

# Shift Procedures and Status

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SBND Operations Readiness Review

February 21-22, 2024





# Introduction

- Shifts are critical for ensuring safe operations, minimal down-time, and quality data
- This talk addresses several questions from the **SBND ORR Charge Document**:

## 1(h)

1. Has the experiment written a completed Experiment Operations Plan (EOP)? The document should include (a) an outline of the Science goals (b) a description of operations tasks and how they will be covered, (c) ES&H activities and how they will be managed, (d) organization charts showing the management structure for the experiment and how it interfaces with the laboratory, (e) Fermilab resources and roles as they pertain to each Directorate (f) the model for data processing and analysis including the computing budget and effort required, (g) a list of the identified resources available, and (h) a description of the roles and responsibilities of each institution together with a list of support required by each institution from funding agencies.

## 2(c)

c. Is there a plan for monitoring the beam and the data quality and has the infrastructure been tested? If not, what actions are required to complete the data quality monitoring system before physics data-taking?

## Institutional shift quotas

**Yes!** Slow-monitoring infrastructure, shifting procedures, and communication channels have been established and are continually being exercised.



- Shift policy documented by an internal task force
- See Sec 3 of SBND EOP for a summary of these policies

## SBND Experimental Operations Plan

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[sbn-doc-33687](#)

## SBND Shift Policy (v2.0)

Shift Policy Task Force

(Steven Gardiner, Diana Mendez, David Schmitz, Andrzej Szelc)

December 6, 2023

### 1 Introduction

This document presents a proposal for shift policies for the SBND experiment. We introduce the different types of shift roles and propose a shift credit value for each shift type. We also describe the tools and process by which we can track shift-credit for collaborators and schedule collaborator shifts.

Shift activities are anticipated to begin in early 2024 as the SBND cryostat is cooled down and detectors are powered up. While our goal is to have sensible policies in place for the start of operations, these policies may be revisited to address needs that arise during data-taking.

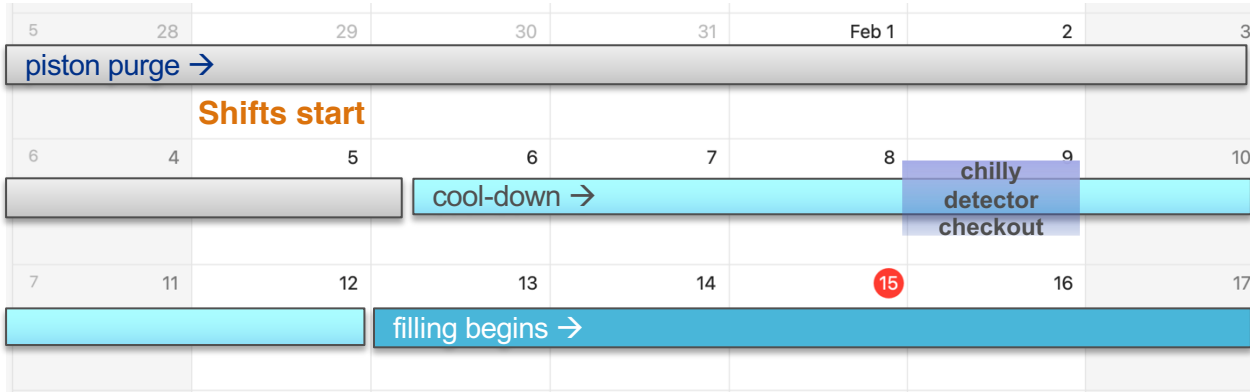
### 2 General Considerations for Shifts

We begin with some general features of the proposed policy:

- Shift quotas will be assigned per institution and based on the number of author-eligible collaborators at that institution during the coming shift period for which shifts are being scheduled.
- Shifts will be scheduled in 6-month periods before the start of each new period. The number of author-eligible collaborators at each institution for the upcoming period is confirmed by IB representatives.
- Different kinds of shift roles will be considered within the same shift-credit accounting system, including: Control Room Shifts, Run Coordinator Shifts, Detector System Expert Shifts. See Section 3 for descriptions of the roles and Section 4 for shift point values.
- We can use the software tools being used by ICARUS (previously developed by NOvA) to schedule Control Room Shifts. In brief, collaborators submit preferences for an upcoming shift period.

# Overview of shift situation

- 24/7 shifts began **Jan 29** during the "piston purge" phase
  - ~1 week of fewer critical items to monitor allowed us to optimize procedures and fix bugs
- Running smoothly since; procedures continually updated as operational conditions evolve





# What is shift?

- "Control Room" / Detector Monitoring shifts:
  - Two blocks per week: **Mon-Thurs (4 days) & Fri-Sun (3 days)**
  - Shifts per block: **Night** (12a-8a), **Day** (8a-4p), **Swing** (4p-12a)
- Expert shifts: 1-week block for on-call Detector Systems Experts
- Shadow shifts: training for first-time shifters

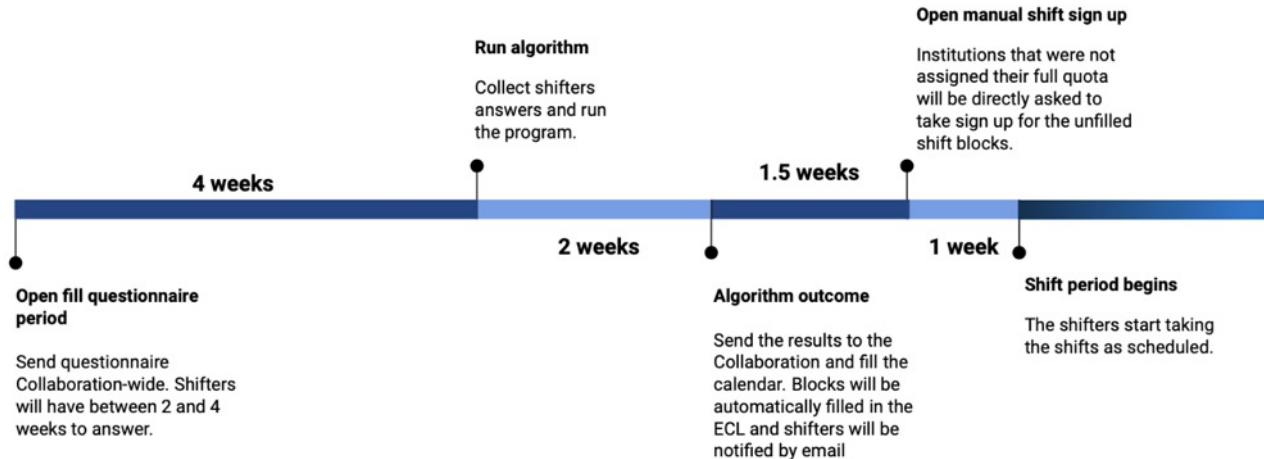
Shifters arrive 10-15 minutes early for overlap w/ previous shifter

