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Scientific Investigations Map 2905
Campbell, A.M., Ground-Water Levels in the Spokane Valley – Rathdrum Prairie Aquifer, Spokane County, Washington, and Bonner and Kootenai Counties, Idaho, September 2004

Abstract

The Spokane Valley–Rathdrum Prairie aquifer is the sole source of drinking water for residents in a rapidly growing area in Spokane County, Washington, and Bonner and Kootenai Counties, Idaho. In 2004, the U.S. Geological Survey, Washington State Department of Ecology, and Idaho Department of Water Resources developed a comprehensive study of the ground- and surface-water resources in the Spokane Valley–Rathdrum Prairie area. As a part of the study, the U.S. Geological Survey used water levels measured in 268 wells in September 2004 to construct a map of ground-water levels in the aquifer. Water-level data indicate that in late September 2004 ground-water flows generally southward from Hoodoo Valley toward Coeur d'Alene and then westward toward Spokane. Water-table gradients ranged from 96 to 8 feet per mile.

Introduction

The Spokane Valley–Rathdrum Prairie (SVRP) aquifer is the sole source of drinking water for more than 400,000 residents in Spokane County, Washington, and Bonner and Kootenai Counties, Idaho. The area includes the rapidly growing cities of Spokane, Washington, and Coeur d'Alene and Post Falls, Idaho. Recent and projected urban, suburban, and industrial/commercial growth has raised concerns about potential future effects on water resources in the area. Water-resource concerns include growing demands on ground water, low streamflow in reaches of the Spokane and Little Spokane Rivers, and water-quality problems associated with land-use activities.

The SVRP aquifer consists primarily of thick layers of coarse-grained sediments—gravels, cobbles, and boulders—deposited during a series of floods resulting from repeated collapse of the ice dam that impounded ancient glacial Lake Missoula (Bretz, 1930). Sources of recharge to the aquifer include infiltration from precipitation and irrigation water, leakage from the Spokane and Little Spokane Rivers and adjacent lakes, and surface- and ground-water inflow from adjoining highlands. The aquifer discharges into the Spokane and Little Spokane Rivers and Long Lake (Lake Spokane) and through withdrawals from wells. The aquifer was designated a "Sole Source Aquifer" by the Environmental Protection Agency (USEPA) in 1978 (under the provisions of the Federal Safe Drinking Water Act of 1974) in response to local concerns about the vulnerability of the aquifer to water-quality degradation. The USEPA defines a sole source aquifer as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer (U.S. Environmental Protection Agency, 2000). Generally, populations served by a sole-source aquifer do not have a viable alternative drinking-water source.

Water-management issues in this rapidly growing bi-State area have increasingly become regional in nature. In response, several groups have initiated a comprehensive, regional study of the SVRP aquifer to serve as a scientific basis for addressing regional water concerns. In 2004, the Washington State Department of Ecology (WADOE), the Idaho Department of Water Resources (IDWR), and the U.S. Geological Survey (USGS), in consultation with local stakeholders, developed a comprehensive plan of study to gain a better understanding of surface- and ground-water resources in the SVRP study area. The initial study objective is the development of an extensive data set to provide an improved scientific basis for water management of the SVRP aquifer. These data will allow construction of a numerical ground-water flow model to support the management of ground and surface water in the SVRP area. As part of the study, the USGS used water levels measured in 268 wells in the SVRP in September 2004 to construct a map of ground-water levels in the aquifer during late summer.

The purpose of this report is to present the map of ground-water levels in the SVRP for September 2004, the water-level data collected at the 268 wells, and a brief summary of ground-water flow and water-table gradients in late summer.

Acknowledgments

This report would not have been possible without the cooperation of the well owners that allowed access to their property and wells, and of the concerted effort by dedicated personnel of many local, State, and Federal agencies. Special thanks to the Idaho Department of Water Resources, Washington State Department of Ecology, Spokane County, the water districts represented by the Spokane Aquifer Joint Board, and Bonner and Boundary Counties. The following individuals contributed significantly to the review of this report: James R. Bartolino, U.S. Geological Survey, Idaho; Rodney R. Caldwell, U.S. Geological Survey, Montana; John Covert, Washington State Department of Ecology; and Sue C. Kahle, U.S. Geological Survey, Washington.

