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Aids to Navigation – Effective Communication

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FOR: INTERMODAL AFRICA 2020

DATE: JANUARY 2020

LOCATION: TANZANIA

Aids to Navigation – Effective Communication

This is an “alleged” transcript of a radio conversation of a US naval ship with Canadian Coastguard authorities in heavy fog off the coast of Newfoundland in October, 1995. Radio conversation released by the Chief of Naval Operations 10-10-95. (Contested)

- Americans: Please divert your course 15 degrees to the North to avoid a collision.
- Canadians: Recommend you divert YOUR course 15 degrees to the South to avoid a collision.
- Americans: This is the Captain of a US Navy ship. I say again, divert YOUR course.
- Canadians: No. I say again, you divert YOUR course.
- Americans: This is the aircraft carrier USS Lincoln, the second largest ship in the United States' Atlantic fleet. We are accompanied by three destroyers, three cruisers and numerous support vessels. I demand that YOU change your course 15 degrees north, that's one five degrees north, or countermeasures will be undertaken to ensure the safety of this ship.
- Canadians: I am Seaman First Class and I am accompanied by my dog, food, two beers, and a Canary that's currently asleep and:

- THIS IS A LIGHTHOUSE, SO YOUR CALL!

Aids to Navigation - “Poor Communication”

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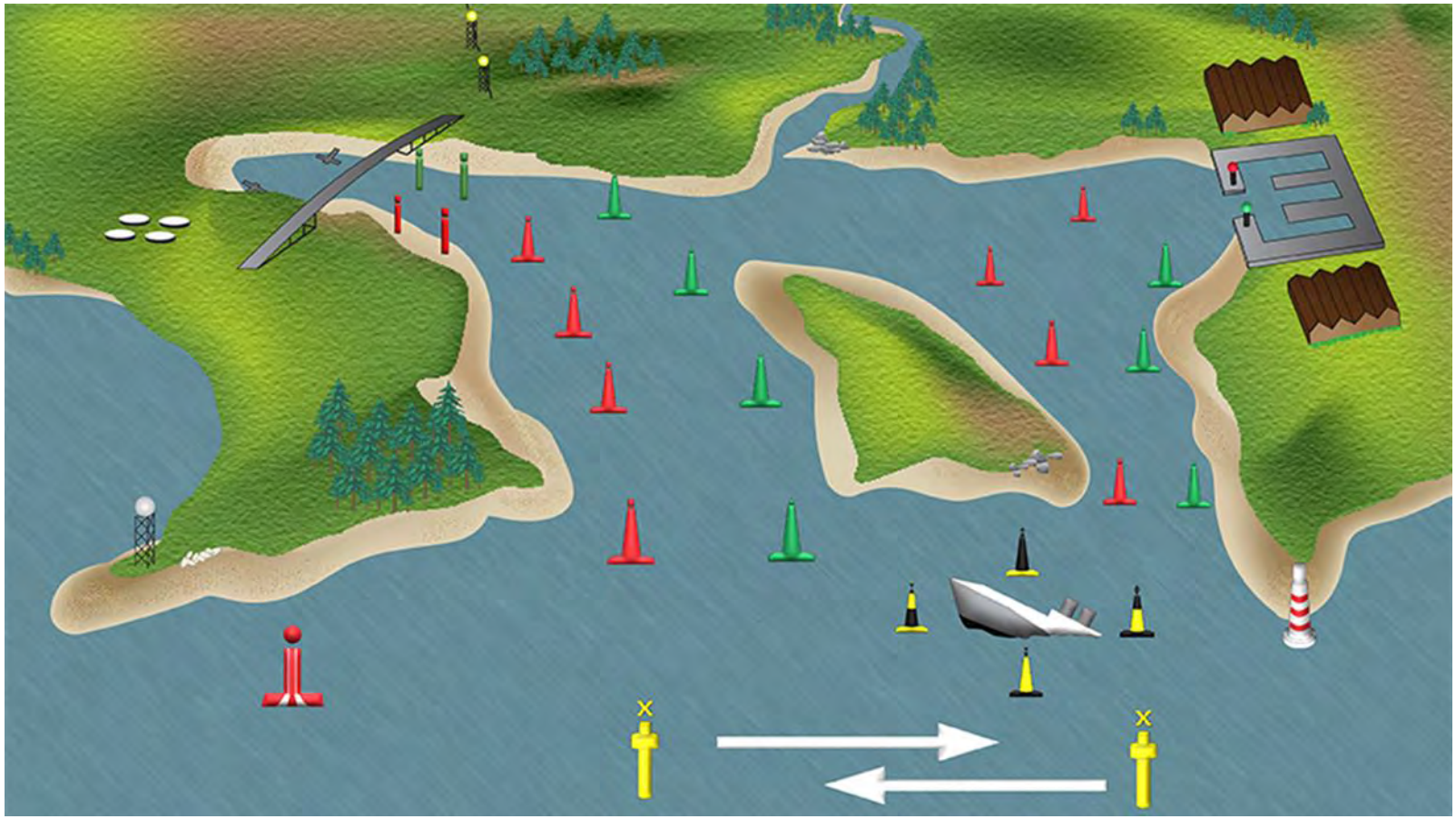
IALA Buoyage System “Road Signs for the Sea”



