federal Fuel Charge rate schedule, large emitting facilities are not subject to the Federal Fuel Charge.

Under TIER, facilities that emit less than 100,000 tonnes of CO₂e per year but compete with facilities subject to TIER, or facilities that belong to an energy intensive trade exposed sector regulated under TIER, may opt into the TIER program. Nutrien's Joffre ammonia facility opted into the TIER program, which grants it an exemption from the Federal Fuel Charge on purchased fuels. Since the Joffre facility manufactures ammonia using a hydrogen by-product feedstock supplied by an industrial neighbor rather than producing it on site from a natural gas feedstock using an emission intensive steam methane reforming process, Joffre is able to generate emission performance credits as its emissions intensity is below the Alberta TIER ammonia intensity benchmark. These credits can be banked and used to offset a portion of future TIER compliance obligations for Nutrien's other Alberta-based large emitter facilities.

Our TIER compliance reports and payment for 2022 are due by June 30, 2023. Emission quantification and compliance costs are subject to third-party verification prior to submission, and as such are not yet finalized; however, our aggregated TIER compliance costs for 2022 are estimated to be approximately CAD\$12.2 million. This estimate is based on the emissions information available at the time of this report. Actual final costs may vary following collection and verification of the full year emission and production data in Q2 2023.

In June of 2022, the Canadian federal government implemented a federal Clean Fuel Standard through the enactment of the *Clean Fuel Regulations* ("CFR"). The CFR applies to liquid fuels beginning in 2023. The CFR has been designed to incentivize the development and use of lower-carbon fuels. Nutrien is tracking the development of the Federal Clean Fuel Standard, CFR and associated compliance obligations and expects to remain engaged through the consultation process.

In the US, the EPA has issued GHG emissions regulations that establish a reporting program for emissions of CO₂, methane and other GHGs, as well as a permitting program for certain large GHG emissions sources. Several legislative bills have passed or are proposed that offer incentives for clean hydrogen production and carbon sequestration, which could impact sustainability efforts. Some US states have also enacted laws concerning GHG emissions that we are monitoring for impacts on our operations.

The impacts of climate change and future restrictions on emissions of GHGs on the Company's operations could be material but cannot be determined with any certainty at this time.

Facility and Product Security

Our Global Security department works closely with our Safety, Health and Environment department, to regularly evaluate and address actual and potential security issues and requirements associated with our operations in the US and elsewhere using approved security vulnerability methodologies. In accordance with our safety management process, additional actions and expenditures may be required in the future to address identified vulnerabilities, particularly those with the potential to violate applicable regulatory standards. In the US, chemical facilities are regulated under the *Maritime Transportation Security Act*, the *Chemical Facility Anti-Terrorism Standards* and the *Food Safety Modernization Act (Mitigation Strategies to Protect Food Against Adulteration)*. It is anticipated that the US Congress will continue to maintain federal legislation designed to reduce the risk of terrorist acts using chemicals produced and stored at our facilities, and to ensure food security. We believe that we are in material compliance with applicable security requirements, and have developed and adopted security measures and enhancements beyond those presently required at both our regulated and non-regulated facilities. To date, neither the security regulations nor our expenditures on security matters have had a material adverse effect on our financial position or results of operations. We are unable to predict the potential future costs of any new governmental programs or voluntary initiatives.

5.9 Employees

At December 31, 2022, we employed approximately 24,700 employees. The approximate breakdown of employees is as follows:

Business Unit	Number of Employees
Retail	16,100
Potash	3,100
Nitrogen	1,800
Phosphate	1,500
Corporate	1,900
Shared services group ¹	300
Total	24,700

¹ Our shared services group provides sales and logistics services to our Potash, Nitrogen and Phosphate operations.

We have entered into 13 collective bargaining agreements with labor organizations representing our employees. The following table sets forth the plant locations where we have entered into collective bargaining agreements and their respective expiry dates.

Plant Location	Collective Bargaining Agreement Expiry Date
Allan, Saskatchewan	April 30, 2022 ¹
Cory, Saskatchewan	April 30, 2022 ¹
Lanigan, Saskatchewan	January 31, 2024
Patience Lake, Saskatchewan	April 30, 2022 ¹
Regina, Saskatchewan	December 31, 2024
Regina, Saskatchewan	December 31, 2024
Rocanville, Saskatchewan	May 31, 2023
Vanscoy, Saskatchewan	April 30, 2023
Mulberry, Florida	May 31, 2024
White Springs, Florida	March 3, 2025
Greenville, Mississippi	August 27, 2025
Cincinnati, Ohio	November 1, 2024
Lima, Ohio	October 31, 2027

¹ The terms of this collective bargaining agreement, including new expiry date, remain under renegotiation as of the date hereof.

In jurisdictions such as Italy, Australia and Brazil, employees are self-represented through other forms of collective bargaining such as enterprise award agreements or work councils. We believe we have an effective working relationship with our employees, and the unions representing them.

5.10 Social and Environmental Policies

Environmental, Social and Governance

In 2021, we published our Feeding the Future Plan, which highlighted six priority sustainability commitments that we aim to achieve by the year 2030. We believe we will create lasting change and sustainably feed a growing population by committing to working with growers to feed the planet sustainably, reducing our environmental footprint and taking climate action while promoting inclusive agriculture. These commitments demonstrate our desire to drive innovation in agriculture and deliver positive value to our stakeholders and our planet. We believe Nutrien is uniquely positioned to drive sustainability across the agricultural value chain for economic, social and environmental outcomes.

We also reported our climate strategy in 2021 with clear short- and long-term reduction targets for Scope 1 and 2 GHG emissions, demonstrating our support of the Paris Agreement goals and our commitment to the Science Based Targets initiative (“SBTi”) to set a science-based target. We continue to work with the World Business Council for Sustainable Development, fertilizer peers and the SBTi to produce a sectoral decarbonization approach for the fertilizer industry.

In addition to our six sustainability commitments, we provided key ESG goals and targets in our 2022 ESG Report, helping to drive short- and medium-term action and provide support for our longer-term 2030 commitments. We continue to move forward on our existing commitments and targets and expect to provide additional targets in the future for developing key issues applicable to Nutrien. Both the Feeding the Future Plan and the 2022 ESG Report can be viewed on the Company’s website at www.nutrien.com. We expect to release our 2023 ESG Report, which will focus on our integrated ESG topics, performance and key initiatives for the year ending December 31, 2022, in March 2023.

In June 2022, Nutrien held an Investor Update for shareholders and other stakeholders, with our leadership team speaking to our sustainability strategy, commitments and action taken to date. A key focus of the Investor Update was Nutrien’s identified climate-related opportunities and a discussion on how they are integrated across our operations.

See the “Risk Factors” section below for a description of the risks related to our ESG targets and initiatives.

Code of Conduct

Nutrien’s most important assets are our employees, customers, shareholders, value-chain partners, suppliers and the communities in which we operate. It is critical that we maintain the trust of each of these stakeholders. Our Code of Conduct (“Code”) ¹ helps us fulfill our responsibilities by: committing to the public and our stakeholders our uncompromising integrity in every aspect of our

¹ In September 2021, we published an updated Code (formerly called the Code of Ethics) to better align our business-oriented approach with our commitments to our stakeholders. We also updated our approach to safety, speaking up and compliance investigation principles. Further, we created a standalone Conflicts of Interest Policy that leveraged content that was previously in the Code of Ethics and guidance on our intranet.

business; describing our values and principles of business conduct, including our own high standards and fundamental respect for the rule of law; guiding employees on how to engage in integrity-based decision making in all of our operations around the world; and outlining our approach to interacting the right way with stakeholders and acting in the best interest of shareholders. The Code also outlines our commitment to the safety of people and protection of the environment.

We actively promote integrity through the Code and numerous supporting policies, which are reinforced by risk assessments, due diligence procedures, training and our speaking up process. In 2022, all Nutrien employees received formal training on the Code and other compliance-related topics. Our confidential 24-hour, 365 days a year, externally administered Integrity Helpline ¹ complements other methods of speaking up that enable employees to report any violations or suspected violations of the Code and other associated Nutrien policies, or any behavior that does not comply with applicable laws. The Code also clearly sets out our no-retaliation policy, which is designed to enable employees to raise good faith issues in a safe environment without fear of retaliation.

Anti-Corruption Policy

We operate in a wide range of jurisdictions and are vigilant and proactive in detecting and preventing corruption. Our Anti-Corruption Policy requires those who work on behalf of Nutrien to ensure that their own conduct fulfills Nutrien's commitment to compliance with all applicable anti-bribery and anti-corruption laws. It applies to Nutrien's directors, officers, employees, representatives, consultants, and other agents of Nutrien and each of its subsidiaries and in every country where we do business.

Nutrien maintains an anti-corruption program that includes:

- identifying high-risk third parties, including acquisition targets and potential joint venture partners, and conducting appropriate diligence;
- incorporating anti-corruption clauses in contracts and/or obtaining certifications that include anti-corruption language for high-risk third parties;
- requiring anti-corruption training and other risk mitigation steps where appropriate, such as annual certification or continued monitoring to identify and address any potential issues; and
- maintaining appropriate books and records and an appropriate system of internal accounting controls.

Workplace Policies

We have adopted a robust Strategic Inclusion Plan with a workplace and workforce component that focuses on becoming representative across all job categories. Representation is focused on a match-to-market model including a variety of diversity dimensions, with a particular focus on women and Indigenous Peoples. In order to reach our goal of being representative of the communities in our operating territories across all job categories, we are focused on building capacity in our talent attraction and succession planning processes to ensure competency in our people to execute, particularly functional and people leaders. We are taking action to address physical and industry cultural barriers to ensure a welcoming workplace where all employees feel they are respected, valued and belong. We implemented a Respect in the Workplace Policy and an Equal Employment and Affirmative Action Policy. Implementation of our Strategic Inclusion Plan is supported by training and workshops, employee resource groups, and ongoing monitoring of internal and external employment trends (new hires, promotion and turnover) for under-represented employee groups and outside opportunities for attracting talent. We are committed to playing a leadership role in our industries, contributing to more equitable outcomes through opportunities not only in our workforce but also in all areas where we have opportunity for impact, including our supply chain, communities, industries, and society. Cascading responsibilities and accountabilities to become representative across all job categories and the removal of physical and industry cultural barriers for participation are integrated into our processes. We benchmark our inclusion maturity using a comparison of our practices to the Global Diversity and Inclusion Benchmark model as a basis for continuous improvement.

Supplier Code of Ethics and Procurement Procedure

Our Supplier Code of Ethics ("Supplier Code") is aligned with our commitment to the 10 principles of the United Nations Global Compact and international standards. The Supplier Code identifies the values that we expect our suppliers to embrace and applies to suppliers that provide products or services to us around the world.

Commitment by our suppliers to the principles of the Supplier Code is significant in our decision-making process. Our Legal and Integrity teams provide guidance and support to the business regarding risk-based due diligence for suppliers, which includes ensuring that appropriate language is included in contracts with various suppliers and appropriate requirements regarding our Supplier Code are communicated. Where suppliers refuse to follow the principles of the Supplier Code or show signs that they are not committed to improving their practices to comply with its principles, Nutrien will review its relationship with the supplier. Where contractual commitments and applicable laws permit, this review may include termination of our relationship with the non-compliant supplier.

¹ The Integrity Helpline was previously called the Compliance Hotline.

We are also committed to supporting diversity and inclusion throughout the procurement process. Our procurement policies and procedures – including our Procurement Diversity and Inclusion Procedure – are designed to ensure that fair consideration is given to all potential suppliers. We have developed an Indigenous Content Playbook to assist suppliers in developing local Indigenous content in their own organizations and supply chains. In addition, we work with Indigenous opportunity partner companies to provide contracting opportunities at our worksites. We believe in building and maintaining relationships of mutual respect with Indigenous communities through our procurement practices and extend this further by providing employment and training opportunities and community investments.

Safety, Health and Environment (“SH&E”) Policy

We are committed to the care and protection of our people, environment, community and customers. We honor that commitment by making safety a core value of our organization, as we grow our world from the ground up.

Under our SH&E Policy, our goals are to:

- protect our people, assets, facilities, communities and environment;
- proactively prevent incidents and minimize risk by continuously improving our safety, health and environmental performance;
- promote employee physical and mental health and well-being; and
- drive excellence in safety, health and environment across our operations and supply chain.

We strive to accomplish these goals through our SH&E Vision “Everyone home safe, every day,” which brings our SH&E Strategy (Culture of Care) and Actions (Nutrien Way) to life, guiding daily actions and behaviors. Nutrien ensures leaders, and their teams, are well supported with SH&E expertise and resources to help everyone go home safe, every day.

Our SH&E culture continues to evolve, purposefully focused on “Growing a Culture of Care” rallying around four pillars: Lead, Collaborate, Challenge and Trust as our consistent base. Nutrien’s SH&E management further focuses on people, systems, processes and tools to accomplish continual improvement.

SH&E performance, measurement, analysis and continuous improvement occur with engagement at multiple organizational levels. The Safety and Sustainability Committee of the Board (the “S&S Committee”) has responsibility for the oversight of the Company’s activities as they relate to ensuring that appropriate policies, systems, and personnel are in place to support safe and sustainable operations and the long-term viability of the Company, including its consideration of stakeholders relevant to the creation and preservation of long-term value. This oversight includes the ongoing monitoring and development of the Company’s ESG strategy and incorporates safety, environmental stewardship, health, climate change-related risks and opportunities, cybersecurity, and data privacy. The S&S Committee directly reports to and advises the Board on these matters. The S&S Committee oversees the Company’s general strategy, policies, resources, and initiatives relating to safety as appropriate. The S&S Committee meets on a recurring basis to monitor performance against annual and longer-term performance goals, and discusses plans, strategies, and processes, in addition to reviewing our SH&E systems. Policies and strategy are reviewed annually for relevance and modified as appropriate. Committees meet on a recurring basis to monitor performance against annual and longer-term performance goals, and discuss plans, strategies and processes, in addition to evaluating opportunities for improving our SH&E systems.

Leadership, commitment, resource allocation, responsibility, communication, learning and technology are examples of our continually evolving SH&E systems. Nutrien provides further details in its defined SH&E policies, programs and processes addressing specific hazards, risks, operations and tasks.

We lead through the integration of an SH&E management system, including methods of governance, expectations, reference documentation and communication. This infrastructure provides consistency while permitting flexibility to encompass our diversity of operations, risks and geographies. Our business units and, where appropriate, individual facilities reinforce management system expectations through further evaluation, elimination, mitigation and controls necessary to manage risks unique to their operations. Development of SH&E systems, guidance, standards and continuous improvement occurs at the business unit level through operational committees integrated with the central SH&E teams. Performance and risk management conditions are continuously identified, evaluated, addressed and communicated throughout our organization.

Technical support and assurance for our operations are managed at multiple levels within the organization, including central or corporate, business unit, and site levels. We share responsibility for maintaining integrated systems, performance monitoring, providing technical expertise and conducting business unit SH&E audits. The use of an integrated and structured assurance program enables us to achieve continuous improvement and consistent management practices at our facilities and in our operations. In addition to a central SH&E team providing a consistent resource across our organization, we have established SH&E organizations in each business unit with clear lines of responsibility, accountability and visibility. This central and distributed structure enables us to focus on both oversight and governance as well as direct engagement in our operations and activities.

We maintain global, ongoing working relationships with multiple industry associations and regulatory agencies. These relationships ensure new or changing regulations are identified, understood, evaluated and communicated in advance of change. Industry association relationships enhance our risk management compliance with regulatory expectations and provide opportunities to share best practice, innovation and leading SH&E enhancement technologies.

5.11 Risk Factors

Our performance and our future operations are and may be affected by a wide range of risks. The following section describes our key risks and uncertainties. Any or all of these risks, or other risks not presently known to us or that we do not consider material, could have a material adverse effect on our business, financial condition, results of operations, cash flows, value of our common shares and debt securities and, in certain cases, our reputation.

Shifting market fundamentals may result in a prolonged agriculture downturn

Global macroeconomic conditions and shifting market fundamentals, including trade tariffs and restrictions and increased price competition, or a significant change in agriculture production or consumption trends, could lead to a sustained environment of reduced demand for our products, and/or low commodity prices.

We are subject to intense price competition from both domestic and foreign sources, including state-owned and government-subsidized entities. Crop nutrients, including potash, nitrogen and phosphate, are global commodities with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service and product quality. Historically, selling prices for our products have fluctuated in response to periodic changes in global and regional supply and demand conditions. Supply is affected by available capacity and operating rates, raw material costs and availability, government policies and global trade that could adversely affect our operating results.

Periods of high demand, high-capacity utilization and increasing operating margins tend to result in investment in production capacity, which may cause supply to exceed demand and capacity utilization and realized selling prices for our products to decline, resulting in possible reduced profit margins. Such conditions could also include writedowns in the value of our assets, and temporary or permanent curtailments of production. Competitors and potential new entrants in the markets for potash, nitrogen and phosphate have in recent years expanded capacity, begun construction of new capacity, or announced plans to expand capacity or build new facilities. The extent to which current global or local economic and financial conditions, changes in such conditions, or other factors may cause delays or cancellation of some of these ongoing or planned projects or result in the acceleration of existing or new projects, is uncertain. Future growth in demand for our products may not be sufficient to absorb excess industry capacity. Furthermore, our business is cyclical, which can result in periods of industry oversupply during which our results of operations may be negatively impacted, as the price at which we sell our products typically declines during such period, resulting in possible reduced profit margins, and could include writedowns in the value of our assets and temporary or permanent curtailments of production.

We are impacted by global market and economic conditions that could adversely affect agriculture commodity trade flows and demand for crop nutrients or increase prices for, or decrease availability of, raw materials and energy necessary to produce our products. These conditions include international trade disputes (including withdrawal from or modification to existing trade agreements, negotiation of new trade agreements, non-tariff trade barriers, local content requirements, and the imposition of new or retaliatory tariffs), international crises or risks thereof (including the continued volatility in the global market resulting from the ongoing Ukraine and Russia war and the COVID-19 pandemic), rising incomes in developing countries, the relative value of the US dollar and its impact on the importation of fertilizers, foreign agricultural policies, and the existence of, or changes in, import or foreign currency exchange barriers in certain foreign markets, and other regulatory policies of foreign governments, as well as the laws and policies affecting foreign trade and investment.

The current war between Ukraine and Russia and the international response has, and may continue to have, potential wide-ranging consequences for global market volatility and economic conditions, including energy and commodity prices. Certain countries including Canada, the United States, Australia and certain European countries have imposed strict financial and trade sanctions against Russia, with Russia and Belarus imposing retaliatory sanctions of their own, which have had, and may continue to have, far-reaching effects on the global economy, energy and commodity prices, food security, and crop nutrient supply and prices. The short-, medium- and long-term implications of the war in Ukraine are difficult to predict with any degree of certainty at this time. While Nutrien does not have operations in Ukraine or Russia, there continues to remain uncertainty relating to the potential impact of the conflict and its effect on global food security, growers, and the market outlook for crop nutrient market supply and demand fundamentals and nutrient prices, and it could have a material and adverse effect on our business, financial condition and results of operations. Depending on the extent, duration, and severity of the conflict, it may have the effect of heightening many of the other risks Nutrien is subject to and which are described herein.

Trade disputes, tariffs and other restrictions may lead to volatility in commodity prices, disruptions in historical trade flows and shifts in planting patterns that could have an adverse effect on our business, financial condition and results of operations. Additionally, some of our customers require access to credit to purchase our products and a lack of available credit to customers in one or more countries, due to this deterioration, could adversely affect demand for crop nutrients as there may be a reluctance to replenish inventories in such conditions.

Significant changes and trends in agriculture could adversely impact our business

The agricultural landscape continues to evolve at an increasingly fast pace as a result of factors including, but not limited to, farm and industry consolidation, agricultural productivity, technology developments, sustainability practices, climate change, and social trends, many of which vary from jurisdiction to jurisdiction.

Farm consolidation in the US and other developed markets has been ongoing for decades and is expected to continue as grower demographics shift and advancements in innovative technology and equipment enable growers to manage larger operations to create economies of scale in a lower-margin, more capital-intensive environment. Consolidation in the crop nutrient industry has resulted in greater resources dedicated to expansion, research and development opportunities, leading to increased competition in advanced product offerings and innovative technologies. Some of our competitors have greater total resources than us or are state-supported, which make them less vulnerable to industry downturns and better positioned to pursue new expansion and development opportunities.

The advancement and adoption of technology and digital innovations in agriculture and across the value chain have increased and are expected to further accelerate as grower demographics shift and pressures from consumer preferences, governments and climate change initiatives evolve. The development of seeds that require less crop nutrients, development of full or partial substitutes for our products, or developments in the application of crop nutrients such as improved nutrient use or efficiency through use of precision agriculture could also emerge, all of which have the potential to adversely affect the demand for our products and our financial condition, results of operations and cash flows.

Further, digital innovations and use of new technology in the agriculture market, among other things, by new or existing competitors could alter the competitive environment, resulting in existing business models being disrupted, which may adversely impact our Retail operations and financial performance.

Agriculture is dependent on a healthy ecosystem to sustain our global food supply. Growers are dealing with an increasing focus on sustainability in the agriculture industry including changing consumer behavior and preferences, food supply chain ethics and transparency and traceability, soil health and nutrient preservation, regulatory requirements such as potential nutrient application, diminishing biodiversity, and GHG emissions, among other things.

The impact of climate change on our operations and those of our grower customers remains uncertain. The physical risks associated with climate change include changing rainfall patterns, water shortages, wildfires, rising sea levels, changing storm patterns and intensities, increasing temperature levels, drought, loss of biodiversity, and deforestation. These risks vary by geographic location and could include acute risks resulting from increased severity of extreme weather events and chronic risks resulting from longer-term changes in climate patterns. Climate change may also affect the availability and suitability of arable land and contribute to unpredictable shifts in the average growing season and types of crops produced.

These factors as well as other factors affecting long-term demand for our products and services (such as population growth and changes in dietary habits) could adversely impact our strategy, demand for our products and financial condition, financial performance, results of operations and cash flows.

Climate change may have an adverse effect on our business

Our business and our customers are subject to risks related to or resulting from climate change, which are commonly grouped into physical risk and transition risk categories.

Physical risks include the impact that climate change could have on our operations, our grower customers, and our supply chain. Climate change may cause or result in, among other things, more frequent and severe weather events, such as storms, floods, heat waves, droughts, and/or changing weather factors such as changing temperatures, precipitation, wind, and water levels. Chronic physical impacts from climate change may also affect the availability and suitability of arable land, including crop quality and soil health, and contribute to loss of biodiversity and unpredictable shifts in the average growing season and types of crops produced and/or crop yields, which could impact the long-term demand for our products and services. The results of climate change may also affect the water levels of certain waterways used in our supply chain network. Freshwater availability is critical to our operations and our grower customers, but localized challenges exist regarding availability and quality of water, which may be intensified by the effects of climate change. Physical risks from climate change may also result in operational or other supply chain delays, depending on the

nature of the event. These events may impact the demand for our products, availability and/or cost of transportation and distribution, resource inputs, materials or insurance, or increase the costs to our operations or capital projects.

