

United States Department of the Interior
National Park Service

NATIONAL REGISTER OF HISTORIC PLACES
CONTINUATION SHEET

Section _____ Page _____

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SUPPLEMENTARY LISTING RECORD

NRIS Reference Number: 14000418

Date Listed: 7/18/2014

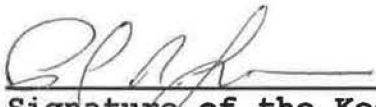
Sachse Spring Snow Survey Shelter
Property Name

Tuolumne
County

CA
State

Yosemite National Park MPS
Multiple Name

This property is listed in the National Register of Historic Places in accordance with the attached nomination documentation subject to the following exceptions, exclusions, or amendments, notwithstanding the National Park Service certification included in the nomination documentation.


Signature of the Keeper

7/18/2014
Date of Action

=====

Amended Items in Nomination:

Classification:

The name of the related multiple property listing should read: *Yosemite National Park MPS*.
The Number of Previously Listed Resources should read: 0

Significant Dates:

The 1946 & 1995 significant dates are deleted. [All Significant Dates must fall within the identified Period of Significance.]

Bibliographical References:

The property was not previously determined eligible by the Keeper of the National Register. [The determination was made by the NPS for compliance purposes only.]

These clarifications were confirmed with the NPS FPO office.

DISTRIBUTION:

- National Register property file
- Nominating Authority (without nomination attachment)

United States Department of the Interior
National Park Service



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National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in National Register Bulletin, *How to Complete the National Register of Historic Places Registration Form*. If any item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instructions. Place additional certification comments, entries, and narrative items on continuation sheets if needed (NPS Form 10-900a).

1. Name of Property

historic name Sachse Spring Snow Survey Shelter

other names/site number Sachse Springs Patrol Cabin, Sachse Spring Cabin,
Yosemite National Park Building No. BC2452

2. Location

street & number Off of the Kibbie Ridge Trail near Sachse Spring

not for publication
 vicinity

city or town Yosemite National Park

state California code CA county Tuolumne code 109 zip code 95389

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act, as amended,
I hereby certify that this nomination request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60.

In my opinion, the property meets does not meet the National Register Criteria. I recommend that this property be considered significant at the following level(s) of significance:

national statewide local

Adrian M. ... Signature of certifying official/Title June 4, 2014 Date
National Park Service State or Federal agency/bureau or Tribal Government

In my opinion, the property meets does not meet the National Register criteria.

Carol Roland-Nawi, Ph.D. Signature of commenting official ... Date
State Historic Preservation Officer California Office of Historic Preservation Title
State or Federal agency/bureau or Tribal Government

4. National Park Service Certification

I hereby certify that this property is:

entered in the National Register determined eligible for the National Register
 determined not eligible for the National Register removed from the National Register
 other (explain:)

... Signature of the Keeper 7/18/14 Date of Action

5. Classification

Ownership of Property
(Check as many boxes as apply.)

- private
- public - Local
- public - State
- public - Federal

Category of Property
(Check only one box.)

- building(s)
- district
- site
- structure
- object

Number of Resources within Property
(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
1		buildings
		district
		site
		structure
		object
1		Total

Name of related multiple property listing
(Enter "N/A" if property is not part of a multiple property listing)

N/A

Number of contributing resources previously listed in the National Register

6. Function or Use

Historic Functions
(Enter categories from instructions.)

DOMESTIC – Institutional housing

OTHER – Station for field operations &

research

Current Functions
(Enter categories from instructions.)

DOMESTIC – Institutional housing

OTHER – Station for field operations &

research

7. Description

Architectural Classification
(Enter categories from instructions.)

OTHER: National Park Service Rustic style

Materials
(Enter categories from instructions.)

foundation: **STONE – granite rubble**

walls: **WOOD - log**

roof: **WOOD - shingles**

Narrative Description

(Describe the historic and current physical appearance of the property. Explain contributing and noncontributing resources if necessary. Begin with a **summary paragraph** that briefly describes the general characteristics of the property, such as its location, setting, size, and significant features.)

Summary Paragraph

The Sachse Spring Snow Survey Shelter is located along Kibbie Ridge in the far northwest region of Yosemite National Park in California. The building is nestled amongst a sparse subalpine forest in close proximity to a seasonal meadow and natural spring source. The property boundary for the snow survey shelter occupies an area of roughly half an acre. Lands bordering the property are designated wilderness and are devoid of any other form of infrastructure. The Sachse Spring Snow Survey Shelter is a subdued single-story, log frame building constructed in the National Park Service Rustic style. The rustic style and use of local materials serve to visually harmonize the building with the surrounding environment. The building is rectangular in plan, measuring approximately thirteen by fifteen, with a partially enclosed entry portico extending from the south elevation. The exterior walls consist of chinked horizontal logs joined by saddle notches and supported by a modest granite rubble foundation. The building is capped by a moderately pitched roof clad in single-course, sugar pine shingles. The interior space of the building is a single multi-purpose room consisting of a crude kitchen area and sleeping bunks. Interior walls are left unfinished exposing the log walls and roofing structure. Due to deferred maintenance the Sachse Spring Snow Survey Shelter is in fair condition, but still retains all seven aspects of historic integrity as defined by the National Register of Historic Places and remains essentially unchanged from its original design.

Narrative Description

The collection of hydrologic data within the Tuolumne River drainage has remained an essential component in the scientific determination the annual water supplies for the Hetch Hetchy Reservoir since the 1940s. As discussed further in Section 8, the Sachse Spring and Snow Flat Snow Survey Shelters were constructed in 1947 by the City and County of San Francisco, which own certain water rights within the boundaries of Yosemite National Park, and the California Department of Water Resources. Both shelters were part of a larger proposal to erect additional snow survey shelters and associated snow survey infrastructure within Yosemite National Park and adjacent to the park's northwestern boundary. The proposal included architectural specifications and design schematics for the future shelter cabins to be constructed of "sawed lumber, log, or stone".¹ The Sasche Spring Snow Survey Shelter was constructed according to the "log cabin" design included in the proposal. The building is now used only sporadically for winter snow surveys; however, it has been utilized continuously since its initial construction as an outlying field post and continues to be maintained as a historic resource by the National Park Service.

Setting

The Sachse Spring Snow Survey Shelter is located in the far northwest region of Yosemite National Park, roughly six aerial miles north of Lake Eleanor. The building straddles the park's boundary and lies partially in Yosemite National Park and also the Stanislaus National Forest. At the time of construction the building was managed by several cooperating agencies; however, as discussed further in Section 8 the ownership and stewardship of the building now falls under the authority of the National Park Service. The Sachse Spring Snow Survey Shelter

¹ California Division of Water Resources, Department of Public Works, California, Memorandum Covering Proposed Additional Snow Survey Work in the National Parks in California, June 1946.

was erected along a former sixty mile snow survey loop. The route initiated at the Hetch Hetchy Reservoir, followed the Falls Creek drainage northeast, and then circled back towards the point of origin roughly paralleling the park's northwestern boundary. The location for the Sachse Spring Snow Survey Shelter was selected within a day's trek from Huckleberry Snow Survey Shelter to the northeast and the developed area of Lake Eleanor to the south, as well as, its close proximity to a year round water source, Sachse Spring. At an elevation of 7875', building is surrounded by a sparsely populated forest of Lodgepole pine, an assortment of firs, and low-lying woody shrubs dispersed amongst granite outcroppings.

Access to the building is limited to foot or stock traffic from the Kibbie Ridge Trailhead, located 8.8 miles by trail to the south. The trail follows the natural crest of Kibbie Ridge in a steady ascent and meanders in and out of the park boundary several times. The majority of the trail is sheltered by a moderately dense forest. In the last two miles however, the terrain begins a steeper ascent and the forest becomes isolated pockets amongst expanses of granite outcroppings. The Sachse Spring Snow Survey Shelter lies roughly 500 feet to the west of the Kibbie Ridge Trail corridor and a seasonal meadow. A small social trail leading to the building is marked by a metal fence stake. A natural spring is located approximately forty feet northwest of the junction of the social trail and main trail corridor. A boundary area of 0.7 acres for the Sachse Spring Snow Survey Shelter has been determined by Yosemite National Park's Branch of History, Architecture, and Landscapes for purposes of this nomination. The property contains only the isolated snow survey shelter and its immediate surroundings. No other resources are present within the property boundary.

Sachse Spring Snow Survey Shelter

The Sachse Spring Snow Survey Shelter was constructed in 1947 to building specifications produced by the California Department of Water Resources. The building was designed in the National Park Service Rustic style, with special attention to architectural detailing reminiscent of past homestead cabins common to the Yosemite region – such as the use of local timber, saddle notched log walls, a gable roof, and its modest size. The snow survey shelter is a single-story log frame building, rectangular in plan with a partially enclosed entry portico extending from the south elevation. Exterior walls are constructed of peeled Lodgepole pine logs supported by a granite rubble foundation. The building is capped by a moderately pitched gable roof clad in single-course sugar pine shingles with a wide seventeen inch reveal. The interior space of the building consists of a single multi-purpose room.