Description of Study Area

The approximately 370-square-mile (mi^2) SVRP aquifer underlies a relatively flat, alluvium-covered valley surrounded by bedrock highlands. The roughly L-shaped aquifer extends south from Lake Pend Oreille to Coeur d'Alene Lake and westward across the Washington-Idaho state line to near Nine Mile Falls northwest of the city of Spokane. Land-surface altitudes in the valley range from 2,316 feet (ft) near Long Lake to nearly 2,600 ft near Athol. Several lakes are located along the margins of the aquifer, the largest of which are Coeur d'Alene Lake and Lake Pend Oreille in Idaho. With the exception of the Spokane and Little Spokane Rivers, surface drainage generally is lacking because of the high permeability of valley-bottom soils.

Ground-water use in the area primarily is public supply, domestic, irrigation, and industrial. Land use in the area overlying the aquifer generally is agriculture and urban. Cities overlying and supplied by the aquifer include the Spokane metropolitan area in Washington and Coeur d'Alene and Post Falls in Idaho. The upland areas surrounding the aquifer are mostly coniferous forests or residential housing.

The areal extent of the SVRP aquifer has been defined differently by successive authors over time. Many recent aquifer-related documents have used a modified version of the original Spokane Valley–Rathdrum Prairie Sole Source Aquifer boundary that was designated by the USEPA in 1978. On the basis of recently completed surficial-geology maps, S.C. Kahle (U.S. Geological Survey, written commun., 2005) redefined the aquifer boundary to include additional unconsolidated coarse-grained deposits.

The thickness of the SVRP aquifer generally is unknown except along its margins where wells have penetrated its entire thickness. Because many wells completed in the SVRP aquifer are extremely productive, very few extend more than 100 ft into the saturated zone.[1]

The SVRP aquifer is underlain and laterally bounded by units of relatively low permeability, including the Columbia River Basalt, the Latah Formation, and Precambrian to Tertiary metasedimentary and igneous rocks exposed in the highlands surrounding the aquifer. The Columbia River Basalts and associated Latah Formation interbeds can produce adequate quantities of water for domestic use, but are discontinuous in nature and are not considered major aquifers within the SVRP study area. The crystalline structure of the metamorphic and intrusive igneous rocks generally inhibits their ability to store and transmit water, however, weathered or fractured zones within these rocks can transmit useable amounts of ground water.

[1] Known depths of wells measured in September 2004 ranged from 22 ft to 700 ft below land surface.

Ground-Water Levels in the Spokane Valley–Rathdrum Prairie Aquifer, September 2004

Water levels in 268 wells within and surrounding the SVRP study area were measured by personnel from IDWR, WADOE, and the USGS during September 13-20, 2004 (table 1). Most measurements were made using either steel tapes or calibrated electric tapes, but a limited number of measurements were taken from wells (primarily for municipal supply) equipped with a calibrated airline.

Most of the wells included in the September 2004 synoptic water-level measurement were revisited in October 2004 to determine land-surface altitude using a differential global positioning system (GPS). For those wells that were not surveyed with a differential GPS, elevations were determined from levels surveyed from benchmarks or were estimated from 1:24,000-scale topographic maps.

Water levels measured during the study were used to construct a map of ground-water levels in the aquifer during late summer. Water-level contours were drawn using static water levels measured in wells that were completed in outwash deposits (112OTSH) and had land-surface altitudes with accuracies of ±0.01–5.0 ft. Wells with less-accurate land-surface altitudes (±10.0 ft) were given less weight in mapping water levels. Water levels that were measured in wells completed in basalt (122CBRV), granite (210CRCS), or slate (400PRCD), or completed in multiple aquifers were not used. The map was constructed using contour intervals of 20 ft except for contours greater than 2,060 ft, which have 40-ft intervals.

Water-level measurements in September 2004 indicate that depth to water in the SVRP aquifer ranges from near land surface, to the west near Spokane along the Spokane and Little Spokane Rivers, to more than 540 ft below land surface in northern Rathdrum Prairie near Athol (table 1). The water-level contours demonstrate that the water table in the SVRP aquifer generally reflects the land-surface topography and slopes from Hoodoo Valley and Lake Pend Oreille, Idaho to Nine Mile Falls, Washington. Ground water generally flows in a southwestern direction from the Hoodoo Valley area (water-level altitude of about 2,160 ft), towards the city of Coeur d'Alene, and then westward towards the city of Spokane (altitude of about 1,540 ft near the Little Spokane River).

