

DEPARTMENT OF HOMELAND SECURITY  
Federal Emergency Management Agency  
**ALLUVIAL FAN FLOODING FORM (FORM 6)**

OMB Control Number: 1660-0016  
Expiration: 1/31/2024

**PAPERWORK BURDEN DISCLOSURE NOTICE**

Public reporting burden for this form is estimated to average 1 hour per response. The burden estimate includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing, reviewing, and submitting the form. You are not required to respond to this collection of information unless it displays a valid OMB control number. Send comments regarding the accuracy of the burden estimate and any suggestions for reducing this burden to: Information Collections Management, Department of Homeland Security, Federal Emergency Management Agency, 500 C Street, SW, Washington, DC 20472, Paperwork Reduction Project (1660-0016). Submission of the form is required to obtain or retain benefits under the National Flood Insurance Program. **Please do not send your completed survey to the above address.**

**PRIVACY ACT STATEMENT**

**AUTHORITY:** The National Flood Insurance Act of 1968, Public Law 90-448, as amended by the Flood Disaster Protection Act of 1973, Public Law 93-234.

**PRINCIPAL PURPOSE(S):** This information is being collected for the purpose of determining an applicant's eligibility to request changes to National Flood Insurance Program (NFIP) Flood Insurance Rate Maps (FIRM).

**ROUTINE USE(S):** The information on this form may be disclosed as generally permitted under 5 U.S.C § 552a(b) of the Privacy Act of 1974, as amended. This includes using this information as necessary and authorized by the routine uses published in DHS/FEMA/NFIP/LOMA-1 National Flood Insurance Program (NFIP); Letter of Map Amendment (LOMA) February 15, 2006, 71 FR 7990.

**DISCLOSURE:** The disclosure of information on this form is voluntary; however, failure to provide the information requested may delay or prevent FEMA from processing a determination regarding a requested change to a (NFIP) Flood Insurance Rate Maps (FIRM).

Flooding Source: \_\_\_\_\_

**Note:** Fill out one form for each flooding source studied

**A. THREE STAGE ANALYSIS (Based on DHS-FEMA Guidance document)**

**1. Stage 1 Analysis**

- a. The landform is composed of alluvium derived primarily from (check one)  Fluvial  Debris flow  Combination deposits
- b. Source(s) of data used to determine composition, morphology, and location of the landform: \_\_\_\_\_
- c. Is there an NRCS soils survey and soil survey map available?  Yes  No  
If Yes, please include a copy of the map and any pertinent sections of the soil survey.
- d. Is there geologic mapping available?  Yes  No  
If Yes, please include a copy of the map and any pertinent geologic map unit descriptions.
- e. Is there historic aerial photography available?  Yes  No  
If Yes, please include any copies of the site-specific photography.

**2. Stage 2 Analysis**

- a. The alluvial fan landform exhibits  Active  Inactive  A combination of active and inactive alluvial fan flooding
- b. Approximate age of inactive fan surfaces (thousand of years): \_\_\_\_\_ yrs. Source of age estimate: \_\_\_\_\_
- c. Is there an opportunity for avulsions that could lead to channelized or sheet flooding across the older fan surfaces?  
 Yes  No  
Basis: \_\_\_\_\_ (  Hydraulic modeling  Geographic analysis  Other (describe) \_\_\_\_\_
- d. Is there geomorphic evidence of past avulsions during Holocene epoch?  Yes  No
- e. Approximate age of past avulsions: \_\_\_\_\_ yrs. Source of avulsion age estimate: \_\_\_\_\_
- f. The active portion of the alluvial fan landform exhibits the following types of flooding (check one):
  - Flooding along stable alluvial channels
  - Sheet Flooding
  - Debris Flow
  - Unstable flow path flooding

**A. THREE STAGE ANALYSIS (Based on DHS-FEMA Guidance document) (continued)**

g. The active portion of the alluvial fan landform exhibits the following types of flood processes (check one):

- Recently active sediment deposition
- Recently active channel or floodplain erosion
- Recent channel avulsions
- High velocity flood flows
- Shallow sheet flooding

h. Methods used to support Stage 2 Analysis (check all that apply):

- Geomorphic analysis
- Field studies
- Historical evidence
- Hydraulic modeling

**3. Stage 3 Analysis**

The boundaries of the 1%-annual-chance floodplain have been determined using (check all that apply):

- Risk-Based Analysis
- FEMA FAN Program (if discharge at the apex is different than that given in the effective FIS, then attach MT-2, Form 2 along with a plot of the flood frequency curve on log-normal probability paper and include the drainage area above the hydrographic apex, and the mean, standard deviation, and skew coefficient of the Pearson Type III frequency curve)

List basis for avulsion coefficient used: \_\_\_\_\_

FAN used in  Single  Multiple channel mode

- Sheet Flooding Methods
- Hydraulic Analytical Methods

List models & versions used: \_\_\_\_\_

- Geomorphic Data, Post-Flood Hazard Verification, and Historical Information
- Composite Methods (indicate which methods by checking above)

The active alluvial fan area has the following characteristics:

- Highly active
- Conical shape
- Unstable flow paths
- Entrench stable channel networks
- Constructed channels
- Debris flow flooding
- Undulating terrain
- Urbanization (homes, roads, embankments, levees, railroads, canals, etc. that would alter natural flow conditions)

**Flooding sources evaluated:**

- Flow from watershed above hydrographic apex  
Method: \_\_\_\_\_
- Flow from rainfall on fan surface  
Method: \_\_\_\_\_
- Flow from tributaries joining active fan area below hydrographic apex  
Method: \_\_\_\_\_

**B. STRUCTURAL FLOOD CONTROL MEASURES**

1. The following structural flood control measures are proposed or built (check all that apply):  
 Channelization    Levee/Floodwall    Dam    Sedimentation Basin    Other \_\_\_\_\_
2. Do the constructed or proposed structural measures affect flood hazards (including velocity, scour, and sediment deposition) on other areas of the fan?:       Yes    No
3. Attach completed Form 3 (Riverine Structures Form) for each structure.
4. Sediment Transport Considerations:  
Was sediment transport considered?    Yes    No  
  
If Yes, then fill out Form 3, Section F (Sediment Transport). If No, then attach your explanation for why sediment transport was not considered.
5. Please attach a copy of the formal Operations and Maintenance Plan.

**C. MAPPING REQUIREMENTS**

Attach a certified topographic work map showing the following:

- The boundaries of the alluvial fan landform including: toe, topographic and hydrologic apexes, and lateral boundaries
- The delineation of the active and inactive portions of the alluvial fan landform as determined by the Stage 2 analysis
- The revised 1%-annual-chance floodplain boundaries, as determined by the Stage 3 Analysis, that tie into the effective floodplain boundaries. Indicate where each delineation methodology used was applied if more than one methodology was used
- The correct alignment of all structural features
- The map scale and a north arrow