ACE MEETING, June 15, 2004

- Tevatron Status
  - Tevatron continues to set new record initial luminosities over 80E30! Abort gap losses, proton losses, and proton spikes have been problem but we started at least one run with COT full on, silicon, and a luminosity of 78E30. Young Kee says we should concentrate on good data AND good efficiencies. (This is pretty much what we said last week.)
  - Continue to "stack and store" with shots about every 30-36 hours.

- Old ACES are history!
  - I have been impressed with first few days of your round. Everyone seems very engaged in doing a good job.

- Miscellaneous Ace Items
  - Chaos in the Control Room
    During shift changes and start of stores, the Control Room may fill with lots of people. The shift crew must remain in charge of situation. You can ask the SciCo and/or Ops Manager to clear the room of non-essential people if necessary. The DAQ Ace in particular may be getting advice from multiple "experts". The experts may even sit down at Ace console and start running the system. If you are unsure, check with SciCo to see what is really part of the plan.
  - Communication
    You will often find yourself dealing with an expert whose native language is different from yours. (Phone conversations may be even harder.) Make people repeat instructions and explain what is going on until you understand. In a few cases, you might have to ask the other ACE or SciCo to assist. Don't be shy please! A few minutes "wasted" clarifying

instructions may save many more minutes lost due to "wrong turn." **ACES - please help each out during problem.**

- Downtime Entries
  Bill Badgett has added a new feature to his "store summary" page to make it easy to review downtime entries.
  Store Summary Page
  We will be showing this list most days at the 8 a.m. scheduling meeting.
  In order for accounting for store to be correct...
  - When making the "STORE" entry, use the stop and start times from Bill Badgett's store summary page.
  - Adjust all downtime entries so that the times fall between Bill's start and stop times. Earliest entry should be at least 1 minute greater than start time. (Have not checked but inverse of this rule may apply to latest entry.)
  - Feel free to break up single entries into multiple entires if necessary.
- CLC generally stays up once we start a store. A lot of official bookkeeping keys off the CLC luminosities. Try not to turn if off when MCR stops to tune or move collimators. If in doubt, have SciCo call MCR and ask if they want CLC to remain up. (for example during Tevatron studies at end of store)
- CEM/CHA/WHA HV Summary Bars Disappear
  On the HV Summary Picture on VNODE1, the bars for CEM/CHA/WHA will periodically disappear one detector at a time. This is normal and is documented. First person to email me the reference gets to pick the treats for next Ace Meeting.

- Shift Instructions for COT
  COT HV is now full ON. COT aging may have been slowed down but has not been reversed. (There is hope...) Therefore COT group has new instructions for COT HV.

(Find the link on the MONDOC page).

- NEW SILICON LIMITS FOR LOSTP (Rainer Wallny)

```
Date: Mon, 14 Jun 2004 14:04:40 -0700 (PDT)
From: Rainer Wallny
Subject: new tevmon regime

In order to accomodate higher proton losses in association with
higher
luminosity, we would like to adjust the LOSTP limits as follows:

1) LOSTP< 27 kHz: TevMon green, shift crews are allowed to bias
                  silicon if we are not in 'manual regime'.

2) <=27 kHz LOSTP <= 30 kHz: Warning State
                  Biasing silicon at the beginning of the store
requires
                  pager carrier consent. MCR should be contacted
about
                  possibilities of tuning. If it happens during a
store,
                  pager carrier should be contacted for advice and
MCR
                  alerted about deteriorating LOSTP situation.
silicon
                  can remain biased if pager carrier agrees.
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```
3) LOSTP> 30 kHz: Alarm State:
                  silicon should not be biased. if it happens
during a
                  store, put silicon to standby immediately.

2) and 3) are meant to be analogous to our practice with the abort
gap
losses.
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- Reformatter Decoder (and other L3 issues) - Guillelmo
- CMX HV Problems (Phil Schlabach - verbal)
- Steve Hahn on Detector Orientation

CDF Luminosity Runs by Tevatron Store, last 20 stores

Units: $\times 10^{30}\ sec^{-1}\ cm^{-2}$ and nb^{-1} | Summary | Store Selection Form | SuppressRuns | ShowStopTimes

For checked stores: TriggerRates *or* PhysMon *or* DownTimeSummary

Store	Start	hours	InitL	Deliv	LiveLumi	Good	Silicon	Runs Taken During Store
3574 ☐	2004.06.14-15:17	23.9	83.9	2,992.2	1,624.7 54.3%	817.5 27.3%	10.2 0.3%	**184008** 184010 184011 **184012** **184015** **184016** **184017** **184019** **184020** **184021** **184022** 184024 **184028**
3571 ☐	2004.06.13-01:26	31.4	72.1	3,059.9	2,268.4 74.1%	2,267.0 74.1%	2,267.0 74.1%	**183960** **183961** 183962 **183963** 183964 **183965** **183966** **183968** **183970** **183971**
