



# Health Risk Assessment Practice

Ashworth Leining Group's health risk assessment (HRA) practice leverages our expertise in air toxics emissions inventory development, best available control technology for toxics (T-BACT) determination, and air dispersion modeling on behalf of industrial and regulatory clients. As illustrated below, ALG has the capabilities to:

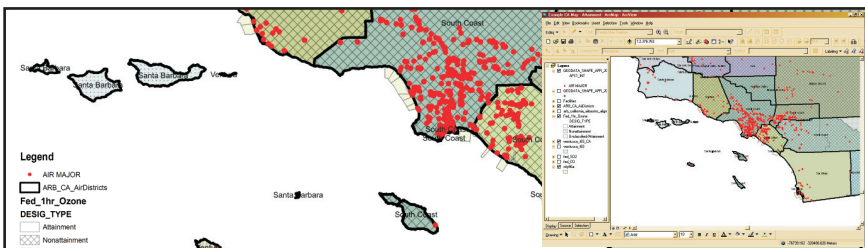
- Develop defensible toxic air contaminant (TAC) emission inventories under the California Air Toxics Hot Spots Program (AB 2588);
- Use Geographic Information System (GIS) to develop key input data for HRAs;
- Perform air dispersion modeling consistent with EPA, ARB, and local air district modeling guidelines;
- Execute health risk assessment models that use the source emission rates developed in the emission inventory task and the output of the air dispersion modeling to quantify potential health effects;
- Prepare comprehensive HRA reports; and
- If necessary, provide assistance in making T-BACT determinations and developing Risk Reduction Plans.

## TAC Emissions Inventories



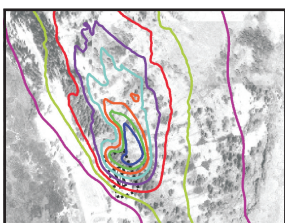
ALG has prepared TAC emissions inventories for a variety of facilities, including petroleum refineries and distribution terminals, oil and gas processing facilities, glass manufacturing facilities, power plants, paper mills, aerospace facilities, ethanol plants, sterilization facilities, and medical device manufacturing facilities. As a result, ALG is intimately familiar with TAC emissions inventory data needs, calculation methodologies, and submittal approaches for a wide variety of facility types. ALG can also draw on the skills of its team of experienced environmental engineers and scientists, many of whom have over 20 years experience in developing emission inventory systems and preparing emissions inventories for permit submittals, periodic emissions reports, and environmental assessments.

## Geographic Information System



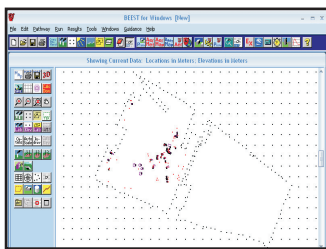
ALG uses the ArcGIS software for processing geographic information to use in HRAs. ArcGIS is used to identify locations of sensitive receptors (e.g., schools and hospitals), delineate areas of differing exposures (i.e., residential and workplace), and prepare base maps for presentation of results.

## Air Dispersion Modeling



ALG staff are knowledgeable of modeling requirements for EPA, state, and local regulatory agencies. This is important because every refined HRA has an air dispersion modeling component, which is necessary to translate emissions into ambient concentrations. Decisions made during the development of inputs for the air dispersion model can have profound effects on the subsequently calculated health risks. ALG staff have decades of combined modeling experience to draw from, including extensive experience with the EPA's currently recommended workhorse model, AERMOD.

## Health Risk Assessment Modeling



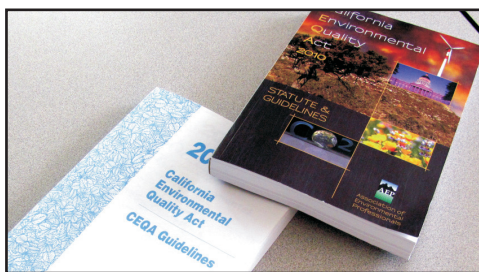
HRA models translate calculated ambient air concentrations into estimates of potential health risks. In California, the state-developed Hotspots Analysis and Reporting Program (HARP) is the current tool of choice for refined HRAs. Beginning shortly after its release in 2003, ALG has used HARP on numerous projects, both with the embedded air dispersion model (ISCST3) and with AERMOD. Many of these analyses included quantification of potential health risks of project related mobile source emissions. ALG has also run the EPA Human Exposure Model (HEM3) to determine the residual risk of benzene emissions from a Gulf Coast refinery.

## Health Risk Assessment Reporting



The report is a critical component of the HRA as it is the means by which the results of the assessment are conveyed to the intended audience, be it an agency or the general public. ALG has prepared HRA reports for projects ranging in size from a single release point to entire complex facilities composed of hundreds of sources. A typical report for a refined analysis includes a tabulation of the potential cancer and noncancer (acute and chronic) health risks for residential exposure and workplace exposure, as well as for sensitive receptors. The risks are broken down by major source category (combustion sources, storage tanks, fugitive components, etc.) and by TAC species (benzene, diesel PM, hexavalent chromium, etc.). Contours of risks are created and overlaid on base maps depicting geographic features such as streets, schools, hospitals, and terrain.

## California Environmental Quality Act (CEQA)



ALG has prepared HRAs for Environmental Impact Reports to satisfy CEQA. One key difference in HRAs for CEQA as compared to complying with New Source Review or satisfying AB 2588 is that the impact of project-related mobile source emissions, principally emissions of particulate matter (PM) from diesel engine exhaust, generally need to be included in the analysis. ALG has prepared HRAs for large industrial projects that include emissions of PM from trucks and trains that would visit a new facility or an existing facility as a result of a project.

## Risk Reduction Programs



Should an evaluated facility's or project's calculated risk exceed an applicable significance threshold, ALG can work with its clients and the regulatory agencies to reduce risks to acceptable levels. Sometimes this is as simple as relaxing conservative assumptions regarding facility operations. Other times, it involves application of T-BACT. ALG's experience in facility operations, emissions calculation techniques, and best available control technology for a wide range of source types allows for development of cost-effective risk reduction programs.

## About Ashworth Leininger Group

Ashworth Leininger Group (ALG) is an environmental management consulting firm located in the Los Angeles, California area, with satellite offices in the San Francisco Bay and Houston, Texas areas. For more than 25 years, ALG has assisted clients in securing local, state, and federal air permits; addressing complex air quality compliance issues; conducting environmental audits; preparing periodic air quality emissions and toxic release inventory reports; and assessing facility impacts on local and regional air quality.

For more information, please contact Jayme Dryden,  
QISP ToR, at (805) 764-6005 or [jdryden@algcorp.com](mailto:jdryden@algcorp.com).



601 East Daily Drive,  
Suite 302  
Camarillo, CA 93010  
PH: (805) 764-6010  
FX: (805) 764-6011  
[www.algcorp.com](http://www.algcorp.com)