Module 115 - Hydrographs Appendix A

Video Narrative

This appendix includes the complete script of the video presentation used in conjunction with the Study Guide text.

Streamflow Script

This module provides a basic introduction to streamflow as it pertains to the Natural Resources Conservation Service.

Upon completion of this module, you will be able to:

- Identify Natural Resources Conservation Service needs for streamflow data.
- List the various sources where the NRCS can obtain streamflow data.
- Describe streamflow variability.
- Distinguish between riparian and appropriation water rights, and, last,
- Identify the state agencies responsible for water laws.

Now, let's discuss why the NRCS needs streamflow data.

The National Water and Climate Center in Portland, Oregon uses streamflow data in many of its forecasting procedures.

Water rights for irrigation and municipal use are heavily dependent on streamflow data.

The design and operation of many irrigation systems in the western states are dependent on knowing how much water is flowing in a particular stream.

Natural Resources Conservation Service engineers need to have streamflow data when designing rock riprap and stream channel improvement jobs.

In review, there are three general needs for streamflow data in the NRCS:

- water supply forecasting by the National Water and Climate Center in Portland, Oregon
- irrigation design scheduling and operation in the western states

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- water resource project planning and design.

The next topic for discussion is Sources of Streamflow Data.

Sources of streamflow data include the U.S. Geological Survey, U.S. Army Corps of Engineers, USDA's Forest Service and Agricultural Research Service, the Department of Interior's Bureau of Reclamation, and private companies.

At this time, press "Pause" or "Stop" on your tape player and turn to Activity 1 in the Study Guide. You will be asked to review the topics "Needs for Streamflow Data" and "Sources of Streamflow Data" and to complete the activity. When you have finished Activity 1, continue with the audiovisual presentation.

The next topic is streamflow variability. Streamflow varies from year to year and from season to season because of the amount of precipitation received in the upper watershed.

Storm patterns and types of precipitation can cause a variation in the daily rate of streamflow throughout the year.

In many of the streams in the northern states, snowmelt makes up a major portion of the annual flow.

Streamflow will be the lowest in the late summer and early fall months and will gradually reach a peak flow in the early spring when snowmelt is at a maximum.

Streamflow in the southern part of the United States is affected more by annual rains.

Finally, streamflow variations below a large irrigation reservoir or power dam are manmade and based upon the need for irrigation water downstream or power company requirements to meet customer needs.

In review, streamflow variability is generally caused by:

- the amount of precipitation
- the type of precipitation; that is rainfall, snowfall
- man-made regulation.

Water rights, our next topic, are principally of two types: riparian and appropriation.

Riparian water rights apply only to land adjoining a stream, cannot be lost by non-use, and imply

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an equal sharing by all land users along the stream.

Lands under appropriated water rights do not need to adjoin a stream, may be lost by nonuse, and vary from user to user based on a first come first served basis and plant need interpretation.

The last topic to be covered in this module is the identification of common state agencies responsible for water rights.

There is no one state agency responsible for water rights. Rather, there are almost as many different agency names as there are states. In fact, some states do not have any agency assigned water responsibility. In a few cases, state engineers have the responsibility for water rights.
At this time, press "Pause" or "Stop" on your tape player and complete Activity 2 in the Study Guide. You will have a brief reading assignment before you complete each activity. When you have completed both activities, continue with the audiovisual presentation.

In summary of this module, streamflow data is needed for water forecasting, irrigation design and operation in western states, and water resource project planning and design.

Sources of streamflow data include the U.S. Geological Survey, U.S. Army Corps of Engineers, USDA's Forest Service and Agricultural Research Service, the Department of Interior's Bureau of Reclamation, and private companies.

The general causes of streamflow variability are amounts of precipitation and types of precipitation, such as annual rains, snowmelt and man-made regulation.

There are two major types of water rights-riparian and appropriation. Riparian rights apply only to lands adjoining a stream, appropriation rights do not. Riparian rights are maintained; appropriation rights are lost by nonuse.

Riparian rights allow everyone along a stream to share equally. Appropriation rights use a "first come first served basis" philosophy. Appropriated water rights do not need to adjoin a stream.

The only way to determine which state agency is responsible for water rights in your state is to ask. There is no one definite regulatory agency for each state. In fact, some states do not have water rights regulation at all.

This concludes the Streamflow Module. If you have questions your Study Guide does not answer, ask your supervisor for help.

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