Mon 05	Tue 06	Wed 07	Thu 08	Fri 09	Sat 10	Sun 11
<b>Expert Mon-Sun 00:00-23:59</b>						
TPC HV (3.0)	Mônica Nunes					
TPC CE (3.0)	Tingjun Yang					
DAQ (3.0)	Amy Filkins					
DQM (3.0)	Mun Jung Jung					
<b>Weekday Night Mon-Thu 00:00-08:00</b>				<b>Weekend Night Fri-Sun 00:00-08:00</b>		
Shadow Shift (0.0)				Shadow Shift (0.0) Camila Pierobao		
Control Room (10.0) Anna Beever				Control Room (10.0) Lucca Longhitano Pagliuso		
<b>Weekday Day Mon-Thu 08:00-16:00</b>				<b>Weekend Day Fri-Sun 08:00-16:00</b>		
Shadow Shift (0.0) Ewerton Chagas				Shadow Shift (0.0)		
Control Room (10.0) Franciele Marinho				Control Room (10.0) Seokju Chung		
<b>Weekday Swing Mon-Thu 16:00-23:59</b>				<b>Weekend Swing Fri-Sun 16:00-23:59</b>		
Control Room (10.0) Ewerton Chagas				Control Room (10.0) Omar Alterkait		
Shadow Shift (0.0)				Shadow Shift (0.0)		

# Coordinating shifts



- Shift Coordinator **Diana Mendez**: assigns shifts, maintains records of completed shifts and institutional quotas
- Shift allocation algorithm (used by ICARUS and NOvA) fairly determines assignments using collaborator preferences collected in questionnaire
- Shifts assigned in 6-month periods



# Who does shifts?



Institution	Location	No. of Shifters (1/2024)
Argonne National Laboratory	USA	3
Universität Bern	Switzerland	1
Brookhaven National Laboratory	USA	10
University of California, Santa Barbara	USA	6
Universidade Estadual de Campinas	Brazil	5
University of Chicago	USA	12
CIEMAT	Spain	4
Colorado State University	USA	3
Columbia University	USA	8
University of Edinburgh	UK	7
Universidade Federal do ABC	Brazil	2
Universidade Federal de Alfenas	Brazil	1
Fermi National Accelerator Laboratory	USA	33
University of Florida	USA	6
Universidad de Granada	Spain	8
Illinois Institute of Technology	USA	4
Imperial College London	UK	3
Lancaster University	UK	7
University of Liverpool	UK	8
Los Alamos National Laboratory	USA	5
Louisiana State University	USA	2
University of Manchester	UK	9
University of Michigan	USA	2
University of Minnesota	USA	3
University of Oxford	UK	2
University of Pennsylvania	USA	3
Queen Mary University of London	UK	1
Rutgers University	USA	2
São José dos Campos	Brazil	1
University of Sheffield	UK	7
University of Sussex	UK	2
Syracuse University	USA	3
Texas A&M University	USA	1
University of Texas at Arlington	USA	8
Tufts University	USA	5
University College London	UK	2
Virginia Tech	USA	4
38		193

- **38 institutions → 193 shifters**
- Quota per institution based on # of authors
  - ~1 shift block needed per non-expert group member per 6-months
- Expert shifts
  - Accessible by phone 24/7 (<15 min delay ideal)
  - Run Coordinator fills in if expert can't be reached

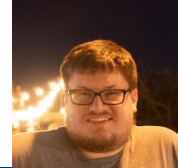
→ See Sec 3.2 of SBND EOP for more details

Table 3: Detector System Expert categories and collaborating institutions with members who are currently experts for each detector system.

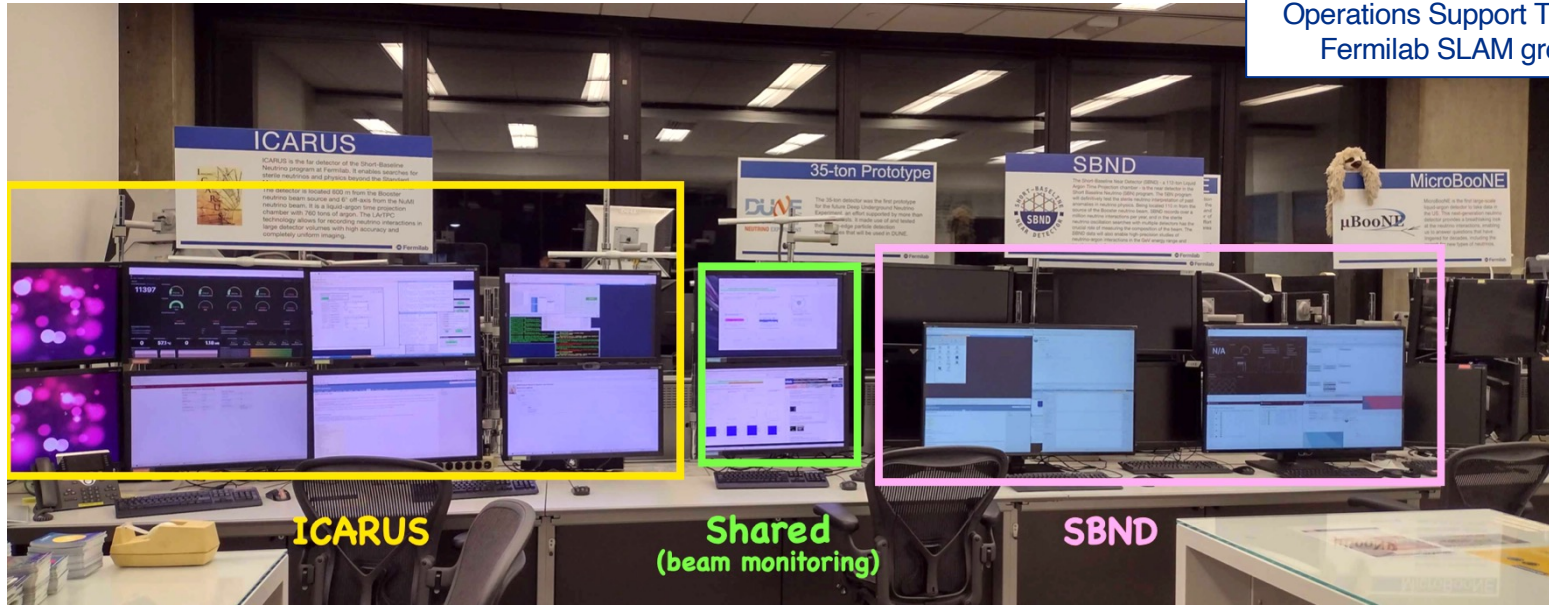
Detector Subsystem	Institutions with committed experts
TPC high voltage	Fermilab, Queen Mary, Chicago
TPC cold electronics	BNL, Fermilab, Florida
Photon Detectors	Fermilab, Florida, Michigan, Unicamp, CIEMAT, Tufts
Cosmic Ray Tagger	Fermilab, Liverpool, Syracuse
Trigger/Timing/Beam	Penn, Liverpool, UCSB
DAQ	Fermilab, Columbia, Syracuse
Slow Controls & Online Mon.	Fermilab, Chicago, UCL

