

Variance Estimation for the Occupational Requirements Survey

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Abstract

The Occupational Requirements Survey (ORS) is an establishment survey conducted by the Bureau of Labor Statistics (BLS) for the Social Security Administration (SSA). The survey collects information on the vocational preparation and the cognitive and physical requirements of occupations in the U.S. economy, as well as the environmental conditions in which those occupations are performed. Due to a desire to maximize the number of units collected in the survey, the 2016 sample consists of two independent, multi-stage samples, each with its own set of variance strata. The calculation of the estimated variances for means, percentiles, and percentages involves a modified version of the Balanced Repeated Replication (BRR) method called Fay's BRR method. The paper describes the formation of the replicate half-samples based on the assignment of the variance strata, reflecting the sampling variability of the two complex samples. Finally, the paper addresses the easy adaptation of the variance procedure when ORS transitions to the use of a single complex sample.

Key Words: variance estimation, establishment survey, balanced repeated replicates, Fay's BRR, variance strata

1. Introduction

In the summer of 2012, the Social Security Administration (SSA) and the Bureau of Labor Statistics (BLS) signed an interagency agreement, which has been updated annually, to begin the process of testing the collection of data on occupations. As a result, the Occupational Requirements Survey [1] (ORS) was established as a test survey in late 2012. The goal of ORS is to collect and publish occupational information that will replace the outdated data currently used by SSA. More information on the background of ORS can be found in the next section. All ORS products will be made public for use by non-profits, employment agencies, state or federal agencies, the disability community, and other stakeholders.

The ORS collects close to 70 data elements related to the occupational requirements of a job. The following four groups of information are being collected:

- Physical demand characteristics/factors of occupations (e.g., strength, hearing, or stooping)
- Specific vocational preparation requirements, which include educational requirements, experience, licensing, and certification and post-employment training

- Mental and cognitive demands of work
- Environmental conditions in which the work is completed

The survey plans to publish all estimates that meet the reliability and confidentiality criteria. Somewhere between three and eighteen estimates will be calculated for each of the 70 ORS data elements. Around 920 total estimates could be calculated for a single occupation or occupational group. Estimate types include the percentage of workers in a given category, mean, percentiles (10%, 25%, 50%, 75%, and 90%), and the mode.

This paper describes the ORS variance estimation processes. Section 2 provides background information on the Occupational Requirements Survey. Section 3 summarizes the ORS sample design. Section 4 summarizes the ORS data elements and types of estimates that are being calculated for each. Section 5 details the process for calculating the variance estimates, including to the creation of half-samples, the adjustment of final quote weights depending on the variance strata assignment, the use of a Hadamard Matrix to form the replicate half-samples, and the formulas for calculating the variance. The paper ends with a conclusion and a summary of how the process transitions when the survey with two complex sample designs becomes a survey with just one complex sample design.

2. Background Information on ORS

In addition to providing Social Security benefits to retirees and survivors, the Social Security Administration (SSA) administers two large disability programs, which provide benefit payments to millions of beneficiaries each year. Determinations for adult disability applicants are based on a five-step process that evaluates the capabilities of workers, the requirements of their past work, and their ability to perform other work in the U.S. economy. In some cases, if an applicant is denied disability benefits, SSA policy requires adjudicators to document the decision by citing examples of jobs the claimant can still perform despite restrictions (such as limited ability to balance, stand, or carry objects) [2].

For over 50 years, the Social Security Administration has turned to the Department of Labor's Dictionary of Occupational Titles (DOT) [3] as its primary source of occupational information to process the disability claims [4]. SSA has incorporated many DOT conventions into their disability regulations. However, the DOT was last updated in its entirety in the late 1970's, although a partial update was completed in 1991. Consequently, the SSA adjudicators who make the disability decisions must continue to refer to an increasingly outdated resource because it remains the most compatible with their statutory mandate and is the best source of data at this time.

