





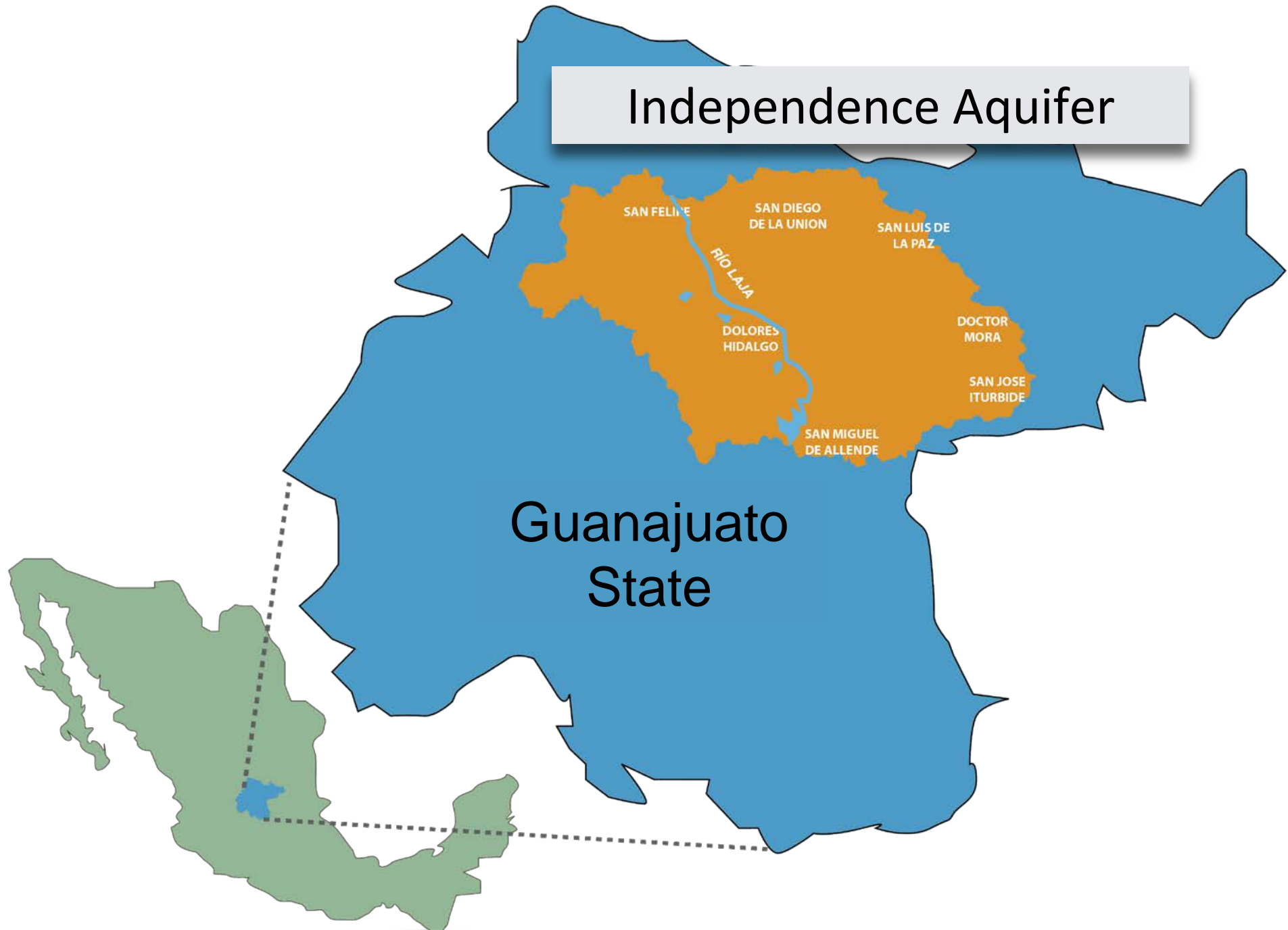








Independence Aquifer



Guanajuato
State

SAN FELIPE

SAN DIEGO
DE LA UNIÓN

SAN LUIS DE
LA PAZ

RÍO LAJA

