United States
Department of
Agriculture

Soil
Conservation
Service

693 Federal Building
210 Walnut Street
Des Moines, IA 50309

November 9, 1987

NATIONAL ENGINEERING MANUAL
210-V - AMENDMENT IA26 - PARTS 506, 512, & 520

SUBJECT: DAM SAFETY

Purpose. This notice transmits pages IA506-5(3); IA512-11(1); and IA520-12c(9) through (12).

Effective Date. This amendment is effective upon receipt.

Explanation of Changes. This amendment adds the location of dam safety references, the Contracting Officer's Representative to the list of positions requiring an Inventory of Skills, and the need for a permit to open the drawdown gate on a permit-sized dam.

Filing Instructions.

Remove Pages	Insert Pages
IA506-5(3)	IA506-5(3)
IA512-11(1)	IA512-11(1)
IA520-12c(9) through (12)	IA520-12c(9) through (12)

This amendment should be noted on the Iowa Supplement Tabulation Sheet.

J. Michael Nethery
State Conservationist

Attachment

A
F
EN2
RC&D
MNTC - 5
SCE - Midwest States

§IA520.23 Classification

(c) (1) The Water Resources Planning Staff will be responsible for developing the minimum documentation for hazard classification on all new project structural measures. When the location and design is not completed in this stage, the hazard classification will be estimated.

(2) The Field Engineer will be responsible for developing the minimum documentation during planning for all non-project structures.

(3) The documentation for hazard classification will be approved by a person having design approval authority.

(4) The minimum documentation shall include all items shown on Exhibit No. 3 in MTSC Tech Note No. 43 (July 1981). The minimum documentation shall also include a description of the potential impact area (§520.28 & §IA520.28) for all inventory size dams (§520.21(f)).

(5) The minimum documentation for hazard classification on all dams, shall be completed and approved prior to doing any detailed design.

(6) The Field Engineer shall verify immediately prior to construction that the hazard classification is correct.

(7) When a constructed dam is inspected or the classification is reviewed and the inspector believes the dam should be reclassified, the inspector is to submit his findings on classification to the State Conservation Engineer. If the the dam is reclassified, it shall be documented in the case file or the operation and maintenance file as appropriate. The reclassification shall also be recorded in the SCS Dam Inventory (See IA520.21(g)) by the person responsible for reclassification. The District Conservationist is to notify the owner or sponsor and the Iowa Department of Natural Resources (IDNR) of the SCS evaluated classification change.

§IA520.24 Special Considerations

(c) State laws and regulations require The Iowa Department of Natural Resources (IDNR) to issue permits for dams which the Soil Conservation Service (SCS) designs and/or assists in construction. Dams which require permits include those described in Iowa Administrative Code 900-50, 51, 52, 70, 71, 72, & 73. The permits if required by the code include::

(1) Permit to Store Water for Beneficial Use.

(2) Permit to Construct in or on any Floodway or Flood Plain.

(3) Approval for Raising or Lowering Impoundment Levels.

IA520.24(d)

(d) The landowner or sponsor is responsible for obtaining all necessary permits. The application for the permits shall include the complete engineering report, plans and specifications and other data deemed necessary by the IDNR. All permits and approvals shall be obtained by the landowner or sponsor before the SCS will provide any construction or contracting assistance.

(e) A separate approval from the IDNR is required to temporarily or permanently raise or lower the level of water impounded by a permit-sized dam unless the raising and lowering has been authorized as part of an approved operating plan. This approval can be secured by an exchange of correspondence. The following additional information shall be included in the letter of request:

(1) The date raising or lowering will be initiated, the level to which the impoundment will be raised or lowered, and, if temporary, the anticipated date when the normal water level will be restored.

(2) Evidence that during raising of the water level the required minimum downstream release rate will be maintained.

(3) Evidence that the discharge rate during lowering will not exceed the capacity of the stream channel below the dam.

(f) The District Conservationist will be responsible for submitting complete engineering reports, plans and specifications to the landowner or sponsor on all dams. A Soil Conservation Service Engineer with adequate job approval authority shall develop or review and approve all information submitted with the permit.

