

About Nordion

Nordion is a health science company that provides mission-critical radioisotopes used for the prevention, diagnosis and treatment of disease.

Delivering quality products to our global customers for more than 70 years, our product portfolio includes:

- **Sterilization Technologies**
- **Medical Isotopes**



Nordion's Global Footprint



APPROXIMATELY
350 EMPLOYEES

AROUND
30 PRODUCTS

SUPPLY OVER
350 CUSTOMERS

ACROSS MORE THAN
45 COUNTRIES

About Sotera

Sotera Health brings together *Sterigenics*, *Nelson Labs* and *Nordion*, each of which are established, highly reputable players in the global health arena.


Working as a team, Sotera Health and its companies have one common goal:
Safeguarding Global Health.™



MORE THAN
2600 EMPLOYEES

SERVE OVER
2500 CUSTOMERS

ACROSS
13 COUNTRIES



Gamma Technologies



Medical Isotopes

Importance of Co-60



- Used to sterilize **45%** of all single-use medical supplies and devices
 - Sutures, catheters, syringes, heart valves, artificial joints, gloves.
 - Enhancing food safety and preservation (spices, fruit, vegetables, etc.)
 - Destroying e-coli
 - Packaging treatment
- Used in **45,000** Cancer Treatments Per Day in **>50** Countries



Diagnosis and Treatment of Disease

Reactor Isotopes:

- Bone, Lung, Liver Scans
- Cancer Diagnosis
- Prostate, Thyroid, Non-Hodgkin's Lymphoma Cancer Treatment

Cyclotron Isotopes:

- Heart, Thyroid, Coronary Artery Disease Diagnosis
- Cancer and Infection Diagnosis
- Prostate Cancer Treatment

2016 /2017 Milestones and Highlights

2016 Milestones and Highlights

- 2016 was a milestone year for Nordion – we celebrated our **70th** anniversary as a company.
- REVISS Services (UK) Limited is now Nordion UK
- Bruce Power signed a landmark contract extension that will see a stable and secure source of cobalt supply from the four Bruce B CANDU reactors to 2064.
- Nordion secures long term supply of HSA with Bruce Power to replace the Chalk River supply in 2019.
 - HSA cobalt is being produced at the National Research Universal (NRU) reactor in Chalk River, but will cease operation in 2018

2017 Milestones and Highlights

- C-TPAT Tier III / PIP Revalidation April 2017
 - Tier III status (only top 2% of member organizations achieve this status)
- University of Missouri Research Reactor Files for NRC Approval to Start U.S. Production of Medical Isotopes
 - MURR's license amendment request submitted to NRC
 - Marks a crucial step towards implementing domestic U.S. production of molybdenum-99 (Mo-99)
- University of Guelph, Bruce Power and Nordion team up for research project using Cobalt-60
 - High-tech form of insect birth control connected to nuclear power could solve a devastating pest problem for Ontario farmers

Nordion Global Logistics

Compliance

Safety

Security

Nordion Global Logistics Overview

- Raw material and finished products moved globally
- Shipping Co-60 for **> 50 years**
- **>1B** curies Co-60 shipped; typically 400KCi + per shipment
- Highly regulated
- Multi-modal; highly regulated; transport / customs
- Philosophy is dual coverage to all key markets
- Complex export and import approval process
- Long-term supply chain relationships
 - Recognizing the benefits that can be achieved by partnering with strong partners in our supply chain.



