

# NPP Town Hall Meeting

*13 May 2014*

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for Nuclear & Particle Physics

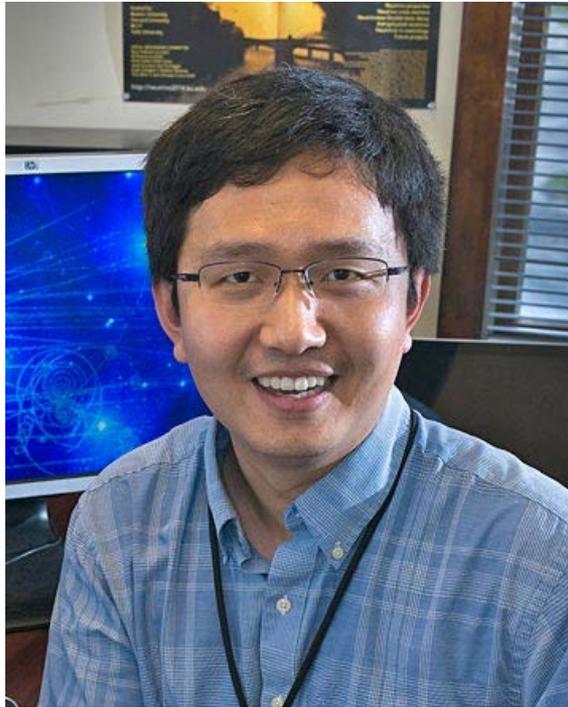
**BROOKHAVEN**  
NATIONAL LABORATORY  
*a passion for discovery*



# Agenda

- 2014 ECA Awards
- FY15 Budget Request
- NP Long Range Plan
- eRHIC Planning
- Safety
- Accountability initiative
- Goal setting

# Early Career Awards in NPP



**Xin Qian**, selected by the Office of High Energy Physics for: *"Detector Development towards Precision Measurements of Neutrino Mixing"*

**Bjoern Schenke**, selected by the Office of Nuclear Physics for: *"Development of a Comprehensive Description of High-Energy Nuclear Collisions at RHIC and LHC and Electron-Ion Collisions at a Future Electron-Ion-Collider"*



# FY 2015 BUDGET REQUEST

# FY15 Budget Request

## ***Nuclear Physics: \$593.6M (FY14: \$569.9M)***

The budget provides \$165.0M for RHIC operations to support a standalone run of approximately 22 weeks. The budget also includes \$90M for the FRIB construction and \$16.5M for the Jlab 12 GeV upgrade.

## ***High Energy Physics: \$744.0M (FY14: \$797.5M)***

Includes \$153.6M for energy frontier, \$251.2M for intensity frontier, \$101.2M for cosmic frontier, \$58.8M for theory, \$114.2M for Advanced R&D, \$19.2M for Accelerator Stewardship; \$25M for mu2e experiment. No funds for LBNE project.

Note: Hit on unprotected program components due to requirement of full funding of 3-year research grants less than \$1M continues.

# NP LONG RANGE PLAN

# LRP Charge

The new NSAC Long Range Plan (LRP) should articulate the scope and the scientific challenges of nuclear physics today, what progress has been made since the last LRP, and the impacts of these accomplishments both within and outside of the field. It should identify and prioritize the most compelling scientific opportunities for the U.S. program to pursue over the next decade and articulate their scientific impact. A national coordinated strategy for the use of existing and planned capabilities, both domestic and international, and the rationale for new investments should be articulated. To be most helpful, the LRP should indicate what resources and funding levels would be required (including construction of new facilities, mid-scale instrumentation, and Major Items of Equipment) to maintain a world-leadership position in nuclear physics research and what the impacts are and priorities should be if the funding available provides for constant level of effort from the FY 2015 President's Budget Request into the out-years (FY 2016-2025), with constant level of effort defined using the published OMB inflators for FY 2016 through FY 2025. A key element of the new NSAC LRP should be the Program's sustainability under the budget scenarios considered.

