

# **ENVIRONMENTAL SUSTAINABILITY**

How we do business





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One Boart Longyear

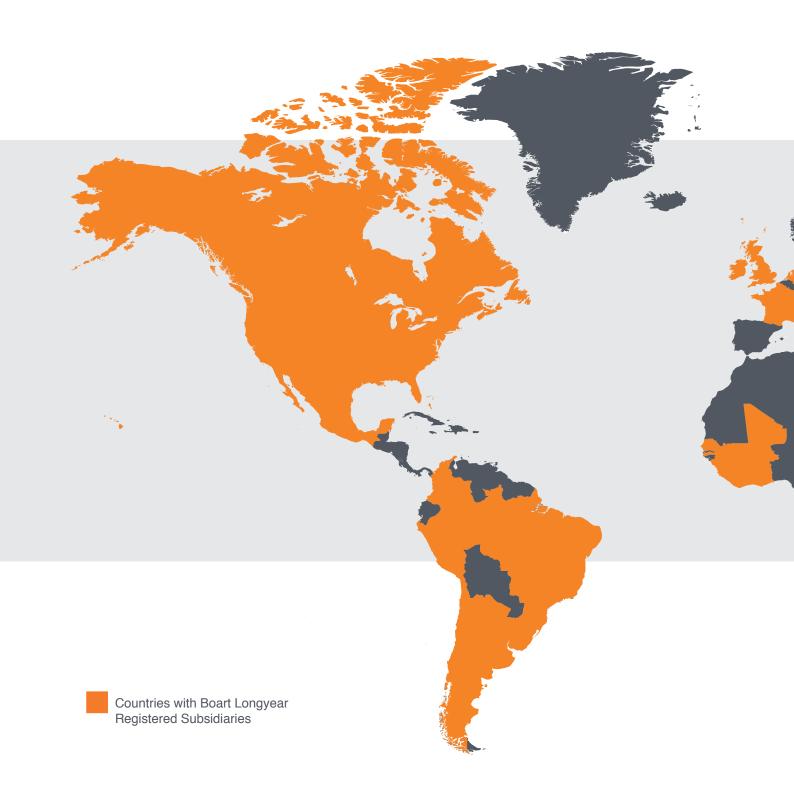
Environmental Sustainability



# ABOUT BOART LONGYEAR

Boart Longyear is the world's largest provider of mineral exploration, drilling services and drilling products. The Company also has a substantial drilling presence in water services, environmental sampling, energy and oil sands exploration. The Company has over 120 years of expertise in the industry. Headquartered in Salt Lake City, Utah, USA with regional offices in Santiago, Chile, Adelaide, Australia, Geneva, Switzerland and Mississauga, Canada, the company conducts contract drilling services in over 40 countries and provides mining products to customers in over 100 countries.

## **OUR GLOBAL OPERATIONS**







### LEVERAGING STRENGTHS ACROSS THE GLOBE



## **ONE BOART LONGYEAR**

With operations in all corners of the world, Boart Longyear is committed to delivering "One Boart Longyear" to all clients.

To drive global alignment and consistency, the company is organized into four regions; North America, Latin America, Europe/Middle East/Africa, and Asia-Pacific. Backed by our corporate infrastructure, systems and standards, our regional and country teams support our customers by ensuring delivery of uniform quality and customer service throughout the world.

The mining exploration business takes Boart Longyear and its customers to some of the most challenging business environments in the world, but our compliance standards and resources ensure our personnel know how to do business the right way, protecting our clients and the communities in which they operate.

## **GLOBAL CONSISTENCY**

Boart Longyear offers its clients global consistency in all aspects of its business:

- Safety
- Compliance
- Environmental Sustainability
- Service Quality and Crew Competency
- Modern "Drill Ready" Rig Fleet
- Global Contract Support
- Continuous Flow of New Technology



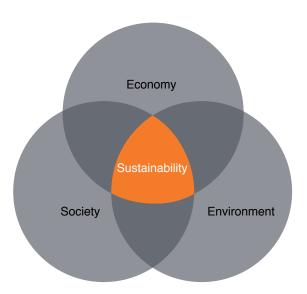
# ENVIRONMENTAL SUSTAINABILITY



# ENVIRONMENTAL SUSTAINABILITY

The formal incorporation of environmental principles into the Boart Longyear business model.

- An evolution beyond ISO-14001 certification.
- Global application to all manufacturing, support, and drilling services activities.