DOLORES
HIDALGO

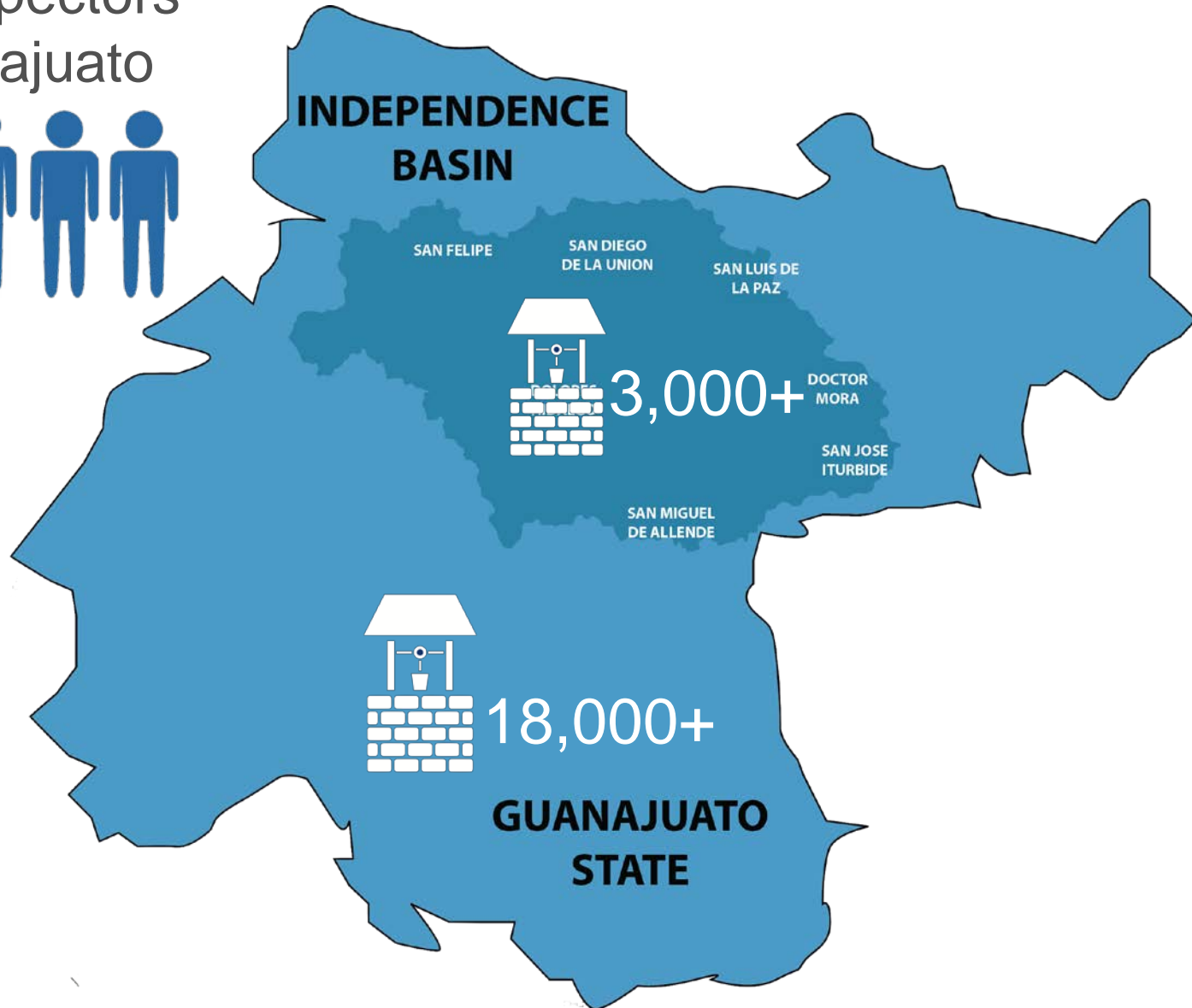
DOCTOR
MORA

SAN JOSÉ
ITURBIDE

SAN MIGUEL
DE ALLENDE



CONAGUA Inspectors for all of Guanajuato



