

Washington State Department of Ecology
Water Resources Program

Mason County Well Location Accuracy Study
Completed by Andrea Lauden on July 15, 2019

Introduction

The purpose of this study is to quantify the accuracy of Public Land Survey System (PLS; reported as township, range, section, $\frac{1}{4}$ and $\frac{1}{4}$ - $\frac{1}{4}$) locations, within Mason County, as reported on well reports in Department of Ecology's (Ecology) Well Report Database. Property owners, well drillers, and environmental planners frequently use Ecology's Well Report Viewer, which typically displays well locations at the $\frac{1}{4}$ - $\frac{1}{4}$ centroid of their PLS location. This study stems from discussions between Ecology, the Squaxin Island Tribe, and Mason County regarding the importance of well report location accuracy for these users. This study began in March of 2019, and is based on the data available at that time. It is a continuation of a state-wide well report PLS location accuracy study completed in November of 2018 by Andrea Lauden.

Summary

Ecology examined well report locations in Mason County to derive well location accuracy statistics. The accuracy of PLS locations on a random sample of 187 water well reports from Mason County was analyzed, and this data was then broken down by decade, WRIA, and drilling company. Only 79% of the locations could be verified. Of those, 70% were reported correctly and 30% were reported incorrectly. The majority of errors are in the reported $\frac{1}{4}$ and/or $\frac{1}{4}$ - $\frac{1}{4}$, not the township, range or section. PLS location errors peaked in the 1990s, when the highest number of reports were received, and have declined since then. Miskeyed errors have increased over the past few decades but the miskeyed error rate is lower than that of reported errors. The majority of well reports were located within WRIA 14, which had the highest reporting error rate. The drilling company with the highest reported location error rate was Arcadia Drilling Inc. A likely cause of PLS location errors is confusion with the PLS system, especially in recent decades as other location information such as parcel number, street address, and possibly latitude/longitude are more widely used by well drillers.

Method

Ecology's database contains 8,910 water well reports in Mason County, excluding dewatering well reports. Two hundred well reports were randomly selected for this study using the RAND function in Microsoft Excel, then group water systems and one well report with an incorrectly reported county were excluded, for a total of 187 reports (2.1% of the all the water well reports in Mason County, excluding dewatering wells).

The PLS locations reported on each of the 187 well reports were analyzed for accuracy by comparing the PLS location to other location information on the well report, including but not limited to: parcel number, well street address, property owner address, property owner name, and project name. This information was verified using Ecology's Well Report Database and Mason

County Assessor's public property records, which include previous property owners but no well information. The well reports were categorized as follows:

Cannot Verify: the PLS location could not be verified using the County Assessor's public property records and NOI and well report location information.

Reported Correctly: the reported PLS location was verified as correct.

Reported Correctly but Missing 1/4 or 1/4-1/4: the township, range and section were reported correctly, the 1/4-1/4 or 1/4 were not reported at all, and the reported PLS location was verified as correct. If the 1/4 and 1/4-1/4 could be verified, they were added to the database record (highlighted light green in Appendix A).

Miskeyed: the PLS location in the database record (as transcribed from the well report by Ecology) does not match the PLS location written on the well report, and the PLS location on the well report was verified and found to be correct. The database record was then corrected (as highlighted orange in Appendix A).

Reported Incorrectly: the verified PLS location was a different PLS location than was reported on the well report. The correct PLS location was noted for later correction in the database (highlighted yellow in Appendix A). The scale of the location errors, i.e. the distances of the reported PLS locations from the correct PLS locations, were then further analyzed:

1/4 or 1/4-1/4 Reported Incorrectly: the correct PLS location was within the same section as the reported PLS location i.e. the error was in the reporting of the 1/4 or 1/4-1/4.

TRS Reported Incorrectly: the PLS location error was in the reporting of the township, range, or section.

Parcel data on the well reports were analyzed to better understand the rate of reporting this data, and the accuracy of the reported parcels. The reports were categorized as follows:

Reported Correctly: Parcel included on the well report was verified as correct with the County Assessor's public property records.

Reported Incorrectly: Parcel included on the well report was verified as incorrect with the County Assessor's public property records (as highlighted yellow in Appendix A).

Miskeyed: Parcel in the database record (as transcribed from the well report by Ecology) does not match the parcel written on the well report, and the parcel on the well report was verified as correct. The database record was then corrected (as highlighted orange in Appendix A).

Unreported; Found in County Records: Parcel not included on well report, but verified with the County Assessor's public property records (as highlighted light green in Appendix A).

Parcel Not Verified: Parcel not included on well report, and could not be located. Some of these parcels could not be verified even though the PLS location was verified, because

several possible parcel matches were located within the verified PLS location, so one parcel could not be definitively identified.

Other information on the well report used for analysis in this study was not always available in the database record and was found by viewing the well report itself. A total of 24 well reports in this study were initially missing a date of well construction in their database record, of which all but 2 ('Completed Date' field highlighted light green in Appendix A) could be added from the date reported on the well report. The drilling company that submits a well report is not a field in the well report database and therefore required manually populating in this study by adding this information from the well report.

Findings and Analysis

The result of the accuracy analysis of all well reports is represented in Figure 1, and the result of the accuracy analysis of verified well locations (excluding the Cannot Verify category) is represented in Figure 2. Overall, 40 reported PLS locations could not be verified ('Cannot Verify'), of which all 40 had no reported parcel number and 33 had no reported street name or address to use for PLS location verification.

The Reported Correctly, Reported Correctly but Missing ¼ and ¼-¼, and Miskeyed categories are shades of blue to group the well reports that were verified as correct. The ¼-¼ Reported Incorrectly and TRS Reported Incorrectly categories are shades of green to group the well reports that were verified as incorrect.

Table 1

	Total	% of Total Well Reports	% of Verified Well Reports
Reported Correctly	80	43%	56%
Reported Correctly but Missing ¼ or ¼-¼	11	6%	8%
Miskeyed	8	4%	6%
Total Reported Correctly	99	53%	70%
¼ or ¼-¼ Reported Incorrectly	35	19%	25%
TRS Reported Incorrectly	13	7%	9%
Total Incorrectly Reported	48	26%	30%
Cannot Verify	40	21%	N/A

Figure 1

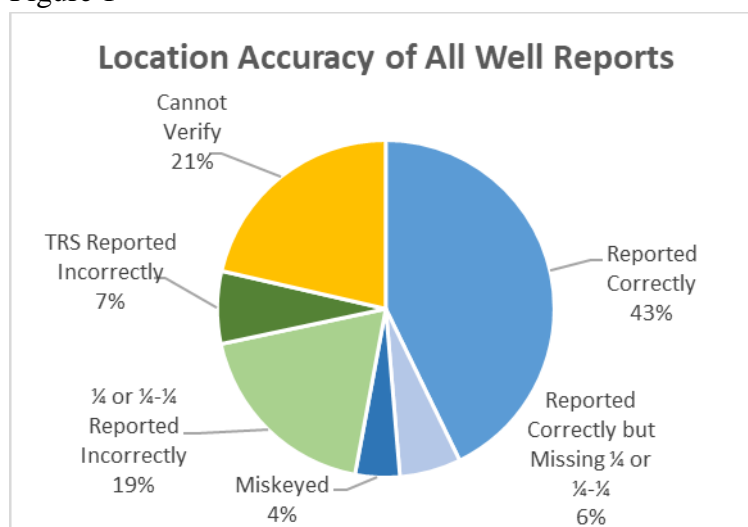
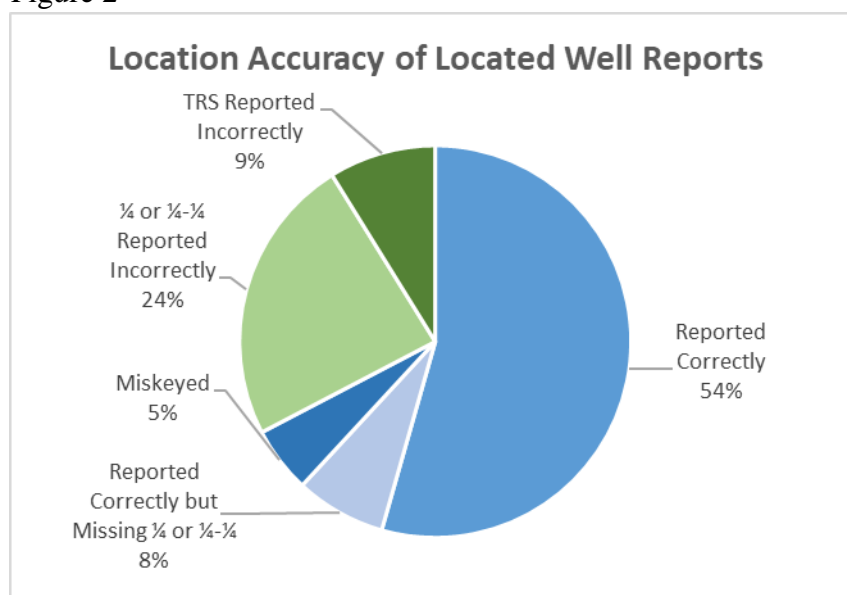


