

APPENDIX D

Media Maps

Figure D-1. Number of Off-Site Soil Samples Collected from Each Location

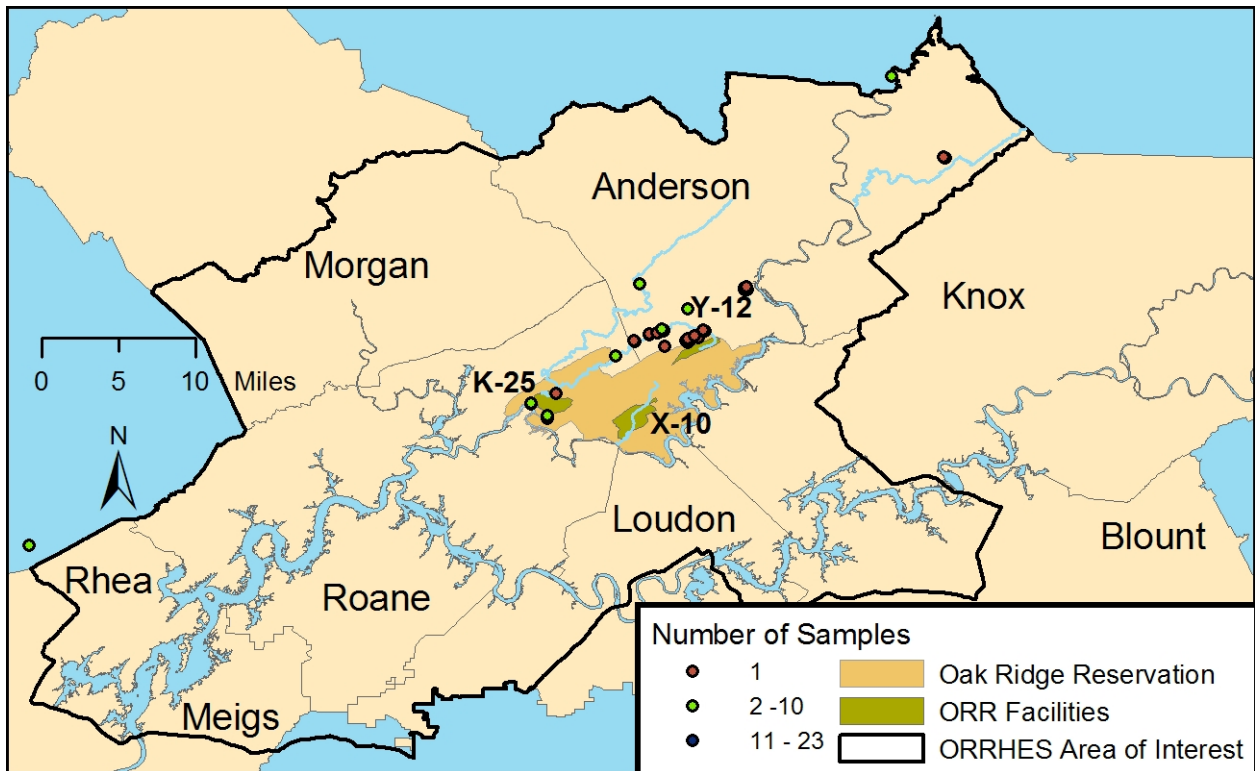


Figure D-2. Number of Chemicals Sampled at Each Off-Site Soil Location

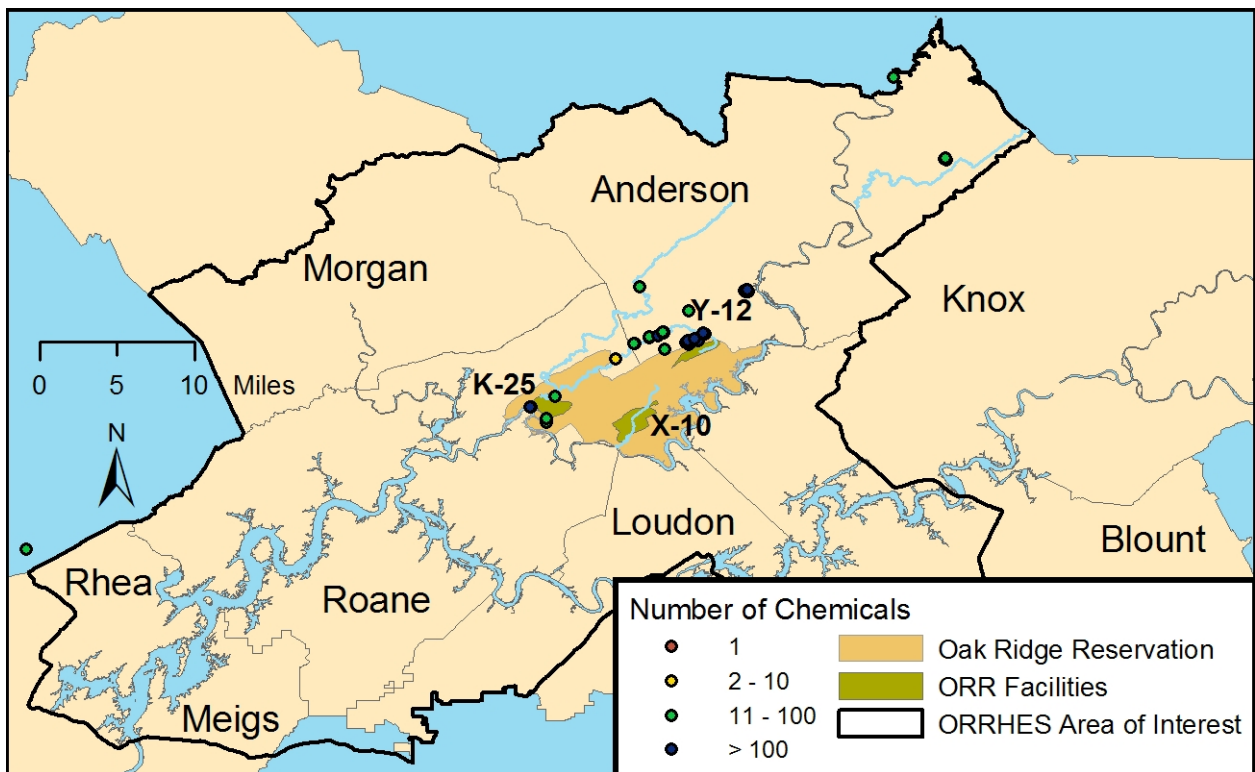


Figure D-3. Number of Off-Site Sediment Samples Collected from Each Location

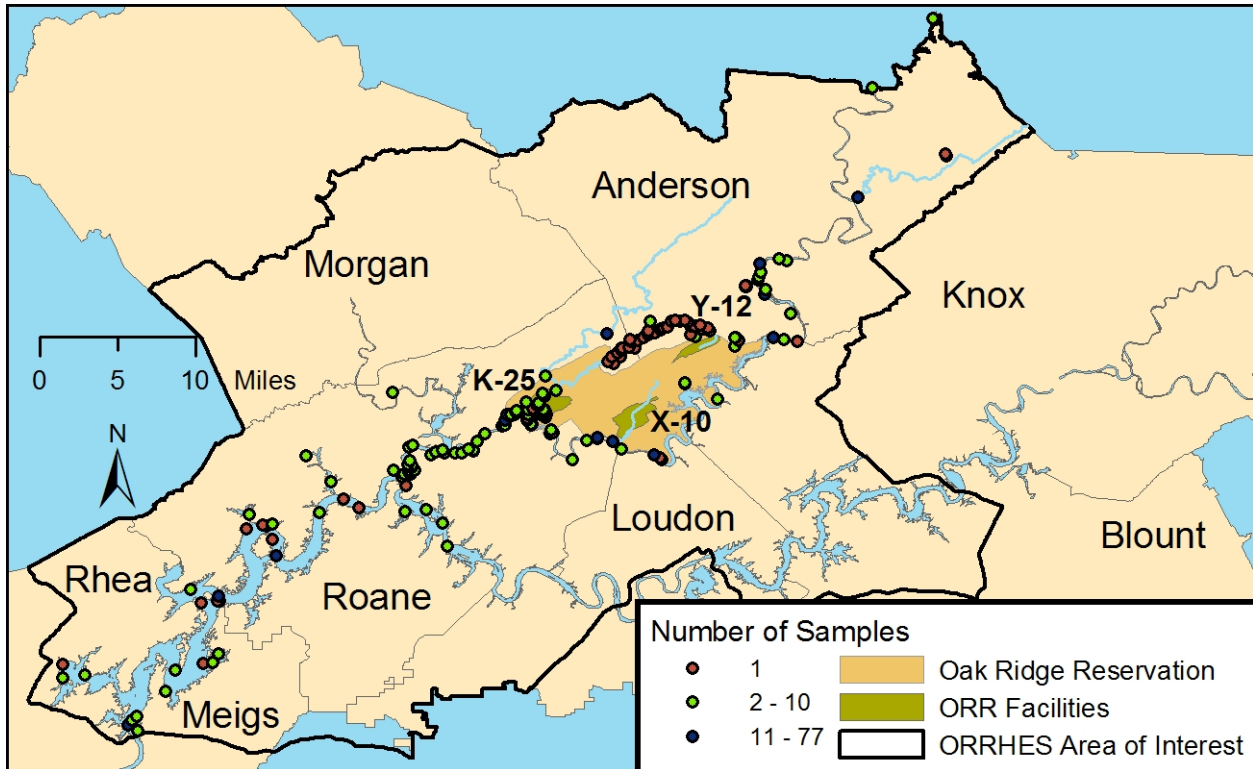


Figure D-4. Number of Chemicals Sampled at Each Off-Site Sediment Location

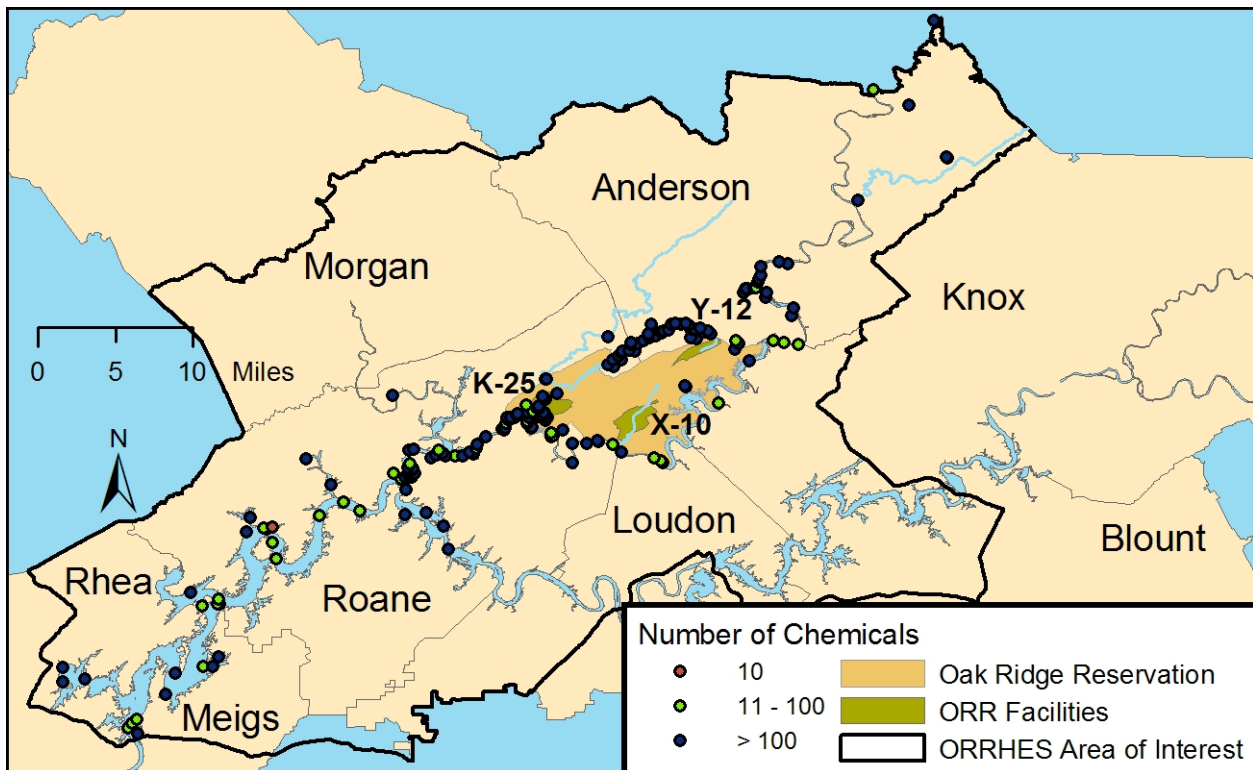


Figure D-5. Number of Off-Site Surface Water Samples Collected from Each Location