Broccoli Production

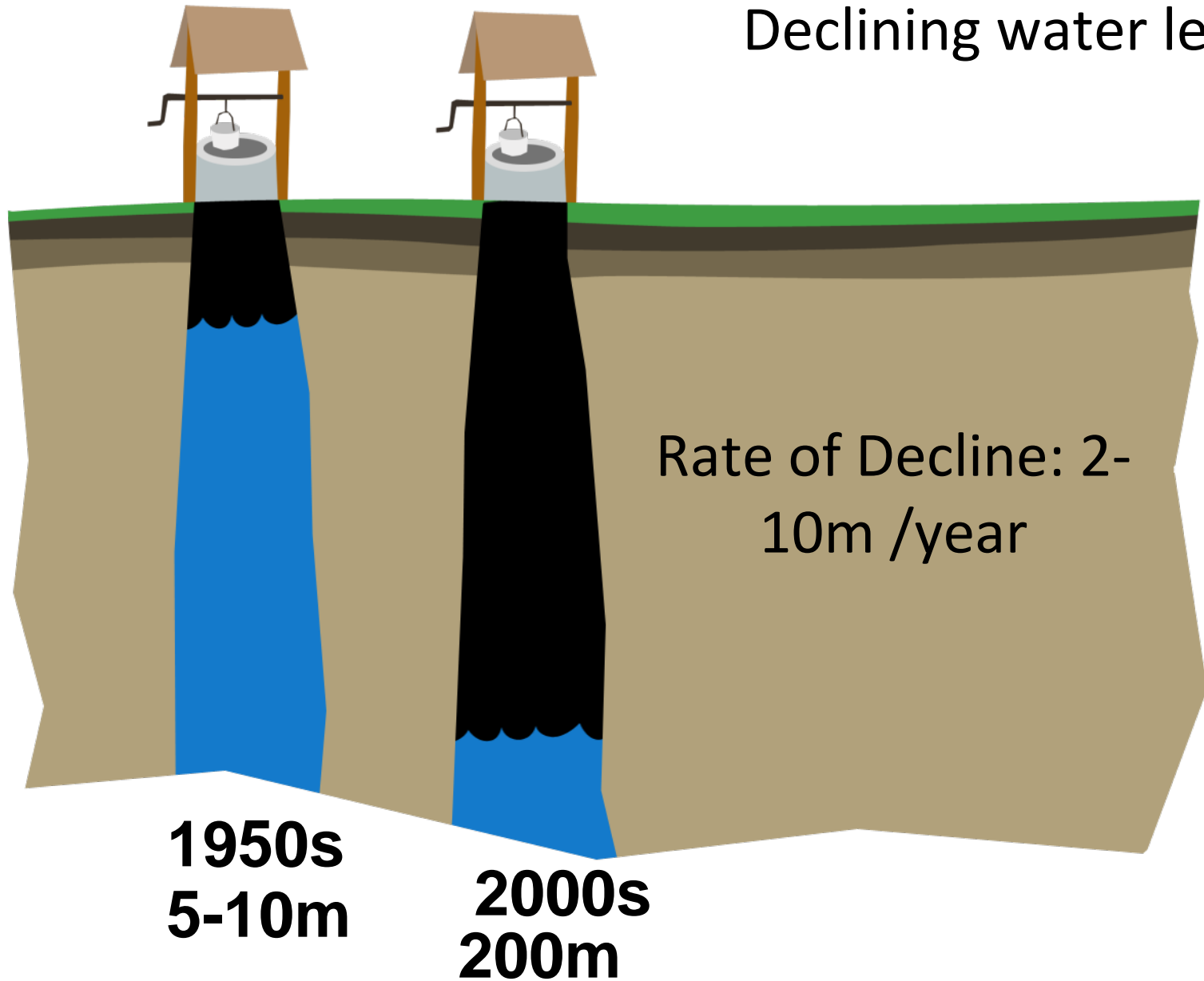


Average:
285 L/Kilo

Guanajuato:
1,500 L/Kilo



Declining water levels



Current Water Situation