When an applicant is denied SSA benefits, SSA must sometimes document the decision by citing examples of jobs that the claimant can still perform, despite their functional limitations. However, since the DOT has not been updated for so long, there are some jobs in the American economy that are not even represented in the DOT, and other jobs, in fact many often-cited jobs, no longer exist in large numbers in the American economy.

SSA has investigated numerous alternative data sources for the DOT, such as adapting the Employment and Training Administration's Occupational Information Network (O*NET) [5], using the BLS Occupational Employment Statistics program (OES) [6], and developing their own survey. SSA was not successful with any of these potential alternative

data sources and turned to the National Compensation Survey [7] program at the Bureau of Labor Statistics.

3. ORS Sample Design Summary

The ORS sample design is a 2-stage stratified sample of establishments from the entire nation. The frame was developed from the BLS Quarterly Census of Employment and Wages (QCEW) database [8] with railroads added. Stratification is by industry and ownership, directly, and also implicitly by region. Private industry and State and local government establishments will be included, and industries are defined by the North American Industry Classification System (NAICS) [9]. Allocation is proportional to establishment employment size. Establishments are selected from each stratum by systematic probability proportional to employment size (PPS) sampling. Jobs (quotes) are then sampled from the selected establishments by PPS. ORS samples will follow a three-year rotation, though this rotation cycle may change, depending on research concerning how often the requirements of work change. For more details on this design, see “Occupational Requirements Survey Sample Design” by Ferguson, et al. [10].

In order to maximize the number of units collected during the first year of production, the ORS sample includes an additional 2,227 establishments from a sample that has recently rotated out of the National Compensation Survey (NCS). This NCS sample, initiated in 2011 and updated through September of 2015, was selected using PPS at three stages: OMB-defined areas, establishments, and then occupations within the selected establishments. The sampling frame was developed from the QCEW at the end of 2010. Stratification for the sampling of establishments was by area and industry (defined by NAICS). Allocation was proportional to establishment employment size. For more details, please see the section on the current design from “Update on the Evaluation of Sample Design Issues in the National Compensation Survey” by Ferguson, et al. [11].

So, the production sample for the first year of ORS consists of two samples selected under two different sample designs.

4. ORS Data Elements and Possible Estimates Summary

ORS is designed to capture occupational information on educational requirements, cognitive and physical demands, and exposures to environmental conditions. An extensive description of ORS data elements and how estimates for each element will be calculated can be found in the paper “Estimation Considerations for the Occupational Requirements Survey” [12]. Information on estimation processing can be found in the paper “Estimation Processes Used in the Occupational Requirements Survey” [13].

Many of the ORS data elements have percentage of workers, mean, percentiles, and mode estimates for each occupational definition. For example, one ORS data element measures the amount of time during a typical day that a worker, such as a nurse, spends stooping. Occupational definitions are derived from the Standard Occupational Classification Manual (SOC) [14]. Physical demands, such as stooping, are captured in hours and are also converted to percent of the day, and so mean and percentile estimates (10%, 25%, 50%, 75%, and 90%) are calculated for both hours and percent of the day. Also, the hours of time spent stooping fall within an SSA-established category, and so a percentage of workers estimate is calculated for each category. SSA defines five categories by a range of

hours spent performing an activity – not present, seldomly, occasionally, frequently, and constantly. Finally, the mode of the categories is identified, marking the eighteenth estimate related to stooping.

5. Calculation of Variance Estimates

ORS calculates standard errors for all percentages, means, and percentiles using a modified version of the Balanced Repeated Replication (BRR) method, known as the Fay’s BRR method. The application of Fay’s BRR to the ORS sample design involves several steps. Replicate half-samples – each using all quotes available for estimation - are constructed within each of the pre-defined variance strata. Once created, the replicate half-samples are used as input to the estimation process, and a list of replicate estimates are produced. These replicate estimates will then be used to calculate the variance estimates for each ORS estimate.