**Budget guidance: FY 2015 + Cost of Living**

Cautionary remark: COL for NP is not equal to COL for RHIC

# LRP Timeline

- Town Meetings Sept – Nov time frame
  - QCD (hadrons and QCD matter, EIC)
  - Nuclear structure & related astrophysics
  - Fundamental symmetries, neutrinos & astrophysics
  - Education
- White papers due end of January 2015
- LRP Resolution meeting March/April 2015
- LRP from NSAC to DOE in October 2015
- BNL strategy retreat (RHIC-eRHIC) on June 14
- Feedback on Collab. white papers from PAC
- Develop strategy compatible with budget guidance

# HEP Planning

- May 22-23: HEPAP meeting with P5 Report release
- June 23-24: BNL OHEP Site Review
- July 23-20: HEP Theory Review
- Sept 18-19: ATLAS Phase 1 Upgrade CD-2/3 review

# RHIC/ERHIC PLANNING

# RHIC to eRHIC transition

Progress continues:

Feb 2014: eRHIC Design Study draft completed  
Major design revision resulting in much higher performance

Feb 28 – March 1: EIC Advisory Committee met at BNL Committee  
Report has been received

March 17: Marc Kastner (SC-1 designee) visit

April 11: Franklin Orr (US for Science and Energy designee) visit

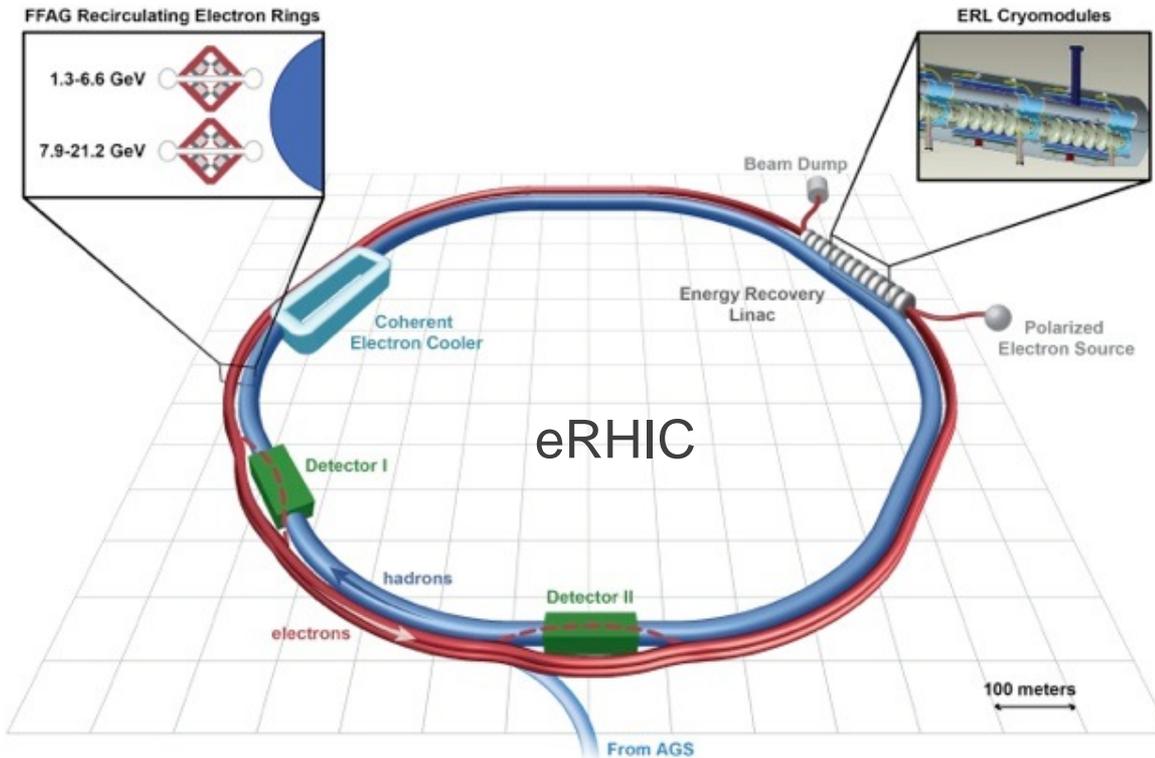
June 11-13: RHIC/AGS PAC looks at collaboration white papers