Figure 2



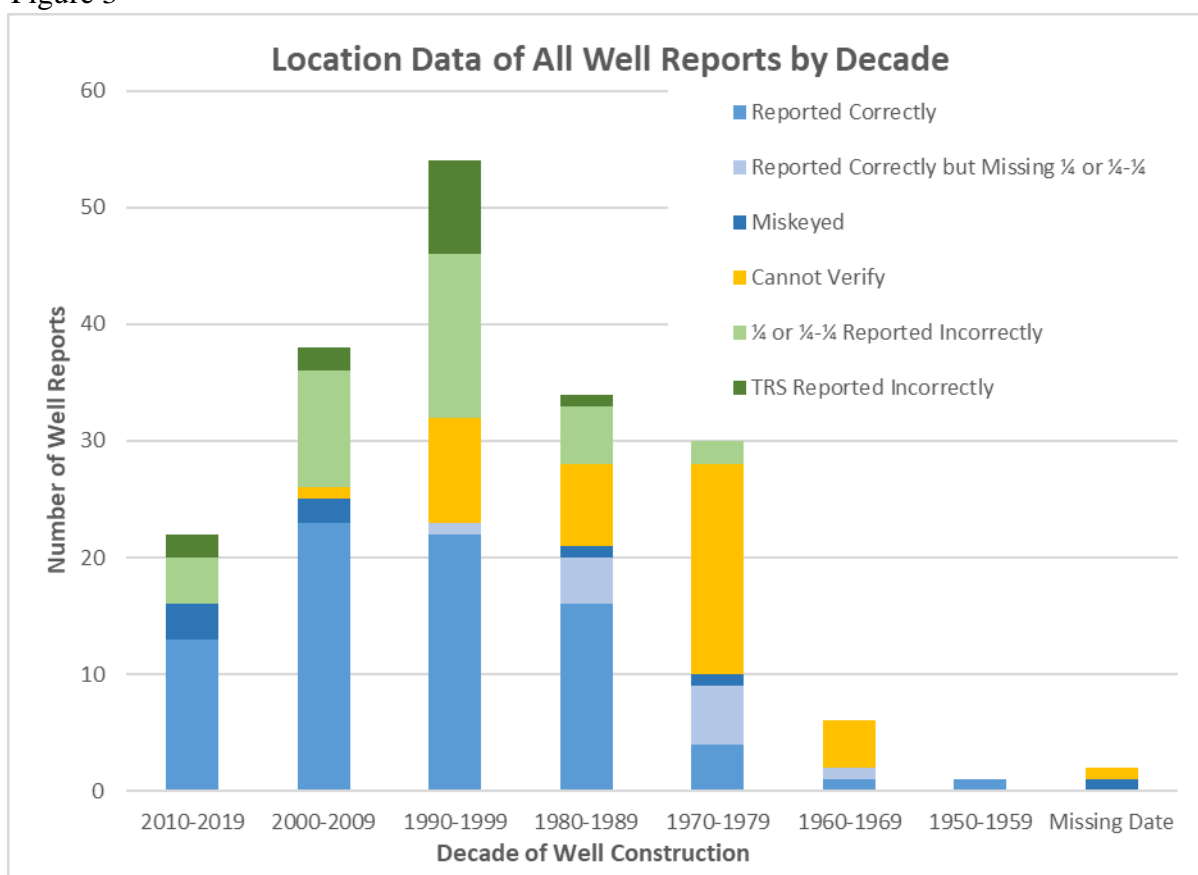
Accuracy by Decade

Several trends in location reporting are visible when looking at all the well reports by category over the decade in which the well was constructed (Table 2 and Figure 3). Rates of reported location errors (Reported Incorrectly) and unverifiable reported locations (Cannot Verify) have decreased over time, and the rate of miskeyed locations has generally increased over time. The decade with the highest rate of miskeyed errors (14%) is the 2010s, which is significantly higher than the rate of miskeyed locations for all well reports (4%).

Table 2

	2010s	2000s	1990s	1980s	1970s	1960s	1950s	Missing Date
Total Well Reports	22	38	54	34	30	6	1	2
% of All Well Reports	12%	20%	29%	18%	16%	3%	1%	1%
Reported Correctly	59%	61%	41%	47%	13%	17%	100%	0%
Reported Correctly but Missing ¼ or ¼-¼	0%	0%	2%	12%	17%	17%	0%	0%
Miskeyed	14%	5%	0%	3%	3%	0%	0%	50%
Total Reported Correctly	73%	66%	43%	62%	33%	33%	100%	50%
¼ and ¼-¼ Error Rate	18%	26%	26%	15%	7%	0%	0%	0%
TRS Error Rate	9%	5%	15%	3%	0%	0%	0%	0%
Total Reported Incorrectly	27%	32%	41%	18%	7%	0%	0%	0%
Cannot Verify	0%	3%	17%	21%	60%	67%	0%	50%

Figure 3



Of all the 8,910 water well reports in Ecology's Well Report Database constructed in Mason County, 29% were drilled in the 1990s. However, 14% of total reports do not include a date of construction in their database record. Likewise, 29% of the reports in this study were also constructed in the 1990s, and 13% of well reports in this study do not include a date of construction in their database record. The majority of these dates were reported on the actual well report, but not keyed into the database record.

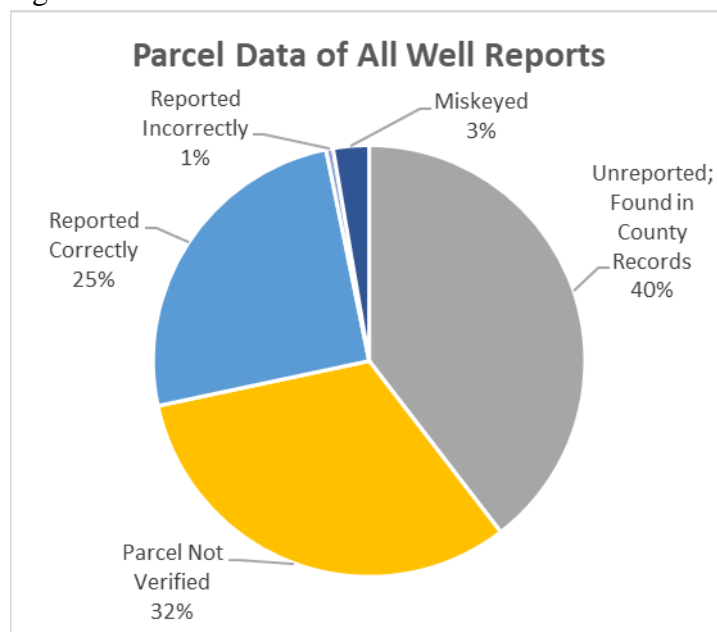
Several changes in well location reporting occurred in this decade due to the filing of Washington Administration Code (WAC) 173-160-141, “What are the requirements regarding water well reports?” in 1998. This WAC required additional information to be included on water well reports, including parcel number. Well reports from earlier decades appear to have more accurate PLS locations but less supporting location information such as a parcel number with which to verify the location due to there being no reporting requirement of this supporting location information. The 0% PLS location error rate in the 1950s and 1960s are likely due to several factors. Due to the limited sample size from those decades, further analysis could be beneficial.

