

1. Title / Content Area:	Western Water and Power								
2. Historic Site:	Shoshone Hydroelectric Plant								
3. Episode:	<a href="#">Western Water and Power</a>								
4. Developed by:	Jennifer Congedo, Adams 12 School District Michelle Pearson, Adams 12 School District								
5. Grade Level and Standards:	<p><i>Grade Level:</i> 6<sup>th</sup> - HS</p> <p>Content in this Document Based Question ( DBQ ) link to Prepared Graduate Competencies in the Colorado Academic Standards  <i>Prepared Graduate Competencies:</i>  <i>Understand the nature of historical knowledge as a process of inquiry that examines and analyzes how history is viewed, constructed, and interpreted.</i></p> <p><i>Colorado Standards:</i>          6th: History Standard 1          HS: History Standard 1</p> <p><i>C3 Standards in Social Studies:</i></p> <table border="0"> <tr> <td><i>D2.His.1.6-8</i></td><td><i>D3.1.6-8.</i></td></tr> <tr> <td><i>D2.His.2.6-8</i></td><td><i>D3.3.6-8</i></td></tr> <tr> <td><i>D2.His.3.6-8</i></td><td><i>D2.His.3.9-12.</i></td></tr> <tr> <td><i>D2.His.2.9-12.</i></td><td><i>D2.His.1.9-12.</i></td></tr> </table> <p>Middle School Science:          MS-ESS 3-5: Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.</p>	<i>D2.His.1.6-8</i>	<i>D3.1.6-8.</i>	<i>D2.His.2.6-8</i>	<i>D3.3.6-8</i>	<i>D2.His.3.6-8</i>	<i>D2.His.3.9-12.</i>	<i>D2.His.2.9-12.</i>	<i>D2.His.1.9-12.</i>
<i>D2.His.1.6-8</i>	<i>D3.1.6-8.</i>								
<i>D2.His.2.6-8</i>	<i>D3.3.6-8</i>								
<i>D2.His.3.6-8</i>	<i>D2.His.3.9-12.</i>								
<i>D2.His.2.9-12.</i>	<i>D2.His.1.9-12.</i>								
6. Assessment Question:	Considering the quote by John Wesley Powell “The future of the American West will be decided by acre-feet of water,” how do historic structures like the Shoshone Hydroelectric Plant and the Grand Valley Project affect water use on both sides of								



	the Continental Divide while supporting all who live inside of Colorado's borders?	
7. Contextual Paragraph	<p>Water is a critical need for survival and with the wide variety of landscapes in Colorado in which to live, obtaining water can either be a simple process, or one that takes substantially more effort. Add in factors such as changing rainfall and snowpack levels across the state, and places once abundant with water now struggle to obtain what they need especially with changes in our climate.</p> <p>The geographic features of Colorado play a role in where precipitation falls in abundance and where it doesn't. Colorado's climate is governed by five major factors (Latitude, continental position, topography, elevation, and winter storm track position) which affect the precipitation in the state. This causes challenges for some areas of the state with a constant need for more water, and other areas in the state are fine with the precipitation they receive. The Shoshone Hydroelectric Plant holds water rights which predate other rights on the river allowing the water flow east and west to be controlled at the turn of a switch.</p> <p>Additionally, power has been an essential need for settlers particularly since the Industrial Revolution. The need for power can be particularly critical in remote locations and may be more difficult to procure without innovative ideas and solutions that help people produce it in urban, suburban, and rural areas. The Shoshone Hydroelectric Plant was one such power solution in western Colorado when it was constructed in the early 1900's. The construction of the plant allowed for power to be created and delivered to both the eastern and western slopes of Colorado as early as 1906.</p> <p>The Grand Valley Project plays a role in water use in Colorado as well. The Grand Valley Project and Grand Valley Diversion Dam play an important role in the history of Colorado water use as well as the development of the Bureau of Reclamation. The ditches and dam provide water for the otherwise dry and desert counties below the dam on the Western Slope.</p>	
8. Connection to Historic Preservation	The Shoshone Hydroelectric Complex is significant for being one of the earliest hydroelectric plants on the Colorado River. The complex is one of the largest in the Rocky Mountains which depends on the flow of the river for a source of power rather than water which is stored in a reservoir. It is also significant for the	

engineering that was needed to construct the plant in the narrow Glenwood Canyon in the early part of the 20th century. It is deemed eligible for the Colorado State Register of Historic Places and the National Register of Historic Places. A HAER (Historic American Engineering Record) documentation of the Shoshone-Denver Transmission Line which is associated with the Shoshone Hydroelectric Plant was completed in 1983 and updated in 2014 which gives us a photographic record of this important structure and engineering marvel in Colorado.

The Grand Valley Diversion Dam is significant in engineering design because of the German interior dam design using four roller gates to control the flow of water. Additionally it is architecturally significant not only because of the beauty of the setting, but the architecture used in the design which is still notable over 100 years later. Completed in 1916, it was added to the National Register of Historic Places in 1991.

