Am/10067615.BR

File No.: _____

DEPARTMENT OF WATER AFFAIRS DE 149E

(July 1991)

FORM FOR THE DAM SAFETY INSPECTION REPORT OF A SMALL CATEGORY II DAM

Name of dam: _____

Departmental file reference for dam: _____

Note: (i) Where possible sections 1 to 8 should be completed prior to the dam safety inspection.

(ii) Survey instruments (at least a level and tape) should be taken along on the site inspection to check the longitudinal profile of the non-overspill crest, relative heights between NOC and spillway crest, and to check embankment slopes (where applicable).

(iii) Additional information or issues requiring more detailed description may be included on separate pages and attached to this form.

SECTION 1: AVAILABLE INFORMATION

List all plans and reports that are available on the dam and which have been studies for the dam safety inspection. Please enclose copies of plans with typical details. If no such plans exist, sketches must be made. A copy of a 1:50 000 map showing the location must also be supplied. Photographs taken during the inspection should also be enclosed and referred to in the report.

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SECTION 2: DESCRIPTION OF THE DAM

Wall type: _____ Wall height (maximum): _____

Storage capacity: _____ Completion date: _____

Crest length: _____ Crest width: _____

Contractor: _____ Designer: _____

Betterment works done after completion: _____

Problems which occurred previously: _____

_____

_____

_____

_____

SECTION 3: GEOLOGY OF DAM SITE

General details
(Rock types, quality, weathering, joint spacing, joint openings, joint filling, shear zones, etc.)

_____

_____

_____

_____

_____

_____

Geological conditions must be concisely summarised below and actual or potential problems such as sliding resistance, settlement, seepage, erodability, etc. mentioned.

Left flank: _____

_____

Right flank: _____

_____

River section: _____

_____

Spillway channel: _____

_____

Are the slopes around the dam basin stable? _____

SECTION 4: DESCRIPTION OF WALL MATERIAL

_____

_____

_____

_____

SECTION 5: CHECKING OF REGISTRATION INFORMATION

A computer printout of the registration information of the dam was issued with the instruction to inspect. Please check whether all information is correct and complete. If there are any changes please indicate them on the computer printout and send it back with the inspection report. Information corrected: Yes or No? _____

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ECTION 6: EVALUATION OF THE HAZARD POTENTIAL

Estimate of potential loss of life: _____

Estimate of potential economic loss: _____

Hazard potential rating as classified: _____

Do you agree with the classification? _____

If not, please apply for reclassification on the DW692E form.

SECTION 7: FLOOD ESTIMATES

Catchment area (km^2): _____

Methods used for flood estimates: _____

_____

Flood estimates 1:20 (m^3/s): _____
1:50 (m^3/s): _____
1:100 (m^3/s): _____
1:200 (m^3/s): _____

Regional maximum flood (m^3/s): _____

Probable maximum flood (m^3/s): _____

Recommended design flood (m^3/s): _____

Safety evaluation flood (m^3/s): _____

Motivation for choice of recommended design flood and safety evaluation flood (which guidelines were used) _____

_____

SECTION 8: EVALUATION OF SPILLWAY CAPACITY

Spillway type: _____

Spillway length: _____ Critical spillway width: _____

Height of lowest point on non-overflow crest above spillway (m): _____

Spillway capacity with no freeboard (m^3/s): _____

Will the incoming flood be significantly reduced by flood absorption? _____

Available freeboard during recommended design flood (m): _____

Will the dam fail if the non-overflow crest is overtopped? _____

_____

What erosion could be expected during the recommended design flood? _____

_____

And during the safety evaluation flood? _____

_____

Final evaluation of spillway capacity: _____

_____

_____

_____

_____

_____

SECTION 9: INSPECTION OF THE DAM

Date: _____ Water level in dam: _____

Did it rain recently? _____ Describe: _____

Persons present at inspection: _____

_____

_____

EARTH WALLS

CREST OF EARTH WALLS

Crest width (m) _____ Has the crest width changed since construction? _____

Is the crest still level or has settlement occurred? _____

Are there signs of erosion? _____ Describe: _____

_____

Are there signs of cracks? _____ Describe (use separate page, if necessary) _____