Transition risks relate to the risk inherent in changing strategies, policies or investments as society and industry work to reduce the reliance on carbon and impact on the climate. Impacts of transition risks include, among other things, policy constraints on carbon emissions, imposition of carbon pricing mechanisms and carbon taxes, enhanced reporting obligations, risks associated with investments in new technologies, costs to transition to lower emissions technologies, stranded assets, diminished access to capital and financing, water restrictions, land use restrictions or incentives, changing consumer behavior and preferences, and market demand and supply shifts. There are also reputational risks associated with climate change including our stakeholders' perception of our role, strategies and capital allocation decisions relating to the transition to a lower-carbon economy.

There can be no assurance that our efforts to anticipate the costs associated with mitigating the physical risks of climate change and working with governments and industry on potential regulatory requirements associated with climate change will be effective or that climate change or related governmental policy action in response to climate change will not have an adverse impact on our business and negatively impact our strategy, financial condition, results of operations, and/or cash flows, and our reputation and stakeholders' support.

See the discussions under "Significant changes and trends in agriculture could adversely impact our business", "Our business may be adversely affected by changing regulations" and "We may fail to meet our GHG emissions and/or other sustainability and climate targets" for further consideration of the potential impacts of climate-related events on demand for our products, on our operations and on the regulatory environment we operate within.

Our business may be adversely affected by changing regulations

We are subject to numerous federal, state, provincial and local environmental, health and safety laws and regulations, including laws and regulations relating to land, water and raw material use and management; the emission of contaminants to the air or water including GHG emissions; land reclamation; the generation, treatment, storage, transportation, disposal and handling of hazardous substances and wastes; the clean-up of hazardous substance releases; royalties and taxes (including income taxes); and the demolition of existing plant sites upon permanent closure. Specifically, our mining and manufacturing processes release CO₂ and other GHGs and consume energy generated by processes that result in GHG emissions.

We incur significant costs and associated liabilities in connection with our compliance with these laws and regulations, and violations of environmental, health and safety laws can result in substantial penalties, court orders, civil and criminal sanctions, permit revocations, investigations, and facility shutdowns. There are substantial uncertainties as to the nature and timing of any future regulations with many of the laws and regulations continuing to become increasingly stringent, and the cost of compliance can be expected to increase over time. New or revised laws or regulations may result from pressure on lawmakers and regulators to address climate change, product stewardship or product use concerns, transition to a low-carbon economy, or to address concerns related to fertilizer and food prices, accidents, terrorism or transportation of potentially hazardous substances. Increased or more stringent laws or regulations, including protectionist policies in certain jurisdictions or for the benefit of favored industries or sectors, if enacted, or re-interpretation of current laws and regulations, could impact our ability to produce, sell, apply, use or transport certain products, increase our raw material, energy, transportation, and compliance costs, reduce our efficiency, require us to make capital improvements to our facilities, and have a negative effect on our customer satisfaction, reputation and financial performance. Our costs to comply with, or any liabilities under such laws and regulations could have a material adverse effect on our business, financial condition, results of operations and cash flows. To the extent that such regulations, including GHG emissions restrictions, are not imposed in the countries where our competitors operate or are less stringent than regulations that may be imposed in the US, Canada or the other jurisdictions in which we operate, our competitors may have cost or other competitive advantages over us.

We hold numerous environmental, mining and other governmental permits and approvals authorizing operations at each of our facilities. Continuation and/or expansion of our operations is dependent upon renewing or securing the necessary environmental or other permits or approvals. A decision by a government agency to deny or delay issuing a new or renewed material permit or approval, or to revoke or substantially modify an existing permit or approval, could materially adversely affect our ability to continue operations at the affected facility.

Various stakeholders, including legislators and regulators, shareholders, and non-governmental organizations, as well as companies in many business sectors, including Nutrien, are continuing to examine ways to reduce GHG emissions. New or current regulation of GHG emissions could result in additional costs to Nutrien in the form of taxes or emission allowances, facilities improvements, energy costs, compliance costs or otherwise, which, in turn, could increase Nutrien's operational costs. In addition, the regulation of GHG emissions may cause increased input costs and compliance-related costs for agricultural customers, which could result in lower demand for our products and reduced revenues. Because the impact of any future GHG-related legislative or regulatory requirements on Nutrien's business and products is dependent on the timing and design of such requirements, in different jurisdictions, Nutrien is unable to predict with any certainty the potential impact on it at this time.

We are subject to antitrust laws in various countries throughout the world. A significant portion of our business activities are conducted in countries under existing trade agreements and regulations. Changes in antitrust laws, trade agreements or regulations may limit our operations or the operations of Canpotex and could negatively impact opportunities for future acquisitions or organic growth.

We are also subject to taxes in jurisdictions where we are organized or conduct business. Tax rates in the various jurisdictions in which we operate may be subject to significant change. Taxation matters, including changes in tax laws or rates, adverse determinations by taxing authorities, and imposition of new taxes could adversely affect our strategy, financial condition, results of operations and cash flows.

Our information technology systems, infrastructure and data may become the target of cybersecurity attacks

Information technology systems and operational control systems are embedded in our business and as we advance our digital platform and capabilities, financial lending programs and process automation systems, we may become more exposed to cyberattacks, which continue to become increasingly sophisticated. Further, increased reliance on third-party service providers, cloud-based platforms, and remote working arrangements have required adjusted tactics to respond to a changing threat landscape and may result in increased cybersecurity risk exposure. Cybersecurity risks include attacks on information technology and infrastructure by hackers, damage or loss of information due to viruses, ransomware events, the unintended disclosure of confidential information and/or personally identifiable information, the misuse or loss of control over computer control systems, business and/or supply chain disruptions, and related breaches (intentional or otherwise).

Targeted attacks on our systems (or on systems of third parties that we rely on), failure or non-availability of key information or operations technology systems (whether our own systems or systems of third parties that we rely on), or a breach in security measures designed to protect our technology systems could result in property damage, theft, misuse, modification and destruction of information, including trade secrets and confidential business information and/or personally identifiable information, and cause business disruptions, reputational damage, extensive personal injury, and third-party claims, which could negatively impact our operations and our financial performance.

Nutrien collects certain personally identifiable information and other data integral to parts of its business processes and activities. This information and other data is subject to a variety of US, Canadian, and foreign laws and regulations, including oversight by various regulatory or other governmental bodies, and laws and regulations concerning the collection and use of such information and other data obtained from their residents or by businesses operating within their jurisdictions. Any inability, or perceived inability, to adequately address privacy and data protection concerns, even if unfounded, or to comply with applicable laws, regulations, policies, industry standards, contractual obligations or other legal obligations (including at newly acquired companies) could result in additional cost and liability to Nutrien or its officials, damage our reputation, inhibit sales, and otherwise adversely affect our business.

Our operations may be affected by political, economic and social instability

We are a global business with significant operations in Canada and the US as well as operations outside of North America, including Australia, South America, European countries and Trinidad, with an expanding presence in Brazil. We also hold equity investments primarily in China and Argentina.

We are subject to numerous risks and uncertainties relating to international sales and operations, including: difficulties and costs associated with complying with a wide variety of complex laws, treaties and regulations; abrupt or unexpected changes in regulatory environments; conflicting cultural practices and business practices; increased government regulation of the economy and/or state ownership of enterprises; changes in tax or royalty laws and regulations; forced divestitures or changes to or nullification of existing agreements, mining permits or leases; political and economic instability in areas in which we operate or elsewhere, including the possibility for civil unrest, inflation (including volatile and/or high inflation levels), supply chain disruptions and adverse economic conditions resulting from governmental attempts to reduce inflation, such as imposition of higher interest rates and wage and price controls; nationalization of properties or assets by foreign governments; the imposition of tariffs, limitations on the repatriation of earnings and exchange controls (including, but not limited to those in Argentina), international trade sanctions, embargoes, barriers or other restrictions; restrictions on monetary distributions; public health crises, including the ongoing COVID-19 pandemic, and actions taken and measures imposed by government or regulatory bodies in connection therewith; and currency exchange rate fluctuations between the US dollar and foreign currencies.

The occurrence of any of the above risks and uncertainties in the countries in which we operate or elsewhere could jeopardize or limit our ability to transact business and could adversely affect our revenue and operating results and the value of our assets located in such countries.

Our governance and compliance processes, which include the review of internal control over financial reporting and specific internal controls in relation to offers of things of value to government officials and representatives of state-owned enterprises, may not prevent

potential violations of law including anti-corruption or anti-bribery laws, accounting, or governance practice. Our Code, together with our mandatory policies, such as our anti-corruption and anti-fraud policies, may not prevent instances of fraudulent behavior and dishonesty nor guarantee compliance with legal or regulatory requirements. This may lead to regulatory fines, disgorgement of profits, litigation, loss of operating licenses or reputational damage.

We may fail to attract and retain talent and/or develop the right organizational culture and resources

Our ability to attract and retain qualified top talent and provide the necessary organizational structure, programs, and culture to engage and develop our employees, including providing a respectful, inclusive and diverse workplace, is crucial to our growth and achieving our business results.

Although we strive to be an employer of choice, competition for skilled employees in certain geographical areas can be significant and we may not be successful in attracting, developing or retaining such skilled employees. We could experience increases in our recruiting and training costs, and decreases in our operating efficiency, productivity, and financial performance if we are not able to attract, hire and retain a sufficient number of skilled employees to support our operations. Our success also depends in part on certain skilled employees and the loss of their services could have a material adverse effect on our business, financial condition, and results of operations.

In addition, we invest significant time and expense in training our employees, which increases their value to competitors who may seek to recruit them. Failure to develop the right organizational structure or culture or promote and foster a respectful, diverse, and inclusive workplace could result in decreased productivity, reliability, efficiency and safety performance, higher costs, or reputational harm. It could also negatively impact our ability to attract and retain employees, take on new projects or acquisitions and sustain operations, or meet diversity and inclusion goals, which might negatively affect our operations or our ability to grow.

We may fail to maintain the support of our stakeholders for our business plans

The nature of our business makes it crucial to maintain a strong reputation and positive relationships with key stakeholders, including shareholders, customers, our employees, suppliers, landowners, local and Indigenous communities, and governments, among others. Damage to our reputation can occur from our actual or perceived actions or inactions and a range of events and circumstances, including through our supply chain, many of which are out of our control. This includes with the media and in social media, which has made it easier for individuals and groups to share their opinions of us and our activities, whether accurate or not.

Our reputation as a company doing business with integrity is essential to building and maintaining trusting relationships with stakeholders, as well as reducing our legal and financial risk. Damage to our reputation could result in, among other things, a decrease in the value of our common shares and debt securities, decreased investor confidence, challenges in attracting and retaining talent, challenges in maintaining positive relations with the communities in which we operate and other important stakeholders, and increased risks in developing our resources, any of which could have a material adverse effect on our operations, projects and financial position.

Our stakeholders may place an increasing importance on the structure of our business, our ability to execute on our strategy, the customers, growers, and suppliers we do business with, and our core sustainability, social, biodiversity, and product stewardship responsibilities. Underperformance due to weak market fundamentals or business issues, inadequate communication, engagement and/or collaboration with our stakeholders, inadequate management of climate change, biodiversity, or other environmental or social issues, inadequate management of our products or supply chain, or dissatisfaction with our practices or strategic direction, including our capital allocation priorities and those directed to address ESG matters, may lead to a lack of support for our business plans. Loss of stakeholder confidence impairs our ability to execute on our business plans, negatively impacts our ability to produce and/or sell our products, and may also lead to reputational and financial losses, and negatively impact our access to or cost of capital or shareholder action.

We may be unable to access sufficient, cost-effective or timely transportation, distribution, and storage of our products or our supply chains may be disrupted

We rely on dependable and efficient transportation services, the disruption of which could result in difficulties supplying materials to our facilities and/or impair our ability to deliver products to customers in a timely manner. We rely on railroad, trucking, pipeline, access to navigable rivers and waterways, and other transportation service providers to transport raw materials to our manufacturing facilities, to coordinate and deliver finished products to our storage and distribution system and our Retail centers, and to ship finished products to our customers.

Our ability (or the ability of the third parties upon which we rely) to provide sufficient, cost-effective or timely transportation and storage of product may be challenged due to a number of factors, including labor disputes, system failures, accidents (such as spills or derailments), delays, supply chain interruptions, adverse weather or other environmental events, including high or low river water conditions and others related to climate change, adverse operating conditions (including aging transportation infrastructure, railroad capacity constraints, or changes to rail or ocean freight systems), swings in demand for our products, increased shipping demand for other products, adverse economic conditions, a change in our export, sales or marketing company relationships, or otherwise. This could result in delays and increased costs, lost revenue, and reputational damage with our customers.

If certain key raw materials, parts and/or supplies used in our processing operations are not available, our business could be disrupted. Certain factors which may impact the availability of raw materials and supplies are out of our control including, but not limited to, disruptions resulting from weather, economic conditions, geopolitical factors, manufacturing delays or disruptions at suppliers' facilities or supplier operations, shortage of materials, interruption of energy supply, and unavailable or poor supplier credit conditions.

In addition, there remains uncertainty relating to the potential impact that the COVID-19 pandemic could ultimately have on our supply chain. The COVID-19 pandemic could create significant supply chain challenges and disruptions, and/or limit our ability to timely sell or distribute our products in the future, which could negatively impact our business.

We may fail to effectively redeploy capital to achieve sustained growth

Challenges may arise in the capital allocation process due to changing market conditions, including the unavailability, due to geopolitical, market or other reasons, of appropriate capital deployment opportunities, and our ability to anticipate and incorporate such changes in our decision-making process. Inefficiencies in the capital allocation process or decisions that are not consistent with strategic priorities or that do not properly assess risk may also lead to inefficient deployment of capital. Failure to allocate capital in an effective manner may lead to reduced returns on capital invested, operational inefficiencies, damage to our reputation or limitations on our access to capital.

When we undertake any strategic initiatives, our ability to achieve the expected returns and other benefits will be affected by our degree of preparedness and ability to execute.

- We have undertaken and continue to undertake various projects including capital and business process improvement and transformation projects, including those intended to lower our GHG emissions intensity. These projects involve risks, including (but not limited to) changing market conditions, difficult environmental conditions, poor project prioritization and capital allocation, factors negatively impacting costs (such as escalating costs of labor and materials, unavailability and underperformance of skilled personnel, suppliers of materials or technology and other third parties we retain, design flaws or operational issues, or poor project management oversight) or poor transition through project stages. Any of the foregoing risks could impair our ability to realize the benefits we had anticipated from the projects and negatively impact our financial performance.
- With respect to any completed and future acquisitions, we are dependent upon our ability to successfully consolidate functions and integrate operations, technology, systems, procedures, and personnel of acquired businesses in a timely and efficient manner. The integration of assets and operations requires the dedication of management effort, time and resources, which may divert management's focus and resources from other strategic opportunities or operational matters during the process. The integration process with respect to any completed or future acquisitions may result in the disruption of our existing business and customer relationships, which may adversely affect our ability to achieve the anticipated synergies and other benefits and may, in turn, negatively affect our financial performance.
- We also continue to evaluate the potential disposition of assets and operations that may no longer help us meet our objectives. When we decide to sell assets or operations, we may encounter difficulty in finding buyers or executing alternative exit strategies on acceptable terms or in a timely manner, which could delay the accomplishment of our strategic objectives.

We may fail to maintain high levels of safety and health or to protect the environment

Our operations are subject to hazardous safety, health and environmental risks inherent in mining, manufacturing, transportation, storage and distribution of chemical fertilizers, including ammonia, which is highly toxic and corrosive. These risks include: incidents relating to operation of equipment and exposure by personnel to thermal, electrical, mechanical, chemical, gravitational, pneumatic and hydraulic operations, maintenance activities and road transportation/travel; underground water inflows at our potash mines; explosions; fires; severe weather and natural disasters; train derailments, collisions, vessel groundings and other transportation and maritime incidents; leaks and ruptures involving storage tanks, pipelines and railcars; spills, discharges, and releases of toxic or hazardous substances or gases; uncontrolled tailings, gypsum stack or other containment breaches; significant subsidence from mining activities; and deliberate sabotage and terrorist incidents. Additionally, other hazards specific to our Nitrogen and Phosphate operations include but are not limited to: engulfment; hydrogen sulfide ("H₂S") exposures; contact with electrical conductors; hazards associated with reclamation activities inclusive of work around bodies of water; and work at height hazards/fall protection exposure

prevention. We also have personnel who work or travel in higher-risk countries and are subject to increased safety and security risks as a result.

The potash mining process is complex and subject to certain geological conditions and hazards, including the presence of certain gases, such as those containing H₂S, and the presence of water-bearing strata above and below many underground mines, which pose the risk of water inflows. It is not uncommon for water inflows of varying degrees to occur in potash mines. While it is difficult to predict if, when or to what degree such inflows could occur, we are able to better predict and prepare for mine-threatening inflows with the use of 3D seismic and accompanying mining guidance standards. At our Saskatchewan potash mines we experienced water inflows that are being monitored and managed, as appropriate. An increase to the frequency and/or significance of inflows at our potash mines could result in increased operational costs, increased risk of personal injury, production delays or stoppages, the abandonment and closure of a mine, and/or damage to our reputation. The risk of underground water inflows, as with most other underground risks, is currently not insured.

Failure to identify, proactively mitigate or appropriately respond to a safety, health or security incident could result in injuries or fatalities among our employees, contractors or residents in communities near our operations. Such incidents may lead to liabilities arising out of personal injuries or death, operational interruptions, regulatory intervention, such as stop work orders, citation, restrictions or other enforcement actions, and shutdown or abandonment of affected facilities. Preventing or responding to incidents could require us to expend significant managerial time and effort, and financial resources to remediate safety issues, compensate injured parties or repair damaged facilities. Any of the foregoing could have an adverse impact on our ability to produce or distribute product, our financial results, and our reputation. Failure to prevent an environmental incident could impact the biodiversity, water resources, and related ecosystems near our operations, cause personal injury and significant environmental damage, and result in significant fines or penalties. Such incidents could also adversely impact our operations, financial performance or reputation.

We may fail to meet our GHG emissions and/or other sustainability and climate targets

We set a target to reduce our GHG emissions in nitrogen production by one million tonnes CO₂e by the end of 2023 and also set a target to reduce our Scope 1 and Scope 2 GHG emissions intensity of our operations by at least 30 percent by 2030 (based on a 2018 baseline year). Our ability to lower GHG emissions on both an absolute basis and in respect of our 2030 emissions intensity reduction target is subject to numerous risks and uncertainties, and our actions taken in implementing these objectives may also expose us to certain additional and/or heightened financial and operational risks.

A reduction in GHG emissions is dependent on, among other things, our ability to deploy sufficient capital to fund the expenditures to implement the necessary operational changes required to achieve our target; our ability to implement requisite operational changes; our ability to implement some or all of the technology necessary to efficiently and effectively achieve expected future results, including in respect of our GHG emissions reduction target, and the availability of requisite technological advances; the commercial viability and scalability of GHG emissions reduction strategies and related technology and products; and the development and execution of implementing strategies to meet our GHG emissions reduction target.

With respect to our other climate and sustainability targets, our ability to achieve those targets is also subject to numerous risks and uncertainties and our actions taken in implementing our objectives may also expose us to certain additional and/or heightened financial and operational risks. Our ability to achieve our various ESG performance goals and climate and sustainability targets relies on, among other things, our ability to deploy sufficient capital to fund the expenditures to implement the necessary operational changes to achieve these targets; our ability to implement requisite operational changes; our ability to implement some or all of the technology necessary to efficiently and effectively achieve expected future results; the commercial viability and scalability of required technology and products; development and growth of end market demand for sustainable products and solutions; the performance of third parties; and the development and execution of implementing strategies to meet such targets.

In the event that we are unable to implement our GHG emissions reduction and/or other climate and sustainability strategies and technologies as planned or in the event that such strategies or technologies do not perform as expected, we may be unable to meet our GHG emissions reduction targets or goals or other ESG, climate and sustainability targets on the current timelines, or at all. In addition, the cost associated with achieving our GHG emissions reductions targets and other climate and sustainability targets could be significant, and could require significant capital expenditures and resources, potentially including the acquisition of technology, with the potential that the costs required to achieve our targets could differ from our original estimates and expectations, which differences may be material. The overall cost of investing in and implementing an emissions reduction strategy and technologies in furtherance of such strategies, and the resultant change in the deployment of our resources and focus, could have a material adverse effect on our business, financial condition, and results of operations. There is also a risk that some or all of the expected benefits and opportunities of achieving the various GHG emissions reduction, climate and other sustainability goals, including as a result of a transition project or technology acquisition, may fail to materialize within the anticipated time periods or at all.

Failure to achieve our emissions, climate or sustainability targets could have a negative impact on our reputation, business, cash flows, results of operations, and on our access to, and cost of, capital.

An inability to successfully manage the implementation of our new enterprise resource planning system

As part of our digital transformation, we are implementing a new enterprise resource planning (“ERP”) system. This system will replace many of our existing operating and financial systems. Such an implementation is a major undertaking, both financially and from a management and personnel perspective. Any disruptions, delays or deficiencies in the design and implementation of our new ERP system could adversely affect our ability to process orders, ship products, provide services and support, send invoices and track payments, fulfill contractual obligations, or otherwise operate our business and affect our internal controls over financial reporting.

Our business and operations are subject to other general and ongoing risks, most of which are outside our control

Adverse weather conditions may decrease demand for our products or delay grower purchases

Our business and our customers are impacted by weather patterns and conditions including storms, floods, heat waves, droughts and other events. Adverse conditions, including as a result of climate change, that can delay or intermittently disrupt fieldwork during the planting and growing seasons may cause agricultural customers to use different forms of crop nutrients and crop protection products, which may adversely affect demand for the forms of products that we sell, or may impede growers from applying our crop nutrients and crop protection products until the following growing season or in some cases not at all, resulting in lower demand for our products and reduced revenues.

In addition, we face the significant risk and cost of continuing to carry inventory should our customers’ activities be curtailed during their normal application seasons. We must manufacture and distribute product throughout the year in order to meet peak season demand, as well as react quickly to unexpected changes in weather patterns that affect demand. Weather can also have an adverse effect on crop yields, which could lower the income of growers and impair their ability to purchase our crop nutrients, crop protection, and seed products and services. As a result, our quarterly financial results may vary significantly from one year to the next due to weather-related shifts in planting schedules and purchasing patterns, and losses due to adverse weather conditions in one quarter may not be recovered in the following season.

We may be subject to labor disruptions or disputes

A significant portion of our workforce is unionized or otherwise governed by collective bargaining or similar agreements. Two of our 13 collective bargaining agreements are subject to renegotiation in 2023. As of December 31, 2022, we have three collective bargaining agreements that remain under renegotiation, including a new expiry date. We are therefore subject to the possibility of organized labor disruptions. Adverse labor relations or contract negotiations that do not result in an agreement could result in strikes or slowdowns or impose additional costs to resolve these disputes. These disruptions may negatively impact our ability to produce or sell our products and/or cost of production. These disruptions may also impact our ability to recruit and retain personnel and could negatively affect our financial performance.