## **METRICS**

#### **Air Quality Impacts**

- Engine hours of operation
- Fuel consumption (diesel, gasoline, natural gas, propane)
- Fleet engine inventory and specifications
- Vehicle mileage
- Airline travel mileage

#### **Energy Conservation**

• Electric power consumption

#### **Waste Minimization**

- Waste generation
- Recycling

## **Hazardous Materials Inventory and Minimization**

- Hazardous materials inventories
- Hazardous waste generation

#### **Water Quality Impacts & Conservation**

- Spill Incidents (reportable and non-reportable)
- Water consumption

## THREE-YEAR IMPLEMENTATION

2012:
Program
announcement and
data collection of key
performance indicators

2013-14: Data analysis, continued data collection and establishment of interim goals 2015: Program assessment

# AIR QUALITY CONTROLS

Clean, healthy air for our employees, families and communities.

Tracking, management and reduction of air emissions and greenhouse gases

- Fuel and power consumption
- Mobile equipment engine hours
- Vehicle miles
- Air travel
- Volatile organic compounds



## Water-Based Paints – Salt Lake City, USA, Mississauga, Canada and Wuxi, China

Transitioned from solvent-based to water-based paints for the painting of all percussive drilling products and diamond bits in the Company's Mississauga, Canada, Salt Lake City (SLC), USA, and Wuxi, China manufacturing facilities. The use of water-based paints has reduced paint-related emission of volatile organic compounds (VOC) by approximately 33% (2.6 tonnes) annually. Equivalent to the emissions of 200,000 vehicle kilometers.





#### HVLP Spray Guns (SLC, Mississauga, Wuxi and Drilling Services Shops)

Implemented use of high volume, low pressure paint spray guns at SLC, Wuxi and Mississauga for painting of percussive drill products. Eliminated about 40% of paint and paint thinner solvent use, and associated VOC emissions of 2.1 tonnes. Equivalent to the emissions of 160,000 vehicle kilometers.

#### Mississauga Heat Treat Furnace

Installed a high-efficiency electric induction heating coil system at the Mississauga facility, reducing annual natural gas consumption by 3.1 million m³ with a concurrent reduction of 7,000 tonnes of CO<sub>2e</sub> Greenhouse Gas emissions. Equivalent to taking 1,200 passenger vehicles permanently off the roads.





Minimizing consumption of scarce and crucial resources.

Track and manage power and water use at permanent facilities and job sites

- Evaluate energy efficiency opportunities at permanent facilities
- Incorporate LEED™ technologies in new buildings and evaluate opportunities for alternative energy at all facilities
- Implement water conservation measures at permanent facilities and job sites
- · Limit job site impacts to water quality

#### **Wuxi, China Waste Water**

Reduced hazardous waste water disposal by 90% (1.1 million liters annually) by reverse osmosis filtration and reuse at the Wuxi facility. Equivalent to the water required for more than 5,000 car washes @ 200 liters per wash.





## Relamping at Mississauga, Canada and North Bay, Canada

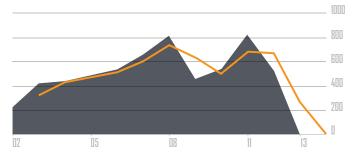
Installed high-efficiency lighting in the Company's North Bay and Mississauga facilities with a resultant 400,000 kWh in annual energy savings. Equivalent to the annual power consumption of 40 US homes.

## **Energy Management System at Eiterfeld, Germany**

Installed a capacitor-based idle current management system to store low-demand electric power during off-peak hours. This avoids placing high energy demand from electric motors and friction welders on the regional electric grid during peak demand hours.

## **ELECTRICITY CONSUMPTION (MwH)**

**Idle Current Consumption (Mwh)** 





## Salt Lake City, USA Bit Plant Carbon Dust

Reduced annual solid waste generation at the Company's Salt Lake City bit manufacturing plant by 75% (265 tonnes) by recycling waste graphite dust. Equivalent to the annual solid waste generation of about 100 four-person families.



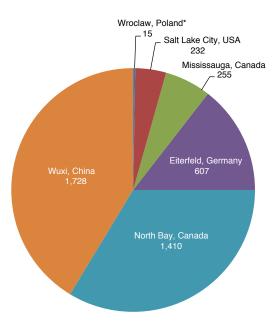
## Waste and Utility Tracker (All Global Facilities)

In 2011, the Company initiated the routine documentation of all major utilities, waste streams and recyclables at six manufacturing facilities. This process was rolled out in late 2012 to all global drilling service maintenance shops and should be completed by year end 2013. This process will provide several key performance indicators such as fuel and water use, waste generation and recycling activities.