Water Sources and Supply





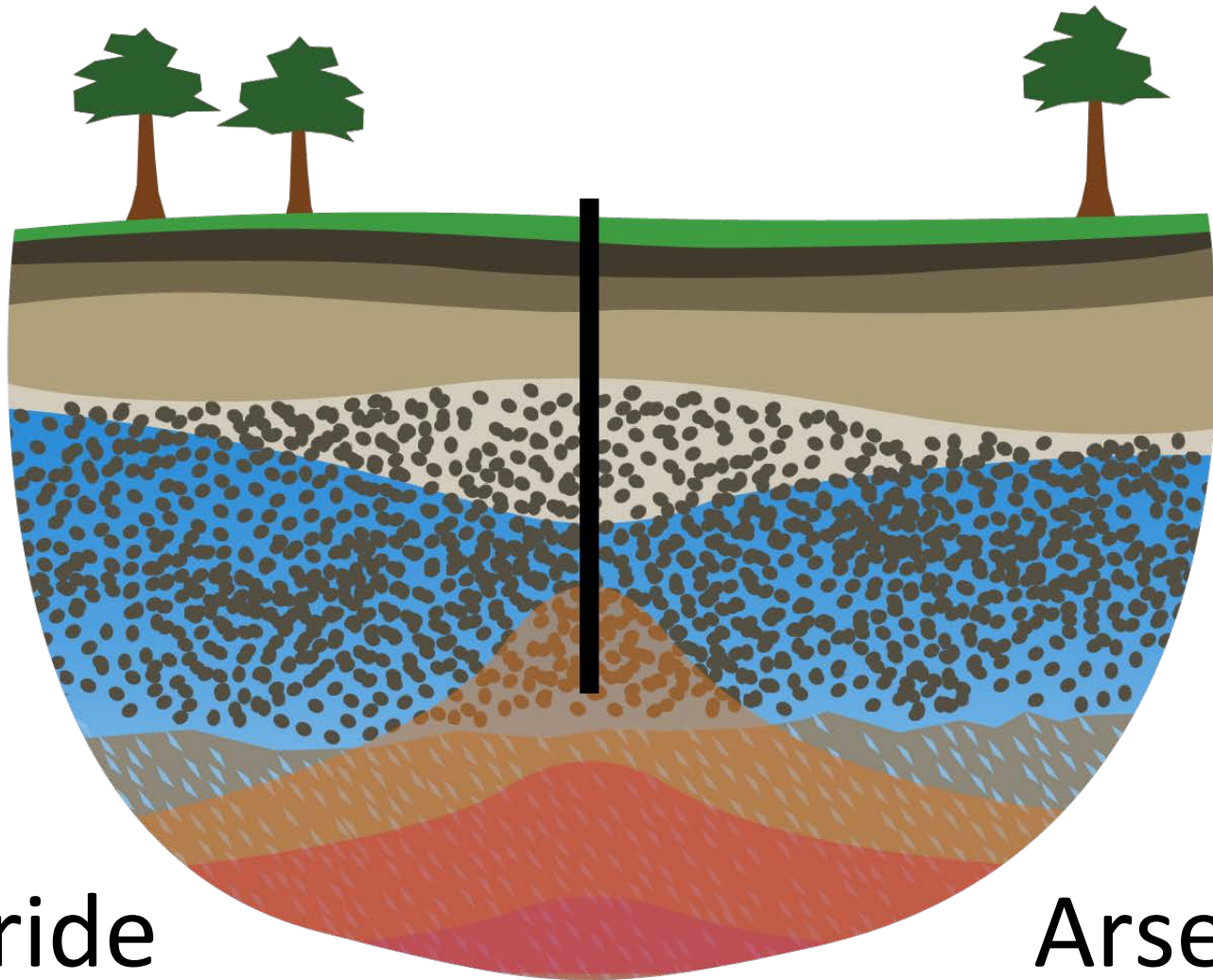
Promoting healthier more prosperous lives
through practical sustainable solutions.



