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James J. Hill III

BEFORE THE

STATE WATER RESOURCES CONTROL BOARD

In the Matter of Water Right Application No. 30166 of James J. Hill, III	**WRITTEN TESTIMONY OF TOM ASMUS**

Background

My name is Thomas Asmus, and I was Ranch Foreman for the El Sur Ranch ("Ranch") between 1961 and 1990. I have spent most of my life on the ranch and have personal knowledge of the history and irrigation practices, up to the time of my retirement in 1990.

My father was Ranch Foreman of El Sur Ranch from 1935 – 1961 and I first came to the Ranch as a child in October 1935. I grew up on the Ranch and worked there most of my life. In 1950, I left to attend college, but continued to work on the Ranch during the summers. I earned a Bachelor of Science degree in Animal Husbandry from the University of California, Davis, in 1954. After college, I lived and worked on the Ranch continuously until 1990, except for two years when I served in the Army. I took over Ranch Foreman duties at the Ranch from my father in 1961 and held that position until 1990, when I retired.

As Ranch Foreman, my duties included responsibility for the irrigation system, as

well as for the irrigation of the pasture. It was my job to ensure that the pasture received sufficient water to provide growth of forage for cattle and that the system ran as efficiently as possible.

Ranch Owners and Well Installations

When I first arrived at the Ranch in 1935, it was owned by Mr. Harry Hunt. At that time, the Ranch also included land that is now in Andrew Molera State Park. In the 1940s, Mr. Hunt grew peas and artichokes in irrigated terrace fields on the Ranch. At that time, irrigation was accomplished via a fuel oil (distillate) 30 hp pump which drew surface water from the Big Sur River. Also at that time, irrigation was accomplished in the Creamery Meadow fields of the Molera property only, via a gravity ditch system that took water from a diversion dam located just below the big bend in the Big Sur River. The gravity ditches were located on both sides of the river, and provided irrigation in Creamery Meadow for tall fescue grass and alfalfa.

In 1948, electricity became available in the area. A few years after that, around 1951, Mr. Hunt installed a new electric irrigation system to irrigate the benchlands of the property. Mr. Hunt had the "Old Well" installed, and commissioned a grading plan and irrigation plan for what are now referred to as Fields 1-8. The field demarcation and location of the Old Well are shown on the photo marked Exhibit ESR—14. The plans provided for construction of "checks" and "borders" to allow flood irrigation of the pasture. For example, a field is divided into checks (level sections of a field) which are 8 feet to 20 feet wide and separated by raised borders that keep the water from going from one check to another. Flood irrigation is the most efficient and cost-effective way to grow the crops which provide the best fodder for cattle grazing on the El Sur Ranch.

The Old Well is still being used today to irrigate Fields 1-8. The eight fields comprise approximately 160 acres. In order to accomplish "flood" irrigation, the 160 acres require approximately 10 gallons per minute ("gpm") of water for each acre being irrigated. In my experience, as a practical matter, it took one person, full time to operate the one-well irrigation system, especially in the summer, when night-time irrigation was required.

In 1955, Mr. Cortlandt Hill purchased the Ranch property. Under Mr. Cortlandt

Hill's ownership, three new pasture fields were added in 1958: the land adjacent to the Pump House was leveled and is now known as the Pumphouse Field; and two fields west of Highway 1 and above Fields 1-4 were also added and are now known as the North Pasture and the South Pasture fields. My father remained as the Ranch Foreman until 1961, when he passed away. At that point, I immediately took over as Ranch Foreman.

Adding the three fields overtaxed the Old Well, because with the addition of the three fields, the total acreage that was being irrigated had increased. There wasn't enough water pressure to get the water over the fields in the dry season to get adequate production from the cultivated pasture and make the addition of the three fields economically worthwhile. So, around 1960, Mr. Cortlandt Hill hired International Agricultural Services ("IAS") to assess the potential production of the fields. IAS took soil samples and gave Mr. Hill a "prediction" that the pasture could produce twice as much forage if he had an adequate water supply. Doubling the production of the land meant that water at the rate of 2500 gpm (10 gpm x 250 acres) would be needed for irrigation of the pasture. At that time, Mr. Hill had all the necessary facilities and the land to put in another well. The Old Well and potential sites for additional wells were located on Ranch property in the bottomlands on the north side of the Big Sur River. That land was subsequently conveyed to the State of California and is now part of the Andrew Molera State Park. The New Well was installed in 1975 and became operational in 1984. An easement for the New Well and access to it had been retained in the transfer of the land to the State.