The water-table gradient ranges from relatively flat in the central Rathdrum Prairie and Spokane Valley areas to steep at the margins of the aquifer. The water-table gradient in the Rathdrum Prairie area in the northern part of the aquifer is about 22 feet per mile (ft/mi), whereas the gradient in the main body of the aquifer from Hayden, Idaho, to Spokane, Washington, is about 8 ft/mi. Gradients are steeper elsewhere in the aquifer: 77 ft/mi in the Chilco Channel, 61 ft/mi in the Bayview area, 40 ft/mi in Spirit Valley, 22 ft/mi in the Hillyard Trough, 17 ft/mi along the Spokane River west of Five Mile Prairie, and ranging from about 69 to 96 ft/mi near Newman, Hayden, and Hauser Lakes.

References Cited

Bretz, J H., 1930, Lake Missoula and the Spokane floods [abs.]: Geological Society of America Bulletin, v. 41, p. 92-93.

U.S. Environmental Protection Agency, 2000, Sole source aquifer protection program overview: U.S. Environmental Protection Agency data available on the Web, accessed June 6, 2001, at http://www.epa.gov/ogwdw/swp/ssa.html

Table 1. Water-level information for wells measured in the Spokane Valley–Rathdrum Prairie study area, September 2004.

[Wells in *italics* either were of lesser importance in determining water-level contours or, if completed in multiple aquifer units, were not used. **Method used to derive land-surface altitude:** DGPS, differential global positioning system; L, survey level; M, topographic map. **Aquifer unit in which well completed:** 112OTSH, outwash deposits; 122CBRV, basalt; 210CRCS, granite; 400PRCS, slate; Multiple, multiple aquifer units. **Well status:** P, pumping; R, recently pumped; S, nearby pumping; T, nearby recently pumped; V, foreign substance; –, static. **Method of water-level measurement:** A, airline; C, calibrated airline; G, pressure gage; S, steel tape; T, electric tape; V, calibrated electric tape. *Italicized* informaton indicates less than ideal conditions. **Abbreviations:** NAVD 88, North American Vertical Datum of 1988]