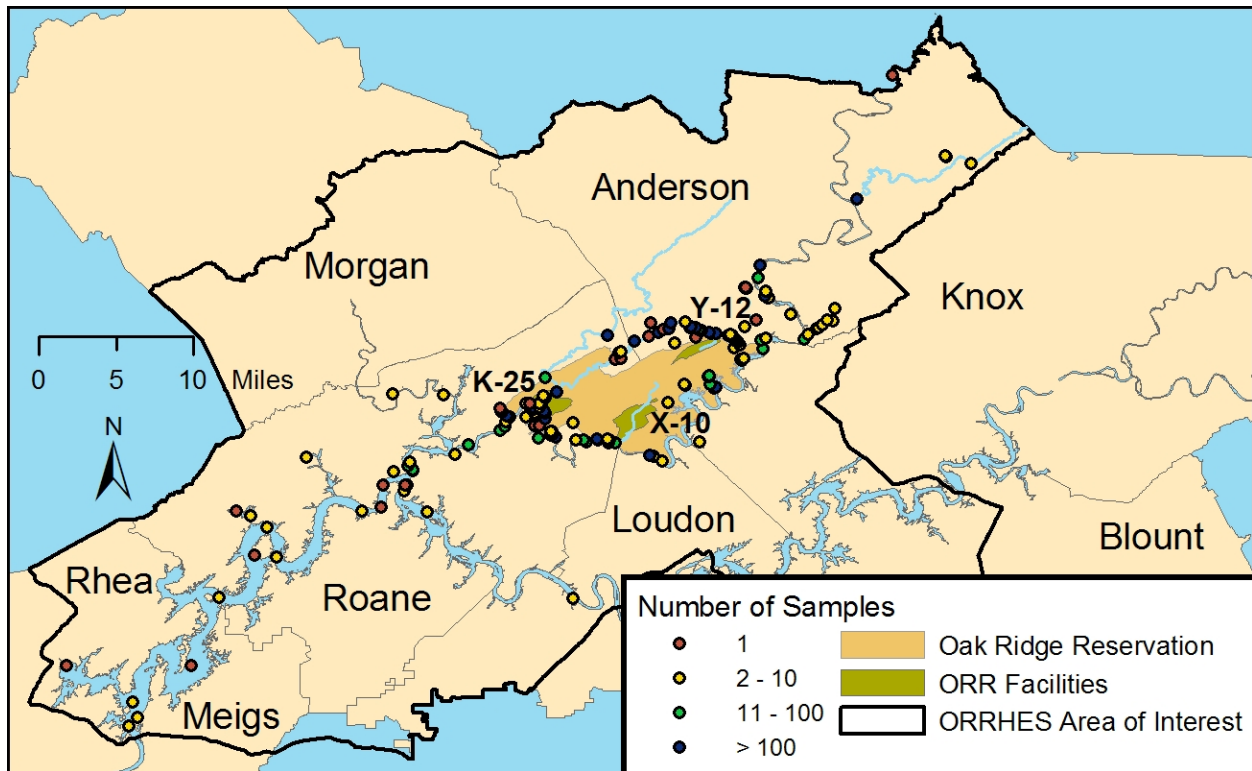


Figure D-6. Number of Chemicals Sampled at Each Off-Site Surface Water Location

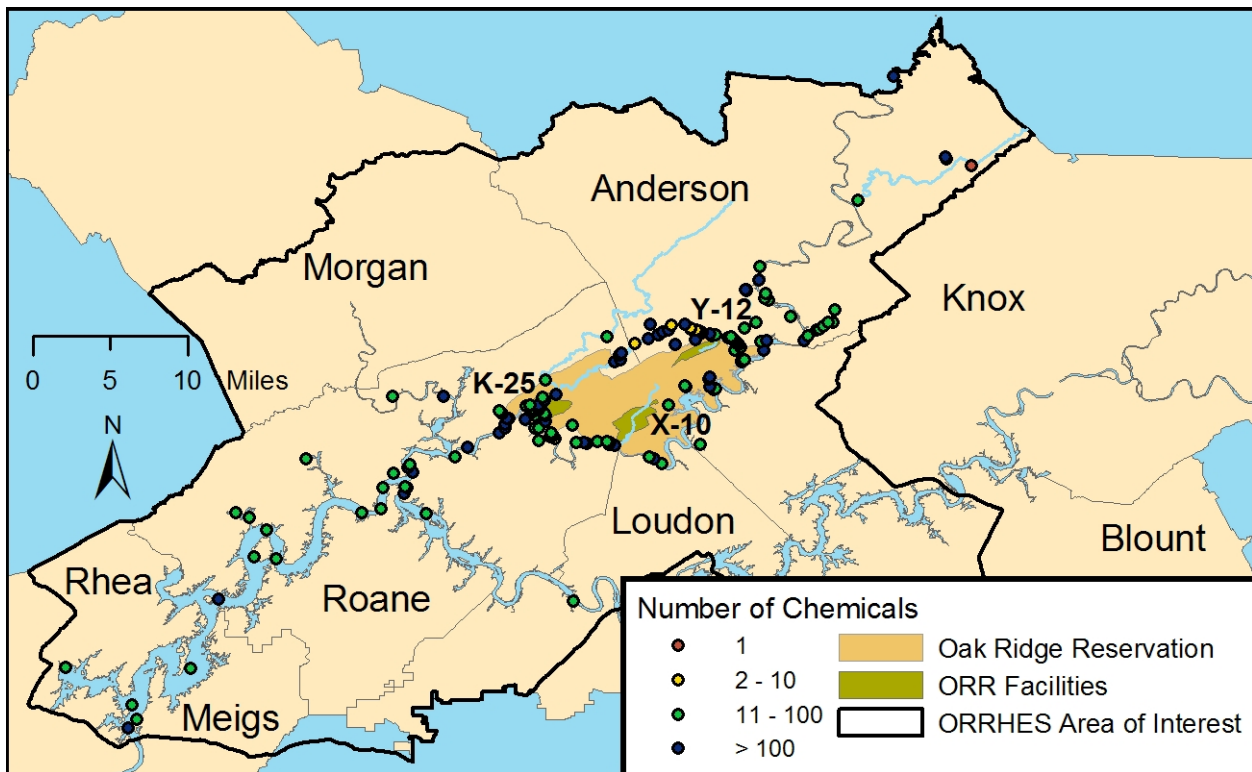


Figure D-7. Number of Off-Site Fish Samples Collected from Each Location

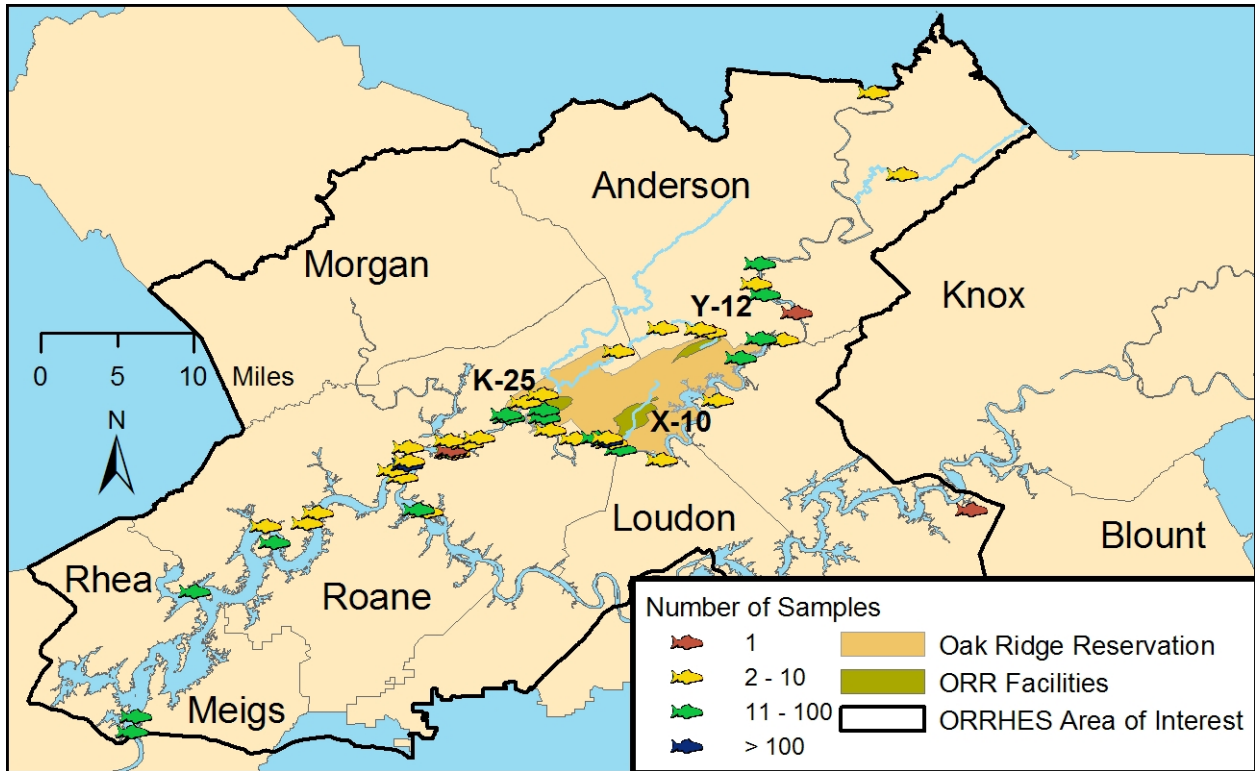


Figure D-8. Number of Chemicals Sampled at Each Off-Site Fish Location

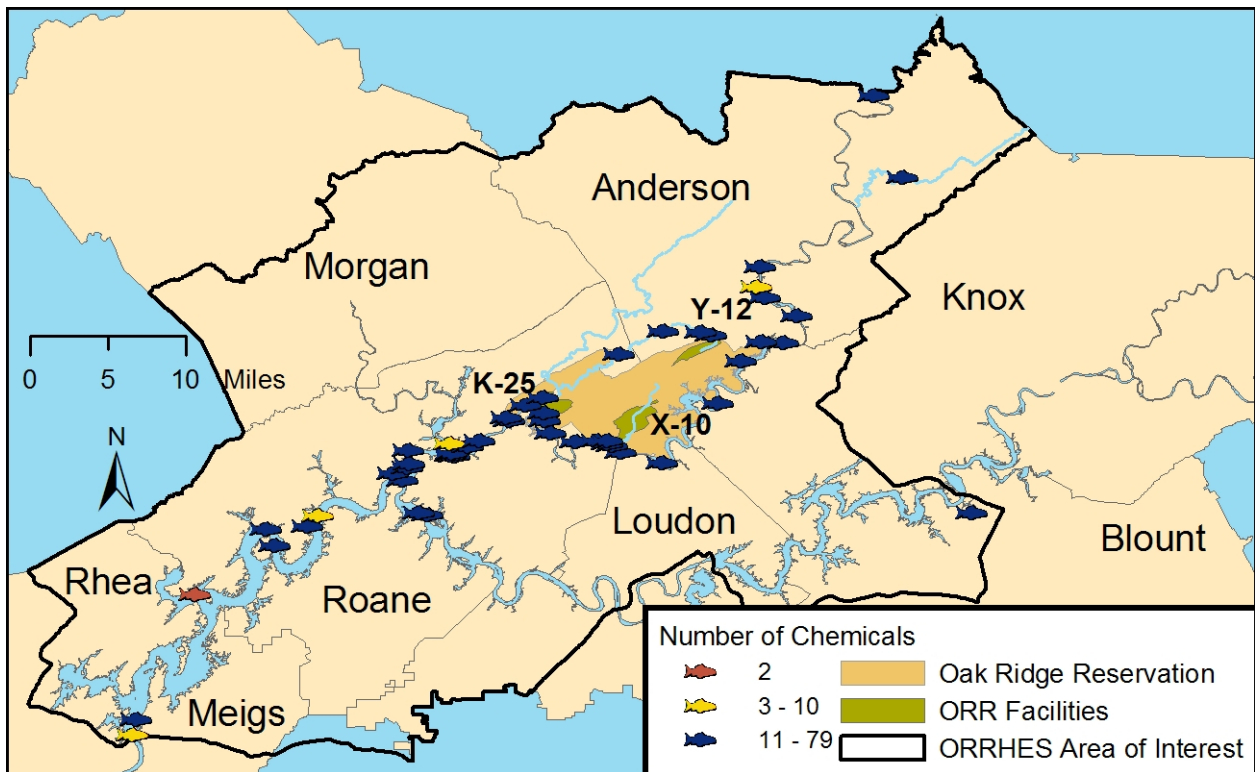


Figure D-9. Number of On-Site Fish Samples Collected from Each Location

