

ALASKA FAIRBANKS





Herder-Enhanced In Situ Burning of Spilled Oil in Arctic Waters

Engineering solutions for the world's cold regions and beyond

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Warming Arctic ≈ Less Ice ≈ More Maritime Activity



Crystal Serenity: Seward - New York via Northwest Passage. Source Alaska Dispatch News, 2016.

More Maritime Activity ≈ Greater Risk of Oil Spill Events



Source: "Responding to Oil Spills in the US Arctic Marine Environment" National Academy of Science, National Research Council, 2014





Effectiveness and Environmental Fate of Chemical Herders for Arctic In Situ Burning



Laboratory chamber for conducting in-situ burn studies

- Designed, fabricated, and operated a burn chamber
- Collected bench scale data on burn efficiency, burn emissions, and herder partitioning
- Developed a laboratory method for measuring concentration of OP-40 in surface waters using GC-MS
- Conducted two mesoscale in situ burns
- Evaluated the environmental fate of the herder during and after five large-scale test burns conducted in April 2015



Experiments to measure herder efficiency to thicken spilled crude oil.

since 1917

In-situ burning tests (with herders) to study air emissions.

Prepared UAF team for industry-funded field tests



Srijan Aggarwal, WERC

Meso-scale in-situ burning tests (with herders) at UAF fire facility in March 2015.

Poker Flat Test Basin



August 2014



April 2015 - Oil, Herder and Fire

Aerial application of fire



Measurable efficiencies Photos courtesy of L. Zabilansky









Aerial ignition of herded oil







Post-burn tests

What is the environmental fate of herders following in situ burn application?



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Thank You







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