3567 ☐	2004.06.11-06:48	18.4	79.7	2,585.8	1,699.6 65.7%	0.0 0.0%	0.0 0.0%	**183913** **183914** **183915**
3564 ☐	2004.06.09-12:04	34.1	71.1	3,229.3	2,102.4 65.1%	872.4 27.0%	872.4 27.0%	**183861** **183863** **183864** **183865** **183866** **183867** **183868** **183869** 183870 183871 183872 183873 **183874** 183875 **183877** 183878 **183879** **183880**
3562 ☐	2004.06.07-15:21	38.2	81.9	3,825.7	2,743.1 71.7%	2,197.4 57.4%	2,197.4 57.4%	**183783** **183785** **183786** 183789 183790 183791 183792 **183793** **183796** **183799** **183800** **183801** 183802 **183805** 183808 183809 183811 **183813** **183820**

3560 ☐	2004.06.06-02:07	33.8	77.3	3,576.9	2,531.6 70.8%	1,707.3 47.7%	1,562.1 43.7%	**183751** **183752** **183758** **183759** **183760** **183761** 183762 **183766**
3558 ☐	2004.06.04-23:56	15.0	58.6	1,686.1	1,336.6 79.3%	1,328.3 78.8%	1,306.3 77.5%	**183694** **183695** **183696** 183701 **183702**
3554 ☐	2004.06.02-15:59	42.9	74.1	4,017.3	3,146.2 78.3%	3,145.3 78.3%	3,056.1 76.1%	**183616** **183617** **183619** **183631** **183633**
3552 ☐	2004.06.01-01:39	32.4	69.1	3,189.4	2,123.0 66.6%	2,091.1 65.6%	2,091.1 65.6%	**183530** **183553** 183555 **183556** **183557** **183561**
3549 ☐	2004.05.31-06:30	14.4	54.5	1,643.6	1,455.4 88.5%	0.0 0.0%	0.0 0.0%	**183510** **183511**
3547 ☐	2004.05.30-12:14	13.2	26.0	760.7	608.8 80.0%	587.9 77.3%	566.3 74.4%	**183487** 183488 183489 **183490** **183491** **183492**
3534 ☐	2004.05.26-18:11	11.4	77.4	1,938.9	1,633.0 84.2%	1,632.4 84.2%	0.0 0.0%	**183207** **183208** **183209**
3532 ☐	2004.05.25-07:55	30.1	72.1	3,143.4	2,237.4 71.2%	2,136.2 68.0%	471.5 15.0%	**183124** **183125** **183126** 183127 183128 **183129** **183130** 183136 183137 **183138** **183139** 183140 **183141** **183142** **183165**
3530 ☐	2004.05.23-22:01	31.0	68.4	3,192.0	2,380.0 74.6%	1,606.6 50.3%	0.0 0.0%	183074 **183077** **183078** **183079** 183080 **183081** **183083** **183084** **183090** **183094** **183095** **183097** 183108
3528 ☐	2004.05.22-18:18	23.5	56.6	2,028.7	1,553.8 76.6%	996.2 49.1%	133.6 6.6%	**183047** **183053** **183054** **183055** **183056** **183057** **183058** **183059**

3516 ☐	2004.05.20-11:39	16.5	51.9	1,524.3	990.0 64.9%	989.4 64.9%	0.0 0.0%	**182889** **182890** **182896** **182898**
3513 ☐	2004.05.19-23:56	5.9	63.9	985.3	805.3 81.7%	805.3 81.7%	805.3 81.7%	**182873** **182874**
3510 ☐	2004.05.18-19:50	23.8	64.9	2,554.6	1,691.5 66.2%	924.6 36.2%	924.6 36.2%	**182824** 182825 **182827** 182828 **182829** **182834** 182835 **182837** **182839** **182840** **182841** **182842** **182843**
3506 ☐	2004.05.18-00:49	5.0	64.4	842.1	228.3 27.1%	0.0 0.0%	0.0 0.0%	**182782** **182783** **182784**
3504 ☐	2004.05.16-17:09	18.4	50.5	1,540.7	1,118.6 72.6%	0.0 0.0%	0.0 0.0%	**182718** **182719** 182723
[20]	2004.05.16-17:09	463.2	65.9	48,317.1	34,277.8 70.9%	24,104.8 49.9%	16,263.9 33.7%	Stores 3504 to 3574 InitL is average, others are sums

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Non-trivial runs with at least 10 nb^{-1} of integrated live luminosity are shown with bold links

Click for a list of nominally good CDF Run II stores; or a list of all Run II stores, even piddly ones at the beginning

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For Summary informations on a range of TevStores, fill in the beginning and ending stores and press the *Submit Query* button:

Starting Store: Finishing Store: Number of Stores: Submit Query

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badgett@fnal.gov

COT High Voltage: Instructions for the Shift Crew

Through IFIX, the High Voltage setting can only be changed for the entire COT (not individual superlayers), and the choices are **OFF**, **STANDBY** and **ON**. In addition to these three states, the COT may also be **TRIPPED**.

- ***Expert call list:***

  1. The COT has a different on-call expert depending on the time of day. The expert call list can be accessed from the usual WEB page.

- ***Rules for turning on the COT:***

  1. The COT should **ALWAYS** be set to **OFF** unless CDF is taking collision data. For example, the COT should not be turned on for cosmic ray runs between stores.
  2. The COT should only be set to **STANDBY** as an intermediate step between **OFF** and **ON**.
  3. If the COT has been **ON** within the past two hours (for example, it has been turned **OFF** to re-scrape the beam), first go from **OFF** to **STANDBY**, wait for the bars to turn dark green, and then go immediately from **STANDBY** to **ON**.
  4. If the COT has not been **ON** within the past two hours [for example, at the beginning of a new store (see below)], first go from **OFF** to **STANDBY**, wait at **STANDBY** for a minimum of 15 minutes, and then go from **STANDBY** to **ON**.
  5. The solenoid must be at full current before the COT is turned from **OFF** to **STANDBY** to **ON**.
  6. The COT should be **OFF** if LOSTP is greater than 30 kHz, (LOSTP + LOSTPB) is greater than 50 kHz, or MCR is going to re-scrape or move collimators.