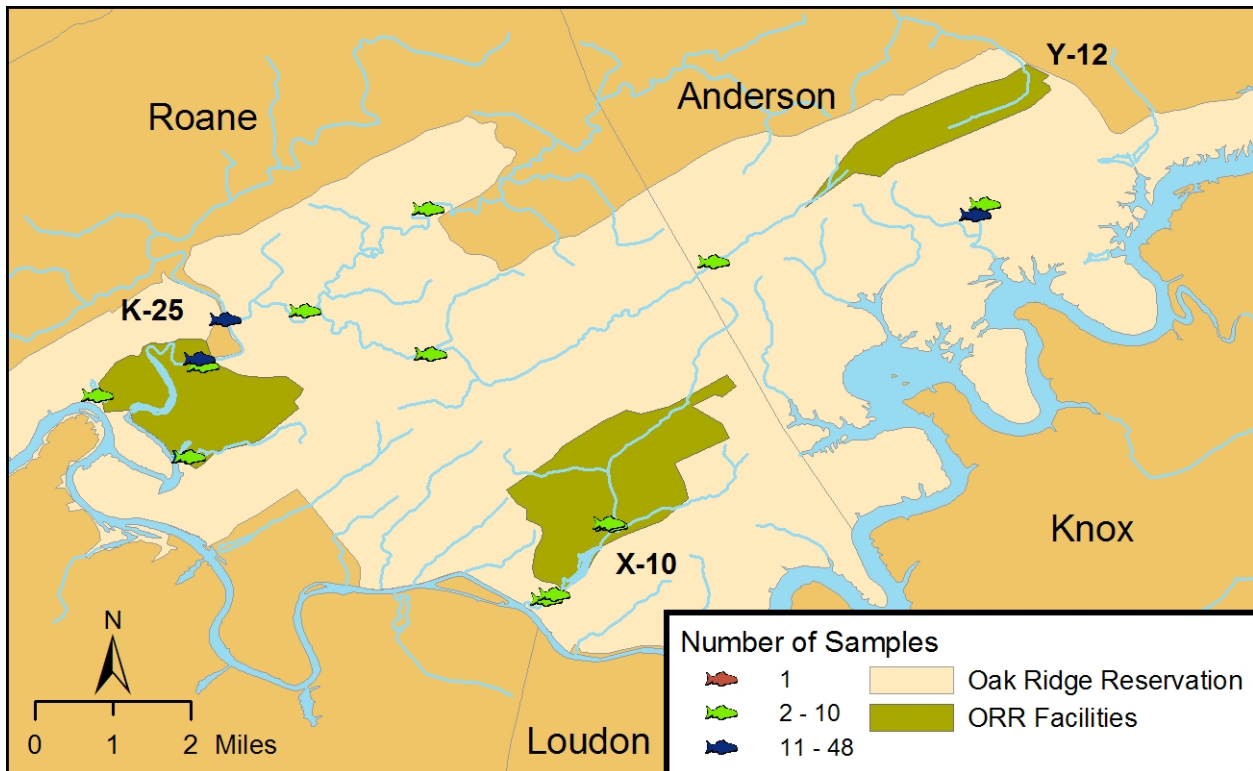


Figure D-10. Number of Chemicals Sampled at Each On-Site Fish Location

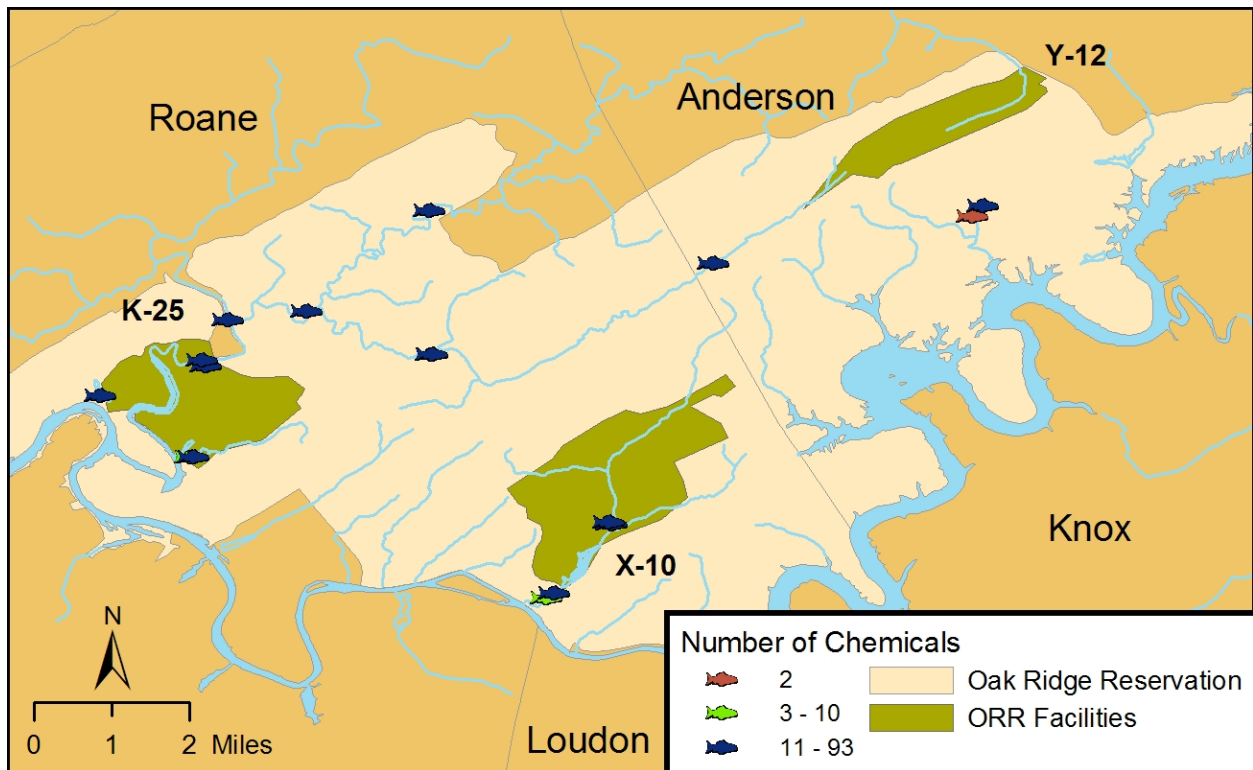


Figure D-11. Number of Off-Site Game Samples Collected from Each Location

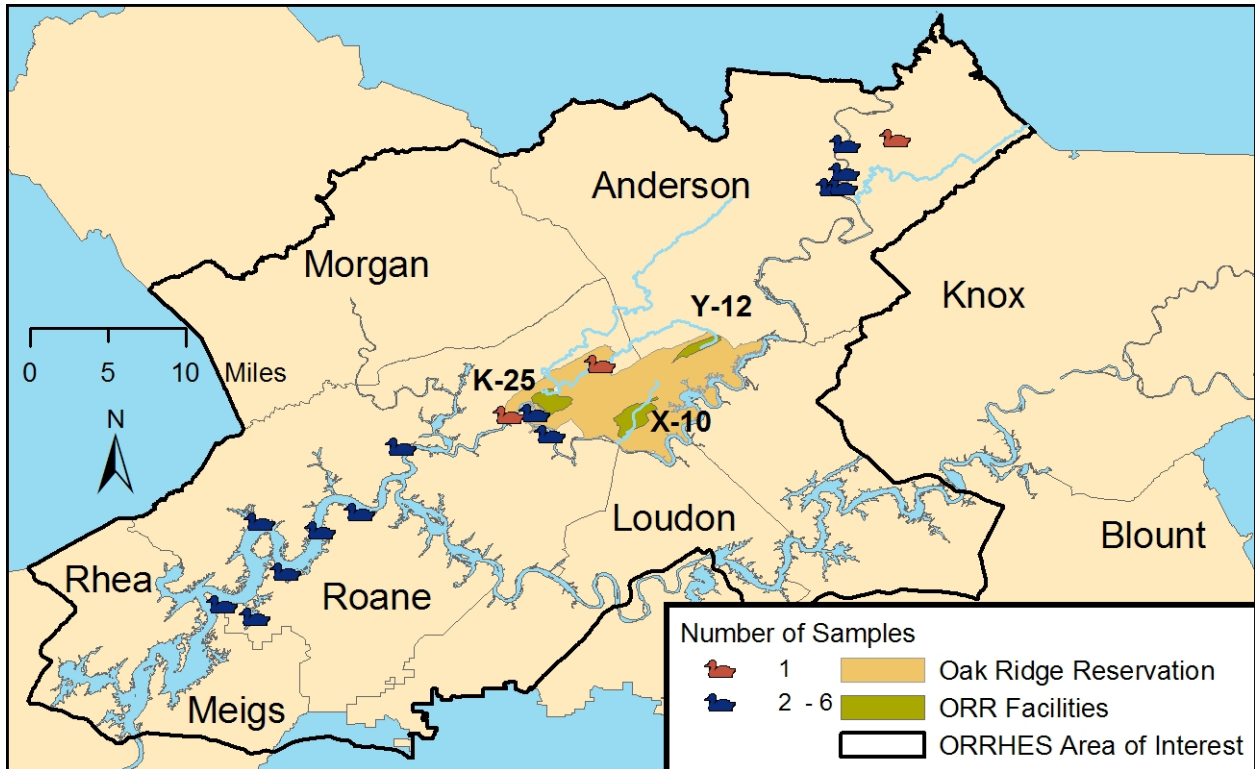


Figure D-12. Number of Chemicals Sampled at Each Off-Site Game Location

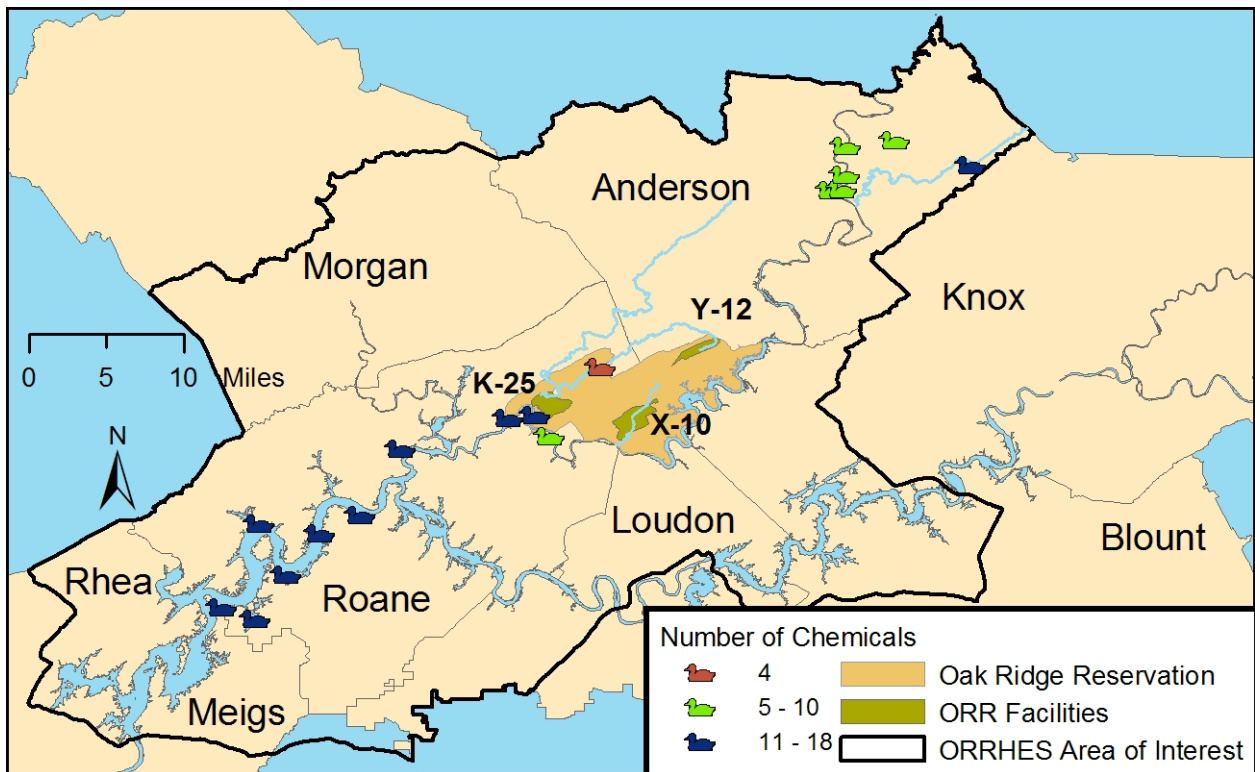


Figure D-13. Number of On-Site Game Samples Collected from Each Location

