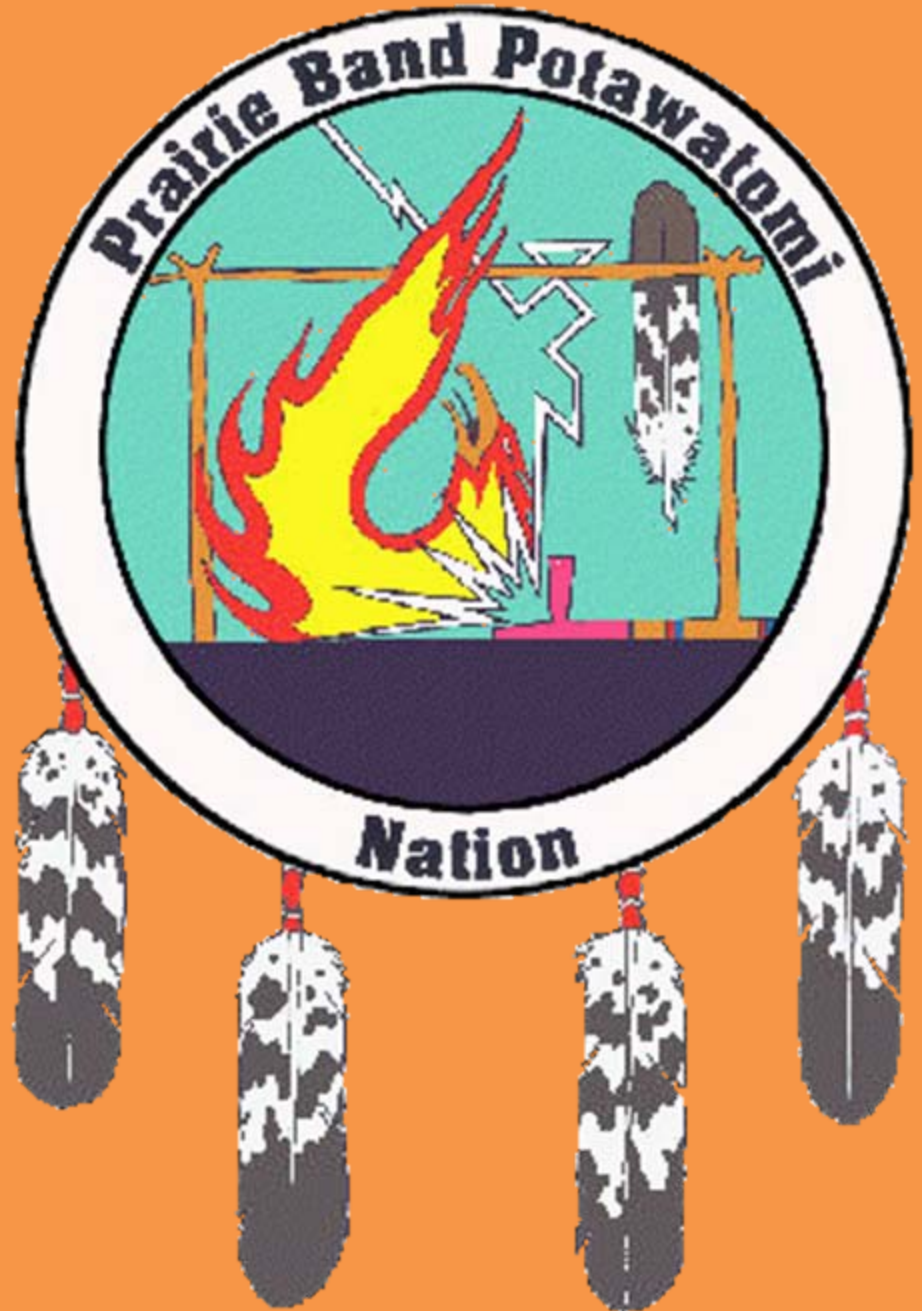


Prairie Band Potawatomi Nation

Water Quality,
Sustainability, and
Sovereignty

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Prairie Band Potawatomi Reservation

- Located 20 mi north of Topeka.
- Approximately 121 square miles
- Drained by three major creeks.
 - Soldier
 - Little Soldier
 - South Cedar
- Ground water available.
 - The potential of developing a sustainable ground-water supply is important as the tribe expands commercial enterprise and development.

Potential Water Problems

- Non-point source
 - Runoff from agricultural lands
- Point source
 - Septic systems, sewage lagoons
 - Three documented wastewater facilities

Federal Clean Water Act

- “An Indian tribe is sovereign for the purposes of delegating the authority to regulate water within reservation boundaries.”





USGS Project



- Began in 1996 with a ten-year agreement.
- Establish water-quality standards for the reservation to help manage resources.
 - Improve and sustain water quality for future generations.
- Assess treatments needed before ground water can be used as the primary municipal water source on the reservation.
 - Increase tribal sovereignty.
 - Currently buy water primarily from Jackson County RWD #3.



USGS Project



- Surface water parameters:
 - Physical properties, dissolved solids, major ions, nutrients, trace elements, pesticides, fecal-indicator bacteria, suspended-sediment concentration, and total suspended solids.
- Ground water parameters:
 - Physical properties, dissolved solids, major ions, nutrients, trace elements, pesticides, fecal-indicator bacteria.
 - Chemical oxygen demand and volatile organic compounds (VOCs) analyzed in two wells.
- Analyzed against USEPA regulations.

Primary Findings

- Surface water:
 - Total phosphorus
 - Attributed to agricultural activities (common fertilizers), and human/animal waste.
 - Increased at site LSC06 after 1998.
 - May contribute to eutrophication of water bodies.
 - Triazine herbicides
 - Detected frequently, but did not exceed USEPA criteria as an annual average.
 - Fecal-indicator bacteria
 - Indicates fecal contamination.

Primary Findings

- Ground water:
 - Dissolved solids
 - Sodium
 - Dissolution of sedimentary rocks
 - Road salts, seepage from septic systems, by-product of water treatment
 - Sulfate & Chloride
 - Boron
 - Essentially conserved during wastewater treatment
 - Iron
- Probably affected by agricultural runoff, and dissolution of sedimentary rocks.

Two Sites of Concern

- LSC06
 - Dissolved solids
 - Sodium
 - Sulfate
 - Chloride
 - Phosphorus and other nutrients
- MW03
 - Dissolved solids
 - Sodium
 - Sulfate
 - Chloride
 - Boron
 - Iron

Now what?

- Research has concluded.
- The tribe will decide what to do with the results.
- In the event that ground water on the reservation is to be used as a drinking-water source, additional treatment may be necessary to remove excess dissolved solids, sulfate, sodium, chloride, nitrates, and arsenic.
- Casino revenues.
 - Sharing treatment cost with RWD #3.
 - Reverse-osmosis plant.

Issues for Future Research

- Quantity of water on the reservation.
 - Level of in-stream flow.
 - Secure fishing and irrigation resources for future generations.

Information is available

- Reports are available from USGS:
 - SIR available on Web at <http://pubs.usgs.gov/sir/2007/5201>
 - Fact sheet (summary of principal results) available on Web at <http://pubs.usgs.gov/fs/2007/3083>