# Shift infrastructure

- Shifting infrastructure set up by Bruce Howard
  - Modeled after ICARUS
  - Two dedicated screens in Fermilab's ROC-West
  - Shared VNCs w/ persistent slow monitoring to enable remote shifters



Thanks **Bruce**, Zarko, SBND Operations Support Team, + Fermilab SLAM group!



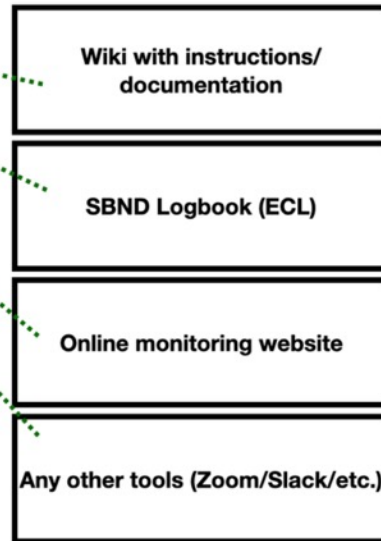
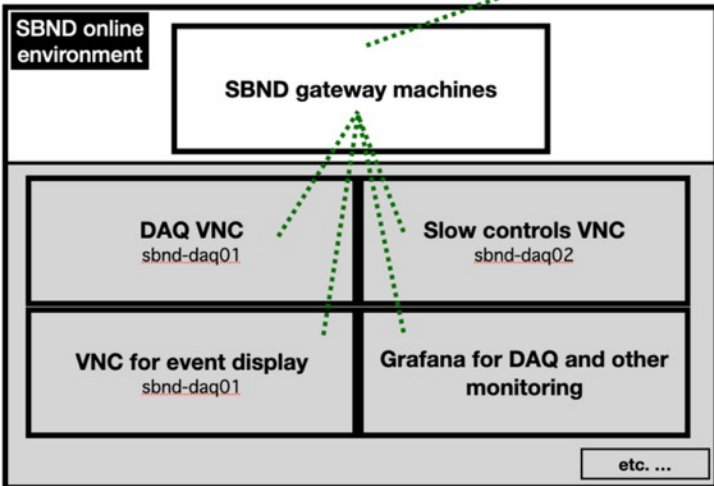
ICARUS

Shared  
(beam monitoring)

SBND



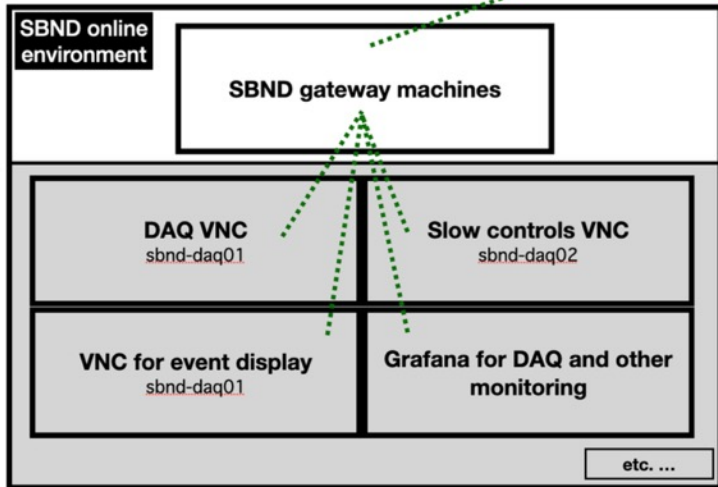
# Shift infrastructure



*Open on local machine*

*Open perpetually & shared by all through VNCs*

# Shift infrastructure



'NoVNC' allows one to use web browsers to view VNC screens once SSH connection is established through a terminal