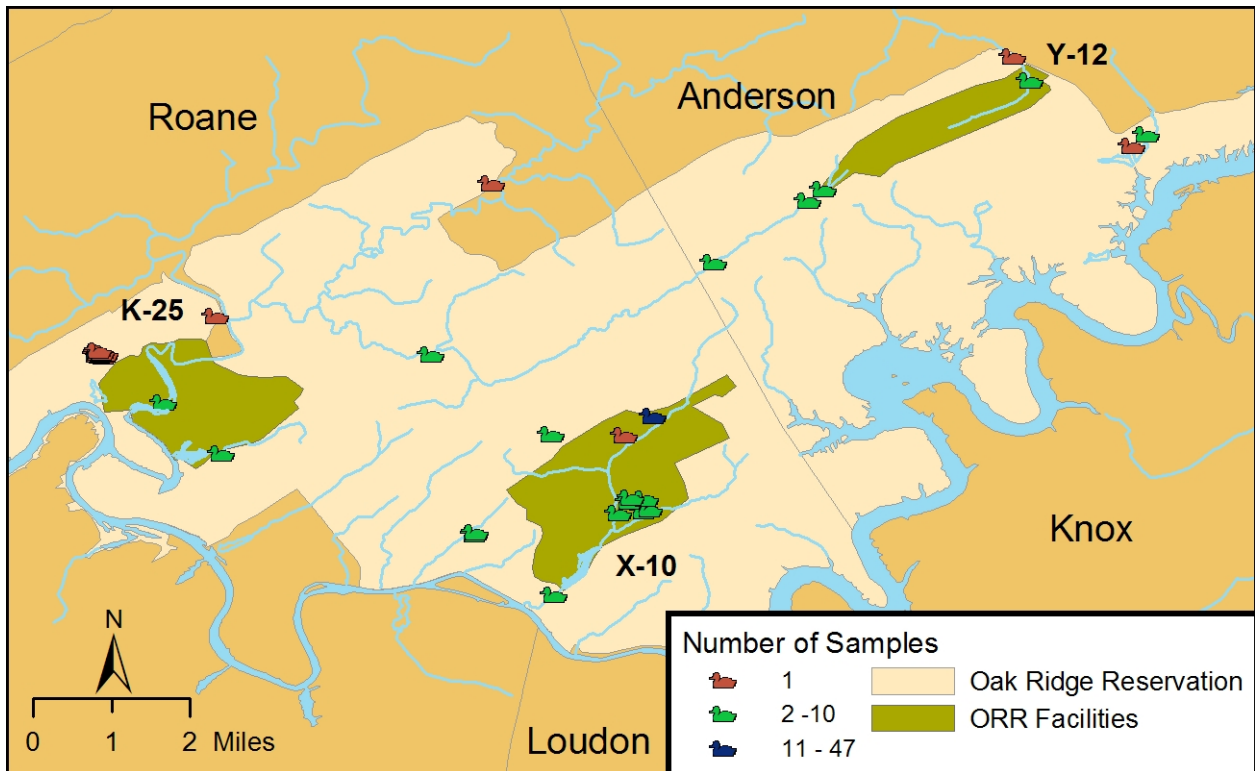


Figure D-14. Number of Chemicals Sampled at Each On-Site Game Location

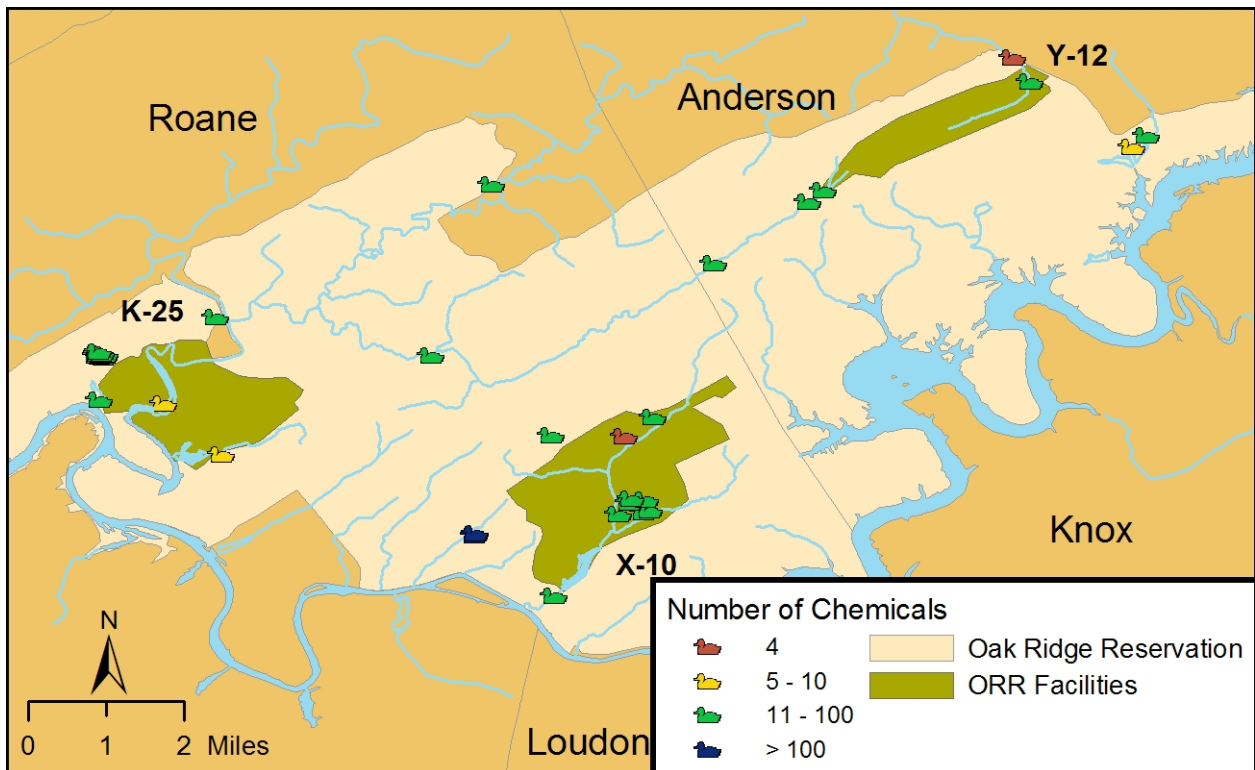


Figure D-15. Number of Off-Site Vegetation Samples Collected from Each Location

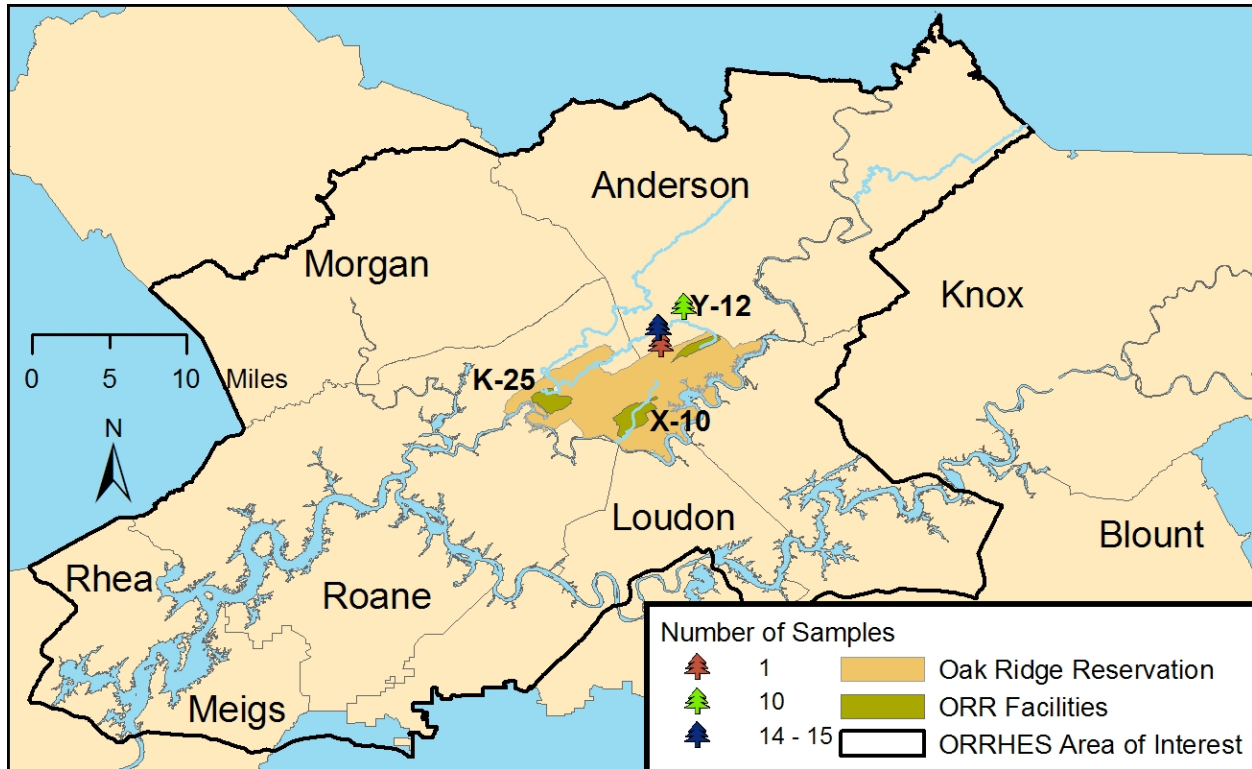
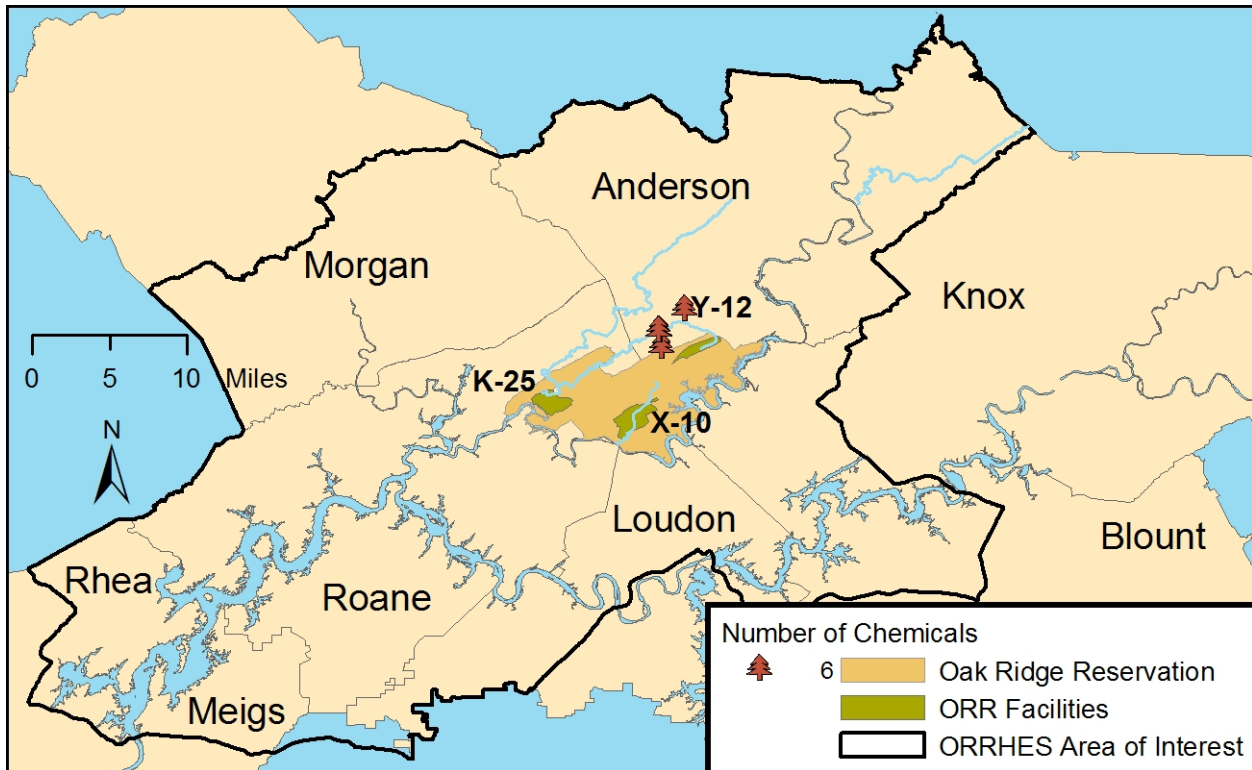


Figure D-16. Number of Chemicals Sampled at Each Off-Site Vegetation Location



APPENDIX E
Responses to Public Comments

ATSDR received the following comments from the public and local organizations during the public comment period (September 12 to November 18, 2005) for the *Evaluation of Current (1990 to 2003) and Future Chemical Exposures in the Vicinity of the Oak Ridge Reservation* public health assessment (October 2005). For comments that questioned the validity of statements made in the document, ATSDR verified or corrected the statements.