June 23-27: EIC International Users Meeting at SBU

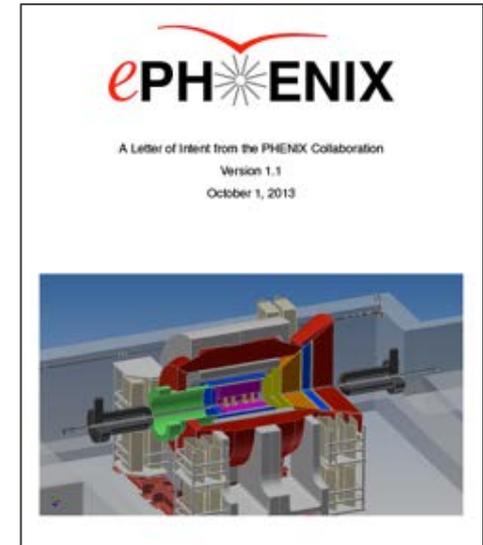
July 1-2: sPHENIX Science Review by ONP

# BNL's EIC Concept

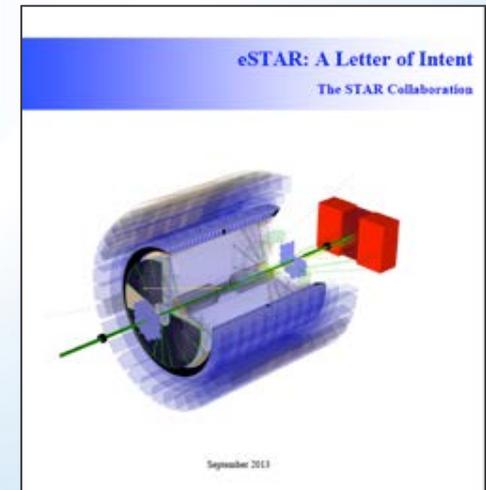
eRHIC ERL + FFAG ring design @  $10^{33}/\text{cm}^2\text{s}$   
15.9 GeV  $e^-$  + 255 GeV p or 100 GeV/u Au.



**When completed, eRHIC will be the most advanced and energy efficient accelerator in the world**



ePHENIX and eSTAR  
Letters of Intent



# A revolutionary concept

- eRHIC will be a unique, world leading accelerator facility combining several innovative concepts:
  - 99.8% efficient energy recovery linac (ERL)
  - Low energy ERL injection and extraction
  - FFAG arcs each propagating beams with multiple energies
  - Low cost permanent magnets for the FFAG arcs
  - World's first linac-ring collider
  - Coherent e-cooling (CeC) for record high beam brightness
  - “Crab” crossings for low background interaction regions
- While some of these concepts have been tested elsewhere, their unique combination will create a “green” collider facility of unprecedented energy efficiency at affordable cost.
- Enabled by world leading Accelerator Science & Technology

# SAFETY UPDATE

# BNL Injuries as of 3/31/14

## FY 2014

**Total Injuries:** 46

|                    | <b>YTD<br/>Cases</b> | <b>Rates</b> |
|--------------------|----------------------|--------------|
| <b>DART:</b>       | 11                   | 0.80         |
| <b>Recordable:</b> | 21                   | 1.53         |
| <b>First Aid:</b>  | 25                   | N/A          |

