

---

## VOLUME II – INTRODUCTION

---

This volume contains the appendices for the FSEIS. **Appendix A** provides an updated table of threatened and endangered species categorized by TxDOT District and County. Species lists were obtained from the Texas Parks and Wildlife Department (TPWD) and the U.S. Fish and Wildlife Service (USFWS). Federal status of a species is only identified in the table if it is currently listed on the USFWS list for the county.

**Appendix B** contains the Roadside Pest Management Program Final Ecological and Human Health Risk Assessments. Both the Ecological Risk Assessment and the Human Health Risk Assessment evaluate several different types of exposure scenarios, which involve numerous calculations. Worksheets containing these calculations are included in separate ecological and human health spreadsheets provided in **Appendix D** of this volume. This report has three major sections: 1) Chemical-Specific Information; 2) Ecological Risk Assessment (ERA); and 3) Human Health Risk Assessment (HHRA).

The Chemical-Specific Information section provides information about the various pest management chemical products used or planned for use by TxDOT in its RPMP. It summarizes the physical / chemical properties of each of the active ingredients of the chemicals used to treat pest species, the application methods and rates, and the dilution rates.

The Ecological Risk Assessment section presents an ecological risk assessment for active ingredients in the products used by TxDOT for its PMP. The ERA concluded that that some active ingredients found in chemicals used or planned for use by TxDOT in its PMP could result in adverse effects to seven chemical-receptor-exposure pathway combinations. An accidental release or spill of any chemical formulation to an on-site pond also has the potential to adversely impact fish, amphibians, aquatic invertebrates, and aquatic plants. The procedures used to assess risk are subject to uncertainties due to data gaps and the need to make certain assumptions and extrapolations. The major uncertainties are discussed in the ERA.

The Human Health Risk Assessment presents a human health risk assessment for active ingredients in the chemicals used or planned for use by TxDOT in its PMP. The HHRA concluded the most significant risk for workers resulted from wearing triclopyr-BEE (Pathfinder II) contaminated gloves for one hour. Boom-spray application of triclopyr-TEA posed some risk for the worker under a general exposure scenario. The results of

the human health risk assessment underscore the importance of ensuring that TxDOT applicators follow TxDOT approved work practices and follow all label directions for personal protection, mixing, and application. The most significant risks for the general public included chronic ingestion of fish contaminated with methoprene (Altosid-XR) by children of subsistence populations, risk estimates for acute direct spray, acute dermal contact with contaminated vegetation, acute and chronic ingestion of contaminated fruit, acute and chronic ingestion of contaminated water, and chronic ingestion of contaminated fish involving adults and young children. Risk estimates are extremely conservative given assumptions and uncertainties used in the calculations.

**Appendix C** contains the Roadside Pest Management Program Final Water Quality Runoff Assessment. The purpose of this report is to assess the runoff potential of eleven chemicals currently in use or proposed for use by TxDOT in its PMP. Modeling for this report provides estimates of the quantity and concentration of chemicals that potentially enter the environment via surface water runoff or the percolation of chemicals into groundwater. Due to the wide range of soils in Texas, a web-based application of GLEAMS (Groundwater Loading Effects of Agricultural Management Systems), called NAPRA WWW (National Agricultural Pesticide Risk Analysis, World Wide Web) was used to evaluate the potential effects of chemical loading in runoff and groundwater. The benefit of using this application was that the soils, climate, and chemical databases were already included in the system. Hydrologic results from the NAPRA GLEAMS indicated on average, a greater volume of water is likely to percolate into the ground from rain events across the State of Texas, than is likely to occur as runoff. Since some chemicals are applied at different rates, 18 different application rates were modeled.

The results of this report provide TxDOT with a quantitative tool for assessing potential risks associated with runoff or percolation from the ROW. In order to provide a frame of reference for the model results, comparisons can be made to establish regulatory thresholds. Glyphosate is the only chemical used or planned for use in TxDOT's program with a water quality regulatory standard. The concentrations of glyphosate due to TxDOT's maintenance program are still one to two orders of magnitude below the standards established by EPA and adopted by TCEQ. This report, in conjunction with site-specific and qualitative considerations, will enhance TxDOT's ability to make environmentally sensitive decisions regarding the use of pesticides throughout the State of Texas.