

Mr. V. Raudsepp

Chief Engineer

Water Investigations Branch

J.C. Foweraker, Geological Engineer

Ground-water Division

December 7th

65

OKANAGAN OBSERVATION WELLS 1965

0183613B

During the month of November, ten observation wells, and one soil moisture tube were installed in the Okanagan area. Drilling was slowed down considerably by snow and freezing conditions. Snow also prevented us from drilling several observation wells and holes for soil moisture tubes at higher elevations.

Details of the cost of this drilling program are as follows:

81 hours at \$20.00 per hour .....	\$ 1,620.00
Cost of materials, mud, bits, etc. ....	\$ 286.41
	<hr/>
Total Cost .....	\$ 1,906.41

The drilling contractor was J. Hruschak of Okanagan Rotary Water Well Drilling.

The selection of the particular sites and the agreements to drill at the sites, were arranged prior to the commencement of the drilling program by Mr. E. Livingston, Chief, Ground-water Division, and this part of the program will not be discussed here. The location of the Okanagan observation wells, 1965, are shown by the red circles on Fig. 1; Figs. 2 and 3 give further details on the locations of four of the observation wells on a map scale of 1:50,000.

After the drilling program had been completed, Mr. Livingston took static readings on all the wells and arrangements were made for observers to continue to take these readings in the future. The one-inch plastic pipe of the observation wells has been covered, as usual, by a metal cap and metal pipe which has been secured by concrete in the ground. Locks have been placed on all observation wells which are on road allowances or are readily accessible. The lower two feet of the plastic pipe is perforated and this section is covered with a fibre-glass gauze cloth. In each well, except the rock hole at Silver Star No. 1, the perforated section has been placed within a more permeable zone of sands or gravels. After the plastic pipe had been placed, the holes were flushed out with water under pump pressure in order to clear out the drilling mud. Clean sand and gravel was then packed around the lower part of the plastic pipe.

Data on all ten observation wells is tabulated on the attached sheets.

J.C. Foweraker  
Geological Engineer

DATA ON OKANAGAN OBSERVATION WELLS 1965

Silver Star Observation Well - WR-71-65

Owner: Silver Star Parks Board, Vernon, B.C.  
Location: (See Figs. 1 and 2). Site is located off access road leading into Repeater Station.  
Depth: 58 feet  
Elevation of Collar: 5960 feet approximately  
Static reading on November 17th: 21.4 feet  
Log in feet: 0 - 58 bedrock

Silver Star Observation Well - WR-72-65

Owner: Silver Star Parks Board, Vernon, B.C.  
Location: (See Figs. 1 and 2). Site is located west of a BX Creek tributary on the access road to the Ski Lodge and Tow.  
Depth: 17.3 feet  
Elevation of Collar: 5275 feet approximately  
Static reading on November 17: 13.71 feet  
Log in feet: 0 - 5 Scree, Sand and soil  
5 - 16 Gravel, assorted sizes  
16 - 18 Sand and Gravel?  
18 Blue clay or ? hardpan

Round Lake Observation Well - WR-65-65

Owner: Okanagan Indian Reserve #1  
Location: (See Figs. 1 and 3). Site is located near northeast end of Round Lake on Okanagan Indian Reserve #1.  
Depth: 29 feet.  
Elevation of Collar: 1410 feet approximately  
Static reading:  
Log in feet: 0 - 20 Gravel, sand and shells.  
20 - 26 Blue "clay" and shells, etc.  
26 - 30 Gravel.

Hulcar Road Observation Well - WR-66-65

Owner: Municipality of Spallumcheen  
Location: (See Figs. 1 and 3). On west boundary of DL 47 - boundary road between Salmon River Indian Reserve #1 and Municipality of Spallumcheen  
Depth: 80.5 feet.  
Elevation of Collar: 1690 feet approximately  
Static Reading on November 19th, 10 feet.  
Log in Feet: 0 - 16 Sand and silts  
(Electric log indicates 0-13 sand and silts but dry to nine feet)  
13/16 - 27 Gravel and sand, with a definite gravel lense 16-18 feet.  
(Electric log indicates a saturated zone with good porosity from 13-22 feet and maximum porosity 16-18 feet which corresponds to the gravel zone above).

