

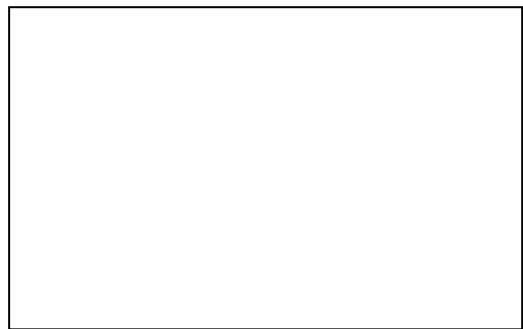
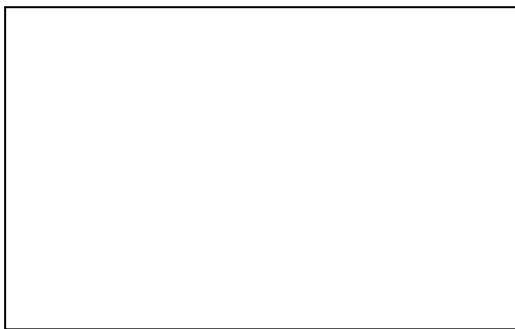
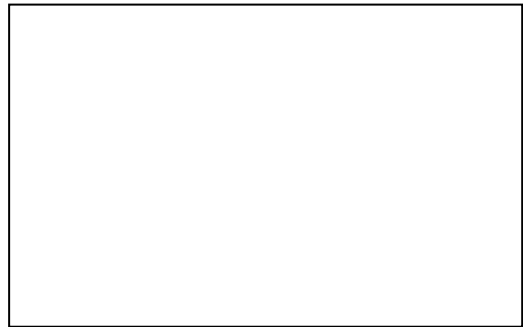
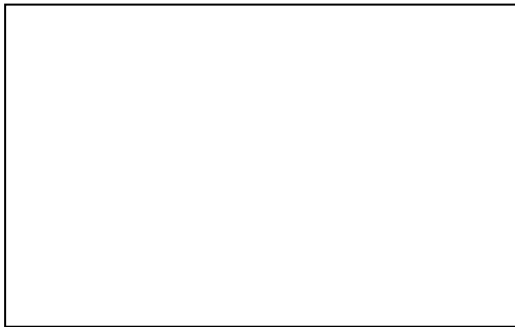
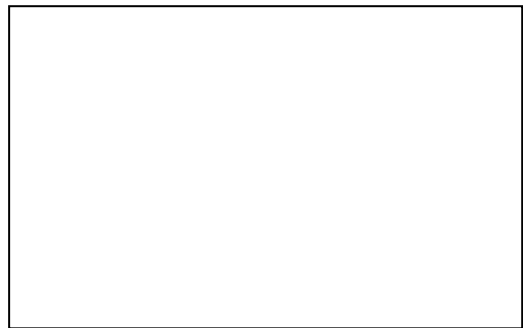
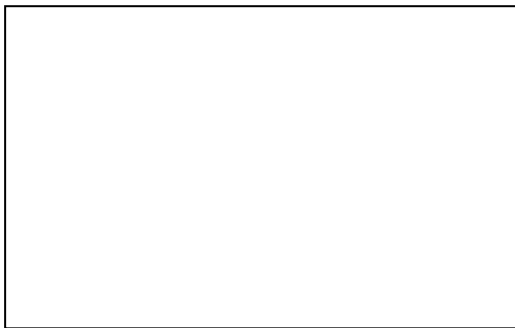
Dam Rehabilitation and Improvement Project (DRIP)

*(Project Assisted by the World Bank, and Coordinated and Supervised by the
Central Water Commission)*

Revision 1

December 2014

Project Template



Name of the Project:

Name of SPMU:

Month & Year

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Date:

Signature of Project Director, SPMU

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Note: This document has been prepared in MS Word 2007. The page numbers of the document are auto generated, and dynamically indexed. A new page at any location of the document can be created by command <Insert/ Page Break>. Page numbering in Index can then be updated by command <References/ Update Table>.

FORM-I: PROJECT DETAILS

1. Project Description:

a. Project Identification Code (PIC):

(As given in National Register of Large Dams)

b. Project Name:

c. River Basin

d. Sub River Basin:

e. River/Stream:

2. Project Location:

a. State:

b. District:

c. Earthquake Zone: III

d. Survey of India Map Reference Nos.

e. Nearest City:

f. Nearest Airport:

g. Nearest Railhead:

h. Name of immediate u/s project:

i. Name of immediate d/s project:

j. Latitude/Longitude (in degrees, minutes, seconds):

Lat: N

Long: E

k. Elevation Top of Dam Above Mean Sea Level (MSL), in meters:

- Location Map of the Project is attached as Appendix-IA.
- General Layout Plan of the Project showing major project components is attached as Appendix-IB.

Date:

Signature of Project Director, SPMU

3. Project Benefits:

a. Type of Project: Irrigation

b. Irrigation Benefits, in hectars (ha):

- (i) Gross Command Area (GCA):
- (ii) Cultivable Command Area (CCA):
- (iii) Annual Irrigation Potential:

c. Hydropower Benefits:

- (i) Installed Capacity (MW): (ii) Firm Power (MW):
- (iii) Average Annual Energy Generation (MU):

d. Domestic/Municipal/Industrial Water Supply:

- (i) Annual Quantum of Water Supply (MCM):
- (ii) Details of Area and Population Benefitted:

e. Flood Protection:

- (i) Flood Protected Area (ha):
- (ii) Details of Area Benefitted:

f. Details of Tourism/Recreational Facilities:

4. Project Ownership Details:

a. Name of Dam owning Agency/Department/Organization:

b. Name of SPMU for DRIP Implementation:

c. Name of Implementing Agency:

d. Details of Dam in-charge:

- (i) Name: (ii) Designation:
- (iii) Phone No. (With STD Code):
- (iv) Fax No.
- (v) E-mail:
- (vi) Contact Address:

Date:

Signature of Project Director, SPMU

Appendix-I A

LOCATION MAP OF PROJECT

SPMU Comments, if any:

1.