Defining the Variance Strata

The 2016 ORS sample design includes two different complex survey designs: the ORS-only sample and an additional sample from the National Compensation Survey (NCS). As a result, the variance estimate calculation must incorporate variance strata from each sample design.

The ORS-only sample specifies 23 detailed industry strata in the private sector and 10 industry strata in the government sector, plus 4 regions, making for 132 variance strata. Definitions for the detailed industries and census regions can be found in Appendix A. Variance strata definitions can be found in Appendix B.

The NCS sample adds another 101 area-based variance strata. Each OMB-defined area was sampled among all Metropolitan Statistical Areas (MSA), Combined Metropolitan Statistical Areas (CMSA), micropolitan statistical areas, and county clusters. There were 152 total areas selected, 57 with certainty. There are only 101 variance strata, due to some instances of multiple areas being combined into a single variance strata. The definitions for these variance strata can be found in Appendix C.

So, there are 233 total variance strata. However, since the number of replicates to be used in the calculation of variances must be a multiple of four to satisfy Fay’s BRR, the number of replicates run is 236.

At some point in the future, this first production sample of ORS will rotate out. When that happens, the variance strata representing the NCS sample will no longer be needed and can be dropped from the process entirely. So, after the initial production sample has rotated out, the remaining sample would contain 132 variance strata, given there are no other changes to the sample design.

Formation of Replicate Half-samples

Replicate half-samples are constructed using a Hadamard Matrix and variance strata assignments. Then, occupational weights are increased or decreased depending on the half-sample selection flag. All usable quotes were randomly assigned a half-sample selection flag during sampling and will appear in each replicate half-sample with an appropriate weight adjustment.

The Hadamard Matrix is an X by X table where X is equal to the number of variance strata used in the variance calculation. So, X will also be the number of replicates that need to be created and then processed. There are 236 variance strata for the first year of production – 132 corresponding to the ORS sample design, 101 corresponding to the NCS sample design, and another 3 to satisfy the conditions for using BRR.

Each quote has been assigned one variance stratum and one half-sample selection flag. So, using the Hadamard Matrix example in Figure 1 below, a quote that is in variance stratum 2 and has a half-sample selection flag of (-1) will have a decrease in weight (for replicate 2).

Figure 1: Example Hadamard Matrix

		Variance Stratum Number							
		1	2	3	4	5	6	7	8
Replicate Number	1	1	1	1	1	1	1	1	1
	2	1	-1	1	-1	1	-1	1	-1
	3	1	1	-1	-1	1	1	-1	-1
	4	1	-1	-1	1	1	-1	-1	1
	5	1	1	1	1	-1	-1	-1	-1
	6	1	-1	1	-1	-1	1	-1	1
	7	1	1	-1	-1	-1	-1	1	1
	8	1	-1	-1	1	-1	1	1	-1

Quotes within non-certainty establishments will have a weight adjustment of k, a constant that is set for BRR. ORS will use $k = 0.5$, so weights for quotes within non-certainty establishments will increase or decrease by half, depending on the half-sample selection flag. All quotes within a non-certainty establishment are assigned the same half-sample selection flag.

In establishments selected with certainty, quotes are assigned at random to the two half-samples. So, half of the sample quotes are assigned to half-sample number 1 and the other half of the quotes are assigned to half-sample number 2. The weight adjustment is then made depending on the half-sample selection flag.

Weight adjustments occur uniquely for each replicate half-sample as a result of the Hadamard Matrix. All replicate half-samples are used in the next step of variance calculation.