Map identification No.	Well-site identification No.	Altitude of land surface (in feet above NAVD 88)	Accuracy of land-surface altitude (feet)	Method used to derive land-surface altitude	Aquifer unit in which well completed	Water level (in feet above NAVD 88)	Depth of water (in feet below land surface)	Well status	Method of water-level measurement
0	474142117281801	1,701.20	0.1	D	112OTSH	1,654.22	46.98	–	V
1	474047117280601	1,689.65	.1	D	112OTSH	1,668.81	20.84	–	V
2	*473928117275001*	*1,884.00*	*10*	*M*	*112OTSH*	*1,698.10*	*105.90*	–	*S*
3	473924117273701	1,735.39	.01	L	112OTSH	1,695.56	39.83	–	V
4	474200117223901	*2,051.32*	*.1*	*D*	*112OTSH*	*1,860.32*	*191*	–	*V*
5	474143117222801	2,043.34	.1	D	112OTSH	1,862.88	180.46	–	V
6	*474045117255201*	*1,904.00*	*10*	*M*	*112OTSH*	*1,759.55*	*144.45*	–	*V*
7	474100117223601	1,950.25	.01	D	112OTSH	1,861.94	88.31	–	V
8	474054117232401	1,948.42	.1	D	112OTSH	1,863.45	84.97	–	V
9	474026117231401	1,887.61	.1	D	112OTSH	1,866.17	21.44	–	V
10	474052117195301	1,910.22	.1	D	112OTSH	1,875.76	34.46	–	V
11	474037117193301	1,952.00	2.5	M	112OTSH	1,883.03	68.97	–	V
12	474037117193302	1,952.00	2.5	M	112OTSH	1,882.50	69.50	–	V
13	474037117193303	1,952.00	2.5	M	112OTSH	1,882.16	69.84	–	V
14	474059117185601	1,951.52	.1	D	112OTSH	1,889.91	61.61	–	V
15	*474055117182601*	*1,950.96*	*.1*	*D*	*112OTSH*	*1,891.94*	*59.02*	–	*A*
16	473958117185801	1,943.34	.1	D	112OTSH	1,887.53	55.81	–	V
17	473958117113401	1,944.00	5	M	112OTSH	1,887.79	56.21	–	V
18	*473955117204201*	*1,934.00*	*20*	*M*	*112OTSH*	*1,867.35*	*66.65*	–	*V*
19	473950117222501	1,925.59	.1	D	112OTSH	1,870.38	55.21	–	V
20	473931117220301	1,937.83	.1	D	112OTSH	1,871.94	65.89	–	V
21	473938117234701	1,880.63	.1	D	112OTSH	1,868.45	12.18	–	V
22	473912117205101	1,932.00	2.5	M	112OTSH	1,878.57	53.43	–	V
23	473912117205102	1,932.00	2.5	M	112OTSH	1,878.60	53.40	–	V
24	473912117205103	1,932.00	2.5	M	112OTSH	1,878.68	53.32	–	V
25	473902117214601	1,919.63	.1	L	112OTSH	1,874.98	44.65	–	V
26	*473920117194502*	*1,939.00*	*5*	*M*	*unknown*	*1,875.93*	*63.07*	–	*V*
27	*473900117185201*	*2,030.00*	*20*	*M*	*112OTSH*	*1,894.95*	*135.05*	–	*V*
28	473910117114701	2,055.37	.1	D	112OTSH	1,941.29	114.08	–	V
29	474110117164701	2,021.92	.1	D	112OTSH	1,947.34	74.58	–	V
30	474152117120801	2,041.97	.1	D	112OTSH	1,937.52	104.45	–	V
31	474121117120701	2,017.45	.1	D	112OTSH	1,937.01	80.44	–	V
32	474152117133801	1,993.45	.1	D	112OTSH	1,931.42	62.03	–	V
33	474134117193302	1,983.22	.1	D	112OTSH	1,929.63	74.59	–	V
34	*474171117142401*	*1,993.01*	*.1*	*D*	*112OTSH*	*1,910.96*	*82.05*	*R*	*V*
35	474555117164801	*1,998.83*	*.1*	*D*	*112OTSH*	*1,893.53*	*105.30*	–	*A*
36	*474461117154101*	*1,986.10*	*1.0*	*D*	*112OTSH*	*1,891.94*	*59.02*	–	*A*
37	474141117174101	1,966.14	.1	D	112OTSH	1,902.00	64.14	–	V
