Complete in accordance with instructions on reverse and forward copy:

TO: National Oceanic and Atmospheric Administration
Office of Oceanic and Atmospheric Research
1315 East-West Highway SSMC-3 Room 11554
Silver Spring, MD 20910

Form Approved: OMB No. 0648-0025 Expires 01/01/2028

NOAA FORM 17-4 (4-81) — U.S. DEPARTMENT OF COMMERCE
NAT'L OCEANIC AND ATMOSPHERIC ADM.

INITIAL REPORT ON WEATHER MODIFICATION ACTIVITIES (P.L. 205, 92ND. CONGRESS)

1. PROJECT OR ACTIVITY DESIGNATION, IF ANY
Kern River Cloud Seeding Program

2. DATES OF PROJECT

a. DATE FIRST ACTUAL WEATHER MODIFICATION ACTIVITY IS TO BE UNDERTAKEN: 11/01/2021

b. EXPECTED TERMINATION DATE OF WEATHER MODIFICATION ACTIVITIES: 04/30/2022

3. PURPOSE OF PROJECT OR ACTIVITY
Snowpack Augmentation

4. (a) SPONSOR

NAME		
David Hampton		
AFFILIATION	PHONE NUMBER	
North Kern Water Storage District	(559) 393-2696	
STREET ADDRESS		
33380 Cawello Street		
CITY	STATE	ZIP CODE
Bakersfield	CA	93380

4. (b) OPERATOR

NAME		
Richard Stone		
AFFILIATION	PHONE NUMBER	
RHS Consulting, LTD	(775) 357-4659	
STREET ADDRESS		
2227 Bellanca St., Hangar A		
CITY	STATE	ZIP CODE
Minden	NV	89423

5. TARGET AND CONTROL AREAS (See Instructions)

TARGET AREA		CONTROL AREA	
LOCATION	SIZE OF AREA	LOCATION	SIZE OF AREA
Kern River Basin	2000 SQ.MI	Merced River, Tule River, Cottonwood Creek	750 SQ.MI.

6. DESCRIPTION OF WEATHER MODIFICATION APPARATUS, MODIFICATION AGENTS AND THEIR DISPERSAL RATES, THE TECHNIQUES EMPLOYED, ETC. *(See Instructions)*

This is a continuation of the Upper Kern River Basin Program, long-term project that began operations in 1955. During the 2022 winter season winter storm systems will be seeded using a PA-31P aircraft equipped with seeding equipment, liquid water and temperature sensors and telemetry data to transmit data. The operational office is located at the Fresno Airport (KFAT). Silver Iodide type aerosols and/or hygroscopic aerosols are generated using ejectable and end-burning pyrotechnics released 20-30 miles upwind of the target area. Seeding materials are typically released between 8,000' and 17,000' depending on temperatures and wind velocities. Seeding material release rates vary between 200-400 gAgI/hr depending on cloud conditions, temperatures and distance to the target. Seeding is conducted near the top of the water saturated layer in supercooled liquid or mixed phase cloud conditions as predicted explicitly by a regional version of the WRF model. Evaluations are conducted annually based on streamflow and snow survey data. Multiple control areas are used that surround the target area to the north, west, and northeast sides of the target area.

7. LOG BOOKS: *Enter name, affiliation, address, and telephone number of responsible individual from whom log books or other records may be obtained.*

NAME		
Richard Stone		
AFFILIATION	PHONE NUMBER	
RHS Consulting, LTD	(775) 357-4659	
STREET ADDRESS		
2227 Bellanca St, Hangar A		
CITY	STATE	ZIP CODE
Minden	NV	89423

THIS REPORT IS REQUIRED BY PUBLIC LAW 92-205; 85 STAT 735; 15 U.S.C. 330b. KNOWING AND WILLFUL VIOLATION OF ANY RULE ADOPTED UNDER THE AUTHORITY OF SECTION 2 OF PUBLIC LAW 92-205 SHALL SUBJECT THE PERSON VIOLATING SUCH RULE TO A FINE OF NOT MORE THAN $10,000, UPON CONVICTION THEREOF.

8. SAFETY AND ENVIRONMENT

- [x] YES [ ] NO — Has an Environmental Impact Statement, Federal or State been filed? If yes, please furnish a copy as applicable.
- [x] YES [ ] NO — Have provisions been made to acquire the latest forecasts, advisories, warnings, etc. of the National Weather Service, Forest Service, or others when issued prior to and during operations? If yes, please specify on a separate sheet.
- [x] YES [ ] NO — Have any safety procedures *(operational constraints, provisions for suspension of operations, monitoring methods, etc.)* and any environmental guidelines *(related to the possible effects of the operations)* been included in the operational plans? If yes, please furnish copies or a description of the specific procedures and guidelines.

9. OPTIONAL REMARKS *(See Instructions. Use Separate Sheet.)*

NAME	CERTIFICATION: I certify that the above statements are true, complete and correct to the best of my knowledge and belief.	
Richard Stone		
AFFILIATION	SIGNATURE	
RHS Consulting, LTD		
STREET ADDRESS	OFFICIAL TITLE	
2227 Bellanca St., Hangar A	Principal	
CITY / STATE / ZIP CODE	DATE	PHONE NUMBER
Minden / NV / 89423	10/27/2021	357-4659 (775)

Kern River Basin Supplement to Form 17-4

The following information is provided as requested by item 8 on Form 17-4, Safety and Environment

Environmental Impact Report

An Environmental Assessment was conducted by the sponsor and a Negative Declaration was filed with no dissenting opinions.