- ⤿ (cont'd.) 27 - 58 Till, silt matrix and assorted sized stones.  
(Electric log indicates a formation with small porosity such as would be expected in a poorly sorted till with a silty clay matrix).
- 58 - 80 Sand, some wood and some gravel at 65 feet.  
(Electric log shows a zone of varying porosities. Below 67 feet there appears to be a drop off in the porosity possibly due to a more silty zone. This was not indicated from the samples however. Below 75 feet, the log would indicate a more porous saturated sand and gravel).

Hook Farm Observation Well - WR-67-65

Owner: Hook  
Location: (See Fig. 1) DL 25, SW $\frac{1}{4}$   
Depth: 48.25 feet.  
Elevation of Collar: 1540 feet approximately  
Static reading on November 19th: 42.6 feet  
Log in feet: 0 - 12 Gravel  
12 - 29 Gravel with larger stones and shell fragments, some sand  
29 - 32 Sandy gravel, mostly coarse sand and some gravel, definitely smaller stones.  
32 - 34 Driller records a clay layer here.  
34 - 49 Coarse sand, minor gravel.  
49 - 52 Gravel and sand.

Buff Farm Observation Well at Westvold - WR-69-65

Owner: Kurt Buff  
Location: NE $\frac{1}{4}$  east boundary of DL 459  
Depth: 55 feet.  
Elevation of collar: 2050 feet approximately.  
Static level on November 19th: 28.2 feet.  
Log in feet: 0 - 19 Clay-silt and silt clay, brown colour  
19 - 38 Stony clay, silt, brown colour, harder in parts, gravel cemented with clay in thin lenses at 28 feet.  
38 - 48 Gravel and sand.  
48 - 50 Clay  
50 Gravel.  
50 - 56 Gravel and coarse sand.  
56 - 60 Blue clay with stones.

Upper Salmon River Observation Hole (southwest of Westvold) - WR-70-65

Owner:  
Location: On northern boundary road of DL 13 south of DL 511 between irrigation ditch and Salmon River.  
Depth: 52.0 feet.  
Elevation of collar: 2130 feet approximately.  
Static reading taken on November 19th: 25.9 feet

Log in feet: 0 - 8 Mostly silt and clay  
8 - 16 Fine gravel and coarse sand.  
16 - 22 Gravel with clay and silt matrix.  
22 - 52 Circulation lost at 22 feet apparently a coarse sand and gravel with many angular pieces possibly some of these being derived from stoney silty-clay layers or stones broken up from drilling. Some silty clay lenses.

Benedict Farm Observation Well Westwold - WR-68-65

Owner: Benedict  
Location: DL 269, SW $\frac{1}{4}$   
Depth: 55.9 feet.  
Elevation of collar: 1990 feet approximately  
Static level on November 19th: 11.6 feet.  
Log in feet: 0 - 8 Clay, silt and sand  
8 - 18 Gravel and coarse sand mainly.  
18 - 30 Brown silt with some stones  
30 - 40 Washed down rods in silt, sand and fine gravel.  
40 - 46 Mostly clay and silt.  
46 - 58 $\frac{1}{2}$  Coarse gravel (some stones over 1 $\frac{1}{2}$  inches in diameter) amount of silt and clay matrix not known but thought to be small.

Lavington Observation Well - WR-51 - 65

Owner: Municipality of Coldstream  
Location: On Pipeline Road, DL 87  
Depth: 68 $\frac{1}{2}$  feet.  
Elevation of collar: 1750 feet approximately  
Static level on November 19th: 51.2 feet  
Log in feet: 0 - 6 Soil, Stones and silt.  
6 - 16 Brown clay and silt with "grit" up to fine gravel size.  
16 - 20 Gravel, assorted sizes.  
20 - 58 Brown silt and clay - firm, with some "grit" and small stones. Requires some pressure to drill through (20 seconds for one foot at 200 psi)  
58 - 70 Fine gravel and coarse sand; some silt lenses of probable limited extent. Contains many stones of granite and diorite origin often crushed up by drill.