Exterior

The Sachse Spring Snow Survey Shelter has a rectangular footprint measuring approximately thirteen by twenty one feet. This area encompasses the main portion of the building, roughly 200 square feet, and an entry portico formed by the projecting roofline of the southern gable. The portico was incorporated into the overall design of the building to shelter the entrance from heavy snow drifts. It is approximately six feet deep and has a partially enclosed space for firewood at the western end. The enclosure is formed by an extension of the building's west log wall and a four and a half foot wide south wall constructed of vertical log posts. A single log post is located at the southeast corner of the building to provide structural reinforcement for the gable roof. The building is supported by log sills and stringers that span the entire width of the building and rest directly atop a foundation wall of local granite rubble. The foundation wall at each of the four corners has been reinforced with an untooled Portland cement mortar bed, while the central portions of the foundation wall are dry-laid. Material evidence suggests that the building was originally constructed with a dry-laid foundation wall around the entire perimeter of the building. From an inscription found within the mortar, it is believed that the Portland cement was added in 1989 to reinforce sections of foundation wall under the most stress. The height of the building's foundation wall adjusts

to the natural contour of the surrounding terrain as it gently slopes south. The foundation wall increases from approximately a foot high along the north elevation to two feet high along the south elevation. An entry stair constructed of large granite fieldstones is centrally located along the south façade. The bottom riser, resting on grade, is a large stone measuring approximately four feet wide, two feet deep and eight inches high. Two additional risers of smaller stones are placed atop the first.

The snow survey shelter's exterior walls are constructed of peeled Lodgepole pine logs joined by saddle notches. All logs were harvested locally at the time of construction and left unfinished to expose the natural tones of the wood. Sawn log crowns of varying lengths, from approximately twelve inches to twenty six inches, extend from the exterior facades of the building and have been finished with a beveled face. The existing chinking material, known as "Log Jam", consists of foam rounds wedged between the logs and covered by a rubberized sealant. This chinking material was installed in the 1990s and does not accurately portray what would have been present during the period of significance. Although it is unclear what type of chinking was originally used, other similar log structures in the park have been chinked with jute and sealed with a tooled cement grout. Due to the extreme weather conditions common to the setting, necessary repairs and log replacement have had to be made over time. The last significant preservation maintenance project on the Sachse Spring Snow Survey Shelter occurred in 1995. At this time, the Yosemite Historic Preservation crew replaced numerous logs and repaired log crowns. Further description of the work completed during this project is listed within the subsequent section "Alterations & Preservation Maintenance".

The building's primary entrance is centrally located along the south elevation. The door is a vertical plank and frame style door constructed of twelve inch wide dimensional lumber boards. The door is original to the construction of the building and is documented in historical photographs. The door jamb and frame are constructed of dimensional lumber notched into the surrounding log wall. An additional significant feature on the building is an alternate attic access door within the southern gable end. This door is located directly above the main entrance and accessed by a dimensional lumber ladder. The door is utilized during heavy snow years when the lower entrance can become completely covered by snow drifts. This feature was incorporated into original design plan for the building and is commonly seen on other snow survey shelters located throughout the Sierra Nevada. The door is a vertical plank and frame style door measuring two and a half feet wide by three feet in height. Like the lower entry door, the attic door is constructed of twelve inch wide dimensional lumber. The snow survey shelter contains only one window opening which is centrally located along the north elevation of the building. A large four-lite awning window, measuring thirty eight and a half inches square, is internally mounted and hinges inward. A steel plate casement shutter is externally mounted and hinges outward. Steel shutters are a highly functional security feature of backcountry cabins located throughout the Yosemite wilderness. The shutters deter vandalism and intrusive pest and black bears during time periods when the building is not being utilized.

The gable roof of the building is oriented on a longitudinal axis roughly north-south and has a moderate pitch of twelve over twelve. The roofing structure is comprised of three log pole trusses and numerous log purlins. The purlins span the entire length of the building and are notched into the exterior north and south wall. The roof is clad with single-course, sugar pine shingles with a seventeen inch reveal are nailed directly onto the log purlins. Historically, the log purlins extended beyond the shingled roof and served as an architectural accent feature for the building. In 1995, the Yosemite Historic Preservation crew decided to extend the roofline to shelter the purlins from excessive snow accumulation. The purlins now aligned with the dimensions of the roofing material. The gable roof features exposed over-hanging eaves approximately fourteen inches wide on the east, north, and west facades; the south façade features the fore mentioned entry portico. The roof is finished with a painted scrap metal ridge

cap. This ridge cap was installed while the building was being reroofed in 1995 during a preservation maintenance project. Prior to this time the roof was finished with a ridge cap constructed of dimensional lumber.

The Sachse Spring Snow Survey Shelter is currently in fair condition; however, it is currently being managed as a significant historic resource by the National Park Service and retains a high degree of historic integrity. The exterior fabric shows predictable signs of deterioration from extreme weather conditions and rodent intrusion. Preservation efforts to address this deterioration have been initiated by the Yosemite Historic Preservation crew and maintenance work is scheduled for 2012. The historic integrity of the building will be discussed further in a subsequent section. Thoughtful construction of the Sachse Spring Snow Survey Shelter exemplifies the National Park Service Rustic style and stays true to the style's fundamental principles. Architectural elements found on the building that are characteristic of the style include the predominant use of natural and local materials, overhanging eaves, a moderately pitched gable roof, and exposed log framing. The use of local materials and natural elements are key components to the rustic style and serve to harmonize the building with the surrounding environment.

Interior

The interior space of the Sachse Spring Snow Survey Shelter is a single multi-purpose room that constitutes approximately 200 square feet. Flooring throughout the space is three and a half inch wide vertical grain Douglas fir tongue and groove. It appears that the flooring was stained at one point; however, it is now heavily worn and weathered. The interior walls and ceiling have been left unfinished exposing the structural log framework. Dimensional lumber boards and plywood panels have been placed between the central roof truss and south wall to provide a loft space. This space measures approximately seven feet by seven feet. Furniture pieces within the space are modest and functional. Two wood framed beds are located in the southwest and southeast corner of the space. A small wood burning stove and metal heat shield are located in the northwest corner of the room. The northeast corner of the room contains a make shift table and two high set metal cabinets affixed to the log wall. Historical photographs document a similar interior spatial arrangement; however, the stove and cabinets are not original to the construction of the building. The backcountry shelter does not contain running water or electricity, adding to the rusticated charm and feeling of remoteness for the building.

Alterations & Preservation Maintenance

The Sachse Spring Snow Survey Shelter maintains a high degree of historic integrity and has had only minor alterations since its period of significance, 1947. The overall usage of the space, layout, architectural design, and bulk of historic fabric has remained constant over time. In 1995 the snow survey shelter underwent a large preservation maintenance and stabilization project by the Yosemite Historic Preservation crew. All work adhered to the Secretary of the Interior's Standards for the Treatment of Historic Properties and therefore did not diminish from the building's historic integrity. All necessary fabric replacement, with the exception of the chinking, was done using in-kind materials and traditional techniques. An easily reversible modern chinking material known as "Log Jam" was used as an experimental procedure to provide better insulation and weather tight materials for the building. The experiment has proven unsuccessful and the chinking has failed in numerous locations. Preservation maintenance work is scheduled to commence in 2012 and will remove the non-historic chinking material and utilize a more historically accurate form of chinking.

Exterior changes

- A large radio antenna was attached to the north gable end of the building by 1952 and then later removed at an unknown date

- It is believed the exterior security shutter was installed following the construction of the cabin. Similar steel shutters were installed on other remote backcountry cabins in 1955
- Prior to the 1980s, the exterior east wall of the building was clad in single-course sugar pine shingles. This wall treatment was not incorporated into the original design of the cabin and is believed to have been installed after the period of significance. Although it is unclear exactly why or when the shingles were put in place, it is presumed that they were installed to further protect the exterior log wall from the natural elements. The shingles were removed sometime between 1986 and 1995.
- Preservation maintenance completed in 1995
 - Replacement of thirteen structural logs using in-kind material.
 - Replacement and repair of seven log crowns using in-kind material. The repair treatment included the use of epoxy and splicing of log crowns.
 - Installation of non-historic chinking material (foam rounds and rubberized sealant).
 - Replacement of dimensional lumber door jamb using in-kind material.
 - Installation of new metal chimney flue and metal heat shield.
 - Replacement of roof jack using in-kind material.
 - Roofline extended over the purlins on the south façade.
 - Replacement of vertical log post at the southeast corner of the building using in-kind material.
 - Replacement of two log purlins using in-kind material.
 - Replacement of three vertical log post within the portico structure using in-kind material.

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- A Property is associated with events that have made a significant contribution to the broad patterns of our history.
- B Property is associated with the lives of persons significant in our past.
- C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
- D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is:

- A Owned by a religious institution or used for religious purposes.
- B removed from its original location.
- C a birthplace or grave.
- D a cemetery.
- E a reconstructed building, object, or structure.
- F a commemorative property.
- G less than 50 years old or achieving significance within the past 50 years.

Areas of Significance

(Enter categories from instructions.)

CONSERVATION

SCIENCE

ARCHITECTURE

Period of Significance

1947

Significant Dates

1946 – The California Cooperative Snow

**Survey Program proposes adding five
new snow survey cabins throughout**

Yosemite National Park

1947 – The Sachse Spring Snow Survey

**Shelter is designed and constructed by
National Park Service and the California
State Department of Water Resources**

1995 – Restoration work completed by the

Yosemite Historic Preservation Crew

Significant Person

(Complete only if Criterion B is marked above.)

N/A

Cultural Affiliation

N/A

Architect/Builder

**Constructed by the City and County of San
Francisco in coordination with the California
State Department of Water Resources**

Period of Significance (justification)

1947

The period of significance for the Sachse Spring Snow Survey Shelter is 1947. This date corresponds to the construction of the building for functions associated with acquisition of hydrologic data within the Tuolumne River drainage. The location of the building was selected along the Kibbie Ridge snow survey route in the far northwestern region of Yosemite National Park. Design plans for the building were produced by the California Cooperative Snow Survey Program in 1946. The building was erected in 1947 by the Department of Water Resources, National Park Service, and National Forest Service. The building has had a sporadic history of winter use; however, it continues to be utilized and maintained by the National Park Service as an outlying field station for natural resource management activities. The building retains its original footprint and has not been significantly altered since the original construction date. The period of significance date aligns with both the architectural development of the Sachse Spring Snow Survey Shelter, for Criterion C, and the initial date the building was utilized as an outlying field station for collecting hydrologic data, for Criterion A.