Canpotex may be dissolved or its ability to operate impaired

Canpotex is the offshore marketing, transportation and distribution company we rely on to deliver our potash to customers outside Canada and the US. Unexpected changes in laws or regulations, market or economic conditions, our (or our venture partner's) business, or other unexpected developments could threaten the existence or effectiveness of Canpotex. In any of those circumstances, a trusted potash brand could be lost and our access to key offshore markets negatively impacted resulting in a less efficient logistics system, decreased sales, higher costs or lower net earnings from offshore sales.

We are exposed to various market risks that may impact our operating results

We are exposed to various market factors that may impact our operating results, including: changes in the price of, or ability to source, raw materials and energy, which could, among other things, impact our gross margins and profitability; commodity price volatility, including the possibility of asset impairment as a result thereof; currency volatility and devaluation risk, including as a result of the translation of foreign subsidiaries’ financial statements to US dollars for consolidation at the Nutrien level; and fluctuations in interest rates, which could negatively impact our financial results given our use of floating rate debt, floating rate credit facilities and commercial paper, as well as the refinancing of long-term debt and anticipated future financing needs. We seek to manage a portion of the risks relating to changes in commodity prices and foreign currency exchange rates by using derivative instruments; however, such instruments may be ineffective in fully mitigating such risks.

Changes in the price of raw materials and energy required to produce our products, including natural gas, which is the principal raw material used to manufacture our nitrogen products and a significant energy source in the potash milling and mining process, could have a material impact on our business. The price of raw materials and energy can fluctuate widely for a variety of reasons, including changes in availability because of additional capacity or limited availability due to curtailments, regulatory changes, including changes related to production of certain raw materials or energy sources, or other operating problems. Other external factors beyond our

control can also cause volatility in raw materials prices, including, without limitation, general economic conditions, the level of business activity in the industries that use our products, weather conditions and forecasts, competitors' actions, trade sanctions, international events, such as the current war between Ukraine and Russia, the ongoing COVID-19 pandemic and related circumstances, and governmental regulation in the US and abroad. Because most of our products are commodities or derived from commodities, there can be no assurance that we will be able to recover increases in the price of such raw materials through an increase in the selling price of our related crop nutrient products. Conversely, when the market prices for these raw materials rapidly decrease, the selling prices for related crop nutrients can fall more rapidly than we are able to consume our raw material inventory that we purchased or committed to purchase at higher prices. As a result, our costs may not fall as rapidly as the selling prices of our products. Until we are able to consume the higher-priced raw materials, our gross margins and profitability may be adversely affected.

We generally benefit from relatively low North American natural gas prices which can vary significantly compared to the price for natural gas in Europe and Asia. Significantly lower natural gas prices in Europe and/or Asia may give our competitors in those regions an advantage, which could, in turn, decrease international and domestic product prices and reduce our margins. In addition, higher natural gas prices, particularly in North America, during a period of low crop input selling prices could adversely affect our results of operations.

There is also a risk to production at our various facilities due to concerns over the availability of natural gas supplies. Nitrogen facilities in Argentina and Trinidad have all experienced supply strains or curtailments. Continued or increased natural gas shortages may result in reduced production available for sale and higher production costs per tonne.

We may be unable to access capital on a cost-effective or timely basis

We rely on access to debt capital markets to finance our day-to-day and long-term operations. Access to and cost of capital may be affected by factors not specific to Nutrien, such as adverse conditions in the credit markets, general and industry-specific market and economic conditions and interest rate fluctuations. Our access to and cost of capital will also be dependent on our short- and long-term credit ratings, which are determined by, among other things, the level and quality of our earnings and our ability to meet financial obligations. A credit rating downgrade could potentially limit our access to private and public credit markets and increase the costs of borrowing under our existing credit facilities. A downgrade could also limit our access to short-term debt markets and increase the cost of borrowing in the short-term and long-term debt markets. Inability to access capital on a cost-effective or timely basis may result in a loss of liquidity, an increase in the cost of capital or inability to execute on value-added transactions requiring significant capital. Our reputation and financial performance may be impacted from being associated with carbon intensive activities and/or concerns regarding the contribution of our operations to climate change, which could include a reduction in investor confidence and constraints on our ability to access capital markets.

Our operations are exposed to counterparty risk

We are exposed to the risks associated with counterparty performance, including credit risk and performance risk. We extend trade credit and guarantee the financing for some of our growers and customers to purchase our products (and, in some cases, for extended periods of time). We may experience material financial losses in the event of customer payment default for our products or services (including Nutrien Financial) and/or financial derivative transactions. Increases in the prices of crop nutrients may exacerbate this risk.

We may incur non-cash charges affecting our consolidated financial statements if our assets or goodwill become impaired

We have significant investments in long-lived assets to be held and used and goodwill, and continually review the carrying amount of these assets for recoverability, considering changes in market conditions and if other events or circumstances indicate that their carrying amount may not be recoverable. If our long-lived assets or goodwill are determined to be impaired in the future, we may be required to record non-cash charges in our consolidated statement of earnings during the period in which the impairment is determined, which could be significant and have an adverse effect on our results of operations.

We also carry our inventories at the lower of cost and net realizable value. A decrease in forecasted prices of key production inputs could result in a writedown of our inventory, when the carrying amount exceeds net realizable value. Periods of a prolonged elevated commodity price environment increases the potential that prices could subsequently decrease rapidly. Other factors that could impact our estimates of net realizable value include inventory levels, global nutrient capacities, crop price trends, climate change initiatives and changes in regulations and standards employed. Any such writedown could have an adverse effect on our results of operations and the value of our assets.

We are subject to legal proceedings, the outcome of which may affect our business

We are, and may in the future be, involved in legal and regulatory proceedings, including matters arising from our activities or activities of predecessor companies, including climate-related activities. The outcome of these matters may be difficult to assess or quantify, and such matters may not be resolved in our favor. Such matters could result in unfavorable outcomes, including fines, sanctions, assessments of additional taxes (including interest and penalties), and other monetary damages against us or our directors, officers or employees. The defense of such matters may also be costly and time consuming and could divert the attention of management and key personnel from our operations. We may also be subject to adverse publicity associated with such matters, regardless of whether such allegations are valid or whether we are ultimately found liable.

Epidemics, pandemics or other such crises or public health concerns in regions of the world where we have operations or source material or sell products could impact or disrupt our business

The COVID-19 pandemic has caused and may continue to cause disruption, volatility and uncertainty in economies and markets around the world, even with vaccines being readily available. There is still uncertainty as to the level of adoption and the duration of efficacy and effectiveness of the vaccine against variants or mutations.

The ongoing COVID-19 pandemic, and the actions that have been or may be taken by governments in response thereto, has resulted, and may continue to result in, among other things, increased volatility in financial markets, commodity prices, and foreign exchange and inflation rates; significant disruptions to global supply chains; labor shortages; challenges in bringing employees back to pre-pandemic work arrangements or otherwise retaining and continuing to train and develop employees; travel bans, restrictions and quarantines; temporary operational restrictions and extended shutdowns of certain businesses; and political and economic instability and civil unrest.

These factors or any governmental or other regulatory responses or developments or health concerns in countries in which we operate could result in further or prolonged operational restrictions, supply chain disruptions, social and economic instability, or labor shortages and disruptions. Depending on the extent, duration, and severity of the COVID-19 pandemic, it may have the effect of heightening many of the other risks Nutrien is subject to and which are described herein.

Our insurance coverage may not adequately cover our losses

Nutrien maintains various insurance policies, including property, business interruption and liability insurance policies, but we are not fully insured against all potential hazards, perils and/or risks pertaining to our business. As a result, we may incur significant liability for which our insurance may not fully compensate. Insurance policies are generally renewed on an annual basis and are subject to various exclusions and conditions that could limit the nature of indemnification available to us. Insurance market conditions can change our premiums, limits, self-retentions and/or deductibles for certain insurance policies, and in some instances, the availability of some insurance coverage may be reduced or become unavailable entirely. Many factors are taken into consideration that could lead us to decide to increase our self-retentions or reduce, or possibly eliminate, coverage for certain hazards and risks.

Our reported mineral reserves and mineral resources are only estimates

Our mineral reserves have been estimated in accordance with National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (“NI 43-101”) as required by Canadian securities regulatory authorities, and the Canadian Institute of Mining, Metallurgy and Petroleum Classification System and our mineral reserve disclosure is not required to adhere to US requirements. The estimated mineral reserves and mineral resources may not be recovered or may not be recovered at the rates estimated. There are varying levels of certainty of the mineral reserves and mineral resources estimates, depending on sampling and geophysical imaging and, consequently, may not be representative of actual resources. Mineral reserves and mineral resources estimates may require revision (either up or down) based on new data. Further, market fluctuations in the price of potash, as well as increased production costs or reduced recovery rates (including due to policy, legal, technological, market and societal responses to climate change), may render certain mineral reserves and mineral resources uneconomic and may ultimately result in a restatement of estimated resources and/or reserves.

5.12 Mineral Projects

See “Schedule B – Mineral Projects” for information regarding our Allan, Cory, Lanigan, Rocanville and Vanscoy Potash operations.

6 – Dividends

The declaration, amount and payment date of any dividend by Nutrien is at the discretion of the Board and will depend on numerous factors, including compliance with applicable laws and the financial performance, debt obligations, working capital requirements and future capital requirements of Nutrien and its subsidiaries. See “5 – Description of the Business – 5.11 Risk Factors.” Other than pursuant to applicable corporate law, there is currently no restriction that could prevent Nutrien from paying dividends on the common shares.

Dividends declared by Nutrien for the years ended December 31 were as follows:

2022		2021		2020	
Date Declared	Per Common Share	Date Declared	Per Common Share	Date Declared	Per Common Share
February 16, 2022	0.48	February 17, 2021	0.46	February 19, 2020	0.45
May 18, 2022	0.48	May 17, 2021	0.46	May 6, 2020	0.45
August 4, 2022	0.48	August 9, 2021	0.46	August 10, 2020	0.45
November 3, 2022	0.48	November 1, 2021	0.46	December 10, 2020	0.45
Total	1.92	Total	1.84	Total	1.80

7 – Description of Capital Structure

7.1 General Description of Capital Structure

Authorized Capital

The authorized share capital of Nutrien consists of an unlimited number of common shares and an unlimited number of preferred shares issuable in series.

As of the date hereof, 499,243,897 common shares were issued and outstanding and no preferred shares were issued or outstanding. The following is a general description of the material rights, privileges, restrictions and conditions attached to the common shares and the preferred shares.

Common Shares

Each Common Share entitles the holder to: (i) vote at all meetings of holders of common shares (except meetings at which only holders of a specified class or series of shares of Nutrien are entitled to vote as provided in the CBCA) and to one vote for each Common Share held on all polls taken at such meetings; (ii) receive, subject to the rights of the holders of another class of shares of Nutrien, any dividend declared by the Board from time to time, in their absolute discretion, in accordance with applicable law; and (iii) receive, subject to the rights of holders of another class or series of shares of Nutrien, the remaining property of Nutrien on the liquidation, dissolution or winding up of Nutrien or any other distribution of the assets of Nutrien for the purposes of winding up its affairs, whether voluntary or involuntary. There are no pre-emptive or conversion rights attaching to the common shares and the common shares are not subject to redemption. All common shares currently outstanding and to be outstanding upon exercise of outstanding options and other securities, as applicable, are, or will be, fully paid and non-assessable.

Our by-laws provide for certain rights of holders of our common shares in accordance with the provisions of the CBCA. Such by-laws may be amended either by a majority vote of the holders of common shares or by a majority vote of the Board. Any amendment of the by-laws by action of the Board must be submitted to the next meeting of our shareholders whereupon the by-law amendment must be confirmed, confirmed as amended or rejected by a majority vote of the shareholders voting on such matter.

Preferred Shares

The preferred shares may at any time and from time to time be issued in one or more series with the designation, rights, privileges, restrictions and conditions attaching to each series of the preferred shares to be determined by the Board.

The preferred shares of each series rank on a parity with the preferred shares of every other series, and are entitled to preference over the common shares and any other shares of the Company ranking junior to the preferred shares, with respect to (i) the payment of dividends; (ii) the distribution of property in the event of the liquidation, dissolution or winding up of Nutrien; and (iii) such other preferences as may be determined by the Board.

Except as specifically provided in the rights, privileges, restrictions and conditions attaching to any series of preferred shares and except as provided by the CBCA, the holders of preferred shares are not entitled to receive notice of or attend any meeting of the shareholders of the Company or to vote at any such meeting for any purpose.

The provisions attaching to the preferred shares as a class may be added to, changed or removed, and the Board may create shares ranking prior to the preferred shares, only with the approval of the holders of the preferred shares as a class, any such approval to be given by the holders of not less than 66 2/3 percent of the preferred shares in writing by the registered holders of the preferred shares or by resolution at a meeting of such holders.

7.2 Constraints

There are no constraints imposed on the ownership of Nutrien’s securities to ensure that the Company has a required level of Canadian ownership.

7.3 Debt Ratings

The following information relating to Nutrien’s credit ratings is provided as it relates to Nutrien’s financing costs, liquidity and operations and to satisfy disclosure requirements under applicable Canadian securities rules. Our ability to access reasonably priced debt in the capital markets is dependent, in part, on the quality of our credit ratings. We continue to maintain investment-grade credit ratings for our long-term debt. A downgrade of the credit rating of our long-term debt could increase the interest rates applicable to future borrowings.

Commercial paper markets are normally a source of same-day cash for the Company. Our access to the US commercial paper market primarily depends on maintaining our current short-term credit ratings as well as general conditions in the money markets.

Credit ratings are intended to provide investors with an independent measure of credit quality of an issue of securities. A credit rating is not a recommendation to buy, sell or hold securities and does not address the market price or suitability of a specific security for a particular investor. Such ratings may be subject to revision or withdrawal at any time by the respective credit rating agency and each rating should be evaluated independently of any other rating.

The following table sets out ratings the Company has received in respect of its outstanding debt securities from the ratings agencies as at the date of this AIF. The Company has paid each of S&P Global Ratings (“S&P”) and Moody’s Investors Service (“Moody’s”) their customary fees in connection with the provision of the following ratings. The Company has not made any payments to S&P or Moody’s in the past two years for services unrelated to the provision of such ratings.

	S&P Rating	Moody’s Rating
Nutrien Notes	BBB	Baa2
US\$ Commercial Paper	A-2	P-2
Ratings Outlook	Positive	Stable

S&P ¹

The BBB rating assigned by S&P is the fourth highest rating of S&P’s 10 rating categories for long-term debt, which range from AAA to D. Issues of debt securities rated BBB are judged by S&P to exhibit adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation. The ratings from AA to CCC may be modified by the addition of a plus (+) or minus (-) sign to show relative standing within the major rating categories.

The A-2 rating assigned by S&P is the second highest rating of S&P’s six rating categories for short-term debt, which range from A-1 to D. A short-term obligation rated A-2 is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher rating categories. However, the obligor’s capacity to meet its financial commitment relative to other obligors on the obligation is satisfactory.

S&P’s positive outlook on Nutrien’s credit ratings means that the ratings may be raised over the intermediate term (typically six months to two years).

¹ S&P Global Ratings Definition – November 10, 2021

Moody's ¹

The Baa2 rating assigned by Moody's is the fourth highest rating of Moody's nine rating categories for long-term debt, which range from Aaa to C. Moody's appends numerical modifiers from one to three on its long-term debt ratings from Aa to Caa to indicate where the obligation ranks within a particular ranking category, with the two modifier indicating a mid-range ranking. A modifier of one indicates that the obligation ranks on the higher end of its generic rating category and a modifier of three indicates that the obligation ranks on the lower end of its generic rating category. Obligations rated Baa are defined by Moody's as being subject to moderate credit risk. They are considered medium-grade and as such may possess speculative characteristics. Nutrien's issuer rating assigned by Moody's is Baa2.

The P-2 rating assigned by Moody's is the second highest rating of Moody's four rating categories for short-term debt, which range from P-1 to NP. Issuers rated P-2 are defined by Moody's as having a strong ability to repay short-term debt obligations.

Moody's stable outlook on Nutrien's credit ratings indicates a low likelihood of a rating change over the medium term.

8 – Market for Securities

8.1 Trading Price and Volume

During 2022, Nutrien's common shares traded on the TSX and the New York Stock Exchange ("NYSE") under the symbol "NTR."

The following table sets out the trading price range and volume of our common shares traded on the TSX and the NYSE for 2022 on a monthly basis:

Month (2022)	TSX			NYSE		
	High Price (CAD\$)	Low Price (CAD\$)	Volume	High Price (US\$)	Low Price (US\$)	Volume
January	97.50	85.28	30,842,718	76.72	67.23	64,555,859
February	109.20	89.31	27,957,224	86.12	70.42	65,259,429
March	136.25	107.10	60,317,208	108.84	84.14	125,531,548
April	147.93	122.70	30,038,967	117.25	96.01	69,412,818
May	138.13	118.75	35,420,180	107.82	92.44	72,960,629
June	124.53	101.81	42,509,537	98.72	78.62	82,267,257
July	109.98	93.43	28,842,996	85.89	70.99	51,507,710
August	132.75	102.90	28,773,964	102.73	79.86	57,269,190
September	124.22	111.46	35,581,138	95.72	81.65	48,300,865
October	120.72	107.90	25,304,955	89.13	77.78	41,269,379
November	117.07	95.49	33,702,830	86.32	69.16	53,169,268
December	109.68	98.14	32,208,007	81.63	71.77	37,197,527

8.2 Prior Sales

During the year ended December 31, 2022, Nutrien issued 3,066,148 common shares pursuant to the exercise and settlement of outstanding share-based compensation award plans. During 2022, Nutrien also granted 375,483 stock options under its stock option plan. See Note 5 and Note 23 of the 2022 Consolidated Financial Statements for additional information.

9 – Escrowed Securities and Securities Subject to Contractual Restriction on Transfer

To the knowledge of the Company, none of the securities of the Company are subject to escrow or contractual restriction on transfer.

¹ Moody's Rating Symbols and Definitions – December 20, 2022

10 – Directors and Officers

10.1 Name, Occupation and Security Holding

Information is given below with respect to each of the directors and executive officers of Nutrien as at February 16, 2023, including names, municipality and country of residence, all current positions held with the Company, present principal occupation, and principal occupations held during the last five years. The current directors will hold office until the earlier of their resignation, our next annual meeting of shareholders at which directors are elected or until such directors cease to hold office pursuant to the provisions of the CBCA.

Directors (Name and Municipality of Residence)	Director Since	Present Principal Occupation or Employment	Prior Principal Occupation or Employment Within the Preceding Five Years
Russell K. Girling Calgary, Alberta, Canada	2018 (Agrium from 2006 – 2017)	Corporate Director; Board Chair of Nutrien	President, Chief Executive Officer and Director of TC Energy Corporation, a diversified energy and pipeline company
Christopher M. Burley ^{1,3} Calgary, Alberta, Canada	2018 (PotashCorp from 2009 – 2017)	Corporate Director	Corporate Director
Maura J. Clark ^{1,2} New York, New York, US	2018 (Agrium from 2016 – 2017)	Corporate Director	Corporate Director
Miranda C. Hubbs ^{3,4} Toronto, Ontario, Canada	2018 (Agrium from 2016 – 2017)	Corporate Director	Corporate Director
Raj S. Kushwaha ^{3,4} Gig Harbor, Washington, US	2021	Managing Director and Chief Digital Officer of Warburg Pincus LLC, a private equity firm specializing in consumer, energy, financial services, health care, industrial and business services, real estate, and technology	Same as present
Alice D. Laberge ^{1,3} Vancouver, British Columbia, Canada	2018 (PotashCorp from 2003 – 2017)	Corporate Director	Corporate Director
Consuelo E. Madere ^{3,4} Destin, Florida, US	2018 (PotashCorp from 2014 – 2017)	President and Founder of Proven Leader Advisory, LLC, a management consulting and executive coaching firm	Same as present
Keith G. Martell ⁵ Eagle Ridge, Saskatchewan, Canada	2018 (PotashCorp from 2007 – 2017)	President & Chief Executive Officer and Director of First Nations Bank of Canada, a Canadian chartered bank providing financial services with a focus on the Indigenous marketplace	Same as present
Aaron W. Regent ^{1,2} Toronto, Ontario, Canada	2018 (PotashCorp from 2015 – 2017)	Corporate Director; Founder, Chairman and Chief Executive Officer of Magris Performance Materials Inc., a leading North American based industrial mineral company	Same as present

Directors (Name and Municipality of Residence)	Director Since	Present Principal Occupation or Employment	Prior Principal Occupation or Employment Within the Preceding Five Years
Nelson L.C. Silva ^{2,4} Rio de Janeiro, Brazil	2020	Corporate Director; Advisor to Appian Capital Advisory LLP, investment advisor in the mining sector and HSB Solomon Associates LLC, strategic advisor in the energy sector	Executive Director of Petróleo Brasileiro S.A., an oil and gas exploration and production company; Chief Executive Officer of BG Group, a multinational oil and gas company in South America
Ken A. Seitz ⁶ Saskatoon, Saskatchewan, Canada	2022	President and Chief Executive Officer of Nutrien	Interim President and Chief Executive Officer, Nutrien; Executive Vice President and Chief Executive Officer of Potash, Nutrien; President and Chief Executive Officer, Canpotex Limited, a potash exporter
Michael J. Hennigan ^{3,4,7} West Chester, Pennsylvania, US	2022	President and Chief Executive Officer of Marathon Petroleum Corporation, a petroleum refining, natural gas processing and midstream logistics company Chairman, President and Chief Executive Officer of MPLX LP, a natural gas processing and midstream logistics company	Same as present

1 Member of the Audit Committee of the Board.

2 Member of the Human Resources & Compensation Committee of the Board.

3 Member of the Corporate Governance & Nominating Committee of the Board.

4 Member of the Safety & Sustainability Committee of the Board.

5 Keith Martell was a member of the Audit Committee of the Board and the Human Resources & Compensation Committee of the Board until January 1, 2023.

