

# **NOvA Progress**

Sept 7, 2005 Working Group Meeting

John Cooper

# Site Progress

- August 25 letter from the Minnesota Pollution Control Agency
  - Liquid scintillator is not hazardous material
    - No tank storage permit required
      - (i.e., we are not “storing”, we are “using”)
    - No EAW from the Environmental Quality Board required
      - (i.e., we are doing a “discretionary” EAW, Environmental Assessment Worksheet via SEH consultant)
  - Recommend University Regents as the RGU and that we do the discretionary EAW and get public comment
    - Marvin: some philosophical resistance



## Minnesota Pollution Control Agency

August 25, 2005

Mr. Earl Peterson  
School of Physics  
116 Church Street SE  
Minneapolis MN 55455

Dear Mr. Peterson:

This letter is to clarify some of the issues we have been discussing on the phone and in some e-mail correspondence recently regarding your NOVA project proposal.

As we discussed, there were three questions that the University of Minnesota needed answered regarding the environmental permitting and environmental review requirements for this project.

1. Is the "Bioron 40517E liquid scintillator" considered "hazardous material"?
2. Will a tank or storage permit be required from the MPCA?
3. Is an Environmental Assessment Worksheet (EAW) required for this project?

According to the Minnesota Pollution Control Agency (MPCA) Tanks Unit, the "liquid scintillator" is not considered hazardous material; therefore, there is no tank storage permits required. This also results in the project not requiring an EAW from the Environmental Quality Board.

The MPCA strongly suggests that the University look closely at the discretionary EAW options. It may be in your best interest to have the University Regents become the Responsible Government Unit (RGU) for a discretionary EAW. This would allow the public to comment on this project long before construction begins, which is usually a much better way to keep a project rolling along with a minimum number of unanticipated problems.

Please feel free to contact me if you have any questions about this letter, or if you have any questions about the environmental requirements of the NOVA project.

Good Luck!

Sincerely,

Rocky Elak  
Customer, Employee & Agency Development Section  
Technology, Education & Assistance Division

RSjms

# Conversations with Directorate

- Thursday, August 18 with Mont & Marvin
  - & Tuesday, August 23 with Mont & Marvin
    - Line item vs. build to suit
    - Summarized discussions with DOE
- Wednesday, August 31 with Pier & Marvin
  - Marvin
    - Univ can't build on speculation
    - Univ can't hold 20-30 yr amortization (no value)
    - Need some guarantee / quicker payback
  - Pier
    - 10% per year might be reasonable
    - Would like FESS input on cost of equivalent warehouse space at Fermilab (for 40,000 sq ft building, no crane, ....)
  - Marvin
    - Asks if Pier could please email Tim Mulcahy, Vice Pres for Research, U. of Minn to express Fermilab's interest in U of Minn help on the building and to arrange a meeting, provides text:
      - “As you know, Fermilab has given initial approval to the NOvA Experiment, which would build a second detector in northeastern Minnesota to utilize the NuMI Fermilab to Soudan Neutrino Beam. I would like to come to Minneapolis to meet with you and other members of the University of Minnesota administration to discuss the possible role of the University in facilitating the construction, installation and operation of the NOvA Far Detector and the building to house it.”
    - Did Pier send this????
  - John: Explained the “Temple timeline” to Pier.

# More Site Progress

- visited the Ash River and Orr-Buyck sites on Sept 1-2 (last Thurs/Fri)
  - John Cooper, Ron Ray, Steve Dixon, Tom Lackowski
    - + Marvin and Jack (Soudan)
    - + 3 SEH people
  - Steve will have more details and pictures later
- My summary
  - Ash River is 3.58 miles from road, not 2.5
  - Both sites look possible
  - Two borings per site may decide the question?

