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Segregation Survey of Power Project No. 605,  
Sec. 21, T. 22 S., R. 10 W.

Chains

The survey of Power Project No. 605, in Sec. 21, T. 22 S., R. 10 W., W. M., was executed with a solar transit made by W. & L. E. Gurley, Serial No. 2350, constructed in accordance with the standard specifications of the General Land Office. The horizontal circle has a diameter of  $5\frac{1}{2}$  ins., with two double opposite verniers reading to single minutes. The instrument is equipped with the improved Smith solar attachment; radius of the latitude arc 3 ins., and of the declination arc  $3\frac{1}{2}$  ins., each with verniers reading to single minutes. The instrument was in good condition, and having been placed in satisfactory adjustment prior to beginning the survey, and tested and found free from appreciable error, was approved by the district cadastral engineer on May 26, 1936. I examined all of the instrumental adjustments before making the field tests hereinafter recorded.

The directions of all lines were determined by solar transit method. The measurements were made with a Lallie steel tape, 5 chs. in length, graduated every link for the first 100 lks. and the balance at intervals of 10 lks. The tape was tested by comparison with a Lufkin standard and found correct. The measurements were made on the slope, the vertical angle of each interval was determined by a clinometer in good adjustment; the horizontal equivalents are entered in the field note record.

The data furnished with the special instructions gives the geographical position of the NE. cor. of sec. 21, as follows: Latitude  $43^{\circ} 39' N.$ , and longitude  $123^{\circ} 53' W.$

June 9, 1936, in camp near Reedsport, Ore., near the cor. of secs. 3, 4, 33 and 34, on the N. bdy. of T. 22 S., R. 12 W., at  $2^h 33.4^m$  a.m., l.m.t., or  $2^h 49.9^m$  a.m. by my watch, which reads correct 120th meridian time as determined by radio signals I observe Polaris at eastern elongation, making two sights each with the telescope in direct and reversed positions, and place a nail at the mean point, in a peg driven firmly in the ground 10 chs. N. After sunrise I lay off the azimuth of Polaris,  $1^{\circ} 26' 28.5''$ , and make a meridian mark on a second peg, 25.15 lks. (16.60 ft.) to the west of the mean point in the line determined by the observation; I verify the angle by a vernier reading of the instrument.

In order to verify the latitude of this station and the reading of my watch, I make a meridian observation of the sun, first setting on the lower limb and noting the transit of the west limb, then, after reversal of the instrument, setting on the upper limb and noting the transit of the east limb, as follows:

Mean observed altitude.....	69° 16' 30"
Reduced latitude.....	43° 42' 09"
Mean watch time of observation.....	12 <sup>h</sup> 15 <sup>m</sup> 37 <sup>s</sup>
Watch fast of l.m.t.....	16 <sup>m</sup> 30 <sup>s</sup>
Same, by reference to radio time signals and calculated difference in longitude....	16 <sup>m</sup> 30 <sup>s</sup>

Every 30 min. from 6 to 10.30 a.m. and from 1.30 to 6 p.m., I make proper settings on the arcs of the solar attachment and ascertain that the resulting orientation of the instrument, when compared with the meridian established by Polaris observation, shows a maximum error of less than  $1' 30''$ .

I repeat the tests of the arcs daily by noon observation and verify the meridional indications at frequent intervals throughout the survey.

The observed magnetic declination is  $20^{\circ} 40' E.$