6 Ken Seitz was appointed to the Board on August 8, 2022.

7 Michael Hennigan was elected to the Board on May 17, 2022.

Executive Officers (Name and Municipality of Residence)	Present Position with the Company and Principal Occupation	Prior Principal Occupation or Employment Within the Preceding Five Years
Ken A. Seitz Saskatoon, Saskatchewan, Canada	President and Chief Executive Officer of Nutrien	Interim President and Chief Executive Officer, Nutrien; Executive Vice President and Chief Executive Officer of Potash, Nutrien; President and Chief Executive Officer, Canpotex Limited, a potash exporter
Noralee M. Bradley Saskatoon, Saskatchewan, Canada	Executive Vice President, External Affairs and Chief Sustainability and Legal Officer of Nutrien	Executive Vice President and Chief Legal Officer, Nutrien; Partner at Blake, Cassels & Graydon LLP
Pedro Farah Calgary, Alberta, Canada	Executive Vice President and Chief Financial Officer of Nutrien	Executive Vice President and Treasurer, Walmart, a multinational retail company; Executive Vice President and Chief Financial Officer, Walmex (Walmart Mexico)

Executive Officers (Name and Municipality of Residence)	Present Position with the Company and Principal Occupation	Prior Principal Occupation or Employment Within the Preceding Five Years
Andy J. Kelemen Calgary, Alberta, Canada	Executive Vice President and Chief Corporate Development & Strategy Officer of Nutrien	Senior Vice President, Corporate Development, Nutrien; Vice President, Corporate Development, Nutrien
Candace J. Laing Saskatoon, Saskatchewan, Canada	Senior Vice President, Chief Human Resources Officer of Nutrien	Vice President of Sustainability and Stakeholder Relations, Nutrien
Brent D. Poohkay Canmore, Alberta, Canada	Executive Vice President and Chief Technology Officer of Nutrien	Executive Vice President and Chief Information Officer, Nutrien; Senior Vice President, Information Technology, PotashCorp
Chris P. Reynolds Wilmette, Illinois, US	Executive Vice President & President, Potash of Nutrien	Senior Vice President, Sales, Nutrien
Jeff M. Tarsi Collierville, Tennessee, US	Executive Vice President and President of Global Retail of Nutrien	Interim President of Global Retail, Nutrien; Senior Vice President of North American Operations, Nutrien
Mark Thompson Calgary, Alberta, Canada	Executive Vice President & Chief Commercial Officer of Nutrien	Executive Vice President, Chief Strategy and Sustainability Officer, Vice President of Business Development, Vice President of Strategy, Special Assistant to CEO, Nutrien and Agrium

As at February 16, 2023, the directors and executive officers of the Company as a group beneficially own, or control or direct, directly or indirectly, 147,474 common shares, representing less than 1 percent of the outstanding common shares.

10.2 Cease Trade Orders, Bankruptcies, Penalties or Sanctions

Except as set out below, no director or executive officer of the Company was, as at the date hereof, or has been within the 10 years prior to the date hereof, a director, chief executive officer or chief financial officer of any company (including the Company), that:

- was subject to an order that was issued while the director or executive officer was acting in the capacity as director, chief executive officer or chief financial officer; or
- was subject to an order that was issued after the director or executive officer ceased to be a director, chief executive officer or chief financial officer and which resulted from an event that occurred while that person was acting in the capacity as director, chief executive officer or chief financial officer.

For the purposes of the above, “order” means any of the following that was in effect for a period of more than 30 consecutive days:

- a cease trade order;
- an order similar to a cease trade order; or
- an order that denied the relevant company access to an exemption under securities legislation.

Except as set out below, no director or executive officer of the Company, or, to the knowledge of the Company, a shareholder holding a sufficient number of securities of the Company to affect materially the control of the Company:

- was, as at the date hereof, or has been within the 10 years prior to the date hereof, a director or executive officer of any company (including the Company) that, while that person was acting in that capacity, or within a year of that person ceasing to act in that capacity, became bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, or was subject to or instituted any proceedings, arrangement, or compromise with creditors, or had a receiver, receiver manager or trustee appointed to hold its assets; or

- has, within the 10 years before the date hereof, become bankrupt, made a proposal under any legislation relating to bankruptcy or insolvency, or become subject to or instituted any proceedings, arrangement, or compromise with creditors, or had a receiver, receiver manager, or trustee appointed to hold the assets of the director, executive officer, or shareholder.

Mr. Burley was a director of Parallel Energy Inc., administrator of Parallel Energy Trust (“Parallel Energy”). On or about November 9, 2015, Parallel Energy and its affiliates filed applications for protection under the *Companies’ Creditors Arrangement Act* (Canada) and voluntary petitions for relief under Chapter 11 of Title 12 of the *United States Bankruptcy Code*. Mr. Burley resigned from the board of directors of Parallel Energy Inc. on March 1, 2016. The Canadian entities of Parallel Energy each filed an assignment in bankruptcy under the *Bankruptcy and Insolvency Act* (Canada) on March 3, 2016. In 2015, securities regulators for the Provinces of Alberta, British Columbia, Manitoba, Ontario, Quebec, Saskatchewan and New Brunswick issued cease trade orders in relation to the securities of Parallel Energy for the failure by Parallel Energy to timely file financial statements as well as related continuous disclosure documents. Such cease trade orders continue to be in effect. The TSX delisted the trust units and debentures of Parallel Energy at the close of business on December 11, 2015.

Ms. Clark served as a director of Garrett Motion Inc. (“Garrett Motion”) from October 2018 until April 2021. In September 2020, Garrett Motion and certain affiliated companies filed voluntary petitions under Chapter 11 of Title 11 of the *United States Bankruptcy Code*. On April 30, 2021, Garrett Motion announced that it emerged from its Chapter 11 proceedings, successfully completing the restructuring process and implementing the plan of reorganization that was confirmed by the United States Bankruptcy Court for the Southern District of New York on April 23, 2021.

10.3 Conflicts of Interest

To the knowledge of the Company, no director or officer of the Company has an existing or potential material conflict of interest with the Company or any of its subsidiaries, joint ventures or partnerships.

11 – Promoters

During the two most recently completed financial years, no person or company has been a promoter of the Company.

12 – Legal Proceedings and Regulatory Actions

The information under “Environmental Remediation, Legal and Other Matters” of Note 29 of the 2022 Consolidated Financial Statements is incorporated by reference herein. For further discussion of certain environmental proceedings in which we are involved, see “Environmental Matters” above.

In the normal course of business, we are also, and expect to continue to be, subject to various other legal proceedings being brought against us. While it is not possible to determine the ultimate outcome of such actions at this time, and inherent uncertainties exist in predicting such outcomes, it is the Company’s belief that the ultimate resolution of any such known actions is not reasonably likely to have a material adverse effect on its consolidated financial statements.

13 – Interest of Management and Others in Material Transactions

To the knowledge of the Company, as of the date hereof, there were no directors or executive officers of the Company or any associate or affiliate of a director or executive officer of the Company with any material interest, direct or indirect, in any transaction within the three most recently completed financial years or during the current financial year that has materially affected or is reasonably expected to materially affect the Company.

14 – Transfer Agent, Registrar and Trustees

The registrar and transfer agent for the common shares is Computershare Trust Company of Canada, at its principal offices in Calgary, Alberta and Toronto, Ontario.

The trustee for the Nutrien notes is the Bank of New York Mellon at its principal offices in New York, New York.

15 – Material Contracts

To the knowledge of the Company, no material contracts require disclosure under this section.

16 – Interests of Experts

KPMG LLP are the auditors of the Company and have confirmed with respect to the Company that they are independent within the meaning of the relevant rules and related interpretations prescribed by the relevant professional bodies in Canada and any applicable legislation or regulations and also that they are independent accountants with respect to the Company under all relevant US professional and regulatory standards.

Craig Funk, B.Sc., M.Sc., P.Eng., P.Geo., an employee of the Company, supervised the preparation of and approved the Allan Technical Report, the Cory Technical Report, the Lanigan Technical Report, the Rocanville Technical Report and the Vanscoy Technical Report (each, as defined in Schedule B hereto). Mr. Funk is a qualified person under NI 43-101 and has reviewed and approved the scientific and technical information in this AIF relating to the Company's Allan, Cory, Lanigan, Rocanville and Vanscoy Potash operations. Mr. Funk holds beneficially, directly or indirectly, less than 1 percent of any class of the securities of the Company or of any of the Company's associates or affiliates.

17 – Audit Committee

17.1 Audit Committee Charter

Attached, as Schedule A, is the charter for the Company's Audit Committee.

17.2 Composition of the Audit Committee

Members of the Audit Committee are Maura J. Clark, Christopher M. Burley, Alice D. Laberge and Aaron W. Regent as of February 16, 2023. Keith G. Martell was a member of the Audit Committee until January 1, 2023. Each member of the Audit Committee is (and, in the case of Mr. Martell, was, during the time of service on the Audit Committee) independent and financially literate (as such terms are defined in National Instrument 52-110 – *Audit Committees* ("NI 52-110")).

17.3 Relevant Education and Experience of Members of the Audit Committee

Name (Director Since)	Principal Occupation and Full Biography
Ms. Maura J. Clark (2018) (Audit Committee Chair) B.A. (Economics), CPA New York, New York, US <u>Other Public Directorships</u> Newmont Corporation, a gold mining company (TSX, NYSE) Fortis Inc., a North American electric and gas utility holding company (TSX)	Ms. Clark is a Corporate Director and the former President of Direct Energy Business, a former subsidiary of Centrica plc, a North American energy and energy-related services provider from 2007 to 2014. Previously, Ms. Clark was Executive Vice President of North American Strategy and Mergers and Acquisitions for Direct Energy. She also served as a managing director at Goldman Sachs & Co., an investment banking firm, and as Executive Vice President, Corporate Development and Chief Financial Officer of Premcor, Inc. (formerly known as Clark Refining & Marketing, Inc.), a petroleum refiner and marketer. She is a director of Fortis Inc., Newmont Corporation and Sanctuary for Families. Ms. Clark holds a Bachelor of Arts degree from Queen's University and a Chartered Professional Accountant designation.
Mr. Christopher Burley (2018) B.Sc., M.B.A. Calgary, Alberta, Canada <u>Other Public Directorships</u> None	Mr. Burley is a Corporate Director and former Managing Director and Vice Chairman of Energy for Merrill Lynch Canada Inc., an investment banking firm. He has over two decades of experience in the investment banking industry. He is the Chairman and a director of WestJet Airlines Ltd., an Onex Corporation portfolio company. Mr. Burley is a graduate of the Institute of Corporate Directors' Education Program and holds the ICD.D designation. Mr. Burley is a Member of the Institute of Corporate Directors Climate Strategy Advisory Board for the Canadian Chapter Zero of the WEF Climate Governance Initiative. Mr. Burley holds a Bachelor of Science with a Certificate of Honours Standing (Geophysics) and a Master of Business Administration from Western University.

Name (Director Since)	Principal Occupation and Full Biography
<p>Ms. Alice D. Laberge (2018)</p> <p>B.Sc., M.B.A. Vancouver, British Columbia, Canada</p> <p><u>Other Public Directorships</u> Mercer International Inc., producer of pulp and wood products and producer of bioelectricity (NASDAQ) Russel Metals Inc., a North American metal distribution company (TSX)</p>	<p>Ms. Laberge is a Corporate Director and the former President and Chief Executive Officer of Fincentric Corporation, a global provider of software solutions to financial institutions. She was previously Senior Vice President and Chief Financial Officer of MacMillan Bloedel Ltd. She is a director of Mercer International Inc., Russel Metals Inc., and the Canadian Public Accountability Board and has served as a director of the Royal Bank of Canada and the B.C. Cancer Foundation. She was recognized as a Fellow of the Institute of Corporate Directors in 2015. Ms. Laberge holds a Bachelor of Science (Speech Pathology & Audiology) from the University of Alberta and a Master of Business Administration from the University of British Columbia.</p>
<p>Mr. Keith G. Martell (2018) ¹</p> <p>B. Comm., CPA, CA Eagle Ridge, Saskatchewan, Canada</p> <p><u>Other Public Directorships</u> None</p>	<p>Mr. Martell is President & Chief Executive Officer and Director of First Nations Bank of Canada, a Canadian chartered bank providing financial services with a focus on the Indigenous marketplace. He serves as a director of River Cree Enterprises Ltd., as a trustee of the National Indian Brotherhood Trust and a governor of the University of Saskatchewan. He previously served as a director of the Canadian Chamber of Commerce, Public Sector Pension Investment Board of Canada and The North West Company Inc. Mr. Martell is a designated Chartered Professional Accountant and holds a Bachelor of Commerce and an Honorary Doctorate of Laws from the University of Saskatchewan.</p>
<p>Mr. Aaron W. Regent (2018)</p> <p>B.A., FCPA, FCA Toronto, Ontario, Canada</p> <p><u>Other Public Directorships</u> The Bank of Nova Scotia, a global financial services provider (TSX, NYSE)</p>	<p>Mr. Regent is Corporate Director and the Founder, Chairman and Chief Executive Officer of Magris Performance Materials Inc., a leading North American based materials company. Mr. Regent serves as the Chair of the Board of The Bank of Nova Scotia. Mr. Regent has acquired significant financial experience during his time as President and Chief Executive Officer of Barrick Gold Corporation, Senior Managing Partner of Brookfield Asset Management and Co-Chief Executive Officer of the Brookfield Infrastructure Group, and as President and Chief Executive Officer of Falconbridge Limited. Mr. Regent is a member of the Chartered Professional Accountants of Ontario and holds a Bachelor of Arts (History) from the University of Western Ontario.</p>

¹ Member of the Audit Committee until January 1, 2023.

17.4 Pre-approval Policies and Procedures

Subject to applicable law, the Audit Committee is directly responsible for the compensation and oversight of the work of the independent auditors. The Audit Committee has implemented a Pre-Approval Policy for Audit and Non-Audit Services for the pre-approval of services performed by our auditors. The objective of this policy is to specify the scope of services permitted to be performed by our auditors and to ensure that the independence of our auditors is not compromised through engaging them for other services. Subject to the Pre-Approval Policy for Audit and Non-Audit Services, our Audit Committee pre-approves all audit services and all permitted non-audit services provided by our external auditors and reviews on a quarterly basis whether these services affect our external auditors' independence. During 2022, the Company relied on the *de minimis* non-audit services exemption set forth in section 2.4 of NI 52-110 with respect to the pre-approval of certain non-audit services provided to the Company by KPMG LLP.

17.5 External Auditor Service Fees (by Category)

The following table sets out the fees billed to us by KPMG LLP and its affiliates for professional services rendered during the years ended December 31, 2022 and 2021. During these years, KPMG LLP was the Company's only external auditor.

Category	Years Ended December 31 (US\$)	
	2022	2021
Audit Fees ¹	8,777,700	8,284,800
Audit-Related Fees ²	63,000	-
Tax Fees ³	168,100	191,100
All Other Fees ⁴	302,400	149,900
Total	9,311,200	8,625,800

¹ For professional services rendered by KPMG LLP for the integrated audit of the Company's annual financial statements; interim review of the Company's interim financial statements; audits of statutory financial statements of controlled subsidiaries; attestation reporting in accordance with US environmental agency requirements and consent orders; attestation reports over various Nutrien subsidiaries for the purpose of compliance with local laws and regulations; and work in connection with the renewal of the Company's base shelf prospectus in 2022 and the Company's prospectus supplement relating to the offering of notes in 2022.

² For professional services rendered by KPMG LLP for translation of the Company's annual and quarterly reports. Amounts previously reported in 2021 as audit-related fees have been reclassified as audit fees and all other fees to align with the current year's presentation.

³ For professional services rendered by KPMG LLP for assistance with preparation and review of tax filings and related tax compliance, assistance in responding to tax authorities, including reassessments and tax audits, routine tax planning and advice. These amounts include fees paid to KPMG LLP specifically for tax compliance and preparation services rendered in 2022 and 2021 in the amounts of \$168,100 and \$181,000, respectively.

⁴ For professional services rendered by KPMG LLP for the preparation of subsidiary statutory financial statements; an assessment of the Company's cyber security maturity level against a globally recognized framework and a readiness assessment for assurance over the Company's report on cyber security key performance indicators; and limited assurance over Nutrien Scope 1 and Scope 2 GHG emissions.

18 – Additional Information

Additional financial information is provided in the 2022 Consolidated Financial Statements and the 2022 MD&A. Further, additional information, including historical information concerning directors' and officers' remuneration and indebtedness, principal holders of the Company's securities, and securities authorized for issuance under equity compensation plans is contained in the Company's management proxy circular dated March 28, 2022 for the annual meeting of the Company's shareholders that took place on May 17, 2022.

Additional information related to Nutrien may be found on the Company's website at www.nutrien.com, on the Canadian Securities Administrators' website at www.sedar.com and on the EDGAR section of the US SEC's website at www.sec.gov.

Schedule A

AUDIT COMMITTEE CHARTER

Introduction

The Audit Committee (the “**Committee**”) is established to assist the Board of Directors (the “**Board**”) of Nutrien Ltd. (the “**Corporation**”) in fulfilling its oversight responsibilities with respect to the accounting and financial reporting processes and the reviews and audits of the financial statements of the Corporation by monitoring: (i) the quality and integrity of the Corporation’s financial statements and related disclosures; (ii) the Corporation’s internal control systems, including internal control over financial reporting; (iii) specific elements of risk management (including all financial risk management) delegated to the Committee by the Board; (iv) the qualifications and independence of the external auditors of the Corporation and the recommendation of the Board to shareholders for the appointment thereof; (v) the performance of the Corporation’s Internal

Audit function and external auditors; and (vi) the Corporation’s compliance with legal and regulatory requirements with respect to matters within the Committee’s mandate and the Code of Conduct. Such oversight is all with a view to supporting the long-term viability of the Corporation, including its consideration of stakeholders relevant to the creation and preservation of long-term value.

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Annex 1: Committee Chair	
Position Description	A-1

Management is responsible for preparing the consolidated financial statements of the Corporation and the external auditors are responsible for auditing those financial statements. Nothing in this Charter is intended, or may be construed, to impose on any member of the Committee a standard of care or diligence that is in any way more onerous or extensive than the standard to which all directors are subject under applicable laws or regulatory requirements.

In this Charter, “**Committee Chair**” means the Chair of the Committee; “**Chair**” means the Board Chair; and “**CEO**” means the Chief Executive Officer of the Corporation.

Composition

The members of the Committee shall be appointed by the Board, on the recommendation of the Corporate Governance & Nominating Committee. Any member of the Committee may be removed or replaced at any time by the Board and shall cease to be a member of the Committee on ceasing to be a director. Subject to the above, each member of the Committee shall serve as a member of the Committee until the next annual meeting of shareholders after his or her appointment.

The Committee shall consist of not less than three and not more than eight members. Each Committee member shall be independent according to the independence standards set out in the Corporate Governance Framework, including applicable independence requirements of stock exchanges on which the Corporation is listed and securities laws, rules and regulations.

Each member of the Committee shall be “financially literate”, and at least one member of the Committee shall be designated as the “audit committee financial expert” and shall have “accounting or related financial management expertise”, in each case, as such qualification is interpreted by the Board in its business judgment and as defined by applicable requirements of stock exchanges on which the Corporation is listed and securities laws, rules and regulations.

No member of the Committee shall serve on the audit committees of more than two other publicly listed companies, unless the Board determines that such simultaneous service would not impair the ability of such member to effectively serve on the Committee and discloses such determination in the Corporation’s annual management proxy circular.

The Board may fill vacancies on the Committee from among its members, on the recommendation of the Corporate Governance & Nominating Committee. If and whenever a vacancy shall exist on the Committee, the remaining members may exercise all its powers so long as a quorum remains in place.

The members of the Committee shall be entitled to receive such remuneration for acting as members of the Committee as the Board may from time to time determine.

The Corporate Secretary or such other person acceptable to the members shall act as Secretary to the Committee.

Committee Chair

The Board, upon recommendation of the Corporate Governance & Nominating Committee, shall appoint a Committee Chair. The Committee Chair may be removed and replaced by the Board.

If the Committee Chair is not present at any meeting of the Committee, one of the other members of the Committee present at the meeting shall be chosen by the Committee to chair the meeting.

The Committee Chair shall have the duties and responsibilities set forth in **Annex 1** which is incorporated by reference herein.

Quorum

Fifty percent of the members of the Committee shall constitute a quorum. All determinations of the Committee shall be made by a majority of its members present at a meeting duly called and held.

Meetings

All Committee members are expected to attend, in person or via teleconference, video conference, or other electronic communications facilities that permits all participants to communicate adequately, all meetings of the Committee, to come prepared for the meeting, and to remain in attendance for the duration of the meeting. The powers of the Committee may be exercised by resolution in writing signed by all members of the Committee who would have been entitled to vote on that resolution at a meeting of the Committee.

The Committee may invite such directors, officers, employees and external advisors of the Corporation as it may see fit from time to time to attend meetings of the Committee and assist in the discussion and consideration of the duties of the Committee.

The time at which and place where the meetings of the Committee shall be held, and the calling of meetings and the procedure at such meetings, shall be determined by the Committee in accordance with the Corporation's articles, by-laws, and applicable laws.

The Committee shall meet at each Committee meeting alone without Management present, and shall meet separately with applicable senior Management, the external auditors, and the Chief Audit Executive.

Responsibilities

The Committee, to the extent required by applicable laws or rules, or otherwise considered by the Committee to be necessary or appropriate, is responsible for the oversight in respect of the Corporation's financial disclosure and accounting practices, internal control systems (including internal control over financial reporting), specific elements of risk management (including all financial risk management) delegated to the Committee by the Board, the external auditors, the Internal Audit function, and legal and regulatory compliance with respect to matters within the Committee's mandate and the Code of Conduct.

To fulfill its duties and responsibilities, the Committee shall:

Financial Disclosure and Accounting

- meet with Management and the external auditors to review and discuss, and to recommend to the Board for approval prior to public disclosure, the annual audited financial statements and the specific disclosures in "Management's Discussion and Analysis of Financial Condition and Results of Operations" ("**MD&A**");
- meet with Management and the external auditors to review and discuss, and to approve prior to public disclosure, the unaudited quarterly financial statements, including the specific disclosures in the MD&A and quarterly interim reports (including annual guidance);
- review and discuss with Management and the external auditors prior to public disclosure each press release that contains significant financial information respecting the Corporation or contains estimates or information regarding the Corporation's future financial performance or prospects; and the type and presentation of information to be included in such press releases (in particular, the use of "pro forma" or "adjusted" information that is not in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board ("**IFRS**"));
- review and discuss with Management and the external auditors, and recommend to the Board for approval prior to public disclosure:
 - the portions of the Annual Information Form containing significant information within the Committee's mandate;

- the portions of the Corporation's annual management proxy circular containing significant information within the Committee's mandate;
 - all financial statements included in prospectuses or other offering documents;
 - all prospectuses and all documents which may be incorporated by reference in a prospectus, other than any pricing supplement issued pursuant to a shelf prospectus; and
 - significant financial information, including "pro forma" or "adjusted" non-IFRS information respecting the Corporation contained in a publicly disclosed document (other than routine investor relations or similar communications);
- review and discuss with Management and the external auditors (including those of the following that are contained in any report of the external auditors): (1) any analyses prepared by Management and/or the external auditors setting forth significant financial reporting issues and judgments made in connection with the preparation of the financial statements, including analyses of the effects of alternative accounting principles in accordance with IFRS; (2) all critical accounting policies and practices to be used by the Corporation in preparing its financial statements; (3) all material alternative treatments of financial information within IFRS that have been discussed with Management, ramifications of the use of these alternative treatments, and the treatment preferred by the external auditors; and (4) other material communications between the external auditors and Management, such as any Management Representation Letter or Schedule of Unadjusted Differences;
 - review and discuss with Management and the external auditors significant accounting and reporting issues and understand their impact on the financial statements, including complex or unusual transactions and areas involving significant assumptions; major issues regarding accounting principles and financial statement presentation, including any significant changes in the Corporation's selection or application of accounting principles, and the effect of regulatory and accounting initiatives, as well as off balance sheet structures, on the financial statements of the Corporation, any significant issues as to the adequacy of the Corporation's internal controls and any special audit steps adopted in light of significant control deficiencies;
 - review and discuss with Management and the external auditors non-IFRS financial measures, as well as financial information and earnings guidance provided externally, including to analysts and rating agencies;
 - review with Management and the external auditors the results of the annual audit, including any restrictions on the scope of the external auditors' activities or on access to requested information, and the resolution of any significant disagreements with Management;
 - review Management's Internal Control Report and the related attestation by the external auditors of the Corporation's internal controls over financial reporting; and
 - review with Management and the external auditors and, if necessary, legal counsel, any litigation, claim or contingency, including tax assessments, or material reports or inquiries from regulators or governmental agencies, that could have a material effect upon the financial position of the Corporation, and the manner in which these matters have been disclosed in the financial statements.