38	474101117152401	1,958.90	.1	D	112OTSH	1,897.22	61.68	–	V
39	474041117170001	1,979.63	.1	D	112OTSH	1,900.69	78.94	–	V
40	474106117165101	1,950.22	.1	D	112OTSH	1,903.97	46.25	–	V
41	474091117153201	1,980.39	.1	D	112OTSH	1,894.73	85.60	–	V
42	473981117130601	1,977.90	.1	D	112OTSH	1,925.70	52.20	–	V
43	474020117125903	1,995.40	.1	D	*112OTSH*	*1,917.40*	*78.00*	*S*	*A*
44	474026117115301	1,965.90	.1	D	112OTSH	1,930.87	35.03	–	V
45	474027117115201	1,967.20	.1	D	112OTSH	1,931.21	35.99	–	V
46	474019117114801	1,987.40	.1	D	112OTSH	1,932.02	55.38	–	V
47	474041117114001	1,994.66	.1	D	112OTSH	1,938.12	56.54	–	V
48	473951117115301	2,043.26	.1	D	112OTSH	1,934.55	108.71	–	V
49	*473951117141601*	*2,052.28*	*.1*	*D*	*112OTSH*	*1,921.84*	*130.44*	*T*	*V*
50	473945117130401	2,055.21	.1	D	112OTSH	1,928.65	126.56	–	V
51	473945117152101	2,014.99	0.1	D	112OTSH	1,913.11	101.88	T	V
52	473939117164401	*2,002.15*	*.1*	*D*	112OTSH	1,904.75	97.40	*R*	V
53	473952117173401	1,967.28	.1	D	112OTSH	1,895.55	71.73	–	V
54	473931117180101	1,966.08	.1	D	112OTSH	1,892.35	73.73	–	V
55	473935117152001	2,084.73	.1	D	112OTSH	1,917.83	166.90	V	V
56	473857117142201	2,026.06	.1	D	112OTSH	1,921.95	104.11	–	V
57	473904117130902	2,017.12	.1	D	112OTSH	1,926.84	90.28	–	V
58	473939117131101	2,082.59	.1	D	112OTSH	1,926.53	156.06	–	V
59	473918117124201	*2,019.93*	*.1*	*D*	*unknown*	*1,929.50*	*90.43*	–	*V*
60	473852117115301	2,046.42	.1	D	112OTSH	1,931.19	115.23	–	V
61	473911117125201	2,085.33	.1	D	112OTSH	1,926.92	158.41	–	V
62	473805117122501	*2,066.66*	*.1*	*D*	112OTSH	*1,927.45*	*139.21*	*R*	V
63	473831117141701	*2,065.64*	*.1*	*D*	112OTSH	*1,920.64*	*145*	–	*V*
64	473800117135801	*2,017.02*	*.1*	*D*	112OTSH	*1,921.90*	*95.12*	*R*	*V*
65	473747117151801	*2,034.14*	*.1*	*D*	112OTSH	*1,919.14*	*115*	–	*V*
66	473743117145202	2,033.97	.1	D	112OTSH	1,922.17	111.80	–	V
67	473728117143801	*2,034.42*	*.1*	*D*	112OTSH	*1,921.54*	*113*	*R*	*V*
68	474144117031401	2,049.56	.1	D	112OTSH	1,969.11	80.45	–	V
69	474159117034801	2,081.99	.1	D	112OTSH	1,967.53	114.20	–	V
70	474161117043702	*2,070.33*	*.1*	*D*	*112OTSH*	*1,965.13*	*105.20*	–	*A*
71	474140117060401	2,056.37	.1	D	112OTSH	1,961.55	94.82	–	V
72	*474151117060502*	*2,055.81*	.1	D	*112OTSH*	*1,957.11*	*98.70*	–	*A*
73	474151117060301	2,043.99	.1	D	112OTSH	1,961.50	82.49	–	V
74	474101117060601	2,036.91	.1	D	112OTSH	1,961.84	75.07	–	V
75	*474156117072802*	*2,062.96*	*.1*	*D*	*112OTSH*	*1,956.96*	*106.00*	–	*A*
76	474150117080701	2,054.70	.1	D	112OTSH	1,956.73	97.97	–	V
77	474156117091601	2,049.36	.1	D	112OTSH	1,953.77	95.59	–	V
78	474116117080301	2,028.09	.1	D	112OTSH	1,954.77	73.32	–	V
79	474109117091701	2,025.36	.1	D	112OTSH	1,951.84	73.52	–	V
80	474046117091501	2,004.72	.1	D	112OTSH	1,951.07	53.65	–	V
81	474038117091201	2,021.23	.1	D	112OTSH	1,951.19	70.04	–	V