Parcel Data Analysis

72% of well reports had no parcel number reported, but 40% could be found using the County Assessor’s public property records (Table 3 and Figure 4).

Table 3	Number of Well Reports	% of Total Well Reports
Reported Correctly	47	25%
Miskeyed	5	3%
Reported Incorrectly	1	<1%
Parcel Not Verified	60	32%
Unreported; Found in County Records	74	40%

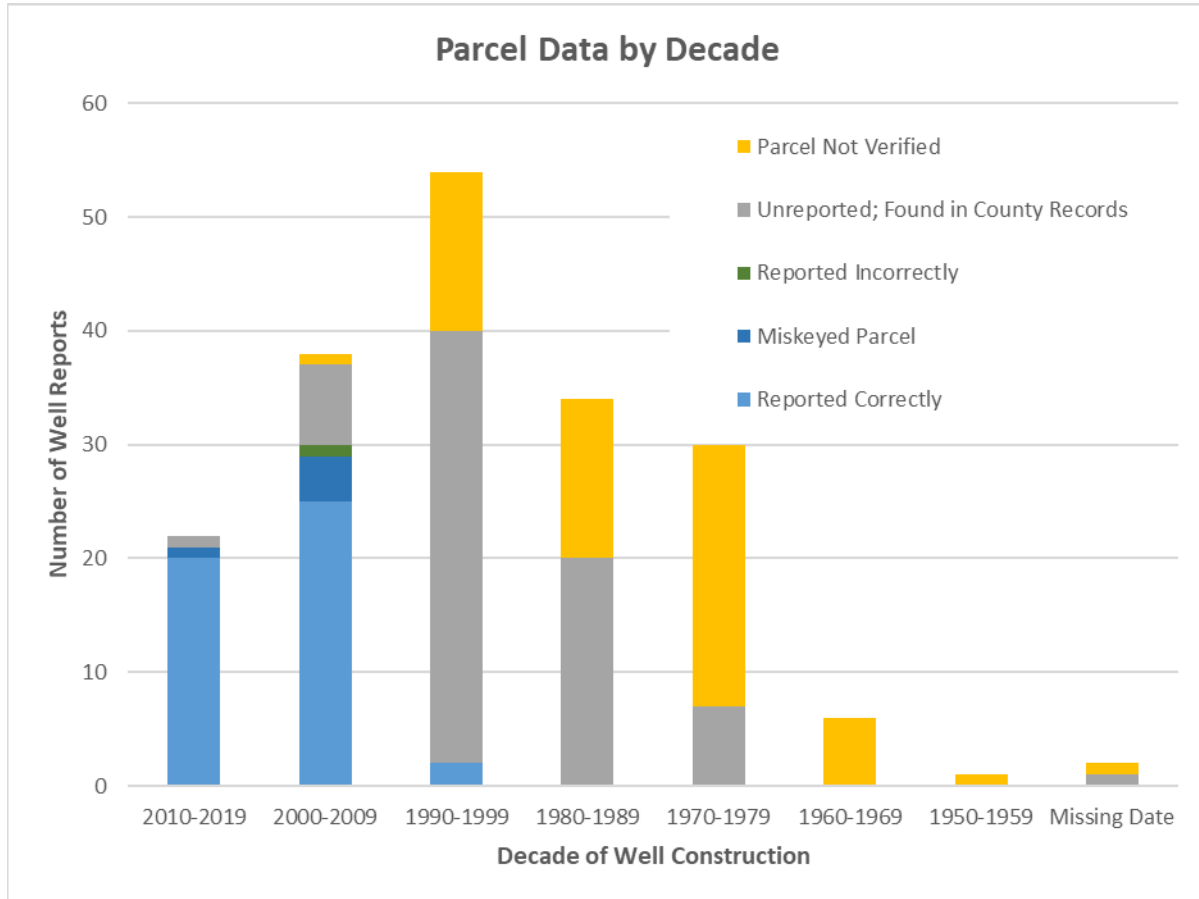
Figure 4



The results of this parcel data study are further studied in Figure 5 by the decade in which they were received. As mentioned previously, the regulation requiring drillers to include parcel numbers on water well reports, WAC 173-160-141, was adopted in 1998. According to this

Mason County study, this regulation was not consistently enforced for many years, though every well report within the last decade except one was reported correctly. A total of 48% of the parcels of wells constructed in or before 1998 (58 well reports), including all wells drilled before 1974 (12 well reports), could not be verified due to the lack of other location information reported, or due to the changes in property ownership since the date of construction.

Figure 5



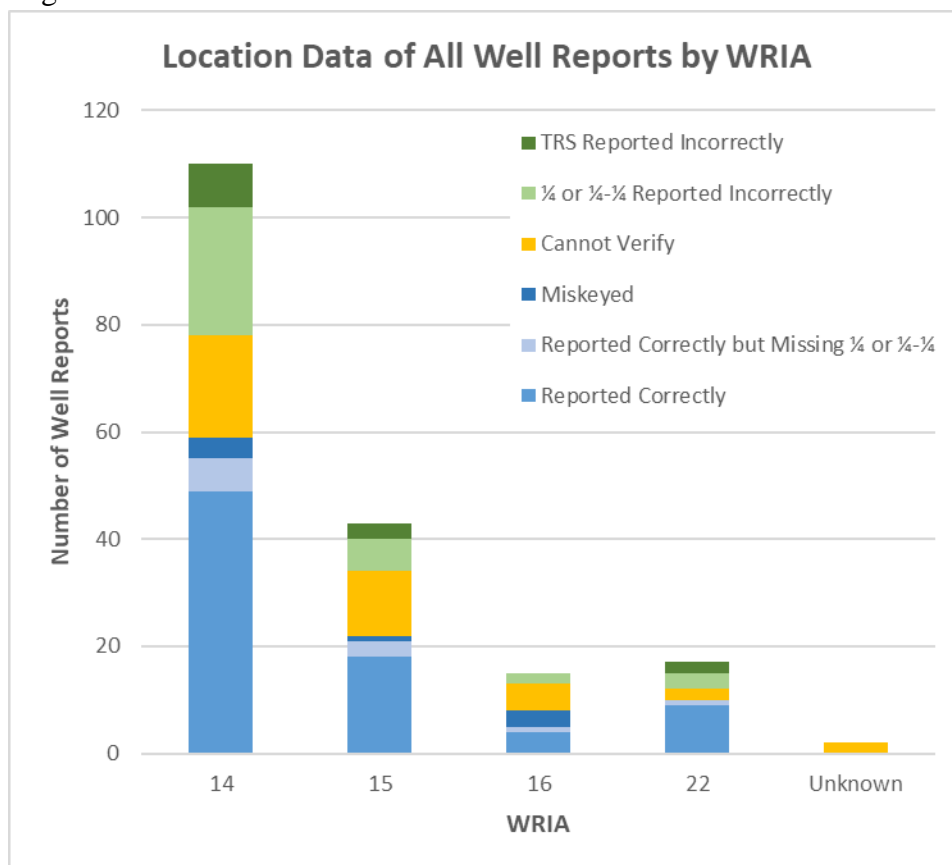
WRIA Data Analysis

Mason County includes parts of WRIAs 14, 15, 16, and 22. Table 4 and Figure 7 display the results of this study by WRIA. Only five of the well reports were not assigned to a WRIA in their database record, and three of those could be verified and added. Two well reports that could not be verified did not include a WRIA ('Unknown' field). Shelton, the largest city in Mason County, is in WRIA 14. The majority of water well reports in this study are located in WRIA 14 due to the large population in and around Shelton. WRIA 14 also has the highest rate of location errors. WRIA 16 has both the lowest rate of location errors and the highest rate of well reports that could not be located. The sample size for WRIAs 16 and 22 are small, so these results could benefit from further analysis.