Camino de Agua
**Ceramic Water
Filter System**



Migration of fossil water



Fluoride

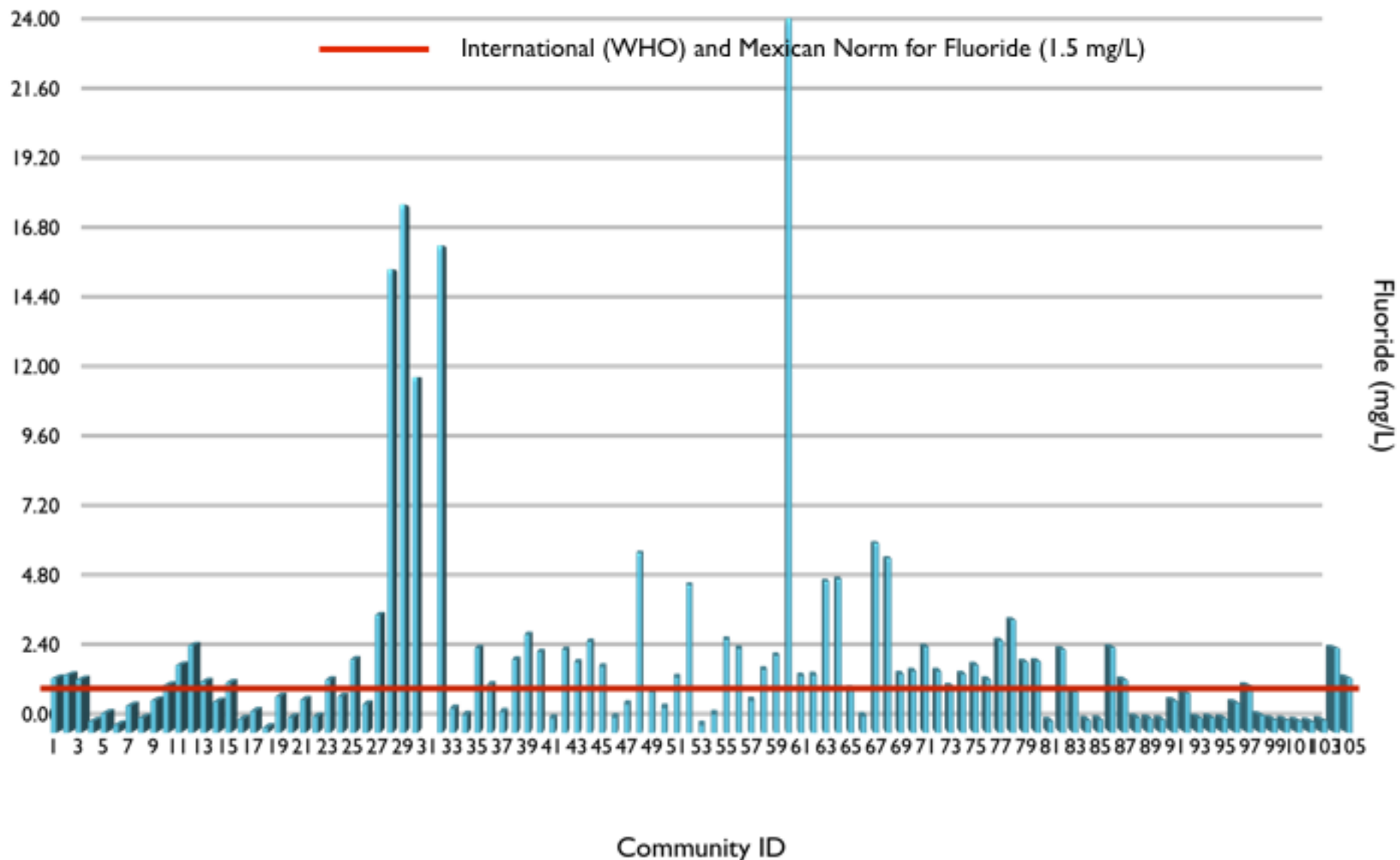
Arsenic

Quality of well water

Contaminant	Units	WHO Guideline	San Antonio	% Above WHO
Fluoride	mg/L	1.5	23.4	1,560%
Arsenic	μg/L	10*	72.7	727%