82	474037117091301	2,022.35	.1	D	112OTSH	1,950.93	71.42	–	V
83	474050117064601	2,024.07	.1	D	112OTSH	1,959.62	64.45	–	V
84	474106117060501	2,034.34	.1	D	112OTSH	1,990.20	44.14	–	V
85	474107117060501	2,040.32	.1	D	112OTSH	1,983.27	57.05	–	V
86	474107117060502	2,034.20	.1	D	112OTSH	1,961.20	73.00	–	V
87	474033117062501	2,041.70	.1	D	112OTSH	1,959.70	82.00	–	V
88	474031117044401	2,112.65	.1	D	112OTSH	1,962.21	150.40	–	V
89	473944117045001	2,142.88	.1	D	112OTSH	1,965.88	177.00	V	S
90	474010117060601	2,085.91	.1	D	112OTSH	1,959.59	126.32	–	V
91	*474025117065201*	*2,072.46*	.1	D	*112OTSH*	*1,950.70*	*121.76*	*P*	*V*
92	474011117072901	2,059.70	.01	L	112OTSH	1,955.20	104.50	–	V
93	474016117085601	2,035.60	.5	D	112OTSH	1,948.11	87.49	–	V
94	473928117083001	2,047.74	.1	D	112OTSH	1,951.43	96.31	–	V
95	*473929117092603*	*2,043.00*	*1.0*	*D*	*112OTSH*	*1,947.70*	*95.30*	*S*	*A*
96	473855117090602	2,104.67	.1	D	112OTSH	1,986.89	117.78	–	V
97	473949117102501	2,178.13	.1	D	112OTSH	1,980.28	197.85	–	S
98	474043117291401	1,705.24	.1	D	112OTSH	1,568.87	136.37	–	V
99	474029117305101	*1,729.00*	*10*	*M*	112OTSH	1,556.19	*172.81*	–	V
100	474233117230301	1,742.13	.1	D	112OTSH	1,545.21	196.92	–	V
101	474619117303601	1,733.51	.1	D	112OTSH	1,576.41	157.10	–	V
102	*474551117273001*	*1,614.00*	*10*	*M*	112OTSH	*1,560.71*	*53.29*	–	*V*
103	474550117253001	1,714.00	1.0	L	112OTSH	1,611.20	102.80	–	A
104	*474427117312101*	*1,634.00*	*10*	*M*	*112OTSH*	*1,614.56*	*19.44*	–	*V*
105	474434117301301	1,680.19	.1	D	112OTSH	1,607.79	72.40	–	V
106	*474434117301201*	*1,680.00*	*10*	*M*	*112OTSH*	*1,606.16*	*73.84*	–	*V*
107	474434117303201	1,668.48	.1	D	112OTSH	1,607.92	60.56	–	V
108	*474234117284501*	*1,682.47*	.1	*D*	*122CBRV*	*1,613.88*	*68.59*	–	*V*
109	474233117292801	1,692.83	.1	D	112OTSH	1,619.13	73.70	–	V
110	474302117294901	1,629.20	.1	D	112OTSH	1,611.03	18.17	–	V
111	474233117293301	1,646.90	.1	D	112OTSH	1,631.47	15.43	–	V
112	*474623117220001*	*1,867.00*	*10*	*M*	*112OTSH*	*1,750.44*	*116.56*	–	*V*
113	*474628117213201*	*1,895.32*	*.1*	*D*	*112OTSH*	*1,854.22*	*41.10*	–	*A*
114	474610117245401	1,818.89	.1	D	112OTSH	1,710.16	108.73	–	V
115	474604117242901	1,788.03	.1	D	112OTSH	1,692.10	95.93	–	V
116	474538117243601	1,774.67	.1	D	112OTSH	1,743.46	31.21	–	V
117	474618117231501	1,825.39	.1	D	112OTSH	1,750.40	74.99	–	V
118	474618117231601	1,825.39	.1	D	112OTSH	1,750.20	75.19	–	V
119	474552117211801	1,905.61	.1	D	112OTSH	1,820.75	84.86	–	V
120	474549117211401	1,905.61	.1	D	112OTSH	1,819.70	85.91	–	S
121	474519117231001	1,942.02	.1	D	112OTSH	1,779.10	162.92	–	V
122	*474516117250801*	*1,924.00*	*20*	*M*	*112OTSH*	*1,761.44*	*162.56*	–	*V*
123	474436117245901	1,938.23	.1	D	112OTSH	1,799.57	138.66	–	V
124	*474437117245501*	*1,949.99*	*.1*	*D*	*112OTSH*	*1,790.89*	*159.10*	–	*A*