Table 4

	WRIA	14	15	16	22	Unknown
Number of Well Reports		110	43	15	17	2
% of Total Well Reports		59%	23%	8%	9%	1%
Reported Correctly		45%	43%	27%	53%	0%
Reported Correctly but Missing ¼ or ¼-¼		6%	7%	7%	6%	0%
Miskeyed		4%	2%	20%	0%	0%
Total Reported Correctly		55%	52%	53%	59%	0%
¼ or ¼-¼ Reported Incorrectly		22%	14%	13%	18%	0%
TRS Reported Incorrectly		7%	7%	0%	12%	0%
Total Incorrectly Reported		30%	21%	13%	29%	0%
Cannot Verify		18%	29%	33%	12%	100%

Figure 7



Drilling Company Data Analysis

Arcadia Drilling Inc. submitted 14% of well reports in this study, and likely a much higher percent of all water well reports in Mason County, because there are 1,782 well reports (20% of the 8910 total) that were submitted by Arcadia in Ecology's NOI database, which does not

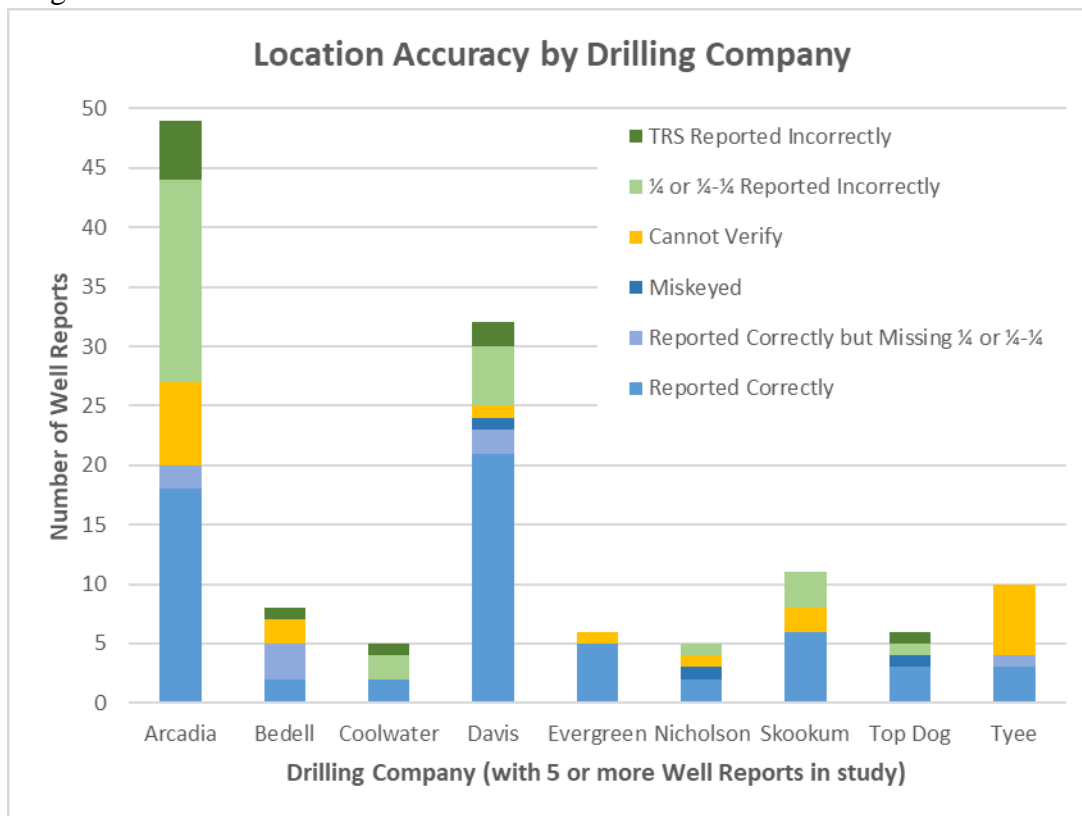
include well reports submitted before NOIs were required by RCW 18.104.048 in 1987. The earliest well reports in the NOI database from Arcadia were submitted in 1993, however, and several well reports in the study from Arcadia were submitted in the 1970s, indicating that Arcadia likely submitted more than 20% of water well reports in Mason County.

Bedell Pump and Drilling Co. and Tyee Well Drilling Co. Inc., companies that operated pre-1990, have the highest rate of well reports that could not be verified. However, this reflects the accuracy rates of all well reports in the pre-1990 decades, and can therefore likely be attributed to common issues and not a unique problem within the companies.

Table 5

	Arcadia	Bedell	Coolwater	Davis	Evergreen	Nicholson	Skookum	Top Dog	Tyee
% of All Well Reports	14%	4%	1%	13%	3%	2%	4%	2%	5%
Total Incorrectly Reported	45%	13%	60%	22%	0%	20%	27%	33%	0%
Total Correctly Reported	41%	63%	40%	75%	83%	60%	55%	67%	40%
Cannot Verify	14%	25%	0%	3%	17%	20%	18%	0%	60%

Figure 8



Conclusion

Only 79% of the well report PLS locations could be verified. Of those, 70% were reported correctly and 30% were reported incorrectly. Because many locations could not be verified, it is not possible to quantify the actual error rate of all water well reports in Mason County based on this study. Depending on the number of the 'Cannot Verify' reports that are located correctly, the error rate could be as low as 26%, if the 'Cannot Verify' reports are all located correctly, and as high as 47% (26%+21%), if they are all located incorrectly.

Because all the PLS locations of well reports from the 2010s could be verified, this decade has an actual error rate of 27%. This increase in ability to verify locations is largely due to (the enforcement of) the requirement to include parcel data and street address on well reports.

PLS location errors are higher in the 1990s-2010s than in previous decades. This could be explained by the decline in well drillers' reliance on PLS locations in their work. Instead, drillers increasingly depend on parcel or street address location data, and more recently, latitude and longitude. However, the number of well reports that could not be verified decreased as the number of errors increased, and these trends could be related. If a greater number of locations that could not be verified are also incorrect, then the error rate in earlier decades could be much higher. It is not possible to explain this difference in error rate over time without further analysis.

Potential Follow-Up Actions

Recommended further studies, for a deeper analysis of location reporting accuracy, include:

- Reduce the 'Cannot Verify' rate by verifying locations with additional resources, such as field checking or accessing the County Assessor's older records (not publicly available), for a more conclusive error rate.
- Study the relationship between PLS locations and reported latitude and longitude on well reports.
- Analyze the location accuracy of electronically submitted well reports through Ecology's Well Report Gateway, which are uploaded directly to the Well Report Database.

Steps that Ecology could take to improve location accuracy on well reports include:

- Require latitude and longitude on well reports in order to provide verifiable location information that does not change in the way that addresses, parcels, and property owners do, and is likely now more familiar to drillers than PLS location.
- Provide an interactive mapping tool on the online NOI form for drillers to locate their drilling site, to auto-populate a PLS location and add latitude and longitude coordinates from this mapped location. This tool could also be used for well reporting.
- Target technical assistance and compliance efforts towards drilling companies with higher error rates, where possible.
- Create a process for Ecology staff processing well reports to clearly document drilling companies' location reporting errors for identify opportunities for further training on location reporting.

Well Location Accuracy Study of Water Wells in Mason County Appendix A

Raw data was queried from Ecology's Well Report Database on March 7, 2019.