Criteria Considerations (explanation, if necessary)

Statement of Significance Summary Paragraph (Provide a summary paragraph that includes level of significance and applicable criteria.)

The Sachse Spring Snow Survey Shelter is locally and regionally significant in the area of natural resource conservation under *Criterion A*. The building is associated with the development and deployment of the California Cooperative Snow Surveys Program, as well as, the evolution of natural resource management within Yosemite National Park. The building was constructed in 1947 to serve specifically as winter accommodations for snow surveyors collecting hydrologic data along the Tuolumne River drainage. In addition to its primary function, the building was also utilized as a summer field outpost for Yosemite National Park and has played a substantial role in the management of Yosemite's backcountry wilderness. It is used at times as a staging area for backcountry projects such as trail work, forestry, resource management, and fire management. The architectural design of the building is classified as National Park Service Rustic style, making it locally significant under *Criterion C*.

The Sachse Spring Snow Survey Shelter is currently maintained by the National Park Service as a historic resource and continues to function in a comparable capacity as an outlying field station for natural resource management activities. It is in good condition and retains all seven aspects of historic integrity, as defined by the National Register of Historic Places. The building was first recognized as a significant historic resource for Yosemite National Park in the late 1980s and deemed eligible for listing in the National Register of Historic Places in 2004.

Narrative Statement of Significance

Historical Context

The United States Geological Survey (USGS) estimates that as much as seventy-five percent of water supplies in the Western United States are derived from snowmelt. Rightfully so, many refer to the winter snowpack as the “lifeblood” of the West. How wet or dry a year is predicted to be has many economic and natural resource management impacts. Local, state, and regional municipalities, along with irrigation districts and other forms of industry, rely heavily on the implementation of widespread, systematic snow surveys to determine the annual water runoff from high elevation snowpack. The scientific data collected during these surveys provides scientists and resource managers with the tools they need to predict the availability of water supplies for human consumption, hydroelectric power, agriculture, industry, transportation, and recreation, as well as to predict the potential for spring flooding.

The resource tools available for snow surveying have gradually evolved through the years. Improved technology and advanced scientific calculations have led to more precise measurements of water runoff from snow melt. However, one essential element of snow survey programs has remained constant: the human part of the equation, the snow surveyor. And those hearty individuals rely on remote backcountry shelters to carry out their field work during the extreme winter weather conditions common in mountain environments.

Snow Survey in the Sierra Nevada

The scientific study and prediction of water supplies available from snowmelt began in the Sierra Nevada during the early 20th century. Lands bordering the Sierra to the east, south, and west are dominated by Mediterranean and desert climates, with little to no precipitation falling between May and October. The precipitation of the preceding winter is retained by natural and artificial reservoirs and then distributed by a vast network of irrigation systems to provide a reliable, uninterrupted water supply for all the downstream requirements. Heavily populated cities along the west coast of California and the central San Joaquin Valley, which has been transformed into an agricultural epicenter for the United States, are heavily reliant on these systems for necessary water supplies.

During the early development of irrigation systems in the western United States, government officials and business enterprises relied on anecdotal snow pack reports from animal trappers and mountaineers who ventured into the Sierra during the winter months. In 1895, a professor at the University of Nevada, Dr. James E. Church, began contemplating the effects of orographic precipitation near Lake Tahoe in Northern California. Over the next several decades, Church’s research interest in weather provided unprecedented scientific determinations of water availability and altered the course of natural resource management in the West. Church and his colleagues developed specialized equipment and methodologies to measure the water content of snow that are, for the most part, still utilized today by scientists and snow surveyors.

During the early phase of his research, Church immediately recognized the need to have overnight accommodations located near his high elevation experimental sites. The ability to stay overnight provided the

opportunity to collect more thorough weather data and study the effects of the environment on snow conservation. With the assistance of federal funds, Church and his coworkers erected the first snow survey shelter in the Sierra, the Summit Observatory, on Mount Rose in August 1906. Soon thereafter, Church developed the Mount Rose Snow Sampler and Scale, a patented device that measured the depth and water content of snow pack to determine snow density. Although scientific calculations have evolved during the last century of snow surveying, Church's sampling device has remained essentially unchanged and is still in use by snow surveyors today. In 1910, Church laid out the first official snow courses in the Sierra, within the Lake Tahoe and Truckee River basins. (The techniques of establishing and using snow courses will be described below.) The research findings derived from the courses allowed Church to predict seasonal water runoff within multiple watersheds and led to the management of Lake Tahoe's water level to avert seasonal flooding.

Building upon Church's pioneering work, states throughout the American West began developing snow survey programs of their own. California's Department of Engineering, in consultation with Church's staff, began establishing snow courses and constructing snow survey shelters in selected watersheds within the central Sierra Nevada in 1917. Although the state recognized the need for scientific determinations of spring runoff, funding for snow survey programs was far from stable. In 1923, state-allocated funds for snow surveys were temporarily discontinued. The expansion of the snow survey courses, however, did continue through the 1920s, but this depended upon various smaller enterprises such as irrigation districts and local agencies.

Between 1929 and 1934, severe droughts swept across the entire United States. In California, the drought was the worst citizens had witnessed since statehood in 1850. State administrators were forced to make drastic changes to the way they managed natural resources. In response to the drought, the California legislature established the California Cooperative Snow Survey Program, to be coordinated by the newly formed Division of Water Resources (now the Department of Water Resources). The purpose of the program was to gather, analyze, and distribute data relating to the overall annual snowpack. The program was initially organized – and continues to operate today – as a collaborative effort among state and federal agencies, local municipalities, irrigation districts; and public utility companies. In the first year of the California Cooperative Snow Survey Program, the Division of Water Resources (DWR) established 150 snow courses and associated infrastructure throughout the Sierra Nevada. Funding for the equipment and construction of snow survey shelters was provided by DWR as well as water and power companies. The brunt of the snow survey fieldwork fell to federal agencies, such as the National Forest Service and the National Park Service, who oversaw the vast majority of lands within the Sierra. The data collected during field surveys was given to scientists within DWR, who then paired the findings with precipitation records and other scientific data relating to environmental factors to predict seasonal spring water runoff. These official predictions were then distributed to all interested parties to help guide natural resource management decisions across the region.

Snow Survey in Yosemite National Park

Yosemite National Park's participation in the California Cooperative Snow Survey Program over the last eighty years has been vital to the compilation of information and statistics for estimating the annual snow melt runoff and water supply of the Sierra Nevada. Centrally located within the Sierra, the park encompasses the headwaters of the Tuolumne and Merced Rivers, two of the largest watersheds in the region. These watersheds provide water resources for the San Francisco Bay Area and the San Joaquin Valley of California.

Yosemite rangers began conducting a limited number of high country snow surveys in 1912. The early surveys were far less scientific than the research being undertaken by Church and his coworkers on Mount Rose, but nonetheless marked the beginning of established snow courses within the Yosemite region. A system of fixed "snow poles," approximately ten to twelve feet in height, were set up at strategic sites (or "courses") throughout the park. The slender poles were constructed of wooden dimensional lumber posts, painted white with black incremental measurements and notched on top to shed snow. Park rangers were assigned to record the depth of winter snowpack using the snow poles while conducting routine patrols. Winter trips were conducted from Yosemite Valley to Tenaya Lake, Tuolumne Meadows, and Tioga Pass via the Tioga Road. The information collected during the snow surveys was then passed on to United States Geological Survey (USGS) and used by Yosemite administrators to predict seasonal openings of park infrastructure at the higher elevations.

In the mid-1920s, the Merced Irrigation District (MID) completed construction of the impressive Exchequer Dam, along with associated canal systems and power facilities, outside of Yosemite National Park's western boundary. The reservoir was intended for water conservation, flood control, and power generation for multiple municipalities within the San Joaquin Valley. The principal water source for the MID project was the Merced River drainage, which originated almost entirely within the boundaries of Yosemite National Park. To accurately predict the amount of yearly water supply available from the headwaters of the Merced River, the MID proposed a snow survey course and overnight snow survey shelter within the park modeled after Church's.

The proposed snow survey shelter was the first joint venture between the National Park Service and an outside enterprise, other than a park concessioner, to construct infrastructure within the Yosemite backcountry. The shelter and snow course were to be located near Merced Lake at the confluence of Fletcher and Lewis Creeks, approximately fourteen miles from Yosemite Valley. Yosemite's superintendent readily acquiesced to the planned infrastructure because there was a recognized need to have a proper ranger's headquarters in the vicinity. The building would function as a National Park Service ranger station for most of the year and be occupied seasonally by snow surveyors employed by the MID. The district furnished \$1000 for the construction of the shelter, while the design, construction labor, maintenance, and ownership of the building fell to the National Park Service. There was brief discussion of a secondary snow survey shelter at Moraine Meadows in the far southwest region of the park; however, plans for this particular building never materialized. The Department of the Interior issued a special use permit for the MID to construct snow survey courses throughout the Merced River drainage and to utilize the Merced Lake Ranger Station during the winter months. The MID established several snow courses in the central region of the park and made use of an existing snow course in Dana Meadow, laid out in 1926.

The Merced Lake Ranger Station was designed in the National Park Service Rustic style by the resident Park Engineer Oliver G. Taylor, under the consultation of National Park Service's Regional Chief Landscape Architect, Daniel Hull. Yosemite National Park staff completed construction of the single-story, two room shelter building in 1927, which was then expanded in 1934. The exterior walls were of log construction and capped by a moderate, cross-gabled roof. Snow survey activities at Merced Lake Ranger Station continued until 1938, when it was deemed access routes to the building were far too hazardous during the winter months. Since that time, the building has been used continuously by the National Park Service for ranger patrol activities and natural resource management activities.

