Craig C. Drennan

Principle Engineer

AD / Instrumentation

P.O. Box 500, MS 308

Kirk Road and Pine Street
Batavia, Illinois 60510-50­11 USA

Office: 630.840.2160

cdrennan@fnal.gov

**Date:** February 6, 2018

**Re:** Meeting Minutes,

 PIP II-IT Discussion and Requests for Work During the March Run

**Meeting Time:** 9:00 am to 10:00 am

**Meeting Location: TGC 2nd Floor, The Loft**

**Attending:**

John Diamond

Craig Drennan

Aisha Ibrahim

Peter Prieto

Lionel Prost

Vic Scarpine

Alexander (Sasha) Shemyakin

*Note: Specific Things-To-Do that came out of the meeting are underlined in the text below.*

*These minutes and the slides presented during the meeting are stored (for now) at Beams-doc-6079.*

*These minutes are highly paraphrased and editorialized and any additions deletions changes or comments are encouraged.*

**Introductions:**

Sasha Shemyakin had put some slides together as introduction to the layout of the PIP II Injector and to explain what they are expecting from AD / Instrumentation in the coming months.

Lionel Prost is now manager of the PIP II Front-End. Lionel is the money holder and if anyone needs to discuss money issues, they can go to him.

Sasha is the Group Leader.

One of Sasha’s slides showed an elevation of the layout of the PIP II Injector girder as it is right now, and below this, a plan view of the girder as planned for the future (this was just for reference in that it was not up-to-date).

**Schedule:**

Sasha explain that we are currently part way through a 4-week RFQ shutdown. The next run is expected to start on February 19. The main goal is to demonstrate running the RFQ in the CW mode. This will be the highest priority for this run. With this goal in mind, other things will be fit into the schedule.

There is a large list of additional studies, which also includes instrumentation.

They expect to end this run the week of April 9.

It is also proposed to have a 3-week run starting near the end of July to do more testing with two specific goals in mind. One to test the \_\_\_\_\_\_\_\_ absorber and to test the Laser Wire. If these items are not available, they will not have the run. They currently do not have the absorber, but only drawings. The absorber is an expensive item. The management currently supports building the absorber, but there are concerns about the current funding.

Vic asked how long it would take to build the absorber once they say to go ahead with it. How would it effect the July 23 run date? Sasha replied that a decision on the absorber will be made within 2 or 3 weeks and that the July 23 start date will remain if they have the absorber or laser wire to test. (???? Check this statement)

Sasha continued that what he sees for PIP II Instrumentation, is that before the end of the current shutdown we will have installed the Single Wire Scanner and the Bergoz ACCT beam current device. They also expect to install the vacuum chamber for the Laser Wire and build the Laser Hut.

Vic reported that the Laser Hut will be put up by the end of this week (Feb. 9).

Vic also asked about the final location for the Emittance Scanner. Sasha reported it was in the original position. Vic asked if it could be moved after both choppers. Sasha said no.

There is expected to be a meeting on Tuesday, February 6, regarding the Laser Wire work.

**RFQ Transmission Studies:**

Vic mentioned that Aisha will be heavily involved with the RF Transmission Studies. The RF Transmission studies is a separate effort than the Instrumentation studies.

Sasha explained that there is an ACCT on each end of the RFQ. The RFQ Transmission numbers will come from the ACCT measurements and will depend on the accuracy of the ACCTs. They are currently counting on the ACCT accuracy to be within 2%, but there is reason to believe that it will be better than this.

 Sasha then discussed the question of how they will be able to operate in CW mode. Up until now they have relied on data (instruments?) read at 20 Hz through HRM digitizers. They have never operated using the BPMs or other instruments in the CW mode, because they have never had CW beam.

Vic asked how instrumentation will be triggered in the CW mode. The instrumentation readouts are trigger based.

TODO:

Sasha stated that he will need more information on what is needed for triggering from Vic and Instrumentation. Vic will need to meet with AD / Controls to see what can be done.

**Documentation of Operational Procedures:**

Sasha expressed the importance of documenting all the operational procedures involved in running the RFQ, so they can startup quickly and smoothly again in 2 years, with whoever may be here at that time. There should be established a single repository for the procedures and programs and instrumentation codes. Consideration needs to be given to what all the things are that need to be captured into this repository. Creation of the needed procedures needs to start right away and while they are running and not wait until after the run is over. In this way the written procedures can be made clearer and more accurate. Sasha plans to give highest priority to this documentation effort in the last week of running

Craig asked whether PIP II already have a place to store this sort of documentation. Sasha answered that they did not.

**MPS Work:**

The message from Sasha is that they have an MPS system that relies on the Ring Pickups (RPUs).

Sasha would like to have Instrumentation do some work with the system of beam scrapper pickups, to provide an additional layer of machine protection.

TODO:

Vic Scarpine will be setting up meetings that include Arden Warner, Sasha and perhaps Rich Neswold along with John Diamond and others from Instrumentation to discuss what can be done with the scrappers with regard to machine protection.

**PIP II Instrumentation Performance Measurements:**

Sasha would like to schedule dedicated Instrumentation studies sometime in the 3 weeks between February 26 and March 12. Instrumentation will have priority during this time. Outside of this time Instrumentation can still request studies, but other things will then have priority.

Sasha would like for us to evaluate and document the “final” performance results for our PIP II instrumentation. We will need to make a plan on how each system can be tested and then schedule the study time with the PIP2IT Operations. Sasha is requesting that each instrument’s final measured performance parameters be documented and reported to PIP II. This is to say that we have finished our work, and this is the result. He would like papers to be written, with these official performance specifications for their value to physics and the DOE.

TODO:

Aisha has already done some planning to evaluate the Bergoz ACCT beam current devices during this next run. Aisha stated that she has been anticipating this and estimates that she will need to schedule a week.

The Single Wire Scanner will have just been installed. There needs to be a plan for commissioning this and doing a performance evaluation.

BPMs were not mentioned. Is there a need to get final performance results on these?

TODO:

The Functional Requirements Specification (FRS) is reported to have the specifications that we need to work to meet. Vic or Peter need to go into TeamCenter to get this FRS.