Suspension Criteria

The project may be temporarily suspended when one of the following conditions exists

EXCESSIVE SNOWPACK

These snowpack amounts serve as a guide regarding the potential suspension of the seeding program; they are not hard and fast criteria, but rather are designed to prompt close coordination with the water managers. These criteria are based on average target area precipitation amounts as follows:

1. 200% on January 1
2. 180% on February 1
3. 160% on March 1
4. 150% on April 1

Snow sensor observation are available on a daily basis at several locations. Interpolation of these percentages can be made for any given day in order to aid suspension decisions.

FLOODING

1. TARGET AREA – Utilizing quantitative precipitation forecasts (QPF), antecedent indices, and forecast freezing levels, decisions can be made of individual storm event runoff in the area draining into Isabella Lake. If the estimated storm runoff volume exceeds the available storage (i.e., spill condition), the project may be suspended.
2. RAIN ON SNOW – During periods above average snowpack exists and rising freezing levels and potential for rain on snow events where insufficient storage capacity is available the project may be temporarily suspended until the river flows recede and freezing levels fall below 4,500'.
3. Severe Weather – Severe weather is monitored on a storm-by-storm basis, and even hourly basis during rapidly changing weather conditions. The project may be suspended when a National Weather Service Flash Flood Warning is in effect over any part of the target area until the warning expires.

SPECIAL CIRCUMSTANCES

1. Official emergency response activity within the target area.
2. Other Special Circumstances or unusual circumstances, which may be deemed hazardous. Examples of special circumstances very strong winds, heavy snow at low elevations, and other unforeseen conditions that could be hazardous or perceived by the public as hazardous. Reservoir storage levels, soil moisture content, and amounts of precipitation in prior seasons are all factors to consider in assessing whether a temporary program suspension is appropriate

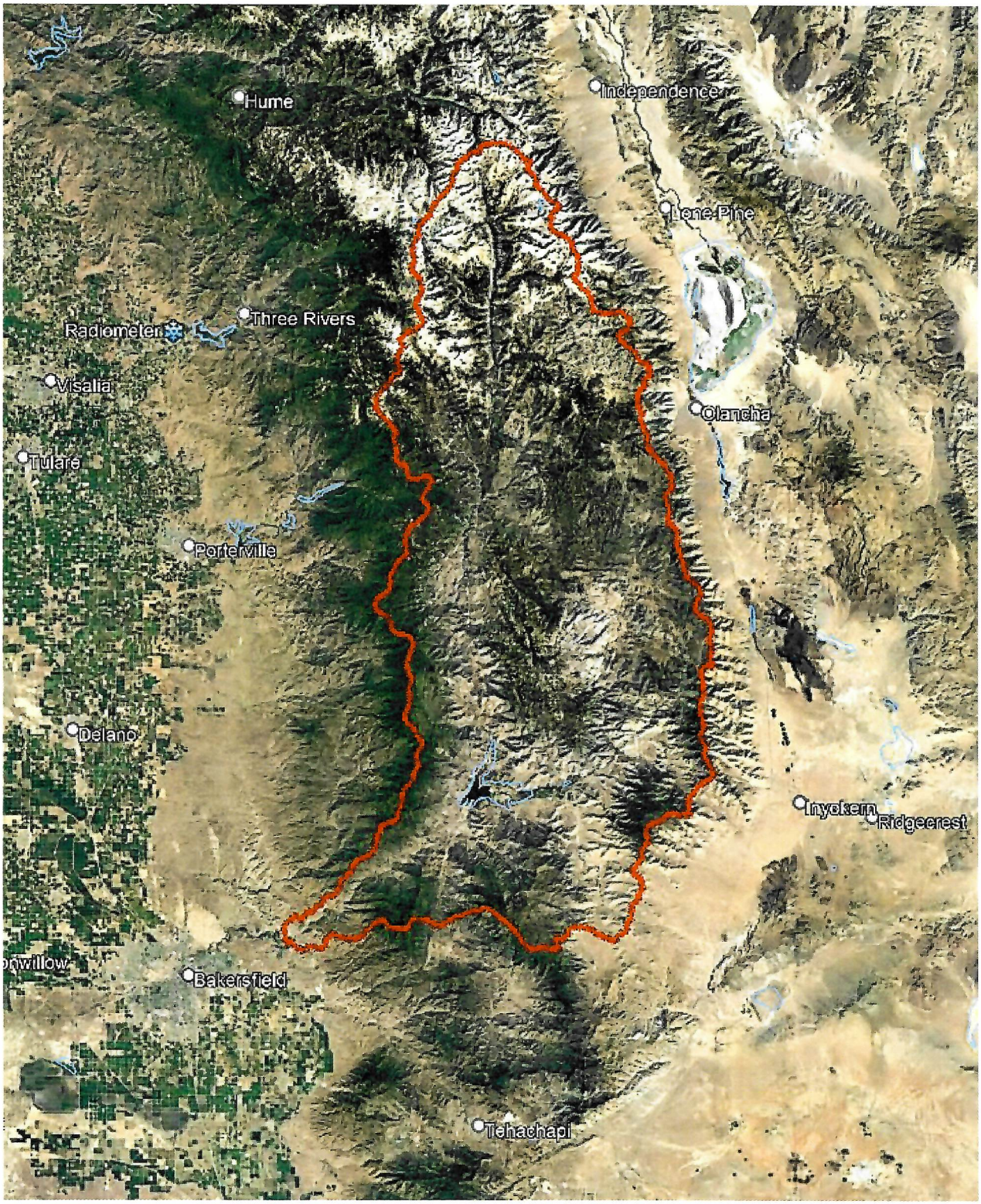


Figure 1. Kern River Basin Target Area