PIP-II Booster Injection Absorber PDR Review Charge

Document number: ED000xxxx

Document Approval

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| Name:  Org:  Contact:  Role: | Date: |
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Revision History

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| --- | --- | --- | --- |
| Revision | Date Release | Originator:  Role: | Description of Change |
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# Introduction

For PIP-II the Injection to the Booster will be at 800 MeV over a .550 msec period. The injected beam power is 17 KW a factor of 4 larger of what it is today. A waste beam absorber is required to intercept the unstripped neutrals and any H- that miss the foil. The Injection Absorber will be installed after the last ORBUMP magnet due to the lack of space required to transport the beam to an outside area (Figure 1). A Preliminary Design Review (PDR) is needed for the Booster Injection Absorber.

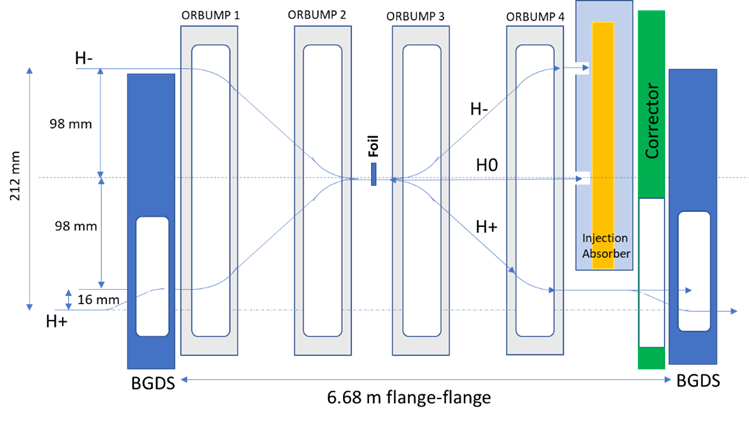


Figure 1: Booster Injection Insert with the Injection Absorber.

# Review Agenda

| “Booster Injection Beam Absorber PDR” Agenda |
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|  |  |
| --- | --- |
| Location: | Loft |
| Date: | November 20th 2019 |
| Time:  Indico Site: | 08:30-16:00  <https://indico.fnal.gov/event/22416/> |

Participants:

|  |  |  |
| --- | --- | --- |
| Ioanis Kourbanis  ioanis@fnal.gov | Fermilab AD-MI Department | Role: Coordinator |
| Dean Still  still@fnal.gov | Fermilab AD-Muon Department | Role: Review Chair |
| Nicholas Evans  evansnj@ornl.gov | Organization | Role: Reviewer |
| Nikolai Mokhov  mokhov@fnal.gov | Fermilab AD-Target Systems Department | Role: Reviewer |
| Kamran Vaziri  vaziri@fnal.gov | Fermilab ES&H | Role: Reviewer |
| David Johnson  dej@fnal.gov | Fermilab AD-Proton Source Department | Role: Presenter |
| Vitaly Pronskikh  vspron@fnal.gov | Fermilab AD-Target Systems Department | Role: Presenter |
| Jesse Batko  jbatko@fnal.gov | Fermilab AD-Mechanical Support Department | Role: Presenter |
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Agenda details:

## Introduction: Review Coordinator

## PIP-II Booster Injection/Beam Absorber: David Johnson

## MARS Simulations: Vitaly Pronskikh

## Thermal Analysis: Jesse Batko

## Closeout – Review Chair

### [Summary Statement]

### [Preliminary Findings]

### [Preliminary Comments]

### [Preliminary Recommendations]

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# Review Charge Statement

The reviewers are asked to perform a Preliminary Design Review of Booster Injection Beam Absorber for PIP II.

Specifically, the panel is asked to answer the following charge questions:

1. Are the requirements documented, clear, complete and appropriate?
2. Is the proposed design for the Booster Injection Beam Absorber likely to meet requirements? Explain any deficiencies or concerns.
3. Are there any features present (or absent) that threaten the intended function and performance of this design?
4. Have safety and environmental aspects been appropriately considered?
5. Have quality aspects been appropriately considered?

The intended outcome of the review:

* Collect and document findings, comments and recommendations necessary to proceed to the Final Design stage.

The following documents will be available on the Indico site approximately 1 week before the review:

* This charge document.
* Functional requirements specifications for Booster Upgrades.
* Technical requirements specification for Booster Injection Absorber.
* Risk assessment table
* Safety by Design table.
* Design Review Report Template, to be completed by the reviewers

# Acronyms

List and define any relevant acronyms as necessary.

|  |  |
| --- | --- |
| ORBUMP | Orbit Bump |
| BGDS | Booster Gradient Defocusing Short Magnet |
|  |  |

# Reference Documents

List any relevant documents referred to in the Review Charge Statement. Include reference links or locations where the references are found. This list should include all documents with which the review committee should be familiar prior to the review.

|  |  |
| --- | --- |
| 1 | PIP-II Technical Review Plan – TC ED0008163 |
| 2 | PIP-II Quality Assurance Plan DocDB # [142](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=142) |
| 3 | PIP-II Systems Engineering Management Plan – TC ED0008164 |
| 4 | PIP-II IESH Management Plan DocDB # [141](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=141) |
| 5 | 121.02 SRF and Cryo Systems Design Plan DocDB # [2605](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=2605) |
| 6 | 121.03 Accelerator Systems Design Plan DocDB # [2599](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=2599) |
| 7 | 121.04 Linac Installation and Commissioning Design Plan DocDB # [2581](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=2581) |
| 8 | 121.05 Accelerator Complex Upgrades Design Plan DocDB # [2593](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=2593) |
| 9 | 121.06 Conventional Facilities Design Plan DocDB # [2587](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=2587) |
| 10 | PIP-II Value Engineering Plan DocDB # [2830](https://pip2-docdb.fnal.gov/cgi-bin/private/ShowDocument?docid=2830) |
| 11 |  |
| 12 |  |
| 13 |  |

The review coordinator should populate this following table with the document list for this review from their SDP.

Table 1 - Document Deliverables for this review from the System Design Plan

|  |  |  |  |
| --- | --- | --- | --- |
|  | Document Title | Status  (preliminary, final, released) | Comments |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |