

Environmental Concerns of Weather Modification



Group picture for the POLCAST field project conducted in North Dakota to test effectiveness of hygroscopic flares.

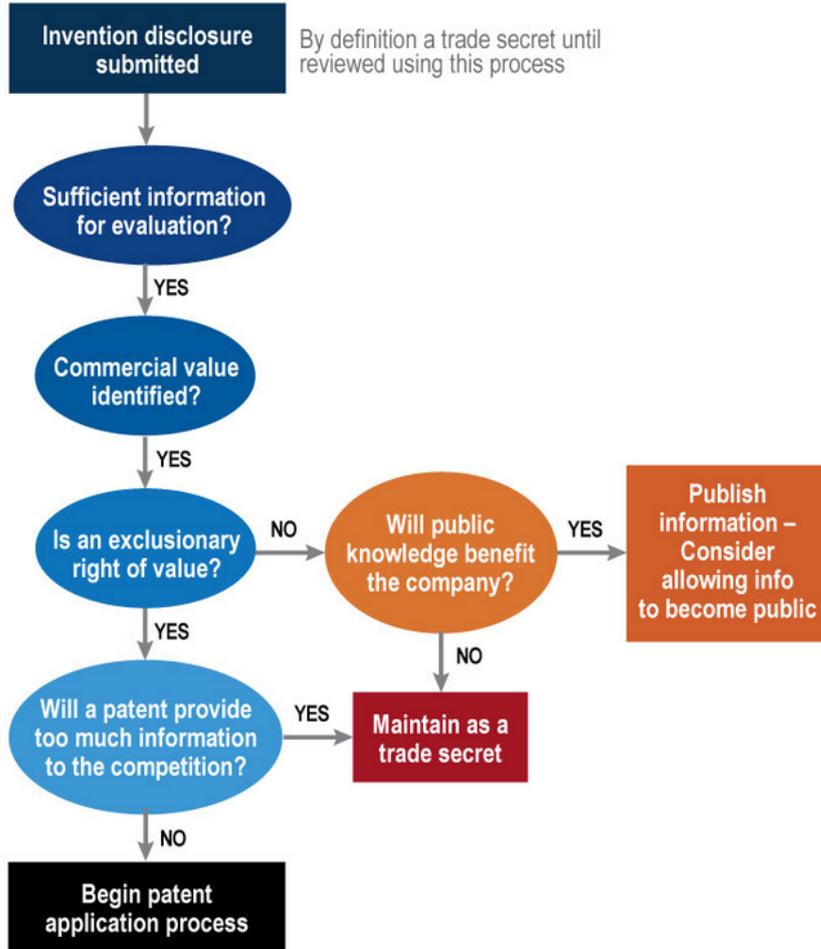
Environmental Impacts

- Many States require an environmental impact statement for any large activity that may change the environment.
- Project Skywater Environmental Impact Statement (EIS)
 - The Bureau of Reclamation completed work in 1977, which is one of the most complete EIS for a weather modification project.
 - The study examined a number of possible effects and a draft of the document was circulated to a number of organizations for additional comments.

Environmental Impacts

- Many States require an environmental impact statement for any large activity that may change the environment.
- To accurately assess an environment impact, there is a need to know the exact chemical components of seeding material released.
- Cloud seeding market is relative small; hence, companies don't patent but keep as trade secret.

Trade Secret Versus Patent: Decision Tree



- Patent likely would provide information for others to copy the product?
- The benefit of public release.
- Environmental Impacts Assessment

Effects of Silver Iodide (AgI)

- Silver iodide, like most silver compounds, is insoluble in water.
- Therefore, it is difficult to get silver iodide into the food chain or to get it absorbed into any living organism.
- The quantity of Silver Iodide released is also quite small relative to the project area; hence, the effects on the environment are small.
- Seeding agents represent negligible environmental hazards (Klein 1978).



Image Credit:
David Delene - 2025/01/23

Redistribution of Precipitation

- Does rainfall is increased or decreased as a result of seeding, both within and outside the target area.
- Most current evidence supports slight net increases in precipitation both within and downwind of project areas (DeFelice et al 2014).
- Many projects collect data to evaluate this aspect of a weather modification program.

Effects on Vegetation and Animals

- Project Skywater looked at the additional moisture on the natural vegetation.
 - Different areas were affected differently, but the effects on the short term were small.
- The effects on animal life were less pronounced, but there would be changes possible, largely as a result of the vegetation changes.
- Effects tend to be a long term effect and not noticeable on the short term.

Erosion and Adverse Effects

- Additional precipitation would result in additional runoff, especially in the case of winter programs.
- The additional runoff would cause more erosion, especially in mountainous terrain.
- Result in enhancement of an ongoing process.
- Some people will benefit more than others and some may find weather modification undesirable.
- Some examples are snow removal, loggers, and recreational industries.