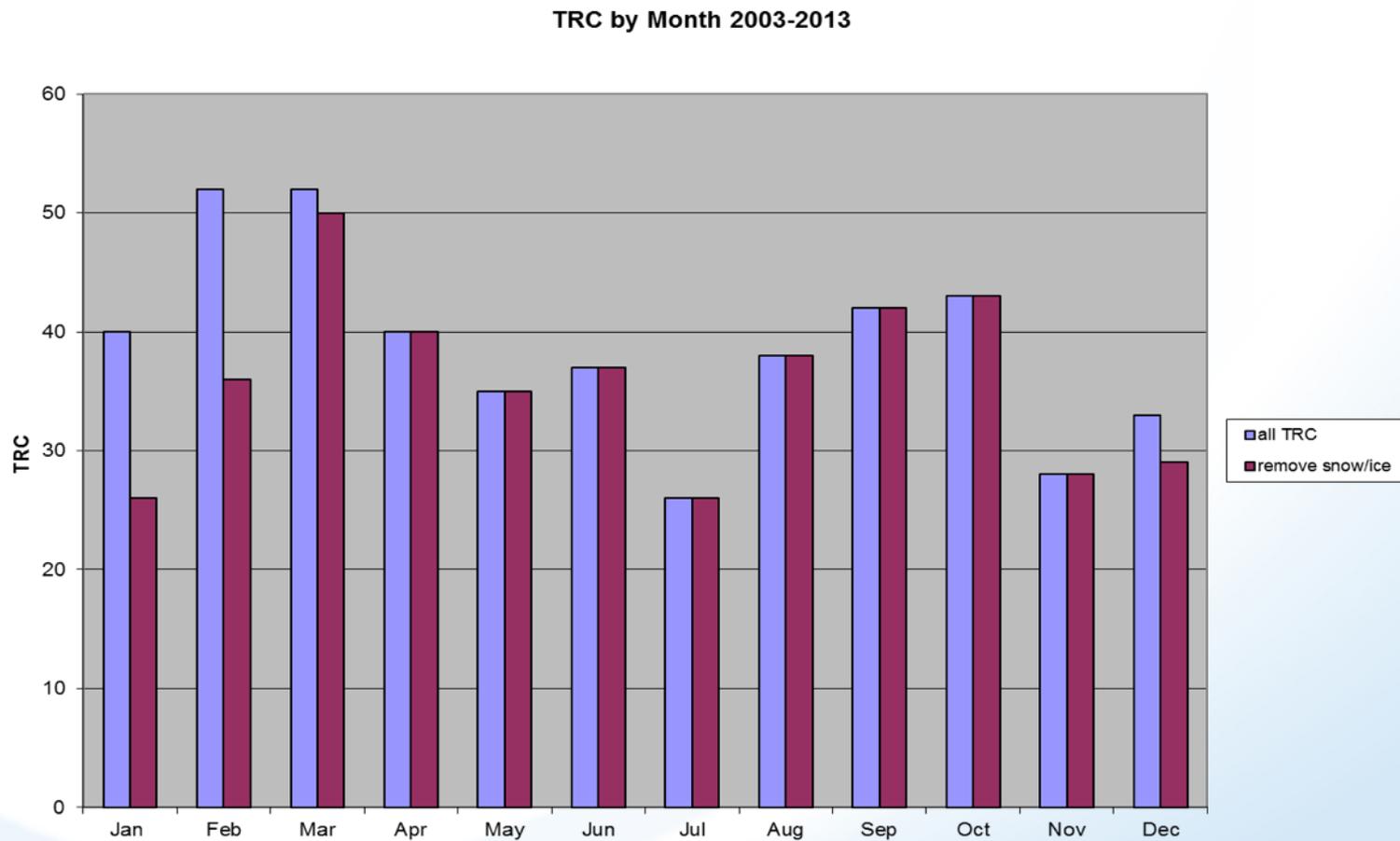
## FY 2013

**Total Injuries:** 91

|  | <b>Total<br/>Cases</b> | <b>Rates</b> |
|--|------------------------|--------------|
|  | 15                     | 0.50         |
|  | 38                     | 1.28         |
|  | 53                     | N/A          |