## Document Based Question (DBQ)

### Document Set

#### Colorado Encyclopedia

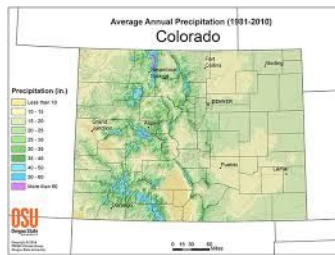


<https://coloradoencyclopedia.org/article/water-colorado>

#### GUIDING QUESTIONS:

1. How does Colorado's diverse geography affect the amount of precipitation the western slope receives versus the amount of precipitation the eastern slope receives?
2. Describe the discrepancy between water supply and populations of the western and eastern slopes. What does this discrepancy cause?
3. Why does our dependence on snowpack and water become tenuous with climate change?

#### Colorado State University: Colorado Water Knowledge



<https://waterknowledge.colostate.edu/climate/>

#### GUIDING QUESTION:

1. Colorado's Climate is governed by the combination of 5 major factors. What are they?
2. Look at the Precipitation in Colorado map. What does the map represent?
3. What is the average precipitation the western slope, east of Grand Junction, received during this time period? What about the eastern slope, west of Denver?
4. Explain how topography plays a role in precipitation patterns?
5. Explain how the continental position of Colorado affects our climate?
6. Click on the climate change tab. Explain 3 potential impacts to Colorado's water resources as our climate changes.

Shoshone Power Plant:  
HAER Survey CO05

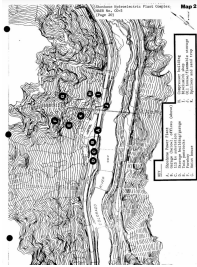


<https://www.loc.gov/resource/hhh.co0088.photos/?sp=4>

GUIDING QUESTIONS:

1. Analyze the image. What materials are used to construct this plant?
2. Examine the bibliographic information for the Library of Congress HAER record. Explain why those subject headings could be used in reference to the Shoshone Hydroelectric Plant.

Shoshone Power Plant:  
HAER Survey CO05



<https://www.documentcloud.org/documents/4495917-Shoshone-History-From-State-Highway-Dept.html#document/p1/a427734>

GUIDING QUESTIONS:

1. Examine the map and the descriptions of the buildings in this complex. Based on the topography of the map, why was this site considered to be an engineering marvel of the time?
2. Why do you suppose the buildings were spread out instead of clustered closer together in the complex?
3. How does the complexity of the design of the powerplant make this site important in the engineering world?

Colorado Experience: Western Water and Power



<https://www.youtube.com/watch?v=1hIDRtgV62>

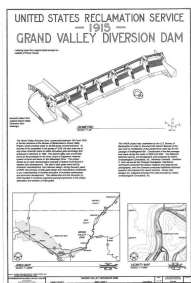
Y

The Powerhouse: minute 46:06-48:50

GUIDING QUESTIONS:

1. Where is the Shoshone Hydropower Plant located?
2. The Shoshone Hydropower Plant was initially constructed as a run of the river power plant. What does that mean?
3. What year did the Shoshone Hydropower Plant receive its water rights? Why is that significant?
4. The hydroelectric power plant is over 100 years old. Why is its age concerning?


Grand Valley Project HAER Drawings




<https://www.loc.gov/resource/hhh.co0920.sheets?st=gallery>

GUIDING QUESTIONS:

1. Examine the HAER drawings of the dam. What features are present?
2. Examine the sheets which describe the engineering design of the dam. What components are special about this design?
3. Why is it important to document a dam such as this?

Grand Valley Project	<p>GUIDING QUESTIONS:</p> <ol style="list-style-type: none"> <li>1. Why was the Grand Valley Project established?</li> <li>2. Examine page 3-4 of the Grand Valley document. Create a short timeline showing the following elements: <ol style="list-style-type: none"> <li>a. Ute prehistoric establishment</li> <li>b. Removal of the Ute tribe</li> <li>c. Settlement</li> <li>d. Removal of settlers</li> <li>e. Construction of irrigation ditches</li> <li>f. Construction of the dam</li> </ol> </li> </ol>
	
<a href="https://www.usbr.gov/projects/pdf.php?id=122">https://www.usbr.gov/projects/pdf.php?id=122</a>	

John Wesley Powell	<p>GUIDING QUESTIONS:</p> <ol style="list-style-type: none"> <li>1. Who was John Wesley Powell?</li> <li>2. What is important about the term “acre feet”?</li> <li>3. What were Powell’s beliefs about the establishment of the west and the need for water?</li> <li>4. What famous quote is attributed to Powell in regards to the future of the American West?</li> </ol>
	
<a href="#">Colorado Experience Episode</a> : 7:19 - 9:00	

### Assessment Question

Considering the quote by John Wesley Powell “The future of the American west will be decided by acre-feet of water,” how do historic structures like the Shoshone Hydroelectric Plant and the Grand Valley Project affect water use on both sides of the Continental Divide while supporting all who live inside of Colorado’s borders.

Response