Run Estimation for each Replicate and then Calculate the Variance

Once the replicate half-samples are established and the occupational replicate weights have been adjusted, estimation is run for each of the 236 replicate half-samples. Variances are calculated for each estimate, using the sum of the differences between the full sample estimate and each of the 236 replicate estimates. The full sample estimates were calculated using the final occupational weights. The variance formula is as follows:

Formula 1 – Variance Calculation

$$V(\hat{Y}_c) = \frac{1}{R \times (1-k)^2} \sum_{r=1}^R [\hat{Y}_{cr} - \hat{Y}_c]^2$$

where:

$\hat{V}(\hat{Y}_c)$	= Variance estimate for ORS estimate c
c	= ORS estimate (about 920 estimates covering 70 ORS data elements)
R	= Number of replicates (236)
k	= a constant where $0 \leq k < 1$ (the value of k is 0.5)
\hat{Y}_{cr}	= Estimate c from replicate r
\hat{Y}_c	= Estimate c from the full sample

Standard errors are simply the square root of the variance. Relative standard errors are calculated by dividing the standard error of an estimate by the corresponding estimate value.

7. Conclusion and Next Steps

ORS will provide a measure of accuracy for every estimate produced. For means, percentages, and percentiles, a standard error will be calculated using Fay's BRR method.

The first production sample is a combination of two different complex samples. As a result, two sets of variance strata must be used to calculate the variance estimates. Once the initial sample rotates out, only one sample design will remain and there will be fewer variance strata to process when calculating the variance estimates.

References/Footnotes

- [1] Occupational Requirements Survey, <http://www.bls.gov/ors/>.
- [2] Social Security Administration, Occupational Information System Project, http://www.ssa.gov/disabilityresearch/occupational_info_systems.html.
- [3] U.S. Department of Labor, Employment and Training Administration (1991), "Dictionary of Occupational Titles, Fourth Edition, Revised 1991"
- [4] Occupational Information Development Advisory Panel, 2010, <http://www.socialsecurity.gov/oidap/index.htm>
- [5] U.S. Department of Labor, O*Net Online, <http://www.onetonline.org/>
- [6] Bureau of Labor Statistics, Occupational Employment Statistics Program, <http://www.bls.gov/oes/>
- [7] National Compensation Survey, <http://www.bls.gov/ncs/>.
- [8] Quarterly Census of Employment and Wages, <http://www.bls.gov/cew/>.
- [9] North American Industry Classification System, <http://www.census.gov/eos/www/naics/>.
- [10] Ferguson, Gwyn R., McNulty, Erin. 2015. Occupational Requirements Survey Sample Design. In *JSM proceedings*, Economic Data: CPI, PPI, NCS Section. Alexandria, VA: American Statistical Association.
- [11] Ferguson, Gwyn R., Coleman, Joan L., Ponikowski, Chester H. 2011. Update on the Evaluation of Sample Design Issues in the National Compensation Survey. In

- JSM proceedings*, Government Statistics Section. Alexandria, VA: American Statistical Association.
- [12] Rhein, Brad, Ponikowski, Chester, and McNulty, Erin. 2014. Estimation Considerations for the Occupational Requirements Survey. In *JSM proceedings*, Government Statistics Section. Alexandria, VA: American Statistical Association. 2134-2146.
- [13] Rhein, Bradley D., Ponikowski, Chester H. 2015. Estimation Processes Used in the Occupational Requirements Survey. In *JSM proceedings*, Government Statistics Section. Alexandria, VA: American Statistical Association.
- [14] Standard Occupational Classification System, <http://www.bls.gov/soc/>.

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Appendix A – ORS Detailed Industry and Census Region Definitions

ORS Detailed Industry Definitions

Private Industry

Cell	NAICS Codes	Industry
21A	21	Mining
23A	23	Construction
31A	31-33 (including 336411)	Manufacturing
22A	22	Utilities
42A	42	Wholesale Trade
44A	44-45	Retail Trade
48A	48-49	Transportation and Warehousing
51A	51	Information
52A	52(excl 524)	Finance (Rest of)
52B	524	Insurance
53A	53	Real Estate, Renting, Leasing
54A	54	Professional, Scientific, Technical
55A	55	Management of Companies/Enterprises
56A	56	Admin., Support, Waste Management
61A	61(excl 6111-6113)	Educational Services (Rest of)
61B	6111	Elementary and Secondary Schools
61C	6112,6113	Junior Colleges, Colleges & Universities
62A	62(excl 622,623)	Health Care, Social Assistance (Rest of)
62B	622	Hospitals
62C	623	Nursing and Residential Care Facilities
71A	71	Arts, Entertainment, Recreation
72A	72	Accommodation and Food Services
81A	81(excl 814)	Other Services (except Public Admin.)