1 billion
curies
and counting

Nordion Global Logistics Overview

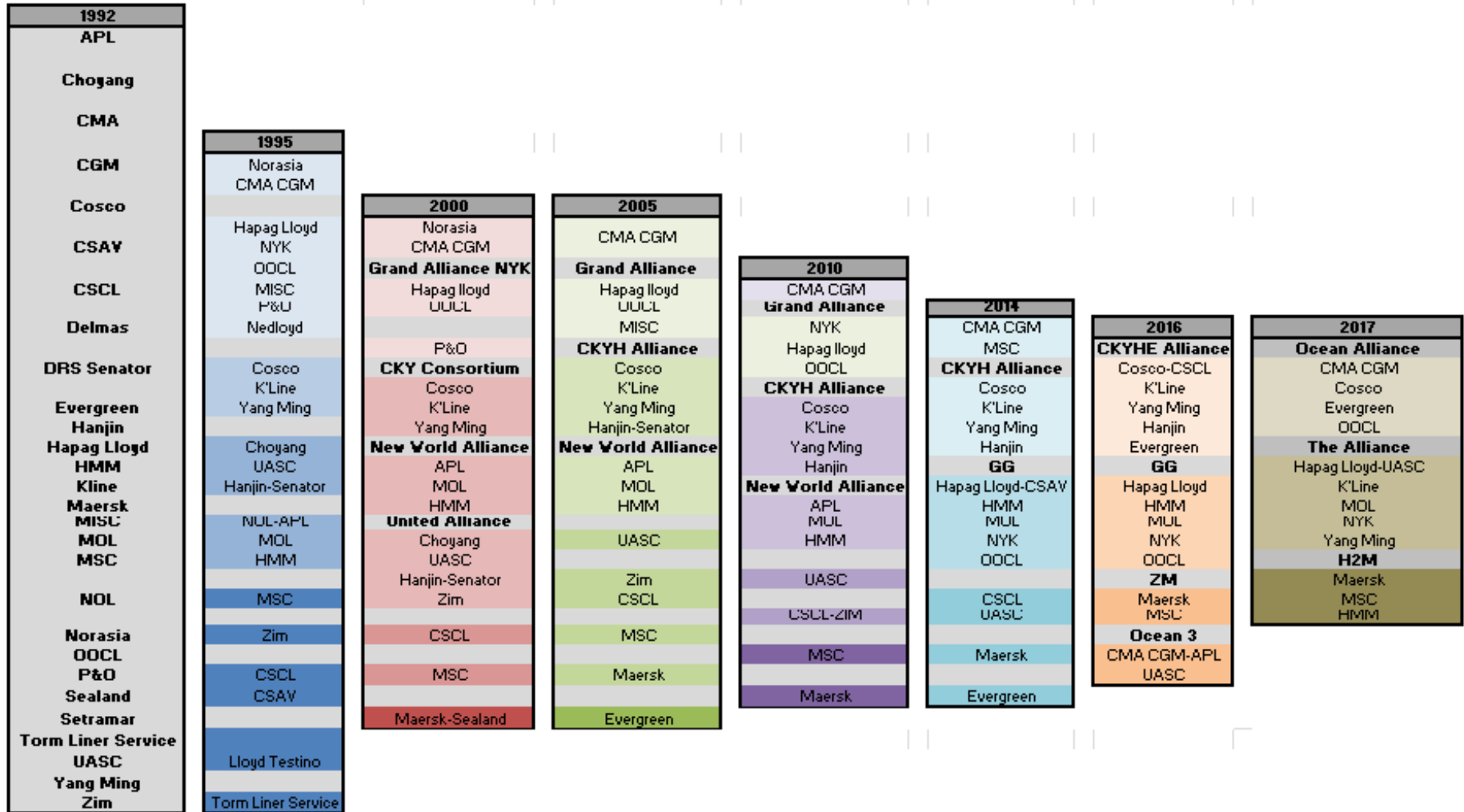
- Professional relationships and memberships
 - C-TPAT (June 2005) – Tier III
 - PIP (October 2012)
 - Transport Canada (Known shippers and Air Cargo Security Program)
- Participating in Industry Associations
 - Nordion participates and plays a leading role in certain international and North Logistics and Transportation associations (TFWG, CVSA, IATA)



Challenges in Class 7 Transport

- Carrier delay or denial of shipments
 - Few marine carriers which accept Class 7 Cargo
 - Difficulty reaching or delay to deliver to global customers
- Ocean Port Transshipment approval and permits
 - Limited ports which handle Class 7 Co-60 shipments
 - Extraordinarily long review and port permit issuance time, which requires Nordion to delay Co-60 shipments and re-book
- Ever changing regulatory environment
 - Multiple layers of regulations, with differing and extra escort fees per State

Challenges – Ocean Carrier and Alliances between 1992 – 2017



** Excerpted from LinkedIn_ The puzzle of shipping alliances by Lara Mouftier and Ricardo J. Sanchez.

** Modified to show 2017 carrier alliances.

Cobalt-60 - Packages (F-168)



- Finished sources are transported to gamma sites in licensed containers
- Packages licensed by Canadian Nuclear Safety Commission and other competent authorities (NRC, DOT, etc.) internationally
- Designed and tested to meet all international standards and regulations



Medical Isotopes – Transported in Type A & B Packages

- Type A packages for shipping smaller amounts of medical isotopes, such as individual formulations
- ~80% of all medical isotope shipments shipped in Type A
- Type B(U) container can weigh 125 kg - 167 kg.
- Shipping I-131 and molybdenum-99, used ultimately in some 80% of all nuclear medicine or diagnostic scans.



Shipment Tracking

Nordion Security Tracking by Truck

Browser address bar: <https://www.myshawtracking.ca/qtracsWeb/vehic>

Application Title: QTRACS - Vehicle Position ...

Menu: File Edit View Favorites Tools Help

Dashboard

Shaw Tracking QTRACS®

Reports | News | Administration - | Help | Log Out
Jade Transportation from JADE TRANSPORTATION (EST)

Working with all assets

Vehicle Directory Vehicle Position History

Show positions for 15-01 from 25/02/16 12:00 AM to 03/03/16 11:59 PM at this granularity: All

Time	Location
2.97 miles NW of Longlac, ON	
44 03/03/16 8:34:24 AM	7.17 miles ENE of Longlac, ON
45 03/03/16 8:23:52 AM	9.41 miles SW of Flint L., ON
46 03/03/16 7:26:52 AM	22.99 miles NNW of Nagagamisic L., ON
47 03/03/16 7:15:01 AM	21.16 miles N of Nagagamisic L., ON
48 03/03/16 7:04:46 AM	13.71 miles W of Calstock, ON
49 03/03/16 6:54:29 AM	5.46 miles SW of Calstock, ON
50 03/03/16 6:35:41 AM	10.65 miles WSW of Drithwood, ON
51 03/03/16 6:25:50 AM	4.85 miles NW of Hearst, ON
52 03/03/16 3:16:29 AM	4.65 miles E of Lowther, ON
53 03/03/16 2:20:10 AM	6.06 miles ESE of Kapuskasing, ON
54 03/03/16 1:08:00 AM	2.88 miles SSE of Fredericks house, ON
55 03/03/16 12:02:13 AM	3.01 miles WNW of Kelso, ON
56 02/03/16 11:51:56 PM	.54 miles E of Montleith, ON
57 02/03/16 11:41:39 PM	2.04 miles W of Matheson, ON
58 02/03/16 11:31:22 PM	3.82 miles SE of Ramore, ON
59 02/03/16 11:21:06 PM	1.31 miles S of Scotty Springs, ON
60 02/03/16 11:10:48 PM	2.68 miles WNW of Sesebnika, ON
61 02/03/16 10:49:19 PM	1.75 miles WSW of Tarzwell, ON
62 02/03/16 10:39:02 PM	5.06 miles NNW of Engshart, ON
63 02/03/16 10:28:45 PM	

Map showing Lake Superior region with vehicle path (red line) and various locations like Longlac, Hearst, and Sudbury.

Windows taskbar: ENG 4:03 PM US 2016-03-03

Tracking by Vessel Finder



Questions?

Find out more at
nordion.com

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