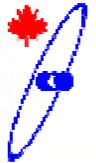


The Darlington Story:

The Focus Areas on our Journey to Excellence



**Presentation to the
Canadian Nuclear
Society**



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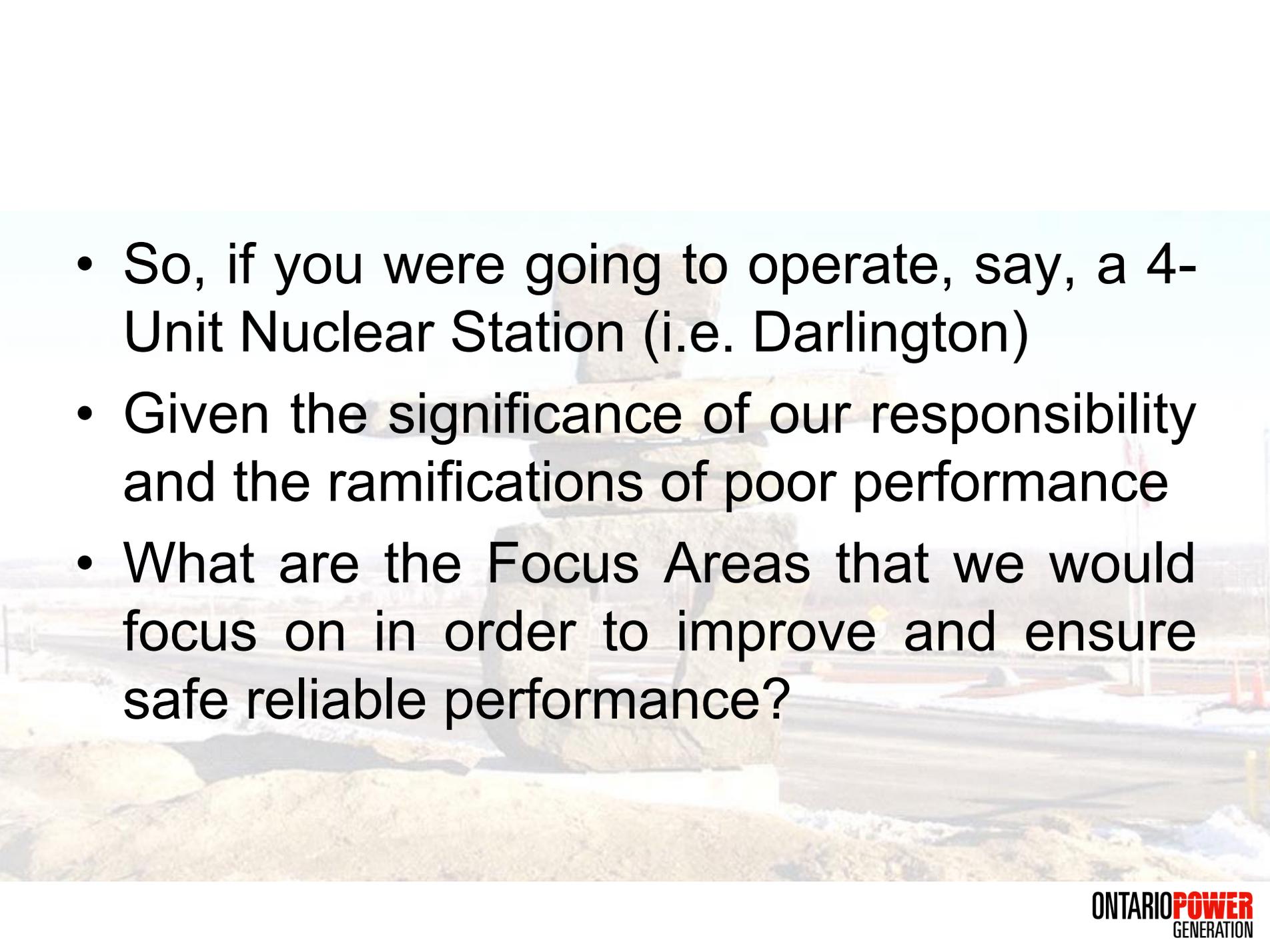
Darlington Nuclear

The Nuclear Business

- Why did we enter this business?
- What happens to us as a result of becoming part of the business?
- We learn that we live on the pointed end of the stick.
- What makes our business the pointed end of the stick:
 1. We measure our mistakes by the number of atoms which we have not controlled.
 2. The only thing between acceptable and unthinkable is us.

Examples

1. If total curies of radioactivity in a Reactor Core were represented in kilometres; the number of kilometres would equal the distance from the earth to the sun. The distance represented by an allowable discharge is the thickness of a fingernail.
2. Of all the tons of uranium present in a Power Reactor Core, how many kilograms are used in a Year? (Answer: 1kg. Unthinkable, what if you used it up all at once)

- 
- So, if you were going to operate, say, a 4-Unit Nuclear Station (i.e. Darlington)
 - Given the significance of our responsibility and the ramifications of poor performance
 - What are the Focus Areas that we would focus on in order to improve and ensure safe reliable performance?

Darlington Focus Areas on our Journey to Excellence

I. Leadership

II. Human Performance

III. Station Reliability

I. Leadership

a) Strategic Planning & Execution

b) Accountability

c) Teamwork

Leadership

- A Team is only as good as its leaders.
- Leader selections are the most impacting decisions you will ever make regarding organizational performance.
- The right leaders strategically placed will make success inevitable.

I. Leadership

a) Strategic Planning & Execution

- **Planning** is ascertaining where an organization is at the present time, deciding where it should be in the future and how to move it there.
- **Execution** entitles establishing management systems to monitor, actions and measures to ensure that the organization stays on track regarding our strategic plan.