Automated scripts available for download that will launch the necessary commands

Open on local machine

Open perpetually & shared by all through VNCs

# SBND Shift Station @ ROC-West



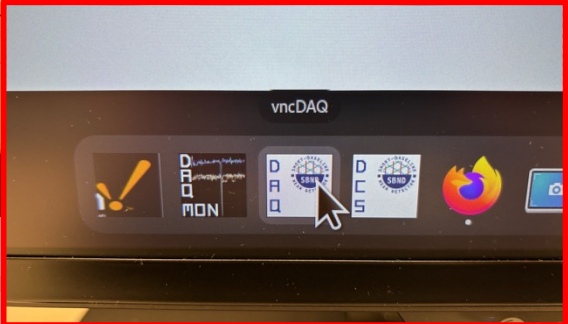
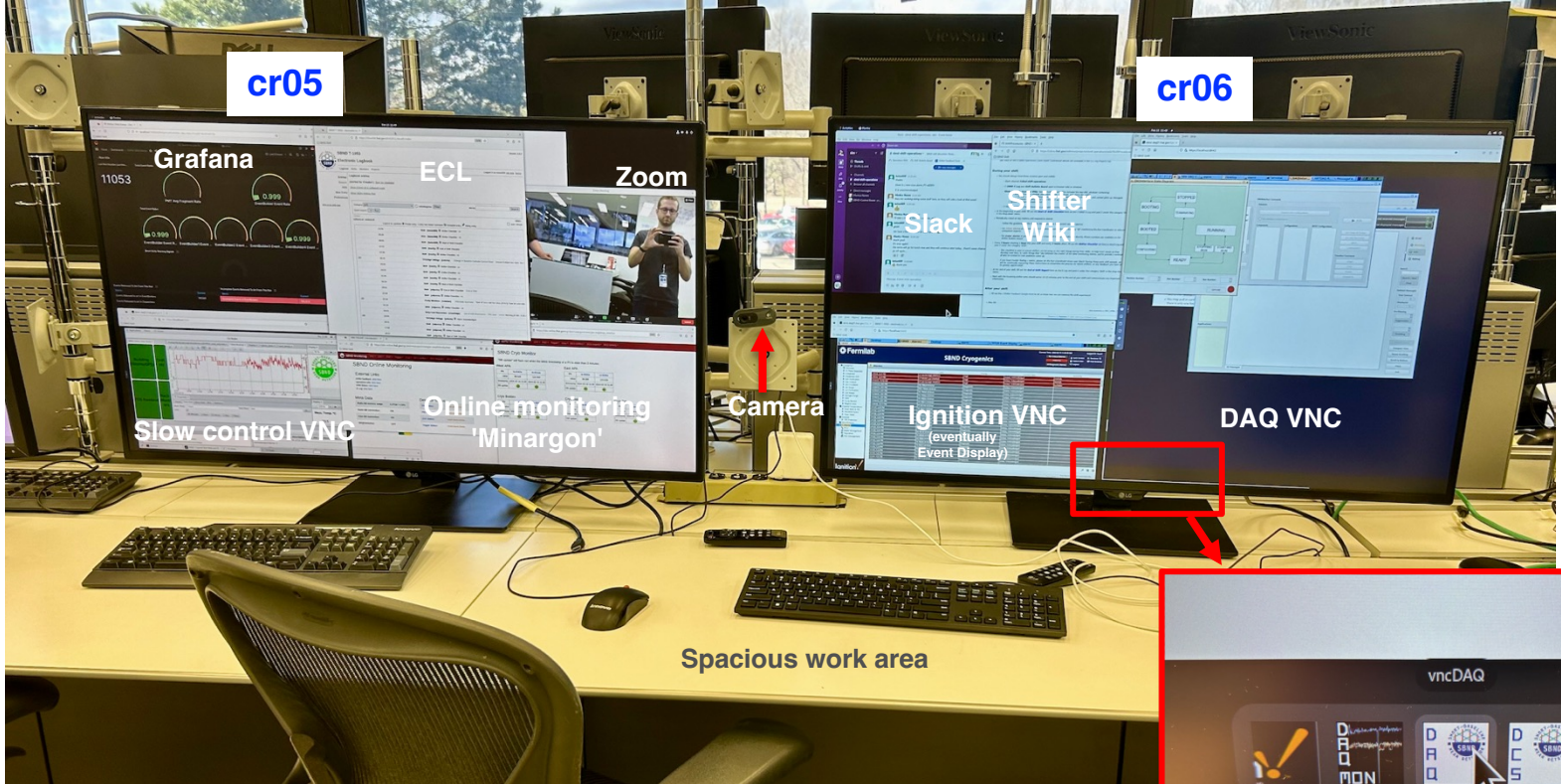
cr05

cr06

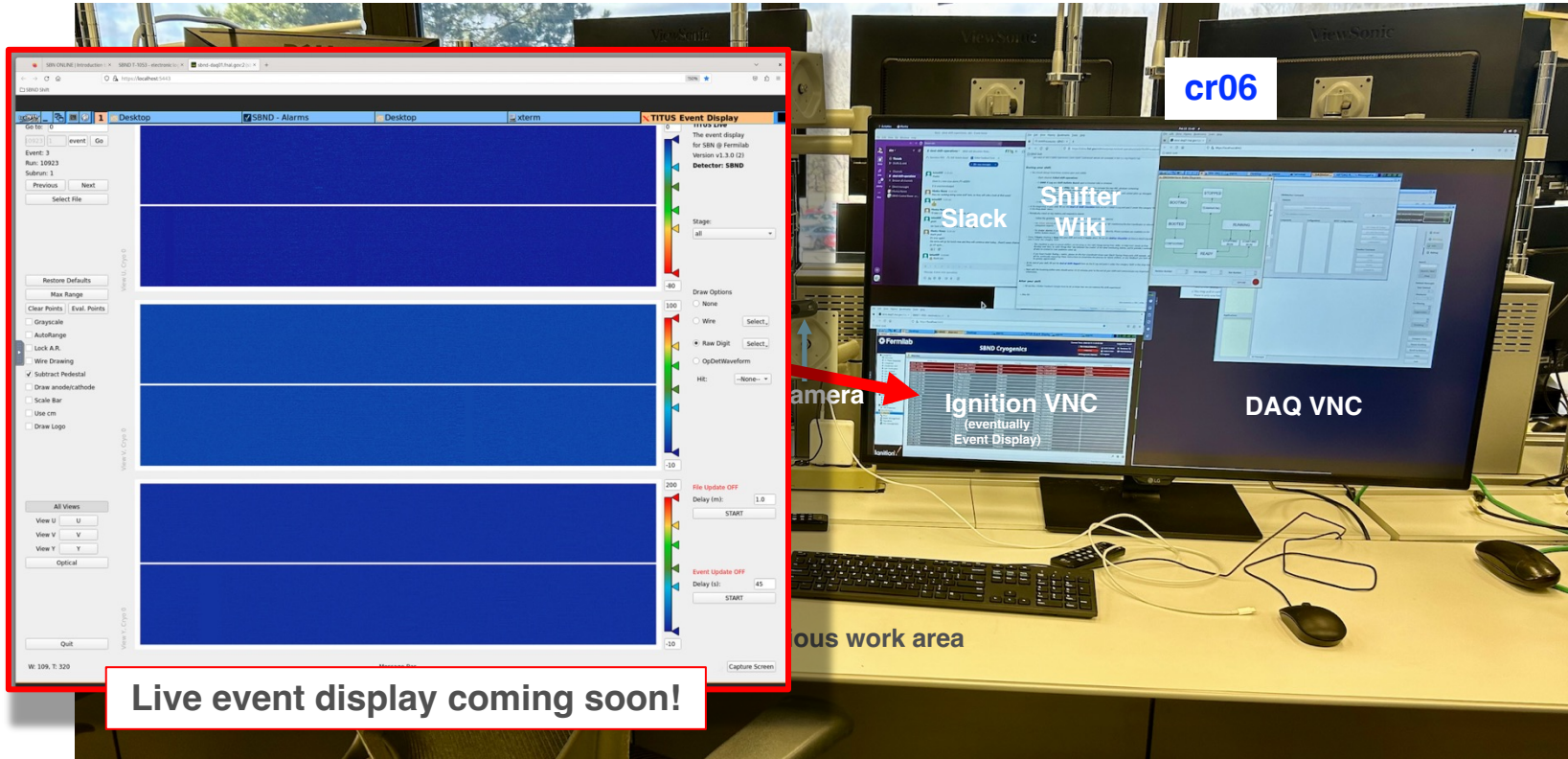
Minerba Betancourt  
(main shifter)