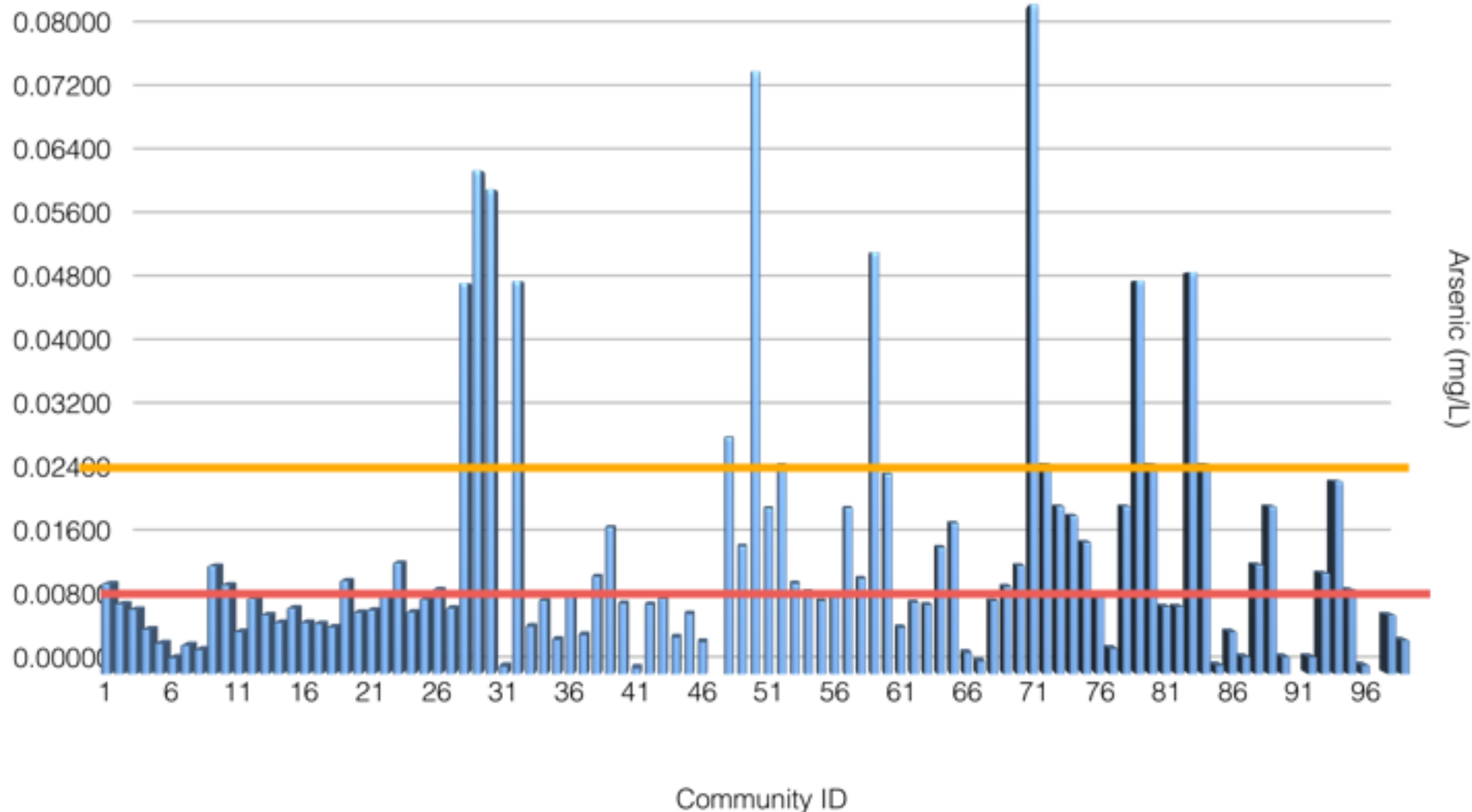


Fluoride Contamination in Community Wells of the Alta Río Laja and Laguna Seca Sub-basins



Arsenic Contamination in Community Wells of the Alta Río Laja and Laguna Seca Sub-basins