- ***At the beginning of a new store:***

  1. Before ramping up the COT from **OFF** to **STANDBY**:
     - The solenoid should be at full current.
     - All antiprotons should be injected.
     - If scraping takes more than 30 minutes, return to **OFF**. One can go immediately from **OFF** to **STANDBY** to **ON** after scraping is complete.

2. Before ramping up the COT from **STANDBY** to **ON**:
    - § Scraping should be completed.
    - § The sum of LOSTP and LOSTPB should be less than 50 kHz.
    - LOSTP should be less than 30 kHz.

- ***If the COT TRIPS:***

1. If the trip is obviously due to beam conditions (for example, a large spike in losses), the shift crew may just follow the above ***Rules for turning on the COT.*** If not, page the COT on-call expert and follow the expert's instructions.

2. For each tripped superlayer, record the channel that caused the trip in the Shift E-Log. The channel (e.g., S2, P10) that caused the trip will be highlighted with either a red or blue background in the COT HV supply display, while all other channels in the layer will have a black background.

3. Note that normally only one superlayer trips, so the rest of the COT is still on at full voltage. If beam conditions warrant, remember to turn the remainder of the chamber to **OFF.**

- ***Before the store is dumped:***

1. The COT should be turned to **OFF** before the store is dumped.

CDF Hardware

Monitoring Documentation

John Yoh, J. C. Yun

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**************L3/EVB error messages and other issues*****************
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REFORMATTER ERROR:

Partition:1 Run number: 178155 (0x2b7eb)
(MLE) b0l3pcom2.fnal.gov:main:8:46:50 PM->Error on L3 node b0l3178
(partition 1) Mon Jan 19 20:46:49 2004 l3_node
  in refoInt_reformatProc (l3_refevt.c:627)
  @L3_REFORMAT_ERROR
................
 Crate Id?: 0x00000050

 Error during scanning MINI structure!
 Last Unit prob. worked on (all counts from 0):
  SCPU: 12
  VRB : 4
  LINK: 0
  MINI: 0

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HIGH REFORMATTER ERROR RATE:

 Attention!!!. L3_REF_ERROR_HIGH_RATE Error !!!.
 Level3 Reformatter detects abnormal amount of corrupted data!
 We recommend:
    - use reformatter decoder and find the offending crate
    - try HRR, if no effect try End->ColdStart->Activate
    - call appropriate FE expert (SVX pager for FIB crates)
    - if FE expert is not available, try L3 pager

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Monitoring information lost if the first "odd node" is down.

Check if we are taking data with that subfarm (output rate / CSL Display)

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If L3  problem --> Clean up L3?
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If EVB problem --> Clean up EVB?

Both system work together, but they are separated

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if Partition is closed suddenly, maybe RTServer problem and you
will get "funny" errors from several places

How to detected it?, the whole L3 Display gets yellow...

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Node number is red in the L3 Display:

  There was an "error" on that node (reformatter error, L3 filter
    crashes, severe filter error...)

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L3 transition times (look at L3 Display!):

  Partition: <~ 2 min

  Config   : <~ 5 min (it depends a lot what it is needed to
                       distribute over the farm)

  End      : <~ 1 min

Clean up (look at Ace Control Panel!):

  L3       : <~ 4 min

  EVB      : <~ 5 min

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18'22" 1 crate/s: b0svx06(16),  busy.1 crate/s: b0cot18(66),
in error.[RXPT]b0l3pcom1.fnal.gov:main:5:18:12 AM->Host b0eb10.fnal.gov,
task tsmDisp
SM-P1-E-ScpuTimeout: SCPU ack timeout for Recover operation. -->
 Additional Information:
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 Attention!!!. Scanner Manager SM_SCPU_TIMEOUT Error !!!.
 We STRONGLY RECOMMEND the following steps:
 - Try Halt-Recover-Run.
 - If it fails, do End (Abort) -> Reset -> Cleanup EVB.
 - Start run again.

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BUNCHES OF ERRORS LIKE:

 Attention!!!. SCPU_TRACER_EVENT_ID Error !!!
 Hardware EVB has detected a problem with data quality in
 SCPU b0eb14 (forwarded by FER crate COT_14).
 Datataking is paused: events are not being processed.
 - HRR should help.
[MLE]
(MLE) b0l3pcom1.fnal.gov:main:11:44:11 AM->Host b0eb14.fnal.gov,
task tRec_0 SCPU-P1-E-VrbHeader: Dump of header words for event
6090469 from VRB in slot 10:
0x00000000 0x00005ca8 0x00080048 0x0a380a58 0x0c08081c 0x0844064c 0x07d8091c 0x0bbc0880
44'26" b0l3pcom1.fnal.gov:main:11:44:11 AM->Host b0eb14.fnal.gov, task tRec_0
SCPU-P1-E-TracerEventId: Event 6090470, crate 63, channel 4 has either
bad Tracer ID or bad markers around Tracer word.
Tracer word event ID is 5, should be 6.
Tracer word = 0x0155013f (I think).
Channel data = 0x000000a5 0x0100013f 0x43e65444 0x004f000f 0x00140000 0x0000007c 0x00000003 0x0000000f ...
... 0x0004d9f8 0x000543c0 0x00064500 0x00060000 0xaa00aaaa 0x55aa5555 0x0155013f 0x80e60000 -->

 Attention!!!. Scanner Manager SM_SCPU_TIMEOUT Error !!!.
 We STRONGLY RECOMMEND the following steps:
 - Try Halt-Recover-Run.
 - If it fails, do End (Abort) -> Reset -> Cleanup EVB.