Darlington Navigator

- Our Navigator process is the station's business planning and management system.
- Monthly meetings monitor where we are on track and where actions are not achieving the desired results.
- Actions, milestones, measures and outcomes are monitored and assigned at an individual level.

Inukshuk is a guidepost on our journey to world class performance



TEAMWORK and URGENCY are the threads for success

I. Leadership

b) Accountability is a Leadership Responsibility

- ‘Accountability’, the most important part of this word is the middle COUNT.
- In organizations which perform at an exceptional level, accountability is not something that people are held to. It is something that individuals offer the team. You can count on me.
- Our efforts have been to foster this type of accountability to the team.
- Focus has been on the leadership team. If it is demonstrated at the top, only then do we have legitimate expectations of others.

Several Initiatives

- ✓ Quarterly behaviour based performance evaluations
- ✓ Clearly defining what accountability is and what it looks like:
 - Absolute commitment
 - Negotiation
 - Silence = acceptance
 - Early warning
 - Timeliness
 - Muscle memory
 - Inspect what you expect
 - Take ownership of failures

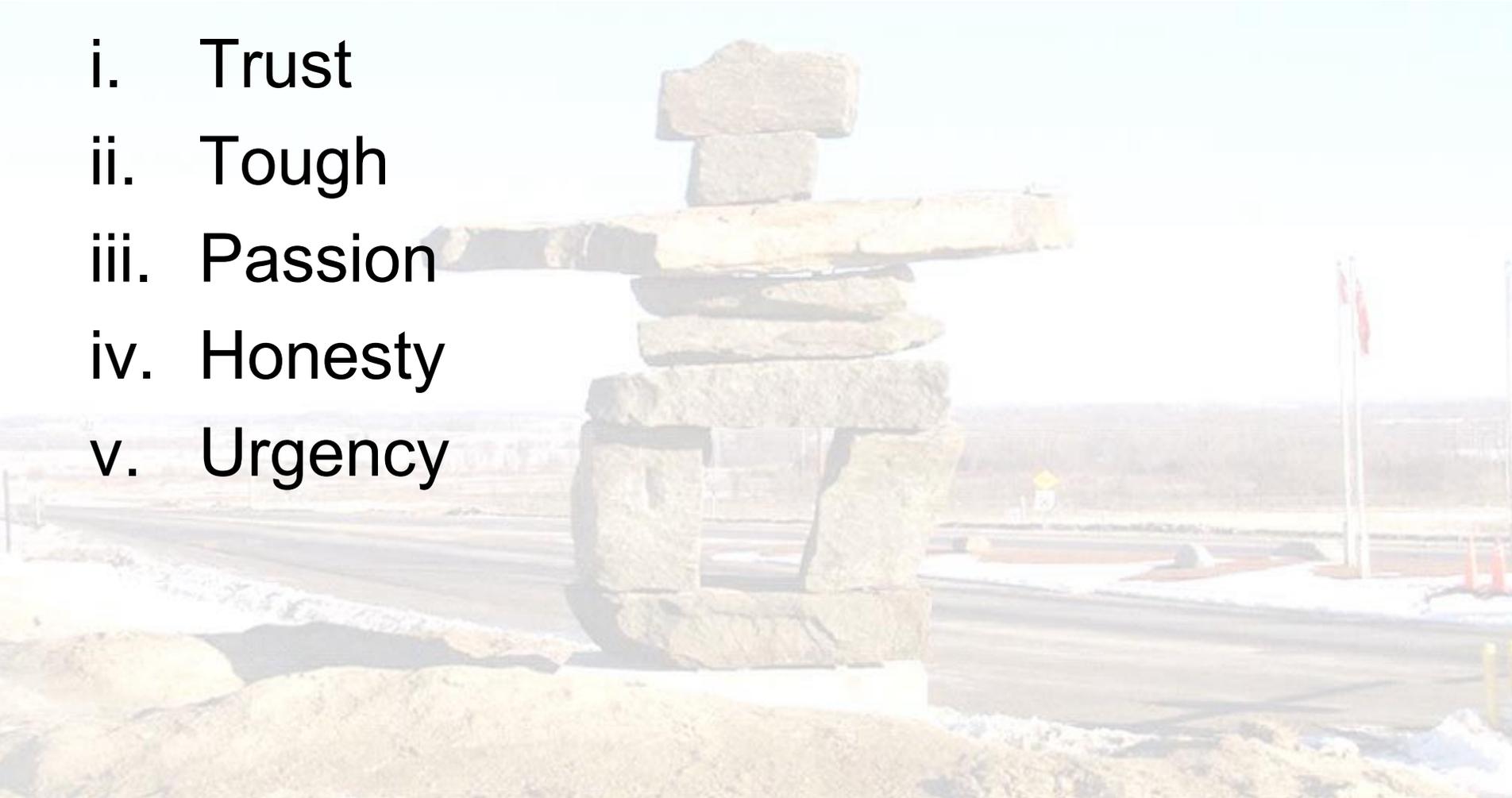
I. Leadership Team

“A group of people who aspire to a common set of goals and behaviours in order to accomplish what they are individually incapable of achieving.”

I. Leadership

c) Characteristics of a Team

- i. Trust
- ii. Tough
- iii. Passion
- iv. Honesty
- v. Urgency



I. Leadership

c) Characteristics of a Team

i. Trust:

- Trust enough to debate, argue, push back
- Trust enough to feel confident that everyone has the same agenda
- Trust enough to let others decide
- Trust enough to forego your priorities if another's needs are more important to the team

I. Leadership

c) Characteristics of a Team

ii. Tough:

- Tough decision about who should and should not be on the team
- Tough decisions about priority (if you try to please everyone or do everything you are not a team. You produce harmony and mediocrity).