Yellow = Misreported (fixed)			Orange = Error in Ecology Database - Miskeyed (fixed)			Green = Not in Database Record (added)						
WELL LOG ID	WELL TAG	NOI	COMPLETED DATE	WELL OWNER	WELL ADDRESS	T	R	S	Q	QQ	TAX PARCEL	WRIA
Reported Correctly												
1601952		NULL	10/17/1995	STEVEN SIMS	1141 AGATE LOOP ROAD	20 N	3 W	14 NW	SE		NULL	14
277442	ABQ754	NULL	11/13/1996	BRUCE MCLENDON	NULL	21 N	2 W	25 NE	NW		221257600030	14
1660831	AFN991	WE30098	1/1/2018	TIMOTHY GARRETT	4060 E Grapeview Loop Rd	21 N	1 W	8 NW	NW		121082200050	14
1644007	BJT918	W359629	8/8/2017	Evan and Tinaya Smith	611 SE Ellis Rd	19 N	3 W	3 NW	NE		319032150010	14
1596331	BJM368	WE25368	9/28/2016	Oliver Lyon	3710 W Cloquallum Rd	19 N	4 W	1 NW	NW		419017500050	14
936470	BIH082	W354030	6/13/2014	James Nichols	1260 E Razor RD	22 N	1 W	7 NW	SE		122077500260	14
810641	BHH135	WE14611	7/20/2012	Damon Ernst	Hwy 106, Union 98592	22 N	3 W	36 NW	SW		322365100032	14
676509	ABF994	W236894	7/29/2010	NATHAN WARD	GRAPEVIEW LOOP RD, ALLYN 98524	21 N	1 W	5 NW	NE		121055116001	14
643620	BAR104	W240290	3/5/2010	MIKE OBLIZALO	8830 E SR 106	22 N	3 W	35 SW	NE		322353200070	14
643624	BBE139	WE11094	2/26/2010	JEANNINE EDWARDS	HARTSTINE ISLAND RD S, SHELTON	20 N	1 W	30 SW	NW		120303290013	14
869252	APN994	W249618	3/25/2008	WALTER SCOTT	ORCHID LN E, GRAPEVIEW 98546	21 N	2 W	23 NE	NE		221231000010	14
434176	ALG457	W214773	2/10/2006	JUSTIN RUGGLES	170 E FOX RUN, GRAPEVIEW 98546	21 N	2 W	13 NW	NW		22113-76-00060	14
411919	AKK556	W189038	7/11/2005	JOHN AND PAMELA KRUEGER	530 SE BREWER RD, SHELTON	19 N	3 W	8 SW	NE		319083190042	14
401839	ALB224	W186121	1/19/2005	TOM BALL	STRONG RD, SHELTON 98584	21 N	2 W	33 NE	NW		22133-12-90002	14
398770	AHR458	W178539	9/30/2004	HERMANN SOMMER	WINTERWOOD RD, GRAPEVIEW	21 N	1 W	18 NE	SE		12118-11-90130	14
389151	AKA697	W181521	7/1/2004	ROBERT AND FAITH DAMON	98546	19 N	3 W	10 NE	SE		319101400023	14
387432	AKA694	W181512	6/28/2004	BOB AND JEANNE SUNDER	KAMILCHE POINT RD, SHELTON	19 N	3 W	10 NE	SE		319101400021	14
347884	AGE701	W159438	10/23/2002	STEPHEN JOHNSON INC	CRONQUIST RD, ALLYN	22 N	1 W	32 SE	NW		12232-40-90102	14
322160	AFT765	W157889	11/23/2001	PAUL HUNTER	CALIFORNIA RD, SHELTON	21 N	4 W	20 NW	SW		421202000000	14
318690	AGH189	W157867	10/18/2001	DOUG JOHNSON	6744 LYNCH RD, SHELTON	20 N	2 W	31 SE	SE		220315200013	14
312919	AFR367	W125238	9/15/2001	CYRIL ORME	SE 130 SELLS DR, SHELTON, 98584	19 N	3 W	2 SE	SW		31902-43-90030	14
301648	AEG633	W129427	1/23/2000	THOM YORK	1380 W HIGHLAND RD, SHELTON,	20 N	5 W	24 NE	NE		520241200000	14
250090	AFB162	W124751	1/10/2000	SALAPKA, JOHN	98584	19 N	3 W	9 NE	NW		319097600060	14
250913	ACY832	W093187	10/8/1999	STEWART SAWYER	OFF LYNCH ROAD, SHELTON	21 N	1 W	8 SE	SW		12108-43-00110	14
43378	ACY593	W089431	11/18/1998	PAT CRADDICK	STRETCH IS RD SOUTH	19 N	3 W	29 NE	SW		319291300040	14
42348	ABQ843	W075669	11/10/1997	JEFFREY DIETZ	SE 321 CRADDICK RD, SHELTON	20 N	2 W	5 NE	NW		22005-52-00060	14
42912	ACJ829	W075726	3/18/1997	BRUCE MARTIN	E 2860 PHILLIPS LAKE LP, SHELTON,	20 N	3 W	3 NE	SE		32003-14-00040	14
55652	ACD888	W071707	10/12/1996	BARRY GESCHE	E 4251 HWY 3, SHELTON, 98584	21 N	3 W	30 SE	NE		32130-75-90091	14
55174	ABQ716	W066415	9/20/1996	KAREN M BEATTY	E 111 CAPITOL PEAK DR, SHELTON,	20 N	5 W	26 SE	NE		52026-41-00030	14
580469	ABZ697	W060273	8/30/1996	LARRY SIMA	98584	22 N	3 W	35 SE	SW		32235-75-90141	14
51105	NULL	W073462	12/1/1995	PATRICK BERRY	HARSTENE ISLAND RD N, SHELTON,	21 N	2 W	35 NE	SE		22135-14-01010	14
54862	ABG066	W054526	9/8/1994	JEFF RODGERS	98584	21 N	2 W	12 NE	SW		22112-78-00130	14
34753	NULL	NULL	6/25/1993	DICK YOHN	NULL	20 N	3 W	31 NW	NE		32031-22-00010	14
53017	NULL	58529	9/9/1992	SUE CHAMBERLAIN	W 252 CLARK RD, SHELTON	21 N	2 W	7 SE	SE		22107-50-00035	14
35989	NULL	64603	6/1/1991	GORDON REED	E 1440 MASON LAKE DR	20 N	2 W	32 NW	SW		NULL	14
35107	NULL	26155	6/16/1989	ED MORTIMER	161 Tottlyn Rd	20 N	2 W	31 SE	SW		NULL	14
38393	NULL	NULL	3/12/1989	MIKE GARRETT	TOTEN SHORES	20 N	2 W	31 SE	SW		NULL	14
33365	NULL	NULL	2/28/1989	BILL WHITE	SE Totten Shores Rd	19 N	4 W	1 NE	NW		419011200012	14
32935	NULL	NULL	1/10/1988	ALICE KOCK	NULL	20 N	3 W	25 NW	SE		320255000044	14
44016	NULL	NULL	3/18/1987	ANN OLLI	NULL	20 N	4 W	34 NE	NW		420341200000	14
34973	NULL	NULL	9/1/1983	DOUG VAZQUEZ	2230 W Shelton Valley Rd	20 N	3 W	31 NW	SW		NULL	14
40447	NULL	NULL	9/4/1981	STEVE MORK	2102-2211 W Cloquallum Rd	20 N	3 W	23 NE	NW		32023-12-90032	14
34853	NULL	35040	1/19/1980	DON SAEGER	NULL	19 N	4 W	2 NW	SE		NULL	14
44884	NULL	NULL	3/29/1979	C. R. FOLK	W 4331 CLOQUALLUM RD	21 N	2 W	16 SE	NE		NULL	14
36187	NULL	NULL	6/7/1978	HARVEY REEM	NULL	20 N	3 W	26 NW	NW		NULL	14
49261	NULL	NULL	7/26/1968	JT CHAPMAN	NULL	21 N	2 W	4 NW	NE		NULL	14
46094	NULL	NULL	11/10/1956	DO. MC DOUGALL	NULL	20 N	4 W	2 SE	SE		NULL	14
54083	NULL	NULL	10/1/1982	WM BRUNS	NULL	22 N	2 W	5 NE	SW		22205-13-90200	15
1867943	WE30365		8/24/2018	Jonathan Sutter	16821 NE Northshore Rd	22 N	3 W	20 SW	SE		322205003018	15
578707	ALG487	W236853	3/24/2009	TOM MARTIN	191 NE MOUNTAIN VIEW, TAHUYA	23 N	2 W	19 SW	SE		22319-50-00960	15
529867	APS696	W228541	5/18/2008	RON HERR	NULL	23 N	2 W	4 NE	NW		223047500130	15
496848	APS656	W236150	9/26/2007	JIM GRAVES	1020 TAHUYA RIVER RD, TAHUYA	23 N	2 W	30 NE	NW		22330-50-00040	15
688428	APQ508	WE05208	6/28/2006	THOMAS QUANN	98588	23 N	3 W	28 NE	NW		323287500020	15
377373	AGE724	W173301	6/14/2003	MARTY REYNOLDS	3401 NE MANKE RD	22 N	1 W	9 NW	SE		12209-24-00040	15
361965	AGS472	W166405	3/20/2003	PAVEL VINICKY	MARVIN RD, BELFAIR 98528	22 N	3 W	11 NE	NE		32212-76-00070	15
341220	AGE763	W135687	9/20/2001	RON KLEMM	1020 TAHUYA RIVER RD, TAHUYA	22 N	2 W	5 NW	SE		222052400251	15
312777	AFT293	W093242	5/31/2001	ANTOINETTE GENZALE	98528	23 N	2 W	19 SE	NW		22319-50-00005	15