# Prompted by discussions with Mont & Pier, another site/bldg funding model emerges

- For initial infrastructure, look for state (not university) funding – suggestion from SEH
  - e.g. St. Louis County or IRR (?)
  - e.g. county might use their own forces to improve the road to allow initial construction
    - widen, including power right of way, full gravel
    - e.g. such an entity might do the power upgrade from Kabetogema substation, 35 miles, \$ 250 K,.....
  - Marvin to pursue
- For building “shell”, see if University could handle this part
  - Can we get this in the ~ \$ 10 M “construction cost” range?
  - Need FESS to pursue cost breakdown.....
  - Still requires rapid lease return to “make whole”
- Then “build out” the space on MIE??
  - This is exactly what one would do in industry for a local warehouse or storefront enterprise
  - See next slide

# “Build Out” → redefine “outfitting”

- Slide from PAC in April, repeated in Director’s Review

- What is “outfitting”?

- install power?
- install HVAC?
- install lights?
- Install Fire Protection?
- install 5 ton crane (22m bridge)?
- install catwalks length of building?
- epoxy paint the below ground bathtub?

Explore moving line this direction



Overburden also?

- 2 months install rails on concrete floor for our Block Raiser
- 2- months install bookend (simple steel, could be part of building contract)
- 2+ months install Block Raiser
- 2 months install Assembly Tables (need only 1 to start slow)
- 3 months install piping to move liquid scintillator off catwalks
- 12 months if sequential (cost includes crew of 6 for one year = 66)
- 4-5 months if tasks in parallel (4 crews of 4 for 4 months = 64)

PPD:  
Kilmer,  
Schmitt

- Include upgrading power from Ash River Trail, improving gravel road?

# WBS / OBS effort

- We have a full pass on the L3 tasks
  - The L3 tasks were outlined to the NO<sub>v</sub>A Collaboration on Aug 26 in our collaboration meeting at Fermilab
    - ~ 50-60 people attended, many more than our typical ~35
    - Gave people a chance to see what the tasks are and to volunteer their interest (by about NOW)
- We have initial requests from the L2 managers for several of the L3 people
  - 9 names so far
  - 2 clear holes so far
  - Haven't heard on Electronics / DAQ / Module building
  - Hope to close on most early next week
- Suggest we report in more detail at **next** Working Group Meeting