During the 1930s, snow surveying within Yosemite National Park gained momentum with the creation of the California Cooperative Snow Survey Program. As mentioned previously, 1929 marked the beginning of a five-year drought for the western United States. Large state government appropriations and coordinated efforts were put forth for the determination of available water resources statewide. A multitude of snow courses were laid out and mapped throughout the Sierra Nevada under the direction of the Department of Water Resources (DWR). During this time, four separate snow survey routes were established along the headwaters of the Tuolumne and the Merced Rivers within Yosemite. The main route was a loop extending from Yosemite Valley to the eastern boundary of the park. The other routes consisted of "out-and-back" paths of travel to Moraine Meadows from Glacier Point Road, to Gin Flat from Yosemite Valley, and to Beehive Meadows from Hetch Hetchy Ranger Station. A Yosemite Nature Notes article issued in January 1953, described the manner in which snow courses were designed:

Each permanent [snow] survey site is established by selecting an area that is open, protected from drifting winds, and representative of a large section of surrounding country. This site is known as a snow course, and here the measurements are taken at spaced intervals, usually 50 feet apart, along straight lines crossing the snow. ... The measurements are made with a hollow steel tube which is thrust downward into the snowpack until it strikes the ground beneath. When the tube is withdrawn it contains a sample or core of snow from the full depth of the pack. The loaded tube is then weighed on specially designed scales that convert the weight of the snow into water content, expressed in inches...

— Assistant Chief Ranger Duane Jacobs, *Yosemite Nature Notes*, Jan. 1953.

The snow survey trips were conducted by National Park Service rangers in a coordinated effort with other agencies across the state. "Traveling through wind and storm, the snow patrol often [covered] twenty to twenty-five miles a day to secure data on snow conditions for irrigationists, power users, and the State."ⁱⁱ

In 1931, the DWR appropriated \$600 for the construction of a snow survey shelter at Buck Camp and additional funding for the rehabilitation of an existing cabin at Deer Camp to be used for snow surveys. Deer Camp was located within a day's trek of the Wawona Road in the southern portion of the park. The shelter at Buck Camp served as the midway point between Deer Camp and Moraine Meadows, approximately fourteen miles to the east. The architectural plans for the Buck Camp Patrol Cabin were prepared by the National Park Service's Landscape Architect and Field Architect for Yosemite National Park, John Wosky. The plans incorporated principles of National Park Service Rustic style, with special attention to architectural detailing reminiscent of 19th-century homestead cabins common to the Yosemite region. The cabin was a single-story, two-room building situated along the edge of a large seasonal meadow. The building was clad in vertical log posts and capped by a moderately pitched gable roof. Like the Merced Lake Ranger Station, the Buck Camp Patrol Cabin was to be utilized by the National Park Service during the summer field season and the California Cooperative Snow Survey Program during the winter months. The cabin was completed and ready for occupation by January 1, 1932. The existing cabin at Deer Camp (also known as Eleven Mile Annex) was originally constructed in 1916 by the Yosemite Lumber Company during its period of logging within the park. The small cabin was clad in board and batten siding and capped by a gable roof. During the winter of 1935-1936, only a few years after the rehabilitation was complete, the cabin was destroyed by a large falling Ponderosa pine and is no longer standing. The snow survey activities at Buck Camp Patrol Cabin continued through the late 1930s and early 1940s. Since that time, the building has been used continuously in connection with National Park Service ranger patrol activities in the southern region of the park.

ⁱⁱ Jacobs, Duane D., "Snow Surveying." *Yosemite Nature Notes* 32, No. 1 (January 1953).

While the Buck Camp and Deer Camp cabins were still in use, the National Park Service also authorized the use of existing ranger stations in conjunction with ongoing snow survey activities. These included Tenaya Lake, Tuolumne Meadows, Tioga Pass, Chinquapin, Crane Flat, Mather, and Yosemite Creek. For varying reasons, only a limited number of buildings utilized during the 1930s snow surveys remain intact today – the Buck Camp Patrol Cabin and the Merced Lake, Chinquapin, and Tuolumne Ranger Stations.

Due to pressures on the state budget during the Great Depression, funding for the state-coordinated snow surveys program was unavailable during 1934 and 1935. The cooperating agencies, however, independently continued to conduct surveys using state-owned equipment that remained in the field. Because of this continuation, the disruption to the scientific record was not as great as anticipated. By 1936, the California legislature was again able to appropriate funds for the snow survey program, which has remained in operation with no subsequent interruption in survey activities since that time.

The expansion of the snow survey program within Yosemite National Park resumed in the 1940s, with the construction of snow survey shelters and associated snow courses in the Tuolumne River drainage. The first phase of the expansion was initiated by the City and County of San Francisco's Public Utilities Commission (SFPUC), a member of the California Cooperative Snow Survey Program, to provide hydrologic data for the Hetch Hetchy Water & Power Project. By a congressional act in 1913, the SFPUC acquired water rights, land appropriations, and the authorization to construct the O'Shaughnessy Dam within Yosemite's Tuolumne River drainage. The primary objective of the SFPUC was to secure and transport clean, reliable water supplied by the Tuolumne River to the city of San Francisco. In order to collect hydrologic data within the drainage, the SFPUC and DWR funded the construction of two snow survey shelters, at Lake Vernon and Wilmer Lake (also known as Wilma Lake), as well as numerous snow courses along a primary tributary of the drainage.

The Lake Vernon and Wilmer Lake Snow Survey Shelters were designed by the SFPUC and approved by the commission's Chief Engineer J. H. Turner in April 1945. The architectural plans for both shelters incorporated the design philosophies of the National Park Service Rustic style, including the use of local materials to harmonize with the surrounding environment, while also incorporating features that allowed the buildings to be functional during extreme winter weather. The shelters were sensible, one-room buildings of log construction capped by a moderately pitched gable roof. In anticipation of the deep snow pack, the architectural designs incorporated a sizable portico within a gable end to shelter the entrance from heavy snow drifts and an alternate attic access door. The Lake Vernon Snow Survey Shelter was constructed on an existing parcel owned by SFPUC located within a day's trek of the O'Shaughnessy Dam developed area. The Wilmer Lake Snow Survey Shelter was constructed approximately six miles from Lake Vernon in a secluded location along the Jack Main Canyon Trail.

The second phase of 1940s snow survey expansion in Yosemite National Park was initiated by the Division of Water Resources. In June 1946, the DWR issued a memorandum proposing additional snow survey infrastructure within the northern region of Yosemite National Park. This proposal was part of a larger plan to greatly expand the California Cooperative Snow Survey Program statewide. The expansion came about in response to a statewide population increase and heightened demand on water resources. The proposal for Yosemite National Park included the installation of six snow courses, four shelter cabins, and eight precipitation gauges in addition to the existing snow survey infrastructure. The proposal also incorporated architectural specifications and design

schematics for future shelter cabins: "The proposed shelter cabins would be twelve feet by fourteen feet in plan and depending upon accessibility and materials available at the site, would be constructed of sawed lumber, logs, or stone."ⁱⁱⁱ Each shelter cabin would contain a set of double bunks, wood burning stove, and modest furniture pieces. The proposal stated that funding for the added infrastructure would be provided by the state and any other interested organizations or agencies, specifying that the development would be provided at no cost to the National Park Service. The estimated cost for each of the shelter cabins was between \$800 and \$1000. Yosemite administrators would provide guidance regarding the location of the new infrastructure to ensure it did not conflict with other natural resource management objectives.

Despite the vast importance of previous snow survey activity for natural resource management within the state, the only infrastructure in Yosemite National Park that resulted from the 1946 DWR proposal was a single snow survey shelter at Snow Flat. This would be the last snow survey shelter erected within the park, with the only exception being the rebuilding of Wilmer Cabin following an avalanche in 1986. It is unclear whether the proposed development was hindered by a lack of state funding or if the proposal met opposition from the National Park Service. However, additional proposed shelter cabins and associated snow courses located just beyond the boundaries of the park, within the Stanislaus National Forest, were constructed during the 1940s in accordance with the proposed specifications. These shelters include the Sachse Spring, Huckleberry, and Bond Pass Snow Survey Shelters. The Sachse Spring Snow Survey Shelter falls within feet of Yosemite's northwest boundary and has been subject to debate as to which agency, the National Park Service or the National Forest Service, owns the building. Although official title records have not been located, other archived records indicate that ownership falls to the National Park Service. By 1973, the SFPUC and Stanislaus National Forest "relinquished any interest [they had] in the snow cabins in the park". At that time, Yosemite National Park stepped in to take responsibility for the maintenance and operation of the Sachse Spring Snow Survey Shelter. A DWR document dated August 1981 states that ownership of the Sachse Spring Snow Survey Shelter had been transferred to the National Park Service.

In 1947, the Sachse Spring, Snow Flat, Bond Pass, and Huckleberry Snow Survey Shelters were all constructed to the design specifications outlined by the DWR proposal. (For purposes of this historic context, only the development history for snow survey infrastructure under the jurisdiction of Yosemite National Park will be discussed: the Sachse Spring and Snow Flat Snow Survey Shelters.) The Sachse Spring Snow Survey Shelter was constructed along the crest of Kibbie Ridge, which straddles the northwest boundary of Yosemite National Park. Given its remote location and available local materials, the shelter was built of log construction with a moderately pitched gable roof. The Snow Flat Snow Survey Shelter was constructed near an existing snow course centrally located within the park. The building was in close proximity to the May Lake Road and the developed infrastructure of the May Lake High Sierra Camp. Due to the surrounding development, this shelter cabin was built of frame construction with a moderately pitched gable roof. Similar to the Lake Vernon Snow Survey Shelter, the Sachse Spring building both buildings incorporated a sizable portico to shelter the entry from heavy snow drifts and an alternate attic access door.