I. Leadership

c) Characteristics of a Team

iii. Passion:

- Believe in what they are doing, where they are going and what they will become.

iv. Honesty:

- Vigorous negotiations and discussions regarding decisions
- Honest feedback to individuals as well as the organization about their performance.
- This includes positive as well as critical feedback

v. Urgency:

- A sense of urgency regarding the mission they are on and the timelines to achieve it.
- An organization that could only be described as action oriented.

II. Human Performance

- a) Employee Engagement
- b) Procedure Compliance
- c) Safety is sacred
- d) Error Prevention Tools

Nuclear Power is a people intensive business

Improve the performance of the people and you improve the plant's performance



II. Human Performance

a) Engaging Employees

- Measuring Engagement
- Eliminating Distracters
- Listening
- Communicating

II. Human Performance

b) Procedure Compliance

- Our contract with the public
- Eliminates the delta between an individual's good day and bad
- Verbatim compliance is not negotiable

II. Human Performance

c) Safety is Sacred

- Create a culture where Nuclear and Personal safety is the organization's top priority
- Demonstrate that you mean it through your actions not just your words

II. Human Performance

d) Error Prevention Tools

- Proactive approach to predicting where human error is possible
- Putting processes or barriers in place that prevent errors:
 - 3-way communication, procedural compliance, place keeping, pre-job briefs, etc.

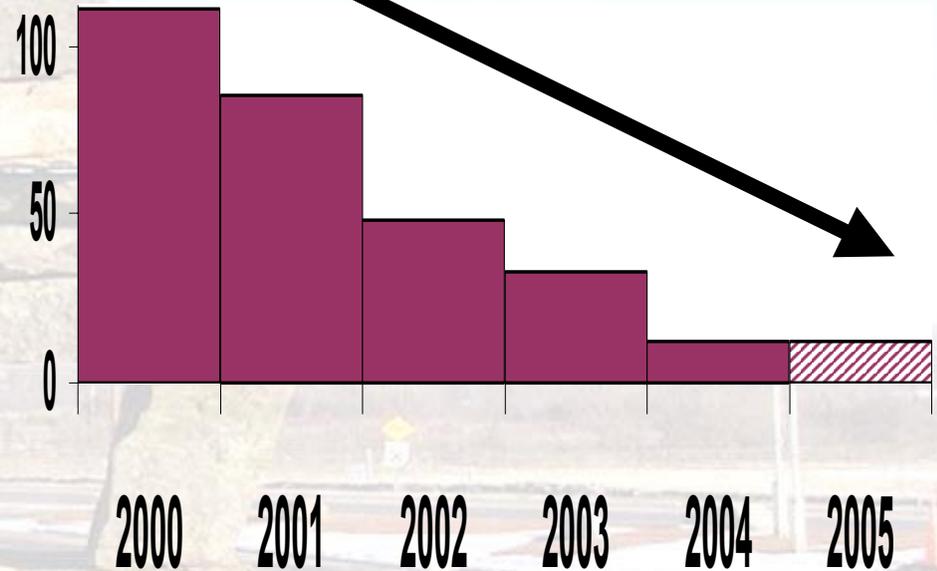
How are We doing

Darlington's Human Performance

Progress Since 2000

Public and employee safety is sacred

- The key metric to measuring safety success is “event-free day resets”
- ✓ Fewer is better
- ✓ 12 in 2004
- ✓ 11 in 2005
- ✓ 10 for 2006 (Target)



Human Performance – Employee Safety



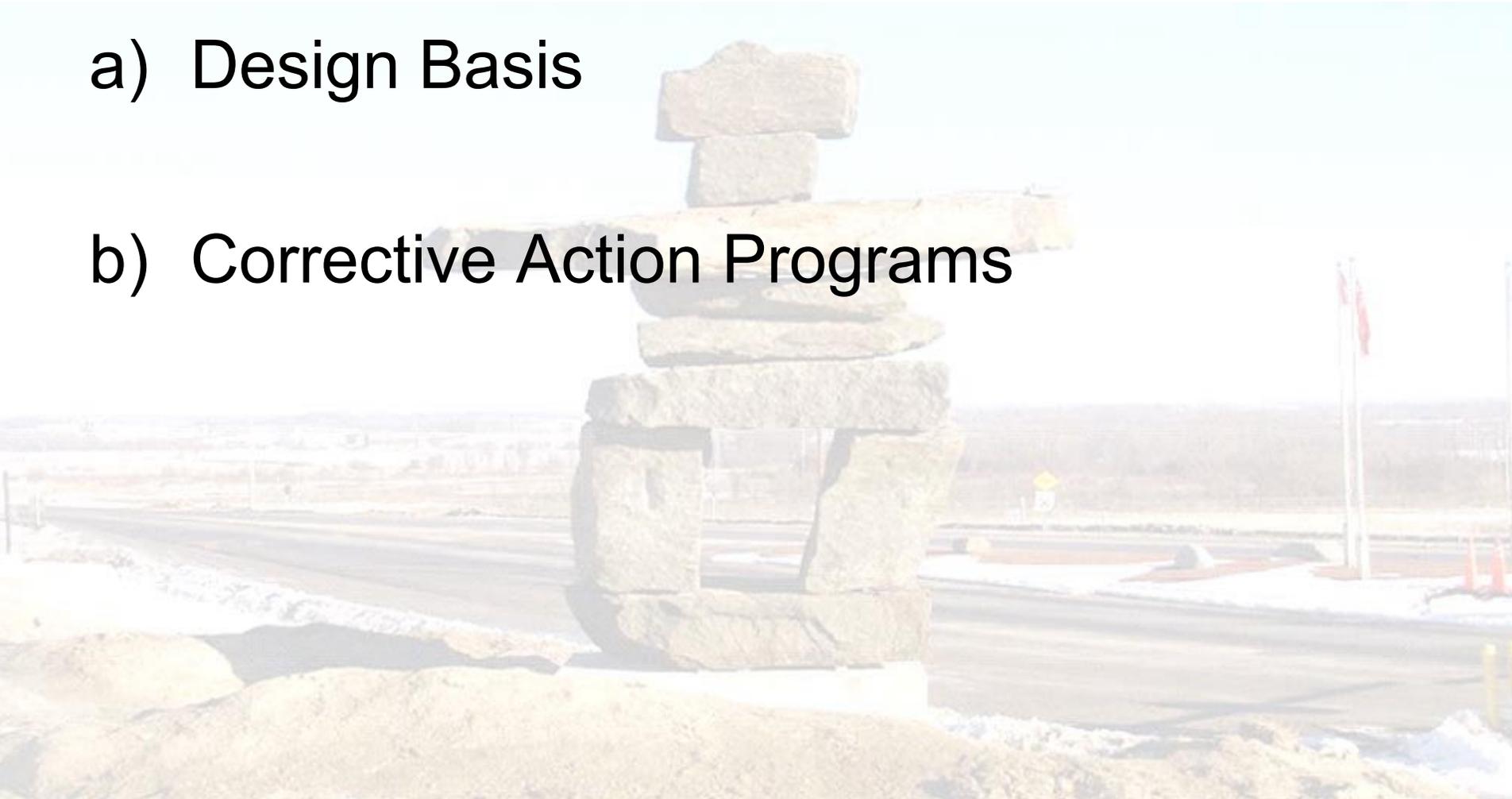
- ✓ Up to August 12 Darlington staff had worked over 3-1/2 million hours without a lost time accident.
- ✓ Unit 2 outage was performed with no lost time accidents and no potentially serious workplace events (near misses).