#### Waste and UtilityTracking

- Electricity
- Natural Gas
- Propane
- Water
- · Hazardous Waste
- Solid Wastes
- · Waste Oil
- · Waste Coolant
- E-Waste

#### 2011 STEEL RECYCLING = 4,247 TONNES



Note: Figures below site name are tonnes.





## Hazardous Materials Inventories (All Global Facilities)

All global facilities have completed a systematic inventory of hazardous materials, and in 2013 will apply a scorecard approach to compare year over year reductions in hazardous materials risk. This process will allow evaluation of facility risk and implementation of steps to minimize the use, storage and disposal of hazardous materials.



# FREQUENTLY ASKED QUESTIONS

## 1. Does Boart Longyear have an Environmental Policy?

Yes, it is incorporated within a comprehensive Environmental, Health & Safety (EHS) Policy. Our EHS Policy commits to regulatory compliance, pollution prevention, sustainable development and continual improvement. Since our initial certification in 2005, our EHS policy and EHS Management System have been reviewed annually by the auditor, and found compliant with the ISO-14001 and OHSAS-18001 certification requirements.

This policy can be viewed on-line at: http://www.boartlongyear.com/ehspolicy

## 2. Is Boart Longyear's ISO-14001 certification for specific facilities or operations?

Our ISO-14001 certification is for all manufacturing facilities, all drilling services support facilities and all global drilling services field operations. Annual certification and internal audits include a cross-section of these facilities and job sites. Copies of our ISO-14001 certificates are available on-line at: http://www.boartlongyear.com/certifications

#### 3. Does Boart Longyear report greenhouse gas emissions under the Global Reporting Initiative or other program?

Not at this time. At this stage of our Sustainability Program, we are implementing systems to collect the necessary data to support future reporting. We are tracking a comprehensive set of key indicators such as energy and fuel consumption, engine hours, vehicle miles and air mileage which will support future Greenhouse Gas Emissions calculations.

## 4. How does Boart Longyear identify its environmental aspects and impacts?

Each business unit annually reviews and documents its business activities (aspects) with regard to EHS risk (impacts) and evaluates procedures or controls necessary to minimize risk to acceptable levels. These evaluations are incorporated in an annual facility/business unit Risk Register which also documents applicable regulations. Significant EHS risks and incidents are also reviewed by the executive team and the Board of Directors on a quarterly basis.

## 5. What are Boart Longyear's documented environmental objectives and targets?

Our Sustainability Program focuses on reducing impacts to air quality, implementing energy and water conservation initiatives and minimizing both waste generation and the use/release of hazardous chemicals.

## 6. How does Boart Longyear define employee and management roles and responsibilities?

Environmental Roles & Responsibilities are outlined in our ISO-14001 certified EHS Management System for all global manufacturing, maintenance facilities and drilling services field operations.

## 7. Does Boart Longyear produce an environmental report or otherwise release environmental performance to the public?

Not at this time, however as we progress through our program implementation we will be generating data to support a robust set of key environmental indicators. These metrics will document our program results, our commitment of resources and the continual improvement of our environmental programs. We are currently working on an update to our internet webpage which will include our Sustainability Program, and will present some of this information as we progress through the program.

## 8. What environmental metrics does Boart Longyear track?

Air Quality Impacts

- Engine hours of operation
- Fuel consumption (diesel, gasoline, natural gas, propane)
- · Fleet engine inventory and specifications
- Vehicle mileage
- · Airline travel mileage

**Energy Conservation** 

Electric power consumption

Waste Minimization

- · Waste generation
- Recycling

Hazardous Materials Minimization

- · Hazardous materials inventories
- · Hazardous waste generation

Water Quality Impacts & Conservation

- Spill Incidents (reportable and nonreportable)
- Water consumption

9. How would you rate the "environmental impact" of operating activities, relative to industry peers, in terms of carbon pollution, other air pollutants, water pollution, land clearing and use, biodiversity loss and hazardous materials produced?