	Public Comment	ATSDR's Response
1	<p>The entire report needs to be very carefully scrutinized by someone with expertise in human nutrition. I believe that CDC has people available to call upon for nutrition consultation. Select someone who is well acquainted with the new recommendations of the National Academy of Sciences/Food and Nutrition Board (NAS/FNB). If there is no one suitable in-house, DHHS has some people with this background. And/or, ATSDR may wish to consider someone from the NAS/FNB.</p> <p>This is important because what is presented in this document about nutrients as contaminants is only about half right. Take, as an example, iron, which is discussed on page 41 as well as throughout the report. Although the relevant citation NAS (2001) was included in the reference list (page 88), it was not used to establish the acute screening guideline nor was the NAS/FNB tolerable upper intake level (UL) taken into consideration. The source listed for iron in Table 4 is given as the RDA (Recommended Dietary Allowance) which may need to be replaced by the more current DRI (Dietary Reference Intake). Both are NAS/FNB notations. Also, the reference Kurtzweil, P (1993) is way too old to use in this report. Discrepancies between NAS/FNB and other organizations identified in the context of the discussion reflect a time lag among organizations in adjusting their values and are not particularly useful in understanding the author's reasoning.</p>	<p>ATSDR's health assessor, who has expertise in human nutrition, provided input on the public health evaluation.</p> <p>ATSDR replaced the recommended dietary allowance (RDA) with the dietary reference intake (DRI) for iron.</p> <p>The tolerable upper intake level (UL) for children 1 to 3 years of age is 40 mg/day, which represents the maximum level of daily iron intake likely to pose no risk of adverse effects (NAS 2001). Although the UL was not discussed in the public health assessment, exposure doses are expected to be well below this level due to poor absorption of iron from soil, and the fact that the human body regulates its own iron level. Therefore, ATSDR does not expect that exposure levels would be higher than the UL.</p> <p>ATSDR removed the Kurtzweil (1993) reference.</p>

	Public Comment	ATSDR's Response
2	<p>Pp. i and ii. We appreciate the author's effort to be more explicit about children who are sensitive to exposures by adding the fetus and infant to the list of high risk groups (pages <i>i and ii</i>). However, we are very concerned that pregnant and breastfeeding women are not included. The pregnant woman and fetus need to be viewed as one--an interactive pair. Understanding the condition of the fetus takes into account consideration of placental transfer of chemicals and the overall condition of the mother in pregnancy. These two (mother and baby) should not be separated until birth...ever...even on paper. A similar argument can be made for the breastfeeding woman and her infant. Breastfeeding is an interactive process that influences the health and well-being of both mother and infant. It is just plain wrong to separate them to consider the effects of exposure on the infant alone. Please reconsider this issue in this and future ATSDR reports. It does no honor to science to ignore common sense.</p>	<p>A new section, Section IV.D, "Pregnant and Breast-Feeding Women," has been added to address this sensitive population. Please see that section of the final public health assessment for more details.</p>
3	<p>Pp. 2 and 50-53. Cadmium apparently poses a potential problem for regular consumption of homegrown vegetables, particularly tomatoes. No comment is made concerning the locations from which samples of vegetables containing cadmium were obtained, and no sampling data for vegetables grown in Scarboro are reported. However, DOE has sampled tomatoes grown in Scarboro annually for several years, and those data are in the OREIS database. Those data should be included and analyzed in this PHA.</p>	<p>Figures D-15 and D-16 show the number of off-site vegetation samples collected from and the number of chemicals sampled at each location. All applicable data from the Oak Ridge Environmental Information System (OREIS) database were included and analyzed during ATSDR's evaluation. Additional samples were analyzed for radionuclides, but these data were evaluated separately.</p>
4	<p>Pp. 3-6. The operational history section doesn't provide any information on the process or maintenance chemicals used at the facilities that would be the basis for conducting this PHA.</p>	<p>ATSDR screened and evaluated all applicable data available in the OREIS database, regardless of whether the chemical was considered to be site-related.</p>
5	<p>Pp. 6-7. The remedial and regulatory history does not discuss any chemical contamination issues, nor does it discuss any chemical remediation objectives addressed by the ORR site cleanup Records of Decision. Line 36 on page 6 does not mention any potential chemical contamination that is the subject of this PHA.</p>	<p>So as not to overwhelm the reader with details already discussed in other publicly available reports, ATSDR referred the reader to the annual <i>Remediation Effectiveness Reports for the U.S. Department of Energy Oak Ridge Reservation</i>, which document the progress of ongoing remedial activities and future planned actions at the site. These reports are available at the DOE Information Center located at 475 Oak Ridge Turnpike, Oak Ridge, Tennessee (telephone number: 1-865-241-4780).</p>
6	<p>P. 7, Line 16. Does "formerly been cleared for farmland" refer to land usage before or after the Oak Ridge Reservation was established?</p>	<p>ATSDR suspects that the land was used for farmland before the establishment of the ORR, however, a reference could not be found to confirm this. Because a timeframe could not definitively be associated with this phrase, ATSDR deleted it from the document.</p>

Oak Ridge Reservation: Current and Future Chemical Exposure Evaluation
Public Health Assessment

	Public Comment	ATSDR's Response
7	Pp. 8–10. The demographics section is little more than a presentation of population numbers. While brief reference is made to numbers of elderly, children, etc., and certain ethnic breakdowns are quantified in Figure 3, no meaningful correlation is made to potential exposure pathways, sensitive populations, etc.	In this evaluation, ATSDR <i>assumed</i> exposure to the contaminated media. The location of each detection was not individually evaluated to determine whether anyone was actually being exposed.
8	P. 12. Are there any previous chemical screenings or assessments that can be discussed here?	Section II.G discusses Phase I and Phase II of the Tennessee Department of Health's (TDOH's) Oak Ridge Health Studies, which consisted of a screening-level evaluation of all past releases of hazardous substances and operations at the ORR and included an in-depth dose reconstruction of those chemicals identified as requiring further study. Figure 3 shows the results of the TDOH's screening process for past exposures.
9	P. 13, Figure 4, Table 4, and Appendix C. Figure 4, as well as Table 4, and the two ORRHES briefs on Dose Reconstruction Feasibility and Screening contain lists of the contaminants recommended by ORHASP for dose reconstruction or further study. However, these lists do not completely agree. The brief on dose reconstruction feasibility in Appendix C lists cesium, while the other lists include radionuclides released to the Clinch River. These items may be the same, but are worded differently. The list in the brief on screening agrees with the list on page 4 of Volume 7 of the Dose Reconstruction Reports, which is the summary volume. These lists need to be reconciled.	Figure 4 (now Figure 3) and Table 4 present information for two different evaluations. Figure 4 (now Figure 3) depicts the TDOH's screening process for past exposure. Table 4 shows ATSDR's estimated pica child exposure doses for current exposures compared to acute screening guidelines. The lists of potential contaminants and high priority contaminants in Figure 4 (now Figure 3) and Table 2 in the brief in Appendix C are the same.
10	P. 12 and Appendix C. The text on page 12 mentions the brief in Appendix C on Screening-Level Evaluations of Additional Potential Materials of Concern, identifying that activity as Task 7 of the Dose Reconstruction Project. Vol. 7, the summary volume of the Dose Reconstruction Reports, also summarizes this task. The brief in this PHA states that 25 materials or groups of materials were evaluated under Task 7. Vol. 7 gives the number as 28. Table 2 in the brief on screening lists 24 separate materials evaluated. Can these numbers be reconciled? More importantly, a clarifying statement is needed to explain the relationship between Task 7 of the Dose Reconstruction Project, which dealt with past releases, and the subject of this PHA, which deals with current and future releases. Some clear statement needs to be made about the origin of the subject of this PHA, and whether it has any connection with Task 7 of the Dose Reconstruction Project.	The correct number of materials or groups of materials is 28. ATSDR revised the brief to state that 28 materials or groups of materials were evaluated under Task 7. Table 2 in the brief is a reproduction of Table ES-2 in the Task 7 report. TDOH conducted the Oak Ridge Health Studies to evaluate whether off-site populations have been exposed in the past. Task 7 of the dose reconstruction was a screening-level evaluation of potential chemicals of concern, using data through 1990. This PHA documents ATSDR's screening of environmental data from 1990 to 2003, addresses whether additional chemicals not identified by Task 7 require further evaluation, and discusses the public health implications related to estimated exposures. ATSDR added further clarification to the PHA.

	Public Comment	ATSDR's Response
11	P. 15, line 5. Suggest replacing "driven by exposure" to another phrase that is more descriptive of the PHA process. To some, "driven by exposure" may seem dismissive of the notion that the PHA should be "driven by" community concerns of health problems in their area.	ATSDR deleted the sentence in Section III.A and re-phrased the sentence in Section III.C to read "As discussed earlier, exposure to a contaminant is an important factor in ATSDR's evaluation."
12	P. 16, line 14. Identify and describe the primary data sources used for the PHA.	Section III.C identifies and describes the primary data source (i.e., OREIS) used for this PHA.
13	Pp. 26–36. It is not clear in the text why "comparison values do not exist" for chemicals detected in the biota when they are available for the same chemicals in other media (e.g., arsenic).	Comparison values are calculated concentrations of a substance in a specific medium that are unlikely to cause harmful health effects in exposed people. ATSDR has derived comparison values for soil/sediment, water, and air, but has not derived comparison values for biota.
14	P. 16, line 22. Add further explanation that there may be comparison values for certain contaminants in some media but not in others (e.g., arsenic in water vs. arsenic in fish).	ATSDR added clarification to Section III.B.
15	Pp. 17 and 35 (Figures 5 and 7). An inconsistency in terminology exists between Figures 5 and 7. Figure 5 refers to "health guidelines," while Figure 7 refers to "screening guidelines." If these two terms are meant to be synonyms, then one term should be selected and the other eliminated.	ATSDR revised Figure 5 (now Figure 4) and Figure 8 to be consistent with the use of "screening guidelines" in Figure 7.
16	Pp. 17, 22, 26, 35, 43, and 44. (Figures 5 and 7, Table 3 and Table 5). Another significant inconsistency exists in various places. Figure 5 shows pathway evaluations as the third step, while Figure 7 shows it as the first step.	ATSDR revised Figure 5 (now Figure 4), Figure 7, and Figure 8 to be consistent with each other.