In 2005 OPG was awarded the E&USA 'Gold Award' for excellence in building and maintaining a strong safety management system and safety culture.

III. Station Reliability

a) Design Basis

b) Corrective Action Programs



Focus on Station Reliability

- Reliability means operating when we say we will operate
- A site-wide long-range strategic plan establishes station priorities to keep equipment operating safely and reliably.
- Priorities are rolled out in the form of scheduled maintenance outage scopes, and approved modifications.



III. Station Reliability

a) Design Basis

- The only way we are allowed to operate our facilities is as defined in the design basis.
- Our employees watch us carefully to determine if design basis is important when it impacts production.
- Bottom Line Design basis is a top priority even when it hurts.

III. Station Reliability

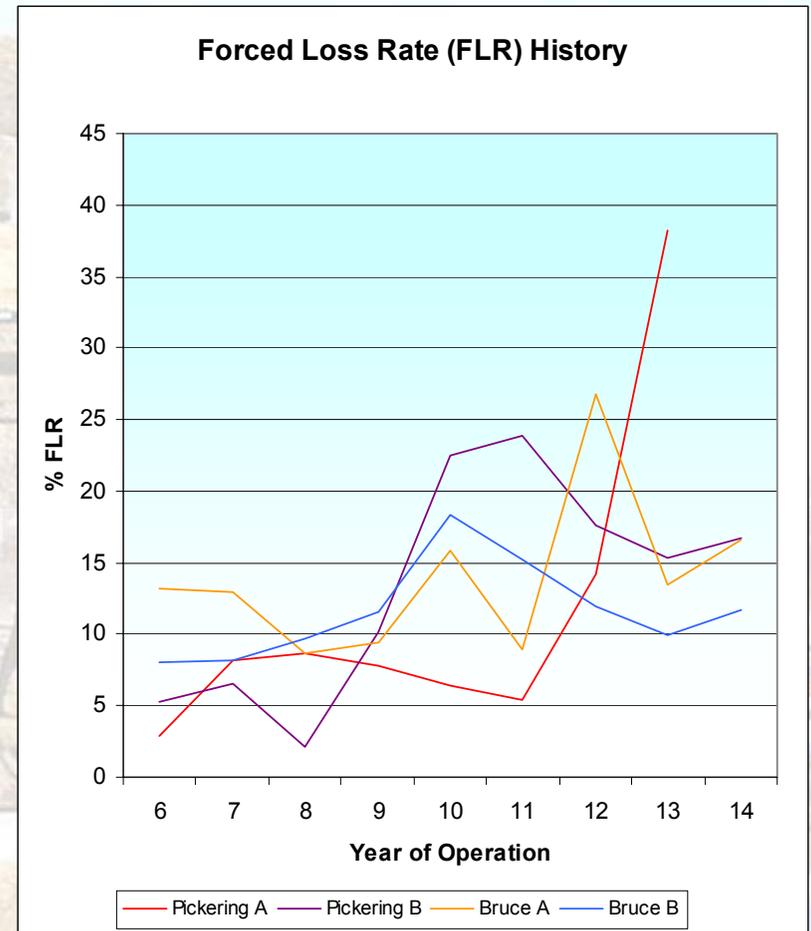
b) Corrective Action Programs

- Definition of “insanity” is doing the same things over and over but expecting the outcome to be different.
- The corrective action program effectively implemented reduces the subset of problems we face in the future to those we have not yet encountered.
- Effective implementation requires that we look at this program as an asset and not as an obligation.