 - Start run again.

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A FEW NODES ARE DOWN AND ON-LINE:

PM->Error on L3 node b0l3pcom2.fnal.gov (partition 1) Sun Jan 25 20:58:10 2004 l3proxy
  in End (L3ProxyPartition.cc:2870)
  @L3_RELAY_FAILURE Level3 Relay failure detected!
The following subfarms need to be removed from the next runs:
      None. You can use all the same subfarms.
The following Level3 converter nodes are marked bad for now:
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        None.
   The full list of Level3 nodes giving Relay trouble is printed below

    b0l3220 b0l3228

    ************************************************
    These Level3 nodes will be marked OFFLINE!!!
    Abort/End/Reset and Partition again!!!
    ************************************************

    -->
    Additional Information:

    Attention!!!. L3_RELAY_FAILURE Error !!!.
    Level3 internal communications failure. One or more L3 nodes is likely
    to have died.
      Do not panic! Level3 will try to repair itself. We recommend:
        - do End/Abort+Reset ON ALL DEFINED PARTITIONS
        - exclude all affected subfarms from your run configuration
          (find out list of bad subfarms from Error Logger:
             if None, exclude nothing!)
        - start another run and page L3 farm pager at closest day/evening shift
        - if >2 subfarms affected page L3 farm IMMEDIATELY

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   Hundred errors like:

   SCPU b0eb## could not connect to Builder ID ## on b0l3c##..

    Usually shows up when Partition transition is interrupted by Reset

    - The messages are harmless in 99% of the cases (so, don't worry!)
    - If Partition does not fail (expected), proceed with the run
        and clean up EVB later, when convenient
    - If Partition fails, clean up EVB and try again
    - If transition failures persist, page L3 experts

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   Cleanup script can not connect to SCPU.

     When you push Cleanup EVB button Ace Control Panel prints out:

     Rebooting Scanner Manager and SCPUs
     b0eb13: The CPU didn't respond to rlogin within 10 seconds.
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            Press RESET button on b0eb13.

     - Check the map of the VRB crate location
     - Go on the first floor and press reset button on the SCPU.

     Remember: Scanner Manager (b0eb10) is located on the third floor

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   Do you know where EVB crates are?, where b0eb10 is?, have you
   ever done the checks in the Ace Control Panel?, have you ever
   user the reformatter decoder?
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Detector Orientation

Steve Hahn
Detector
Orientation
06/15/2004

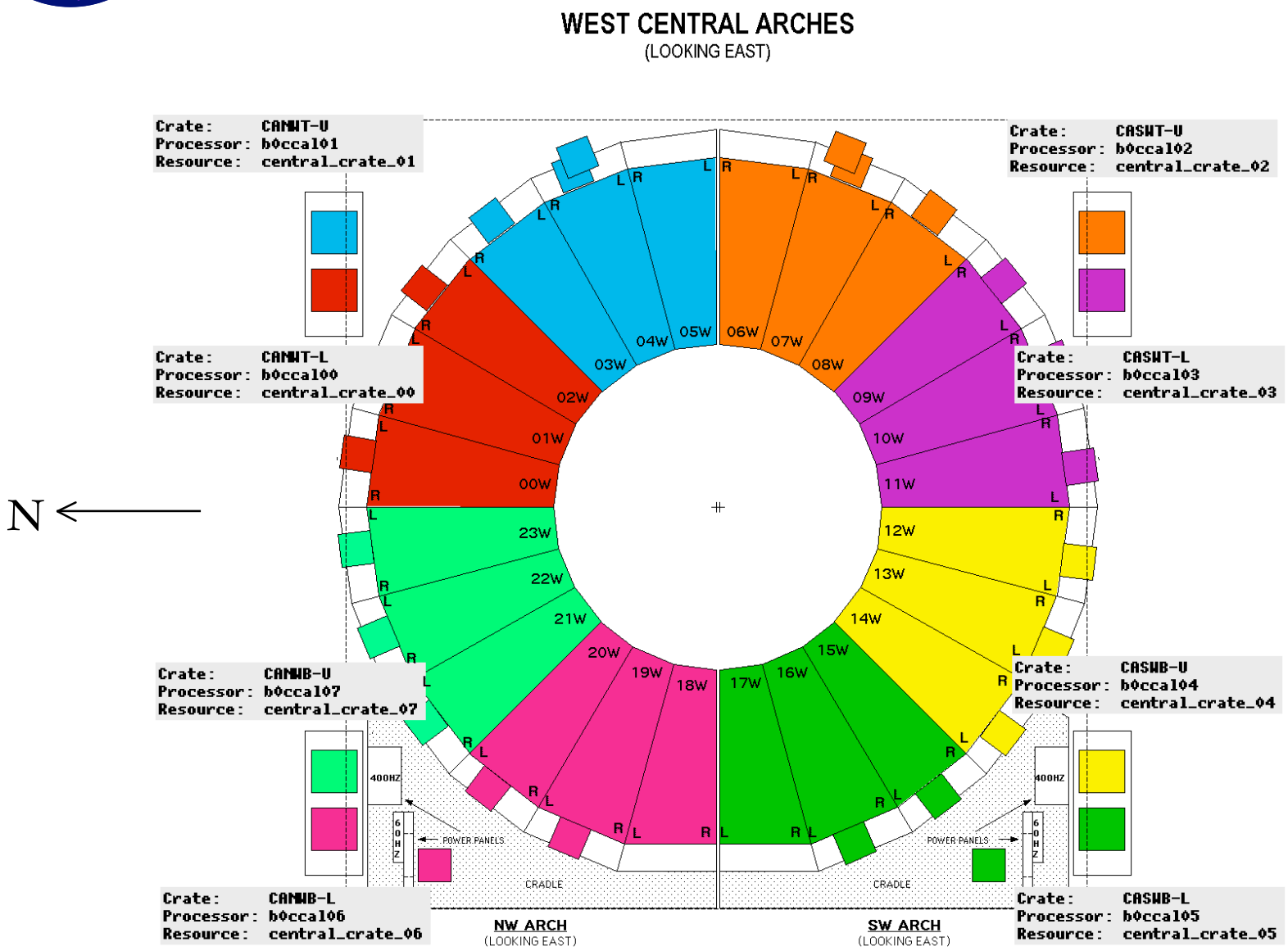
- Alphabet soup or acronym space?