125	474418117231001	1,995.27	.1	D	112OTSH	1,810.36	184.91	–	V
126	474355117221101	2,001.99	.1	D	112OTSH	1,813.41	188.58	–	V
127	*474352117215101*	*2,019.00*	*20*	*M*	*112OTSH*	*1,835.31*	*183.69*	–	*V*
128	*474303117215001*	*2,034.00*	*10*	*M*	*112OTSH*	*1,846.28*	*187.72*	–	*V*
129	*474307117204601*	*2,009.00*	*10*	*M*	*unknown*	*1,861.61*	*147.39*	–	*S*
130	*474326117244901*	*2,054.00*	*10*	*M*	*112OTSH*	*1,848.70*	*205.30*	–	*C*
131	*474325117251701*	*2,048.66*	*.1*	*D*	*112OTSH*	*1,835.66*	*213*	–	*V*
132	*474305117244401*	*2,079.00*	*20*	*M*	*112OTSH*	*1,844.54*	*234.46*	–	*V*
133	474242117244901	2,068.45	.1	D	112OTSH	1,847.02	221.43	–	V
134	474216117244501	2,063.14	.1	D	112OTSH	1,854.75	208.39	–	V
135	*474619117040801*	*2,160.42*	*.1*	*D*	*210CRCS*	*2,054.45*	*105.97*	–	*V*
136	474419117033901	2,186.00	.1	L	112OTSH	1,978.19	207.81	–	V
137	474349117025201	2,107.97	.1	D	112OTSH	1,976.80	131.17	–	V
138	474304117025201	2,084.17	.1	D	112OTSH	1,975.11	109.06	–	V
139	474226117024801	2,094.02	.1	D	112OTSH	1,973.84	120.18	–	V
140	474226116444101	2,220.91	.1	D	112OTSH	2,086.12	134.79	–	S
141	*474213116450601*	*2,219.55*	*.1*	*D*	*400PRCD*	*2,057.47*	*162.08*	–	*V*
142	474208116460501	2,242.01	.1	D	112OTSH	2,051.95	190.06	–	V
143	*474229116474501*	*2,224.00*	*10*	*M*	*112OTSH*	*2,019.50*	*204.50*	–	*V*
144	*474229116490301*	*2,204.00*	*20*	*M*	*112OTSH*	*2,021.52*	*182.48*	–	*V*
145	474221116513801	2,179.18	.01	L	112OTSH	2,019.20	159.98	–	V
146	474142116470101	2,227.11	.1	D	112OTSH	2,056.68	170.43	–	V
147	474134116470001	2,226.35	.1	D	112OTSH	2,057.50	168.85	–	V
148	474115116470101	2,224.43	.01	L	112OTSH	2,058.68	165.75	–	V
149	474043116460201	2,184.81	.1	D	112OTSH	2,064.89	119.92	–	V
150	474242116540301	2,197.43	.1	D	112OTSH	2,001.54	195.89	–	S
151	*474230116544901*	*2,197.90*	*.01*	*L*	*112OTSH*	*2,003.80*	*194.10*	*R*	*V*
152	*474232116582001*	*2,144.00*	*20*	*M*	*112OTSH*	*2,005.90*	*138.10*	–	*V*
153	*474223116582501*	*2,111.00*	*20*	*M*	*112OTSH*	*2,008.10*	*102.90*	–	*V*
154	474209117003401	2,114.49	.1	D	112OTSH	1,983.69	130.80	–	V
155	474145117000701	2,068.83	.1	D	112OTSH	1,981.67	87.16	–	S
156	474156117011501	2,092.05	.01	L	unknown	1,980.89	111.16	–	S
157	*474134117002201*	*2,073.32*	*.1*	*D*	*112OTSH*	*2,008.95*	*64.37*	–	*V*
158	*474134117002202*	*2,073.54*	*.1*	*D*	*112OTSH*	*2,038.01*	*35.53*	–	*V*
159	*474147116544001*	*2,134.00*	*20*	*M*	*112OTSH*	*2,019.43*	*114.57*	*R*	*S*
160	474208117012301	2,114.65	.01	L	112OTSH	1,978.67	135.98	–	V
161	474130117015401	2,073.29	.1	D	112OTSH	1,978.89	94.40	–	V
162	474529116452601	2,296.77	.01	L	112OTSH	2,149.37	147.40	–	V
163	474718116481701	2,321.00	5.0	D	112OTSH	2,007.00	314.00	–	G
164	474757116492701	2,311.77	.1	D	112OTSH	2,006.69	305.08	–	V