Combined FLR

All Plants except Darlington

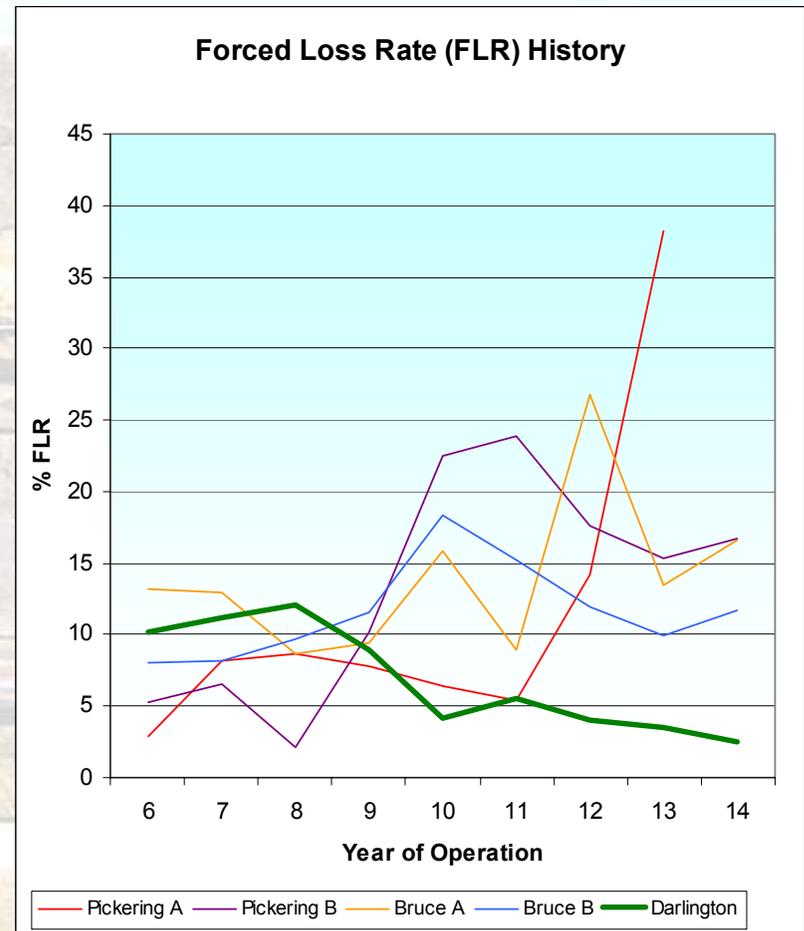
- Our Candu design in the past has lead us to operate the station in a less than optimum manner.
- The 25-year refurbishment for fuel channel replacements made us think of equipment as something to be used up and replaced at 25 years.
- The extensive defense in depth available in the Candu design by means of redundant equipment made us less vulnerable to deteriorating material condition and therefore less focused on maintaining our equipment.



How Are we Doing

All Plants and Darlington

- **Forced Loss Rate (FLR)** is defined as the ratio of all operating period unplanned energy losses to the reference every generation expressed as a percentage.
- OPG's focus on Station Reliability and Human Performance (starting in the 12th year of operation) is achieving the desired results:
 - FLR is no longer following the trend typical of other sites in their early years.
 - FLR is trending toward top-quartile performance of 2%, sustained.



- (2005 actual: 1.31%)

Human Performance

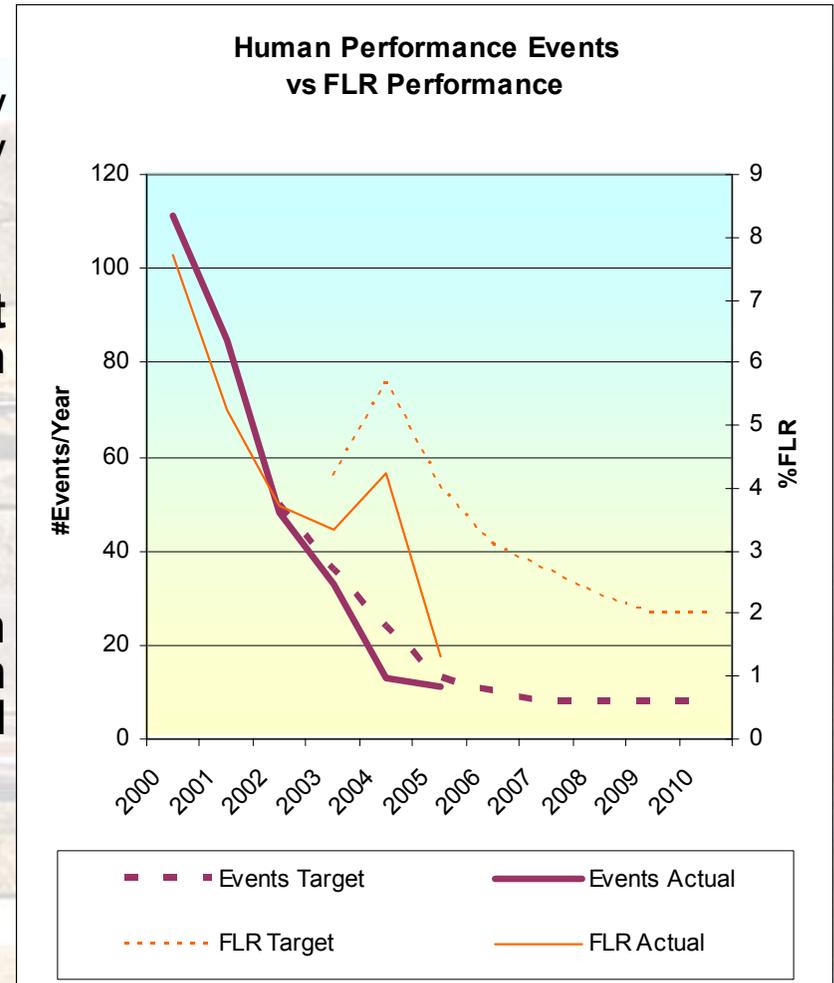
Darlington has recognized for many years that Human Performance is a key contributor to station performance.

We are addressing the direct impact of human errors on station performance.

We are addressing productivity.