Industry leader. We strive to have the best and most technologically-advanced fleet of drilling equipment, in addition to the best trained crews in our industry. All of our drilling services facilities and field operations are ISO-14001 certified, as are all of our manufacturing facilities. Additionally, all of our global manufacturing facilities are ISO-9001 certified for product quality, which also includes environmental considerations in design and manufacture. Thus, we have substantial environmental controls and programs in place for all facilities and field operations. These combined efforts systematically lessen our environmental impacts relative to our industry peers.

10. How would you rate the "environmental efficiency" of the company relative to industry peers? That is, how carbon, water, land and other resource intensive or efficient is the company relative to other industry peers?

**Industry leader.** See answer to item 9 above.

11. Has the company implemented, invested in or realized any significant environmental efficiency improvements in the last 3 years?

Yes, a few examples include:

- Over the last three years we have invested hundreds of millions of dollars in global fleet modernization with high efficiency engines, along with concurrent retirement of older, less efficient engines.
- Installation of In-Thinc<sup>™</sup> remote vehicle monitoring systems in light vehicles (500+ to date) to track engine fuel economy and driving performance.
- Transition to water-based paints for all percussive drill products.
- Relamping of Boart Longyear factory floors with high efficiency bulbs and fixtures.
- Electrical upgrade to store and utilize offpeak power at our factory in Germany.
- Waste water treatment and recycling improvements at our factory in China.
- Completed hazardous materials inventories and minimization efforts at all global manufacturing facilities and

- drilling services shops.
- Planning and construction of multiple new global drilling services support facilities employing an architectural template incorporating LEED™ design elements such as energy efficiency, natural lighting and water conservation.
- 12. How would you rate the company's environmental management practices, taking into account any track record of environmental incidents including pollutant releases, chemical or other spills, fines, compliance breaches and/ or litigation?

Industry leader. All global facilities and field operations are managed in accordance with our ISO-14001 certified EHS Management system. Our operations include six manufacturing facilities, more than 35 maintenance shops, approximately 1,200 drill rigs, more than 8,000 units of ancillary equipment and support vehicles at locations in more than 40 countries, and working more than 25 million man-hours (2011). In the last three years we had very few reportable spills, none of which had significant environmental impact. We have had no environmental compliance citations or penalties at any of our global operations in the last five years.

13. Does Boart Longyear conduct hydrofracturing? What is the difference between Boart Longyear's drilling fluids and hydrofracturing fluids?

No, Boart Longyear is not involved in any hydro-fracturing activities anywhere in the world. Boart Longyear uses environmentally benign mud, air and water to lift cuttings, stabilize the bore and to cool down-hole tools. These drilling fluid constituents, such as bentonite clay, gels and foaming agents are nontoxic, and are generally certified by the National Sanitation Foundation (NSF International™) for use in water well construction.

Hydro-fracturing, which involves large volumes of a pressurized mixture of water with various chemical additives (e.g., diesel fuel, acids, anti-scalants, rust inhibitors, etc.) is employed by the oil and gas industry to improve oil and gas recovery from geologic formations after oil and gas wells are drilled. Boart Longyear does not conduct hydro-fracturing, nor do we employ hydro-fracturing liquids in any of our global operations.

## 14. How would you rate the Company's waste processing and/or hazardous materials handling?

Industry leader. All of our manufacturing facilities have been actively tracking waste generation and material recycling since 2010. Waste minimization is a published corporate priority, and applies to the use and generation of hazardous goods, hazardous waste, solid waste and recyclable materials. Our global drilling services facilities have proactively managed wastes and hazardous materials for years, and are initiating our corporate waste and hazardous material tracking and minimization system in 2012-13.

## 15. How does the company incorporate environmental sustainability in its global fleet management?

- Enterprise-wide fleet management, including tracking of numerous key performance indicators (i.e., engine specifications, hours, and fuel consumption).
- Vehicle monitoring systems in light vehicles to track performance.
- Selection of improved performance equipment and vehicle power plants for fleet upgrades, such as Ford Ecoboost™, Caterpillar® Tier III and Tier IV (in 2013) and Tatra Euro-5™ engines.
- Recycling of vehicle and equipment waste oils, or use as an alternative fuel in maintenance shop heaters.
- Reduction in hazardous materials use and storage in global fleet maintenance facilities.

#### 16. Does the company produce products, services or processes that assist customers in managing their own environmental needs? If so, how material are these factors to company earnings?

Boart Longyear is a leader in the installation of water supply wells which provide clean ground water for residential, agricultural and industrial use. Additionally, Boart Longyear is often called upon to provide drilling services for the investigation of environmental contamination.



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