(Location Map is furnished below)

Date:

Signature of Project Director, SPMU

Appendix-I B

GENERAL LAYOUT PLAN OF THE PROJECT

Comments of SPMU, if any:



(Example Layout plan is furnished below) Include North Arrow



Date:

Signature of Project Director, SPMU

FORM-II: DAM SPECIFIC DETAILS

1. Dam Features:

a. Type: b.1. Length of Embankment at Top (m):

b.2. Length of Masonry/Concrete (m):

c.1. Width of Emb. Dam at Top (m): d.1. Elev. Top of Embankment (m):

c.2. Width of Masonry/Concrete at Top (m): d.2. Elev. Top of Masonry/Concrete (m):

e.1. Height Masonry/Concrete Dam above deepest foundation level (m):

e.2. Height of Embankment Dam Above River Bed:

e.3 Average River Bed Elevation Downstream Toe of Spillway(m):

f. Volume Content of Dam (10^3 m^3):

g. Main Spillway Arrangement:

(i) Type of Spillway: (ii) No. of Bays:

(iii) Type of Gate: (iii) a. Spillway Crest Level (m):

(iv) Size of Gate: Width (m) Height (m)

(v) a. Total Discharge Capacity of all bays (m^3/s):

(v) b. Corresponding Water Level:

(vi) Gate Hoisting Arrangement:

(vii) Hoisting Capacity of Single Gate (T):

(viii) Energy Dissipation Arrangement:

(ix) Stoplog Provision: Y/N

(x) if NO, whether water level goes below crest level every year for the last 30 years?
 Y/N

(xi) Original Design Head (m):

Date:

Signature of Project Director, SPMU

h. Auxiliary Spillway Arrangement:

- (i) Type of Spillway: (ii) No. of Bays:
- (iii) Type of Gate:
- (iv) Size of Gate: Width (m) by Horizontal (m)
- (v) a. Total **Discharge** Capacity of all bays (m^3/s):
- (v) b. **Corresponding Water Level:**

- (vi) Gate Hoisting Arrangement:
- (vii) Hoisting Capacity of Single Gate (T):
- (viii) Energy Dissipation Arrangement:
- (ix) **Stoplog Provision:** Y/N **If NO, whether water level goes below crest level every year for the last 30 years?** Y/N

i. Under Sluice Arrangement:

- (i) No. of Sluices:
- (ii) Size of Sluice: Width (m): Horizontal (m): Dia (m):
- (iii) Maximum **Design** Head (m):
- (iv.1) Discharge Capacity of Sluice (m^3/s):
- (iv.2) **Corresponding Water Level (m):**
- (v) Type of Gate: (vi) Type of Hoist:
- (vii) Capacity of Hoist (T):
- (viii) Year of last operation, if not operated regularly:
- (ix) **Provision for Maintenance Stoplog/Emergency Gate:** Y/N

j. Details of Outlet works:

- All Drawings to be on A3 size or larger.
- Longitudinal sections of the dam to be attached in Appendix-IIA
- Typical non-overflow/overflow/other cross sections of the dam to be shown in Appendix-IIB (1) and (2), as necessary....

Date:

Signature of Project Director, SPMU

2. Reservoir Features:

- a. Catchment Area at Dam site (km²): b. Maximum Water Level (m):
- c. Full Reservoir Level (m):
- d. Minimum Draw Down Level (m): e. Dead Storage Level (m):
- f. Outlet Levels, if any, specify: g. Live Storage Capacity (Mm³):
- h. Gross Storage Capacity (Mm³) at FRL:
- i. Reservoir Spread Area (km²) at FRL:

3. Construction Aspects:

- a. Date of Starting the Construction (DD/MM/YYYY):
- b. Date of Completion (DD/MM/YYYY):
- c. Name of Designing Agency:
- d. Name of Construction Agency:

- e. Major accidental events/incidents if any, during construction (brief description):

4. Operational Aspects:

- a. Date of first full impoundment (MM/YYYY):
- b. Whether Pre & Post monsoon inspection being carried out:
- c. Major recommendations of dam safety inspection, along with brief status on compliance:

1.

- d. Operations and Maintenance Manual: If YES, attach in Appendix IIC

Date:

Signature of Project Director, SPMU

e. Major accidental events/incidents if any, during project operation with brief statement of remedial measures:

(Details for each events/incidents during project operation is given above)

5. Instrumentation Aspects:

(Data Records and other information including pictures can be included in Appendix IID)

a. Summary List of Instrumentations installed in the Dam:

1.

b. Condition of Instruments:

1.

c. Frequency of Observations:

1.

d. **Summary** on adequacy and justification for additional instrumentation:

Date:

Signature of Project Director, SPMU

6. Previous Rehabilitation Efforts:

a. Name of Scheme:

b. Period of Scheme: From

to

c. Details of Works Carried Out:

d. Cost of Previous Rehabilitation (in Rupees):

Date:

