PIP-II Beam Transfer Line PDR Report

Document number: ED000xxxx

Document Approval

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| --- | --- |
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Revision History

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| --- | --- | --- | --- |
| Revision | Date Release | Originator:  Role: | Description of Change |
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*Revision control is managed via Fermilab Teamcenter Workflows.*

Table of Contents

[1. Introduction 4](#_Toc10125436)

[2. Review Agenda 4](#_Toc10125437)

[3. Review Charge Statement 6](#_Toc10125438)

[4. Attendance List 6](#_Toc10125439)

[5. Reference Documents 6](#_Toc10125440)

[6. Reviewed Document List 7](#_Toc10125441)

[7. Findings 7](#_Toc10125442)

[8. Comments 7](#_Toc10125443)

[9. Recommendations 7](#_Toc10125444)

[10. Response to Charge Questions 8](#_Toc10125445)

[11. Value Engineering Opportunities 8](#_Toc10125446)

# Introduction

The Introduction provides a brief narrative of the following:

* Overview statements that include the Review Title, summary of the Review Charge, goals and anticipated outcomes, context of the review
* Brief description of the Project area under review (descriptions of the System, Sub-system, and device or requirement under review)
* Brief summary of the thoroughness, effectiveness, and general summarized committee thoughts of the review itself.

# Review Agenda

| “Beam Transfer Line PDR” Agenda |
| --- |

|  |  |
| --- | --- |
| Location: | 1-East |
| Date: | December 12th 2019 |
| Time:  Indico Site: | 09:00-15:30  <https://indico.fnal.gov/event/22598/> |

Participants:

|  |  |  |
| --- | --- | --- |
| Ioanis Kourbanis  ioanis@fnal.gov | Fermilab AD-MI Department | Role: Coordinator |
| James Morgan  jpmorgan@fnal.gov | Fermilab AD-Muon Department | Role: Review Chair |
| Aric Donnelly  adonnelly@anl.gov | ANL | Role: Reviewer |
| Diktys Stratakis  diktys@fnal.gov | Fermilab AD-Muon Department | Role: Reviewer |
| Meiqin Xiao  meiqin@fnal.gov | Fermilab AD-Main Injector Department | Role: Reviewer |
| Bruce Hanna  bhanna@fnal.gov | Fermilab AD-SC Linac Department | Role: Presenter |
| Matt Kufer  kufer@fnal.gov | Fermilab AD-EE Department | Role: Presenter |
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Agenda details:

## Introduction: I. Kourbanis

## Beam Transfer Line Lattice: M. Xiao

## Magnets: B. Hanna

## Power Supplies: M. Kufer

## Closeout – Review Chair

### [Summary Statement]

### [Preliminary Findings]

### [Preliminary Comments]

### [Preliminary Recommendations]

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# Review Charge Statement

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

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

# Attendance List

List review attendees here, including committee, speakers, and prominent audience members. Remote attendees should be included and noted as remotely attending.

|  |  |
| --- | --- |
| Name | Organization |
|  |  |
|  |  |
|  |  |

# Reference Documents

The documents listed below establish the framework for all technical reviews held during the PIP-II Project Lifecycle.

|  |  |
| --- | --- |
| 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) |

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 | Transfer Line Beam Absorber FRS |  |  |
| 2 | BTL Dipole FRS |  |  |
| 3 | Quad FRS |  |  |
| 4 | Specialty Magnets FRS |  |  |
| 5 | Dipole TRS |  |  |
| 6 | Quad TRS |  |  |
| 7 | Specialty Magnets TRS |  |  |
| 8 | Dipole Preliminary Design |  |  |
| 9 | Quad Design |  |  |
| 10 | Large aperture quad design |  |  |
| 11 | 3-way septum design |  |  |
|  |  |  |  |

# Reviewed Document List

This section indicates which documents the committee reviewed as part of this review. The document list provided should match the documents identified in the relevant WBS L2 System Design Plan referenced above.

Table 2 - Documents presented at this Review

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

Committee comments should note any of the following:

* Documents that were expected but not presented.
* Documents that were in a state not commensurate with the review in question (e.g. conceptual design documents at a final design review).
* Standard documentation that, in the committee’s expert opinion, should have been in the SDP and presented but was not included.

# Findings

General, factual observations about material presented which require no response.

# Comments

Observations with value judgments, or “soft” recommendations that require action by the design/engineering team, but where a formal written response is not requirement.

# Recommendations

Items that require formal action and closure in writing prior to receiving approval to move into the next phase of the project, or items that require formal action and closure in writing prior the next review.

# Response to Charge Questions

If the charge is written in the form of questions, duplicate them and directly respond to them here. These responses should reference the relevant recommendations/comments/findings as appropriate.

# Value Engineering Opportunities

Value Engineering (VE) opportunities are often discovered during conceptual and preliminary design reviews.  The Review Committee will consider Value Engineering in their assessment of the reviewed materials proposed design and provide a list of suggested opportunities below. The PIP-II Project established a *PIP-II Value Engineering Plan* to support this effort [10]. VE opportunities are not intended to be recommendations. Recommendations are captured in Section 9 above. If no VE opportunities are identified, please indicate.