Is regular maintenance necessary on the crest? _____

Are there signs of holes (ants, rats, meercats, moles, crabs, etc.) Describe: _____

UPSTREAM FACE OF EARTH WALLS

Slope (vertical: horizontal): _____

Slope protection measures (if any): _____

_____

Are there signs of erosion? _____ Describe: _____

_____

Are there signs of cracks? _____ Describe: _____

_____

Are there signs of settlement? _____ Describe: _____

_____

DOWNSTREAM FACE OF EARTH WALLS

Slope (vertical: horizontal): _____

Slope protection measures (if any): _____

_____

Are there signs of erosion? _____ Describe: _____

_____

Are there signs of cracks? _____ Describe: _____

_____

Are there signs of settlement? _____ Describe: _____

_____

Are there signs of bulging/sliding? _____

Are there wet patches? _____ Describe: _____

_____

Are there signs of seepage/leaks? _____ Describe: _____

_____

Amount of leakage? _____

Is the leaking water clear or turbid? _____

Are there signs of holes (ants, rats, meercats, moles, crabs, etc.) _____ Describe: _____

VEGETATION ON EARTH WALL

Are there any trees or shrubs on the wall? _____

If so describe type, size, number and position: _____

_____

DRAINAGE SYSTEM IN EARTH WALL

Does a toe drain or internal drainage system exist? _____

Describe: _____

_____

Amount of leakage? _____

Is the water from the drains clear or turbid? _____

CONCRETE WALLS

Do cracks exist? _____ Describe on separate page, if necessary (position, size, length):

_____

_____

Is there leakage through the cracks? _____ Describe (flow rate: _____

_____

Is there leakage at the joints? _____ Describe: _____

_____

Is there settlement? _____ Describe: _____

Is there relative movement? _____ Describe: _____

_____

Describe condition of concrete: _____

_____

Upstream slope (horizontal: vertical): _____

Downstream slope (horizontal: vertical): _____

Describe pressure relief holes: _____

_____

DOWNSTREAM TOE AND FLANKS OF ANY DAM

Describe wet patches (position, size): _____

_____

Seepage/leaks (position, flow rate): _____

_____

Is the leakage water clear or turbid? _____

_____

Are there any trees or shrubs within 5 m of the wall? _____

Describe: _____

_____

FLOOD OUTLETS (OF ANY DAM)

Condition of structures in spillway channel (cills, retaining walls etc.) _____

_____

_____

_____

Is the stability of the damwall threatened by the spillway channel? _____

Is there loose material in the spillway channel? _____ Describe: _____

Is there any erosion in the spillway channel? _____ Describe: _____

Is there any erosion in the river? _____ Describe: _____

Are the spillway length and freeboard still as shown on the drawings? _____

OUTLET WORKS (OF ANY DAM)

Number of outlet pipes: _____ Diameter: _____ Type: _____

Condition of outlet pipe foundation: _____

_____

Is the control upstream or downstream? _____

Is there provision for an upstream emergency valve? _____

Are the valves used regularly? _____

Are the valves in working condition? _____

Are there leaks alongside the outlet pipe? _____

Any erosion downstream of the outlet works? _____

Rust protection? _____

Other observations: _____

_____

_____

_____

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SECTION 10: EVALUATION OF STABILITY OF DAMWALL

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SECTION 11: EVALUATION OF DRAINAGE SYSTEM

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SECTION 12: EVALUATION OF OWNERS PROGRAM FOR OPERATION AND MAINTENANCE

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_____

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SECTION 13: OTHER FINDINGS

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SECTION 14: RECOMMENDATIONS

It is suggested that the recommendation are repeated in the covering letter to the owner. The recommendations must be clearly numbered for future reference and a copy of the letter submitted to the Department with the report. Please indicate urgency of each recommendation below. Recommendations regarding maintenance work _____

_____

_____

_____

Recommendations regarding routine inspections and monitoring: _____

_____

_____

_____

Recommendations and motivation regarding further investigations: _____

_____

_____

_____

_____

_____

Recommendations and motivations regarding betterment works: _____

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Other recommendations: _____

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_____

NAME (APPROVED PROFESSIONAL ENGINEER): _____

SIGNATURE: _____ DATE: _____