Although snow survey shelters located throughout Yosemite were constructed at different times and by varying parties, the terms of agreement regarding each building were very similar. All snow survey shelters, snow

ⁱⁱⁱ California Division of Water Resources, Department of Public Works, California, Memorandum Covering Proposed Additional Snow Survey Work in the National Parks in California, June 1946.

courses, and other snow survey infrastructure were erected under special use permits issued by the Department of the Interior. Funding for the installation of snow survey infrastructure was provided by the Merced Irrigation District, the California Division of Water Resources, or the San Francisco Public Utilities Commission. Snow surveyors working within Yosemite National Park consisted of hired employees from the National Park Service, National Forest Service, and the agencies listed above. The shelters, once constructed, were owned and maintained by the National Park Service. Authorization was given to the snow surveyors by Yosemite National Park to utilize the buildings during the winter months. During the summer season, the buildings were utilized by park personnel as outlying field stations for purposes associated with natural resource management.

Through the years, the methodology of snow surveying has incorporated improved technology and advanced scientific calculations; however, the foundation of the snow surveys program, the snow surveyor and backcountry snow survey shelters, has always endured. Following World War II, the ease and expediency of aerial observation of snowpack led to the placement of aerial snow depth markers in remote areas of the Sierra. Within Yosemite National Park, aerial markers were placed along snow courses at Beehive Meadow, Lake Vernon, Wilmer Lake, Sachse Spring, and Dana Meadow. While this method did reduce the manpower needed for survey work, field crews on the ground were still essential to the program in order to record the water content data of the snowpack. During the late 1950s and 1960s, snow survey programs across the United States turned to the use of automated snow sensors and the use of mechanized equipment to transport ground crews. Snow surveyors in Yosemite and elsewhere began conducting backcountry trips in snow cats and helicopters, which greatly reduced the need for snow survey shelters for a temporary time period. However, this steady progression towards a more mechanized method of snow survey in Yosemite would be nullified in the 1980s with the passage of the California Wilderness Act.

In 1984, nearly ninety percent of federal lands within Yosemite were designated wilderness. Under the Wilderness Act, the use of mechanized equipment was strongly discouraged – to be utilized only in cases of emergency or when the use of such equipment could be justified as a “minimum tool.” This meant that operations were to be carried out with as little impact to the environment as possible or feasible by the National Park Service. By 1990, it was agreed that snow surveys conducted on ski, without the assistance of helicopters or other mechanized transport methods, were the best alternative to meet all National Park Service and natural resource management objectives. The use of helicopters for snow surveys was only considered during conditions of high avalanche risk. The Wilderness Act inadvertently revived interest in maintaining the use of backcountry snow survey shelters for field crews. Throughout the 1990s and into the early 2000s, nearly all backcountry snow survey shelters received some degree of restoration or preservation maintenance by the Yosemite Historic Preservation Crew to ensure their longevity. The wilderness designation of park lands placed heavy restrictions on new development and ensured that remaining structures in the Yosemite backcountry were of special interest to the park. This designation also protected the historic context of backcountry properties to be interpreted as significant natural resource management facilities.

Since the drought of the early 1930s, most of the American West has relied on federal and state snow survey programs to help guide the management of water supplies. Today in California, snow surveys are conducted within all of the main watersheds on the eastern and western sides of the Sierra Nevada – twenty-four in total. The development of backcountry snow shelters, in conjunction with snow courses, became an essential component of the program. As Dr. James E. Church discovered at the turn of the 20th century, these shelters facilitated surveyors’

research on high elevation snowpack and by doing so, provided more accurate data collection on water supplies. The National Park Service and the California Cooperative Snow Survey Program continue to conduct seasonal snow surveys and utilize the snow survey shelters located throughout Yosemite. Small groups of snow surveyors conduct four separate trips each winter to thirteen snow courses within the Yosemite backcountry. In order to maintain an accurate statistical record of snow pack in the Sierra, it is essential to take snow survey measurements in the same location near the same time period year after year. The courses presently surveyed in Yosemite have remained essentially unchanged since 1947, and in some cases longer. All information obtained from the snow surveys is funneled to state researchers and scientists within the Department of Water Resources, which assembles data and publishes snow melt runoff forecasts. The existence of backcountry snow survey shelters has proven to be an absolute necessity to the fieldwork conducted during the harsh winter conditions common to the Sierra Nevada. Additionally, the shelters have become an indispensable tool for National Park Service personnel, aiding in backcountry ranger patrols, search and rescue missions, fire management operations, and other natural resource management activities. Fieldwork and the collection of scientific data within the Yosemite backcountry would be greatly hindered without these overnight facilities. The snow survey shelters that remain functioning in their original capacity today serve to document the evolution of natural resource management not only for Yosemite National Park, but also for the American West.

Additional historic context information

Architectural Significance

The Sachse Spring Snow Survey Shelter was constructed in the National Park Service Rustic Style. Rustic architectural style dominated National Park Service architectural design from the beginnings of the agency until the 1940s. Early park administrators sought to create a unifying style for all park structures that readily identified them as park structures yet harmonized with the surrounding environment. The style was consciously rooted in the past and expressed the National Park Service mission to preserve the nation's natural and cultural heritage.

"Rustic style, when successfully handled, through the use of native materials in proper scale and through the avoidance of rigid, straight lines, and over-sophistication, gives the feeling of having been executed by pioneer craftsmen with limited hand tools. It thus achieves sympathy with natural surroundings, and with the past."^{iv}

The National Park Service Rustic style is characterized by use of local building materials and robust battered masonry foundations and chimneys that tied the building to its site. Other aspects contributed to the characteristic horizontal emphasis, such as the shallow pitched roof, exposed structural members, and wide over-hanging eaves. The elements often received varying treatment depending upon the actual setting of the building, but the major thrust of the design ethic was harmonization with the surrounding landscape.

The architectural plans for the Sachse Spring Snow Survey Shelter were part of a larger 1946 proposal to construct five additional snow survey shelters throughout the Yosemite National Park backcountry. The proposal included elevation and plan drawings for three distinct styles of buildings, which were all in-keeping the National Park Service Rustic style. The proposed buildings were to be constructed as a log, masonry, or frame structure

^{iv} Good, Park Structures and Facilities, 3-4

dependent upon the contextual setting of each. The buildings were intended to be utilized as outlying shelter cabins within the Yosemite backcountry, constructed to withstand the harsh winter conditions of the Sierra Nevada. The architectural design of the Sachse Spring cabin exemplifies the philosophies and characteristics associated with the National Park Service Rustic style, while also intentionally evoking past homestead cabins of the Yosemite region. Typical of the Rustic Style, the use of natural finishes and local materials serve to harmonize the building with the surrounding landscape.

Exterior character defining features include:

- Use of local materials (such as logs and granite rubble)
- Horizontal emphasis
- Log walls comprised of horizontal beams and vertical posts
- Beveled face log crowns
- Single-course sugar pine roofing shingles with a wide reveal
- Moderately pitched, gable roof
- Wide, over-hanging eaves with exposed log purlins
- Large entry portico to provide shelter from heavy snow drifts
- Access door within the upper gable end and associated wooden ladder to provide entry when the main entry door is blocked by heavy snow loads
- Large granite fieldstone entry stair

Interior character defining features:

- Unfinished log walls with exposed chinking
- Unfinished ceiling with exposed log structural members
- Modest furniture pieces
- Vertical plank doors
- Wood burning stove
- Three and a half inch Douglas fir tongue and groove flooring

Historic Integrity

The Sachse Spring Snow Survey Shelter retains all seven aspects of historic integrity as defined by the National Register of Historic Places' standards: **location, setting, design, materials, workmanship, association, and feeling.**

The Sachse Spring Snow Survey Shelter remains in its original **location** along the Kibbie Ridge Trail approximately 500 feet to the west of Sachse Spring. This location was selected for its proximity near the Kibbie Ridge snow survey route and access to fresh water. The building provided winter shelter for fieldwork associated with the acquisition of hydrologic data within the Tuolumne River drainage. Today, it continues to serve in a comparable capacity as an outlying field station for natural resource management activities of Yosemite National Park and Stanislaus National Forest. Because of the remote location, the **setting** has remained essentially unchanged. The building is situated amongst granite boulder outcroppings and a sparse supalpine forest along the crest of Kibbie Ridge. In 1984, lands immediately surrounding the property boundary were designated wilderness. This protection ensures that no new development will occur outside of the property boundary or within the viewshed of the ski hut.

The *design* for the Sachse Spring Snow Survey Shelter is in keeping with the philosophies and distinct characteristics associated with the National Park Service Rustic style, while also intentionally being reminiscent of past homestead cabins of the Yosemite region. The building incorporates architectural details, including substantial log pole framing, intended to withstand the harsh winter conditions of the Sierra Nevada. The use of natural finishes and local materials serve to harmonize the building with the surrounding environment. The building has had only minor alteration over the years and still retains the majority of its original *material* including: exterior architectural details and finishes, log walls, shingle roofing material, interior finishes, and a vertical plank style door. The building has been preserved intact; in part due to its remote setting and also to its continued use by the National Park Service as backcountry lodging for wilderness travelers. Present day maintenance work is conducted by the Yosemite Historic Preservation Crew, who consciously retain as much historic fabric as possible without jeopardizing the structural integrity of the building. If and when materials need to be replaced, the crew does so with in-kind materials using historic techniques. The snow survey shelter was constructed by skilled log builders and demonstrates a high level of *workmanship*. Construction of a log frame building may be impressive in any context; however, in this location the remote setting undoubtedly presented unique challenges for the builders. Great care was taken to harvest local materials from the surrounding environment. The snow survey shelter was intended to be a permanent building and was constructed accordingly.

