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# Continued Merging of NOvA + PP2

January 17, 2007

John Cooper, Ron Ray, Nancy Grossman



# Plan for updating CD-1 documents

- Acquisition Strategy (Pepin)
  - Asked for an update of the NOvA cost range for 20 kt (slide coming)
  - Pepin and Mike working on new funding profile
- pPEP (Pepin on IPT, Ron/Nancy on Org description)
  - **Jan 10 - New Org Chart with Nancy as Associate Project Manager**
    - Expect this will provide a better tie-in to AD resources (AD, Directorate agree)
  - Need organizational structures for CA
    - Construction and Operations will be different
- PMP (Ron / Nancy working on it)
- CDR (Nancy / Elaine working on PP2 version)
  - It will be a stand alone document next to the NOvA CDR
  - Will have similar text discussion of cost range,... no tables
- HA (Keith / Mike Andrews have talked)
  - EA was taking Keith's time (Keith at NEC, back next week)
- Exhibit 300 ( Mike ??)
- **Aiming at ~ Jan 31 for all these?**
  - **IPT meeting weekly now, includes Nancy and Elaine**



# New problem?

- OHEP guidance now says we must track R&D as part of the TPC for all R&D after CD-1 is signed
- **“TPC is the relevant term”**

Funding Category	PP2		NOvA		Sub Totals		Total (MIE+Ops)
	MIE	Ops	MIE	Ops	MIE	Ops	
TEC	39.7		161.4	48.4 <sup>[1]</sup>	201.1	48.4	249.5
OPC	--	10.8 <sup>[2]</sup>	--	9 <sup>[3]</sup>	--	19.8	19.8
<b>TPC</b>	<b>39.7</b>	<b>10.8</b>	<b>161.4</b>	<b>57.4</b>	<b>201.1</b>	<b>68.2</b>	<b>269.3</b>
R&D	--		--	7	--		7
Operations	--	2.7 <sup>[4]</sup>	--	4 <sup>[5]</sup>	--		7

Details in Nancy's talk

NOvA roll-up From Aug 15

- <sup>[1]</sup> Cooperative Agreement cost
- <sup>[2]</sup> Kicker r&d
- <sup>[3]</sup> Detector r&d – or this belongs under “R&D” line of above table
- <sup>[4]</sup> Work Cell upgrades and new horns
- <sup>[5]</sup> Cooperative Agreement portion for far-detector building M&O ?



# Updated Cost Range for CD-1 documentation – Detector part

## NOVA Detector Cost Range for 20 kt

(simple scaling from the CD-1 version + other info)

<b>CD-1 kt</b> 25	<b>Aug 15 kt</b> 20	Aug 15 was the last fully checked roll-up & was our first attempt to match the DOE funding profile TEC guidance of \$ 200.3 M (so it stretched the schedule and escalation costs went up)
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LOW END of RANGE		
CD-1 AY \$M	Jan 07 AY \$M	Description
2.1	2.1	Could do a shorter building instead of CD-1 plan to build 5 kt upslope area, ~ 100 ft
15.6	12.5	Crude oil at 5% CL of EDIA projection instead of 95% CL ( explicitly at \$ 50/bbl vs. \$ 70/bbl )
2.2	-	quotes for PVC resin would drop this contingency bit by 15%, included in August
4.4	-	Kuraray fiber could be cheaper after visiting company, included in August
1.4	1.1	Hamamatsu APD cost at \$220 each vs. \$260 assumed after first items produced
10.5	8.4	100% contingency on Far site assembly not required ( MINOS was dead on estimate )
3.2	2.6	100% contingency on factory labor not required ( MINOS was dead on estimate )
10.9	-	possible scale of in-kind contributions from Italy
<b>50.3</b>	<b>26.7</b>	<b>Total possible savings</b>

HIGH END of RANGE		
CD-1 AY \$M	Jan 07 AY \$M	Description
7.2	5.8	Crude oil at 99% CL instead of assumed 95% ( \$ 89/bbl vs. \$ 70/bbl )
0.8	-	longer access road to avoid wetlands. Road now fixed
0.7	-	28 ft longer building to facilitate fast assembly at end of assembly period. Now slow assembly.
<b>8.7</b>	<b>5.8</b>	<b>Total possible increased costs</b>