Basin Study Observation Hole - WR-53-65

Owner: H.J. Gibbons  
Location: Eastern slopes of Okanagan Lake northwest of Oyama on DL 22 NW $\frac{1}{4}$  near old farmhouse and corral.  
Depth: 18.4 feet  
Elevation of Collar: 2460 feet approximately  
Static reading:  
Log in feet: 0 - 16 Yellow silt-clay containing angular rock fragments often consisting of granite-diorite (?)  
16 - 18 White silt-clay containing assorted angular rock fragments of granite diorite (?)  
18 Bedrock granite-diorite (?)

99' Moisture Station

Two other holes were drilled dry with a 5-inch auger. The first hole was drilled to eleven feet and a soil moisture tube lowered to this depth. The tube was back-filled with the same material which was taken out of the hole by the auger at that depth. A cap was taped over the top of this tube - the lower end of the tube was sealed with a metal plate soldered on to the end of the tube.

A second hole was drilled, sealed at the top but left unfilled, and will be utilized later for the installation of fibre glass soil moisture blocks.

*J.C.F.*

J.C. Foweraker  
Geological Engineer

JCF/lb

Electrical Log.

NR 66-65

Nov 5, 1965.

Potential

Resistivity

Nº1

Ft.

50

200

0

18

38

58

78

Nº2

10

100

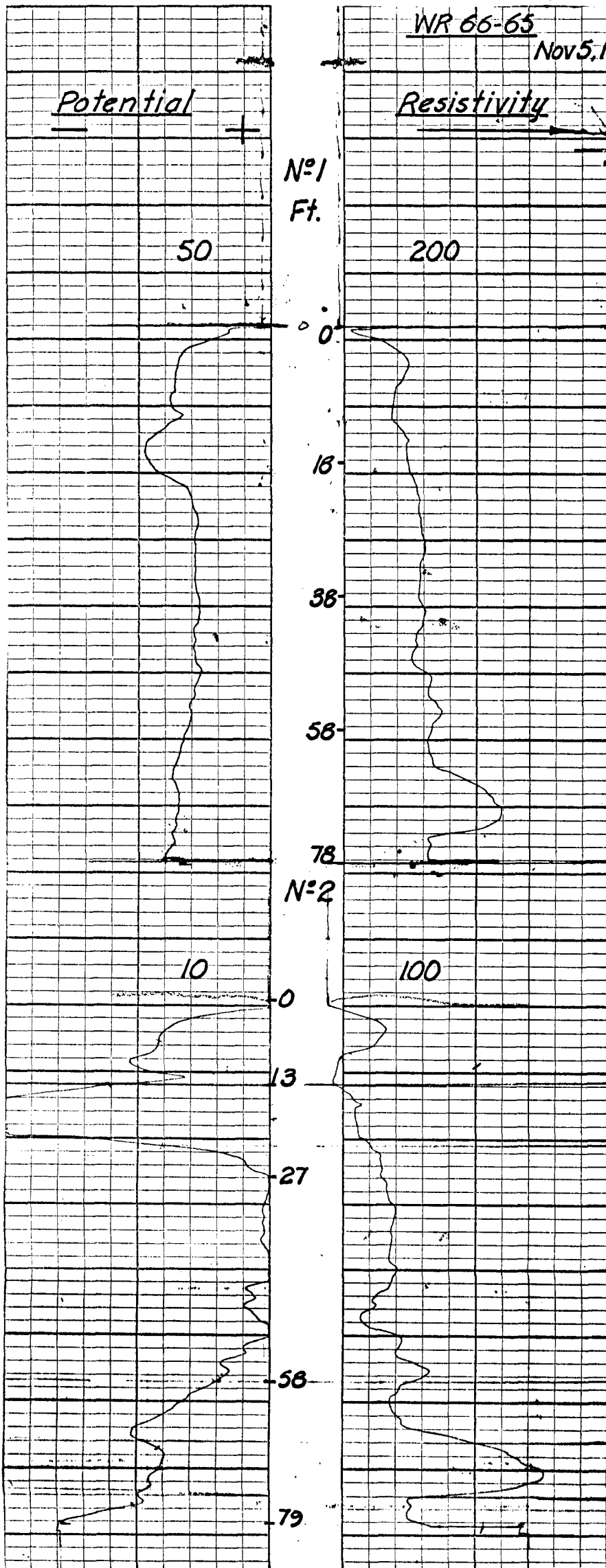
0

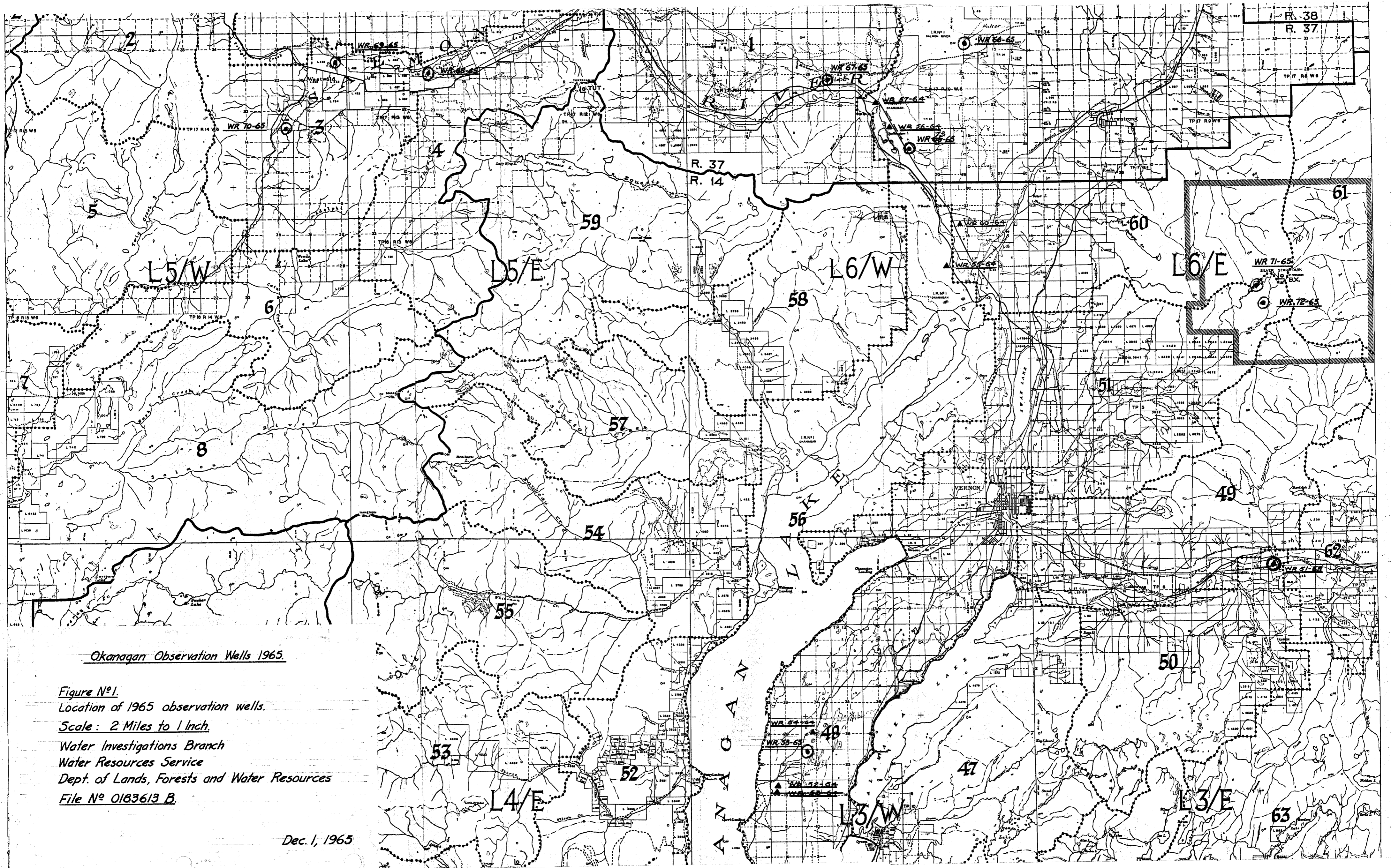
13

27

56

79

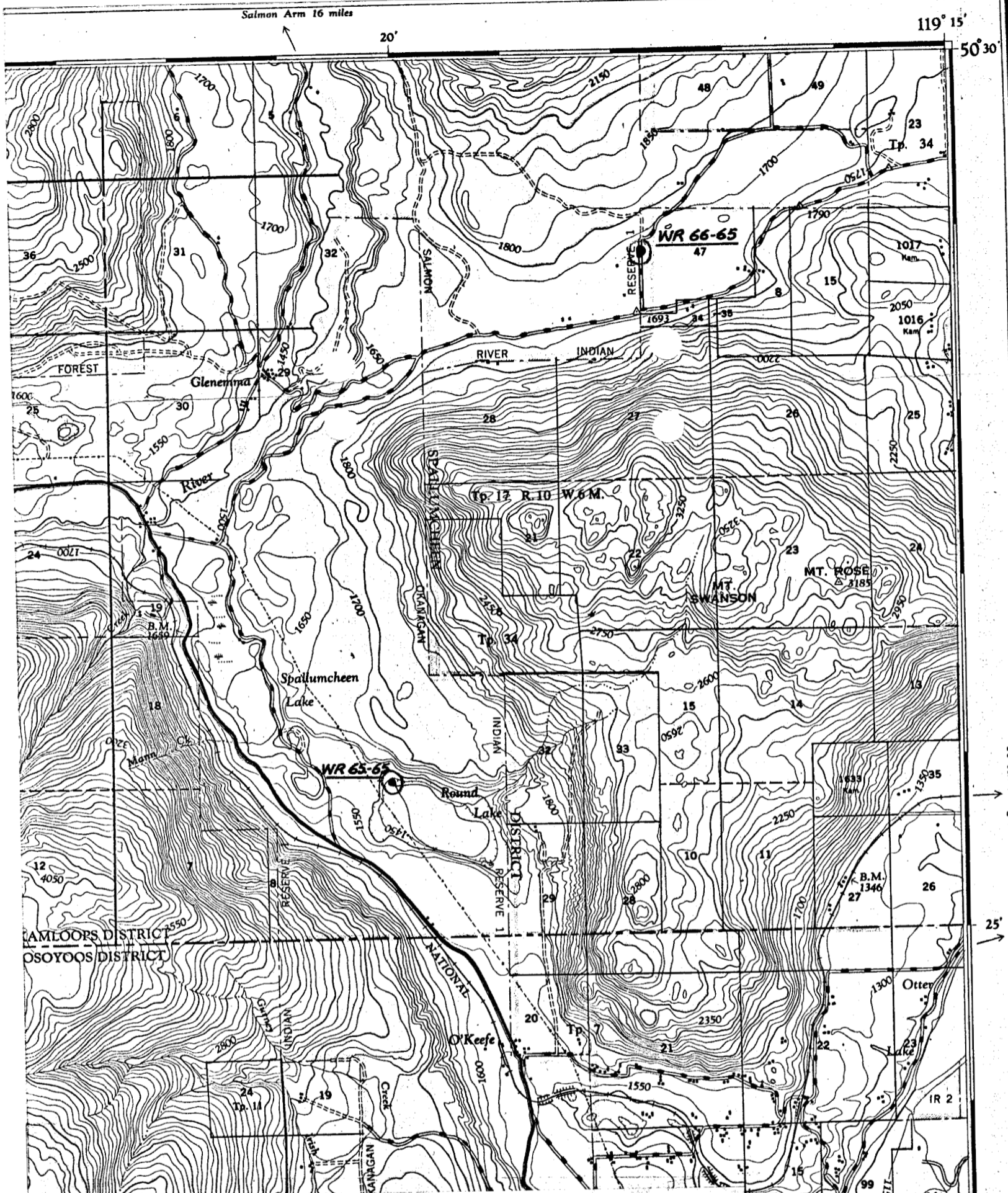




Okanagan Observation Wells 1965.