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Fairway Buoy – Approaching Port

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Cardinal Mark N,S, E, W.

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Special or Zonal Mark

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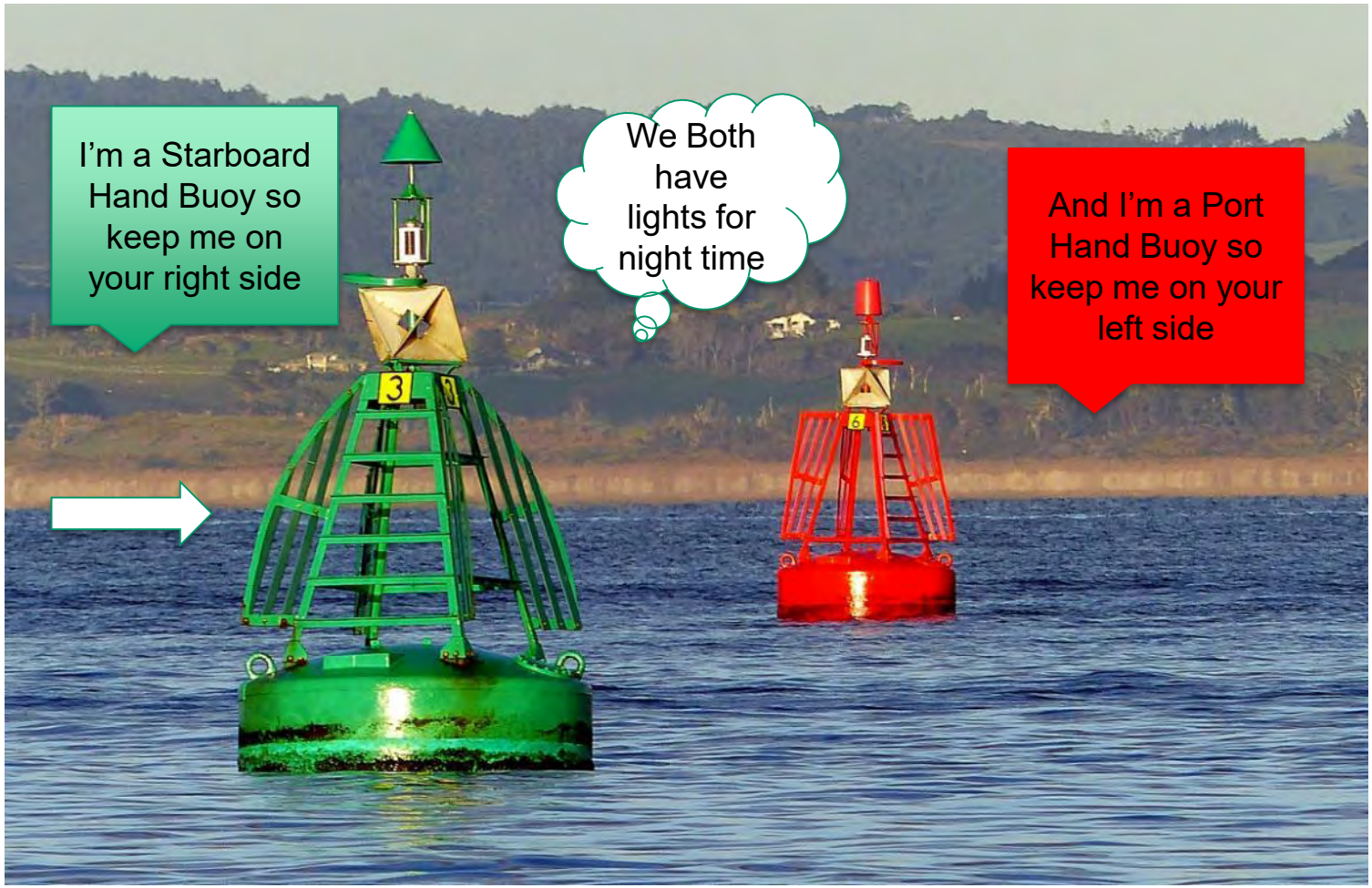
Lateral or Channel Marks – Region ‘A’ Entering Port



