Salt Flat Report for NASA - 41 Alternative Sites

A catalogue of remote salt flats greater than 5 square miles, mostly located in Nevada

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**salt flat**

- **n.**
  
  A dry lake bed consisting primarily of salt.

- **n.**
  
  a flat expanse of salt left by the evaporation of a body of salt water

Lithium is found in salt flats, or more properly, in the salty fluids buried beneath these evaporite salt bodies. In order to capture lithium, these salt bodies must also be of a particular chemistry (Na >K > Ca), and in an area of particular volcanic rocks, known as rhyolites. If these conditions are met, AND there were long periods when evaporation was greater than precipitation, then high concentrations of lithium are likely.

These conditions are met only in the high Andes of South America, the Tibet Plateau, parts of China, and the Great Basin of the western USA.

Not every salt flat has lithium, because the salt fluid must remain trapped and not have been diluted. However, some salt flats definitely have lithium, and the few large places that do will eventually supply the clean-energy revolution of electric cars now anticipated. A domestic supply of lithium for America will probably come from Nevada.

This document is a compendium of the larger salt flats in the Great Basin.
Top: Salt flats in the Great Basin, shown by area. Most are large enough for NASA purpose.

Bottom: Lithium mining and oil production on salt flats in the Great Basin. The NASA segregation has targeted the only area in Nevada with meaningful activity.
INTRODUCTION

On March 29, 2021 the Bureau of Land Management segregated 23,000 acres of Railroad Valley from public use so that NASA may expand their satellite reflection studies. According to NASA, the Railroad Valley location is the only suitable location for this research.

Forty-two salt flats in the Great Basin are large enough to suit NASA's needs. There are other considerations, of course, but Railroad Valley is also unique because it has significant lithium mining activity and oil production. The other 41 salt flat locations have virtually no lithium mining or oil and gas production. Railroad Valley has more than 100 square miles dedicated to lithium mining activities from several companies. Oil production is of similar size.

The NASA segregation will seriously impact these activities for at least 22 years.

We offer that there really is nothing unique at the surface of Railroad Valley for NASA, and they could just as well move to a similar area and cause far less impact. Ironically, as lithium exploration develops into production, human impact in Railroad Valley will make it undesirable for NASA.
Forty-two salt flats exist in the Great Basin area, and these range in size from 6 to 2,330 square miles. A Google Earth image of each salt flat is shown in the following pages. Color variations are affected by the imagery, as well as the surface area.
Alvord Salt Flat
Big Smokey Salt Flat'lat
Blue Wing Salt Flat
Bonneville Salt Flat
Carpenter Salt Flat
Buffalo Salt Flat
Cave Salt Flat
Clover Salt Flat
Coal Salt Flat
Columbus Marsh Salt Flat
Coyote Salt Flat
Desatoya Salt Flat
Desert Salt Flat
Diamond Valley Salt Flat
Dixie Salt Flat
Edwards Salt Flat
Franklin Lake Salt Flat
Grass Valley Salt Flat
Harper Salt Flat
Indian Springs Salt Flat
Mud Salt Flat
Newark Salt Flat
Railroad Valley Salt Flat
South Railroad Valley Salt Flat
Sevier Salt Flat
Spring Salt Flat
Surprise Central Salt Flat
Surprise North Salt Flat
Three Lake Salt Flat
Toiyabe Salt Flat
Tule Salt Flat
Vista Salt Flat