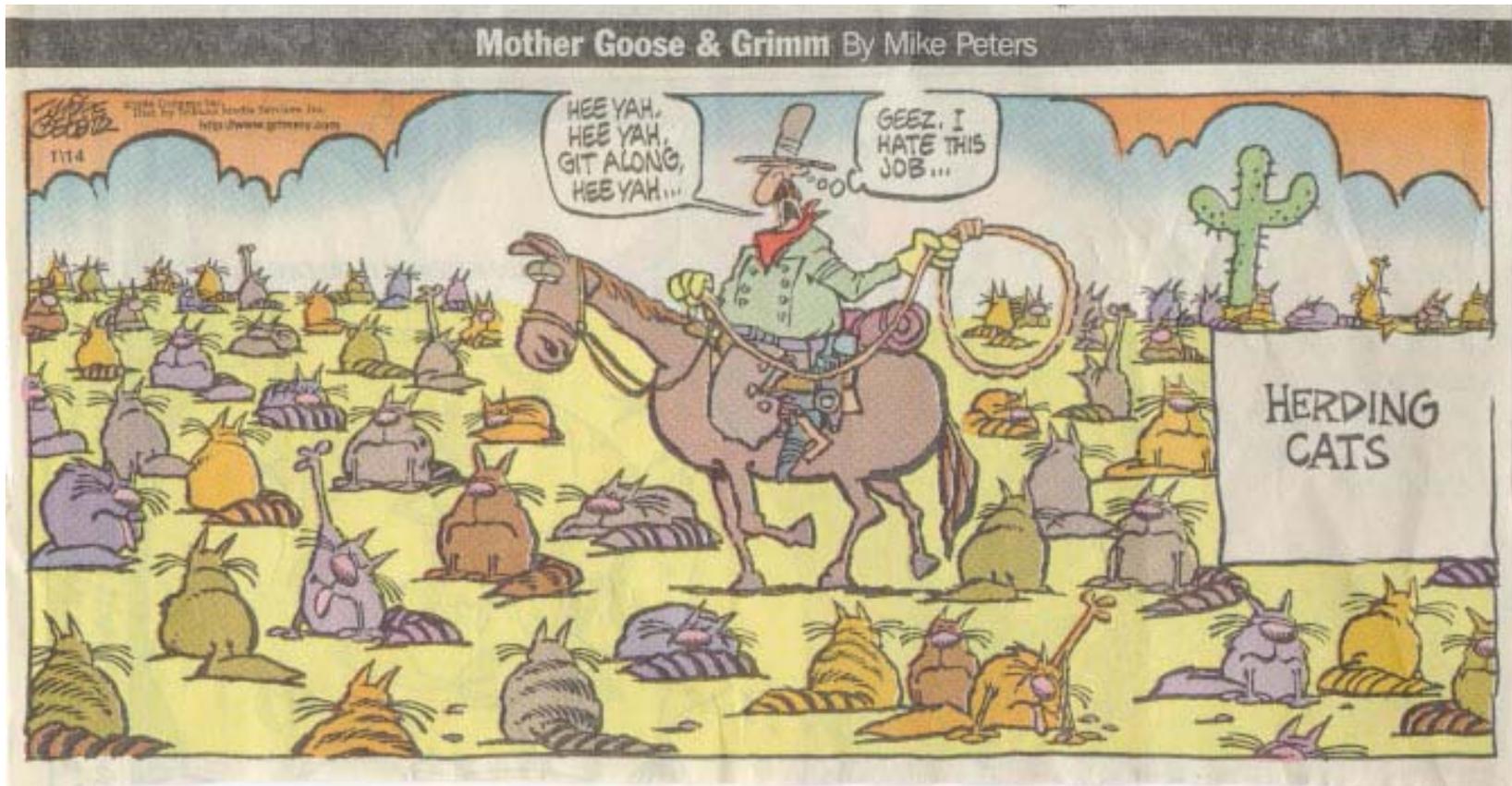
# Interactions with Procurement

- RFP is out for 16 cell extrusions
  - 4,000 meters initial, option for 750 kilometers
  - Fermilab to supply the raw PVC resin material
    - So we get a cost estimate for “extruding”, not “extrusions”
    - Will work on resin next
  - Had a list of ~ 10 possible vendors
    - Looks like will get only a few responders
  - Asked for bids back by Sept 23
    - Will place order Sept 29
- Met with David Sloviter (CurtisLabs) on August 25
  - chemical supplier of PPO
    - in a homebrew scheme OR in a “buy fluors from Eljen” scheme
  - Very interested
    - Promises cheaper than....
    - Can they actually supply 58,000 kg on our schedule?
      - Prefers 15,000 kg / year, that we stockpile the powder

# My developing thoughts on CDR

- Reacting to short timeline, to possible need for CD-2 by June 2006 (!)
- Fix “the detector scheme” by Oct 1 ??
  - PVC composition, glue, assembly schemes
  - Scintillator mix and mixing / delivery scheme
  - Signal to noise fixed at \_\_\_\_\_ may allow ONE iteration of base plan
    - Gary?
  - Write to this baseline
  - Get cost backup for this baseline
  - Start Cost & Schedule for these tasks
    - ~ 10 weeks for ~ 2000 tasks means must get 200 per week done
- Force R&D in parallel
  - Not the natural tendency of the L2s, they want it sequential
  - Want to put more effort into R&D WBS than Construction WBS
    - Even thinking of entirely new detector schemes last week (sigh!)
- So, the TDR may diverge from CDR due to R&D progress
  - So be it
  - Any divergence MUST clearly be cheaper
    - or have an extremely well justified and clear need

Nobody said this would be easy...



But I don't "hate" it yet.....