Oak Ridge Reservation: Current and Future Chemical Exposure Evaluation
Public Health Assessment

	Public Comment	ATSDR's Response
17	<p>Figure 7 lists chemicals with exposure-doses above cancer/non-cancer screening guidelines, and describes more realistic exposure assumptions used to further evaluate health risks due to such chemicals. Among the more realistic assumptions is consideration of site-specific receptor populations. However, Table 3, which gives exposure-dose parameters, says nothing about site-specific receptor populations in terms of location-related pathway definitions. Then the discussions, beginning on page 26, of the screening and exposure-dose evaluations for individual media, the latter of which require pathways, make no mention of pathways. Finally, on page 43, pathways are mentioned and tabulated in Figure 5, which lists the normal pathways for 16 of the 17 chemicals evaluated, the 17th being lead, which has only a pica pathway. An explicit generic statement about pathways is needed in this report, perhaps near the top of page 26. If it is conservatively assumed that the receptor populations receive their exposures at the locations of the sampling stations at which the highest concentrations were measured, no matter where those sampling stations are located, unless otherwise stated, then this assumption should be explicitly stated. Otherwise, pathways involving locations need to be described.</p>	<p>ATSDR removed the phrase "site-specific receptor population" from Figure 5 (now Figure 4) and Figure 7.</p> <p>To clarify, ATSDR added the following to a text box in Section III.C: "It is important to note that ATSDR is <i>assuming</i> exposure to the contaminated media. The location of each detection was not individually evaluated to determine whether anyone was actually being exposed."</p>
18	<p>P. 20 and Table 3. On page 20, the term IR is labeled as "Intake Rate," while in Table 3 the label is "Ingestion Rate." The terminology should be made uniform between the text and the table. (A common cause of this type of problem is trying to do proofreading on the screen instead of with a paper copy. Only with a paper copy can text, tables, figures, and references be viewed simultaneously to ensure consistency.)</p>	<p>ATSDR revised the text to consistently use the term "intake rate."</p>
19	<p>Pp. 21 and A-2. The definition of CSF in the glossary is too vague. Following the text on page 21, the definition of CSF should be expanded to state that it is the cancer risk per 30-year exposure averaged over 70 years.</p>	<p>ATSDR added the following sentence to the definition of cancer slope factor in Appendix A: "The relative potency of carcinogens is calculated by multiplying estimated chronic-exposure doses (defined in this document as a 30-year exposure averaged over 70 years) by EPA's CSFs."</p>
20	<p>Pp. 23–24. Although the OREIS database contains voluminous quantities of environmental sampling data, the data in OREIS came from a variety of sources and were collected for a variety of purposes. Samples were not necessarily analyzed for consistent sets of chemical constituents, nor were data quality parameters (e.g., detection limits, data validation rules, etc.) consistently applied. Section III.C. needs to be expanded to describe the methodology by which OREIS data were assessed for suitability to be used in the PHA and how any shortcomings or inconsistencies in the data were handled.</p>	<p>ATSDR added the following to Section III.C: "ATSDR's database manager scrutinized the data evaluated in this public health assessment to ensure proper quality assurance/quality control. ATSDR did not use any data in this evaluation that were deemed unreliable. For example, surface water data are typically reported in micrograms per liter (µg/L) or milligrams per liter (mg/L). Some surface water data in OREIS were reported in milligrams per kilogram (mg/kg). ATSDR suspected that the media code had been interpreted incorrectly and these data were actually fish data. Since this could not be confirmed, the data were not used in this evaluation."</p>

	Public Comment	ATSDR's Response
21	Pp. 26–36. This section needs maps to show where the sampling data were collected. Where are the “off-site” locations and how are they defined? Discussion of the numbers of chemicals detected is insufficient inasmuch as the absence of any specific chemical detections in an area could be the result of omission from the analytical suite, data quality issues, or both. Any potential gaps in the data coverage need to be identified and discussed.	Appendix D contains maps showing the number of samples collected from and the number of chemicals sampled at each location in each media. ATSDR added references to the maps in Appendix D throughout Section III.D.
22	Appendix D. These figures appear to be the maps needed for Section III.D, although they do not appear to be referenced in the text. These figures need to be discussed in the text with respect to the adequacy of the data coverage for the purposes of the PHA. What is the meaning or significance of the even-numbered figures (D-2 through D-18) each entitled “Number of Chemicals Collected from...”?	ATSDR added references to the maps in Appendix D throughout Section III.D, and revised the title of the even numbered figures to be “Number of Chemicals Sampled at...”
23	Appendix D. The figures in Appendix D only show ranges of numbers of samples collected, and numbers of chemicals detected, at the plotted sampling locations, for given media and location categories. Other informative figures were presented to the PHAWG on January 21, 2003, showing all sampling locations for specific contaminants, and only those locations at which concentrations were found to exceed comparison values. Figures of this latter type would be useful additions to this PHA because they would give information about locations otherwise absent from this report.	The figures in Appendix D are provided to show the robustness of the data evaluated. The figures presented at former Public Health Assessment Work Group (PHAWG) meetings were used to visually demonstrate ATSDR's initial screening process. Only a few (of many potential) examples were selected. ATSDR's public health evaluation was based on average concentrations across multiple locations and was not a location-specific evaluation. ATSDR <i>assumed</i> that people were being exposed to the contaminated media. Each detection was not individually evaluated to determine whether anyone was actually being exposed at that location.
24	P. 29 and Figure 7. Benzo(a)pyrene is missing from Figure 7 under chemicals with exposure-doses above cancer/non-cancer screening guidelines, for fish (there were 12 chemicals in this category not 11).	The exposure doses for benzo(a)pyrene in fish were above screening guidelines during the initial screen, but below screening guidelines during the second screen. The chemicals listed under the heading of “Chemicals with Exposure Doses Above Cancer/Noncancer Screening Guidelines” are those that were detected above screening guidelines during the second screen. See the fish discussion in Section III.D for additional explanation.
25	P. 33. The note on page 33 about Figure 7 should be duplicated in the text on page 26, so that the reader can be aware of the opportunity of using the table to follow the text. Then the statement on page 33 can be expanded to explain that the list of chemicals evaluated for public health implications, as shown in Figure 7, is compiled from the list of chemicals exceeding screening guidelines above it, simply by eliminating duplications.	ATSDR added references to Figure 7 throughout Section III.D and revised the final reference to read “The list of chemicals evaluated for public health implications, as shown in Figure 7, is compiled from the list of chemicals exceeding screening guidelines. To eliminate duplication, the chemicals are combined across the different media.”
26	P. 37. Again, the reader should be alerted early in Section IV that Figure 7 can be used as a reference for following the discussion of public health implications, because the discussion follows the list of chemicals evaluated, located opposite the step labeled “Contaminants of Concern.”	ATSDR added the following sentence to Section IV.A: “See Figure 7 for a list of chemicals evaluated for public health implications.”

Oak Ridge Reservation: Current and Future Chemical Exposure Evaluation
Public Health Assessment

	Public Comment	ATSDR's Response
27	P. 43, Figure 7, and Tables 15–32. Exposure-doses for all 17 chemicals evaluated, as listed in Figure 7, plus many more, are listed in Tables 15–32. However, in Section IV.C, tables of exposure doses are given for only 9 of the 17 chemicals evaluated. This should be stated on page 43, along with the generic technical basis, described in terms of revised and more realistic calculations, for dismissing the other eight chemicals from the complete final step in the evaluation process.	ATSDR did not dismiss eight chemicals from the final step in the evaluation process. Tables were only included in Section IV.C for those chemicals that had estimated exposure doses that exceeded screening guidelines for more than one media or species. For example, for antimony, only a child eating on-site game was above the noncancer screening guideline. The exposure dose could easily be discussed in the text and did not require a table with only one row of data. Please read Section IV.C for a complete evaluation of all 17 chemicals.
28	P. 68, line 13. A graphic depicting completed exposure pathways would be helpful.	ATSDR added an exposure pathways figure. Please see the new Figure 5 in the final PHA.
29	P. 68, last paragraph. Will the cancer incidence review be completed? Since the cancer review cannot address or imply causal associations, why is it mentioned in this PHA?	The cancer incidence review is now complete and has been included in the final PHA as a community concern in Section VI.I. The final document is available on the Internet at http://www.atsdr.cdc.gov/HAC/oakridge/phact/cancer_oakridge/index.html .
30	P. 70, line 33. The Multiple Chemical Exposures section begins on page 65.	ATSDR corrected the page number reference.
31	P. 14, Figure 4. In the third column heading, add an "e" to the word "rational."	ATSDR made the editorial change.
32	P. 74 and Table 38. Somewhere on page 74 there should be a note explaining that Table 38 contains a list of chemicals detected in Scarboro for which there were no substance-specific screening guidelines, and that therefore guidelines for similar materials were used as surrogates. The title of Table 38 should be modified by inserting the phrase, "substance-specific" after the word, "without," and the next-to-last column heading should begin with the word "Surrogate."	ATSDR moved Table 38 to Appendix B and included a reference to it in Section VI.H. ATSDR changed the title of the table to "Table B-6. Chemicals Detected in Scarboro" and added the word "surrogate" to the column header in all tables in Appendix B.
33	P. A-9. The term "screening guidelines" does not appear in the glossary so it is somewhat hard to keep straight what values are comparison values, what values are screening guidelines, and what values are health effects levels. This definition needs to be added to the glossary, explaining that screening guidelines are calculated exposure-doses, while comparison values are environmental concentrations.	ATSDR added a definition for screening guideline to Appendix A.
34	Appendix B. Each of the five tables includes a column labeled "average concentration." How were these averages determined? Are the average data sets representative of assessing exposures in the areas and media of concern?	Unless otherwise noted, average concentrations in Appendix B were calculated using detected concentrations only and do not take into account nondetected values. To clarify, ATSDR added notes to the tables in Appendix B.
35	I did not review the several data tables throughout the PHA closely, but I assume ATSDR has or will thoroughly check them and make any necessary technical or editorial corrections.	Yes, ATSDR checked the tables for technical and editorial accuracy.

	Public Comment	ATSDR's Response
36	The Citizens' Advisory Panel (CAP) agrees that evidence presented in the report supports the Agency for Toxic Substances and Disease Registry's (ATSDR) conclusion that current and potential future releases of contamination from the Oak Ridge Reservation (ORR) are unlikely to cause any detectable public health effects, acknowledging the limited data regarding dioxins and the presence of cadmium in some vegetables.	Thank you for your comment.
37	Although the document finds inconclusive results regarding potential health effects from eating food contaminated with dioxin and cadmium, it does not clearly define the pathways that these chemicals traveled from sources on the reservation to fish and vegetables, respectively. Are there any other sources of these contaminants that could account for their presence in local food?	Cadmium is a naturally occurring element and dioxins are found in areas considered "uncontaminated" due to atmospheric deposition. ATSDR evaluates potential health effects resulting from exposures, but does not evaluate the sources of these releases.
38	The report makes an effort to be understandable to the lay reader with mixed results. Graphics such as the Figure 5 foldout on page 18 are helpful. However, Table 3 (page 22) should give some idea in lay terms about what quantities the metric fractions represent (for example, compared to a teaspoonful, how much is 0.0005 kg of soil?).	For additional perspective, ATSDR added a text box under Table 3 showing rough equivalents of the intake rates.
39	On Figure 2 (page 5) the purple area (representing parcel ED-1, also known as Horizon Center) is shown as leased land, with reference to outdated (2002) information. This parcel is now in part owned by the Community Reuse Organization of East Tennessee. This should be updated to show the actual land disposition.	Because the map is outdated, ATSDR removed it from the document.
40	Figure 6 shows the ORR Health Effects Subcommittee area of interest, but fails to label the county or counties included in a small zone between Meigs and Loudon.	The area not identified on Figure 6 is part of McMinn County. It was not included on the map because ORRHES does not consider it to be one of the eight counties of interest.
41	ATSDR should review this document to ensure that reference and acronym lists are complete. Some of the acronyms are not properly explained until you get to Appendix A; all should be included in the acronym list.	ATSDR checked the reference and acronym lists.
42	The interested public would not expect to find responses to comments on the Y-12 Uranium Releases PHA as an appendix to this PHA. Appendix E should be included in a final version of the Y-12 Uranium Releases PHA and/or as a separate stand alone document. In addition, all responses to comments should be available on the ATSDR Web site.	ATSDR removed the responses to public comments on the Y-12 uranium releases PHA from Appendix E. Once completed, documents are available on ATSDR's "Oak Ridge Reservation: Public Health Activities" Web site at http://www.atsdr.cdc.gov/HAC/oakridge/phact/index.html .