Signature of Project Director, SPMU

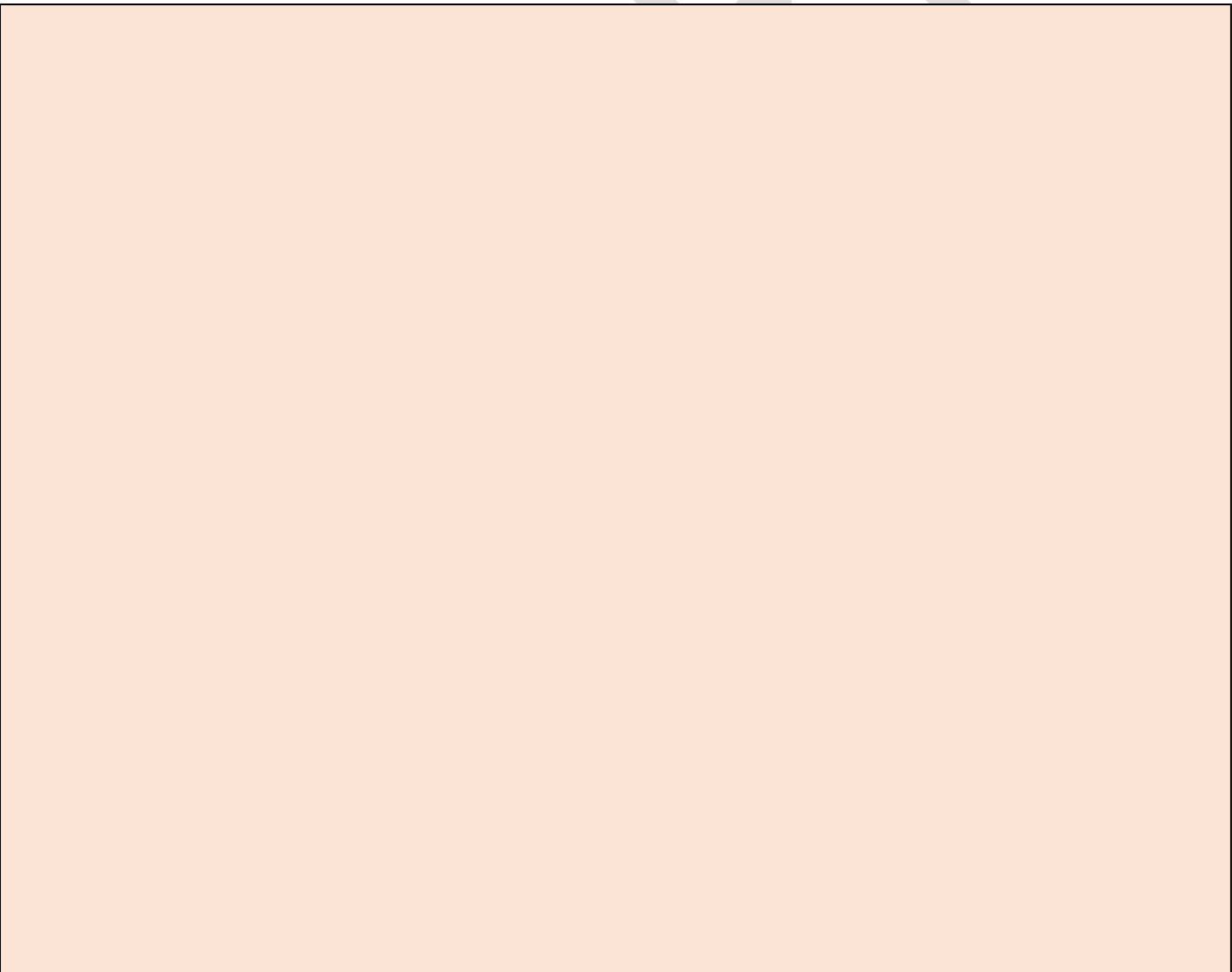
Appendix-II A

LONGITUDINAL SECTION OF THE DAM

Comments of SPMU, If any:



(Scaled L-section Drawing of Dam is furnished below. Full Drawings on A3 Minimum paper to be provided in Form VII – Additional Information of this proposal)



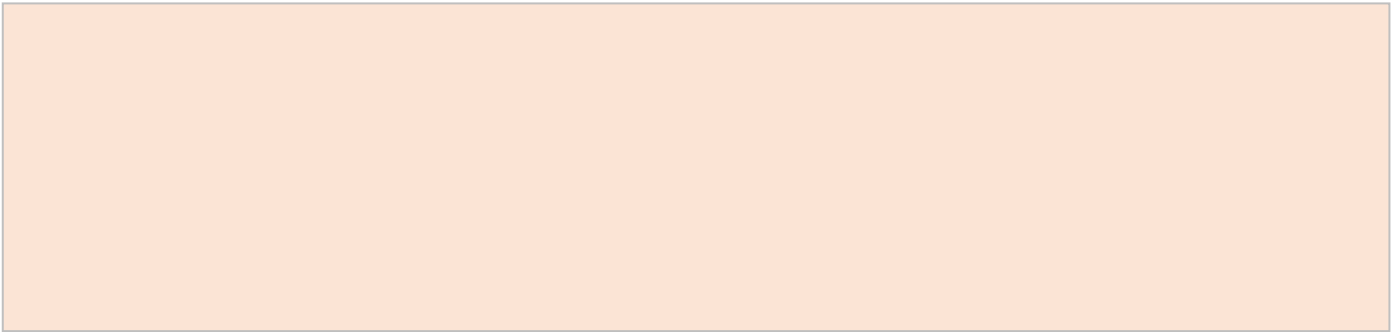
Date:

Signature of Project Director, SPMU

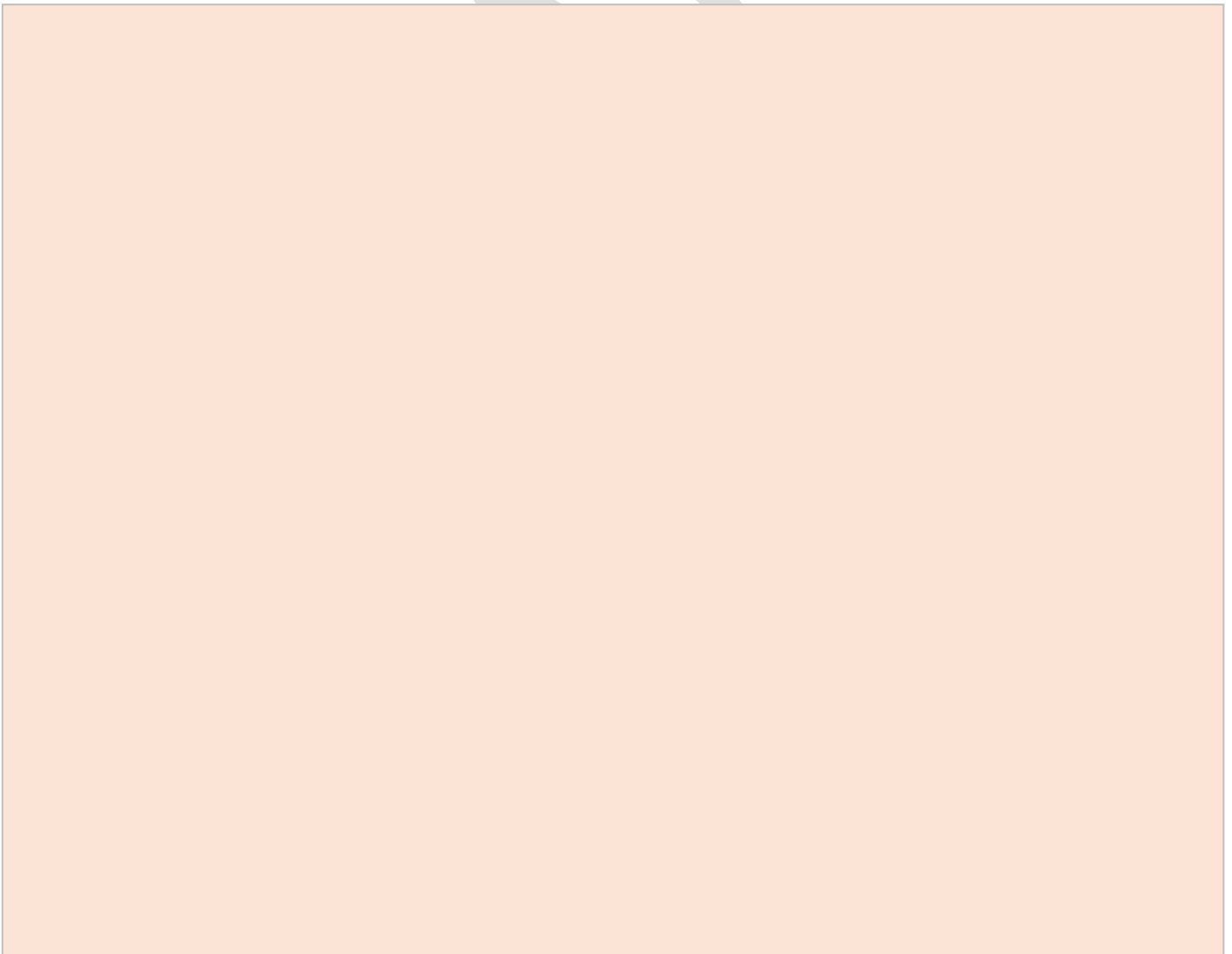
Appendix-II B

TYPICAL CROSS SECTIONS OF THE DAM

SPMU Summary, If any:



(Scaled Cross-Sections Drawing of Dam are furnished below – Full Drawings on A3 Minimum paper to be provided in Form VII – Additional Information of this proposal)



Date:

Signature of Project Director, SPMU

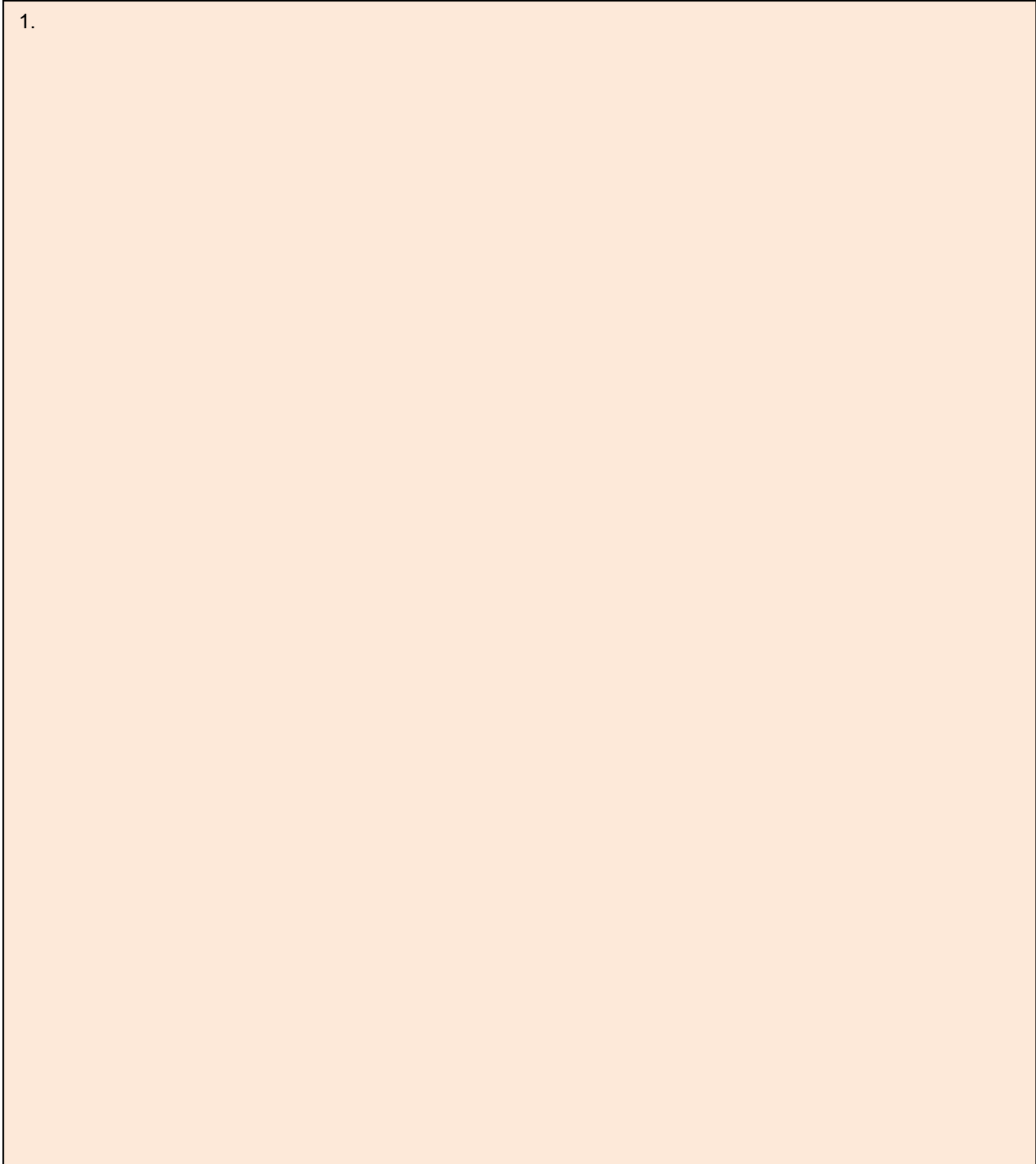
Appendix-II C

REPORT ON DAM INSTRUMENTATION

Enclosed (Yes/No): _____

SPMU summary on Instrumentation Report, If any:

1.



Date:

Signature of Project Director, SPMU

Appendix II D

O&M MANUAL

Enclosed? YES or NO:

Brief Summary by SPMU

Date:

Signature of Project Director, SPMU

FORM-III: HEALTH STATUS OF DAMS

(Note: Use separate forms for each dam in case of multiple dams under one project)

1. Design Flood Review (As approved by CWC):

a. Original Inflow Design Peak Flood (m³/s): a.1. Original Outflow (m³/s):

b. Date of Latest Review (DD/MM/YYYY):

c. Revised Inflow Design Peak Flood (m³/s): c.1 Revised Outflow (m³/s):

Report of Design Flood Review is enclosed as Appendix III-A

d. Flood Routing Conducted? Yes or No If YES, Attach Flood Routing Report with Calculations in Appendix III-B

2. Dam Safety Review Panel (DSRP) Review:

a. Date of Latest Review (DD/MM/YYYY): / /

a.1 Attach in Appendix III C

b. Key Actionable Points for Rehabilitation:

1.

(Details for each key actionable points Provided Below)

1.

Date:

Signature of Project Director, SPMU

3. Seismic Review:

a. Seismic Zone at the time of Design:

b. Revised Seismic Zone:

c. Historical significant earthquake events in the near vicinity: Y/N If Yes,

Event 1: Date: Epicenter:

Magnitude:

Event 2: Date: Epicenter:

Magnitude:

d. Details of nearest project whose site specific seismic parameter study has been approved by

National Committee on Seismic Design Parameter (NCSDP):

(i) Name of Project:

(ii) Date of Approval:

(iii) Approved Parameters: Peak Ground Acceleration (PGA)

a. Maximum Credible Earthquake (MCE):

b. Design Basis Earthquake (DBE):

c. Seismic Design Coefficient (Horizontal):

e. Whether need for seismic design review: Y/N , If YES, attach in Appendix III-D

f. Micro seismic activity, if any

g. Reservoir Induced Seismicity (RIS)/Reservoir Triggered Seismicity (RTS), if any

Date:

Signature of Project Director, SPMU

4. Present Distress Condition:

SI No.	Description	Earthen	Masonry	Concrete	Composite
1	Leakage through dam body				
2	Excessive seepage through dam body				
3	Excessive seepage through foundation				
4	Leakage through contraction joints				
5	Excessive settlement of dam body?				
6	Clogging of porous/foundation drains holes?				
7	Are Porous Drain Caps in Place on Top of Dam?				
8	Are Water Seals in Place on Porous Drains?				
9	Undesirable vegetation?				
10	Deteriorated Concrete-Facing, Outlet, Spillway				
11	Erosion of surfaces, slides & signs of differential movement				
12	Are there any surface cracks?				
13	Adequate slope protection?				
14	Erosion of the upstream/downstream face?				
15	Animal Burrows?				
16	Any evidence of piping through dam body?				
17	Any evidence of piping through foundation				
18	Are there wet spots or areas on the downstream face, at the toe, or beyond the dam?				
19	Spillway wearing surface erosion?				
20	Can water flow into the principal spillway without difficulty, as intended when constructed?				
21	Is the primary spillway/waste weir structure in good condition?				
22	If there are foundation drain outlets, are they clear and flowing?				
23	Is there any unusual movement or cracking at or beyond the toe?				
24	Is there any evidence of instability on the slopes around the reservoir?				
25	Is a lot of sediment entering the reservoir, or has this happened in the past?				
26	Are gates/stop logs/valves and other operating equipment in working condition?				
27	Is the drainage gallery easily accessible and does it have adequate lighting facilities and safety handrails on steps?				
28	Gate corrosion				