Internal Controls

- assess the effectiveness of the Corporation's internal control systems, including internal control over financial reporting and information technology strategy, risks and, in consultation with the Safety & Security Committee, cyber security controls and related matters;
- understand the scope of Internal Audit's and the external auditors' review of internal controls over financial reporting, and obtain reports on significant findings and recommendations, together with Management's responses;
- annually review the Corporation's disclosure controls and procedures, including any significant deficiencies in or material non-compliance with such controls and procedures;
- receive and review reports from the Corporation's Disclosure Committee and periodically review the Corporation's Disclosure Policy;
- review and discuss with the CEO and Chief Financial Officer their disclosures made during their annual and quarterly certification processes about significant deficiencies or material weaknesses in the design or operation of internal controls or any fraud that involves Management or other employees who have a significant role in the Corporation's internal controls;

- discuss with Management the Corporation's material financial risk exposures and the steps Management has taken to monitor and control such exposures; and
- review executive officers' expenses and aircraft usage reports and periodically report to the Corporate Governance & Nominating Committee thereon, as appropriate.

Risk Management

- regularly review with Management the Corporation's material risks within the Committee's scope (i.e., the principal financial risks facing the Corporation and any other risks specifically delegated to the Committee by the Board), the assessment of those risks, and how they are being managed or mitigated, including, reviewing the mid-year update report from the Corporation's Enterprise Risk Management team; and
- monitor and review at least annually Management processes and controls designed to identify, assess, monitor and manage the risks referred to above.

Internal Audit

- review with Management, the external auditors, and Internal Audit (and if appropriate, approve) the Charter, plans, activities, and organizational structure of the Internal Audit function;
- review the significant findings prepared by Internal Audit and recommendations issued by any external party relating to Internal Audit issues, together with Management's response thereto;
- take reasonable steps to ensure there are no unjustified or inappropriate restrictions or limitations on the functioning of the Internal Audit function, or on access to requested information;
- review the adequacy of the resources of Internal Audit to satisfy itself as to the effectiveness, objectivity and independence of the Internal Audit function;
- review and concur on the appointment, replacement, or dismissal of the Chief Audit Executive (or such individual in a similar capacity or position who performs a substantially similar function); and
- review the performance and effectiveness of the Internal Audit function.

External Audit

- meet with the external auditors prior to the annual audit to review (and if appropriate, approve) the proposed audit scope, approach and staffing (including coordination of audit efforts with Internal Audit) and budget;
- monitor the progress of the annual audit;
- obtain feedback about the conduct of the external audit from key employees engaged in the process;
- when applicable, review the annual post-audit letter from the external auditors and Management's response thereto and follow-up in respect of any identified weakness;
- at least annually, obtain and review a report by the external auditors describing: (i) the external auditors' internal quality control procedures, and (ii) any material issues raised by the most recent internal quality control review, or peer review, of the external auditors, or by any inquiry or investigation by governmental or professional authorities, within the preceding five years, respecting one or more independent audits carried out by the external auditors, and any steps taken to deal with any such issues;
- annually receive from the external auditors, and review, a report on items required to be communicated to the Committee by applicable rules and regulations;
- annually review the independence of the external auditors, including their formal written statement of independence delineating all relationships between the external auditors and the Corporation, review all such relationships, and consider applicable auditor independence standards and take any decisions and actions that are necessary and appropriate where the Committee becomes aware of the potential for a conflict (or the reasonable perception of a conflict) between the interests of the external auditors and the interests of the Corporation;

- annually evaluate the performance of the external auditors, including the lead audit partner, and report to the Board on its conclusions regarding the external auditors and recommendation to shareholders for appointment of the external auditors;
- investigate and consider whether any action is required if the external auditors resign;
- ensure the rotation of the lead audit partner having primary responsibility for the audit as required by applicable law; and
- set clear hiring policies for partners, employees and former partners and employees of the present and former external auditors.

Oversight in Respect of Audit and Non-Audit Services

- subject to confirmation by the external auditors of their compliance with Canadian and U.S. regulatory requirements, be directly responsible (subject to Board confirmation) for the appointment of the external auditors for the purpose of preparing or issuing any audit report or performing other audit, review or attest services for the Corporation, such appointment to be confirmed by the Corporation's shareholders at each annual meeting;
- be directly responsible (subject to Board confirmation) for the approval of fees to be paid to the external auditors for audit services, and shall pre-approve the retention of the external auditors for any permitted non-audit service to the Corporation;
- be directly responsible for the retention and oversight of the services of the external auditors (including resolution of disagreements between Management and the external auditors regarding financial reporting) for the purpose of preparing or issuing an audit report or performing other audit, review or attest services for the Corporation (with the external auditors reporting directly to, and being accountable to, the Committee);
- have the sole authority to pre-approve all audit services and all permitted non-audit services to the Corporation, provided that the Committee need not approve in advance non-audit services where:
 - the aggregate amount of all such non-audit services provided to the Corporation constitutes not more than 5% of the total amount of fees paid by the Corporation to the external auditors during the fiscal year in which the non-audit services are provided; and
 - such services were not recognized by the Corporation at the time of the engagement to be non-audit services; and
 - such services are promptly brought to the attention of the Committee and approved prior to the completion of the audit by the Committee or by one or more members of the Committee to whom authority to grant such approvals has been delegated by the Committee.
- have the sole authority to delegate to one or more designated members of the Committee the authority to grant pre-approvals required by this section, provided that the decision of any member to whom authority is delegated to pre-approve a service shall be presented to the Committee at its next scheduled meeting. If the Committee approves an audit service within the scope of the engagement of the external auditors, such audit service shall be deemed to have been pre-approved for purposes of this section.

Compliance

- establish procedures for: (i) the receipt, retention and treatment of complaints received by the Corporation regarding accounting, internal accounting controls or auditing matters; and (ii) the confidential, anonymous submission by employees of the Corporation of concerns regarding questionable accounting or auditing matters, and institute and oversee any special investigations as needed;
- provide the Chief Integrity Officer the authority to communicate directly to the Committee about actual and alleged violations of the Code of Conduct, its associated policies, or the law, including any matters involving criminal or potential criminal conduct;
- review with the Chief Integrity Officer or Chief Legal Officer (or such individual in a similar capacity or position who performs a substantially similar function) the Corporation's significant compliance policies and any legal matters or reports or inquiries received from regulators or governmental agencies that could have a material effect upon the financial position of the Corporation and that are not subject to the oversight of another committee of the Board;
- review the effectiveness of the system for monitoring compliance with laws and regulations (including those with respect to anti-fraud and anti-bribery) and the results of Management's investigations and follow-up of any instances of non-compliance

that could have a material effect upon the financial position of the Corporation and that are not subject to the oversight of another committee of the Board;

- review the process for communicating the Corporation's Code of Conduct to the Corporation's personnel and monitoring compliance therewith; and
- report annually to shareholders describing the Committee's composition, responsibilities and how they were discharged, and any other information required by applicable legislation or regulation, including approval of non-audit services.

The Committee may perform such other functions as the Committee deems necessary or appropriate for the performance of its responsibilities and duties.

Delegation

The Committee may from time to time delegate any of its responsibilities to a subcommittee comprised of one or more members of the Committee and shall also carry out such other duties that may be delegated to it by the Board from time to time.

Other Matters

At the Corporation's expense, the Committee may retain, when it considers it necessary or desirable, outside consultants and advisors to advise the Committee independently on any matter. The Committee shall have the sole authority to retain and terminate any such consultants or advisors, including sole authority to establish or review a consultant's or advisor's fees and other retention terms, and to direct the payment thereof.

The Corporation will provide appropriate funding, as determined by the Committee, for payment of ordinary administrative expenses of the Committee that are necessary or appropriate in carrying out its duties.

Authority to make minor technical amendments to this Charter is hereby delegated to the Corporate Secretary, who will report any amendments to the Committee at its next meeting.

The Committee's performance and effectiveness shall be evaluated annually, in accordance with a process developed by the Corporate Governance & Nominating Committee and approved by the Board. The results of that evaluation, including progress on adopted recommendations, shall be reported to the Corporate Governance & Nominating Committee and to the Board.

On an annual basis, this Committee Charter shall be reviewed and assessed, and any proposed changes shall be submitted to the Corporate Governance & Nominating Committee for review and recommendation, and then to the Board for approval.

Date of Last Revision: **November 3, 2022**

ANNEX 1

AUDIT COMMITTEE CHAIR POSITION DESCRIPTION

The Committee Chair shall provide overall leadership to enhance the effectiveness of the Committee and be responsible to:

- set the “tone” for the Committee and its members to foster ethical and responsible decision making, appropriate oversight of Management and appropriate corporate governance practices;
- encourage free and open discussion at meetings of the Committee;
- schedule and set the agenda for Committee meetings with input from other Committee members, the Chair and Management as appropriate;
- facilitate the timely, accurate and proper flow of information to and from the Committee, and arrange sufficient time during Committee meetings to fully discuss agenda items;
- report to the Board following each meeting of the Committee on the activities, findings and any recommendations of the Committee;
- provide advice and counsel to the senior members of Management in the areas covered by the Committee’s mandate;
- proactively encourage training and education of the Committee and its members in areas falling within the Committee’s mandate;
- take reasonable steps to ensure that Committee members understand the boundaries between the Committee and Management responsibilities;
- organize the Committee to function independently of Management and take reasonable steps to ensure that the Committee has an opportunity at each of its meetings to meet in separate closed sessions without Management present, and with or without internal personnel or external advisors as needed or appropriate;
- lead the Committee in monitoring and evaluating, in consultation with the Corporate Governance & Nominating Committee, the performance and effectiveness of the Committee as a whole and the contributions to the Committee of individual directors; and
- take all other reasonable steps to ensure that the responsibilities and duties of the Committee, as outlined in its Charter, are well understood by the Committee members and executed as effectively as possible.

SCHEDULE B

MINERAL

PROJECTS

For the purposes of NI 43-101, our Allan, Cory, Lanigan, Rocanville and Vanscoy potash operations are the properties material to Nutrien.

a) Material Potash Operations

Certain scientific and technical information regarding our:

- a) Allan potash operations is based on the technical report titled “National Instrument 43-101 Technical Report on Allan Potash Deposit (KL 112R B), Saskatchewan, Canada” dated effective December 31, 2021 (“Allan Technical Report”),
- b) Cory potash operations is based on the technical report titled “National Instrument 43-101 Technical Report on Cory Potash Deposit (KL 103C), Saskatchewan, Canada” dated effective December 31, 2020 (“Cory Technical Report”),
- c) Lanigan potash operations is based on the technical report titled “National Instrument 43-101 Technical Report on Lanigan Potash Deposit (KLSA 001 C), Saskatchewan, Canada” dated effective December 31, 2021 (“Lanigan Technical Report”),
- d) Rocanville potash operations is based on the technical report titled “National Instrument 43-101 Technical Report on Rocanville Potash Deposit (KL 305), Saskatchewan, Canada” dated effective December 31, 2021 (the “Rocanville Technical Report”), and
- e) Vanscoy potash operations is based on the technical report titled “National Instrument 43-101 Technical Report on Vanscoy Potash Deposit (KL 114C) Saskatchewan, Canada” dated effective December 31, 2020 (“Vanscoy Technical Report”).

Collectively, these reports comprise the “Technical Reports” for the Nutrien mines. They were prepared under the supervision of Craig Funk, B.Sc., M.Sc., P.Eng., P.Geo., who is a “qualified person” as defined in NI 43-101. The Technical Reports have been filed with the securities regulatory authorities in each of the provinces of Canada and furnished to the SEC. Portions of the following information are based on assumptions, qualifications and procedures that are not fully described herein. References should be made to the full text of the Technical Reports, as applicable.

i) Mineral Rights

Mineral rights at all mines in Saskatchewan are mined pursuant to mining leases with the Province of Saskatchewan, Canada (“Crown”), and with non-Crown (“Freehold”) mineral rights owners. Crown mineral rights are governed by *The Subsurface Mineral Tenure Regulations, 2015* (Saskatchewan), and Crown leases are approved and issued by the Saskatchewan Ministry of Energy and Resources (“MER”).

ii) History

Ten potash mines were brought into production in Saskatchewan between 1962 to 1970. With over 50 years of production history, most potash mines have contracted or expanded production in response to the demand for potash. No new mines had been commissioned until 2017. Most of the operating mines are conventional underground mines, while three operate using solution mining methods.

Exploration drilling for potash at each of the mines was carried out in the 1950s and 1960s. Potash production began at Allan, Cory and Lanigan in 1968, at Vanscoy in 1969, and at Rocanville in 1970. With the exception of the 1970 inflow which halted Vanscoy production for two years, each of the mines have run on a continuous basis other than short-term shutdowns taken for inventory management purposes, occasional plant maintenance and construction work, or other outages that are typical for operations of this nature.

The mines were built by numerous companies in the 1960’s (a) the Allan mine was built by a consortium of companies (U. S. Borax, Homestake Potash Company, and Swift Canadian Company), (b) the Cory mine was built by a company called Duval Sulphur and Potash Company, (c) the Lanigan mine was built by a company named Alwinal Potash of Canada Ltd., a consortium of German and French mining and fertilizer companies, (d) the Rocanville mine was built by a company called Sylvite of Canada Ltd. (a division of Hudson’s Bay Mining and Smelting Ltd.), and (e) the Vanscoy mine was built by Cominco Ltd. (formerly the Consolidated Mining and Smelting Company of Canada Limited).

PotashCorp acquired (a) a 60% ownership of the Allan mine in 1978 (through purchase of the U.S. Borax and Swift Canadian interests), became the operator of the mine in 1981, and in 1990, PotashCorp purchased the remaining 40% interest, (b) the Cory

mine in 1976, (c) the Lanigan mine in 1976; and (d) the Rocanville mine in 1977. With respect to the Vanscoy mine, in 1993, Cominco Fertilizers Ltd. was formed as a separate entity from Cominco Ltd. In 1995 all Cominco Ltd., involvement in Cominco Fertilizers Ltd., who built the Vanscoy mine, ceased and shares were transferred to the new entity, Agrium.

Major refurbishments and expansions of the Allan, Cory and Rocanville mines were completed in 2013, and of the Vanscoy mine in 2015 increasing nameplate capacity to (a) 4.0 million tonnes for the Allan mine, (b) 3.0 million tonnes for the Cory mine, (c) 6.5 million tonnes for the Rocanville mine, and (d) 3.0 million tonnes for the Vanscoy mine, of finished potash products per year. Mill rehabilitation, mine expansion and hoist improvement projects were completed at Lanigan mine between 2005 and 2010. As of December 31, 2022, the annual nameplate capacity at Lanigan is 3.8 million tonnes. The expansion construction at each of these mines was carried out without significant disruption to existing potash production from the site.

At Allan, Cory and Lanigan, potash ore has been mined and concentrated to produce saleable quantities of high-grade finished potash products since 1968, at Vanscoy since 1969 and at Rocanville since 1970.

iii) Geological Setting, Mineralization and Deposit Types

Geological Setting and Mineralization

Much of southern Saskatchewan is underlain by the Prairie Evaporite Formation, a layered sequence of salts and anhydrite which contains the world's largest deposits of potash. The potash extracted from the predominantly sylvinitic ore has its main use as a fertilizer.

The 100 m to 200 m thick Prairie Evaporite Formation is overlain by approximately 400 m of Devonian carbonates followed by 100 m of Cretaceous sandstone, 400 m of Cretaceous shales, and 100m of recent Pleistocene glacial tills to surface. The Prairie Evaporite Formation is underlain by Devonian carbonates. The Phanerozoic stratigraphy of Saskatchewan is remarkable in that units are flat-lying and relatively undisturbed over very large areas.

Potash mineralization in this region of Saskatchewan is predominantly sylvinitic, which is comprised mainly of the minerals sylvite ("KCl") and halite or rock salt ("NaCl"), with trace carnallite ("KMgCl₃ 6H₂O") and minor water insolubles. Potash fertilizer is concentrated, nearly pure KCl (i.e., greater than 95% pure KCl), but ore grade is traditionally reported on a % K₂O equivalent basis. The "% K₂O equivalent" gives a standard measurement of the nutrient value of different potassium-bearing rocks and minerals. To convert from % K₂O equivalent tonnes to actual KCl tonnes, multiply by 1.58. Ore grade for the mines are summarized as follows.

Summary of Ore Grade Measurements:

Mine	Average Ore Grade from Drilling ¹		Average Ore Grade from Mill Feed ²	Average Ore Grade from In-mine Samples ³	
	%K ₂ O Equivalent	Number of Drillholes	%K ₂ O Equivalent	%K ₂ O Equivalent	Number of Samples
Allan (A Zone)	26.7%	18	25.11%	24.7%	7,584
Cory (A Zone)	25.5%	11	23.11%	21.9%	5,762
Lanigan (A Zone)	25.4%	20	24.09%	24.3%	3,692
	(B Zone)			23.2%	20.2%
Rocanville	22.3%	32	21.92%	23.1%	49,580
Vanscoy (A Zone)	24.9%	36	25.67%	24.2%	3,173

Deposit Type

There are three mineable potash members within the Prairie Evaporite Formation of Saskatchewan. Stratigraphically highest to lowest, these members are: Patience Lake, Belle Plaine and Esterhazy. Potash mineralization at each mine is flat-lying and continuous and the mines operate as conventional underground potash mines.

Potash mined at Allan, Cory, Lanigan, and Vanscoy mines lies within the Patience Lake Member of Prairie Evaporite Formation.

1 Average ore grade from drillholes within respective Crown Subsurface Mineral Leases per the Technical Reports, as applicable.

2 The listed potash ore grade from the mill feed was the average measured over the last three years (2020, 2021, 2022).

3 Average ore grade from in-mine samples per the Technical Reports, as applicable.

There are two potash seams named A Zone and B Zone within this member. At present, only the A Zone is being mined in the Allan, Cory, and Vanscoy areas; some test mining has been carried out in the B Zone, but no mining is done in this layer at present. Both the zones are being mined at Lanigan. Neither the Esterhazy nor the White Bear Potash Members are present in the Allan, Cory, and Vanscoy area; the Belle Plaine Potash Member is not well-developed, and therefore is not mined. The Belle Plaine potash member is present at Lanigan but is not economically mineable, while the Esterhazy Member is poorly developed and not economically mineable.

Potash mined at the Rocanville mine lies within the Esterhazy Member of the Prairie Evaporite Formation. The Patience Lake Member potash beds are not present in the Rocanville Area. The Belle Plaine and White Bear Members are present, but not conventionally mineable in the Rocanville area. The potash zone at Rocanville is approximately 2.4 meters thick and occurs near the top of the Prairie Evaporite Formation. Salt cover from the ore zone to overlying units is approximately 30 meters.

Potash mineralization at Allan, Cory Lanigan, and Vanscoy occurs at about 1,000 meters depth below surface. The A Zone is approximately 3.35 meters thick and occurs near the top of the Prairie Evaporite Formation salts. Salt cover from the ore zone to overlying units is approximately 12 meters in the Allan, Cory, and Vanscoy areas. Salt cover from the top of the A Zone mining horizon at Lanigan is approximately 7 meters thick, while the salt cover from the top of the B Zone mining horizon to overlying units is approximately 14 meters thick.

iv) Exploration

Before the mines were established, all exploration consisted of drilling from surface and analysis of core from these drillholes. Since mining began, exploration drilling has been infrequent at the mines. In most of southern Saskatchewan, potash mineralization is in place wherever Prairie Evaporite Formation salts exist, are flat-lying and are undisturbed. Since the surface seismic exploration method is an excellent tool for mapping the top and bottom of Prairie Evaporite salts, this has become the main potash exploration tool in any existing Saskatchewan Subsurface (potash) Mineral Lease. Historically, 2D seismic, and now the more accurate and full coverage 3D seismic methods are used to map continuity and extent of potash beds in flat-lying potash deposits. Seismic data are relied upon to identify collapse structures that must be avoided in the process of mine development since these structures can act as conduits for water ingress to the mine. Isolation pillars or mining buffer zones are left around these anomalous features. This practice reduces the overall mining extraction ratio, but the risk of inflow to mine workings is effectively mitigated. Localized and relatively small ore zone anomalies do occur and typically are not discernable (or imaged) by the seismic method and so are not mapped. When such anomalies are encountered they are dealt with in the normal course of mining and extraction through these anomalous areas is typically minimized. Where there is uncertainty in seismic interpretations, drilling is often used to confirm or refine the seismic interpretation.

Seismic coverage is outlined in the Technical Reports.

Experience has shown that the potash mining zone is continuous when seismic data are undisturbed and flat-lying. Surface seismic data are generally collected years in advance of mining. Any area recognized as seismically unusual is identified early and mine plans are adjusted to avoid these regions.

v) Drilling

The primary objective of the original potash test holes drilled in the 1950s and 1960s at each of the operations was to sample the potash horizons and establish basic mining parameters. The seismic method was still novel and crude at that time and as such, 2D seismic surveys were done sparingly, so the drillhole information was relied upon heavily to evaluate potash deposits. Test holes would penetrate the evaporite section with a hydrocarbon-based drilling mud (oil-based or diesel fuel) to protect the potash mineralization from dissolution. Basic geophysical well-logs were acquired, and in many cases, drill stem tests were run on the Dawson Bay Formation to help assess water-make mine inflow potential of the caprock. Core samples from the targeted potash intersections were split or quartered, crushed, and analysed to establish potash ore grades.

Due to the remarkably consistent mineralogy and continuity of the resource as experienced through decades of mine production, very little potash exploration drilling has been done at our operations since the 1960s. Since each drillhole is a potential conduit for subsurface groundwater from overlying (or underlying) water-bearing formations into future mine workings, it is also important to minimize the amount of cross-formational drilling. Every potash test drillhole from surface sterilizes potash mineralization as a safety pillar is required around every surface drillhole once underground mining commences.