252172	AEN582	W111869	11/26/1999	KEN WYMAN	NE 841 MISSION CREEK RD BELFAIR WA 98528	23 N	2 W	36 NE	SW	223361390160	15
1622820	AEC810	NULL	6/25/1999	JERRY MCCANNON	2860 E STATE ROUTE 302	22 N	1 W	16 SW	NE	12216-31-00010	15
49177	NULL	W099058	1/3/1998	JOHN THARP	NE 15851 N SHORE RD, TAHUYA, 98588	22 N	3 W	28 NW	NE	32228-21-00010	15
46073	NULL	NULL	9/23/1992	DICK STROM	2201 TEE LAKE RD, BELFAIR, 98528	23 N	3 W	35 SW	SE	32335-50-00052	15
45397	NULL	16910	10/27/1987	CLYDE FRASER	4335 HWY 302, BELFAIR	22 N	1 W	21 SE	SW	122214390062	15
53300	NULL	NULL	2/28/1986	TIM LAWHEAD	NULL	23 N	2 W	10 NW	NE	22310-79-00770	15
45453	NULL	NULL	2/4/1983	CRAIG BYERLY	NULL	23 N	2 W	3 SE	SE	223107500160	15
46254	NULL	NULL	9/28/1977	DON WOODS	NULL	22 N	2 W	5 NE	NE	22205-11-00040	15
276285	AHB685	NULL	8/23/1981	HUNGRY BEAR CAFE	NULL	24 N	3 W	23 SW	SE	NULL	16
686377	BBB316	WE11557	10/19/2010	LEO MORAND	40060 N HWY 101, HOODSPORT 98548	24 N	3 W	12 NE	NE	324121100050	16
44752	NULL	86275	2/11/1992	BRUCE ALBERT	W 5500 620 SKOKOMISH VALLEY RD, SHELTON, 98584	21 N	5 W	1 SW	SW	52101-75-00021	16
51613	NULL	13840	6/6/1988	R. SUND	26470 N HWY 101	23 N	3 W	31 SW	SW	32331-33-00680	16
277321	AAD100	NULL	9/16/1993	ALFRED HAGUE	NULL	20 N	5 W	4 SW	SE	52004-50-00045	22
1710081	BJT852	WE28879	5/8/2018	Val Neilsen	71 W Satsop Bridge Rd	19 N	6 W	5 SW	SW	619057500010	22
1682077	BJT812	WE23548	6/10/2016	Douglas Markham	Lot 2 Matlock Brady Rd, Shelton	20 N	6 W	8 SE	NE	620081400020	22
743538	APJ059	WE13419	8/24/2011	Roberta Smith	98584	19 N	6 W	18 SE	NW	619184290002	22
428890	ALP612	W207902	12/8/2005	TY MCLAUGHLIN	1261 W SATSOP MAPLE GLEN RD, MATLOCK	19 N	6 W	30 SW	NE	619307600080	22
56155	ACR362	W099538	5/6/1998	RANDY BARCOM	W FOREST GREEN LN, ELMA	20 N	6 W	28 NW	NE	62028-21-00020	22
41141	NULL	W011799	7/20/1994	HATCH.	NULL	19 N	6 W	11 SW	SW	NULL	22
49452	NULL	NULL	6/2/1981	KEN WOLDEN	Outlet Creek Rd	20 N	5 W	8 NW	NW	52008-22-00212	22
48080	NULL	NULL	7/17/1979	IRA BREHMEYER	NULL	20 N	6 W	17 NW	NW	62017-22-00000	22
1619615	NULL	NULL	7/11/1988	JEFF CONKLIN	E 1940 ISLAND LAKE DRIVE	20 N	3 W	6 SW	NE	32006-50-02075	14
1620638	ALP663	NULL	10/23/2009	ISLAND WEST ASSOCIATES	MASON LAKE ROAD	20 N	3 W	3 NW	NE	320032000000	14
Reported Correctly but Missing 1/4 and 1/4 1/4											
35046	NULL	21125	8/1/1988	E. D. HARVEY	NULL	20 N	2 W	4 SW	SE	220045000019	14
49195	NULL	13090	5/1/1988	JOHN WELSH	HAVEN LAKE	23 N	2 W	30 SW	NE	22330-50-00109	15
42282	ABQ568	W057073	7/13/1995	EVERETT NANCE	98541	19 N	6 W	2 SE	NE	61902-51-00035	22
35856	NULL	NULL	9/30/1983	GEORGE FULLER	151 SE Stroud Rd, Shelton	20 N	3 W	27 NW	SW	32027-50-05007	14
49098	NULL	NULL	3/14/1983	JOHN MROCEK	E PICKERING RD	21 N	2 W	32 NE	NE	NULL	14
41157	NULL	NULL	1/29/1979	W. G. CLARK	NULL	19 N	3 W	22 NE	SW	31922-13-00030	14
39955	NULL	NULL	12/15/1978	RON WAGERS	NULL	19 N	4 W	24 SW	NULL	NULL	14
46453	NULL	NULL	8/20/1978	E / WEST	NULL	22 N	3 W	28 NW	NE	322282100041	15
50185	NULL	NULL	7/15/1977	MARU FAUGHENDER	NULL	21 N	3 W	6 SW	SE	32006-50-02102	16
50252	NULL	NULL	5/8/1971	MAURINE MARSHALL	NULL	23 N	2 W	30 SW	NE	NULL	15
37234	NULL	NULL	10/24/1968	KATHRYN LOUGHEAD	NULL	20 N	3 W	23 SE	SW	NULL	14
1/4 1/4 Reported Incorrectly											
47140	NULL	13086	3/1/1988	GARY HOYT	NULL	23 N	2 W	19 SW	NE	22319-50-00085	15
47312	NULL	26996	5/1/1989	GEORGE HOLMGREN	NULL	21 N	1 W	8 NW	NW	121082290110	14
275376	AAD079	NULL	8/22/1993	CECIL RITTER	NULL	20 N	1 W	19 NW	SE	12019-31-04020	14
277432	ABH476	NULL	9/17/1993	REID MITCHELL	40 E Wilson Rd	21 N	2 W	26 NE	NE	22126-11-90021	14
1862820	BJM901	WE31159	7/26/2018	CHAD NORMAN	Clayton Ln	21 N	2 W	22 SW	NE	221223190090	14
810392	BCR950	WE14936	8/15/2012	Sylwayne LLC	Grapeview	21 N	1 W	7 SW	SW	121073350030	14
528177	APJ069	WE07983	5/21/2008	MERRIL PICCINI	3001 SE LYNCH RD, SHELTON 98584	19 N	3 W	3 SE	NW	319034100020	14
528197	BAH834	WE07932	4/8/2008	PATIENCE COLKITT	7300 GRAPEVIEW LOOP RD, ALLYN	22 N	1 W	29 NE	SW	122291300000	14
486027	BAC315	WE06656	6/7/2007	GERALD RING ERICKSON	98524	20 N	2 W	9 NE	NW	220091290190	14
479093	ALK958	WE05982	4/3/2007	JACK AND MARY HILLIGOSS	100 E WINERY RD, SHELTON 98584	20 N	2 W	20 SW	SE	220203490030	14
463434	APL150	W209799	8/29/2006	NICK PATTERSON	140 SE CANNERY POINT DR, SHELTON	20 N	3 W	26 NW	NE	32026-21-90042	14
452190	ALJ478	WE05094	7/18/2006	BOB WIBBELS	98584	20 N	2 W	9 SE	SW	220095000002	14
388203	AKP346	W174984	8/16/2004	BAXTER	5015 PICKERING RD, SHELTON 98584	21 N	2 W	7 SE	NW	22107-51-00007	14
60916	AES866	W106176	4/14/1999	STEVE WALKER	1320 E MASONLAKE DR W, GRAPEVIEW 98546	19 N	3 W	4 NW	NW	31904-22-00010	14
43652	AJ724	W105933	2/5/1999	STAN GOODBURN	COLE RD, SHELTON	20 N	3 W	27 SE	NE	32027-76-90018	14
56244	ACY531	W097478	8/24/1998	DAVID DEREMER	HARMONY LN, SHELTON	21 N	3 W	34 SE	SE	32134-75-90171	14
43102	ACQ355	W092222	9/13/1997	DAVE ROUNDTREE	E 560 CATFISH LAKE, SHELTON	19 N	3 W	2 SW	SE	31902-34-00030	14
43358	ACY270	W099006	8/2/1997	KEITH CHYNOWETH	SE 271 ROUNDTREE WAY	20 N	2 W	1 SW	NW	22001-32-00040	14
55876	ACN310	NULL	9/20/1996	MARIE LAZARIS	MCMICKEN RD, SHELTON WA	20 N	5 W	1 SW	SE	52001-77-90100	14
41998	ABH368	W056390	7/26/1995	DONALD DUMONTET	HANKS LN, SHELTON	19 N	3 W	6 NE	SE	31906-50-00020	14
42071	ABJ799	W045558	6/8/1994	HILDING PEARSON	W 61 DELIGHT PARK RD, SHELTON, 98584	20 N	2 W	31 SW	SE	NULL	14
33462	NULL	45586	12/22/1992	BOB NAULT	SE 381 TOTTEN SHORES RD, SHELTON	20 N	3 W	28 NE	NE	320281100070	14
33778	NULL	NULL	4/24/1987	CARL ROBERTS	1685 ARCADIA RD, SHELTON	20 N	3 W	32 NE	SW	32032-13-90161	14
33880	NULL	NULL	7/23/1979	CHARLES KELTNER	NULL	20 N	2 W	31 SE	SE	NULL	14
44952	NULL	NULL	3/29/1979	CARL KRAMP	6630 Lynch Rd Shelton	21 N	2 W	5 SW	NE	22105-52-00035	14
53745	NULL	64492	10/1/1990	WALT ALLISON	NULL	23 N	1 W	29 SW	NW	NULL	15
					Maple Wood Ct						