165	474732116521701	2,275.35	.1	D	112OTSH	2,004.74	270.61	–	V
166	474755116521901	2,246.56	.1	D	112OTSH	2,004.26	242.30	R	V
167	474720116532101	2,240.47	.1	D	112OTSH	2,004.07	236.40	–	V
168	474659116511901	2,275.20	.01	L	112OTSH	2,005.57	269.63	V	S
169	474704116495001	2,300.31	.01	L	112OTSH	2,004.66	295.65	V	S
170	474714116471301	2,314.00	5	M	112OTSH	2,008.76	305.24	–	V
171	*474643116461901*	*2,308.78*	*1.0*	*D*	*122CBRV*	*2,112.89*	*195.89*	–	*S*
172	*474542116485701*	*2,302.16*	*.1*	*D*	*112OTSH*	*2,004.52*	*297.64*	*S*	*V*
173	474571116501701	2,279.85	.1	D	112OTSH	2,003.25	276.60	V	S
174	474547116524001	2,255.78	.01	L	112OTSH	2,003.07	252.71	V	S
175	474512116525801	2,238.04	.1	D	112OTSH	2,001.44	236.60	V	S
176	474444116525701	2,253.18	.1	D	112OTSH	2,001.04	252.14	V	S
177	474443116525701	2,252.61	.1	D	112OTSH	2,001.16	251.45	R	S
178	474445116521601	2,249.18	.1	D	112OTSH	2,001.82	247.36	–	S
179	474529116474001	2,290.25	.1	D	112OTSH	2,010.60	279.60	–	S
180	474531116474501	2,277.94	.1	D	112OTSH	2,013.56	264.38	–	V
181	474417116475001	2,278.06	.1	D	112OTSH	2,012.56	265.50	–	V
182	474417116474801	2,283.81	.1	D	112OTSH	2,003.03	280.78	–	V
183	473717116533201	2,211.51	.1	D	112OTSH	2,000.63	210.88	–	V
184	473308116522101	2,346.70	.01	L	112OTSH	1,997.52	349.18	V	S
185	474259116521201	2,301.33	.1	D	112OTSH	2,005.68	299.65	–	V
186	*473606116493601*	*2,257.49*	*.1*	*D*	*Multiple*	*2,037.38*	*202.57*	–	*V*
187	*473409116471601*	*2,239.95*	*.1*	*D*	*Multiple*	*2,037.38*	*202.57*	–	*V*
188	474808116534001	2,203.41	.1	D	112OTSH	1,999.48	203.93	–	V
189	*474733116560801*	*2,184.00*	*20*	*M*	*210CRCS*	*2,021.50*	*162.50*	*P*	*V*
190	474718116566201	2,151.13	.1	D	112OTSH	2,002.94	148.19	–	V
191	474718116545901	2,178.93	.1	D	112OTSH	2,001.03	177.90	–	V
192	474601116551301	2,221.78	.01	L	112OTSH	1,999.12	222.66	–	S
193	*474618116585501*	*2,166.96*	*.1*	*D*	*210CRCS*	*2,107.60*	*59.30*	–	*V*
194	*474617116584101*	*2,165.00*	*20*	*D*	*210CRCS*	*2,032.85*	*132.15*	–	*V*
195	*474559116574901*	*2,144.77*	*.1*	*D*	*112OTSH*	*1,994.21*	*150.56*	*V*	*S*
196	*474603117010101*	*2,204.00*	*20*	*M*	*112OTSH*	*2,142.02*	*61.98*	–	*V*
197	*474450117003301*	*2,126.80*	*.1*	*D*	*112OTSH*	*1,988.06*	*138.74*	*R*	*V*
198	474548116583701	2,146.45	.1	D	112OTSH	1,987.70	158.75	–	S
199	*474532116572701*	*2,166.68*	*.1*	*D*	*112OTSH*	*2,014.03*	*152.65*	*S*	*A*
200	*474533116535601*	*2,239.99*	*.1*	*D*	*unknown*	*2,001.98*	*238.01*	–	*S*
201	474520116543701	2,220.75	.1	D	112OTSH	2,000.98	219.77	V	S
202	474440116545801	2,232.79	.01	L	112OTSH	1,997.11	235.68	–	V
203	474439116572601	2,146.98	0.01	L	112OTSH	1,993.93	153.05	–	V
204	474331116565101	2,240.64	.1	D	112OTSH	2,005.29	235.35	–	V
205	474352116565201	2,240.64	1.0	D	112OTSH	2,004.72	235.92	–	V
206	474407116573301	2,157.24	.1	D	112OTSH	2,007.29	149.95