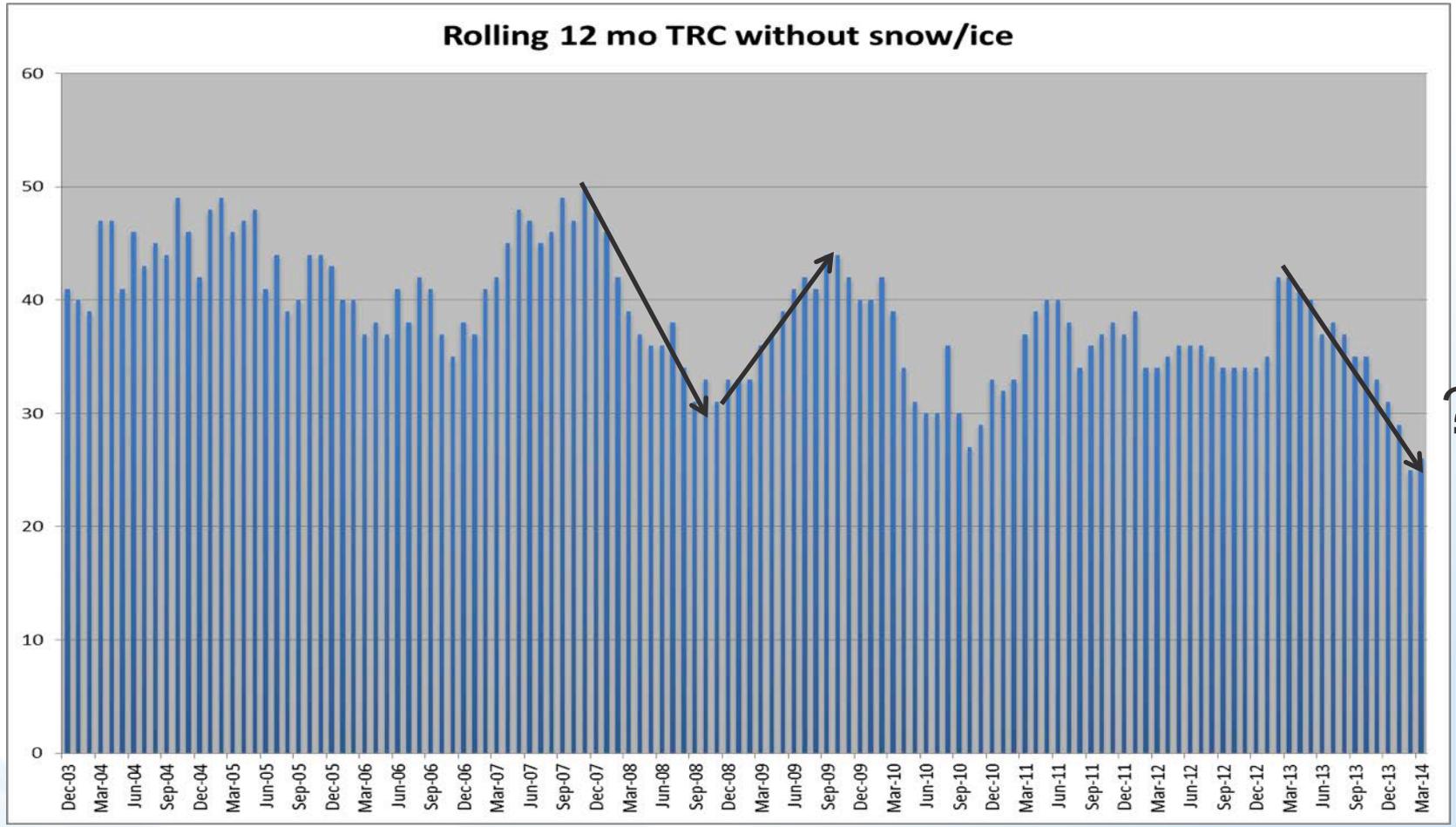
Better than it looks, because Oct – March period is traditionally more accident prone

# However – there are seasonal variations



# Weather adjusted data modify some years

The most recent 12 months has seen substantial reduction of TRC



# DOE Recordable – Darts (BNL-wide)

|  |                   |      |
|--|-------------------|------|
| Employee Lacerates Finger                          | March 31, 2014    |      |
| Employee Falls During Physical Training Exercise   | March 20, 2014    | DART |
| Employee Feels Pain While Mopping                  | March 17, 2014    | DART |
| Employee Strains Neck/Shoulder                     | March 17, 2014    | DART |
| Employee Injures Thumb                             | March 11, 2014    | DART |
| Employee Hurts Arm While Vacuuming                 | March 5, 2014     |      |
| Door Forcibly Closes On, Injures Employee's Finger | February 27, 2014 |      |
| Employee Slips on Ice, Hurts Back                  | February 19, 2014 | DART |
| Employee Slips on Ice                              | February 14, 2014 | DART |
| Employee Lacerates Finger                          | February 13, 2014 |      |
| Employee Injures Finger                            | February 11, 2014 |      |
| Employee Falls on Icy Surface                      | January 21, 2014  |      |
| Employee Falls on Icy Surface                      | January 10, 2014  | DART |
| Employee Falls on Icy Surface                      | January 10, 2014  |      |
| Employee Lacerates Arm with a Razor Knife          | January 2, 2014   |      |
| Employee Hurts Foot While Performing Leak Checks   | December 11, 2013 | DART |
| Employee Falls in Parking Lot                      | December 2, 2013  | DART |
| Employee Lacerates Lower Extremity                 | November 12, 2013 | DART |
| Employee Receives Foreign Body in Eye              | October 15, 2013  |      |
| Employee Fractures Finger                          | October 14, 2013  |      |
| Employee Injures Hand While Using Tool             | October 9, 2013   | DART |