The architectural detailing of the Sachse Spring Snow Survey Shelter, such as a moderately pitched gable roof and large entry portico within the gable end, *associates* the building with other National Park Service snow survey shelters throughout the park that maintain a similar design. The utilitarian style and setting of the building provides a *feeling* of a backcountry outpost for the management of park resources. The surrounding land designation as wilderness places heavy restrictions on new development outside of the property boundary and ensures that remaining structures within the Yosemite backcountry are of special interest to the park. This designation protects the context of the property to be interpreted as a significant natural resource management facility.

Previously Determined Eligible for the National Register of Historic Places

The Sachse Spring Snow Survey Shelter was first recognized for its historical significance during a historic resource case study conducted by Yosemite National Park in 1979. National Park Service Historian, Linda Green, recommended the property, among other significant cultural and historic resources throughout the park, to be nominated to the National Register of Historic Places in her 1987 multi-volume historic resource study, Yosemite: the Park and its Resources. A Draft Multiple Property Document (MPD) was composed in 2004 by the University of Las Vegas History Department. The Draft MPD used historic contexts from Greene's resource study and recognized twenty buildings, which included Sachse Spring Snow Survey Shelter, for listing in the National Register of Historic Places. The Draft MPD has yet to be finalized by Yosemite National Park staff; however, it has received concurrence from the California State Historic Preservation Office. (*See Continuation Sheet III*) The Sachse Spring Snow Survey Shelter has been indentified for its historic significance and is said to be eligible for the National Register of Historic Places under Criteria A and C. The current nomination concurs that the property is significant under these criterions and that there are no contributing or non-contributing resources associated with this property.

9. Major Bibliographical References

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Sachse Spring Snow Survey Shelter

Name of Property

Tuolumne, CA

County and State

Park Historic Preservation Officer/Native American Liaison, Memorandum to Division Chief, Resources Management and Science, Yosemite National Park, Subject: Multiple Property Documentation and 20 National Register Nominations, Jan. 29, 2007. [Files of Historical Architect Sueann Brown, Branch of History, Architecture and Landscapes, Division of Resources Management and Science, Yosemite National Park.]

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Archive repositories consulted: *Yosemite National Park Archives & Research Library; Hetch Hetchy Water & Power - Moccasin Archives; Merced Irrigation District; National Park Service's National Archives in San Bruno, California; and the National Park Service's Electronic Technical Information Center (ETIC).*

Previous documentation on file (NPS):

- preliminary determination of individual listing (36 CFR 67 has been requested)
- previously listed in the National Register
- previously determined eligible by the National Register
- designated a National Historic Landmark
- recorded by Historic American Buildings Survey # _____
- recorded by Historic American Engineering Record # _____
- recorded by Historic American Landscape Survey # _____

Primary location of additional data:

- State Historic Preservation Office
 - Other State agency
 - Federal agency
 - Local government
 - University
 - Other
- Name of repository: _____

Historic Resources Survey Number (if assigned): _____

10. Geographical Data

Acreage of Property Less than one acre
(Do not include previously listed resource acreage.)

UTM References
(Place additional UTM references on a continuation sheet.)

1	<u>11S</u>	<u>280078</u>	<u>4160150</u>	3	<u>11S</u>	<u>2800010</u>	<u>4159826</u>
	Zone	Easting	Northing		Zone	Easting	Northing
2	<u>11S</u>	<u>280157</u>	<u>4159898</u>	4	<u>11S</u>	<u>279802</u>	<u>4160052</u>
	Zone	Easting	Northing		Zone	Easting	Northing

Verbal Boundary Description (Describe the boundaries of the property.)

The property encompasses 0.7 acre approximately 500 feet northwest of the Kibbie Ridge Trail near Sachse Spring in the far northwestern region of Yosemite National Park. This boundary designation has been determined by the Branch of History, Architecture, and Landscapes for purposes of this nomination.

- Northeastern boundary – The northeastern boundary begins at a National Park Service boundary marker affixed to a red fir, coordinate 11S 250515 Easting, 4218959 Northing, and runs southeast for approximately 215 feet to a seasonal creek at coordinate 11S 250573 Easting, 4218929 Northing.
- Southeastern boundary – The southeastern boundary begins at the said seasonal creek and runs southwest for approximately 215 feet to a second National Park Service boundary marker at coordinate 11S 250504 Easting, 4218914 Northing.
- Southwestern boundary – The southwestern boundary begins at said boundary marker and runs northwest for approximately 200 feet to an arbitrary point at coordinate 11S 250460 Easting, 4218933 Northing.
- Northwestern boundary – The northwestern boundary begins at the said coordinate and runs northeast for approximately 200 feet to the point of origin.

Boundary Justification (Explain why the boundaries were selected.)

The location for the Sachse Spring Snow Survey Shelter was strategically selected by Yosemite National Park and the California Cooperative Snow Survey Program along the Kibbie Ridge snow survey route. The boundary designation contains all that is significant and contributing to the historic character of the property.

Sachse Spring Snow Survey Shelter
Name of Property

Tuolumne, CA
County and State

11. Form Prepared By

name/title Jennifer Self, Architectural Historian
organization Yosemite National Park date August 30, 2011
Division of Resources Management and Science
Branch of History, Architecture, and Landscapes
street & number 5083 Foresta Road telephone 209.379.1222
city or town EI Portal state CA zip code 95318
e-mail Jennifer_Self@partner.nps.gov

Additional Documentation

Submit the following items with the completed form:

I. Property Location Map:

Kibbie Lake Quadrangle, California – Mariposa County, 7.5 Minute Series (topographic), United States Department of the Interior, Geological Survey, 1992.

II. Reference Map:

Reference map showing the locations of historic and present locations of snow survey shelters and snow courses in Yosemite National Park, as well as routes taken by snow surveyors.

III. Concurrence Letter

Concurrence letter from the California State Historic Preservation Office dated August 23, 2004. States properties identified within a draft Multiple Property Document for Yosemite National Park, including the "Sachse Springs Cabin Building #2452", are eligible for listing in the National Register of Historic Places.

IV. Building Specifications:

Proposed building specifications for backcountry snow survey shelters, or "shelter cabins". Produced by the California Cooperative Snow Survey Program. June, 1946.

V. Historic Photographs

Sachse Spring Snow Survey Shelter

Name of Property

Tuolumne, CA

County and State

Photographs:

Submit clear and descriptive photographs. The size of each image must be 1600x1200 pixels at 300 ppi (pixels per inch) or larger. Key all photographs to the sketch map.

Name of Property: Sachse Spring Snow Survey Shelter

City or Vicinity: Yosemite National Park

County: Tuolumne State: CA

Photographer: Jennifer Self

Date Photographed: September 2009

Location of original digital files: Yosemite National Park, Division of Resources Management and Science, Branch of History, Architecture and Landscapes. El Portal, CA.

Photo #1 (*CA_Tuolumne County_Sachse Spring Snow Survey Shelter_0001*)

South façade (right) and west façade (left), camera facing north-east.

Photo #2 (*CA_Tuolumne County_Sachse Spring Snow Survey Shelter_0002*)

North façade (right) and east façade (left), camera facing south-west.

Property Owner:

(Complete this item at the request of the SHPO or FPO.)

name Department of the Interior, National Park Service, Yosemite National Park

street & number 5083 Foresta Road telephone _____

city or town El Portal state CA zip code 95318

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C.460 et seq.).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Office of Planning and Performance Management, U.S. Dept. of the Interior, 1849 C. Street, NW, Washington, DC.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Sache Spring Snow Shelter
Name of Property
Tuolumne County, CA
County and State
Historic Resources of Yosemite National Park
Name of multiple listing (if applicable)

Section number 8 Page 25

Association with *Historic Resources of Yosemite National Park Multiple Property Submission*

The Sache Spring Snow Shelter is associated with the *Historic Resources of Yosemite National Park Multiple Property Submission*. It is representative of the following historic contexts, as defined in Section E of the MPS cover document: Settlement and Industry in Yosemite, 1851-1951; and Architecture, Landscape Design, and the Construction of the Visitor Experience in Yosemite, 1856-1964. It is an example of the following property types, as defined in Section F: Resources Associated with Settlement and Industry (1851-1951), with a subtype of Exploration, Settlement, and Resource Exploitation; and Resources Associated with Architecture and Design (1856-1964), with a sub-type of New Deal Rustic.