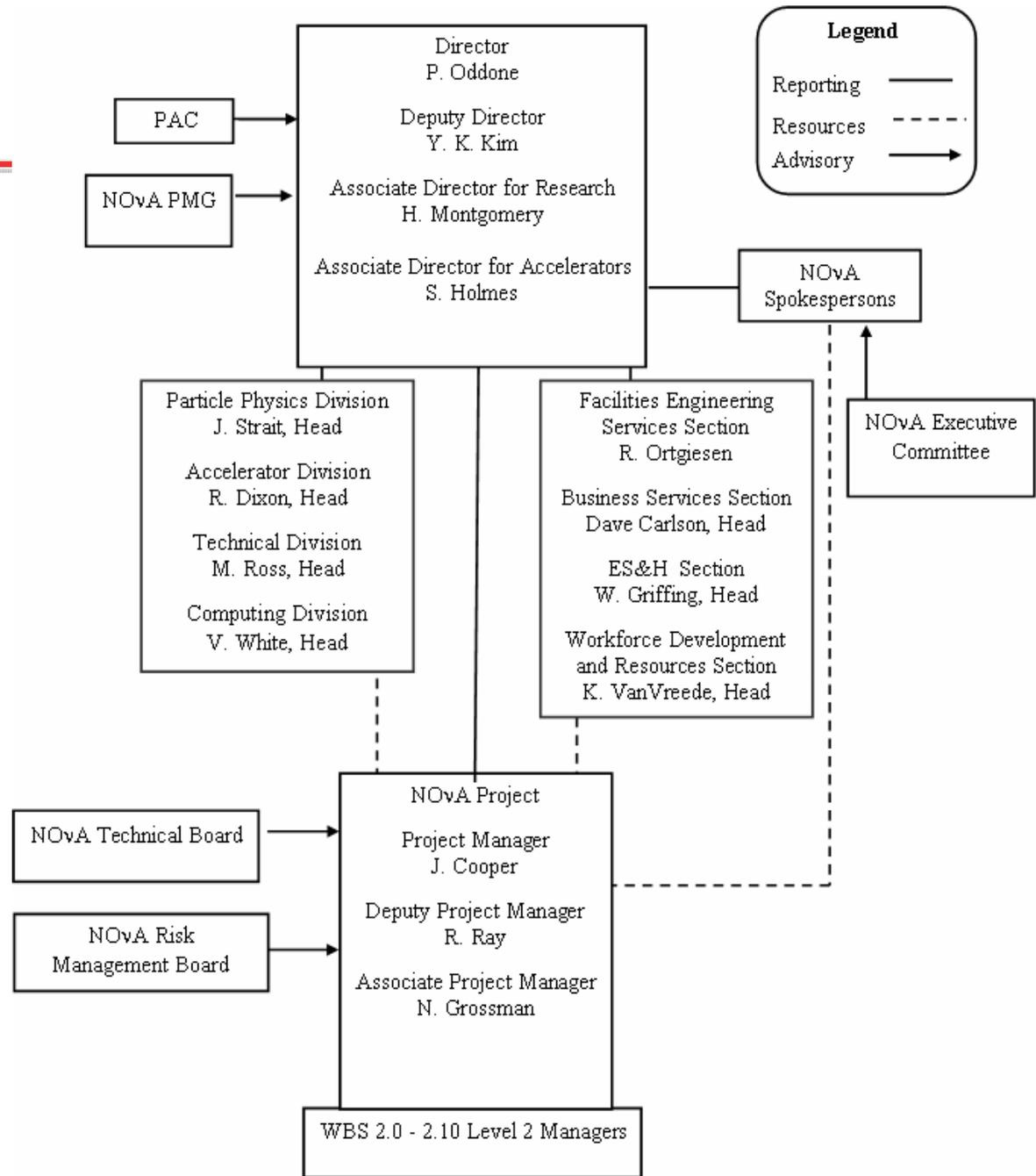
CD-1 Base	Aug 15 Base	(both in AY \$M)
<b>235.0</b>	<b>209.8</b>	this has been the basis of our comment since Aug 15 that we might afford 18.7 kt, not 20 kt
<b>244</b>	<b>216</b>	<b>top of range</b>
<b>185</b>	<b>183</b>	<b>bottom of range</b>