APPENDIX F
Responses to Peer Review Comments

Oak Ridge Reservation: Current and Future Chemical Exposure Evaluation
Public Health Assessment

ATSDR received the following comments from independent peer reviewers for the *Evaluation of Current (1990 to 2003) and Future Chemical Exposures in the Vicinity of the Oak Ridge Reservation* public health assessment. For comments that questioned the validity of statements made in the document, ATSDR verified or corrected the statements.

	Peer Reviewer Comment	ATSDR's Response
<i>Does the public health assessment adequately describe the nature and extent of contamination currently in the off-site areas in the vicinity of the DOE Oak Ridge Reservation?</i>		
1	Yes. The public health assessment adequately describes the nature and extent of contamination in the off-site areas of the DOE ORR.	Thank you for your comment.
2	Yes. The sections, figures and tables relevant to this question were reviewed. The information presented in these sources was found to be adequate in describing the nature and extent of contamination currently in the off-site areas in the vicinity of the DOE Oak Ridge Reservation. All potential sources of contamination (i.e., soil, sediment, surface water, biota, game and air) were considered.	Thank you for your comment.
3	For the most part, this document demonstrates nicely the nature and extent of contamination currently in "off-site" areas in and around the Oak Ridge Reservation.	Thank you for your comment.
<i>Are the methods and approaches used to screen the chemical data protective of public health?</i>		
4	Yes, the methods used to screen the chemical data are protective of public health. The methods used are generally accepted methods by the regulatory and risk assessment community.	Thank you for your comment.
5	Yes. Section III and other relevant data were reviewed and found to adequately describe the methods and approaches used to screen the chemical data. These methods and approaches are deemed to be protective of public health. The only suggestion I have at this point is to include a definition (perhaps as part of Appendix A) of the term "non-cancer" endpoints that is used throughout the document.	A definition for noncancer was added to the glossary (Appendix A).
6	Overall the general answer to this question is yes. However, this answer is premised on the specificity of chemical exposure and the current knowledge base for the dose-effect relationships between human exposure and the measure effect. Caution should be used not to overstate the impact on the current data inasmuch new information is constantly being reported on the effects of low-dose exposures and effects not seen previously in target organs.	ATSDR agrees that new toxicological information is constantly being reported and ATSDR scientists make every attempt to use the best available toxicity data when determining the public health implications of exposure to environmental chemicals. Most of the estimated exposure doses are several orders of magnitude below currently reported effect levels and, consequently, have a large margin of safety incorporated into them.

	Peer Reviewer Comment	ATSDR's Response
<i>Does the public health assessment adequately evaluate all potential pathways of human exposure in off-site areas near the DOE Oak Ridge Reservation?</i>		
7	Yes, the assessment evaluates all realistic potential pathways of human exposure in off-site areas of the DOE ORR.	Thank you for your comment.
8	Yes. All potential pathways of human exposure in off-site areas near the DOE Oak Ridge Reservation were adequately evaluated and described in the public health assessment document.	Thank you for your comment.
9	This issue appears to have been addressed adequately.	Thank you for your comment.
<i>Are all relevant environmental and toxicological data (i.e., hazard identification, exposure assessment) being appropriately used?</i>		
10	Yes, the data in the assessment are used appropriately.	Thank you for your comment.
11	<p>Yes. All relevant environmental and toxicological data have been appropriately used in this document.</p> <p>Page 65, line 7 states that the NOAEL (0.35 mg/kg/day) used to derive the intermediate-duration MRL is from an animal study and incorporates an uncertainty factor of 300. There is no reference given for the animal study. A large study on toxaphene has been conducted in monkeys and the immunology part of it has been published. I wonder if this study's results were taken into consideration in deriving the MRL. In any case the reference is listed here for your convenience: H. Tryphonas et al. 2001. Effects of toxaphene on the immune system of cynomolgus (<i>Macaca fascicularis</i>) monkeys. Food Chem Toxicol 39: 947-958.</p>	<p>Thank you for your comment.</p> <p>The derivation of the minimal risk level (MRL) is described in ATSDR's toxicological profile for toxaphene (1996). The reference animal study is: Chu et al. 1986. Toxicity of toxaphene in the rat and beagle dog. Fundam Appl Toxicol 7:406-418.</p> <p>Thank you for providing the newer study information. ATSDR did not consider the Tryphonas et al. (2001) animal study in the derivation of the intermediate MRL because it was a chronic study and it was published after the August 1996 toxicological profile release date. The lowest-observed-adverse-effect level (LOAEL) in the Tryphonas et al. (2001) study is reported to be 0.4 mg/kg/day, and the no-observed-adverse-effect level (NOAEL) is 0.1 mg/kg/day. The exposure doses that ATSDR estimated (see Table 15) are well below both these effects levels. Therefore, this newer study further supports ATSDR's conclusions that adverse effects are not expected from exposure to toxaphene in the fish evaluated in this PHA.</p>
12	To the extent that the current criteria documents on specific chemicals provide the nature and extent of the adverse effects of the chemical of interest and importance, the current document presents data consistent with these.	Thank you for your comment.
<i>Does the public health assessment accurately and clearly communicate the current and future public health hazards to off-site populations living in the vicinity of the DOE Oak Ridge Reservation?</i>		
13	Yes, the assessment accurately and clearly communicates the current and future hazards to off-site populations.	Thank you for your comment.

Oak Ridge Reservation: Current and Future Chemical Exposure Evaluation
Public Health Assessment

	Peer Reviewer Comment	ATSDR's Response
14	Yes. In addition to the information communicated within this report there are several valuable reference sites and contacts of offices listed for those who are interested in obtaining further information.	Thank you for your comment.
15	<p>It depends on which group you are targeting. The lay population may not appreciate some aspects of the presentation.</p> <p>The rationale for choosing a chemical of importance for monitoring is lacking in a number of instances.</p>	<p>ATSDR worked closely with the Oak Ridge Reservation Health Effects Subcommittee (ORRHES) during the screening process. However, some members of the public may still have questions regarding the conclusions and recommendations. ATSDR welcomes comments and questions and will try to address them in a format that best communicates the public health message to the specific audiences.</p> <p>Independent of ATSDR's screening evaluation, chemicals were selected for environmental monitoring based on historic use, detections, and/or potential for release. ATSDR's screening evaluation was not designed to identify chemicals for environmental monitoring; rather, it was conducted to identify chemicals requiring further evaluation to determine whether they are present at levels constituting a health hazard (see Section III and Figure 5—now Figure 4—for ATSDR's screening process).</p>
<i>Are the conclusions and recommendations appropriate in view of the current off-site conditions as described in the public health assessment?</i>		
16	The recommendations may need expansion based on discussions within the report text. That is, on page 43 (lines 1 and 2) a recommendation is made that all children have their blood lead levels tested. This is not repeated on page 80 (Section VIII. Recommendations). Similarly, a recommendation is made on page 53 (lines 9–13) that residents might take alternative measures for vegetable garden construction. This recommendation is not repeated in Section VIII.	<p>Upon further consideration, ATSDR removed the recommendation that all children have their blood lead levels tested because the scenario that prompted the recommendation was highly hypothetical and based on a worst-case scenario. (For more information about routine childhood blood lead testing see the response to comment 21.)</p> <p>Upon re-evaluation, ATSDR realized that a mistake had been made in the calculations for cadmium; when this mistake was corrected, the warning to take alternate measure for vegetable garden construction were no longer needed.</p>
17	Yes. The conclusions and recommendations based on the current off-site conditions and findings as described in the public health assessment document are appropriate.	Thank you for your comment.
18	Overall, the answer is yes.	Thank you for your comment.
<i>Are there any other comments about the public health assessment that you would like to make?</i>		
19	The report was well written.	Thank you for your comment.

	Peer Reviewer Comment	ATSDR's Response
20	I found the legend for Figure 6 (ORRHES) difficult to follow. There seemed to be more colors on the map than there were provided in the legend.	A revised version of Figure 6 is included in the final PHA.
21	On page 43, lines 1 and 2, it is recommended that "all children" have their blood lead levels tested. "ALL" encompasses an undefined area. Perhaps it makes sense to reference the appropriate residential area(s) affected.	Upon further consideration, ATSDR removed the recommendation that all children have their blood lead levels tested because the scenario that prompted the recommendation was highly hypothetical and based on a worst-case scenario. ATSDR clarified the guidance in the text box to be specific to children between the ages of 6 months and 6 years at high risk for having elevated blood lead levels. In response to information about the distribution and prevalence of lead poisoning among U.S. children, the Centers for Disease Control and Prevention (CDC) changed its national blood lead screening recommendations to a state-based approach. In <i>Screening Young Children for Lead Poisoning: Guidance for State and Local Public Health Officials</i> , CDC called on state health departments to develop plans to ensure screening of all children at high risk for having elevated blood lead levels. ²⁵
22	On page 58, line 18, heptachlor epoxide in game is discussed as "not at levels of health concern," but in the footnote (number 16), we learn that heptachlor epoxide was not sampled in game.	ATSDR added the word "on-site" before "game" because the level of heptachlor epoxide detected during the limited sampling was below screening levels. The footnote states that heptachlor epoxide was not sampled in off-site game.
23	This document presents nicely historically relevant facts and the nature and importance of the monitoring around Oak Ridge.	Thank you for your comment.

²⁵ CDC. 1997. Screening young children for lead poisoning: guidance for state and local public health officials. Atlanta, GA: US Department of Health and Human Services, Public Health Service, Centers for Disease Control and Prevention.