CASE STUDY #4 - Newark Valley, NV

Newark Valley lies within the Basin and Range Physiographic Province in northeastern Nevada. Shown above is a portion of the Nevada road map for eastern Eureka and western White Pine counties. Newark Lake covers the floor of the Valley. The closest population center is the town of Eureka with a population of about 700 people.

Shown above is a photo looking south into Newark Valley. Diamond Peak is the prominent feature at the top of the image. Notice the flat-lying area covered with white soil in the upper left of the photo.
Shown above is Newark Lake. While water is visible in the foreground of the image, Newark Lake is dry most of the year. This type of dry desert lakebed is referred to by various names including: alkali flat, playa, and salina. In the United States, the most famous of these features is probably Bonneville Salt Flats, next door in the State of Utah. Bonneville Salt Flats is used as a proving ground for land vehicles. The flat, hard surface is ideal for determining the top speed of cars, trucks, motorcycles, and other experimental vehicles.

On the following pages is a set of "hypothetical" exercises based in the Newark Valley. Place annotation on the topographic map as requested and answer the questions.
1. Draw a north arrow on the map.

2. What are the UTM coordinates for the southwest corner of the map? ________mEast
________mNorth

3. Locate a "square" section and determine the scale for the map. 1:????????
4. The contour interval for this map is 40 feet. What is the lowest elevation in this portion of the Newark Valley?

5. Is there any evidence that drainage out of the Newark Valley is poor? If so, what?

6. Locate Newark Lake on the map. Notice the notation "Alkali Flat" below the name of the Lake. What is an "alkali flat"? Do you think there are any fish in this lake?

7. Locate Cold Creek Ranch and Warm Springs Ranch on the map. What is the straight-line distance between these two settlements (in kilometres)?

8. The Newark Valley is located in east-central Nevada. What is the seismic risk for this region (give the range of potential earthquakes using the modified Mercalli scale)?

9. Assuming that the names of the two ranches are based on the characteristics of nearby springs, how could the springs on one side of this valley be cold and on the other side warm? HINT: it may help to look at a geologic map of Nevada.

10. Is there any risk of volcanic activity in this area?

11. The material filling the Newark Valley is primarily clay, silt, and sand. Evaluate the suitability of the central Valley as a site for a sanitary landfill.

Evaluate the suitability of the same area as a site for a low-level radioactive waste storage facility.

Evaluate the suitability of the same area as a site for a high-level radioactive waste storage facility. REMEMBER: high-level radioactive waste must be stored for a very, very long time.