(g) When construction is completed on each significant dam, the Area Conservationist will transmit to the State Conservationist a completed copy of the SCS Dam Inventory (Form IA-ENG-40). The State Conservation Engineer will send the SCS Dam Inventory to IDNR, acquire the Dam-ID number from IDNR and enter the structure into the Iowa SCS Dam Inventory (See NEM IA520.21(g)).

(h) Major Dams, as described in the Iowa Administrative Code 900-70, in addition to the above shall have the following:

(1) A detailed plan for inspection of the dam and its appurtenances during construction, upon completion and for subsequent maintenance inspections shall be developed by a Soil Conservation Service engineer with adequate job approval authority

(2) The engineer shall prepare and certify as-built plans after completion and a report detailing any unusual circumstances encountered during construction and submit them to IDNR.

§IA520.28 Potential impact area -- class (a) dams of inventory size and all class (b) dams.

(b) Requirements.

(1) (i) Use breach routing procedures for all class (b) dams.

(ii) For class (a) dams, the individual exercising design approval authority will determine the need for a breach routing. A conservative estimate may be made in place of breach routing. A conservative estimate of the potential impacted area could be as follows: The area flooded from the dam downstream to a major receiving stream. Depth of the flow wave is to be two-thirds of the dam height at the upper end and decreasing uniformly to a depth which covers the flood plain at the lower end.

(2) (i) A map such as a USGS topographic map will be used to show the impact area determined by breach routing.

(ii) When a conservative estimate is made to determine the impact area, a written narrative (Exhibit A) and/or a map as in (2)(i) will be used to describe the impact area.

(iii) The topographic map and/or a written narrative along with the documentation of the method or thought process used to develop the potential impact area shall be included in all design reports.

(iv) The engineer with design approval will prepare a narrative and/or a map indicating precautions to further development. This information will be forwarded to (1) the owner or sponsor, (2) the IDNR, and (3) the Soil Conservation District by the District Conservationist for Job Class I through IV and by the State Conservationist for Job Class V and above.

Exhibit "A"

693 Federal Building
210 Walnut Street
Des Moines, IA 50309

January 16, 1987

Will E. Flood
1562 High Street
Brooks, Iowa 51632

Dear Mr. Flood:

The USDA, Soil Conservation Service (SCS) has designed a dam for you in the SW 1/4 NW 1/4 of Sec. 16 T71N, R34W on a tributary of the East Nodaway River. Due to the dam's overall height from the top of the dam to the downstream toe (34 ft.) and storage capacity below the emergency spillway (96 acre-feet), it falls within the size category in which potential downstream damage should be considered in the event the dam should fail. Under the Dam Safety Act we are required to analyze failure potential on all such dams. This does not reflect on the adequacy of the design or construction.

An evaluation was made of the area below your dam that could be flooded should a sudden failure occur. This evaluation indicated that the flooded area affected would be fences, valley cropland, and pasture. The estimated width of the flooded area immediately downstream from the dam would be 230 feet. The flood wave is estimated to be carried within the ditch bank about 6000 feet downstream. A house approximately 8200 feet downstream appears to not be threatened as it is 22 feet above the bottom of a ditch which has a 10 foot bank height. The attached map indicates the area subject to damage.

Therefore, it was assigned a class (a) or low hazard rating. The design of the dam and emergency spillway was based on this classification. If future development should occur immediately downstream of the dam or should another dam be built upstream, the hazard classification could change abruptly. You need to be aware of this, so that you might alert future developers to the hazard that could occur. This is your responsibility.

SCS stands ready to help you or your private engineer evaluate the potential impact area that sudden failure of your dam could have on a downstream development, should any occur.

A copy of this letter and attached map is being sent to the Iowa Department of Natural Resources, which is the state agency responsible for dam safety, and to the Adams County Soil Conservation District.

If you have any questions on this matter, please do not hesitate to contact the Adams County Soil Conservation District.

Sincerely,

J. Michael Nethery
State Conservationist