The Aug 15 estimate does not include Value Engineering still in progress:  
 switch to smaller fiber  
 switch overburden from (truss + granite) to (concrete + barite)  
 After Value Engineering always assumed we would adjust the mass to get \$ 200 M TEC

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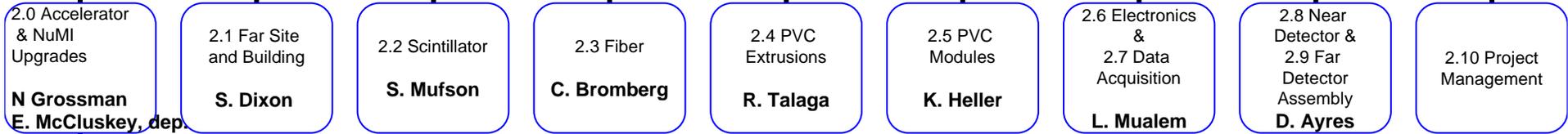
# PEP, PMP Org chart





# Project Organizational Breakdown Structure

J. Cooper, Project Manager  
R. Ray, Deputy Project Manager  
N. Grossman, Associate Project Manager.



Note on L. Mualem

2.0.1 Booster Upgrades

2.0.2 Recycler Upgrades

2.0.3 Main Injector Upgrades

2.0.4 NuMI Upgrades

## Similar WBS

## 2.x is Construction (MIE + CA)

## Similar 1.x for R&D, Ops ??

## Or, Similar 3.x for Operations??

Now not so clear with multiple types of ops \$ (2 R&D, Fermi Ops, CA Ops)

**Need to be clear or will confuse reviewers  
(Need to be clear or will confuse ourselves)**



# Other Merger items

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- Project headquartered in PPD
  - Will need to \$ track R&D, Ops in other divisions
  - Now need to track two types of R&D in FY07
- Project Financial support
  - Suzanne Pasek
- Use Open Plan
  - Need one critical path
- Project Scheduling
  - Bill Freeman, Ken Doman, Harry Ferguson all needed at start
- Website and docdb help
  - Alan Wehmann
- So far, 8 PP2 people have asked to join the NOvA Collaboration



# EA update (CD-2 question, not CD-1)

**From:** John Cooper [mailto:jcooper@fnal.gov]  
**Sent:** Tuesday, January 09, 2007 6:30 PM  
**To:** Prouty, Vicki  
**Cc:** John Cooper; Arnold, Sally  
**Subject:** Question on the NOvA EA

Vicki L. Prouty  
Assistant Chief Counsel  
Office of Science Chicago Office  
9800 S. Cass Avenue  
Argonne, IL 60439

Vicki,

Marvin Marshak of the University of Minnesota (UM) is trying to steer the Minnesota Environmental Assessment Worksheet (EAW) through the UM system. Recall that this EAW forms about one-third of the NOvA EA.

Internal debate at UM about their action on this EAW focuses on possibly proceeding two ways:

1. UM administration concludes from the work done by Short, Elliot & Hendrickson (consultant) for Fermilab that no Minnesota action is required, or
2. UM administration elects to do a "discretionary EAW". This means they would have to be the Responsible Government Unit (RGU) in Minnesota and officially submit the EAW to the Minnesota Environmental Quality Board who then publishes the EAW and takes comments in an official 30 day comment period. UM as the RGU would then respond to the comments and presumably conclude that no environmental work is required.

We have been proceeding under assumption #2 above for the EA (plus a gap analysis), but UM notes this is more work on their part than option #1. Marvin Marshak has indicated to the UM administration that the federal EA counts on the existence of an official Minnesota EAW, but he finds that the UM people would like to hear this from a lawyer. See below. The Ken Larson mentioned there is in the UM legal office.

I'm guessing that you might be the appropriate person to talk to Ken Larson? I talked with Larson long ago (see attached email below from Dec, 2005) about some of these issues, so all his numbers and addresses are included below.

Let me know how you want to proceed?

Kenneth A. Larson  
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Thanks,  
Jan 10, 2007 WGM

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