Linyan Wan  
(shadow shifter)

# SBND Shift Station @ ROC-West

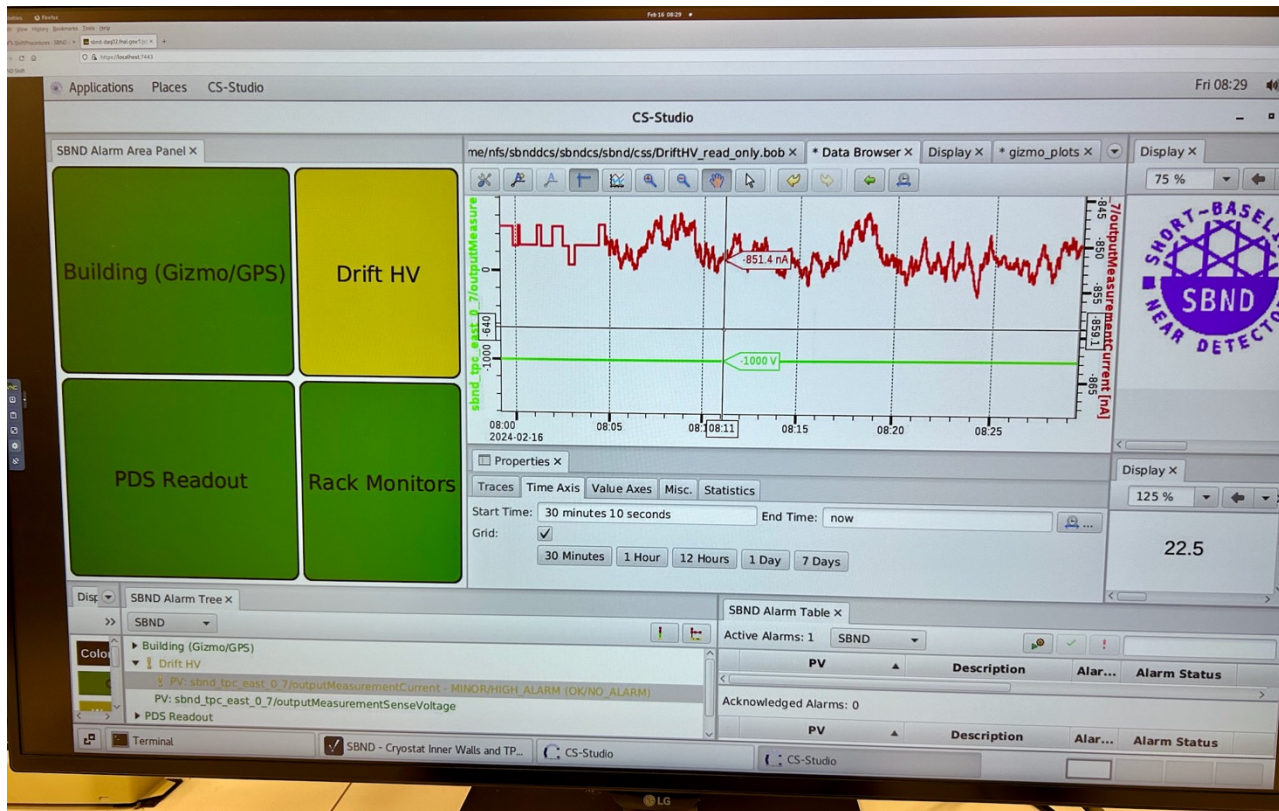


# SBND Shift Station @ ROC-West

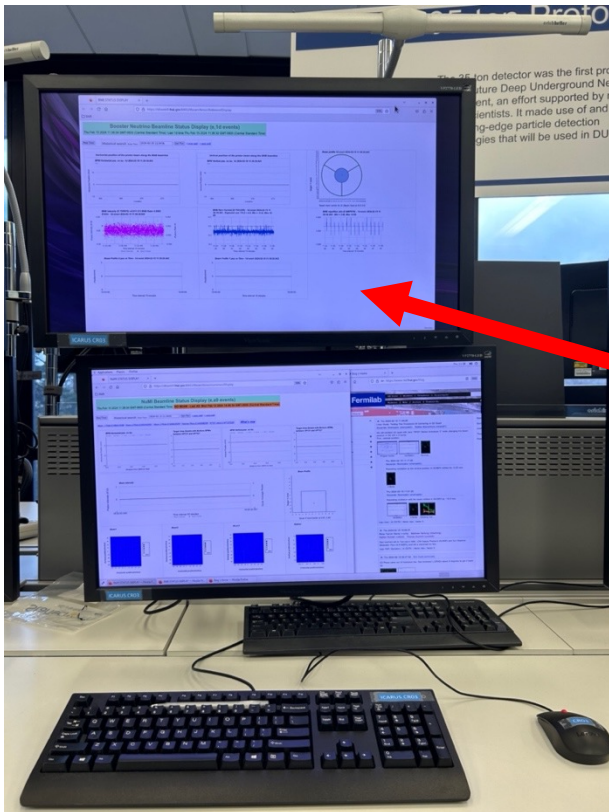


Live event display coming soon!