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Isolated Danger Mark

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Leading Lights – Approaching Port in the Marked Channel

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Tideland Signal was founded in 1954 and provides navigational aids to Lighthouse Authorities, Ports and Harbours, Coast Guards and Oil and Gas companies for the marking of offshore platforms.

Headquartered in Houston, Texas, Tideland Signal originally supplied navigation aids into the oil and gas industry in the Gulf of Mexico, before developing products specifically for Ports and Harbours.

In 1968 Tideland Signal Ltd was formed in the UK to act as a sales and service facility for the rapidly expanding North Sea oil fields. As the Tideland range expanded into equipment for Ports and Harbours TSL was given the responsibility for sales into UK, Europe, the Middle East, Central Asia and Africa.

Purchased by Xylem in 2015, Tideland are now part of an International company represented Globally with > $6bn in revenue, more than 18,000 employees worldwide & doing business in more than 150 countries

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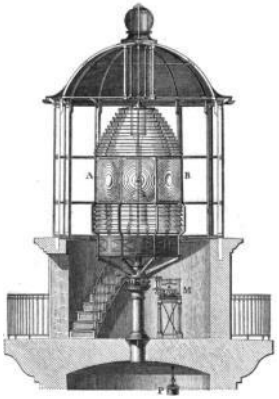
A Rich History of Innovation

For over 60 years Tideland's proven team of scientists and engineers have designed and developed innovative AtoN systems that have set the standard for quality and reliability in the industry. TSC's research and development accomplishments include:



• World's first transistorized, automatic lamp changer	**1965**
• World's most efficient 300mm lantern	1967
• Developed RACON for USCG	1990
• First windows based AtoN satellite monitoring system	1991
• The first solar powered rotating beacon of 24NM range	1995
• First Lloyd's approved rotationally moulded polyethylene buoy	1999
• One of the first AtoN companies to introduce LED technology	1995
• Production of the world's lowest power Racon, the System 6	2002
• First private light range tunnel, built to IALA specifications	2003
• First twin hull polyethylene buoy	2003
• First company to prove e-Navigation concept in EU trial	2007
• First company to install multiple AIS AtoN in a port (Paranagua)	2010
• First to use combined AIS AtoN and RACON (patent pending)	**2014**

Tideland Signal delivers world leading aids to navigation solutions, products, services and customer care, with innovation, safety and compliance at the core of our mission.

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OFFSHORE PLATFORMS

OFFSHORE WIND FARMS

PORTS, HARBOURS, INLAND WATERWAYS & BRIDGES

SERVICE, INSTALLATION AND MAINTENANCE

ELECTRONIC NAVIGATION, AIS & MONITORING

SOLAR POWER SYSTEMS

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Aids to Navigation - Communication

- World leader in Aids to Navigation
  - Over 1000 port and coastal AtoN systems delivered worldwide
  - Over 60 years in business starting as supplier to offshore oil industry
  - Members of IALA, IAPH, UKHMA, RTCM, IEC, and NAM
- Products include:
  - Lighted Beacons and Floating Aids
  - Radio Aids and AIS AtoN
  - Audible Aids
  - Power Sources
  - Support Structures
  - Remote Monitor & Control
- Services
  - Installation
  - Maintenance
  - Consultancy

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Marine Lanterns – SolaMAX-65

SolaMAX-65 5-7Nm Self-contained marine lantern

The SolaMAX-65 is a self-contained lantern capable of ranges up to 5NM in the standard version and up to 7NM in the extended version (SolaMAX-65-T). Its compact design makes it the ideal self-contained lantern for many applications including inland waterways, buoys and offshore platform marking to provide years of maintenance-free operation. Revolutionary optics and high efficiency solar panels make the SolaMAX-65 exceptionally suitable for northern and southern latitudes and low solar radiation applications.

