

DAM SAFETY INSPECTION REPORT REQUIREMENTS AND GUIDELINES

Fill the form out and returned it with your written inspection report to meet the requirements of K.A.R. 5-40-90. A further description of these items should be included in the report. There are additional instructions below.

LICENSED PROFESSIONAL ENGINEER CONDUCTING INSPECTION

Name		
Business Name		
Business Address		
Phone Number	Work:	Cell:
Email Address		

DAM OWNER INFORMATION

Owner Name		
Owner Address		
Phone Number	Home:	Cell:
Email Address		

DAM INFORMATION

Water Structure Number		National Inventory Number	
Inspection Team Members			
Date of Inspection			
Current Hazard Classification	<input type="checkbox"/> High (Class C)	<input type="checkbox"/> Significant (Class B)	<input type="checkbox"/> Low (Class A)
Recommended Hazard Classification	<input type="checkbox"/> High (Class C)	<input type="checkbox"/> Significant (Class B)	<input type="checkbox"/> Low (Class A)
Size Class	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3 <input type="checkbox"/> 4
Ground Moisture Conditions	<input type="checkbox"/> Dry <input type="checkbox"/> Wet <input type="checkbox"/> Snowcover <input type="checkbox"/> Recent Rain Event <input type="checkbox"/> Other (us the report to further describe the condition)		
Temperature (°F):		Weather Condition:	

SPILLWAYS (If any of the spillways listed below are not present check "NA" and do not fill out the information for that spillway)

PRIMARY SPILLWAY	<input type="checkbox"/>	or NA	<input type="checkbox"/>
Description			
Reservoir Level	<input type="checkbox"/> Above or	<input type="checkbox"/> Below Inlet Elevation (inches or feet)	
Spillway Dimensions			
Barrel Diameter (inches)		Riser Dimensions(Inches or feet) or NA:	<input type="checkbox"/>
Discharge (gpm or cfs) or	<input type="checkbox"/> None		
Is there a trashrack?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	

SERVICE SPILLWAY	<input type="checkbox"/>	or NA	<input type="checkbox"/>
Description			
Reservoir Level	<input type="checkbox"/> Above or	<input type="checkbox"/> Below Inlet Elevation (inches or feet)	
Spillway Dimensions			
Weir Length (feet)			
Discharge (gpm or cfs) or	<input type="checkbox"/> None		

AUXILIARY SPILLWAY	<input type="checkbox"/>	or NA	<input type="checkbox"/>
Description			
Spillway Bottom Width (ft) :		Discharge (cfs) or	<input type="checkbox"/> None

EMBANKMENT DRAINS

Are there designed drains for the dam? <input type="checkbox"/> Yes <input type="checkbox"/> No			
Drains (describe)	Color/Turbidity (describe or check)	Outlet Located	Discharge (gpm)
#1	<input type="checkbox"/> Clear	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> None
#2	<input type="checkbox"/> Clear	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> None
#3	<input type="checkbox"/> Clear	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> None

DRAWDOWN VALVE

Does it have a valve? <input type="checkbox"/> Yes <input type="checkbox"/> No	Was the drawdown operated? <input type="checkbox"/> Yes <input type="checkbox"/> No
Date of Last Operation	<input type="checkbox"/> Unknown by owner
Discharge (gpm)	<input type="checkbox"/> None

SEEPAGE (describe within report)

Is there seepage present? <input type="checkbox"/> Yes <input type="checkbox"/> No	Discharge (gpm or cfs) or <input type="checkbox"/> NA
Color/Turbidity (describe)	
Location(s) (describe)	

SURVEY INFORMATION (If there are changes to documented conditions or items that should be monitored please describe in report)

Was a Survey Required? <input type="checkbox"/> Yes <input type="checkbox"/> No

EMERGENCY ACTION PLAN

Is there an EAP on file at DWR? <input type="checkbox"/> Yes <input type="checkbox"/> No	
Date of last update	Does it need updated? <input type="checkbox"/> Yes <input type="checkbox"/> No

APPENDIX

- Color Photographs (K.A. R. 5-40-90 (c)):** Color photographs documenting the condition of the dam appurtenances and embankment and any observed deficiencies in the appurtenances and embankment.
- Plan View Sketch of Photo Locations (K.A.R. 5-40-90 (d)):** A plan view sketch of the dam and the vicinity, showing the location where each photograph was taken and the direction in which the photograph was taken.
- Plan View Sketch of Location of Deficiencies (K.A.R. 5-40-90 (e)):** Sketch of the dam and appurtenances showing location of deficiencies.
- Hazard Location Map (K.A.R. 5-40-90 (k)):** A map drawn to a scale of 1:24,000 or larger showing the location of any hazards added, removed, or not previously shown downstream of the dam, in addition to those identified in previous reports, that would require a modification of the emergency action plan or might change the hazard classification of the dam if required.
- Safety Inspection Check List:** Attach a copy of the inspection checklist used to conduct the inspection.