All new drilling efforts have targeted areas of geological uncertainty. Although normal ore zone conditions may occur in the tested areas, they are not targeted specifically. For this reason, and because ore grade is known to be locally variable, assays from drilling are not relied upon for ore grade estimation. Instead, grade determined from routinely collected in-mine ore zone samples are found to be most reliable. The long-term average from in-mine tends to best represent the larger ore zone as it normalizes local variability.

vi) Sampling Preparation, Analyses and Security

Basic Approach

Drillhole sampling methods have remained essentially the same over the years. Short segments of core usually about 0.3 meters (1 foot) in length are labeled based on visible changes in mineralization, and sometimes based on fixed intervals. Each segment of core is then split using some type of rock or masonry saw. The split portion of core is then bagged and labeled and sent to a laboratory for chemical analysis. Historical potash samples remain stored at the Subsurface Geological Laboratory (Regina, Saskatchewan) of the Saskatchewan Ministry of Energy & Resources.

All in-mine samples from our operations were analysed in the mill laboratories using analysis techniques that were up to date for the era in which the sample was collected.

Regarding quality assurance for analytical results of in-mine samples, the Company participates in the Canpotex Producer Sample Exchange Program using methods developed by the Saskatchewan Potash Producers Association (“SPPA”). The Sample Exchange Program monitors the accuracy of analytical procedures used in its labs. In the early 1970s, the SPPA initiated a round-robin Sample Exchange Program, the purpose of which was to assist the potash laboratories in developing a high level of confidence in analytical results. This program, now named the *Canpotex Producer Sample Exchange Program using SPPA Methods* (CPSEP) has continued up to the present. Current participants include all Canpotex member potash mine site labs, the Nutrien Pilot Plant Lab, and independent third-party surveyor labs. The CPSEP provides participants with three unknown potash samples for analysis quarterly. Results for the unknown sample analysis are correlated by an independent agency that distributes statistical analysis and a summary report to all participants. Completed exchange program samples can be used for control standards as required in QA/QC sections of standard analytical procedures.

The Nutrien Pilot Plant is secured in the same way as modern office buildings are secured. Authorized personnel have access and visitors are accompanied by staff. No special security measures are taken beyond that. Currently, no external laboratory certification is held by the Nutrien Pilot Plant. On occasion, product quality check samples are sent to the Saskatchewan Research Council, a fully certified analytical facility.

In the opinion of the authors of the Technical Reports, the sample preparation, security, and analytical procedures are acceptable, are consistent with industry- standard practices, and are adequate for Mineral Resource and Reserve estimation purposes.

Assay Data Verification

The original 1950s, 1960s, and 1970s drillhole assays were studied by independent consultants chosen by the well licensee or potash operator at the time. Original assay results for core samples from historical drillholes were taken as accurate in these studies as there is no way to reliably reanalyze these samples. Most of the remaining core in storage have long since deteriorated to the point where they are not usable. More recent drillhole assay results have been analyzed by Company staff.

Ore grades of in-mine samples are measured in-house at the Allan, Cory, Lanigan, Rocanville and Vanscoy mines laboratory by Company staff using modern, standard chemical analysis tools and procedures; an independent agency does not verify these results. However, check sampling through the CPSEP does occur.

It should be noted that assay results from historical drillholes match in-mine sample results reasonably well – within 1% – even though drillhole sample spacing is much greater. This correlation is further validation of the in-mine sampling methodology. Mean mineral grade determined from in-mine samples taken over decades of mining at Allan, Cory, Lanigan, Rocanville and Vanscoy is thought to provide the most accurate measurement of potash grade for these mines, also providing a good basis for estimating ore grade in areas of future mining.

Exploration Data Verification

The purpose of any mineral exploration program is to determine extent, continuity, and grade of mineralization to a certain level of confidence and accuracy. Assay of physical samples (drillhole cores and/or in-mine samples) is the only way to gain information about mineral grade, but extent and continuity of mineralization are correctly determined using data collected from seismic surveys correlated with historic drilling information. To date surface seismic data collected at our mines have been analysed and verified by Company staff, at times in cooperation with an independent consultant.

Data for the mineral resource and reserve estimates for Allan, Cory, Lanigan, Rocanville and Vanscoy mines were verified by Company staff as follows:

- Review of potash assay sample information (drillholes and in-mine grade samples);
- Review of surface geophysical exploration results (3D and 2D seismic data);

- Crosscheck of mined tonnages reported by mine site technical staff with tonnages estimated from mine survey information; and
- Crosscheck of mineral resource and reserve calculations carried out by corporate technical staff.

In the opinion of the authors of the Technical Reports, this approach to data verification of potash mineral grade and surface seismic information is in accordance with generally accepted industry practice for areas adjacent and contiguous to an existing operating potash mine.

Potash Ore Density from In-Mine Mineral Grade Measurements

An estimate of in-situ rock density is used to calculate potash mineralization volumes in Mineral Resource and Reserve assessments. A common approach, and the one used by Nutrien, is to determine in-place Mineral Resource and Reserve volumes (m^3), then multiply this number by in-situ bulk-rock density (tonnes / m^3) to give in-place Mineral Resource and Reserve tonnes.

Well-log data from drillholes can be used to calculate bulk density if accurate and calibrated well-logs are acquired during exploration drilling. In practical terms, modern well-logs tend to meet these criteria, but historic well-logs (collected before the 1990s) do not. In Saskatchewan, almost all potash exploration drilling took place in the 1950s and 1960s, well before density logs were accurate and reliable.

Another approach, and the one used by Nutrien, is to look up density values for the minerals which constitute potash rock – values determined in a laboratory to a high degree of accuracy and published in reliable scientific journals / textbooks – then apply these densities to the bulk rock. Given that the density of each pure mineral is quantified and known, the only variable is what proportion of each mineral makes up the bulk rock. An obvious benefit of this approach is that a mean value computed on in-mine samples has a much greater confidence interval than a mean value computed from just a few drillhole assays.

The four main mineralogical components of the ore zones of Saskatchewan's Prairie Evaporite Formation with their respective mineral densities are:

<u>Mineral</u>	<u>Density (kg / m³)</u>	<u>Components</u>
Halite	2,170	NaCl
Sylvite	1,990	KCl
Carnallite	1,600	KMgCl ₃ · 6(H ₂ O)
Insolubles	2,510 – 2,870	Anhydrite, dolomite, quartz, muscovite, and other minor mineral components (<i>Nutrien Pilot Plant, 2018</i>)

All Nutrien potash mines measure and record the in-mine % K₂O grade and insoluble content of the mined rock. Magnesium content is only measured at Lanigan and Rocanville since carnallite is sometimes a component of the ore at these two mines. From this set of measurements, density of the ore can be calculated.

The value for insoluble density is based on known densities of the constituent parts of the insoluble components of the mineralization and the average occurrence of these insoluble components, which is known from over 50 years of mining experience at each of our operations. Assuming the lowest plausible density of insolubles known for Saskatchewan potash deposits of this nature, the effect upon overall bulk-rock ore density and Mineral Resource and Reserve calculations would be negligible.

From thousands of in-mine samples taken at Allan, bulk density for the Allan A Zone has been determined to be:

$$\begin{aligned}
 &= (\text{halite density} * \% \text{ halite}) + (\text{sylvite density} * \% \text{ sylvite}) + (\text{insolubles density} * \% \text{ insolubles}) \\
 &= (2,170 \text{ kg / m}^3 * 58.1\%) + (1,990 \text{ kg / m}^3 * 39.3\%) + (2,510 \text{ kg / m}^3 * 2.7\%) \\
 &= 2,116 \text{ kg / m}^3
 \end{aligned}$$

$$\mathbf{RHO_{\text{bulk-rock}} (\text{Allan A Zone}) = 2,116 \text{ kg / m}^3 = 2.11 \text{ tonnes / m}^3}$$

From thousands of in-mine samples taken at Vanscoy, bulk density for the Vanscoy A Zone has been determined to be:

$$\begin{aligned}
 &= (\text{halite density} * \% \text{ halite}) + (\text{sylvite density} * \% \text{ sylvite}) + (\text{insolubles density} * \% \text{ insolubles}) \\
 &= (2,170 \text{ kg / m}^3 * 57.3\%) + (1,990 \text{ kg / m}^3 * 38.3\%) + (2,510 \text{ kg / m}^3 * 4.4\%) \\
 &= 2,110 \text{ kg / m}^3
 \end{aligned}$$

$$\mathbf{RHO_{\text{bulk-rock}} (\text{Vanscoy A Zone}) = 2,110 \text{ kg / m}^3 = 2.12 \text{ tonnes / m}^3}$$

Historical Cory in-mine mineral grade analyses did not include measurements of the insoluble content, so potash bulk-rock density is calculated using thousands of in-mine samples from the adjacent Vanscoy A Zone.

$$\text{RHO}_{\text{bulk-rock}} (\text{Cory A Zone}) = \text{RHO}_{\text{bulk-rock}} (\text{Vanscoy A Zone}) = 2,116 \text{ kg / m}^3 = 2.12 \text{ tonnes / m}^3$$

From thousands of in-mine samples taken at Lanigan, bulk density for the Lanigan A Zone has been determined to be:

$$\begin{aligned} &= (\text{halite density} * \% \text{ halite}) + (\text{sylvite density} * \% \text{ sylvite}) + (\text{insolubles density} * \% \text{ insolubles}) + (\text{carnallite density} * \% \text{ carnallite}) \\ &= (2,170 \text{ kg / m}^3 * 54.64\%) + (1,990 \text{ kg / m}^3 * 38.21\%) + (2,510 \text{ kg / m}^3 * 6.12\%) + (1,600 \text{ kg / m}^3 * 1.03\%) \\ &= 2,138 \text{ kg / m}^3 \end{aligned}$$

$$\text{RHO}_{\text{bulk-rock}} (\text{Lanigan A Zone}) = 2,138 \text{ kg / m}^3 = 2.14 \text{ tonnes / m}^3$$

From thousands of in-mine samples taken at Lanigan, bulk density for the Lanigan B Zone has been determined to be:

$$\begin{aligned} &= (\text{halite density} * \% \text{ halite}) + (\text{sylvite density} * \% \text{ sylvite}) + (\text{insolubles density} * \% \text{ insolubles}) \\ &= (2,170 \text{ kg / m}^3 * 59.45\%) + (1,990 \text{ kg / m}^3 * 30.77\%) + (2,870 \text{ kg / m}^3 * 4.84\%) + (1,600 \text{ kg / m}^3 * 4.94\%) \\ &= 2,120 \text{ kg / m}^3 \end{aligned}$$

$$\text{RHO}_{\text{bulk-rock}} (\text{Lanigan B Zone}) = 2,120 \text{ kg / m}^3 = 2.12 \text{ tonnes / m}^3$$

To date, not enough B Zone mining has been carried out at Allan, Cory and Vanscoy to permit a bulk density calculation based on in-mine grade samples. If further test mining of the B Zone at these mines are conducted in future, there may be enough samples with all constituent minerals measured to warrant a change from what is reported. It is expected that any such change would have only a minimaleffect on bulk-rock density used in tonnage calculations. Instead, we use the potash bulk-rock density calculated using thousands of in-mine grade samples from Lanigan B Zone:

$$\text{RHO}_{\text{bulk-rock}} (\text{Allan, Cory, Vanscoy B Zone}) = \text{RHO}_{\text{bulk-rock}} (\text{Lanigan B Zone}) = 2,120 \text{ kg / m}^3 = 2.12 \text{ tonnes / m}^3$$

This estimate is considered acceptable since the B Zone at Allan, Cory and Vanscoy are the same potash seam as the Lanigan B Zone.

From thousands of in-mine samples taken at Rocanville, bulk density has been determined to be:

$$\begin{aligned} &= (\text{halite density} * \% \text{ halite}) + (\text{sylvite density} * \% \text{ sylvite}) + (\text{insolubles density} * \% \text{ insolubles}) + (\text{carnallite density} * \% \text{ carnallite}) \\ &= (2,170 \text{ kg / m}^3 * 57.5\%) + (1,990 \text{ kg / m}^3 * 35.4\%) + (2,790 \text{ kg / m}^3 * 1.0\%) + (1,600 \text{ kg / m}^3 * 6.1\%) \\ &= 2,078 \text{ kg / m}^3 \end{aligned}$$

$$\text{RHO}_{\text{bulk-rock}} (\text{Rocanville}) = 2,078 \text{ kg / m}^3 = 2.08 \text{ tonnes / m}^3$$

This method is as accurate as the ore grade measurements and mineral density estimates.

vii) Mineral Resource and Mineral Reserve Estimates

Definitions of Mineral Resource

The Canadian Institute of Mining and Metallurgy and Petroleum ("CIM") has defined mineral resource in *The CIM Definition Standards for Mineral Resources and Reserves* (2014) as:

1. **Inferred Mineral Resource:** that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. Geological evidence is sufficient to imply but not verify geological and grade or quality continuity.
2. **Indicated Mineral Resource:** that part of a mineral resource for which quantity, grade or quality, densities, shape and physical characteristics are estimated with sufficient confidence to allow the application of modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Geological evidence is derived from adequately detailed and reliable exploration, sampling and testing and is sufficient to assume geological and grade quality continuity between points of observation.

3. **Measured Mineral Resource:** that part of a mineral resource for which quantity, grade or quality, densities, shape, and physical characteristics are estimated with confidence sufficient to allow the application of modifying factors to support detailed mine planning and final evaluation of the economic viability of the deposit. Geological evidence is derived from detailed and reliable exploration, sampling and testing and is sufficient to confirm geological and grade or quality continuity between points of observation.

CIM defines Modifying Factors as “considerations used to convert mineral resources into mineral reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.”

In south-central Saskatchewan, where geological correlations are straightforward, and within a (potash) subsurface mineral lease at an operating potash mine, mineral resource categories are generally characterized by the Company as follows:

1. **Inferred Mineral Resource:** areas of limited exploration, such as areas that have been investigated through regional geological studies, or areas with 2D regional surface seismic coverage, little or no drilling, at some distance from underground workings, and within the applicable Crown lease.
2. **Indicated Mineral Resource:** areas of adequate exploration, such as areas with 3D surface seismic coverage, little or no drilling, at some distance from underground workings, and within the applicable Crown lease.
3. **Measured Mineral Resource:** areas of detailed, physical exploration through actual drilling or mine sampling, near existing underground workings, and within the applicable Crown lease.

Exploration information used to calculate reported Mineral Resource tonnages at each of our operations consist of both physical sampling (drillhole and in-mine) and surface seismic (2D and 3D). Based on the definitions and guidelines above, all mineral rights leased or owned by the Company, and within respective Crown Lease, are assigned to one of the three mineral resource categories. Mineral resources are reported as mineralization in-place and are exclusive of Mineral reserves.

The tonnage reported in the A Zone Measured Resource (Allan, Cory, Lanigan, and Vanscoy) is comprised of the potash that is within 1.6 km (1 mile) of a physically sampled location (i.e., drillholes or mine workings). Likewise, the tonnage reported in the Lanigan B Zone and Rocanville Measured Resource is comprised of the potash that is within 1.6 km (1 mile) of a physically sampled location (i.e., drillholes or mine workings). Also included as Measured Resource is the potash in the pillars of mined-out areas as there is the possibility of retrieving ore from the remnant mining pillars at some point in the future. An example of this is the Patience Lake mine which was successfully converted from a conventional mine to a solution mine after being lost to flooding in 1989. Since mining of remnant mining pillars is not anticipated in the near future at the Nutrien mines, in-place pillar mineralization remains as a Mineral Resource rather than a Mineral Reserve at this time.

Mineral Resource for each mine is updated when the corresponding NI43-101 Technical Report is issued. In between Technical Reports, it remains unchanged. Mineral resources are reported as mineralization in-place and are exclusive of mineral reserves. In-place tonnes were calculated for each of the Nutrien mine mineral resource categories using the following parameters.

Parameters used for Computing Resource and Reserve

Mine		Mining Height	Ore Density (tonnes / meter ³)
Allan	A Zone	3.35 meters (11 feet)	2.11
	B Zone	3.35 meters (11 feet)	2.12
Cory	A Zone	3.35 meters (11 feet)	2.12
	B Zone	3.35 meters (11 feet)	2.12
Lanigan	A Zone	3.66 meters (12 feet)	2.14
	B Zone	4.88 meters (16 feet)	2.12
Rocanville		2.51 meters (8.25 feet)	2.08
Vanscoy	A Zone	3.35 meters (11 feet)	2.12
	B Zone	3.35 meters (11 feet)	2.12

The mineral resource per the corresponding Technical Reports are as follows.

Inferred, Indicated and Measured Mineral Resource

Mine		Inferred Mineral Resource (millions of tonnes)		Indicated Mineral Resource (millions of tonnes)		Measured Mineral Resource (millions of tonnes)		Total Mineral Resource (millions of tonnes)
Allan	A Zone	1,164	2,333	2,533	5,078	1,183	2,890	10,301
	B Zone	1,169		2,545		1,707		
Cory	A Zone	1,284	2,570	612	1,225	1,056	2,452	6,247
	B Zone	1,286		613		1,396		
Lanigan	A Zone	348	808	1,458	3,384	2,299	5,211	9,403
	B Zone	460		1,926		2,912		
Rocanville		902		1,575		2,017		4,494
Vanscoy	A Zone	932	1,865	1,850	3,703	1,975	4,644	10,212
	B Zone	933		1,853		2,669		

Definitions of Mineral Reserve

CIM defined mineral reserve in The CIM Definition Standards for Mineral Resources and Reserves (2014) as:

1. **Probable Mineral Reserve:** the economically mineable part of an indicated, and in some circumstance, a measured, mineral resource. The confidence in the modifying factors applying to a probable mineral reserve is lower than that applying to a proven mineral reserve.
2. **Proven Mineral Reserve:** the economically mineable part of a measured mineral resource. A proven mineral reserve implies a high degree of confidence in the modifying factors.

CIM defines Modifying Factors as “considerations used to convert Mineral Resources into Mineral Reserves. These include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors.”

For Saskatchewan, in regions adjacent and contiguous to an operating potash mine and within a (potash) subsurface mineral lease, mineral reserve categories are characterized by the Company as follows:

1. **Probable Mineral Reserve:** identified recoverable potash mineralization classified as a measured resource, within a 1.6 km (1 mile) radius of a sampled mine entry or exploration drillhole contiguous to mine workings, and within the applicable Crown lease.
2. **Proven Mineral Reserve:** identified recoverable potash mineralization classified as a measured resource, delineated on at least three sides by sampled mined entries or exploration drillholes to a maximum of 3.2 km (2 miles) apart, and within the applicable Crown lease.

Using the definitions outlined above, a portion of the Allan, Cory, Lanigan, and Vanscoy A Zone Measured Resource has been converted to Mineral Reserve. Likewise, a portion of the Lanigan B Zone Measured Resource and a portion of the Rocanville Measured Resource has been converted to Mineral Reserve. The assigned Mineral Reserve category is dependent on proximity to sampled mined entries also described above. An overall extraction ratio for each of the mines has been applied to the qualifying areas outlined as Measured Resource.

Currently at Allan, Cory, Lanigan, and Vanscoy where there are two potash ore zones, in any specific mining block, only one of the two ore zones is mined (i.e., bi-level mining is not in practice). As such, Mineral Reserve is assigned only to the ore zone that will be mined in the future so that A Zone Mineral Reserve and B Zone Mineral Reserve do not overlap. At Allan, Cory, and Vanscoy, and certain portions of Lanigan, the B Zone potash mineralization directly underlying the defined A Zone Mineral Reserve is classified as B Zone Measured Resource. In the same way, because mining occurs in both zones at Lanigan, certain portions of the A Zone potash mineralization directly underlying the defined B Zone Mineral Reserve is classified as A Zone Measured Resource.

Since an extraction ratio has been applied to each of these Mineral Reserve categories, Mineral Reserves are considered recoverable ore, and are reported as such. Note that only drillholes whose 1.6 km radii are contiguous to mine workings or the 1.6 km radius placed around mine workings are used to compute probable mineral reserve. The remaining non-contiguous drillholes remain in the measured resource category.

Mineral Reserve for each mine is updated when the corresponding NI43-101 Technical Report is issued. In between Technical Reports, annual production tonnages are subtracted from the Proven Mineral Reserve. The mineral reserves as of December 31, 2022 are as follows.

Probable and Proven Mineral Reserve

Mine		Probable Mineral Reserve (millions of tonnes)		Proven Mineral Reserve (millions of tonnes)		Total Mineral Reserve (millions of tonnes)
Allan	A Zone	244	244	100	100	344
	B Zone	Nil		Nil		
Cory	A Zone	141	141	61	61	202
	B Zone	Nil		Nil		
Lanigan	A Zone	194	432	45	126	559
	B Zone	238		81		
Rocanville		293		173		466
Vanscoy	A Zone	326	326	177	177	503
	B Zone	Nil		Nil		

viii) Capital and Operating Costs

The Allan, Cory and Lanigan mines have been in operation since 1968, the Vanscoy mine has been in operation since 1969, and the Rocanville mine has been in operation since 1970. Since then, capital expenditures were made on a regular and ongoing basis to sustain production and to expand production from time to time. All construction was carried out without significant disruption to existing potash production from the sites.

Major Refurbishment and Expansion

Mine	Year of Major Refurbishment and Expansion	Increase in Nameplate Capacity of Finished Potash Products Per Year	Description of Work Completed
Allan	2013	4.0 million tonnes	Enhancement of hoists and shaft conveyances, major expansions of both mine and mill, improvements to loadout facilities and some infrastructure improvements.
Cory	2013	3.0 million tonnes	Increased hoist capacity, infrastructure improvements, major expansions of mine and mill, and improvements to loadout facilities.
Lanigan	2005 -2010	3.8 million tonnes	Mill rehabilitation, mine expansion and hoist improvement projects
Rocanville	2013 - 2017	6.5 million tonnes	Construction of a third shaft, enhancement of hoists and shaft conveyances, major expansions of both mine and mill, improvements to loadout facilities and some infrastructure improvements.
Vanscoy	2015	3.0 million tonnes	Increased hoist capacity, infrastructure improvements, major expansions of mine, mill, and TMA.

ix) Exploration, Development and Production

Potash production in any given year at our potash mines is a function of many variables, so actual production in any given year can vary dramatically from tonnages produced in previous years. The mineral reserve tonnage and historic average production are used to estimate remaining mine life. The table below summarizes mine life for each Nutrien site from December 31, 2022, assuming the average mining rate seen over the past three years (potash ore mined and hoisted per year) is sustained, and that the mineral reserves remain unchanged.