Many initiatives have been internalized by Station staff, with more to come via training and coaching.

MONITORING EXAMPLES
Event Free Resets, URM, FLR



Strategic Investments

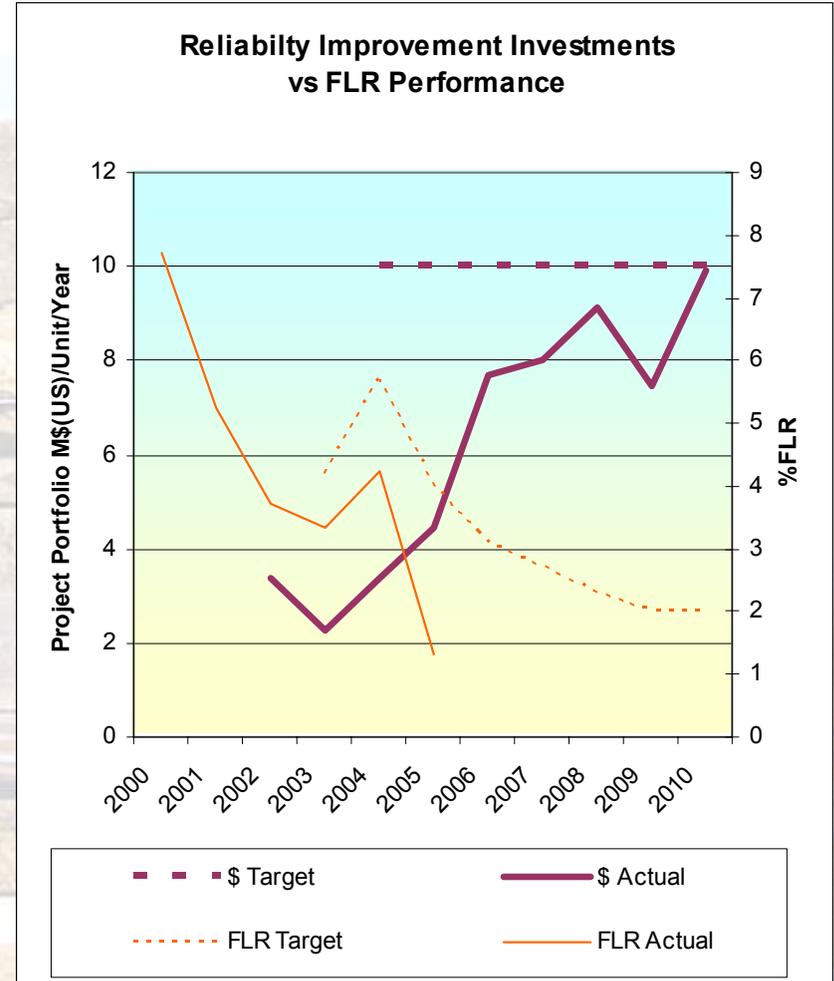
A managed approach to deciding what improvements increase the operating margin.

We focus more on equipment reliability and obsolescence.

We are prioritizing to ensure the right work is done first.

We are internalizing these objectives through the Navigator.

MONITORING EXAMPLES
Project Index (new), PCI, FLR



Maintenance Backlog

A strong focus on maintenance backlog reduction increases the operating margin by:

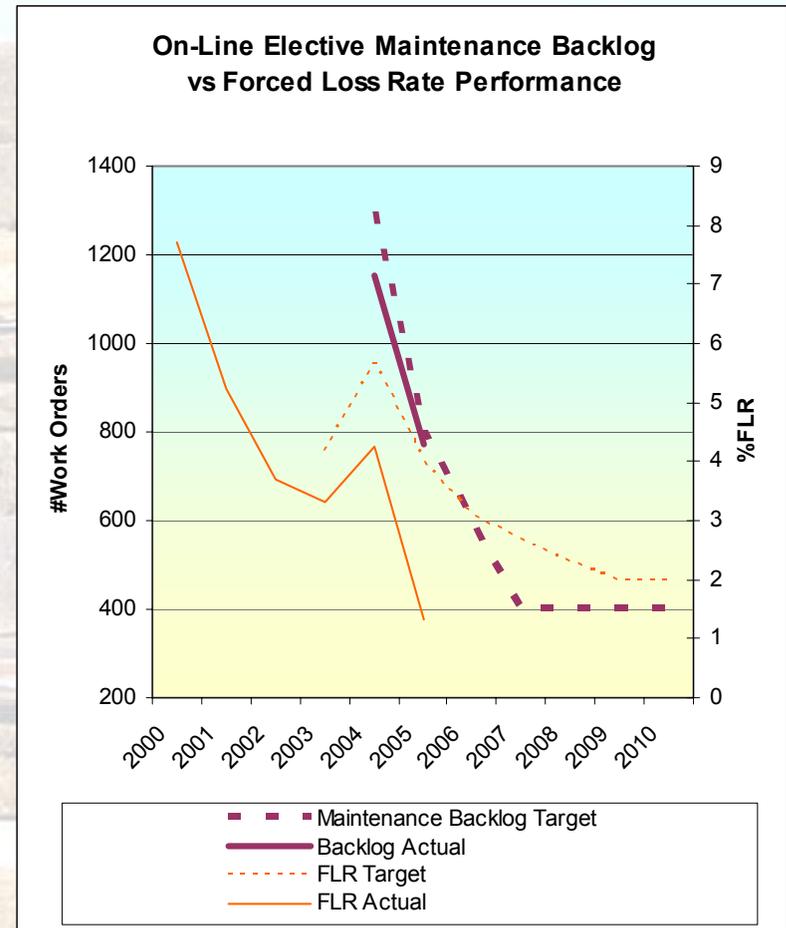
- mitigating nuclear safety risks
- eliminating contributors of forced losses.