INSTRUCTIONS:

Each dam safety inspection report required by K.S.A. 82a-303b, and amendments thereto, shall document the observations made during the inspection and the engineer's opinion of the condition of the dam. The report shall be in compliance with the requirements of regulation K.A.R. 5-40-90. Any relevant information to the safety of the dam including any items requested by the chief engineer before the inspection shall also be included. This form is not required by regulation, but is recommended by the Chief Engineer as a supplement to the report. The report outline can be used as a guideline when composing the report of your inspection.

1. Fill out the attached form and submit it with your dam safety inspection report.
2. The licensed professional engineer responsible for the inspection and report must seal and sign the report before submitting it.
3. The report of the inspection must be submitted into the DWR within 60 days of the inspection date.

Mail report to: Water Structures Program Manager, Kansas Department of Agriculture, Division of Water Resources, 1320 Research Park Drive, Manhattan, KS 66502

If you have any questions with regard to the report please contact 785-564-6654 or by email

KDA.waterstructures@ks.gov

RECOMMENDED SAFETY INSPECTION REPORT OUTLINE

Section 1 Executive Summary: This should be a brief summary of the full report describing the overall condition of the dam and the significant findings of the inspection.

Section 2 Dam Description and History: The major purpose is to describe the physical characteristics of the embankment and appurtenance works and to provide background information which may affect present or future maintenance, repairs, or modifications. This would include but not require date of permit, completion date or any known modifications.

Section 3 Summary of Previous Inspection: This section is not a requirement of K.A.R. 5-40-90. The DWR uses this section to describe the condition of the dam at the time of the most recent previous inspection. Usually, an itemized list and discussion of each area of the dam (such as back slope, top of dam, front slope, primary spillway, etc.) is provided. It is also a means of conveying any pertinent previous findings or observations which may relate to current conditions. Examples could include previous deficiencies, modifications, repairs, maintenance, etc.

Section 4 Current Inspection Findings: This section contains the majority of the required information from K.A.R. 5-40-90. A description of the physical condition of the dam and its appurtenances, a list of any deficiencies that were observed, and a plan view sketch of the dam and its appurtenances showing the location of those deficiencies must be attached. As in Section 3, the DWR usually includes an itemized list and discussion of the conditions of each area (upstream slope, downstream slope, dam crest, primary spillway inlet, condition of the primary spillway outlet/stilling basin and auxiliary/service spillway) of the dam including any deficiencies. Additionally, any change in the capacity of the reservoir or spillways, or the watershed.

Section 5 Survey Information: In this section add any additional information that needs to be provided to accompany the data entered on the form. Survey and other documenting data if the engineer observes any changes from previously documented conditions in the dam or its appurtenances that could jeopardize the integrity of the dam, including any changes in the profile or cross section of the dam, profile, or cross section of any open-channel spillway, and areas of settlement or erosion

Section 6 Discharge from Spillways and Drains: K.A.R. 5-40-90 (i) Any additional information that needs to be included that pertains to the discharge of the primary/service spillway, auxiliary spillway, or drains. A statement about whether seepage is present needs to be made. A description of the seepage (rate, color, turbidity) should be included along with a location of it on the deficiencies map.

Section 7 Monitoring Devices: K.A.R. 5-40-90 (q) This section describes any observations or readings from any instrumentation required by the permit, approved plans, specifications, or the chief engineer. If there are no monitoring devices a statement should be made saying such.

Section 8 Hazard Classification: This section pertains to K.A.R. 5-40-90 (j). A statement indicating whether the engineer agrees or disagrees with the hazard classification of the dam, including the reasons why the engineer agrees or disagrees with the classification needs to be made. This should include a list of the hazards and a map should be included showing the location of the hazards.

Section 9 Hydrology and Hydraulics Review: K.A.R. 5-40-90 (e) (n) (s) A statement needs to be made about the required design storm it must pass for the size class and hazard classification. It should indicate the necessary freeboard for the storm and the actual freeboard. This should represent its current condition. If changes have been made since the last floodrouting, a statement needs to be made.