Figure N<sup>o</sup> 1.  
 Location of 1965 observation wells.  
 Scale: 2 Miles to 1 Inch.  
 Water Investigations Branch  
 Water Resources Service  
 Dept. of Lands, Forests and Water Resources  
 File N<sup>o</sup> 0183613 B.

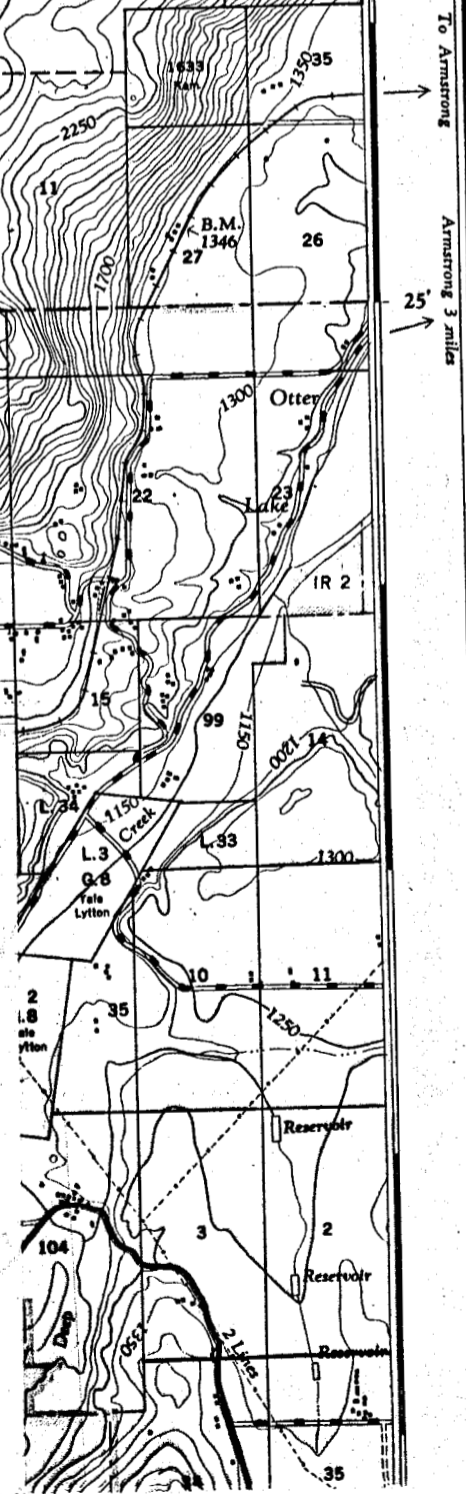
Dec. 1, 1965



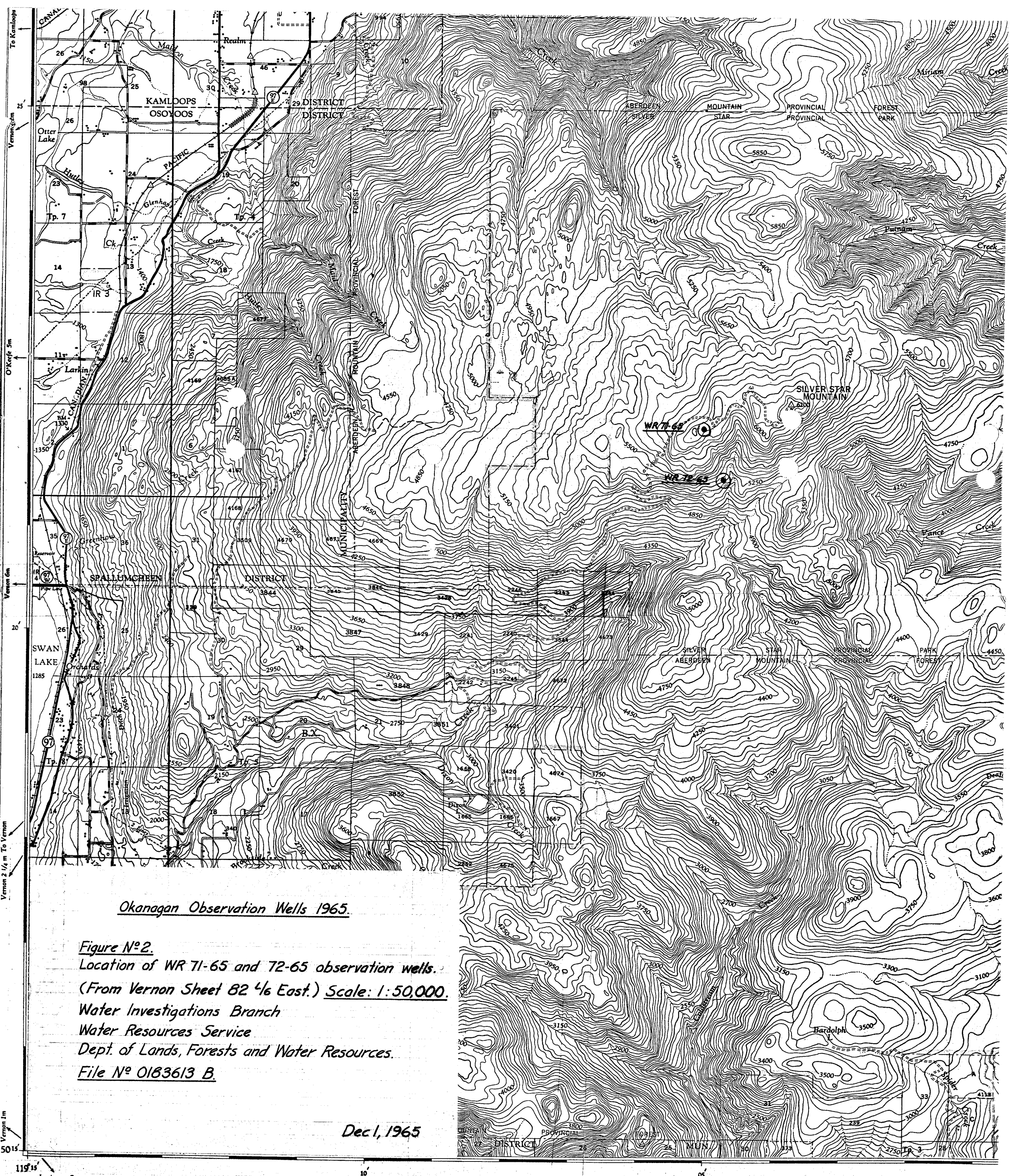
Okanagan Observation Wells 1965.

Figure No 3.  
 Location of WR 65-65 and WR 66-65 observation wells.  
 (From Vernon Sheet 82 1/6 West). Scale: 1:50,000  
 Water Investigations Branch.  
 Water Resources Service  
 Dept. of Lands, Forests and Water Resources.  
 File No 01B3613 B.

Dec. 1, 1965







Okanagan Observation Wells 1965.

Figure No. 2.

Location of WR 71-65 and 72-65 observation wells.

(From Vernon Sheet 82 4/6 East.) Scale: 1:50,000.

Water Investigations Branch

Water Resources Service

Dept. of Lands, Forests and Water Resources.

File No 0163613 B.

Dec 1, 1965

Vernon 1 m  
Vernon 2 1/4 m To Vernon  
119° 15'  
Lavington 7m