  - CDF acronym dictionary on ace help page
    http://www-cdfonline.fnal.gov/ace2help/aceacronyms.html
    - But more on next page!
    - And check out hovering on e-log index page
  - All of following pictures on link at bottom of electronic logbook index page (front-end crate locations
  - And check out Paul Lujan's ace detector guide:
    http://www-cdfonline.fnal.gov/ace2help/detector_guide/

Detector Orientation

- Two particular acronym oddities:
  - "Shower max" detectors and their acronyms
    - Central uses 6U SMD crates, reads out:
      - **CCR - central crack chambers**
      - **CPR - central preradiator chambers**
      - **CES - central E-M shower max chambers**
    - Plug uses 6U SMX crates, reads out:
      - **PPR - plug preradiator scintillating fibers**
      - **PES - plug E-M shower max scintillating fibers**
  - Muon acronym hierarchy
    - CMU - central muon chambers
    - CMUP - central muon Run 1B upgrade
      - **CMP - central muon upgrade chambers (muon walls, top, bottom)**
      - **CSP - central scintillators upgrade counters with CMP**
      - **CMX - central muon extension chambers (muon arches)**
      - **CSX - central scintillators extension with CMX**
    - IMUP - intermediate Run 2 upgrade
      - **WSU - endwall scintillator upgrade (never done)**
      - **BMU - barrel muon upgrade chambers (east, west muon walls)**
      - **BSU - barrel scintillator upgrade with BMU**
      - **TSU - toroid scintillator upgrade (between and behind toroids)**

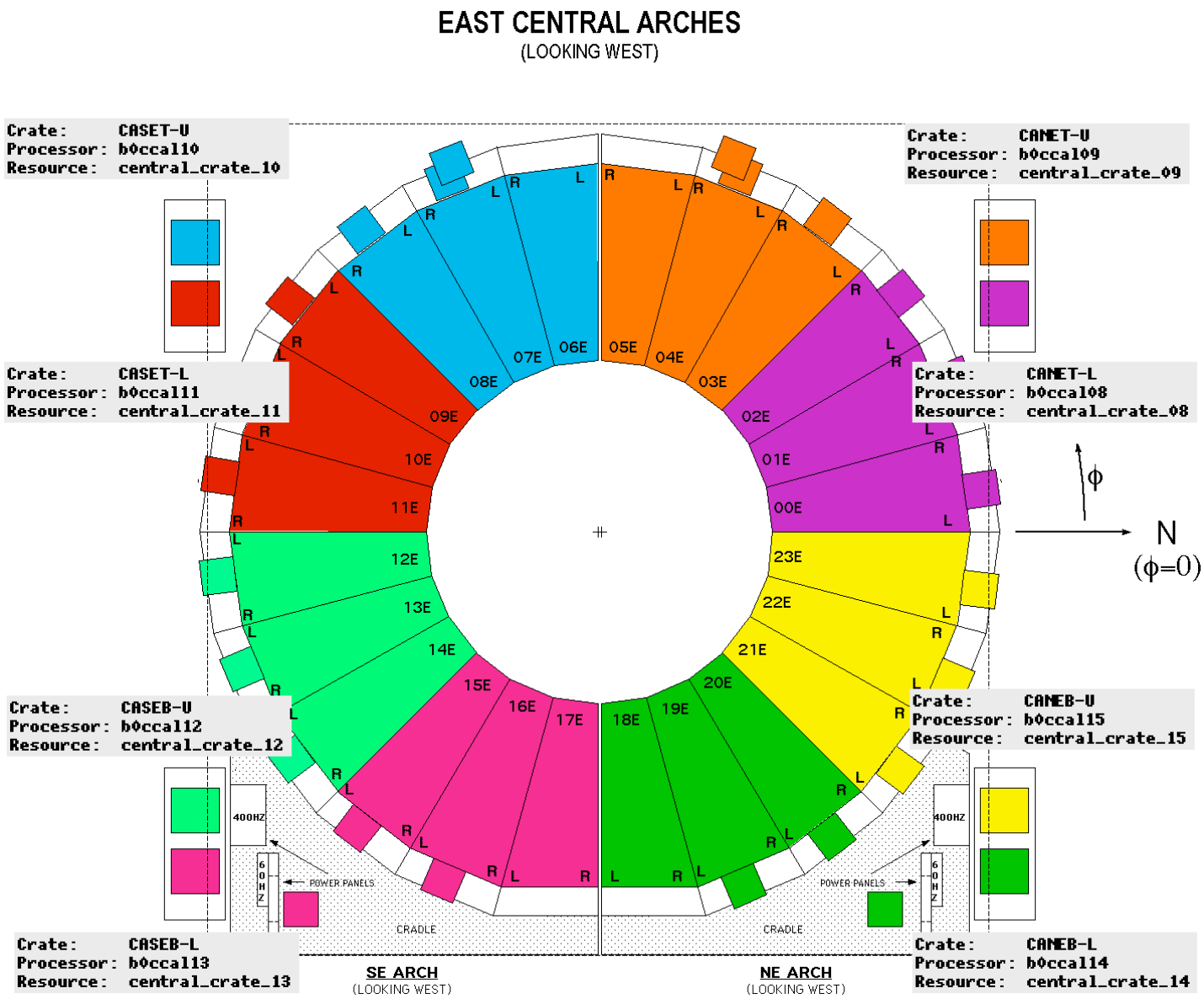
Detector Orientation

Steve Hahn
Detector