Date:

Signature of Project Director, SPMU

29	Are Gate Seals showing signs of weathering, cracking or tearing?				
30	Is the surface of gates and paint deteriorated?				
31	Is the alternative power system for gate operation working properly?				
32	Are the hydraulic hoists working satisfactorily?				
33	Are the decking, girders and structural supports of spillway bridge, hoist bridge and catwalks structurally sound?				
34	Is the floor of the bridge structurally sound and safe?				
35	Is there catwalk access to gate trunions?				
36	Is the concrete surface of the stilling basin and apron in good condition?				
37	Is access road to dam site well maintained?				
38	Are communication facilities available at dam site?				
39	Whether there is a standby power supply?				
40	Is fencing of project area required or needs to be strengthened?				
41	Is sufficient stock of spare which needs frequent replacement maintained at the site?				
42	Are the instruments installed properly accessible?				
43	Are all the instruments in proper working condition?				
44	Need for repair of instrument				
45	Need for replacing instruments				
46	Need for additional instruments				
47	Need for Stability Analysis				
48	Need for E/Q design review				
49	Need for operational review				
50	Need for sump/pumping arrangement to dewater Drainage Gallery				
51	Inspection of Sluice conducted?				
52	Seepage at Sluice(s) contraction joints?				
53	Is there evidence of Sluice conduit scour?				

Date:

Signature of Project Director, SPMU

54	Settlement of sluice head walls?				
55	Is there Differential Settlement of sluice/conduit				
56	Is there Siltation at sluice intake?				
57	Is there Impact of siltation on discharge capacity of sluice				
58	Is there seepage in Sluice Gate wells?				

DRAFT

Date:

Signature of Project Director, SPMU

5. Any Other Distress Conditions, if any, noted other than above:

1.

(Details for each distress condition given above under separate number)

Photographs showing details of location and nature of distress conditions are attached in Appendix-III-E

DRAFT

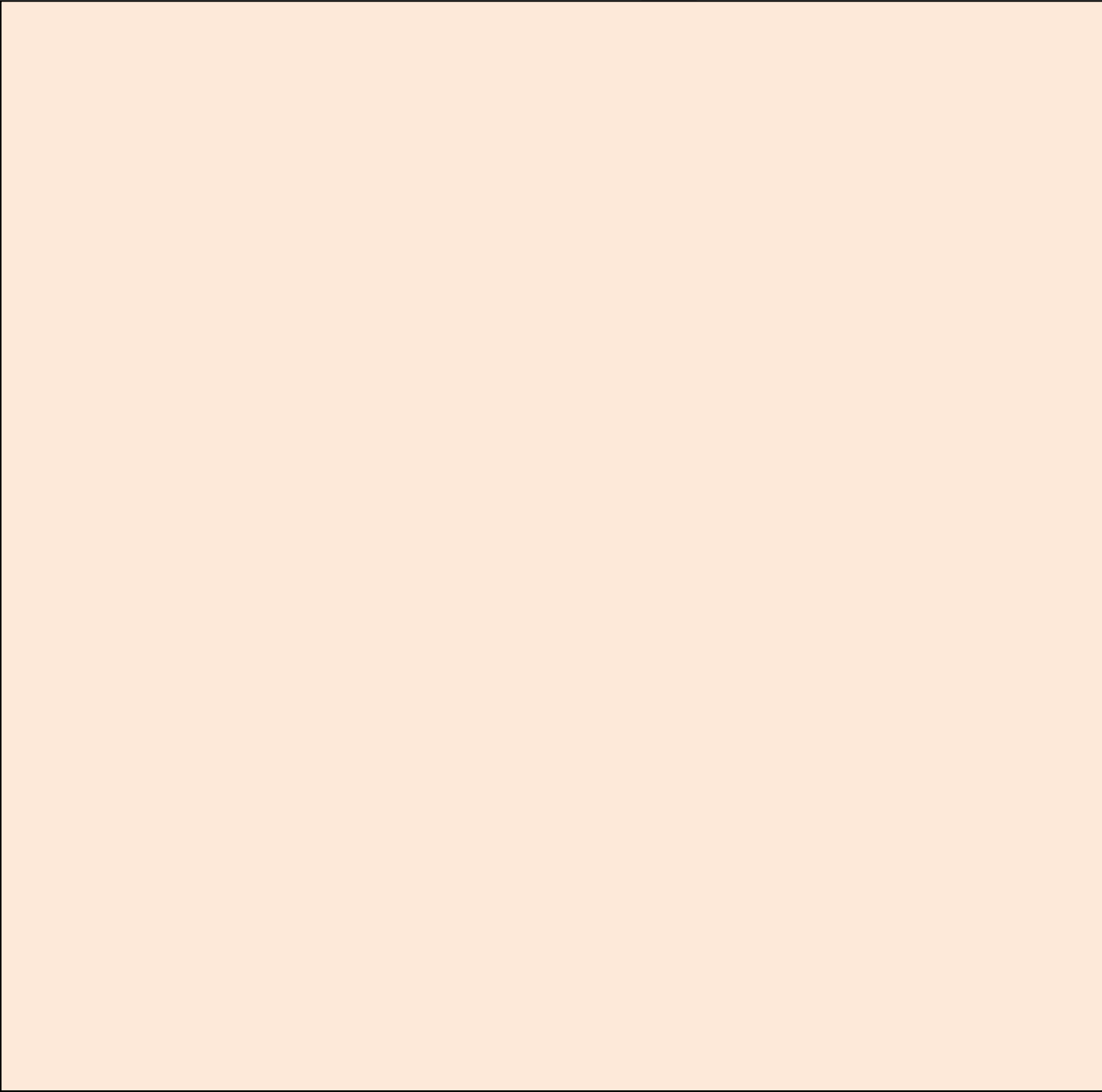
Appendix-III-A

REPORT OF DESIGN FLOOD REVIEW

(In case the design flood review has not been completed, please leave the information blank.)

Enclosed (Yes/No):

SPMU summary on report of design flood review, if any:

A large, empty rectangular box with a light orange background and a thin black border, intended for the SPMU summary on the design flood review report.

