

# **Attachment 1**

## **Delineating 5<sup>th</sup> and 6<sup>th</sup> Level Watershed**

### **Mapping Specifications**

#### Step 1.

USGS, EROS Data Center, Sioux Fall, South Dakota, will provide a vector data set using the National Elevation Data Set (NED) and electronically delineating watershed to approximately 5000 acres in size. The NED was derived from the 1:24,000 Digital Elevation Models (DEMs). This data will be provided to the State of Wyoming June 1, 1999, in an ARCINFO format.

#### Step 2.

The preliminary vector data will be given to the Spatial Data and Visualization Center (SDVC). The SDVC will perform an edit process on the vector data. The data will be printed out at the 1:100,000 scale (in 5,000 acre units) so that the boundaries of the 5<sup>th</sup> and 6<sup>th</sup> level watershed can be hand delineated on the maps and assigned HUC identification numbers.

BLM will provide 1:100,000 Status maps to check printed maps.

#### HUC Delineation:

1. Aggregate 5000 acre watersheds into 5<sup>th</sup> and 6<sup>th</sup> level watersheds based on a size range. Fifth level watersheds should be approximately 50,000 -100,000 acres in size. Sixth level watersheds should be approximately 10,000 - 50,000 acres in size. The average size should trend toward the higher side of these ranges.
2. When developing the pour point of the watersheds the following criteria should be followed:
  - a. 1<sup>st</sup> priority should be “natural” watersheds-those watersheds that discharge at a single point and all area above that point contributes to drainage discharge.
  - b. 2<sup>nd</sup> priority should be a division of a watershed, if too large to meet size restrictions, into an upper and a lower division. The lower boundary of the upper watershed should be at a reservoir, or lake outlet or confluence of a major tributary.
  - c. 3<sup>rd</sup> priority would be at a gaging station-use current USGS annual report for location of active gages.
3. For non-contributing areas (see NRCS National Instruction No. 170-304, page 12) delineate a separate watershed if equal to or greater than 5000 acres in

size.

4. Composite watersheds (NRCS- related contributing watersheds- National Instruction No 170-304, page 12).

5. Coding:

Assign a 2 digit numerical code to each 5<sup>th</sup> level watershed by appending two digits to the 4<sup>th</sup> level code assigned by the USGS. Begin numbering starting in the headwaters of the larger watershed within which the 5<sup>th</sup> level watershed are nested (4<sup>th</sup> level) and work downstream.

Use same process for 6<sup>th</sup> level coding.

**PRODUCT :**

PRELIMINARY DRAFT paper maps or maps with Mylar overlays at the 1:100,000 scale delineating 5<sup>th</sup> and 6<sup>th</sup> level watershed boundaries, nested within the USGS 4<sup>th</sup> level hydrologic unit polygon as much as possible.

Step 3.

Maps will be reviewed by the Technical Committee for reasonableness and edit areas where spurious information is evident.

Step 4.

Send maps to Field Offices of various agencies and organizations. State will be divided into 5 geographic areas. Two to three weeks allowed for comments. Various members of the Technical Committee will contact recipients within assigned area.

Comments will be considered and Technical Committee will affect changes as needed and get back with SVDC. Corrected maps will be given to entity that will do the digitizing.

Step 5.

Digitizing Process-

1. Obtain Necessary Data.

a. Copy of DRG's for 7.5-minute quads within HUC (Download from the State Office of GIS-WSDC, OGIS).

b. Copy of vectorized boundaries (from USGS-EDC via UW SDVC).

c. Paper maps of 1:100,000 quads (from Step 4 above).

2. Digitize boundaries on 7.5-minute quadrangles.
  - a. Use the Working copy of vector data layered on the 1:24,000 DRGs.
  - b. Use SETUP AML\* program to standardize editing environment.
  - c. Use hydrographic judgement to follow drainage divides, guided by the preliminary vectorized boundaries and preliminary 1:100,000 maps from Step 4.
3. Produce checkplots for 7.5-minute quadrangles.
  - a. Use CHECKPLOT AML\* program.
  - b. Plot out map, compare with topo quad.
  - c. When correct, copy data into vector data base.
4. Add attributes, check edge-matching, and perform QC checks for each HUC.
  - a. Use TAGHU AML\* program.
  - b. Use QCHCU AML\* program.

**PRODUCT:**

Preliminary plots of 5<sup>th</sup> and 6<sup>th</sup> level boundaries maps at 1:24,000 scale.

5. Review of Preliminary maps.
  - a. Maps will be reviewed by Technical Committee.
  - b. Technical Committee will affect changes.
  - c. Interactive editing (SETUP2 AML\* program) of vector file.
6. Send corrected data file to file manager at the State server.
7. Prepare metadata for 6<sup>th</sup> level delineations.

Step 6. Final review of data set for the 6<sup>th</sup> level hydrologic boundary delineations for State.

1. NRCS will coordinate with surrounding States for edge matching.
2. Review requests to those agencies and groups which reviewed earlier 1:100,000 preliminary maps; comments due back within 4-6 weeks.
3. Technical Committee approve final data set for release to be placed on the State Server.

**PRODUCT:**

Final data set on State repository.

\*-USGS ARCINFO computer programs (macros).