State and Local Government

Cell	NAICS Codes	Industry
10L	21, 23, 31-33	Goods-Producing
20L	42, 44-45, 48-49, 22	Trade, Transportation, and Utilities
30L	6111	Elementary and Secondary Education
40L	6112, 6113	Colleges and Universities
50L	61 excl. 6111-6113	Rest of Education
60L	622	Hospitals
70L	623	Nursing Homes
80L	62 excl. 622-623	Rest of Health and Social Services
90L	92 excl. 928	Public Administration
99L	51, 52-53, 54-56, 71-72, 81	Other Service-producing

Census Region Definitions

Census Region Code	Census Region Name	States Included
1	Northeast	ME, CT, MA, NH, RI, VT, NJ, NY, PA
2	South	AL, KY, MS, TN, DE, DC, FL, GA, MD, NC, SC, VA, WV, AK, LA, OK, TX
3	Midwest	IL, IN, IA, MI, WI, OH, KS, MN, MO, NE, ND, SD
4	West	AZ, CO, ID, MT, NV, NM, UT, WY, AK, CA, HI, OR, WA

Appendix B – ORS-only Variance Strata Definitions

Ownership Sector	Census Region	ORS Detailed Industry Stratum	Variance Stratum Number
Private	1	21A	345
Private	2	21A	346
Private	3	21A	347
Private	4	21A	348
Private	1	22A	349
Private	2	22A	350
Private	3	22A	351
Private	4	22A	352
Private	1	23A	353
Private	2	23A	354
Private	3	23A	355
Private	4	23A	356
Private	1	31A	357
Private	2	31A	358
Private	3	31A	359
Private	4	31A	360
Private	1	42A	361
Private	2	42A	362
Private	3	42A	363
Private	4	42A	364
Private	1	44A	365
Private	2	44A	366
Private	3	44A	367
Private	4	44A	368
Private	1	48A	369
Private	2	48A	370
Private	3	48A	371
Private	4	48A	372
Private	1	51A	373
Private	2	51A	374
Private	3	51A	375
Private	4	51A	376
Private	1	52A	377
Private	2	52A	378
Private	3	52A	379

Ownership Sector	Census Region	ORS Detailed Industry Stratum	Variance Stratum Number
Private	3	61C	411
Private	4	61C	412
Private	1	62A	413
Private	2	62A	414
Private	3	62A	415
Private	4	62A	416
Private	1	62B	417
Private	2	62B	418
Private	3	62B	419
Private	4	62B	420
Private	1	62C	421
Private	2	62C	422
Private	3	62C	423
Private	4	62C	424
Private	1	71A	425
Private	2	71A	426
Private	3	71A	427
Private	4	71A	428
Private	1	72A	429
Private	2	72A	430
Private	3	72A	431
Private	4	72A	432
Private	1	81A	433
Private	2	81A	434
Private	3	81A	435
Private	4	81A	436
Government	1	10G	437
Government	2	10G	438
Government	3	10G	439
Government	4	10G	440
Government	1	20G	441
Government	2	20G	442
Government	3	20G	443
Government	4	20G	444
Government	1	30G	445

Ownership Sector	Census Region	ORS Detailed Industry Stratum	Variance Stratum Number
Private	4	52A	380
Private	1	52B	381
Private	2	52B	382
Private	3	52B	383
Private	4	52B	384
Private	1	53A	385
Private	2	53A	386
Private	3	53A	387
Private	4	53A	388
Private	1	54A	389
Private	2	54A	390
Private	3	54A	391
Private	4	54A	392
Private	1	55A	393
Private	2	55A	394
Private	3	55A	395
Private	4	55A	396
Private	1	56A	397
Private	2	56A	398
Private	3	56A	399
Private	4	56A	400
Private	1	61A	401
Private	2	61A	402
Private	3	61A	403
Private	4	61A	404
Private	1	61B	405
Private	2	61B	406
Private	3	61B	407
Private	4	61B	408
Private	1	61C	409
Private	2	61C	410

Ownership Sector	Census Region	ORS Detailed Industry Stratum	Variance Stratum Number
Government	2	30G	446
Government	3	30G	447
Government	4	30G	448
Government	1	40G	449
Government	2	40G	450
Government	3	40G	451
Government	4	40G	452
Government	1	50G	453
Government	2	50G	454
Government	3	50G	455
Government	4	50G	456
Government	1	60G	457
Government	2	60G	458
Government	3	60G	459
Government	4	60G	460
Government	1	70G	461
Government	2	70G	462
Government	3	70G	463
Government	4	70G	464
Government	1	80G	465
Government	2	80G	466
Government	3	80G	467
Government	4	80G	468
Government	1	90G	469
Government	2	90G	470
Government	3	90G	471
Government	4	90G	472
Government	1	99G	473
Government	2	99G	474
Government	3	99G	475
Government	4	99G	476

Appendix C – NCS Variance Strata Definitions

Variance Stratum	Sampled Locality
124	Atlanta-Sandy Springs-Gainesville, GA-AL CSA
125	Boston-Worcester-Manchester, MA-NH CSA
126	Buffalo-Niagara-Cattaraugus, NY CSA
127	Chicago-Naperville-Michigan City, IL-IN-WI CSA
128	Cincinnati-Middletown-Wilmington, OH-KY-IN CSA
129	Cleveland-Akron-Elyria, OH CSA
130	Columbus-Marion-Chillicothe, OH CSA
131	Dallas-Fort Worth, TX CSA
132	Dayton-Springfield-Greenville, OH CSA
133	Denver-Aurora-Boulder, CO CSA
134	Detroit-Warren-Flint, MI CSA
135	Hartford-West Hartford-Willimantic, CT CSA
136	Houston-Baytown-Huntsville, TX CSA
137	Huntsville-Decatur, AL CSA
138	Indianapolis-Anderson-Columbus, IN CSA
139	Los Angeles-Long Beach-Riverside, CA CSA
140	Louisville-Elizabethtown-Scottsburg, KY-IN CSA
141	Milwaukee-Racine-Waukesha, WI CSA
142	Minneapolis-St. Paul-St. Cloud, MN-WI CSA
143	New York-Newark-Bridgeport, NY-NJ-CT-PA CSA
144	Philadelphia-Camden-Vineland, PA-NJ-DE-MD CSA
145	Pittsburgh-New Castle, PA CSA
146	Raleigh-Durham-Cary, NC CSA
147	Sacramento--Arden-Arcade--Truckee, CA-NV CSA
148	San Jose-San Francisco-Oakland, CA CSA
149	Seattle-Tacoma-Olympia, WA CSA
150	Washington-Baltimore-No. Virginia, DC-MD-VA-WV CSA
151	Albany-Schenectady-Troy, NY
152	Austin-Round Rock, TX
153	Birmingham-Hoover, AL
154	Charlotte-Gastonia-Concord, NC-SC
155	Grand Rapids-Wyoming, MI
156	Honolulu, HI
157	Jacksonville, FL

