# Purpose

- **To determine if leaching of arsenic-laden adsorptive media in municipal landfills is a concern.**

- **Is it possible that arsenic could leach from landfills into groundwater supplies and affect residents?**

Algorithm

1) Find communities with >10 ppb arsenic
   - **Preferably small since it will be easier to compile data**
   - **ADEQ – Arsenic Master Plan**

2) Find the geographic population distribution
   - **Topographic maps, Census data**

3) Estimate arsenic residual mass in landfills
   - **Discussed in detail in following slide**

4) Estimate groundwater flow
   - **Groundwater maps, SWAP (Source Water Assessment Program)**

5) How much of the population does it affect?

ADEQ – Arsenic Master Plan

Arsenic in Arizona
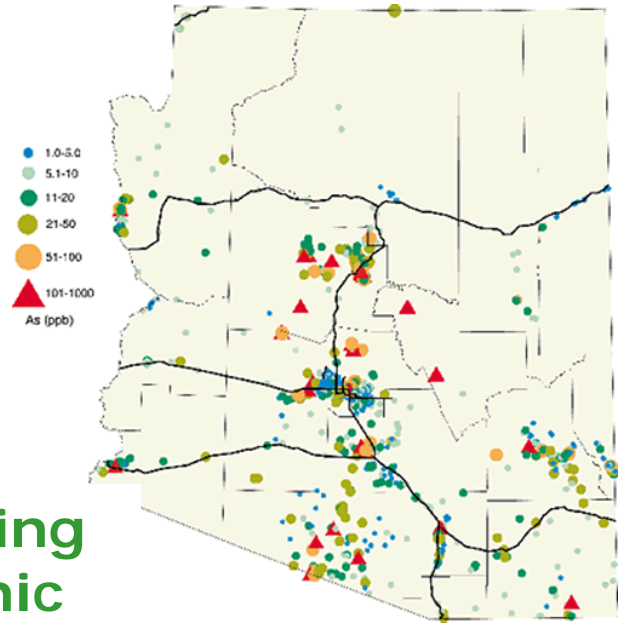
Summary of Small Water Systems Serving <10,000 Persons With Maximum Arsenic Levels >10 ppb

System ID	Average Population Served	System Type	POE ID	Maximum Arsenic Conc. >0.010 mg/L
02005			001	0.011
02367	50	CO	001	0.025
03067	220	CO	001	0.040
04342	200	CO	001	0.013
07008			001	0.014

Estimate arsenic residual mass in landfills

- **Using EPA Data of:**
  - System Size,
  - Number of Systems with >10 ppb arsenic,
  - and assumptions of water use (per capita)
    - **Find Annual As Mass Removed**
- **Using residuals generated per million gallons (from literature):**
    - **Find Annual Mass Residuals**
- **Using assumed values of:**
  - Liters of leachate per kg of waste (per lifetime)
  - kg of waste generated per capita per year
    - **Find Leachate Production**
- **Using:**
  - Arsenic deposited/mobilized in landfill and leachate generated
    - **Find Leachate Concentration**

Example Community

Rimrock

- **Average Arsenic** 20-54 ppb
- **Population** 3,200
  - Scattered
- **County Landfill –** Gray wolf in Dewey, AZ
- **Groundwater flow** SE from Dewey

Gray wolf Landfill in Dewey

Groundwater Flow

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Current Progress and Next Steps…

- **Looked at three communities:**
  - **Ajo, Rimrock, and Green Valley**

- **Would like to return to ADEQ >10 ppb small community list for similar communities to Ajo**

- **When we are comfortable with the algorithm, we would like to apply elsewhere to get a more representative data base**

- **Is there any way you can help?**