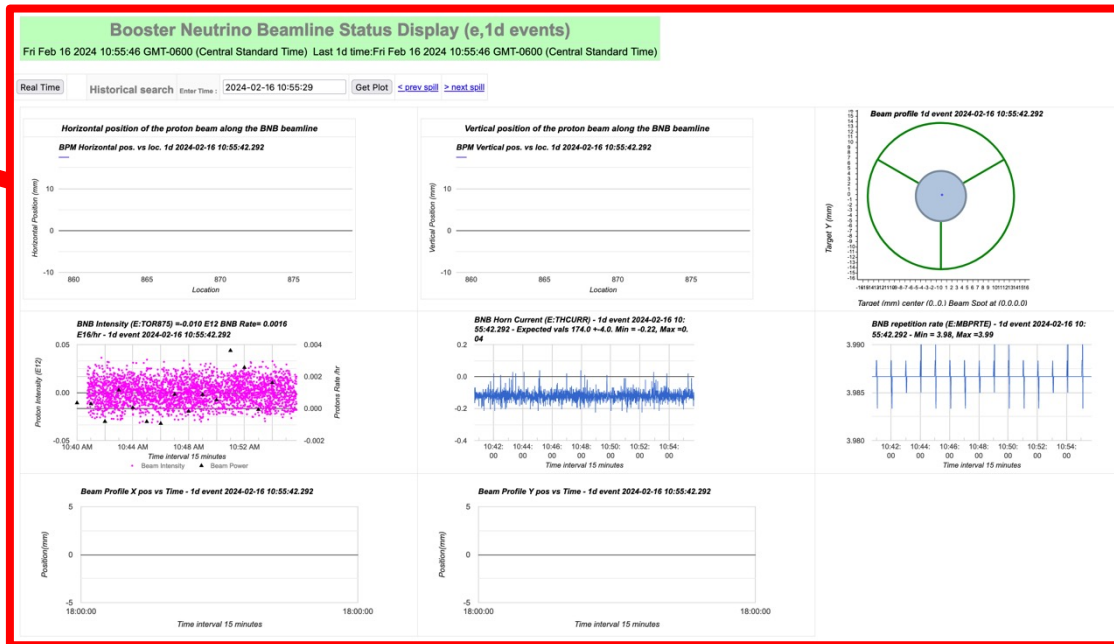
# DCS viewer



# Shared BNB Beam Monitor screens



- Shared screens between SBND and ICARUS will eventually display BNB beam monitoring
  - See Sungbin's DCS talk



# Electronic Logbook / "E-Log" / ECL



## SBND T-1053

### Shift Scheduler

Logbook
Shifts
Members
Projects

---

**Calendar**

Schedule intervals

Shift quotas

Shifts by institution

Open shifts

My shifts

Who is on shift now

### Shifts for February 2024

[week view](#)
[<January 2024](#)
[February 2024](#)
[March 2024](#)

Expert
  Weekday Night
  Weekday Day
  Weekend

Mon 29	Tue 30	Wed 31
<b>Expert Mon-Sun 00:00-23:59</b>		
TPC HV (3.0)	Mónica Nunes	
TPC CE (3.0)		
DAQ (3.0)	Amy Filkins	
DQM (3.0)		
<b>Weekday Night Mon-Thu 00:00-08:00</b>		
Shadow Shift (0.0)		
Control Room (10.0)	Matt King	

### Shifters on 2024-02-16 at 11:29:07

User	Institution	Phones/Cell-Pager	Shift	Role	Start Time	End time
Lauren Yates	FERMILAB	(781) 392-4322	Expert	TPC HV	2024-02-12 00:00:00	2024-02-18 23:59:00
Minerba Betancourt	FERMILAB		Expert	DQM	2024-02-12 00:00:00	2024-02-18 23:59:00
Varuna Meddage	FLORIDA		Expert	TPC CE	2024-02-12 00:00:00	2024-02-18 23:59:00
David Payne	None		Expert	CRT	2024-02-12 00:00:00	2024-02-18 23:59:00
Sungbin Oh	FERMILAB	6306050165 / 6306050165	Expert	Slow Controls	2024-02-12 00:00:00	2024-02-18 23:59:00
Linyan Wan	FERMILAB		Weekend Day	Control Room	2024-02-16 08:00:00	2024-02-18 16:00:00
Shivraj Mulleria Babu	BERN	+41797616696	Weekend Day	Shadow Shift	2024-02-16 08:00:00	2024-02-18 16:00:00

## SBND T-1053

### Electronic Logbook

Version: 8.3.3

Logbook
Shifts
Members
Projects

Logged in as wforeman [old\\_style](#) [logout](#)

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**Entries**

Search

RSS

New Entry

Preferences

Settings

Configuration

Who is on shift now

### Logbook entries

(sorted by Created) [Sort by Updated](#)

[Show Entries ID in collapsed mode](#)

[Show Sticky Entries First](#)

Category: (all)   subcategories Words:

Quick search:

[<newer](#)
[collapse all](#)
[expand all](#)
[older>](#)

auto-refresh

Legend for symbols: ● Private entry. ! Entry has newer comment. T Threaded entry. ★ Sticky entry.

11:02	Shift [Iwan]	Shifter Checklist - v1	
09:53	DAQ Cold Electronics [vmeddage]	Cold electronics noise runs	
09:03	Shift [Iwan]	Shifter Checklist - v1	
08:01	Shift [Iwan]	Start of Shift Checklist	
07:48	Shift [camilap]	End of Shift Checklist	
07:03	Shift [camilap]	Shifter Checklist - v1	
04:57	Shift [camilap]	Shifter Checklist - v1	
03:04	Shift [camilap]	Shifter Checklist - v1	
01:06	Shift [camilap]	Shifter Checklist - v1	
23:57	Shift [camilap]	Start of Shift Checklist	
23:51	Shift [zdzurcic]	End of Shift Checklist	End of Shift
23:15	Shift [zdzurcic]	Shifter Checklist - v1	
22:18	Purity Monitors [mdeltutt]	PrM Daily Summary	Took 47 runs w
21:26	DAQ Cold Electronics [vmeddage]	Noise runs taken	=====
21:14	Shift [zdzurcic]	Shifter Checklist - v1	



# Shift procedures



<https://cdcvs.fnal.gov/redmine/projects/sbnd-operations/wiki>

Instructions written guiding all new shifters in getting their FNAL accounts and setting up the shift station

## Quick Links

### Shift Bulletin Board

**SBND E-Log:** <https://dbweb0.fnal.gov/ECL/sbnd>

**Beam monitoring:** <https://dbweb0.fnal.gov/ibeam/app/> then click on BNB Charts

**Minargon SBND Online Monitoring webpage:** <https://sbn-online.fnal.gov/cgi-bin/minargon/minargon.wsgi/introduction>

## For Shifters

### Accounts & Connections

- **Accounts at Fermilab:** This page describes aspects of accounts at Fermilab and some of their uses, the accounts you will need, and some instructions to set up the Fermilab VPN. **IF YOU WILL BE TAKING SHIFTS IN THE COMING MONTHS AND ARE NOT A FERMILAB USER YET, YOU SHOULD PUT IN THE REQUEST TO BECOME A USER ASAP.**
- **Connecting from an Operations Center:** Instructions for connecting to the SBND VNC sessions and monitoring pages from a Remote Operations Center (ROC) using ROC-West at Fermilab as the example.
- **Connecting Remotely:** Instructions for connecting to the SBND VNC sessions and monitoring pages remotely.
- **NoVNC: how to interact with the SBND screens:** Instructions and tips for interacting with the screens once you are connected, i.e. how to use **NoVNC**.
- **Troubleshooting for Setup:** Some thoughts and synopsis of troubles encountered and solutions.
- **Shifter Communication Tools:** Various communications tools available to and anticipated to be used by the shifter.