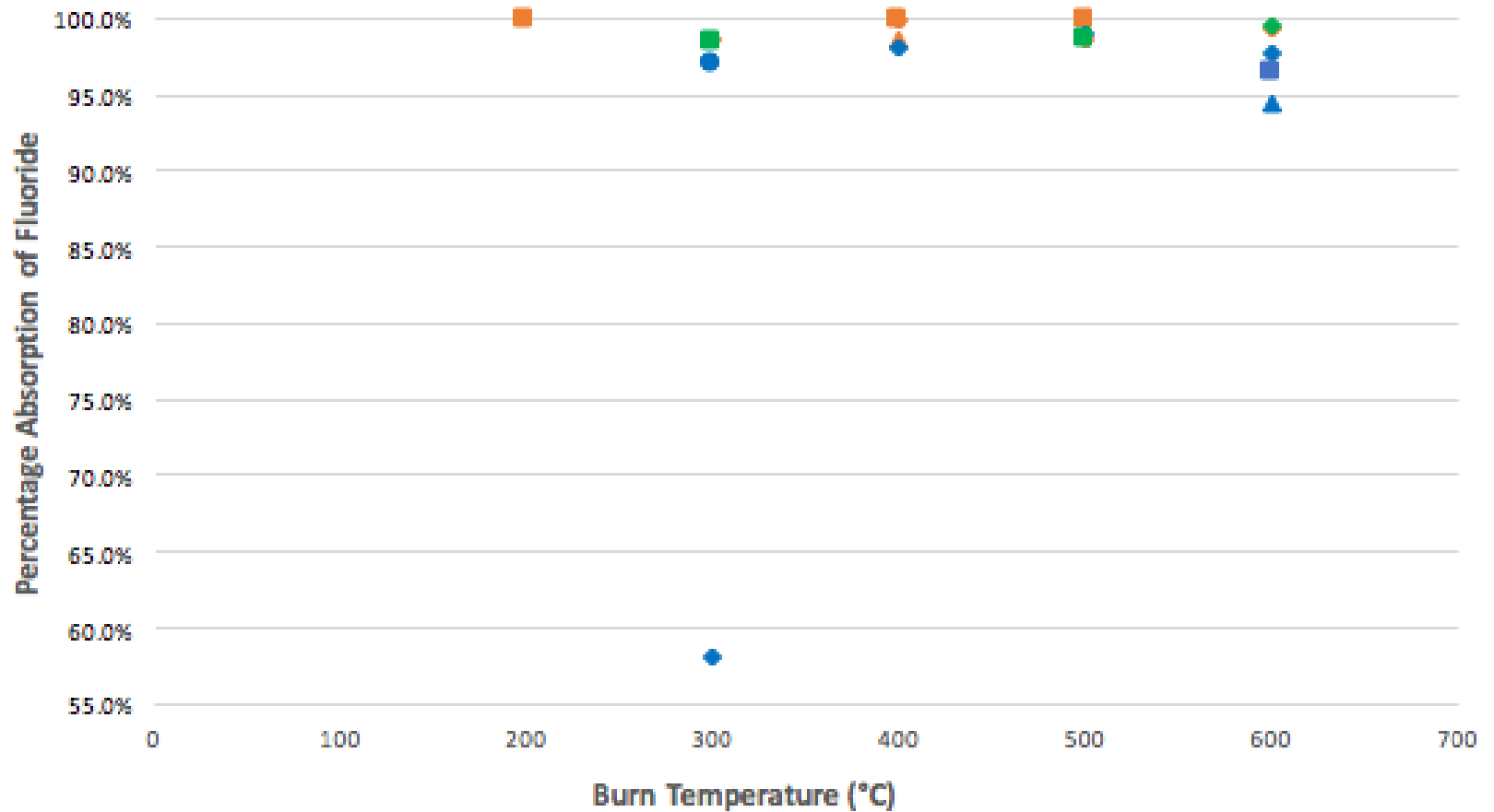
- WHO Recommendation (0.010 mg/L or 10 µg/L)
- Norma Mexicana de Arsénico (0.025 mg/L)