Mine	Average Yearly Mining Rate	Mineral Reserve (Total)	Mine Life
Allan	7.515 million tonnes	344	46 years
Cory	5.478 million tonnes	202	37 years
Lanigan	8.018 million tonnes	559	A Zone: 30 years B Zone: 40 years
Rocanville	16.667 million tonnes	466	28 years
Vanscoy	2.513 million tonnes	503	200 years

x) Mining Operations

All conventional potash mines in Saskatchewan operate at 900 m to 1,200 m below surface within 9 m to 30 m of the top of the Prairie Evaporite Formation. Over the scale of any typical Saskatchewan potash mine, potash beds are tabular and regionally flat-lying, with only moderate local variations in dip. Potash ore is mined using conventional mining methods, whereby:

- Shafts are sunk to the potash ore body;
- Continuous mining machines cut out the ore, which is hoisted to surface through the production shaft;
- Raw potash is processed and concentrated in a mill on surface; and
- Concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore.

At Allan, Cory, Lanigan and Vanscoy (the Saskatoon area mines), sinking of the two original shafts (production and ventilation shafts) from surface to the potash zone was completed in early 1968, and the first potash ore was hoisted that year. The two original Rocanville shafts were completed in 1970. The mines have run on a continuous basis other than short-term shutdowns taken for inventory management purposes, occasional plant maintenance and construction work, or other outages that are typical for operations of this nature. The exception to this was Vanscoy where a major inflow in 1970 halted production for two years (described in technical report).

At Allan, Cory, Lanigan and Vanscoy, the A Zone of the Patience Lake Member is mined. Additionally, at Lanigan both the A Zone and the B Zone are mined. The seams are separated by approximately 4 m to 6 m of tabular salt. Currently, in any specific mining block at Lanigan, only one zone is mined (i.e., bi-level mining is not in practice). Per the Technical Reports, mine elevations in the A Zone range from 940 m to 1,120 m at the Saskatoon area mines. These depths to A Zone potash mineralization are anticipated over most of the lease area for these mines. Mine workings are protected from aquifers in overlying formations by approximately 12 m of overlying salt and potash beds at Allan, Cory and Vanscoy, and by approximately 7 m (A Zone) to 14 m (B Zone) at Lanigan. Furthermore, the salt plugged porosity in the Dawson Bay Formation, a carbonate layer lying immediately above potash hosting salt beds at these mines provides further protection from overlying aquifers.

Virtually all Rocanville underground mining rooms are in the Esterhazy Member the Prairie Evaporite Formation. Per the Rocanville Technical Report, mine elevations range from approximately 895 m to 1,040 m. Within the Rocanville Crown Lease, depths to the top of the ore zone can reach up 1,250 m (the deepest potash exploration drillhole) but are expected to be shallower than 1,200 m over most of the lease area. Mine workings are protected from aquifers in overlying formations by approximately 30 m of overlying salt and potash beds, along with salt plugged porosity in the Lower Dawson Bay Formation, a carbonate layer lying immediately above potash hosting salt beds.

The highest mineral grade section at the Saskatoon area mines A Zone potash seam is approximately 3.35 m (11 feet) thick, with gradations to lower grade salts immediately above and below the mining horizon. The actual mining thickness at these mines are dictated by the height of continuous boring machines used to cut the ore which is typically either 3.35 m (11 feet) or 3.66 m (12 feet) (as described in the Technical Reports). The thickness of the B Zone mining horizon at Lanigan varies somewhat and there is some flexibility in the thickness of the potash ore that is extracted there. Production mining machines have a fixed mining height of 2.74 m (9 feet). In a normal production room ore is extracted in two lifts resulting in a mining height of approximately 4.88 m (16 feet).

Carnallite sometimes occurs in minor amounts in the basal part of the B Zone. Carnallite is an undesirable mill feed material. It is common at Lanigan to find carnallite in pod-like deposits and the larger pods can be mapped with seismic and avoided. If more than minor amounts of carnallite are detected in the floor, through physical sampling or with Ground Penetrating Radar, after the first lift of a production room in the B Zone, it is left in the floor (i.e., a second lift is not cut). In these instances, the B Zone mining height is just 2.74 m (9'). Carnallite is found in trace amounts in the A Zone; however, due to its low occurrence, mining practices remain unchanged when it is encountered.

The highest mineral grade section of the Rocanville potash seam is approximately 2.3 m (7.5 feet) thick, with gradations to lower grade sylvinite salts immediately above and below the mining horizon. The actual mining thickness at Rocanville is also dependent on the boring machine heights there, being either 2.44 m (8 feet) or 2.51 m (8.25 feet). Mining machines at Rocanville use potassium sensing technology to ensure that rooms are always cut in the best available potash ore.

All mines in the Saskatoon area, cuts to a marker (clay) seam that is slightly above the high-grade mineralized zone to establish a safe and stable mine roof. The top marker seam is slightly overcut by 10 to 20 cm. Clay seams are often planes of weakness, and if they are undercut, material immediately below the clay seam becomes a hazard as it may separate and fall. Since the hazard must be remediated prior to proceeding, thus slowing production, the moderately diluted mineral grade that results from the overcutting is preferable from a safety point of view.

Conservative local extraction ratios (never exceeding 45% in any mining block) are employed at all Saskatchewan mines in order to minimize potential detrimental effects of mining on overlying strata; this is common practice in flat-lying, tabular ore bodies overlain by water-bearing layers.

From the shaft-bottom, potash ore is hoisted approximately 1,000 m from the potash level through the vertical shafts to a surface mill. In addition to hoisting potash ore to surface, the production shaft also provides fresh air ventilation to the mine and serves as a secondary egress. The service shaft is used for service access, and exhaust ventilation from the mine.

xi) Environmental Studies, Permitting and Social or Community Impact

The tailings management strategy at all Nutrien potash mines in Saskatchewan, is one of sequestering solid mine tailings in an engineered and provincially licensed Tailing Management Area (TMA) near the surface plant site. Emissions to air consisting primarily of particulate matter are kept below regulatory limits through various modern air pollution abatement systems (e.g. dust collection systems built into mill processes) that are provincially licensed. This same procedure is followed at all of our mines in Saskatchewan.

In Saskatchewan, all potash tailings management activities are carried out under an "Approval to Operate" granted by the Saskatchewan Ministry of Environment (MOE), the provincial regulator. Staff at the mines actively monitor and inspect operations and routinely report the observations and measurements to the Environmental Protection Branch of MOE. The current Approval to Operate for our mines has been granted to July 1, 2028, the renewal date.

In terms of long-term decommissioning, environmental regulations of the Province of Saskatchewan require that all operating potash mines in Saskatchewan create a long-term decommissioning and reclamation plan that will ensure all surface facilities are removed, and the site is left in a chemically and physically stable condition once mine operations are complete. The Company has conducted numerous studies of this topic, and the most recent decommissioning and reclamation plan was approved by MOE technical staff in October 2016. Because the current expected mine life for the sites is many decades into the future, it is not meaningful to come up with detailed engineering designs for decommissioning annually. Instead, decommissioning plans are reviewed every five years, and updated to accommodate new concepts, technological change, incorporation of new data, and adjustments of production forecasts and cost estimates. Any updated decommissioning and reclamation reports generated by this process are submitted to provincial regulatory agencies. A revised decommissioning and reclamation plan was submitted for MOE review in July 2021.

In addition to the long-term decommissioning plan, provincial regulations require that every potash producing company in Saskatchewan setup an Environmental Financial Assurance Fund, which is to be held in trust for the decommissioning, restoration and rehabilitation of the plant site after mining is complete. This fund is for all mines we operate in the Province of Saskatchewan (i.e., Allan, Cory, Lanigan, Patience Lake, Rocanville, and Vanscoy).

xii) Taxes Relating to Potash Operations

Royalties are paid to the Province of Saskatchewan in connection with the Company's Potash operations, which holds most of the mineral rights in the lease areas, and royalties from Freehold lands are paid to various freeholders of mineral rights in the area. The Crown royalty rate is 3 percent and is governed by *The Subsurface Mineral Royalty Regulations, 2017*. The actual amount paid is dependent on selling price and production tonnes.

Municipal taxes are paid based on site property values to the applicable municipality in Saskatchewan. Saskatchewan potash production is taxed at the provincial level under *The Mineral Taxation Act, 1983*. This tax, governed by *The Potash Production Tax Regulations*, consists of a base payment and a profit tax, collectively known as the potash production tax. As a resource corporation in the Province of Saskatchewan, the Company is also subject to a resource surcharge equal to a percentage of the value of its resource sales (as defined in *The Corporation Capital Tax Act of Saskatchewan*). In addition to this, the Company pays federal and provincial income taxes based on corporate profits from all of its operations in Canada.

b) Allan Potash Operations

i) Project Description, Location and Access

General

The Allan mine is located in central Saskatchewan, approximately 45 kilometers east of the city of Saskatoon, Saskatchewan. The Legal Land Description (Saskatchewan Township/Range) of the Allan surface plant is Section 22 Township 34 Range 01 West of 3rd Meridian. More precisely, the Allan Shaft #2 collar is located at:

- Latitude: 51 degrees 55 minutes 55.56 seconds North
- Longitude: 106 degrees 04 minutes 18.84 seconds West
- Elevation: 524.26 meters above mean Sea Level (SL)
- Easting: 426,303.225 m
- Northing: 5,754,028.978 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

Per the Allan Technical Report, the Company owns approximately 3,404 hectares (8,411 acres) of surface rights required for current Allan mine operations, including all areas covered by the existing surface plant and TMA, and all surface lands required for anticipated future Allan mine and expanded milling operations.

Besides the proximity to Saskatoon, the Allan mine is served by a number of villages within 50 kilometers of the mine site. Allan is situated near the northern extent of the Great Plains of North America. Topography is relatively flat, with gently rolling hills and occasional valleys. There are no rivers or other major watercourse channels near the Allan mine site.

Mineral Rights

The original Allan Crown Subsurface Mineral Lease, numbered KL 112, was entered into in September 1962. In the following years, minor amendments were made to the Lease, resulting in Crown Subsurface Mineral Lease KL 112R. In October 2017, a large area of land was added to the Lease resulting in Crown Subsurface Mineral Lease KL 112R A. In January 2020, an additional area of land was added to KL 112R A, resulting in Crown Subsurface Mineral Lease KL 112R B (the "Allan Crown Lease") which covers an area of approximately 80,950 hectares (200,032 acres).

Per the Allan Technical report, the Company has leased potash mineral rights for 50,688 hectares (125,253 acres) of Crown Land and owns or has leased approximately 26,298 hectares (64,984 acres) of Freehold Land within the lease boundary. The Allan Crown Lease term is for a period of 21 years from September 2004, with renewals (at the Company's option) for 21-year periods. Freehold Lands also remain under lease providing, generally, that production is continuing and that there is a continuation of the Crown Lease.

Within the Allan Crown Lease area, 19,183 hectares (47,403 acres) are mined pursuant to unitization agreements with mineral rights holders (Crown and Freehold) within two unitized areas.

ii) Sampling Preparation, Analyses and Security

Mean Potash Mineral Grade From In-Mine Samples

At Allan, in-mine grade samples are taken by collecting fine "muck" from the floor of the mine approximately once per week per active mining face. This is roughly equivalent to a sample taken every 68 m to 74 m in production panels, and a sample taken every 85 m to 128 m in development panels. Per the Allan Technical Report, in-mine potash mineral grade samples collected from the Allan A Zone were analysed in the Allan mill laboratory using analysis techniques that were up to date for the era in which the sample was collected.

The median ore grade for this family of in-mine samples is 25.4% K₂O equivalent and the mean ore grade is 24.7%.

Per the Allan Technical Report, the B Zone mineral grade at Allan is reported to be 20.2% K₂O equivalent, the grade observed from the in-mine samples at the Lanigan mine where the B Zone has been extensively mined. Even though Allan mine is some distance from Lanigan, this is considered to be the best estimate of expected mineral grade for this potash layer because the

deposit is known to be regionally continuous from west of Vanscoy to east of Lanigan. Although it is possible that once mining proceeds into the B Zone the reported grade could change from what is reported, it is expected that any such change would be minimal.

iii) Mineral Processing and Metallurgical Testing

Since opening in 1968, 178.940 million tonnes of potash ore have been mined and hoisted at Allan to produce 63.201 million tonnes of finished potash products. Given this level of sustained production for over several decades, basic mineralogical processing and prospective metallurgical testing of Allan potash is not considered relevant.

iv) Mining Operations

In recent years, the Allan mine underwent a major expansion which brought the nameplate capacity up to 4.0 million tonnes of finished potash products per year. In 2022, operational capability at the Allan facility was 3.0 million tonnes per year. Operational capability may vary during the year and year-to-year including as between our potash operations.

The life of mine concentration ratio (raw-ore/finished potash products) is 2.83 and the overall extraction ratio over this period is 33%.

v) Processing and Recovery Operations

At Allan, potash ore has been mined and concentrated to produce saleable quantities of high grade finished potash products since 1968. Raw potash ore is processed on surface and concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore.

Over the past three years, production of finished potash products at Allan was:

- 2020: 2.792 million tonnes finished potash products at 61.20% K₂O (average grade)
- 2021: 2.781 million tonnes finished potash products at 61.17% K₂O (average grade)
- 2022: 2.501 million tonnes finished potash products at 61.18% K₂O (average grade)

Over the past decade actual mill recovery rates have been between 85.2% and 88.0%, averaging 86.4%. Given the long-term experience with potash geology and actual mill recovery at Allan, no fundamental potash milling problems are anticipated in the foreseeable future.

Quality control testing and monitoring geared towards fine-tuning and optimizing potash milling and concentrating processes are conducted on a continual basis at all our mine sites and research facilities. At Allan, this is no exception; test work to optimize circuit performance and ensure product quality is carried out on an ongoing basis.

vi) Infrastructure, Permitting and Compliance Activities

Project Infrastructure

Infrastructure is in place to meet current and projected requirements for transportation, energy (electricity and natural gas), water and process materials at Allan.

Surface facilities are accessed by existing paved roads and highways that are part of the Saskatchewan Provincial Highway System. All finished potash products are shipped by rail over existing track.

As per the Allan Technical Report, high-voltage power capacity at Allan is 44 MVA. The ten-year projection of power utilization indicates that the utility can meet all foreseeable future demand.

The Allan operation requires a sustained fresh water supply for the milling process which is provided from a local reservoir called the Bradwell Reservoir operated by SaskWater (approximately 6 km distant). This water supply provides a sustainable source of process water for Allan milling operations with no known impact on other users of water in the area.

Environmental Studies, Permitting and Social or Community Impact

The Allan TMA currently covers an area of approximately 600 hectares (1,483 acres) of land owned by the Company. Solid potash mine tailings typically consist of 85% to 95% rock salt (NaCl) and 5% to 15% insoluble (carbonate mud = CaCO₃, anhydrite mud = CaSO₄, and clays like chlorite, illite and so on). An engineered slurry-wall (in some portions, a compacted earth trench barrier) has been constructed where required around approximately half of the Allan TMA. In future years this wall can be expanded if required for operational needs. The slurry- wall provides secondary containment for any saline mine waters, minimizing brine impacts from the TMA to surrounding surface water bodies and near-surface aquifers. Areas surrounding the TMA are closely monitored: this includes everything from daily visual perimeter inspections to annual investigations and inspections of surrounding groundwater and aquifers.

Allan currently operates two brine disposal wells near the surface plant of the Allan mine where clear salt brine (i.e., no silt, clay slimes, or other waste) is borehole injected into the Winnipeg / Deadwood Formations, deep subsurface aquifers approximately 1,500 m to 1,700 m below the surface. The disposal wells are provincially licensed and formation water in these extensive deep aquifers is naturally saline.

c) Cory Potash Operations

i) Project Description, Location and Access

General

The Cory mine is located in central Saskatchewan, approximately 7 kilometers west of the city of Saskatoon, Saskatchewan. The Legal Land Description (Saskatchewan Township/Range) of the Cory surface operation is Section 18 Township 36 Range 06 West of 3rd Meridian. More precisely, the Cory service shaft collar is located at:

- Latitude: 52 degrees 05 minutes 30.15 seconds North
- Longitude: 106 degrees 51 minutes 16.32 seconds West
- Elevation: 503 meters above mean SL
- Easting: 372,951 m
- Northing: 5,772,861 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

Per the Cory Technical Report, the Company owns approximately 2,109 hectares (5,212 acres) of surface rights required for current Cory mine operations, including all areas covered by the existing surface plant and TMA, and all surface lands required for anticipated future Cory mine and expanded milling operations.

Besides the proximity to Saskatoon, the Cory mine is served by a number of villages within 50 kilometers of the mine site. Cory is situated near the northern extent of the Great Plains of North America. Topography is relatively flat, with gently rolling hills and occasional valleys. The Cory surface plant lies approximately 10 km northwest of the South Saskatchewan River, a major continental drainage channel.

Mineral Rights

The original Cory Crown Subsurface Mineral Lease, numbered KL 103, was signed and executed in September 1962. In the following years, minor amendments were made to the Lease, resulting in Crown Subsurface Mineral Lease KL 103B. In December 2020, inaccessible land in the northern part of Nutrien's adjacent Vanscoy Crown Lease were transferred into the Cory Crown Subsurface Mineral Lease KL103C (the "Cory Crown Lease") where they could be developed, KL 103C covers an area of approximately 51,438 hectares (127,107 acres).

Per the Cory Technical Report, the Company has leased potash mineral rights for 28,507 hectares (70,412 acres) of Crown Land and owns or has leased approximately 18,351 hectares (45,346 acres) of Freehold Land within the lease boundary. The Cory Crown Lease term is for a period of 21 years from September 15, 2004, with renewals (at the Company's option) for 21-year periods. Freehold Lands also remain under lease providing, generally, that production is continuing and that there is a continuation of the Crown Lease.

Within the Cory Crown Lease area, 29,772 hectares (73,569 acres) are mined pursuant to a unitization agreement with mineral rights holders (Crown and Freehold) within one unitized area.

ii) Sampling Preparation, Analyses and Security

Mean Potash Mineral Grade From In-Mine Samples

It has been the practice at Cory for the past several years to acquire two in-mine grade samples at the start of every cutting sequence and is done by collecting fine “muck” from the floor of the mine. The sampling frequency is equivalent to two samples taken approximately every 25 m in production panels, and two samples taken approximately every 50 m in development panels. In-mine grade sampling practices at Cory have varied over the years resulting in an irregular sample set. It is the belief of the authors that the average grade reported from these in-mine samples will become increasingly representative of Cory A Zone potash mineralization as standardized sampling continues. It will also lead to a normalized data distribution. At Cory, mill feed grade data collected over the years suggests a higher average grade than is found in the in-mine sample set.

Per the Cory Technical Report, in-mine potash mineral grade samples collected from the Cory A Zone were analysed in the Cory mill laboratory using analysis techniques that were up to date for the era in which the sample was collected.

The median ore grade for this family of in-mine samples is 23.0% K₂O equivalent and the mean ore grade is 21.9%.

Per the Cory Technical Report, the B Zone mineral grade at Cory is reported to be 20.3% K₂O equivalent, which is the grade observed from 20,030 in-mine samples at the Lanigan mine where the B Zone has been extensively mined. Even though Cory mine is some distance from Lanigan, this is considered to be the best estimate of expected mineral grade for this potash layer because the deposit is known to be regionally continuous from west of Vanscoy to east of Lanigan. Although it is possible that once mining proceeds into the B Zone the reported grade could change from what is reported, it is expected that any such change would be minimal.

iii) Mineral Processing and Metallurgical Testing

Since opening in 1968, 135.347 million tonnes of potash ore have been mined and hoisted to produce 42.329 million tonnes of finished potash products. Given this level of sustained production over several decades, basic mineralogical processing and prospective metallurgical testing of Cory potash is not considered relevant.

iv) Mining Operations

In recent years, the Cory mine underwent a major expansion which brought the nameplate capacity up to 3.0 million tonnes of finished potash products per year. In 2022, operational capability at the Cory facility was 2.0 million tonnes per year. Operational capability may vary during the year and year-to-year including as between our potash operations.

The life-of-mine concentration ratio (raw ore / finished potash products) is 3.20 and the overall extraction ratio over this period is 27%.

v) Processing and Recovery Operations

At Cory, potash ore has been mined and concentrated to produce saleable quantities of high grade finished potash products since 1968. Raw potash ore is processed on surface and concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore.

Over the past three years, production of finished potash products at Cory was:

- 2020: 1.403 million tonnes finished potash products at 61.58% K₂O (average grade)
- 2021: 1.768 million tonnes finished potash products at 61.48% K₂O (average grade)
- 2022: 1.888 million tonnes finished potash products at 61.58% K₂O (average grade)

Over the past decade, actual mill recovery rates have been between 71.1% and 83.0%, averaging 76.15%. Historically, mill recoveries at Cory were lower than at other Nutrien plants because a larger portion, and at one point all, of Cory's total production was made through the crystallization process. Given the long-term experience with potash geology and actual mill recovery at Cory, no fundamental potash milling problems are anticipated in the foreseeable future.

Quality control testing and monitoring geared towards fine-tuning and optimizing potash milling and concentrating processes are conducted on a continual basis at all our mine sites and research facilities. At Cory, this is no exception; test work to optimize circuit performance and ensure product quality is carried out on an ongoing basis.

vi) Infrastructure, Permitting and Compliance Activities

Project Infrastructure

Infrastructure is in place to meet current and projected requirements for transportation, energy (electricity and natural gas), water and process materials at Cory.

Surface facilities are accessed by an existing paved road that is part of the Saskatchewan Provincial Highway System. Most finished potash products are shipped by rail over existing track, with some product shipped by truck over the North American highway system.

As per the Cory Technical Report, high-voltage power capacity at Cory is 52 MVA. The ten-year projection of power utilization indicates that the utility can meet all foreseeable future demand.

The Cory operation requires a sustained fresh water supply for the milling process which is provided by a waterline from the South Saskatchewan River (approximately 10 km distant). This water supply is provincially licensed and provides a sustainable source of process water for Cory milling operations with no known impact on other users of water in the area.

Environmental Studies, Permitting and Social or Community Impact

The Cory TMA currently covers an area of approximately 416 hectares (1,027 acres) of land owned by the Company. Solid potash mine tailings typically consist of 85% to 95% rock salt (NaCl) and 5% to 15% insolubles (carbonate mud = CaCO₃, anhydrite mud = CaSO₄, and clays like chlorite, illite, and so on). An engineered slurry-wall has been constructed on the north, west, and south sides of the Cory TMA in the areas where near-surface aquifers could be impacted by mine waters. Near-surface geology to the east of the TMA limits the possibility of brine migration into these areas. The slurry-wall provides secondary containment of any saline mine waters, stopping these brines from reaching surrounding near-surface aquifers. Areas surrounding the TMA are closely monitored: this includes everything from daily visual perimeter inspections to annual investigations and inspections of surrounding groundwater and aquifers.