### Shift Procedures

- **Shift Instructions:** Standard shifting procedures (what forms to check, when, etc.) ("What to do while on shift" page)
- **Shift Bulletin Board:** This page contains the info for the Run Coordination team at the given moment, as well as providing info on situations, settings, shifter activities, etc. which deviate from the nominally expected shift procedure. **The shifter should read this page at the start of EVERY shift. Even from day to day during shift, the shifter should quickly look at the page to see if there are new conditions not passed along by the out-going shifter.**
- **Running the DAQ from Run Control GUI:** Instructions on running the DAQ using the RunControl GUI
- **Online Monitoring From the Shifter's Perspective:** Running and using the Online Monitoring, for shifters.

### Manuals for Shifters

- **Slow Control Manual for Shifters**

# Shift procedures



## • Shift Instructions

- Step-by-step instructions for what to do *before* and *during* shift

## • Shifter Bulletin Board

- Current detector conditions, alarms, and who to contact
- Changing constantly as shifter duties evolve

Setting up for your shift

- Make sure you have already set up your needed **FNAL** accounts and have tested out your connections (ROC-West or remote), or have participated in a shadow shift.
- Refresh this page if already open in the browser.
- Refresh and read the **Shift Bulletin Board**.
- Arrive or log in at least 10 minutes early, and set up the needed screens, elog, etc...
  - For remote shifts, follow the Remote Connections instructions.
  - For shifts in an operations center like ROC-West, follow the Operations Center setup instructions.
- Join the **#sbn-shift-operations** channel in the **SBN Slack** group. This is the primary channel of communications between shifters and Run Coordinators / on-call experts.
  - Make sure this channel is visible at all times and **NOT** muted! This setting is found by right-clicking on the channel name in the left column of Slack.
  - When your shift has ended, feel free to mute the channel.
- If you are not at ROC West, login to the Remote Shifter telephone: ◦ <https://telzio.com/> --> This allows you to call an expert if needed and allows us to contact the person on shift easily.
  - You can find the login information in the Projects tab of the E-Log page, then click on Configurations. The user and password information is in the Shifter Phone description.
  - Make sure you have the volume up and you give the permissions for the website to use your microphone/sound.
  - Remember to logout after your shift!
- Communicate with the previous shifter about the events of the shift, anything unusual going on, etc. For remote shifts, you can use Slack or the ◦ **SBND Operations Zoom Room**. Connection details are available in the ◦ **E-Log Projects** tab.

During your shift

- You should always have these screens open and visible:
  - Slack channel **#sbn-shift-operations**
  - ◦ **SBND E-Log** and **Shift Bulletin Board** open in browser tabs or windows
  - **Show Controls machine VPNs**: See instructions [here](#). This includes the two VNC windows containing:
    - CS-Studio / Phoebus window with alarm panel, heartbeat, and alarm list visible
      - On this screen, you should keep mostly the tab with the Drift HV voltage and current plots up. Navigate between the others, but keep this one up for most of the time.
    - Ignition cryogenics readout GUI
  - ◦ **Minargon's SBND Online Monitoring page** and ◦ **Archive Engine summary page**
- At the beginning of your shift, fill out the **Start of Shift Checklist** form on the ◦ **SBND E-Log** and post it under the category 'Shift' in the drop-down menu.
- Periodically check on key metrics and respond to alarms
  - Follow the guidelines on the **Bulletin Board** page for the current relevant alarms.
  - For **minor alarms** or questions, first try communicating through Slack by "@"-mentioning the Run Coordinator or relevant subsystem experts.
  - For **major alarms** or pressing existential crises, call the Run Coordinator directly. Phone numbers are available on the **Shifter Bulletin Board**.
- Every **2 hours** (starting **1 hour** into your shift and every **2 hours** after), fill out the **Shifter Checklist v1** form in the E-Log and post it under the category 'Shift'.
  - This checklist is used to ensure shifters are focusing on the right things during their shifts, to help track issues as they develop over time, to catch things that "slip between the cracks" of our slow monitoring alarms, and to provide a summary of who to contact in case problems come up.
  - *If you have trouble finding a metric, please let the Run Coordinator know over Slack! During these early shift periods, we will be continually improving these instructions to streamline the process for future shifters, so any feedback you have will be greatly appreciated!*
- At the end of your shift, fill out the **End of Shift Report** form on the E-Log and post it under the category 'Shift' in the drop-down menu.
- Meet with the incoming shifter (who should arrive 10-15 minutes prior to the end of your shift) and communicate any important information.

Shift Procedures

- **Shift Instructions**: standard shifting procedures (what forms to check, when, etc.) ("What to do while on shift" page)
- **Shift Bulletin Board**: This page contains the info for the Run Coordination team at the given moment, as well as providing info on situations, settings, shifter activities, etc. which deviate from the nominally expected shift procedure. **The shifter should read this page at the start of EVERY shift. Even from day to day during shift, the shifter should quickly look at the page to see if there are new conditions not passed along by the out-going shifter.**
- **Running the DAQ from Run Control GUI**: Instructions on running the DAQ using the RunControl GUI
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Manuals for Shifters

- **Slow Control Manual for Shifters**

# A day in the life of a shifter

- New shifters arrive 10-15 minutes early to touch-base with previous shifter and to receive any special wisdom
- Open VNC windows + browser tabs
- Read the Bulletin Board and identify most relevant variables / alarms
- **'Start-of-Shift Checklist'** filled out on ECL
  - Shifter provides location & phone number, identifies on-call experts, goes through the steps for setting everything up
- **'Shifter Checklist'** every 2 hours
  - Check Slow Controls heartbeat, alarms, archiver status, etc
  - This is *versioned*, since we expect this to change often
- **Run a DAQ TPC noise run (8am, 12pm, 7pm)**
  - Associated checklist to record RTD temps and LAr level
- **'End-of-Shift' Checklist**
  - Shifter is prompted to log out of all VNC sessions and summarize the shift



**Kirsty Duffy** 11:57 PM  
Good evening @Zelimir Djurcic! How was the shift?

**Zelimir Djurcic** 11:58 PM  
Hello Kirsty. How you? The shift was similar to yesterday. Basically, the shift was pretty smooth. There was a variation in drift current at some point, but Lauren addressed it. Also we had three cryo alarms when the shift started; eventually we got the fourth one but it was quickly acknowledged.