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Sachse Spring Snow Survey Shelter

Name of Property

Tuolumne County, CA

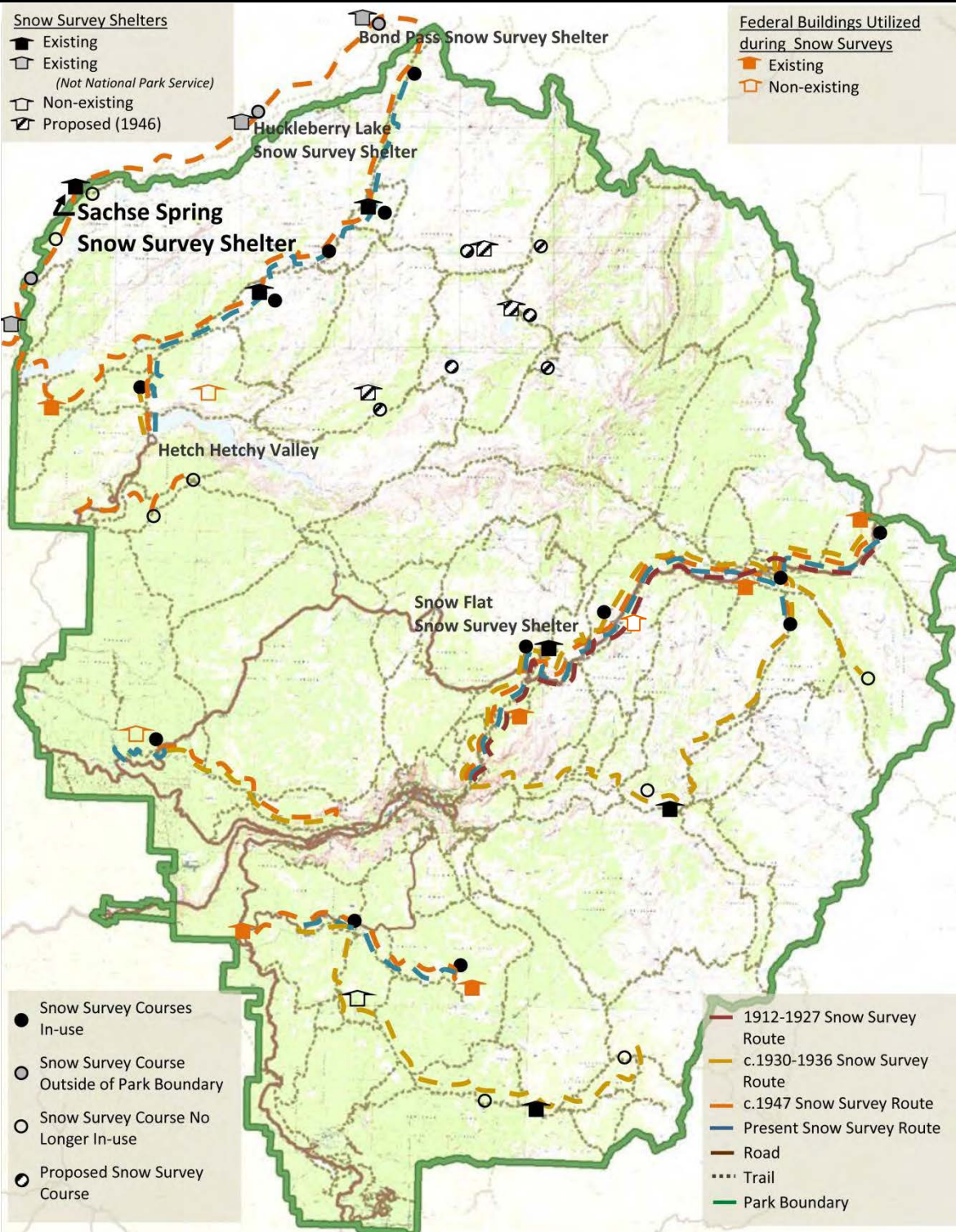
County and State

n/a

Name of multiple listing (if applicable)

Section number Additional Documentation Page II

YOSEMITE NATIONAL PARK
Snow Survey Infrastructure & Routes
Sachse Spring Snow Survey Shelter and Associated Features



United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

**Sachse Spring Snow Survey
Shelter**

Name of Property

Tuolumne County, CA

County and State

n/a

Name of multiple listing (if applicable)

Section number Additional Documentation Page III

STATE OF CALIFORNIA - THE RESOURCES AGENCY

ARNOLD SCHWARZENEGGER, Governor

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION

P O BOX 942896
SACRAMENTO, CA 94296-0001
(916) 833-8624 Fax: (916) 833-4824
calstipos@ohp.parks.ca.gov
www.ohp.parks.ca.gov



August 23, 2004

Dr. Stephanie Toothman
National Park Service
Pacific West Region
909 First Street
Seattle, Washington 98104-4159

Dear Dr. Toothman:

Thank you for the opportunity to comment on the National Register Multiple Property nomination for Yosemite National Park. I concur that the properties identified and evaluated in the nomination do constitute a coherent group of geographically dispersed resources that are eligible for listing in the National Register. The nomination does an excellent job of defining separate, but related contexts that make clear the significance of the individual resources, as well as the reasons that they collectively constitute a multiple property. The inclusion of a number of the park's less elaborate, high altitude resources is particularly noteworthy. The context statements synthesize a large amount of historic documentation in a clear and concise manner and the descriptive material that is provided for the individual resources or resource groupings is excellent.

We concur in all of your findings regarding the resources enumerated in the multiple property nomination. We agree that the following properties are eligible for the National Register as a part of a multiple property.

Lake Vernon Cabin Building #2450
May Lake High Sierra Camp Historic District
Hetch Hetchy Comfort Station Building #2104
Henness Ridge Fire Lookout Building #5300
The Golden Crown Mine
Glen Aulin Sierra Camp Historic District
Chinquapin Historic District
Buck Creek Cabin Building #4800
Snow Flat Cabin #Building #3501
Snow Creek Cabin Building #3450
Sachse Springs Cabin Building #2452
Ostrander Ski Hut Building #5110
Old Big Oak Flat Road
New Big Oak Flat Road
Merced Lake Ranger Station Building #3400
Merced Lake High Sierra Camp Historic District

United States Department of the Interior
National Park Service

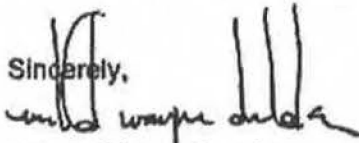
National Register of Historic Places
Continuation Sheet

Sachse Spring Snow Survey Shelter
Name of Property
Tuolumne County, CA
County and State
n/a
Name of multiple listing (if applicable)

Section number Additional Documentation Page III

Wawona Tunnel
Vogelsang High Sierra Camp Historic District
Tuolumne Meadows High Sierra Camp Historic District

I have signed the application as commenting authority. If you have any questions, please call Gene Itogawa of my staff (916) 653-8936.

Sincerely,

Milford Wayne Donaldson
State Historic Preservation Officer

Cc: Kimball Koch

United States Department of the Interior
National Park Service

National Register of Historic Places
Continuation Sheet

Sachse Spring Snow Survey
Shelter

Name of Property

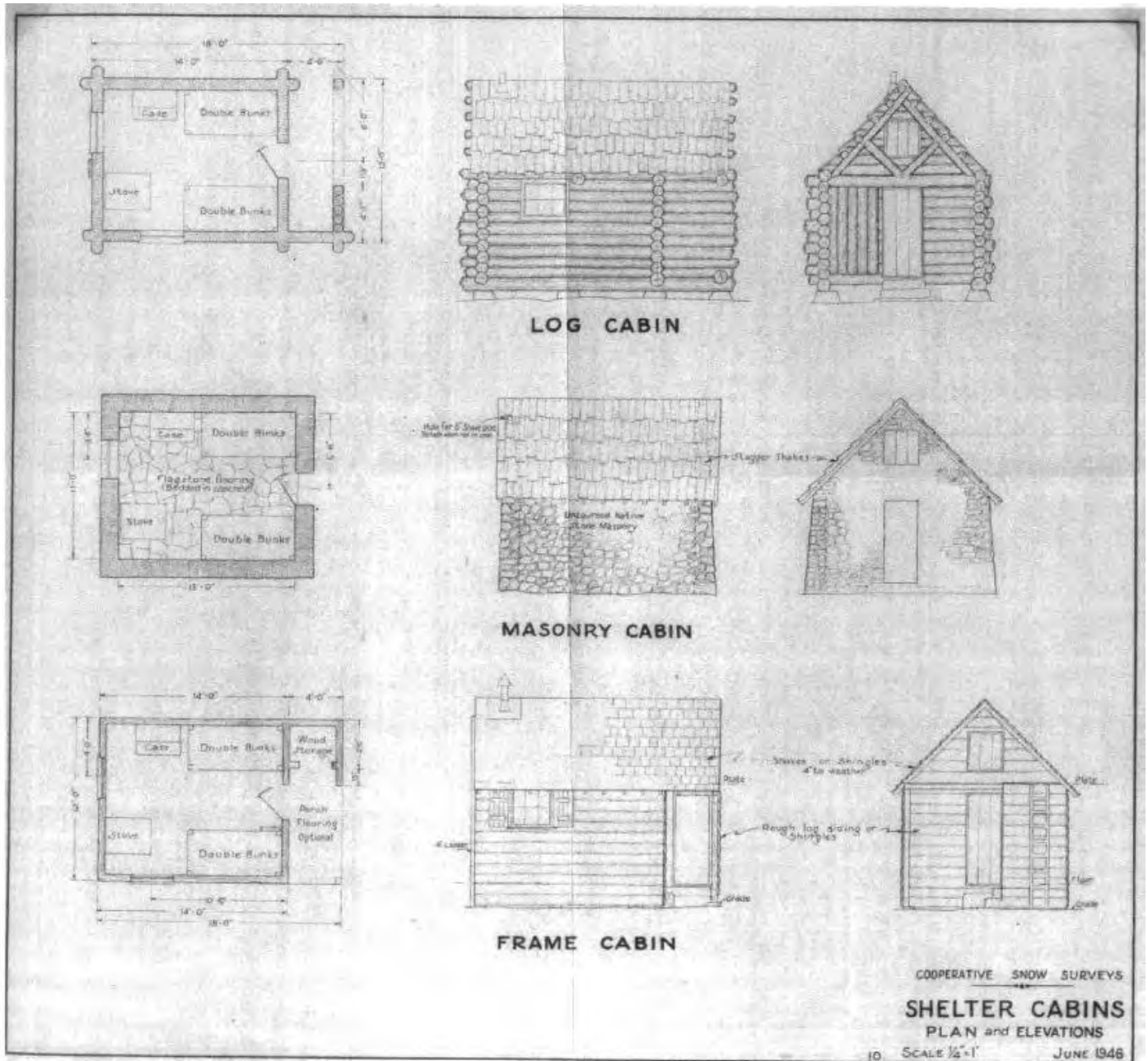
Tuolumne County, CA

County and State

n/a

Name of multiple listing (if applicable)