Variance Stratum	Sampled Locality
158	Kansas City, MO-KS
159	Las Vegas-Paradise, NV
160	Memphis, TN-MS-AR
161	Miami-Fort Lauderdale-Miami Beach, FL
162	Nashville-Davidson--Murfreeseboro, TN
163	New Orleans-Metairie-Kenner, LA
164	Oklahoma City, OK
165	Omaha-Council Bluffs, NE-IA
166	Orlando, FL
167	Phoenix-Mesa-Scottsdale, AZ
168	Portland-Vancouver-Beaverton, OR-WA
169	Providence-New Bedford-Fall River, RI-MA
170	Richmond, VA
171	Rochester, NY
172	Salt Lake City, UT
173	San Antonio, TX
174	San Diego-Carlsbad-San Marcos, CA
175	St. Louis, MO-IL
176	Tampa-St. Petersburg-Clearwater, FL
177	Tulsa, OK
178	Virginia Beach-Norfolk-Newport News, VA-NC
179	Bangor, ME
	Springfield, MA
180	Johnstown, PA
	State College, PA
181	York-Hanover, PA
	Atlantic City, NJ
182	Reading, PA
	Allentown-Bethlehem-Easton, PA-NJ
183	Fort Walton Beach-Crestview-Destin, FL
	Ocala, FL
184	Fayetteville, NC
	Hickory-Lenoir-Morganton, NC
185	Wilmington, NC
	Charleston-North Charleston, SC
186	Salisbury, MD
	Sarasota-Bradenton-Venice, FL

Variance Stratum	Sampled Locality
187	Columbia, SC
	Roanoke, VA
188	Tallahassee, FL
	Greensboro-High Point, NC
189	Greenville, SC
	Palm Bay-Melbourne-Titusville, FL
190	Bloomington, IN
	Youngstown-Warren-Boardman, OH-PA
191	Wausau, WI
	Muskegon-Norton Shores, MI
192	Elkhart-Goshen, IN
	Rockford, IL
193	Toledo, OH
	Holland-Grand Haven, MI
194	Madison, WI
	Bloomington-Normal, IL
195	Auburn-Opelika, AL
	Jackson, MS
	Mobile, AL
196	Tuscaloosa, AL
	Knoxville, TN
197	Springfield, MO
	Sioux City, IA-NE-SD
198	Lincoln, NE
	Iowa City, IA
	Cedar Rapids, IA
199	Brownsville-Harlingen, TX
	El Paso, TX
200	Monroe, LA
	Amarillo, TX
201	Corpus Christi, TX
	Little Rock-North Little Rock, AR
202	Baton Rouge, LA
	Lafayette, LA
203	Great Falls, MT
	Billings, MT
204	Tucson, AZ; Albuquerque, NM

Variance Stratum	Sampled Locality
205	Fort Collins-Loveland, CO
	Reno-Sparks, NV
206	Medford, OR
	Visalia-Porterville, CA
207	Salem, OR
	Fresno, CA
208	Salinas, CA
	Kennewick-Richland-Pasco, WA
209	Caledonia, Orleans Counties, VT
	Claremont, NH
210	Bedford, Fulton, Juniata Counties, PA
	Meadville, PA
	Corning, NY
211	Fannin, Gilmer, Lumpkin Counties, GA
	Lee, Norton City, Wise Counties, VA
212	Mount Airy, NC
	Clarksburg, WV
213	Palatka, FL; Lancaster, SC
214	Carroll, Jo Daviess Counties, IL & Lafayette County, WI
	Sanilac County, MI
215	Quincy, IL-MO and Logansport, IN
216	Wooster, OH; Manitowoc, WI
217	Murray, KY and Starkville, MS
218	Claiborne, Franklin, Jefferson, Wilkinson Counties, MS
	Paducah, KY-IL
219	Graham, Norton, Osborne, Phillips, Rooks, Smith, KS
	Atchison, Holt, Mo & Johnson, Nemaha, etc., NE
220	Emporia, KS and Ottumwa, IA and Brainerd, MN
221	Miami, OK and Muskogee, OK
222	Baylor, Briscoe, etc., TX
	Fayette, Lee, TX
223	Kalispell, MT
	Nogales, AZ
	Esmeralda, Lyon, Mineral, NV
224	Ferry, Okanogan Counties, WA
	Centralia, WA