Orientation
06/15/2004



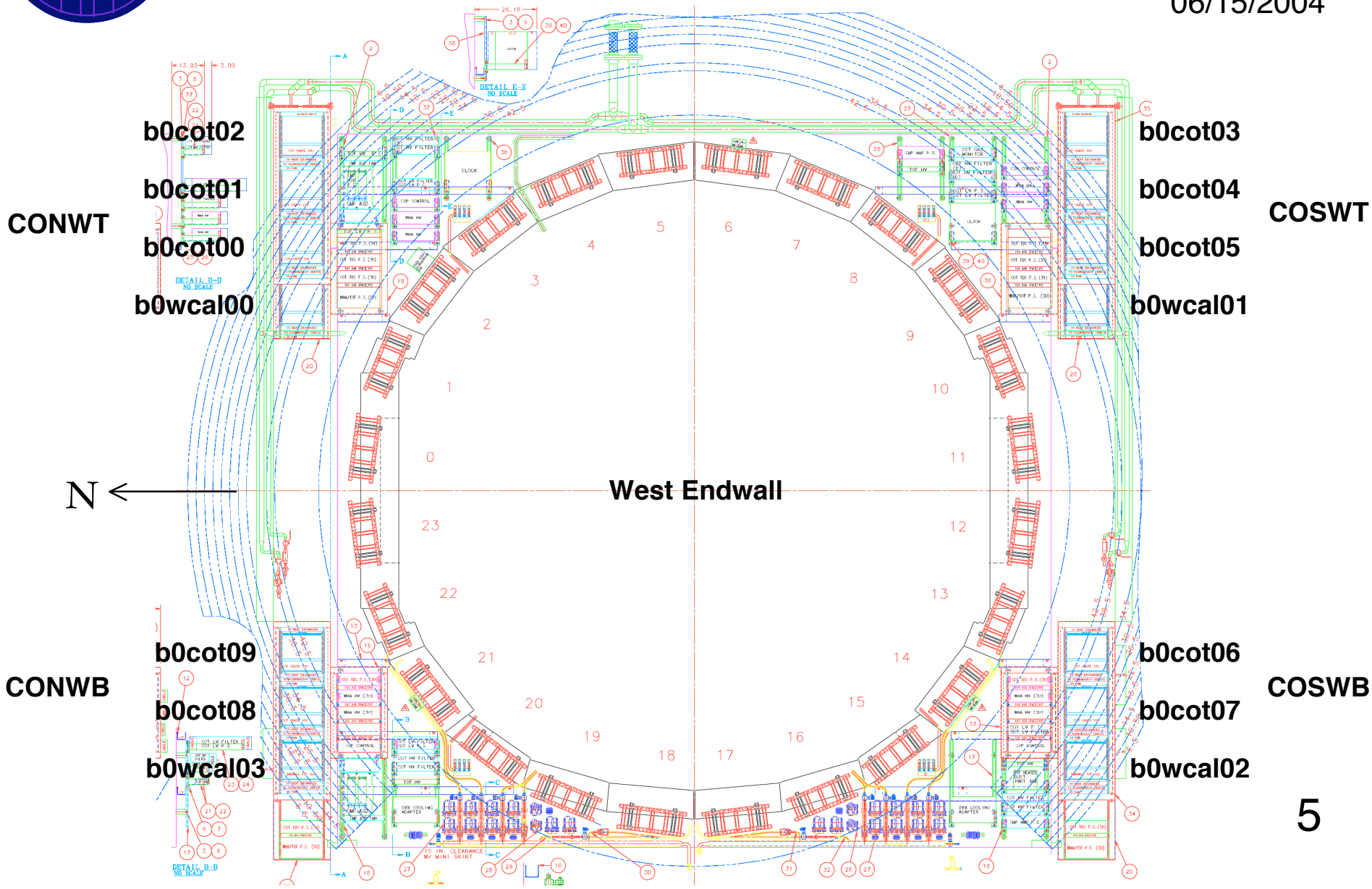
Detector Orientation

Steve Hahn
Detector
Orientation
06/15/2004



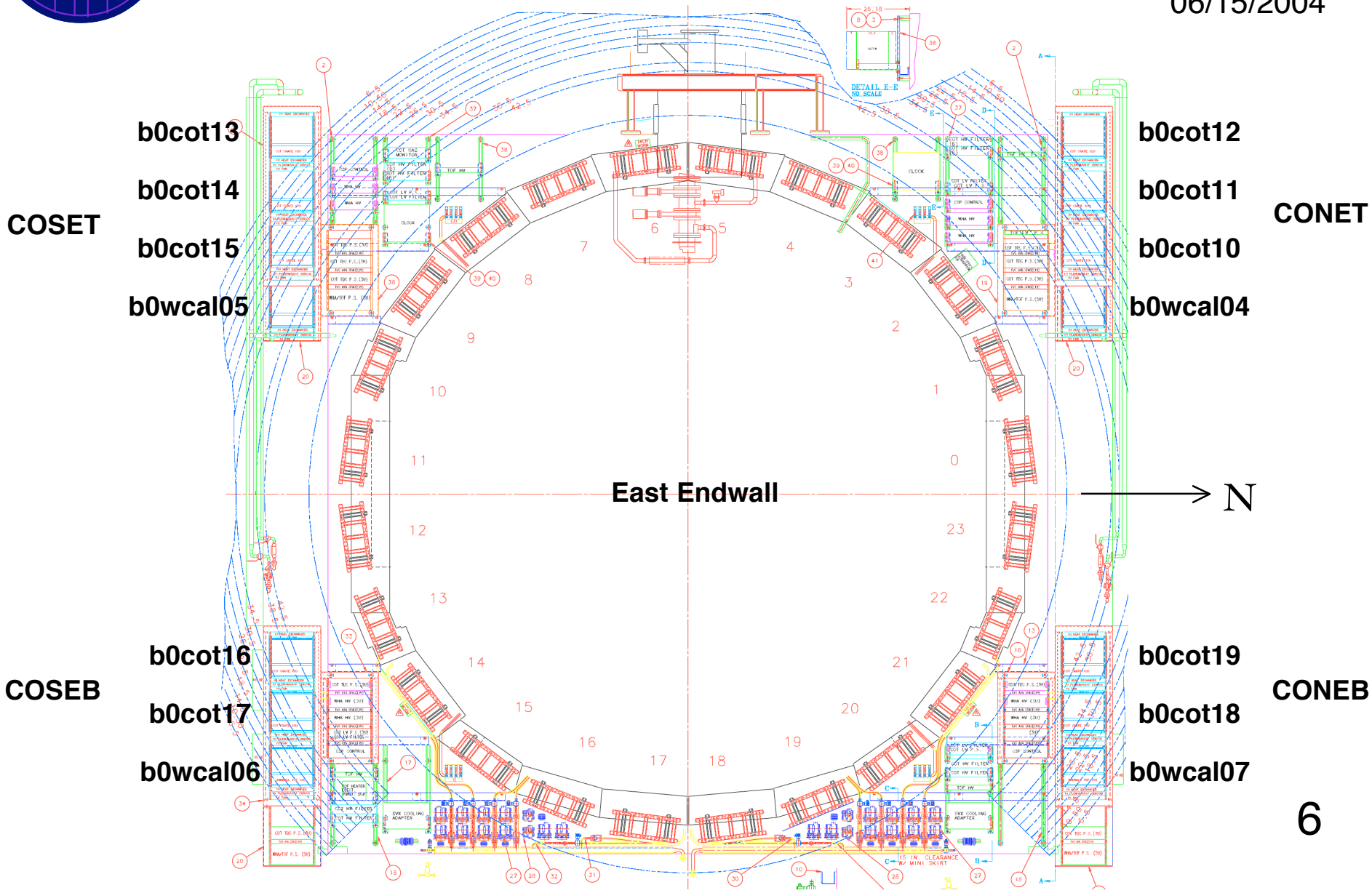
Detector Orientation

Steve Hahn
Detector
Orientation
06/15/2004



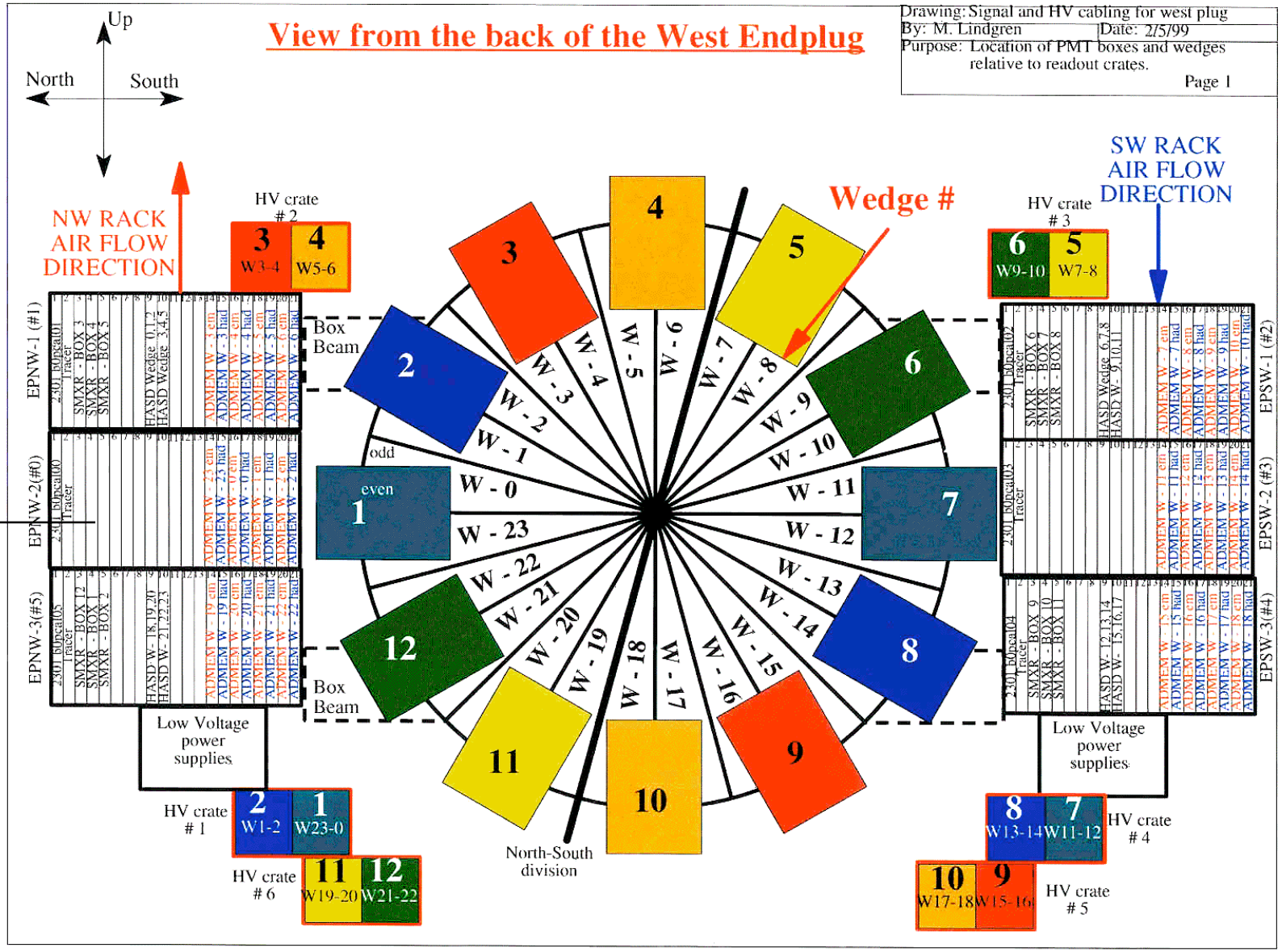
Detector Orientation

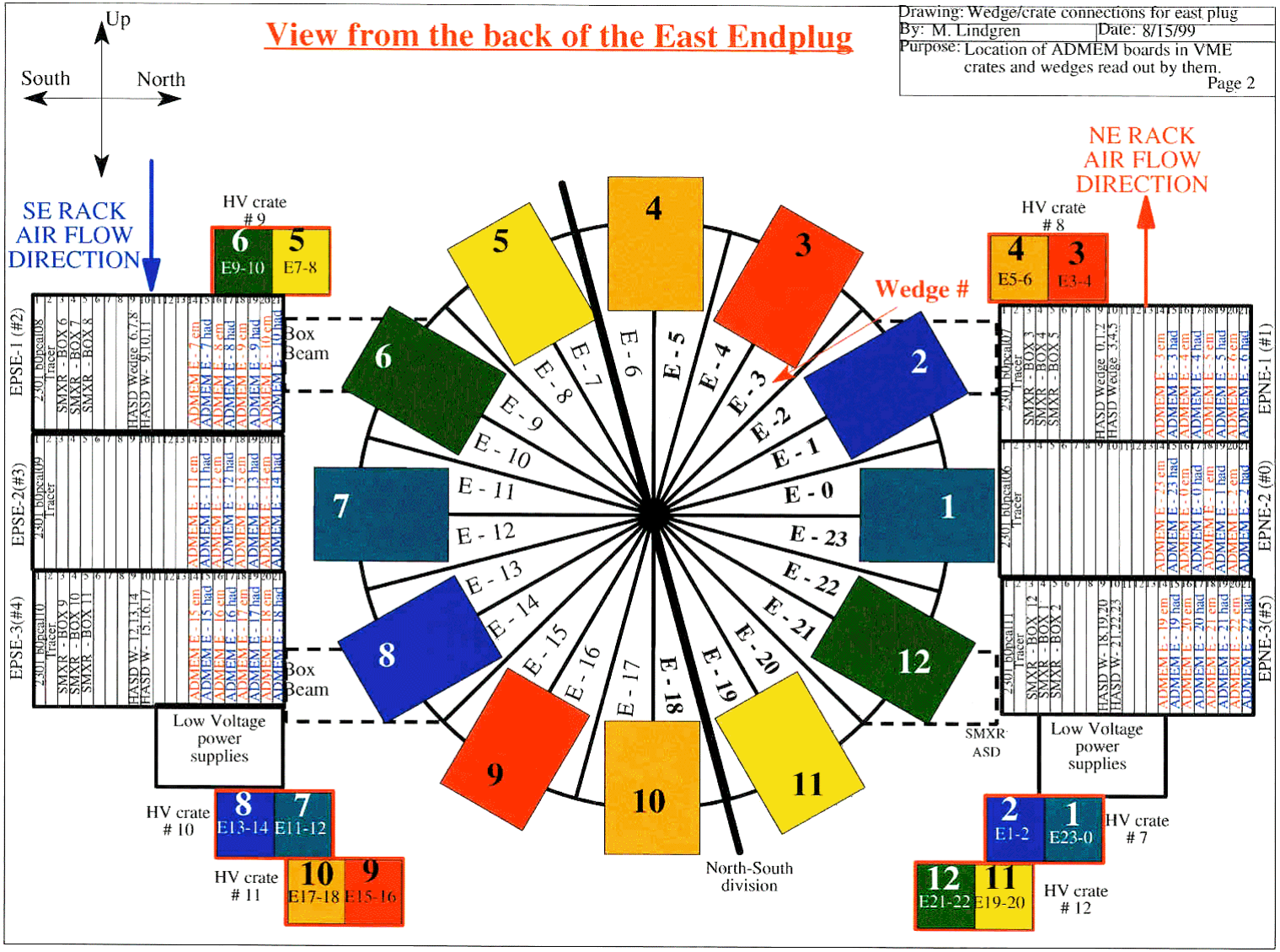
Steve Hahn
Detector
Orientation
06/15/2004



Detector Orientation

Steve Hahn
Detector
Orientation
06/15/2004



Detector Orientation

Steve Hahn
Detector
Orientation
06/15/2004