- Up to ***30-degrees vertical divergence*** making it the ideal lantern for rough waters and/or unstable buoys
- Options of battery capacity for demanding locations from 12Ah to 50Ah
- Optional GPS synchronisation
- 256 user selectable flash characters
- Magnetic On/Off switch for quick deployment & easy storage
- User selectable power and flash character settings via optional IR controller
- Battery test and lantern health check via IR controller
- Full monitor and control capability
- Theft deterrent design

Range @ T=0.74:	5 - 7Nm
Solar:	4 x 4.2W and 4 x 8.5W on “T” model
Vertical Divergence @ 50%:	5°, 10°, 20° or 30°
Battery Capacity:	12Ah or 18Ah/30Ah or 50Ah for “T” model
Weight:	7.8kg – 9.5kg/15.7kg – 20.2kg on “T” model
IP Rating:	IP 66 and IP 68

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WHY VERTICAL DIVERGENCE IS MORE IMPORTANT THAN INTENSITY FOR BUOY LANTERNS

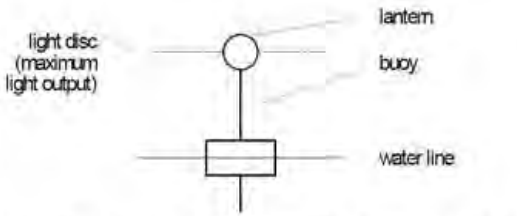


Figure 3 Description of symbols, buoy at rest vertically

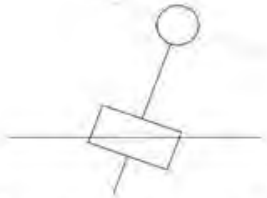


Figure 4 Buoy at rest, tilted

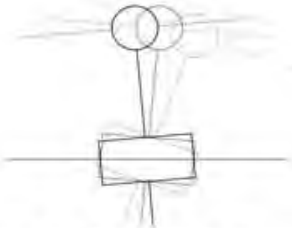
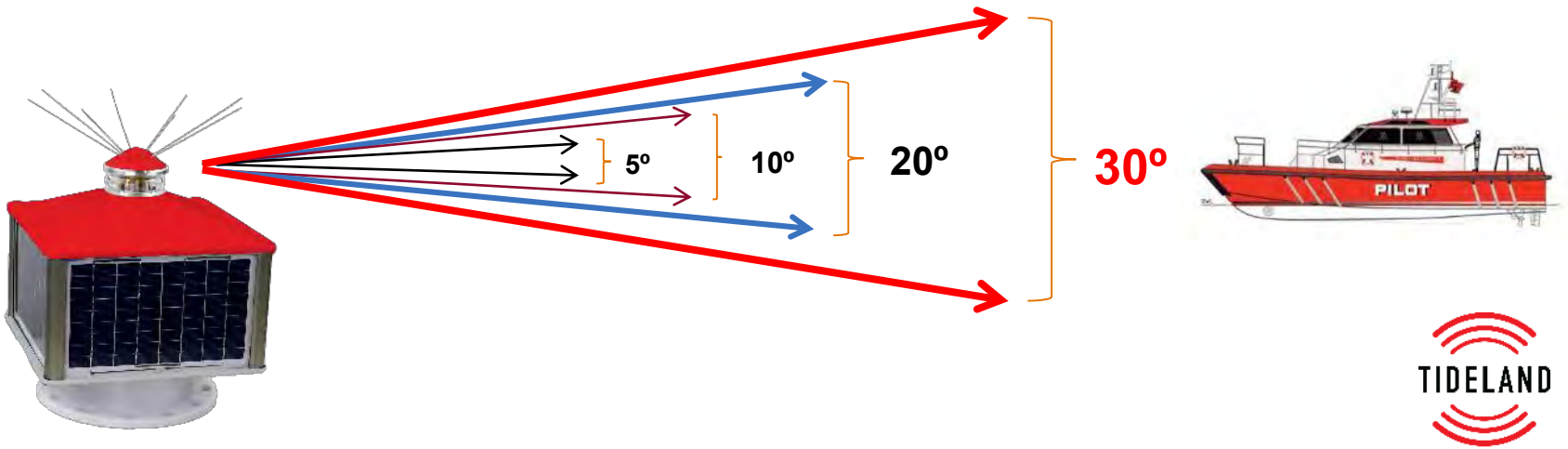