# First Aid Cases (BNL-wide)

|            |   |
|------------|---|
|            |   |
| 3/27/2014  | A guest/student received a burn to the thumb while heating a small diameter quartz tube. The student was wearing heavy leather gloves at the time. At the OMC, first aid was given.   |
| 3/20/2014  | An employee reported to the OMC with leg problems from kneeling at work. At the clinic, he was examined and returned to normal duties.  |
| 2/28/2014  | <b>Employee tripped and fell on steps</b> injuring his right hand/wrist. First Aid was given at the OMC.  |
| 2/27/2014  | A guest was stung on the hand by a bee while unloading a package from a truck. At the OMC, first aid was given.   |
| 2/20/2014  | An employee was stung by a bee while sitting at her desk. At OMC, first aid was given.  |
| 2/13/2014  | <b>An employee slipped on the ice</b> and injured a hand. At the OMC, first aid was given.  |
| 1/10/2014  | <b>An employee fell on slippery sidewalk</b> and received first aid at the OMC.   |
| 1/10/2014  | <b>An employee fell while walking on icy sidewalk</b> and injured an arm. At the OMC, first aid was given and he returned to normal duties.   |
| 1/10/2014  | <b>An employee slipped and fell on arm</b> while walking to car. After follow up medical examinations, returned to regular duties.  |
| 1/2/2014   | An employee was moving a computer server, which fell on his hand. At the OMC, first aid was given.  |
| 12/23/2013 | <b>An employee slipped and fell to the surface.</b> At the OMC, first aid was given...an investigation is in progress.  |
| 12/17/2013 | <b>An employee fell on an icy surface in a parking lot.</b> At the clinic, first aid was given and he returned to regular duties.   |
| 12/5/2013  | An employee injured fingers while closing a tailgate. At the OMC, first aid was given.  |
| 12/3/2013  | Employee walked into pipe flange and received lacerations to his eyelids. At the OMC and off-site clinic, examinations were conducted and first aid was given.  |
| 11/18/2013 | A visitor lacerated the right hand on a cabinet and was taken to the ER for sutures.  |
| 11/14/2013 | <b>An employee lost his footing on uneven ground and fell.</b> At the Fire House, first aid was given and he returned to normal duties.   |
| 11/13/2013 | <b>Employee slipped on ice while mounting vehicle.</b> At the OMC, first aid was given.   |
| 11/12/2013 | An employee injured a hand operating a closer on a door. At the OMC, first aid was given.   |
| 10/29/2013 | A guest received a laceration while opening a can. At the OMC, first aid was given.   |
| 10/29/2013 | <b>An employee got his foot caught and fell,</b> bruising an arm. At the OMC, first aid was given.  |
| 10/28/2013 | <b>An employee tripped over boxes and injured his arm and shoulder.</b> At the OMC, first aid was given.  |
| 10/21/2013 | An employee was loading equipment onto truck and injured a finger. At the OMC, first aid was given.   |
| 10/18/2013 | An employee was stung by a bee. At the clinic, first aid was given.   |
| 10/16/2013 | While using a drill, it slipped and lacerated the employee's thumb. At the clinic, first aid was given.   |
| 10/9/2013  | An employee was reaching for the exterior door handle from inside the building and was stung by a yellow jacket. At the clinic, first aid was given.  |
| 10/7/2013  | An employee reported to the OMC with dust in an eye. Unable to remove the foreign body by flushing, the OMC referred him to an ophthalmologist. The latter was able to remove it using a cotton swab. This is a first aid case. |

# Keeping Your “Head in the Game”

- In my view, nearly all injuries the result of momentary inattention – complete distraction
- What are we thinking of can distract us from the attention we need to complete the task safely
  - Fear of loss of job from announced RIF needs by Doon Gibbs at last lab-wide ‘All-Hands’ Meeting and previous announcements of need to reduce numbers in HEP, Congressional gridlock
  - Thinking about what needs to be done instead of focusing on what you are doing
  - Time constraints, work loads, compliance worries, changes in scope of work, etc.
  - Perceived ‘back-off’ of safety commitment by Upper Management – Late day dismissal during snow storm
  - Upper Management changes in excused absences, consideration of reducing the number of vacation days, background checks, drug testing, etc
  - Personal Problems – financial situations, children, personal relationships, loss of friends and/or family
  - Physical problems – lack of sleep, aches and pains, etc.