Cory currently operates four brine disposal wells near the surface plant of the Cory mine where clear salt brine (i.e., no silt, clay slimes, or other waste) is borehole-injected into the Winnipeg / Deadwood Formations, deep subsurface aquifers approximately 1,500 m to 1,700 m below the surface. The disposal wells are provincially licensed and formation waters in these extensive deep aquifers is naturally saline.

d) Lanigan Potash Operations

i) Project Description, Location and Access

General

The Lanigan mine is located in central Saskatchewan, approximately 100 kilometers east of the city of Saskatoon, Saskatchewan. The Legal Land Description (Saskatchewan Township/Range) of the Lanigan surface operation is Section 28 Township 33 Range 23 West of 2nd Meridian. More precisely, the Lanigan Shaft #2 collar is located at:

- Latitude: 51 degrees 51 minutes 20.48 seconds North
- Longitude: 105 degrees 12 minutes 34.79 seconds West
- Elevation: 535.34 meters above mean SL
- Easting: 485,560.306 m
- Northing: 5,745,008.726 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

Per the Lanigan Technical Report, the Company owns approximately 3,980 hectares (9,836 acres) of surface rights required for current Lanigan mine operations, including all areas covered by the existing surface plant and TMA, and all surface lands required for anticipated future Lanigan mine and expanded milling operations.

Lanigan is situated near the northern extent of the Great Plains of North America. Topography is relatively flat, with gently rolling hills and occasional valleys. There are no rivers or other major watercourse channels near the Lanigan minesite.

Mineral Rights

The original Lanigan Crown Subsurface Mineral Lease, numbered KL 100, was entered into in March 1964. A minor amendment to this lease in September 1989 resulted in KL 100R. In November 2009, a large area of land was added to the lease resulting in KLSA 001. Shortly after that, in June 2011, a minor amendment to the lease resulted in KLSA 001 A. KLSA 001 B was issued in September 2014 when portions of the adjacent exploration permits, granted in September 2011, were added to the lease. Finally, in November 2015, a minor change to the lease resulted in KLSA 001 C (the “Lanigan Crown Lease”). The Lanigan Crown Lease covers an area of approximately 56,328 hectares (139,190 acres),

Per the Lanigan Technical Report, the Company has leased potash mineral rights for 38,188 hectares (94,365 acres) of Crown land and owns or has leased approximately 17,913 hectares (44,265 acres) of Freehold land within the lease boundary. It should be noted that there was an increase to the Crown lease in 2022. The Lanigan Crown lease term is for a period of 21 years from March 2006, with renewals (at the Company’s option) for 21-year periods. Freehold lands also remain under lease providing, generally, that production is continuing and that there is a continuation of the Crown lease.

Within the Lanigan Crown Lease area, 55,950 hectares (138,256 acres) are mined pursuant to unitization agreements with mineral rights holders (Crown and Freehold) within two unitized areas.

ii) Sampling Preparation, Analyses and Security

Mean Potash Mineral Grade From In-Mine Samples

In the Lanigan A Zone, in-mine grade samples are taken by collecting fine “muck” from the floor of the mine at the start of every cutting sequence. This is equivalent to a sample taken every approximately 23 m (76 feet) in production panels, and a sample taken every approximately 47 m (155 feet) in development panels. Per the Lanigan Technical Report, in-mine potash mineral grade samples collected from the Lanigan A Zone were analysed in the Lanigan mill laboratory using up-to-date analysis techniques.

The median ore grade for this family of in-mine samples is 25.2% K₂O equivalent and the mean ore grade is 24.3%.

In the Lanigan B Zone, in-mine grade samples are taken from the floor every 60 m (200 feet) in newly mined rooms. Per the Lanigan Technical Report, in-mine potash mineral grade samples collected from the Lanigan B Zone were analysed in the Lanigan mill laboratory using analysis techniques that were up to date for the era in which the sample was collected.

The median ore grade for this family of in-mine samples is 20.8% K₂O equivalent and the mean ore grade is 20.2%.

In 2013, Lanigan modified its cutting practices in the B Zone to improve mine roof stability. This modification involved cutting in a slightly higher, but more stable horizon. The goal of improved mine roof stability was achieved; however, less potash and more salt is now being mined resulting in a slightly lower reported ore grade for B Zone.

iii) Mineral Processing and Metallurgical Testing

Since opening in 1968, 237.651 million tonnes of potash ore have been mined and hoisted to produce 69.723 million tonnes of finished potash products. Given this level of sustained production over several decades, basic mineralogical processing, and prospective metallurgical testing of Lanigan potash is not considered relevant.

iv) Mining Operations

In recent years, the Lanigan mine underwent a major expansion which brought the nameplate capacity to 3.8 million tonnes per year. In 2022, operational capability at the Lanigan facility was 2.7 million tonnes per year. Operational capability may vary during the year and year-to-year including as between our potash operations.

The life of mine concentration ratio (raw ore/finished potash products) is 3.42 and the overall extraction ratio over this period is 26%.

v) Processing and Recovery Operations

At Lanigan, potash ore has been mined and concentrated to produce saleable quantities of high-grade finished potash products since 1968. Raw potash ore is processed on surface and concentrated red potash products are sold and shipped to markets in North America and offshore.

Over the past three years, production of finished potash products at Lanigan was:

- 2020: 2.330 million tonnes finished potash products at 60.97% K₂O (average grade)
- 2021: 2.912 million tonnes finished potash products at 61.00% K₂O (average grade)
- 2022: 2.457 million tonnes finished potash products at 60.99% K₂O (average grade)

Over the past decade, actual mill recovery rates have been between 80.1% and 85.9%, averaging 83.1%.

Given the long-term experience with potash geology and actual mill recovery at Lanigan, no fundamental potash milling problems are anticipated in the foreseeable future.

Quality control testing and monitoring geared towards fine-tuning and optimizing potash milling and concentrating processes are conducted on a continual basis at all our mine sites and research facilities. At Lanigan, this is no exception; test work to optimize circuit performance and ensure product quality is carried out on an ongoing basis.

vi) Infrastructure, Permitting and Compliance Activities

Project Infrastructure

Infrastructure is in place to meet current and projected requirements for transportation, energy (electricity and natural gas), water and process materials at Lanigan.

Surface facilities are accessed by existing paved roads and highways that are part of the Saskatchewan Provincial Highway System. All finished potash products are shipped by rail over existing track.

As per the Lanigan Technical Report, high voltage power capacity at Lanigan is 52 MVA. The ten-year projection of power utilization indicates that the utility can meet all foreseeable future demand.

The Lanigan operation requires a sustained fresh water supply for the milling process which is provided by a waterline from the Dellwood Reservoir (approximately 10 km distant) and from a regional aquifer called the Hatfield Valley Aquifer. This water supply is provincially licensed and provides a sustainable source of process water for Lanigan milling operations with no known impact on other users of water in the area.

Environmental Studies, Permitting and Social or Community Impact

The Lanigan TMA currently covers an area of approximately 708 hectares (1,750 acres) of land owned by the Company. Solid potash mine tailings typically consist of 85% to 95% rock salt (NaCl) and 5% to 15% insolubles (carbonate mud = CaCO₃, anhydrite mud = CaSO₄, and clays like chlorite, illite, and so on). An engineered slurry-wall has been constructed on the south and southwest sides of the Lanigan TMA in the areas where near-surface aquifers could be impacted by mine waters. Near-surface geology on all other sides of the TMA limits the possibility of brine migration into these areas. The slurry-wall provides secondary containment of any saline mine waters, stopping these brines from reaching surrounding near-surface aquifers. Areas surrounding the TMA are closely monitored; this includes everything from daily visual perimeter inspections to annual investigations and inspections of surrounding groundwater and aquifers.

Lanigan currently operates three brine disposal wells near the surface plant of the Lanigan mine where clear salt brine (i.e., no silt, clay-slimes, or other waste) is borehole-injected into the Winnipeg / Deadwood Formations, deep subsurface aquifers approximately 1,500 m to 1,700 m below surface. The disposal wells are provincially licensed and formation water in these extensive deep aquifers is naturally saline.

e) Rocanville Potash Operations

i) Project Description, Location and Access

General

The Rocanville mine is located in southeastern Saskatchewan near the Saskatchewan-Manitoba Provincial Boundary, approximately 15 kilometers northeast of the town of Rocanville, Saskatchewan. The Legal Land Description (Saskatchewan Township/Range) of the Rocanville surface plant is Section 22 Township 17 Range 30 West of the 1st Meridian. More precisely, the Rocanville #2 Shaft collar is located at:

- Latitude: 50 degrees 28 minutes 19.54 seconds North
- Longitude: 101 degrees 32 minutes 42.58 seconds West

- Elevation: 480.36 meters above mean SL
- Easting: 745,137.307 m
- Northing: 5,596,826.122 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

The legal description (Saskatchewan Township / Range) of the Rocanville Scissors Creek Shaft is Section 13 Township 17 Range 32 West of the 1st Meridian and is approximately 12 kilometers north-west of the town of Rocanville, Saskatchewan. More precisely, the Shaft collar is located at:

- Latitude: 50 degrees 27 minutes 7.0632 seconds North
- Longitude: 101 degrees 46 minutes 13.58 seconds West
- Elevation: 525.35 metres above mean SL
- Easting: 729,253.35 m
- Northing: 5,593,868.30 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

As per the Rocanville Technical Report, the Company owns approximately 3,244 hectares (8,016 acres) of surface rights required for current Rocanville mine operations, including all areas covered by the existing surface plant and TMA, and all surface lands required for anticipated future Rocanville mine and expanded milling operations.

The Rocanville mine is served by a number of towns and villages within 50 kilometers of the mine site. The nearest towns are Rocanville (15 km distant), Moosomin and Esterhazy (both 50 km distant). The nearest city is Yorkton (100 km distant). Rocanville is situated near the north extent of the Great Plains of North America. Topography is relatively flat, with gently rolling hills and occasional valleys.

Mineral Rights

The original Rocanville Crown Subsurface Mineral Lease KL 111 was entered into in June 1966. In the following years various minor amendments were made to this Crown lease, resulting in Crown Subsurface Mineral Lease KL 111R. A new Crown Subsurface Mineral Lease numbered KLSA 002 was issued in February 2010 incorporating all Crown mineral rights within the existing Crown Lease KL 111R and approximately two-thirds of Crown mineral rights covered in KP 338A. The portion of the lands that were not part of the Lease amalgamation remained as Crown Exploration Permit KP 338B until December 2016 when they were converted to a Crown Subsurface Mineral Lease numbered KL 249. In October 2017, KL 305 was formed by the amalgamation of Crown Subsurface Leases KLSA 002 (KLSA 002B, following minor amendments) and KL 249. KL 305 covers an area of approximately 113,975 hectares (281,639 acres). In May 2020, a Crown Subsurface Mineral Lease numbered KL 279, was acquired from North Atlantic Potash. KL 279 covers an area of approximately 56,540 hectares (139,712 acres).

Per the Rocanville Technical Report, the Company has leased potash mineral rights for 54,184 hectares (133,892 acres) of Crown Land and owns or has leased approximately 45,612 hectares (112,710 acres) of Freehold Land within KL 305. The Rocanville Crown Lease terms are for a period of 21 years from October 2017 and May 2017, with renewals at the Company's option for 21-year periods. Freehold Lands also remain under lease providing, generally, that production is continuing and that there is a continuation of the Crown Lease.

Within the current Rocanville Crown Lease area, 80,181 hectares (198,132 acres) are mined pursuant to unitization agreements with mineral rights holders (Crown and Freehold) within two unitized areas.

ii) Sampling Preparation, Analyses and Security

Mean Potash Mineral Grade From In-Mine Samples

In-mine grade samples are taken by collecting fine "muck" from the floor of the mine at 60 m intervals in every underground mine room at Rocanville. Per the Rocanville Technical Report, in-mine ore grade samples were collected and analysed in the Rocanville mill laboratory using analysis techniques that were up to date for the era in which the sample was collected.

The mean ore grade for this family of in-mine samples is 23.1% K₂O equivalent, while the median ore grade for this family of in-mine samples is 23.3% K₂O.

iii) Mineral Processing and Metallurgical Testing

Since opening in 1970, 314.152 million tonnes of potash ore have been mined and hoisted at to produce 101.283 million tonnes of finished potash product. Given this level of sustained production over several decades, basic mineralogical processing and prospective metallurgical testing of Rocanville potash is not considered relevant.

iv) Mining Operations

In recent years the Rocanville mine has undergone a major expansion which brought the nameplate capacity to 6.5 million tonnes of finished potash products per year. In 2022, operational capability at the Rocanville facility was 5.2 million tonnes per year. Operational capability may vary during the year and year-to-year including as between our potash operations.

The life-of-mine average concentration ratio (raw ore/finished potash products) is 3.10 and the overall extraction ratio over this period is 31%.

v) Processing and Recovery Operations

At Rocanville, potash ore has been mined and concentrated to produce saleable quantities of high-grade finished potash products since 1970. Raw potash ore is processed on surface and concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore.

Over the past three years, production of finished potash products at Rocanville was:

- 2020: 5.285 million tonnes finished potash products at 60.60% K₂O (average grade)
- 2021: 5.001 million tonnes finished potash products at 60.52% K₂O (average grade)
- 2022: 4.886 million tonnes finished potash products at 60.51% K₂O (average grade)

Over the past decade actual mill recovery rates have been between 81.5% and 84.4%, averaging 83.2%. Given the long-term experience with potash geology and actual mill recovery at Rocanville no fundamental potash milling problems are anticipated in the foreseeable future.

Quality control testing and monitoring geared towards fine-tuning and optimizing potash milling and concentrating processes are conducted on a continual basis at all our mine sites and research facilities. At Rocanville, this is no exception; test work to optimize circuit performance and ensure product quality is carried out on an ongoing basis.

vi) Infrastructure, Permitting and Compliance Activities

Project Infrastructure

Infrastructure is in place to meet current and projected requirements for transportation, energy (electricity and natural gas), water and process materials at Rocanville.

Surface facilities are accessed by an existing paved road that is part of the Saskatchewan Provincial Highway System. Most finished potash products are shipped by rail over existing track, with some product shipped by truck over the North American highway system.

As per the Rocanville Technical Report, high voltage power utilization at the Rocanville mine is 84 MVA (i.e., 72 MVA to the Rocanville Plant site plus 12 MVA to the Scissors Creek site). The ten-year projection of power utilization indicates that the utility can meet foreseeable future demand.

The Rocanville operation requires a sustained fresh water supply for the milling process which is sourced from two subsurface reservoirs called the Welby Plains Surficial Aquifer and the Welby Plains Middle Aquifer. These aquifers provide a sustainable source of process water for Rocanville milling operations, with no known impact on other users of water drawn from these aquifers.

Environmental Studies, Permitting and Social or Community Impact

The Rocanville TMA currently covers an area of approximately 567 hectares (1,400 acres) of land owned by the Company. Solid potash mine tailings typically consist of 85% to 95% rock salt (NaCl) and 5% to 15% insolubles (carbonate mud = CaCO₃, anhydrite mud = CaSO₄, and clays like chlorite, illite, and so on). An engineered slurry-wall has been constructed around the entire Rocanville TMA. The slurry-wall provides secondary containment for any saline mine waters, minimizing brine impacts from the TMA to

surrounding surface water bodies and near-surface aquifers. Areas surrounding the TMA are closely monitored: this includes everything from daily visual perimeter inspections to annual investigations and inspections of surrounding subsurface aquifers.

Rocanville currently operates two brine disposal wells near the surface plant of the Rocanville mine where clear salt brine (i.e., no silt, clay slimes or other waste) is drillhole-injected into the Interlake Carbonates, at a depth of approximately 1,200 m to 1,400 m below surface. The disposal wells are provincially licensed and formation water in these extensive deep aquifers is naturally saline.

f) Vanscoy Potash Operations

i) Project Description, Location and Access

General

The Vanscoy mine is located in central Saskatchewan, approximately 26 kilometers west of the city of Saskatoon, Saskatchewan. The Legal Land Description (Saskatchewan Township / Range) of the Vanscoy surface plant is Section 16 Township 35 Range 08 West of 3rd Meridian. More precisely, the Vanscoy service shaft collar is located at:

- Latitude: 52 degrees 00 minutes 28.74 seconds North
- Longitude: 107 degrees 05 minutes 25.18 seconds West
- Elevation: 505 meters above mean SL
- Easting: 356,531 m
- Northing: 5,763,989 m
- Projection: UTM
- Datum: NAD83
- Zone: 13

Per the Vanscoy Technical Report, the Company owns approximately 2,740 hectares (6,771 acres) of surface rights required for current Vanscoy mine operations, including all areas covered by the existing surface plant and TMA, and all surface lands required for anticipated near-future Vanscoy mine and expanded milling operations.

The Vanscoy mine is served by a number of villages within 50 kilometers of the mine site. The nearest city is Saskatoon (26 km distant). Vanscoy is situated near the northern extent of the Great Plains of North America. Topography is relatively flat, with gently rolling hills and occasional valleys. The Vanscoy surface plant lies approximately 20 km north-west of the South Saskatchewan River, a major continental drainage channel.

Mineral Rights

The original Vanscoy Crown Subsurface Mineral Lease, numbered KL 114, was entered into in January 1969. In the following years, minor amendments were made to the Lease, resulting in Crown Subsurface Mineral Lease KL 114B. In March 2008, the SMER approved the conversion of Agrium's Potash Exploration Permit KP 313 to a new Crown Subsurface Mineral Lease numbered KL 204. In December 2020, after additional geological studies were completed, Vanscoy Crown Subsurface Mineral Lease KL 114C (the "Vanscoy Crown Lease") was executed incorporating most of the lands held previously under KL 204.

Per the Vanscoy Technical Report, KL 114C covers an area of approximately 82,115 hectares (202,910 acres). At Vanscoy, the Company has leased potash mineral rights for 63,973 hectares (158,081 acres) of Crown land and owns or has leased from freeholders approximately 13,669 hectares (33,777 acres) within the lease boundary. The Vanscoy Crown Lease term is for a period of 21 years from July 1, 2012, with renewals (at the Company's option) for 21-year periods. Freehold lands also remain under lease providing, generally, that production is continuing and that there is a continuation of the Crown Lease.

Within the Vanscoy Crown Lease area 12,671.59 hectares (31,312.17 acres) are mined pursuant to a unitization agreement with mineral rights holders (Crown and Freehold) within one unitized area.

ii) Sampling Preparation, Analyses and Security

Mean Potash Mineral-Grade From In-Mine Samples

At Vanscoy, in-mine grade samples have been acquired by 1) sampling ore from the beltline, 2) channel samples from the sidewall, or 3) collecting fine "muck" from the floor of the mine. At present, fine muck sampling from the floor is most common, and each mining room is sampled at a frequency of approximately 95 m to 125 m. Since start-up in 1969 through to the end of December 2020, a total of 3,173 useable in-mine potash mineral grade samples were collected from the A Zone. All samples were analysed in the Vanscoy mill laboratory using analysis techniques that were up to date for the era in which the sample was collected.

The median ore grade for this family of in-mine samples is 25.5% K₂O equivalent and the mean ore grade is 24.2%.

Per the Vanscoy Technical Report, the B Zone at Vanscoy, mineral grade is reported to be 20.3% K₂O equivalent, the grade observed from 20,230 in-mine samples at the Lanigan mine where the B Zone has been extensively mined. Even though Vanscoy mine is some distance from Lanigan, this is considered the best estimate of expected mineral grade for this potash layer because the deposit is known to be regionally continuous from west of Vanscoy to east of Lanigan. Although it is possible that if mining proceeds into the B Zone, the reported grade could change from what is reported. It is expected that any such change would be minimal.

iii) Mineral Processing and Metallurgical Testing

Since opening in 1969, 186.115 million tonnes of potash ore have been mined and hoisted to produce 62.941 million tonnes of finished potash product. Given this level of sustained production for over several decades, basic mineralogical processing and prospective metallurgical testing of Vanscoy potash is not considered relevant.

iv) Mining Operations

In recent years, the Vanscoy mine underwent a major expansion which brought the nameplate capacity up to 3.0 million tonnes of finished potash products per year. In 2022, operational capability at the Vanscoy facility was 1.1 million tonnes per year. Operational capability may vary during the year and year-to-year including as between our potash operations.

The life-of-mine average concentration ratio (raw ore / finished potash products) is 2.96 and the overall extraction ratio over this period is 28%.

v) Processing and Recovery Operations

At Vanscoy, potash ore has been mined and concentrated to produce saleable quantities of high grade finished potash products since 1969. Raw potash ore is processed on surface and concentrated finished potash products (near-pure KCl) are sold and shipped to markets in North America and offshore.

Over the past three years, production of finished potash products at Vanscoy was:

- 2020: 0.513 million tonnes finished potash products at 60.76% K₂O (average grade)
- 2021: 1.047 million tonnes finished potash products at 60.07% K₂O (average grade)
- 2022: 1.010 million tonnes finished potash products at 59.98% K₂O (average grade)

Over the past decade, actual mill recovery rates have been between 76.0% and 83.2%, averaging 80.3%. Given the long-term experience with potash geology and actual mill recovery at Vanscoy, no fundamental potash milling problems are anticipated in the foreseeable future.

Quality control testing and monitoring geared towards fine-tuning and optimizing potash milling and concentrating processes are conducted on a continual basis at our mine sites and research facilities. At Vanscoy, this is no exception; test work to optimize circuit performance and ensure product quality is carried out on an ongoing basis.

vi) Infrastructure, Permitting and Compliance Activities

Project Infrastructure

Infrastructure is in place to meet current and projected requirements for transportation, energy (electricity and natural gas), water and process materials at Vanscoy.

Surface facilities are accessed by an existing paved road that is part of the Saskatchewan Provincial Highway System. Most finished potash products are shipped by rail over existing track, with some product shipped by truck over the North American highway system.

As per the Vanscoy Technical Report, high voltage power capacity at Vanscoy is 57 MVA. The ten-year projection of power utilization indicates that the utility can meet all foreseeable future demand.

The Vanscoy operation requires a sustained fresh water supply for the milling process which is provided by a waterline from the Saskatchewan River (approximately 20 km distant). This water supply is provincially licensed and provides a sustainable source of process water for Vanscoy milling operations with no known impact on other users of water in the area.

Environmental Studies, Permitting and Social or Community Impact

The Vanscoy TMA currently covers an area of approximately 610 hectares (1,507 acres) of land owned by the Company. Solid potash mine tailings typically consist of 85% to 95% rock salt (NaCl) and 5% to 15% insolubles (carbonate mud = CaCO_3 , anhydrite mud = CaSO_4 , and clays like chlorite, illite, and so on). An engineered slurry-wall (bentonite cut-off wall) has been constructed around the Vanscoy TMA. In future years this wall can be expanded if required for operational needs. The slurry-wall provides secondary containment for any saline mine waters, minimizing brine impacts from the TMA to surrounding surface water bodies and near-surface aquifers. Areas surrounding the TMA are closely monitored: this includes everything from daily visual perimeter inspections to annual investigations and inspections of surrounding groundwater and aquifers.

Vanscoy currently operates two brine disposal wells near the surface plant of the Vanscoy mine where clear salt brine (i.e., no silt, clay slimes, or other waste) is borehole-injected into the Winnipeg / Deadwood Formations, deep subsurface aquifers approximately 1,500 m to 1,700 m below the surface. The disposal wells are provincially licensed, and groundwater in these extensive deep aquifers is naturally saline.