PREMIER CONTRACTING										
377160	AGE197	WE01320	10/5/2003	KENNEDY	1271 BLACKSMITH RD	23 N	2 W	10 NE SW	223107900640	15
56319	AEA954	W099080	4/26/1998	DEBRA DEWBERRY	1480 NE HURD RD, BELFAIR, 98528	22 N	3 W	13 SE SW	32224-77-90213	15
44699	NULL	48781	7/27/1992	BOZE MARILYN	E 2500 HWY 302, BELFAIR	22 N	1 W	16 NW NE	122162100000	15
48994	NULL	NULL	3/25/1982	JOHN GANTT	NULL	23 N	2 W	3 SE SW	22310-75-00170	15
922660	BIG455	WE18345	6/24/2014	Jim Nelson	NF24	23 N	4 W	9 SW SE	423093400010	16
52033	NULL	NULL	7/6/1988	RITA PETERSON	50 N Carroll Point Rd	23 N	3 W	20 NE SW	32320-13-00042	16
1560011	BIQ934	W359609	3/10/2016	Randall Reeve	12680 W Shelton Matlock Rd	20 N	5 W	9 NW NW	52009500001	22
498782	BAC014	W254008	9/26/2007	ANGELA HIX	FOREST GREEN LN, MATLOCK	20 N	6 W	28 NW NE	620282190030	22
417676	AHT373	W182110	9/20/2005	KATHY FLOWERS	CLOQUALLUM RD, SHELTON 98584	19 N	5 W	16 SE NW	519164200020	22

TRS Reported Incorrectly											
1620519	BBP848	NULL	5/24/2013	ERNIE AND KIM LARGE	16891 NE NORTH SHORE ROAD	22 N	3 W	29 NW	NE	32220-50-03022	15
277401	ABF894	NULL	12/16/1993	JIM MACE	E 11361 Hwy 106	22 N	2 W	30 NW	NW	222302300050	14
1721624	BKS572	WE30751	3/22/2018	RP DEVELOPMENT LLC	2770 BEEVILLE LOOP RD	21 N	6 W	29 SE	SE	621294400050	22
484981	APR657	W245496	5/30/2007	PAT SULLIVAN	TOONERVILLE RD,BELFAIR	23 N	2 W	2 SE	NW	223024200130	15
340784	AGS493	W150224	5/28/2002	RUDY LARSON	142 E HARSTINE ISLAND RD S, SHELTON	20 N	2 W	14 NE	NE	22014-11-90020	14
43509	AEC857	W101364	5/8/1998	MASON COUNTY FIRE DIST #4	SE 2970 ARCADIA RD, SHELTON	20 N	3 W	26 NW	NW	32026-76-90010	14
55864	ACM953	W076007	11/21/1996	VICTOR & LINDA AUSTIN	98584	21 N	6 W	27 NE	NW	62127-12-00000	22
55078	ABP286	W052447	8/17/1994	PHILIP SHELDON	PASSAGE VIEW RD, SHELTON	21 N	2 W	26 NW	SW	22127-75-00050	14
49047	NULL	87691	6/26/1992	JOHN KIMBALL	1150 ISLAND VIEW RD E	21 N	2 W	22 SE	NE	22122-50-00008	14
44675	NULL	84815	5/13/1992	BOB WINKLER	E 3140 N ISLAND DR	21 N	2 W	26 SE	SE	22126-44-90070	14
36043	NULL	84735	3/25/1992	GREG SMITH	691 ELK RIDGE RD	19 N	4 W	25 SW	NE	41925-75-00220	14
46163	NULL	82510	12/5/1991	DON HARTZ	1801 NE Haven Way, Tahuya	23 N	2 W	30 NE	NW	22330-50-00052	15
34442	NULL	NULL	10/2/1985	DARRELL HAMAR	NULL	20 N	3 W	24 NW	SW	NULL	14

Miskeyed											
53305	NULL	NULL	7/15/1975	TIM RICHEL - MIBHEL KELLY - HALDEN JOHNSON		NULL	24 N	3 W	23 SW SW	32426-22-00010	16
1874482	BKP140	WE32241	7/24/2018	Eric Matthews			19 N	3 W	10 NE SE	319101400050	14
967777	BIH053	W354043	12/6/2014	Chris Coman	70 Shore Brook DR		22 N	3 W	27 NW SW	322275303003	14
841606	BAJ557	NULL	10/15/2012	DAVID E AND DOROTHY BONNETT		174 RETREAT LANE	20 N	2 W	9 NE NW	220091290020	14
514194	APQ543	WE06674	7/9/2007	BEAR CREEK III	550 NE DEWATT RD		22 N	3 W	2 NW NE	323355000024	14
468133	AOK896	WE05757	2/9/2007	DAVID SHOLTIS	321 E JENNIFER LN, SHELTON 98584		21 N	4 W	23 NW SE	421237700040	16
1141128	NULL	NULL	9/9/1986	PAT JACOBSON			23 N	2 W	1 NW SE	22301-13-90020	15
276451	NULL	NULL	N/A	LLEWELLYN EVANS	NULL		22 N	4 W	11 SE E	42211-50-00002	16