We understand our backlogs, and what it takes to beat them down.

We are prioritizing to ensure the right work is done first.

We are internalizing these objectives through the Navigator.

MONITORING EXAMPLES
OCMB, OEMB, PCI, FLR



System Performance

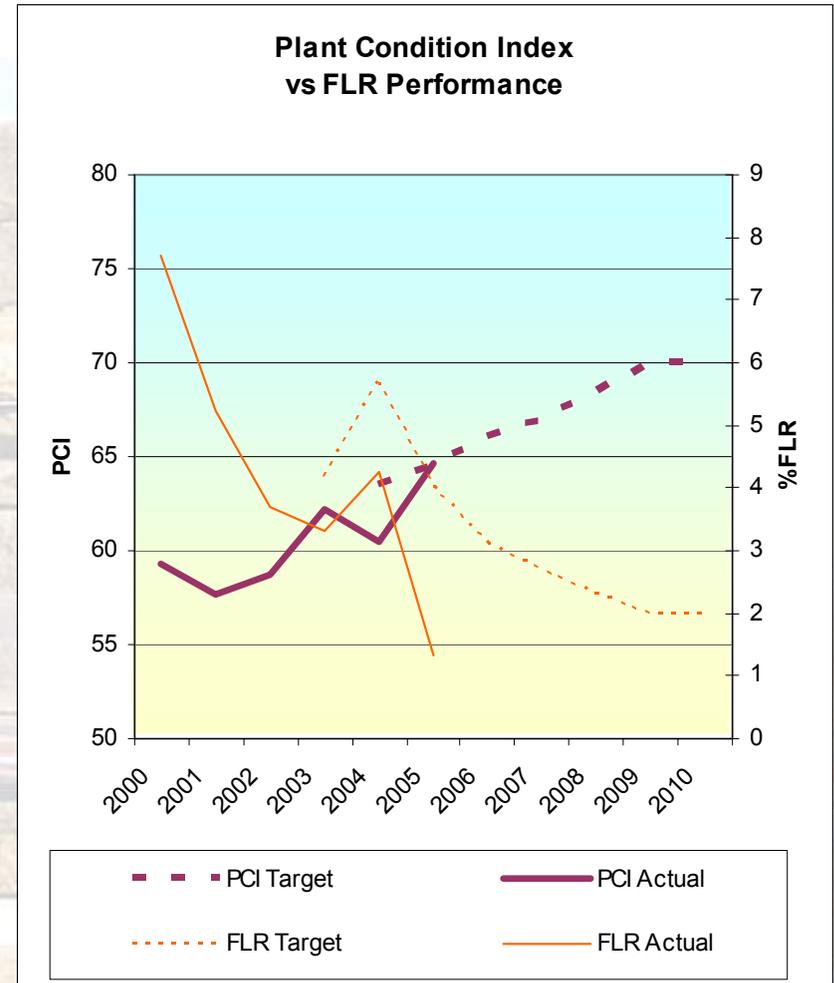
A “monitoring and action” effort that integrates the impacts of:

- Programs (eg, life cycle management, preventative maintenance).
- Initiatives (eg, backlog reductions, improvement projects, human performance) on equipment condition.

We are prioritizing to ensure the right work is done first.

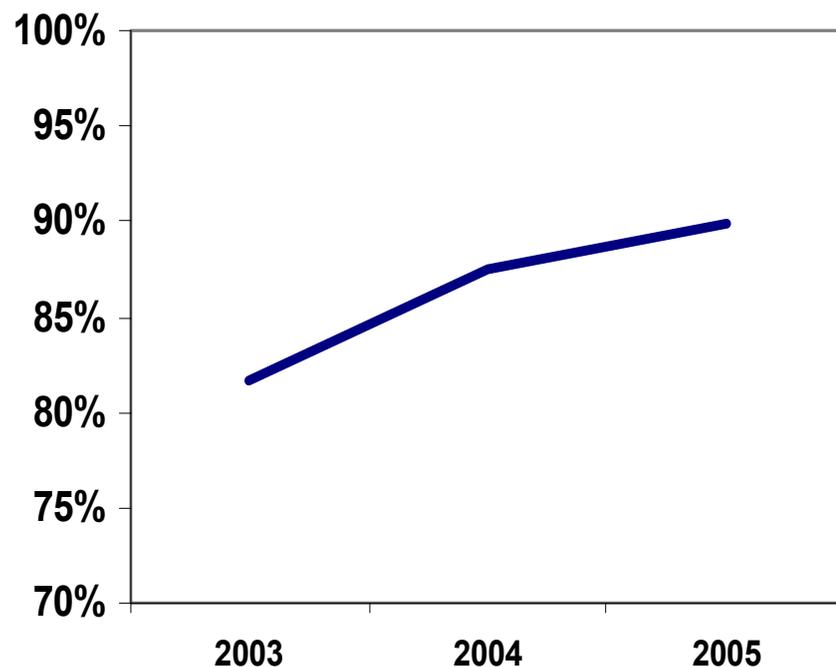
We are internalizing these objectives.