Date:

Signature of Project Director, SPMU

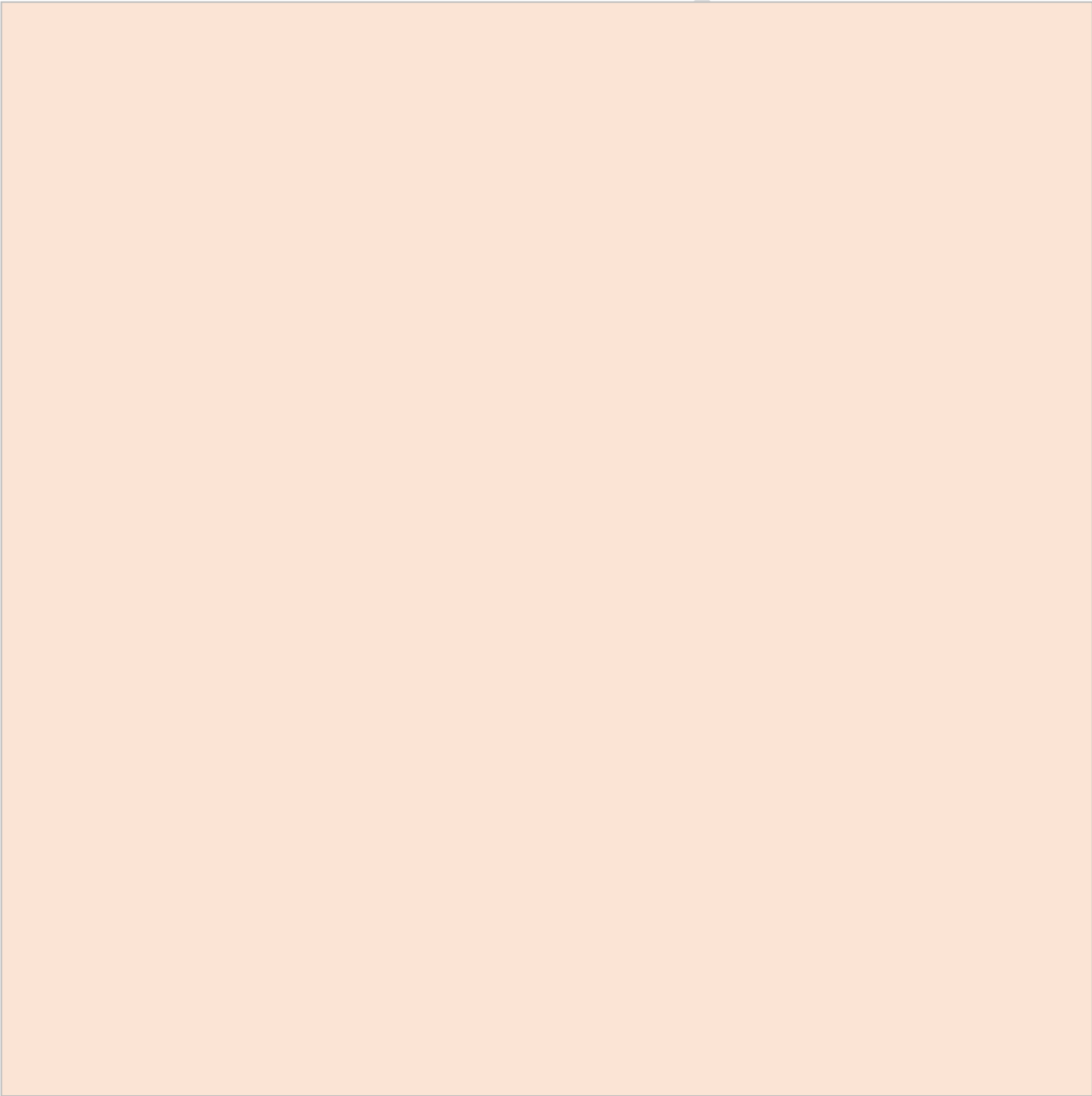
Appendix III-B

FLOOD ROUTING STUDIES AND CALCULATIONS

In case flood routing studies have not been completed, please leave the information blank.)

Enclosed (Yes/No):

SPMU summary on report flood routing studies, if any:



Date:

Signature of Project Director, SPMU

APPENDIX III-C

LATEST REPORT OF DAM SAFETY REVIEW PANEL (DSRP)

Enclosed (Yes/No): _____

SPMU summary on report of DSRP, if any:

Date:

Signature of Project Director, SPMU

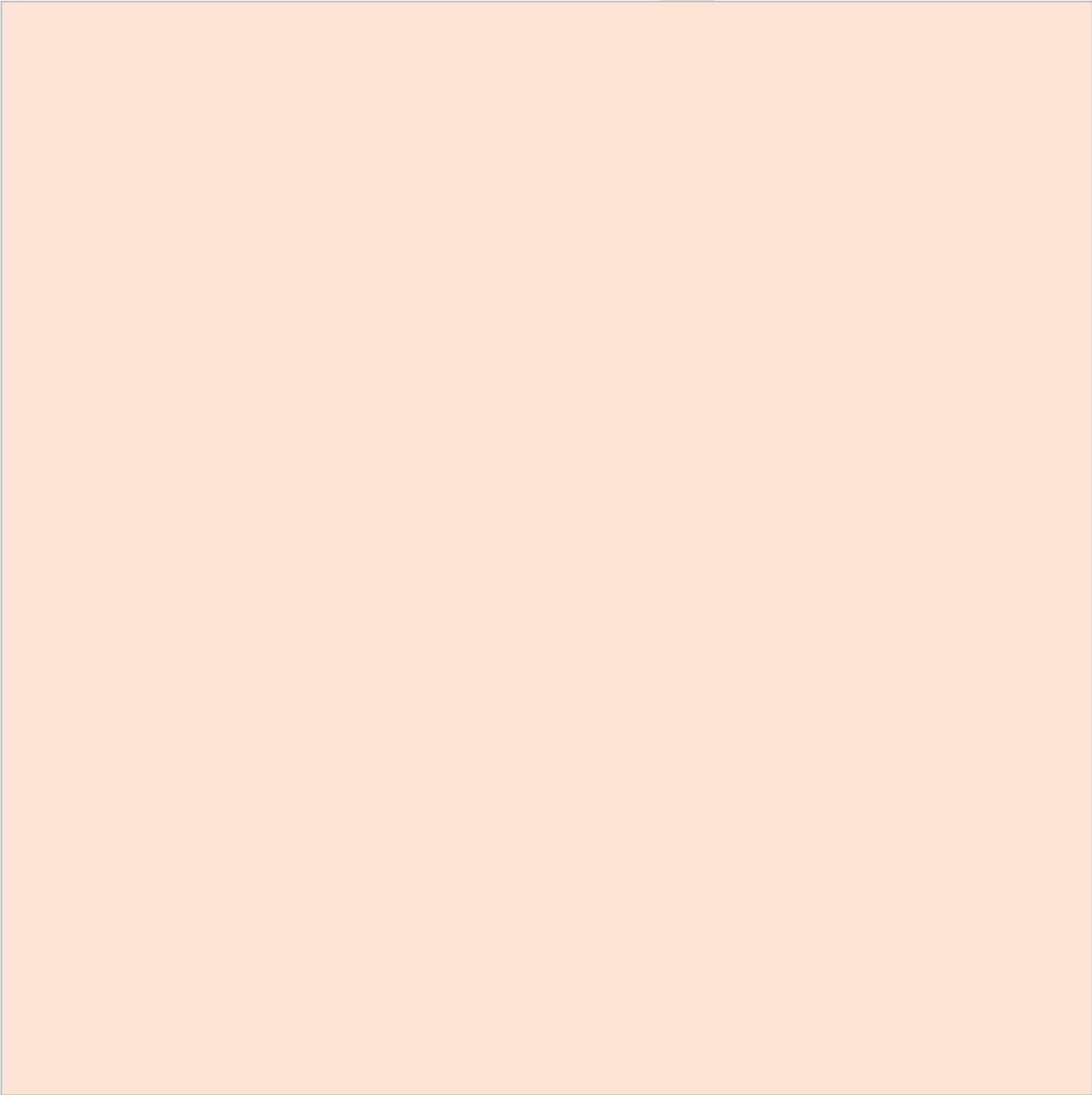
Appendix III-D

SEISMIC DESIGN REVIEW

In case seismic design review studies have not been completed, please leave the information blank.)

Enclosed (Yes/No):

SPMU summary on seismic design review studies, if any:



Date:

Signature of Project Director, SPMU

Appendix-III-E

PHOTOGRAPHS SHOWING DISTRESS CONDITION

SI No.	Date of Photograph	Description with details of location, nature of distress and other remarks
1		
2		
3		

(Attach Plates with two photographs per Plate indicating the SI. No. of photograph)

Date:

Signature of Project Director, SPMU

Sl. No. 1 -

Photo 1.

Sl. No. 2 -

Photo 2.

DRAFT

Date:

Signature of Project Director, SPMU

FORM-IV: REHABILITATION PROPOSALS

(Note: Use Separate Sheet if required)

1. Structural Rehabilitation Measures:

(List all the items identified for the structural rehabilitation)

1.

(Details for each structural measures is given above)

2. Non-structural Measures:

(List out such proposed non-structural measures as: Revision of Reservoir Operation Parameters, Preparation of Emergency Action Plan (EAP), Setting up of Warning System, Real-time Inflow Forecasting System, Catchment Area Treatment, Carry out Risk Analysis etc.)

3. Basic Facilities Enhancement:

(List out such proposed basic facilities as: Construction and Improvement of approach roads, Construction and Improvement of Bridges and Culverts, Construction and Improvement of Fencing, Forest area / vegetation clearance, Improving office housing and related accommodation, stockpiling of emergency materials etc.)

ex. Provision for Instrumentation
Special Repairs to road on top of dam
Special Repairs to service road

4. Tourism/Fisheries/Hydropower Development:**5. Latest Estimated Cost of Rehabilitation Proposal (in Rs.):**

Cost Estimate of Rehabilitation proposals is attached as Appendix-IVA

DRAFT

Date:

Signature of Project Director, SPMU

APPENDIX IV-A

COST ESTIMATE OF REHABILITATION PROPOSAL

SPMU summary:



(Cost estimate is furnished below this page.)

DRAFT

Date:

Signature of Project Director, SPMU

APPENDIX IV A

<u>NAME OF WORK:</u>		
<u>GENERAL ABSTRACT</u>		
<u>PART I</u>		
SL NO	DESCRIPTION OF WORK	AMOUNT
Rehabilitation Works		
1		
2		
3		
4		
5		
6		
7		
8		
		Sub Total
Basic Facilities		
1		
2		
3		
4		
		Sub Total
General		
1		
2		
3		
		SUB TOTAL
PART II		
1		
2		
		TOTAL AMOUNT

Date:

Signature of Project Director, SPMU

FORM-V: ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF) COMPLIANCE

1. Identification of activities having potential environmental and social impact:

2. Whether Requirement for Specific Environment Management Plan (EMP) proposed:

(a) If yes, tentative time frame of ESMF Study:

From:

To:

3. Whether mitigation measures have been identified as per Attachment 1:

, If yes Please attach as Appendix V-A

4. Whether mitigation measures are required to be implemented by Contractor:

, If yes, Please attach as Appendix V-B

Date:

Signature of Project Director, SPMU

Attachment 1 – Abstract Screening for ESMF Activities and Categorization

Name of Dam: _____
State: _____

S.No.	ESMF Activity/ Component	Acquisition of Forest Land	Borrow materials/ Area	Quarry Materials/ Area	Blasting	Dredging/ Desilting of Reservoir	Resettlement and Rehabilitation	Labour Camps	Heavy Machinery	Hot Mix Plant	Concrete Mixture and Heavy	Material Handling and Storage	Temporary Land Acquisition	Tree Felling/ Vegetation	Haulage of Machinery	Debris Disposal	Transport of Materials	Small Tools and Rumps	Sheds to keep Machines and	Others
1	Reservoir Desiltation																			
2	Tourism Development																			
3	Approach Road Dam Crest Roads, etc. Construction/ Improvement																			
4	Hydropower Generation																			
5	Standby Generator																			
6	River Regradation																			
7	Flood Protection Network																			
8	Windmill and Solar Power																			
9	Treatment of Leakage through Masonry and Concrete Dams and Reduction of Seepage through Earth Dams and their Foundations																			
10	Improving Dam Drainage																			
11	Structural Strengthening of Dams to withstand Higher Earthquake Loads																			
12	Remodeling Earth Dams to Safe Stable Cross sections																			
13	Improving Toe Drain and Seepage Measuring Devices																			
14	Improving Ability to withstand Higher Floods including Additional Flood Handling Facilities, if needed																			
15	Repairs to Damaged Spillways, Stilling Basins and Downstream Channels																			
16	Improving Dam Safety Instrumentation																			
17	Improving Communications – Real-time as much as possible - Between Dams Upstream Rain/River Flow Gauging Stations and with other Dams Control Offices and Civil Authorities in Flood Plains d/s of the Dam																			
18	Flood Marking																			
19	Low Voltage Electric Supplies in Inspection and Drainage Galleries																			
20	Improving Lighting for External Areas of Dams																			
21	Inspection Launches Provision																			
22	Rehabilitation/ Improvement of Spillway, Head Regulator and Draw-off Gates and their Operating Mechanisms																			
23	Repair/ Modification of Spillway Gates																			
24	Cleaning of Foundation Drain and Porous Drain																			
25	Repair & Cleaning of Irrigation Outlets																			
26	Other																			

Fill with A/B/C (A-High, B-Medium, C-Low)

Name and Designation and Signature: _____

Date: _____

Signature of Project Director, SPMU

Appendix V-A

IDENTIFIED MITIGATION MEASURES

In case mitigation measures have not been identified, please leave the information blank.)