Section number Additional Documentation Page IV



**United States Department of the Interior
National Park Service**

**National Register of Historic Places
Continuation Sheet**

Sachse Spring Snow Survey Shelter
Name of Property
Mariposa County, CA
County and State
N/A
Name of multiple listing (if applicable)

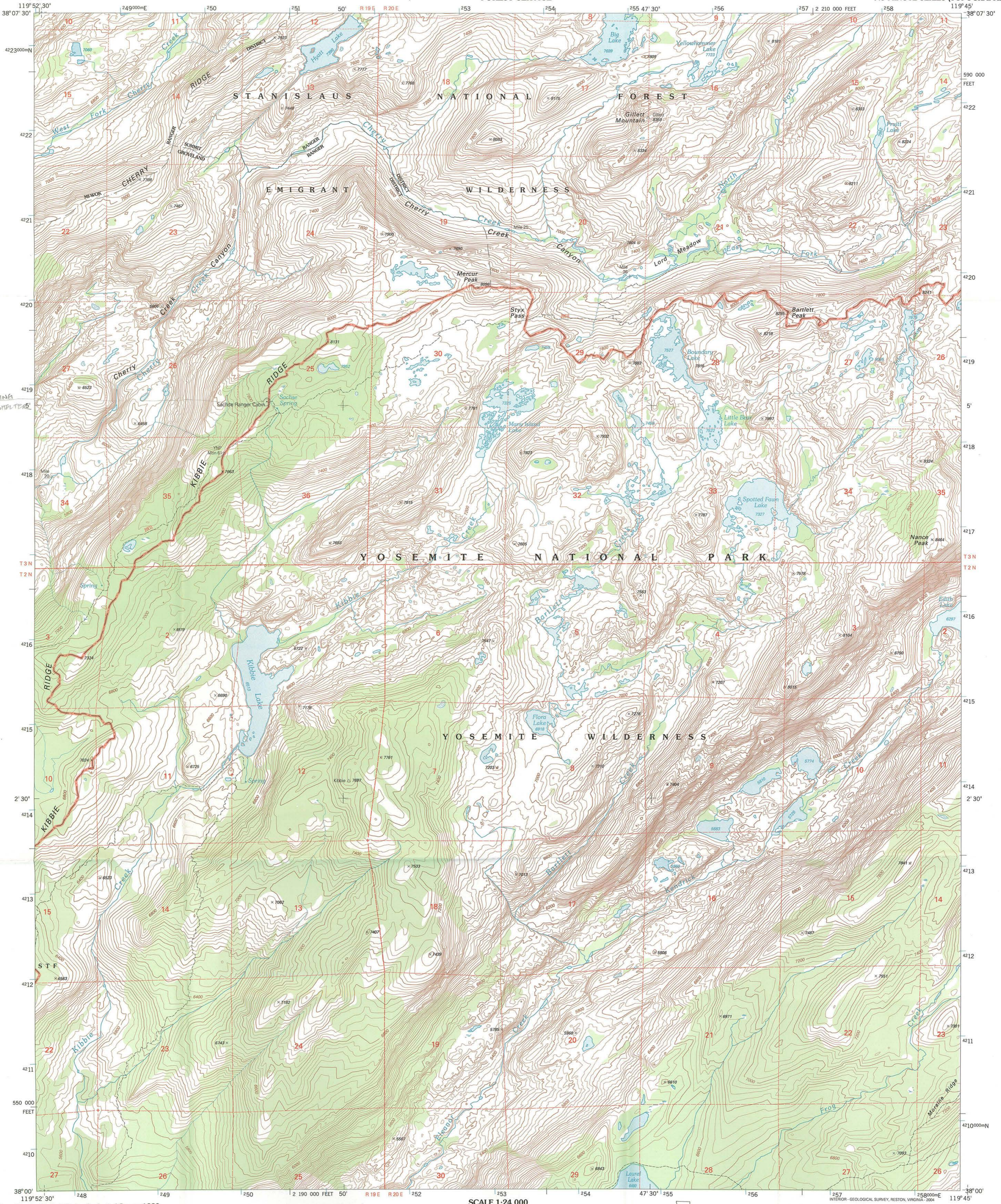
Section number Additional Documentation Page V



Historic Photo #1. Southeast corner of Sachse Spring cabin, camera facing northwest, April 1951. Photographer: Don Paulsen, Retired snow surveyor for the Hetch Hetchy Water Project . Location of original files: Xeroxed copy of original photograph. California Department of Water Resources, Sacramento, CA.

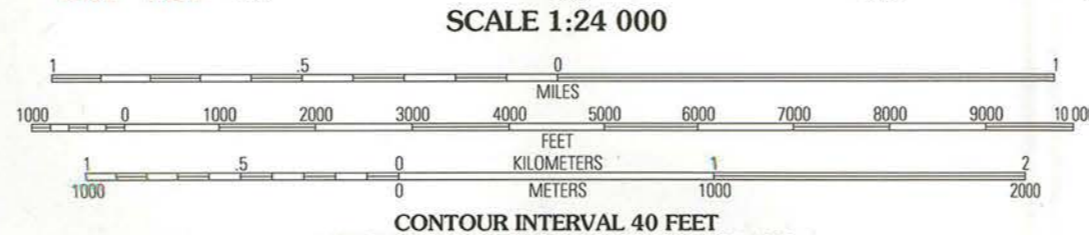
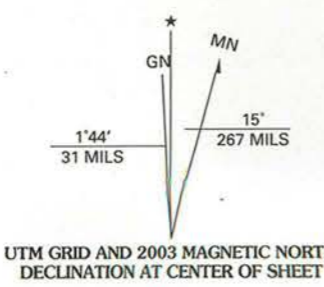


Historic Photo #2. Front elevation of Sachse Spring cabin in winter, c. 1950. Camera facing north. Photographer: Don Paulsen.



SACRIS SPRING
SNOW SURVEY SPLITTERS

Produced by the United States Geological Survey 1990
Revision by USDA Forest Service 2001
Topography compiled 1983. Planimetry derived from imagery taken 1998 and other sources. Public Land Survey System and survey control current as of 2003. Boundaries current as of 2003.
North American Datum of 1927 (NAD 27). Projection and 10 000-foot ticks: California coordinate system, zone 3 (Lambert conformal conic).
Blue 1000-meter Universal Transverse Mercator ticks, zone 11.
North American Datum of 1983 (NAD 83) is shown by dashed corner ticks. The values of the shift between NAD 27 and NAD 83 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software.
Non-National Forest System lands within the National Forest. Inholdings may exist in other National or State reservations.
This map is not a legal document. Public lands are subject to change and leasing, and may have access restrictions; check with appropriate offices. Obtain permission before entering private lands.
Unsurveyed land net is not official.



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048



QUADRANGLE LOCATION

1	2	3
4	5	6
7	8	

ADJOINING 7.5' QUADRANGLES

HIGHWAYS AND ROADS

Interstate	Primary highway
U. S.	Secondary highway
State	Light-duty road
County	Composition: Unspecified
National Forest, suitable for passenger cars	Paved
National Forest, suitable for high clearance vehicles	Gravel
National Forest Trail	Dirt
	Unimproved; 4 wheel drive
	Trail
	Gate; Barrier

KIBBIE LAKE, CA
2001
38119.A7-TT-024
NGA 2060 III SE-SERIES V895



\$ 0.00





UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES
EVALUATION/RETURN SHEET

REQUESTED ACTION: NOMINATION

PROPERTY NAME: Sachse Spring Snow Survey Shelter

MULTIPLE NAME: Yosemite National Park MPS

STATE & COUNTY: CALIFORNIA, Tuolumne

DATE RECEIVED: 6/02/14 DATE OF PENDING LIST: 6/25/14
DATE OF 16TH DAY: 7/10/14 DATE OF 45TH DAY: 7/19/14
DATE OF WEEKLY LIST:

REFERENCE NUMBER: 14000418

REASONS FOR REVIEW:

APPEAL: N DATA PROBLEM: N LANDSCAPE: N LESS THAN 50 YEARS: N
OTHER: N PDIL: N PERIOD: N PROGRAM UNAPPROVED: N
REQUEST: Y SAMPLE: N SLR DRAFT: N NATIONAL: N

COMMENT WAIVER: N

___ACCEPT ___RETURN ___REJECT _____DATE

ABSTRACT/SUMMARY COMMENTS:

The Sachse Spring Snow Survey Shelter is locally significant under National Register Criteria A and C, in the areas of Conservation, Science, and Architecture. Built by the City and County of San Francisco from standardized plans during the second phase of 1940s snow survey cabin construction, the 1947 Sachse Spring cabin was established as an important component of the dispersed system of snow survey cabins built to aid in the scientific study of regional hydrology. Severe droughts in the late 1920s and early 1930s had highlighted the importance of water conservation in the areas served by the Sierra Nevada Mountains. Remote cabin sites such as this provided important shelter to winter survey crews and provided the Park with seasonal backcountry shelters and field stations. The Sachse Spring shelter is also a fine local example of log, rustic-style design in the Park. The property meets the registrations requirements set out in the Yosemite MPS.

RECOM./CRITERIA Accept Criteria A+C

REVIEWER Paul R. Lusignea DISCIPLINE HISTORIAN

TELEPHONE _____ DATE 7/16/14

DOCUMENTATION see attached comments Y/N see attached SLR Y/N

If a nomination is returned to the nominating authority, the nomination is no longer under consideration by the NPS.