MONITORING EXAMPLES
System Colour Changes,
PCI, FLR



Station Reliability

Gross Capability Factor



✓ Our capability factor is improving :

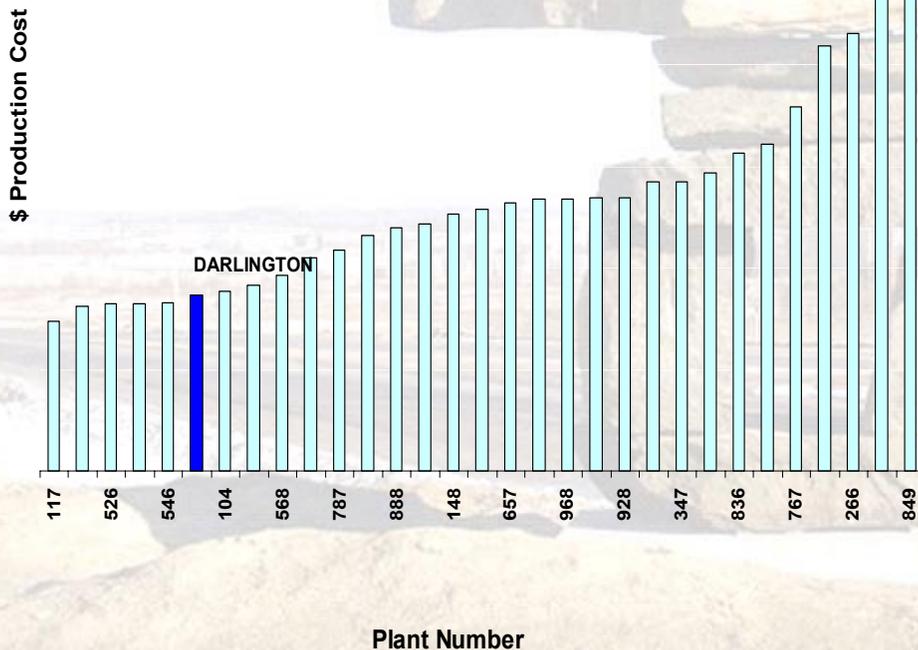
81.7 % in 2003

87.5 % in 2004

89.8 % in 2005

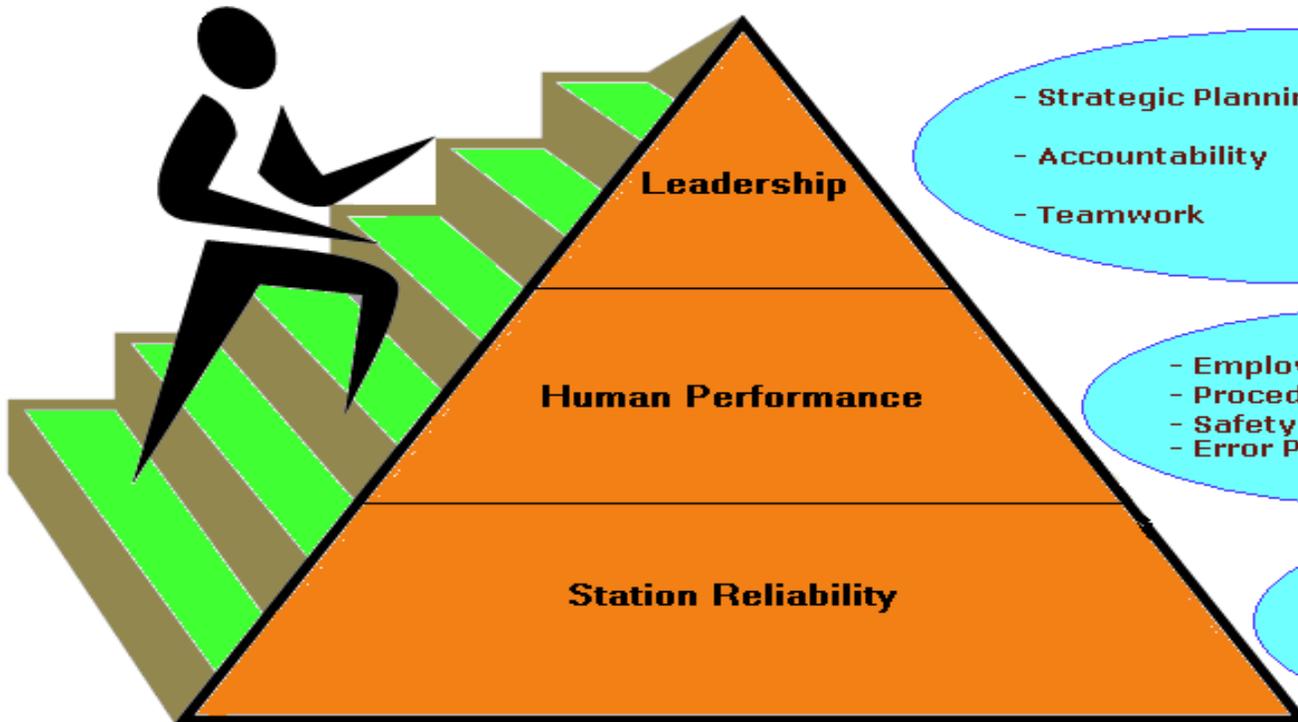
✓ Darlington had the highest capability factor of any multi-unit nuclear station in Canada for 2004 & 2005

Station Reliability



✓ Darlington is consistently one of the lowest cost producers of nuclear power in North America

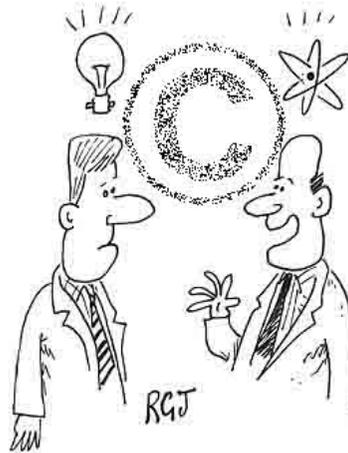
Focus Areas



- Strategic Planning & Execution
- Accountability
- Teamwork

- Employee Engagement
- Procedure Compliance
- Safety is sacred
- Error Prevention Tools

- Design Basis
- Corrective Action Programs



"I'm a nuclear physicist."

What does the nuclear physicist do in his spare time?

Answer: Goes fission.

Does Anyone have any.....

QUESTIONS?