Can't Locate											
275993	NULL	NULL	7/28/1964	DAYLE ORR 253-4TH ST.	NULL	22 N	2 W	32 NULL	NULL	NULL	14
40555	NULL	NULL	7/1/1978	SWEELONS SHELTON	NULL	20 N	3 W	29 NULL	NULL	NULL	14
49751	NULL	NULL	10/4/1971	LEE MARTIN	NULL	22 N	1 W	32 SW	SE	NULL	14
248706	AFB177	W130315	8/8/2000	RIVelo MANNY & KELLY RAY MILLS-MILLS	GRAPEVIEW LOOP ROAD	22 N	1 W	29 SE	NW	NULL	14
1601944	NULL	NULL	1/13/1997	CONSTRUCTION	E 41 ANN ARBOR DRIVE	20 N	3 W	25 SE	NW	NULL	14
55363	ABY167	W062313	7/17/1995	ARTHUR BUSHEY	SUNDOWNER, SHELTON	21 N	3 W	28 SE	NE	NULL	14
47372	NULL	35868	1/10/1992	GEORGE WILSON	STADIUM BEACH RD	21 N	2 W	23 NE	SE	NULL	14
53781	NULL	NULL	1/23/1989	WALTER FORSLUND	NULL	21 N	2 W	27 SE	SE	NULL	14
48115	NULL	NULL	1/18/1980	J TANCRELL	NULL	20 N	4 W	13 NE	SE	NULL	14
41107	NULL	NULL	3/2/1979	VICTOR DRUZIANICH	NULL	19 N	3 W	31 SW	SW	NULL	14
49820	NULL	NULL	12/2/1978	LEROY VISSOR	NULL	22 N	1 W	32 NW	SE	NULL	14
53631	NULL	NULL	4/20/1978	VI STICKLEY	NULL	21 N	3 W	36 NE	SE	NULL	14
44306	NULL	NULL	2/2/1978	BENNIE GOFF	NULL	22 N	1 W	29 NW	NW	NULL	14
47007	NULL	NULL	10/10/1977	FRED HANSON	NULL	20 N	4 W	27 SE	NE	NULL	14
41247	NULL	NULL	7/22/1975	WAYNE CANDILL	NULL	20 N	3 W	22 NW	NW	NULL	14
38574	NULL	NULL	1/10/1974	MUD BAY CONST. PLEASURE PROPERTIES, INC.	NULL	20 N	3 W	27 SW	SW	NULL	14
51354	NULL	NULL	8/7/1967	% KEN PLATZER	NULL	22 N	1 W	30 NE	SE	NULL	14
38786	NULL	NULL	7/1/1965	OSCAR BERNSTEN	NULL	20 N	3 W	15 NE	SW	NULL	14
56242	ACY520	W097503	8/29/1998	RAYMOND NUNEZ	SHELTON MATLOCK RD, SHELTON	20 N	5 W	12 NW	SE	NULL	14
51062	NULL	64454	4/1/1991	PAT DRAKE	NULL	22 N	2 W	5 SW	NE	NULL	15
276380	NULL	NULL	8/22/1976	JUAN GARRIDA	NULL	22 N	2 W	4 NW	NE	NULL	15
50194	NULL	21387	9/6/1988	MARVIN PETITE	NULL	22 N	3 W	13 SW	SE	NULL	15
48409	NULL	NULL	7/1/1986	JANE KELSEY	NE North Shore Rd, Belfair	22 N	3 W	29 NE	NW	NULL	15
44614	NULL	NULL	5/25/1977	BOB OKONEK	NULL	23 N	2 W	36 NE	SW	NULL	15
51600	NULL	NULL	5/27/1975	R. LAMOTT	NULL	23 N	2 W	19 SW	NE	NULL	15
50592	NULL	NULL	3/13/1975	MR. E. VANDERMER	NULL	22 N	1 W	21 NW	SW	NULL	15
51589	NULL	NULL	4/20/1973	R. J. MORGAN MT. RAINIER COUNCIL, BOY	NULL	22 N	1 W	21 NULL	NULL	NULL	15
50713	NULL	NULL	6/25/1967	SCOUTS OF AM	NULL	22 N	3 W	5 NE	SE	NULL	15
45785	NULL	15074	9/23/1991	DAVID ALLISON	NULL	23 N	2 W	23 SE	SE	NULL	15
48785	NULL	7042	8/23/1988	JIM TAYLOR	NULL	23 N	3 W	22 NE	NE	NULL	15
44767	NULL	NULL	3/27/1980	BRUCE GOTTOWSKI	NULL	23 N	2 W	32 SW	SE	NULL	15

51765	NULL	NULL	N/A	RAYMOND MORRIS	NULL	24 N	2 W	6	NULL	NULL	NULL	16
55626	ACD502	W051656	6/27/1996	REX SORENSON	2020 DON MTN RD, HOODSPORT	23 N	4 W	29	NE	NE	NULL	16
48059	NULL	73582	3/17/1992	INDIAN HEALTH SERVICE	NULL	21 N	4 W	2	NULL	NULL	NULL	16
51264	NULL	NULL	11/23/1979	PETE QUAADA	NULL	21 N	5 W	12	SE	SW	NULL	16
52733	NULL	NULL	10/25/1979	SHELTON ENTERPRISES #2	NULL	21 N	4 W	14	SW	SW	NULL	16
43099	ACQ353	W092236	9/11/1997	MIKE STREHLOW	1764 17 CLOQUALLUM RD, ELMA	19 N	5 W	16	SE	NW	NULL	22
33387	NULL	NULL	7/15/1974	BLAIR CARL	NULL	19 N	7 W	18	NE	SE	NULL	22
59940	NULL	NULL	6/29/1984	THERON PHILLIPS	NULL	NULL N	NUL W	NUL	NULL	NULL	NULL	NULL
1604474	NULL	NULL	9/12/1978	ROBERT CAMERON	NULL	20 N	2 W	4	NULL	NULL	NULL	NULL
Group Water Systems												
WASHINGTON CORRECTION												
277234	NULL	NULL	N/A	CENTER	NULL	20 N	4 W	9	NW	SE	NULL	14
276912	AHA982	NULL	N/A	ROBT. LORENTZ	NULL	21 N	1 W	8	NULL	NULL	NULL	14
1119030	NULL	NULL	1/6/1972	BEACON POINT COMM CLUB	NULL	24 N	2 W	6	SW	SW	NULL	16
936378	BCS279	W354242	10/9/2014	Brian Sund	NX2 25991 N HWY 101	22 N	4 W	1	SE	NW	422017500050	16
527190	ALH628	W236103	3/13/2008	ROY BOAD	260 NE RIVER HILL DR, BELFAIR	23 N	1 W	21	NW	NW	12321-20-94500	15
191125	AEH920	W111821	6/28/1999	OAKDALE W. S. #4	98528	21 N	1 W	5	NW	NE	12105-51-15001	14
496387	ABH342	W038526	5/15/1998	ASSOCIATION	200D E OAKDALE ST, GRAPEVIEW,	20 N	3 W	24	NW	SW	NULL	14
42811	ACD863	W088701	11/4/1996	DAVE WALTERICK	98546	20 N	3 W	8	NW	NW	NULL	14
37442	NULL	62812	7/2/1990	CLUB	LAKE ARROWHEAD COMM. LAKE ARROWHEAD COMM CLUB	19 N	5 W	17	NE	SW	NULL	22
50061	NULL	14208	9/26/1988	MAGGIE LAKE WATER DIST.	NULL	22 N	3 W	14	NE	NW	NULL	15
35452	NULL	NULL	10/1/1968	FRANK LOPEMAN	NULL	20 N	3 W	24	NULL	NULL	NULL	14
53244	NULL	NULL	6/23/1958	THEO VAJEAN & ELMA WHITE	NULL	23 N	3 W	30	SE	SW	NULL	16
Incorrectly Reported County												
31547	ABQ839	W071257	10/2/1997	CLARENCE & BRENDA HEPPE	16832 CHRISTIAN LN SW, ROCHESTER, 98579	16 N	3 W	28	SE	NE	NULL	23