# What you can do

- Recognize when you are distracted.
  - If you're trying to do your work and other things keep going through your mind, you're distracted
- If you know you are not at your best,
  - Review the work plan
  - Ask for help to do the hazardous part of the job
  - Use your required Personal Protective Equipment
  - If there is additional PPE that can help you, get and use it
  - Consult your department's safety personnel

# ACCOUNTABILITY INITIATIVE

# Accountability Initiative

Still proceeding on (somewhat slower) schedule:

May 1: “Opinion Leaders” workshop (peer-to-peer communications)

May 13: Accountability Roundtable at Science Council:  
Feedback from scientists

General themes:

- ✧ “Accountability” theme is still confusing
- ✧ Lack of accountability between support and science
- ✧ Integrated service model has not worked in practice
- ✧ Lab is not seen as backing the scientists
- ✧ Managers Level 2 and down are not empowered

# GOAL SETTING

# My Goals - Overview

|   |  |     |
|---|--|-----|
| 1 | Develop a cost reviewed facility plan for eRHIC including accelerator and detectors              | 30% |
| 2 | Continued excellence in execution of the RHIC program  | 25% |
| 3 | Expand the future EIC user community   | 10% |
| 4 | Develop a plan for cosmic frontier research at BNL   | 5%  |
| 5 | ES&H Goal  | 20% |
| 6 | Improve operational excellence of the Medical Isotope Facility                                   | 5%  |
| 7 | Develop of strategic plan for WFO and integrative initiatives between NPP and other Directorates | 5%  |

# Cost reviewed eRHIC facility plan

## Goal Statement:

Develop an integrated transition plan from RHIC to BNL's version of an Electron Ion Collider (eRHIC), including conceptual machine and detector design, toward a <\$600M design goal.

## Goal Milestones:

- Oversee development of an eRHIC Facility Plan with a target completion date of Q2 FY14.
- Cost review the eRHIC Facility Plan (Q3 FY14).
- Solicit conceptual design for a new eRHIC detector (Q2 FY14).
- Review all proposed eRHIC detector designs by Q3 FY14.
- Develop “elevator speech” case for eRHIC by end of Q2 FY14.
- Reconvene EICAC for meeting in Q2 FY14.
- Prepare EIC science case and eRHIC Facility presentations for NSAC Long Range Plan (Q4 FY14).
- Establish high-level eRHIC advisory committee from BNL core universities.

## Measures of Success:

- CD0 decision for sPHENIX.
- Continued progress for eRHIC accelerator R&D projects (coherent electron cooling, polarized e-gun, ERL) on schedule.
- Successful eRHIC cost review within \$600M (FY12) target.

# Scientific and operational excellence of RHIC program

## Goal Statement:

Commission HFT, e-lenses, and 56MHz cavity. Operate RHIC with STAR-HFT, PHENIX SVT for Au+Au. Publish proton spin results from Run-13.

# Expand the future EIC user community

## Goal Statement:

Foster international interest in the EIC science program. Attract interest in eRHIC detector contributions from international partners. Recruit academic institutions to engage in eRHIC science program.

# Develop a plan for cosmic frontier research at BNL

Goal statement:

Develop a strategic plan for a sustainable cosmic frontier research program at BNL (jointly with SBU) around LSST.

## ES&H Goal

Goal statement:

Anticipate and prevent safety incidents and injuries within NPP. Contribute constructively to lab-wide discussions and prioritization of realizable safety goals.

# Improve operational excellence of Medical Isotope Facility

Goal statement:

Reorganize the BLIP management structure to ensure operational excellence, achieve progress toward its research goals and successful execution of the intensity upgrade.

## Develop of strategic plan for WFO and integrative initiatives between NPP and other Directorates

Goal statement:

Compile a portfolio of ongoing WFO projects and develop strategy for future accelerator science & technology applications. Work with DDST to develop a strategic lab-wide plan for computing at BNL.