Figure 5 Buoy, angular movement



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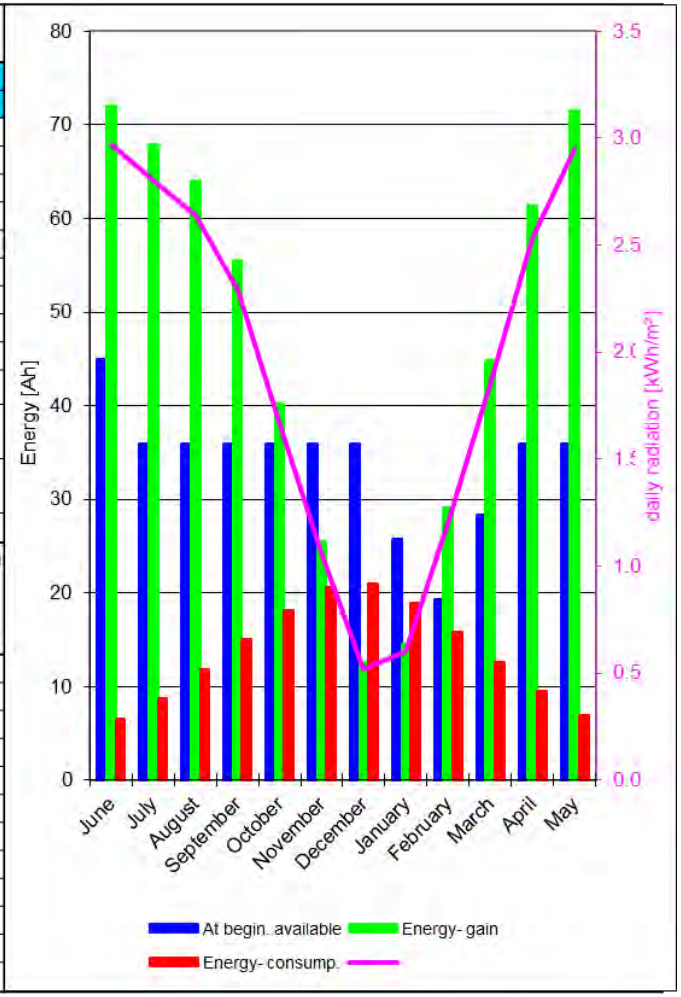
Solar Sizing as per IALA Approved Software

Sizing of Photovolatic-Systems with daylight-control			Tideland Signal Corporation			
System	Nova-65SC					
Latitude / Station	60	°	St Petersburg			
Age	10	%	Deduction for ageing of solarpanels			
Voltage	12	Volt	Voltage of the system			
U_{MPP}	17.4	Volt	Voltage in the Maximum Power Point			
Power	22	W_{peak}	Power at solar radiation of 1000W/m²			
Orientation	0.7		Deduction for different panel orientations			
Lantern load	1.5	W	Lightswitched Powerconsumtion			
Duty cycle	30	%	Character on/off ratio			
Switch-level	0	h	added hours before dusk and after dawn			
continuous load	0.002	W	Continuous power W			
Batterycapacity	45	Ah C_{100}				
max. useable Cap.	80	%				
Battery efficiency [1]	1.17	85%				
Days without gain	37	days	number of days working without energy gain			
Month of the first year	kWh/m² daily radiation	Ah Energy-gain	Ah Energy-consump.	Ah At begin. available	Ah At end available	Days wo. Gain [days] at begin of month
June	2.97	72	7	45	36	207
July	2.8	68	9	36	36	126
August	2.64	64	12	36	36	93
September	2.29	56	15	36	36	73
October	1.66	40	18	36	36	60
November	1.05	25	21	36	36	53
December	0.52	13	21	36	26	52
January	0.6	15	19	26	19	41
February	1.2	29	16	19	28	37
March	1.85	45	13	28	36	68
April	2.53	61	9	36	36	116
May	2.95	72	7	36	36	157



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Global Presence – Tideland Signal are a truly global company with support available around the World. The experiences gained in one territory is utilised to better service in all of the countries around the World meaning our customers truly get the best possible products and services.

World Leader – Tideland Signal are the world leader in the manufacture and supply of Marine Aids to Navigation. We have been in this business longer than most of our competitors and we ensure all of our customers benefit from our experience.

Tideland Know How - Tideland don't just sell products we sell systems that are designed to work in the areas where they are deployed.

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Video

Nova 65 – Tough as they Come! *

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Thank you for your time