Section 10 Emergency Action Plan (EAP): K.A.R. 5-40-90 (h) A summary of the engineer's review of the adequacy of the emergency action plan, including a review of any updates since the last inspection. This should include the type of emergency action plan on file or if there isn't one.

Section 11 Maintenance and Operation Plan: This section is not a requirement of K.A.R. 5-40-90. The DWR encourages all dam owners to compile some form of maintenance and operation plan in order to help keep the dam functioning as designed.

Section 12 Items Needing Immediate Attention: This section should discuss measures to be taken to correct deficiencies listed in any of the above sections of the report which meet the criteria outlined in K.A.R. 5-40-90 (e) (1-3) The deficiencies that shall be shown shall include those that meet any of the following conditions: Violate the permit or approved plans or any approved modifications of the permit or approved plans; threaten the structural integrity of the dam; or threaten the safety of people or property above or below the dam.

Section 13 Maintenance Recommendations: This section should discuss measures to be taken to correct deficiencies from any of the above sections of the report which do not necessarily meet the criteria outlined in K.A.R. 5-40-90 (e) (1-3) but which do need to be addressed in order to keep the dam functioning as designed and to keep the specific deficiency from getting worse.

Section 14 Conclusion: This section of the report is a more detailed summary of all of the above findings and recommendations. It is also often a discussion of the causes and connections of the deficiencies and how and why they need to be addressed. Additionally, any required information to be supplied to the DWR is also discussed.)

K.A.R. 5-40-90. Requirements for a dam safety inspection report. Each dam safety inspection report required by K.S.A. 82a-303b, and amendments thereto, shall document the observations made during the inspection and the engineer's opinion of the condition of the dam and shall include all of the following:

- (a) An executive summary briefly describing the overall condition of the dam as found during the inspection;
- (b) the date of the inspection and a list of the members of the inspection team;
- (c) color photographs documenting the condition of the dam appurtenances and embankment and any observed deficiencies in the appurtenances and embankment;
- (d) a plan view sketch of the dam and the vicinity, showing the location where each photograph was taken and the direction in which the photograph was taken;
- (e) a description of the physical condition of the dam and its appurtenances, a list of any deficiencies that were observed, and a plan view sketch of the dam and its appurtenances showing the location of those deficiencies. The deficiencies that shall be shown shall include those that meet any of the following conditions:
 - (1) Violate the permit or approved plans or any approved modifications of the permit or approved plans;
 - (2) threaten the structural integrity of the dam; or
 - (3) threaten the safety of people or property above or below the dam;
- (f) survey and other documenting data if the engineer observes any changes from previously documented conditions in the dam or its appurtenances that could jeopardize the integrity of the dam, including any changes in the profile or cross section of the dam, profile, or cross section of any open-channel spillway, and areas of settlement or erosion;
- (g) a description of the severity of each observed deficiency and the engineer's opinion about the urgency of remedying each deficiency;
- (h) a summary of the engineer's review of the adequacy of the emergency action plan, including a review of any updates since the last inspection;
- (i) the estimated rate and color of discharge from drain outlets and any seeps;
- (j) a statement indicating whether the engineer agrees or disagrees with the hazard classification of the dam, including the reasons why the engineer agrees or disagrees with that classification;
- (k) a map drawn to a scale of 1:24,000 or larger showing the location of any hazards added, removed, or not previously shown downstream of the dam, in addition to those identified in previous reports, that would require a modification of the emergency action plan or might change the hazard classification of the dam;
- (l) any significant changes in the capacity of the reservoir;
- (m) any significant changes in the capacity of any spillway;
- (n) a statement indicating whether there have been any significant changes in the watershed and an estimate of the impact of those changes on the design hydrology;
- (o) the name, mailing address, and telephone number of the engineer;
- (p) the name, mailing address, and telephone number of each current owner of the dam;
- (q) observations or readings from all instrumentation required by the permit, the approved plans, the approved specifications, or the chief engineer;
- (r)
 - (1) A description of the drawdown valve, if any; and
 - (2) specification of whether the drawdown valve was operated during the inspection and, if the valve could not be operated, an explanation of why it could not be operated; and
- (s) any other information relevant to the safety of the dam, including any items requested by the chief engineer before the inspection. (Authorized by K.S.A. 2006 Supp. 82a-303a; implementing K.S.A. 2006 Supp. 82a-303a and 82a-303b; effective May 18, 2007.)