CHEMICAL WEED CONTROL RESEARCH PROJECT

FREQUENTLY ASKED QUESTIONS (as of 8/1/2008)

What does this project entail?

The Alaska Railroad Corporation is working with the University of Alaska Fairbanks (UAF) to conduct a herbicide research project, similar to those accomplished for the Alaska Department of Transportation & Public Facilities (ADOT/PF).

Two field studies were conducted for DOT/PF along highway rights-of-way in two different climatic zones (Delta Junction and Valdez). The proposed Alaska Railroad project is designed to compliment these previous tests as well as provide specific information to the Alaska Railroad.

The Alaska University Transportation Center (AUTC) scientists have selected five sites in which to study how two herbicide products migrate and are retained in Alaskan soil. Researchers from the UAF Water and Environmental Research Center will evaluate a series of groundwater and soil samples to measure herbicide persistence and dissipation under Alaskan climate and environmental conditions. They will also investigate the effectiveness of glyphosate-based herbicide for vegetation management along the rail corridor.

How is the research funded?

Total cost of the 2008/2009 proposed research on herbicide application is estimated at $200,000. The ARRC is funding $100,000 of that expense. The ARRC (current study) and the ADOT (previous studies) are collaborating with the Alaska University Transportation Center (AUTC) to fund the remaining cost through a grant.

What chemicals are being researched?

- AquaMaster® – (active ingredient is Glyphosate). For use around water.
- Oust® Extra – (active ingredients are Sulfometuron methyl and Metsulfuron methyl).

Why is this research important?

This research is in direct response to public requests for more information about herbicide persistence in Alaska's environment. In 2006, the Alaska Railroad applied for a permit to use chemicals to control vegetation on ARRC track and rail yards. The railroad has pointed to the environmental success of nearly identical vegetation management programs in the Lower 48 states and in many other countries, including Canada and Europe, which have similar geography and weather.

Overgrown weeds on the track bed are nearly impossible to get rid of with non-chemical methods.

ARRC and UAF want to better understand how products approved for use by EPA and DEC will behave in our Alaskan environment, especially near water bodies. This research is designed to answer these important questions.

Is a pesticide permit required for this research project?

The DEC regulations allow for scientific research without a permit if the project is less than 20 acres, is conducted by the University of Alaska or is on State land. Similar to a permit, DEC must determine there is no unreasonable adverse effect including consideration of risk to humans, animals, and the environment before the project can occur. Several are conducted each year by the University of Alaska.

What is the size of this research area?

Total study area is approximately 4.28 acres.

Where are you going to do the tests?

Five plots have been selected, four of which are located on Alaska Railroad land, either along the right-of-way or in other operating areas.

- Two patches approximately 16 feet by 200 feet (one in the ARRC Seward Yard, the other near ARRC Milepost 25) will have both Aquamaster and Oust Extra applied and multiple wells and lysimeter will be installed on each site, to monitor migration and degredation of the products.
- Two sites, 16 feet wide and approximatley one-mile long (near ARRC Milepost 39 and ARRC Milepost 45) will have only Aquamaster applied and no test wells. This plot will be used primarily to observe weed control performance.

None of the four test sites on ARRC land encompass open water bodies. There will also be tests done on a fifth site in the Fairbanks area on UAF property.

When will the project start?

Well installation began in June and the first application of herbicide is tentatively scheduled to start in August 2008. The research project is expected to last at least 2 years but only one application of herbicides will be applied.

Who will administer the products?

An applicator that is licensed by the DEC to apply pesticides commercially employed by the AARC will apply products according to the directions provided on the manufacturer's product labels.

What is the Alaska University Transportation Center (AUTC)?

The Alaska University Transportation Center (AUTC) focuses on transportation safety, security and innovation in cold regions. The AUTC is also used to meet the research needs of the Alaska Department of Transportation & Public Facilities, the Alaska Railroad, the Alaska Oil and Gas Industry and the Alaska transportation industry.

Alaska's unique climate, cultural diversity, population density and transportation requirements call for specialized expertise not readily available elsewhere. AUTC research is designed to fill a national gap in addressing transportation needs in cold regions. AUTC's goal is to develop that expertise through education/outreach programs and research.

Can you further describe the UAF research?

Researchers from UAF's Water and Environmental Research Center (WERC) are evaluating herbicide behavior over a two-year period through a series of soil and groundwater sampling to obtain data about specific chemical behavior in Alaskan micro-climates. As part of the project, basin lysimeter (measuring evaporation and transpiration) testing will be conducted at a fifth location at the UAF Fairbanks Experiment Farm. By comparing the results from the four AARC test sites and the UAF farm, we will be able to better understand what happens to herbicides that are applied in Alaska's different climates. WERC has also been conducting an ongoing project monitoring cold-related re-concentration phenomenon observed in tri-clopyr (broadleaf herbicide) applications.

What are the qualifications of the UAF researchers?

David L. Barnes, PhD, is an associate professor and chair of the Department of Civil & Environmental Engineering at the University of Alaska Fairbanks (UAF). He is also an associate professor for the university's Water & Environmental Research Center. He teaches and performs research in the area of geoenvironmental engineering and has served as principal investigator on multiple projects focused on contaminant transport and fate, ground-water dynamics, immiscible fluids, and water quality as these topics pertain to energy production, industrial processes, agricultural processes, transportation, domestic waste, and accidental releases of hazardous materials. Dr. Barnes has authored more than 65 refereed journal publication and conference proceedings on these topics. Dr. Barnes earned bachelor's and master's degrees in Civil Engineering from New Mexico State University and a doctorate degree in Chemical and Bioresource Engineering (soils and ground water) from Colorado State University.

Bill Schnabel, PhD, is a member of the research faculty at the University of Alaska Fairbanks Institute of Northern Engineering. His research activities center around surface/groundwater quality, soil/groundwater chemical fate and transport processes, vadose zone soil moisture processes, and cold region engineering applications. He has worked as a consulting engineer for Ecolotree Incorporated and Golder Associates, and as an assistant professor at the University of Alaska Anchorage School of Engineering. Dr. Schnabel earned a bachelor's degree in Chemistry from Purdue University, a master's degree in Environmental Engineering from the University of Iowa, and a doctorate degree in Environmental Systems Engineering from the University of Alaska Fairbanks.

Who can I talk to at the University?

Dr. David Barnes is the lead scientist for this research project. His e-mail is dave.barnes@uaf.edu.

Who can I talk to at the Department of Environmental Conservation?

Karin Hendrickson, Environmental Program Specialist, ADEC Pesticides Program, (907) 376-1856, karin.hendrickson@alaska.gov

Where can I get more information on the Alaska Railroad's vegetation managment/weed control?

Interested parties can go to http://www.akrr.com/arrc327.html