Today ▾

**Kirsty Duffy** 12:00 AM  
Ok, great. I was just catching up on Lauren's message above. Sounds good, I hope it will continue to be smooth! (I shouldn't say that and jinx it...). I'll take over, have a good night!

**Zelimir Djurcic** 12:02 AM  
Have a good shift! Cheers!

Start-of-Shift checklist

2438 02/15/2024 15:57:33 **Shift**

Zelimir Djurcic  
Entry Subject: *Start of Shift*

Form: Start of Shift Checklist

Did you maximize this window?: True  
Shifter name: Zelimir Djurcic  
Are you in ROC West at Fermilab?: No  
If not, then where are you?: Home: Wheaton, IL  
Shifter contact phone number: 6303389412  
Type of shift: Swing (4pm - 12am CT)  
Shadow shifter name, if any: N/A  
Did you refresh and read the Shifter Bulletin Board?: Yes  
Run Coordinator: Will Foreman  
On-call experts: TPC HV (3.0) Lauren Yates  
TPC CE (3.0) Varuna Meddage  
DAQ (3.0)  
DQM (3.0) Minerba Betancourt

Did you read the summary of the previous shift?: Yes  
Did you check in on Slack (#sbn-d-shift-operations): Yes  
Is the Shifter Bulletin Board page open?: Yes  
Is the ECL page open?: Yes  
Is the Slow Controls window open?: Yes  
Is the Online DQM/minargon page open?: Yes  
Is the Ignition Alarms window open?: Yes  
Do you have Slack open?: Yes  
Are there alarms in Slow Controls?: No  
Are there alarms in online DQM/minargon?: No  
Are there blinking alarms in Ignition?: Yes, red (not blinking).

2-hour checklist

Form: Shifter Checklist - v1

Did you maximize this window?: True  
Is the Slow Controls heartbeat flashing?: Yes  
Are there any alarms in the Slow Controls window?: Yes  
What is the cathode voltage read-back value?: -1000  
Is the cathode HV voltage stable?: Yes  
What is the cathode current read-back value?: -855  
Is the cathode HV current stable?: Yes  
What is the archiver status?: Updating  
What is the Redis memory usage?: 0.33GB / 5.43%  
Are there online DQM/minargon alarms (for cryo process variables): No  
What is the temperature TE-8101A on East APA?: 99.60  
What is the temperature TE-8106A on East APA?: 125.76  
What is the temperature TE-8107A on West APA?: 99.55  
What is the temperature TE-8112A on West APA?: 125.96  
What is the temperature TE-8035A on the Cryostat Wall?: 113.06  
Are there Critical Alarms on Ignition?: No  
Are there blinking red alarms on Ignition?: No  
How many alarms are on Ignition?: 3, acknowledged  
What is the dT value on Ignition?: 26.42



# Shift management

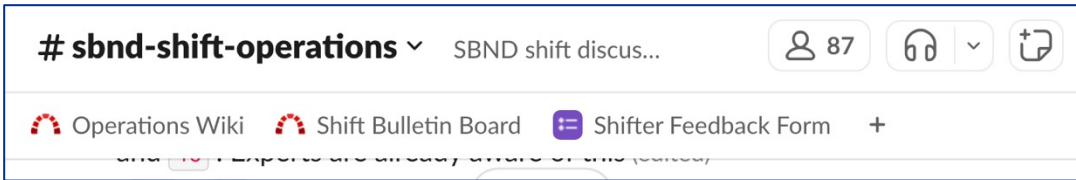


- Shifters reminded a full week prior to the start of their shifts
  - Remote shifters required to follow the instructions to set up their VPN, **test** their connections by opening the VNC screens, and confirm with us that it all worked
  - Onsite shifters required to visit ROC-West and go through the procedure
- Shadow Shifting will become required when we begin physics data-taking
  - Pool of "experienced" shifters will then be large enough to make this widely feasible

# Shifter communication channels



- Slack is primary means of communication between shifters/experts



To immediately notify on-call experts, "@-mention" the below keywords in the **#sbnd-shift-operations** channel:

Role	@-mention Keyword for Slack
Run Coordinator	@sbnd-runco
TPC HV Experts	@sbnd-hv-experts
TPC Cold Electronics Experts	@sbnd-tpc-ce-experts
PDS Experts	@sbnd-pds-experts
Purity Monitor Experts	@sbnd_prm_experts
DAQ Experts	@sbnd-daq-experts
Slow Controls Experts	@sbnd-sc-experts
DQM Experts	@sbnd-dqm-experts

- Software phone also being set up
  - Static numbers to contact current shifter or Run Coordinator
  - Flexible phone number assignment → can swap out which # it forwards to when RC duties are transferred temporarily to someone else
  - Facilitates contact with **AD Main Control Room** for remote shifters
- Dedicated shifter Zoom room available



# Non-shifter communication channels

- Requests for lab resources/experts handled by Run Coordinator through contacts with
  - Accelerator Division Main Control Room
  - ROC-West Manager **Zarko Pavlovic**
  - ELO **Carrie McGivern**
  - Facilities Manager **Harry Ferguson**
  - **Service Desk** (for SLAM, etc)
- Weekly presentations at All-Experiments Meeting
- Various internal meetings
  - Commissioning Meeting
  - Operations Task Force Meeting
  - 'Toolbox' Meetings

Weekly **SBND Run Coordination Meeting** will be held when physics running begins

- Meet with ELO, subsystem and operations experts
- Receive beam news
- Coordinate weekly priorities for tests/improvements to take advantage of beam down-time

# Preparing for the unexpected



- If a problem arises that ***prevents us from collecting good beam data***
  - Subsystem Expert shifters should already be 'on-call' and ready to respond, and able to make it to SBN-ND in an emergency (if applicable)
  - Otherwise, Run Coordinator will respond / travel to SBN-ND to investigate issue *under remote guidance of Expert*
- Guidelines documented for addressing sudden shifter unavailability and shift exemptions for medical/family situations

# Conclusion



- SBND has been taking shifts successfully for almost a month!
  - Shifts covered both remotely and in ROC-West without any major issues
- Easy to follow procedure in place, updated constantly as we get closer to full operations and shift responsibilities evolve

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Operations  
Coordinator



**Supraja  
Balasubramanian**  
Deputy Run  
Coordinator



**Diana Mendez**  
Shift Coordinator



**Bruce Howard**  
Shift station expert