Irrigation Practices

As previously mentioned, installation of the Old Pump in the 1950s provided irrigation to Fields 1-8. Installation of the New Well added a second point of extraction and allowed for more efficient irrigation of the North and South Fields and the Pump House Field, without increasing the amount of water diverted from the Big Sur River.

The Old Well pump is a centrifugal pump with a 60 horsepower motor. The most efficient use of the Old Well pump was to push water up to highest lateral above the North and South fields. Use of the Old Well pump to carry water to the laterals to the lower fields, especially

to the laterals in the Pump House Field, was inefficient because the land was at a lower elevation and the higher horse power Old Well pump would pump water at a rate greater than that which could be instantaneously provided by the underground aquifer. For this reason, it became necessary to throttle back the Old Well pump, reducing its efficiency and raising labor costs. Utilizing the New Well's 55 horsepower turbine pump to accomplish irrigation of the lower fields was more efficient.

There are approximately 350 outlet valves in the fields, located at intervals of about 30 feet and situated between checks. For example, there are about 60 valves in Fields 3 and 4. "Alfalfa pots" are also utilized on the Ranch to direct the flow of water coming off a valve. The alfalfa pot rotates 360° around the valve to allow the water to be directed into one check or another. The rate of water released from the valve is controlled by the number of revolutions the valve is turned to open it. Standpipes are used to release pressure in the system.

The historic operation of the irrigation system was based on the type of soil in the field, the amount of water in the soil, the amount of precipitation and wind, what field the cattle were grazing in and the height of the grass on the field (which can prevent the field from drying out too fast). Irrigation of the pasture was started by turning on the pumps, which push the water through the pipes to the outlet valves in the laterals at the top of the fields. The previously mentioned factors determined how many outlet valves were opened to irrigate the field. If a field is more porous, generally fewer valves are opened, so that the water is under the greatest pressure and reaches the bottom end of the field without over-irrigating the upper end. Where a field is less porous, more valves can be opened and water will proceed more slowly down the field. In the more porous Pumphouse Field and North Pasture, for example, the water has to be "chased down" the field with a higher flows to prevent over-saturation and waste. This was done by using only two valves at a time to irrigate these fields. Where the field is underlain by a clay layer at the root bottom, such as Fields 1-8, four or more valves can be opened at a time to allow slower progression of the water down the field. Generally, day irrigations were done on an eight-hour set, and night irrigations on a twelve-hour set, and generally, more valves were opened for night

irrigations, so that with lower pressure, the field was irrigated more slowly. It is my understanding that these basic principles still guide the ranch irrigation today.

Determining when a field is sufficiently irrigated so that the valves can be closed is a judgment call. At one point, Mr. Jim Hill purchased hydrometers to measure the moisture in the soil. However, as the calibration in the hydrometers would go out frequently, the use of the hydrometers became impractical. To this day, the best way to measure moisture in the soil is to use a plug puller because it is most reliable as you can see what the soil looks like. If the soil sticks together then you know you have enough water on it.

The irrigation cycle with the Old Well was about 45 days, however that was never achieved, mostly due to salinity. Salinity was a problem when "spring tides" occurred in August and salt water intruded into the groundwater pumped by the Old Well. When salt in the Old Well water was high, the irrigation system was shut down so as not to damage the grass and pasture. Prior to installing a conductivity meter, the water in the Old Well was "taste-tested" for salinity. The irrigation cycle with the two wells (Old and New) was about an 18-day rotation. Even with irrigation utilizing both wells and an optimum irrigation cycle of 18 days, salt continued to be a problem that limited irrigation.

The irrigation season varied from year to year depending on rainfall. Irrigation usually started in May and ended with the first rain after summer – or around the end of October. However, in years when there was little rainfall in winter, irrigation began much earlier and extended later. From about the Fourth of July, irrigation on all eight fields was a continuous process – 24 hours a day, moving water from field to field.

Conclusion

I operated an efficient irrigation system at the ranch based on the soil type, the well pump capacities, labor constraints, and my experience. I retired from being Ranch Foreman in 1990 and now live in Jamestown, California.