Enclosed (Yes/No):

SPMU summary on mitigation measures, if any:

A large, empty rectangular box with a light beige background, intended for providing a summary of mitigation measures. The box is currently blank.

Date:

Signature of Project Director, SPMU

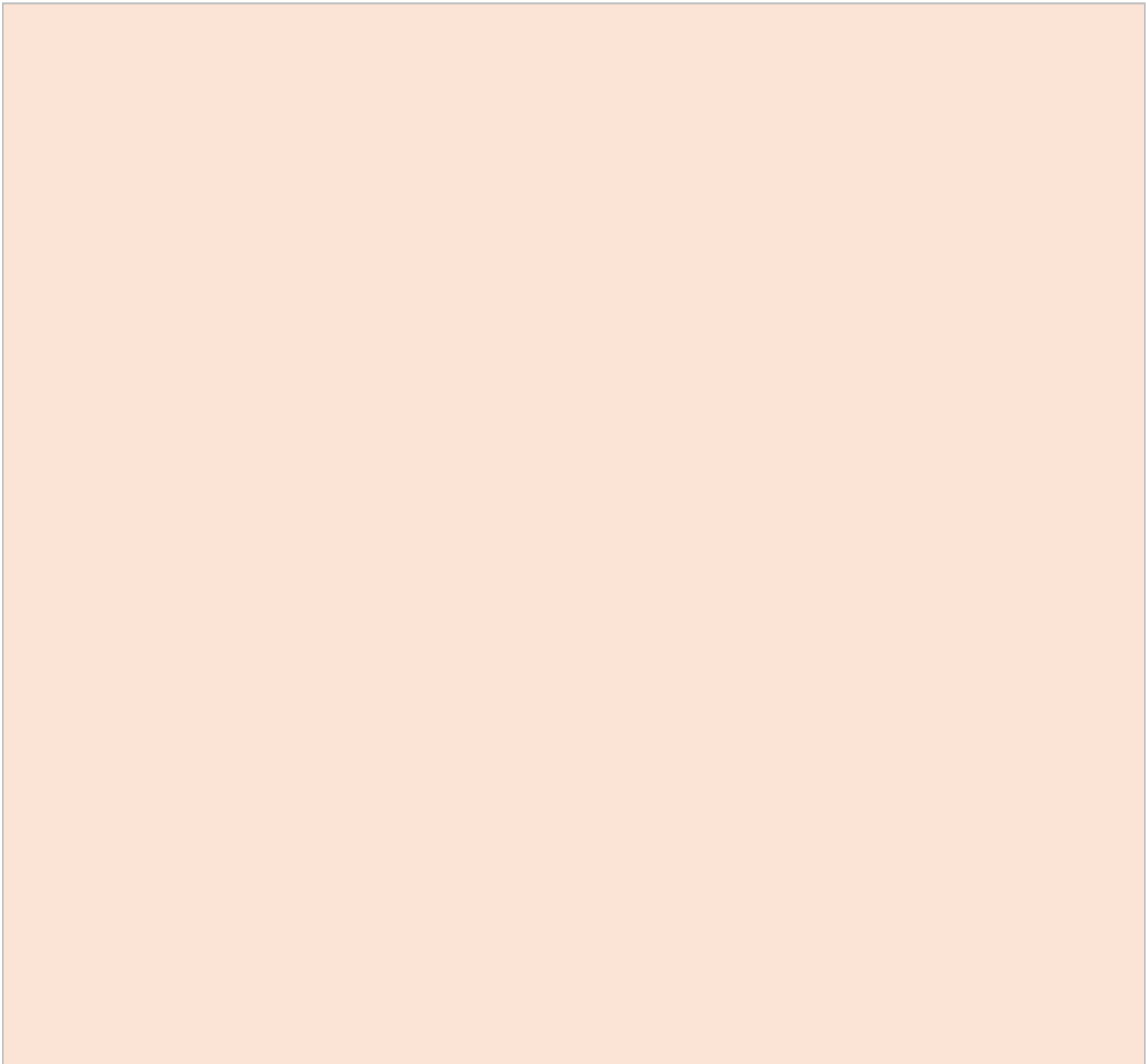
Appendix V-B

REQUIRED CONTRACTOR MITIGATION MEASURES

In case Contractor mitigation measures have not been identified, please leave blank.)

Enclosed (Yes/No):

SPMU summary on Contractor mitigation measures, if any:

A large, empty rectangular box with a light beige background and a thin black border, intended for providing a summary of contractor mitigation measures.

Date:

Signature of Project Director, SPMU

FORM-VI: IMPLEMENTATION ARRANGEMENT**1. Civil Works-Main Package:**

(a) Work Components

--

(Give details for each work component under separate number)(b) Procurement Method: (C) Estimated Cost of Package (in Rupees): **2. Civil Works-Other Packages**

Sl. No.	Description	Procurement Method	Estimated Cost (Rs.in Lakhs)
1			

3. Procurement of Goods:

SI No.	Description	Procurement Method	Estimated Cost(Rs.in Lakhs)
2			
3			

Date:

Signature of Project Director, SPMU

4. Consultancy Assignment(s):

Sl No.	Description	Procurement Method	Estimated Cost (Rs.)
1			

5. Implementation Timeline:

(a) Overall Phasing of Project Implementation:

Proposed Starting of implementation (MM/DD/YYYY): ___ / ___ / ___

Proposed Ending of implementation (MM/DD/YYYY): ___ / ___ / ___

Implementation Duration (months) (MM):

(b) Timeline phasing of implementation:

Sl. No.	Description	From (Month/Year)	To (Month/Year)	Status of Procurement Process
1	Civil Work – Main Package			
2	Civil Works –Other Work			
3	Procurement of Goods 1.Provision for Instrumentation 2. Provision for the inspection vehicles			

Date:

Signature of Project Director, SPMU

FORM-VII: ADDITIONAL INFORMATION

This section contains all reports such as, Emergency Action Plans, Dam Break Analysis, stability analyses, design drawings, geotechnical exploration logs, geophysical results, and other data that is pertinent and supports the PST work proposal.

1. Emergency Action Plan

(a) Emergency Action Plan: , if YES,

(b) Year of Study

(c) Agency Conducting Study

2. Dam Break Analysis

(a) Dam Break Analysis: if YES,

(b) Year of Study:

(c) Agency Conducting Study:

3. Geotechnical Investigation

(a) Year of Investigation:

(b) Agency Conducting Investigation:

Date:

Signature of Project Director, SPMU

4. Geophysical Investigation

(a) Area of Study:

(b) Year of Investigation:

(b) Agency Conducting Investigation:

[Redacted area]

5 Any Other Special Studies or Investigations

(a) Area of Study:

(b) Year of Study:

(c) Agency Conducting Study/Investigation:

[Redacted area]

DRAFT

Date:

Signature of Project Director, SPMU