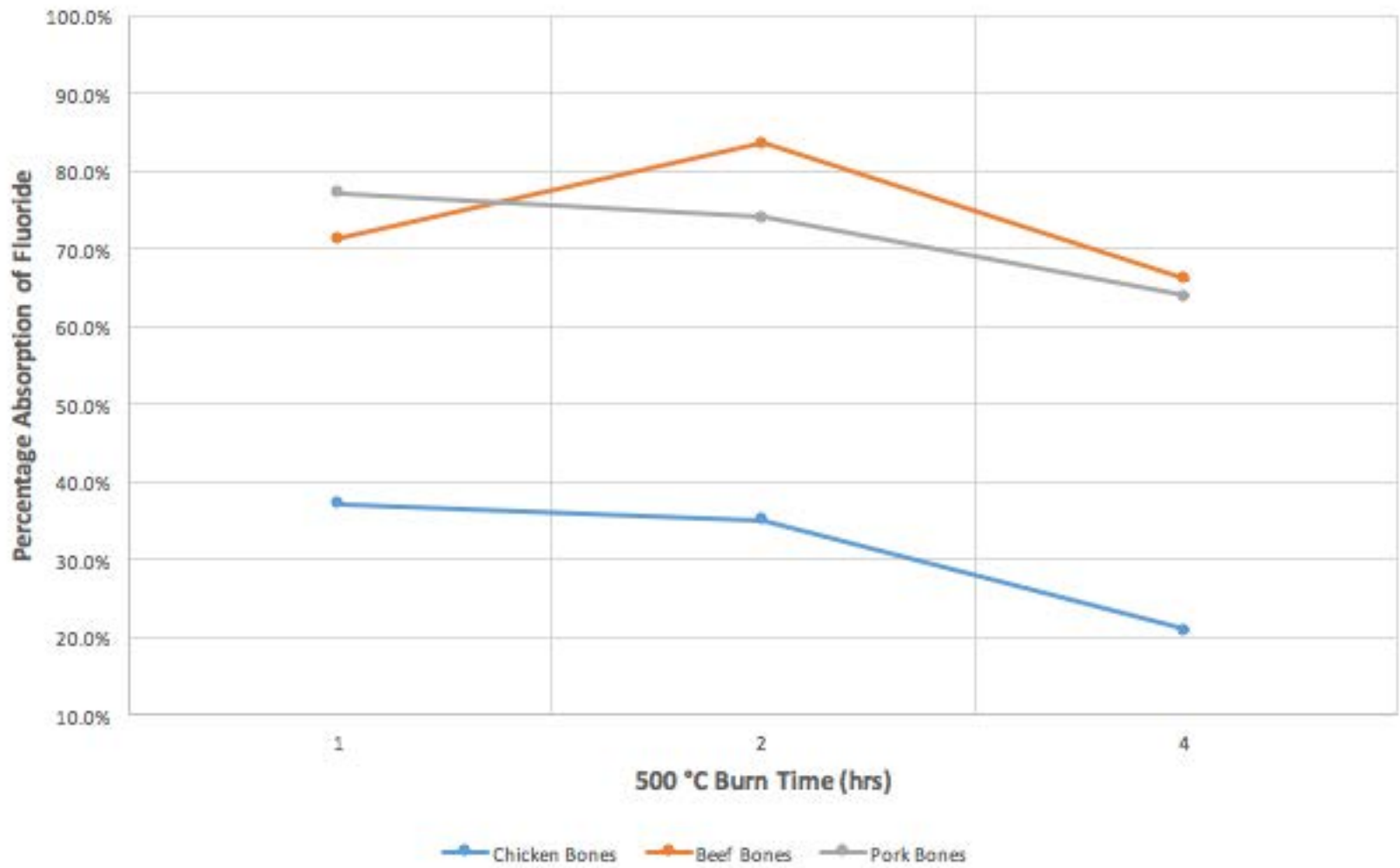
Fluoride Removal Comparison: NIU Laboratory Results of Caminos Bone Chars

3g BC / 40ml fluorinated water (initial starting concentration 9.63 - 9.75 mg/L), mixed 3x, 24hrs



- ◆ Pork Bones: 1hr Burn
- Pork Bones: 2hr Burn
- ▲ Pork Bones: 3hr Burn
- ◆ Chicken Bones: 1hr Burn
- Chicken Bones: 2hr Burn
- ▲ Chicken Bones: 3hr Burn
- Chicken Bones: 4hr Burn
- ◆ Beef Bones: 1hr Burn
- Beef Bones: 2hr Burn

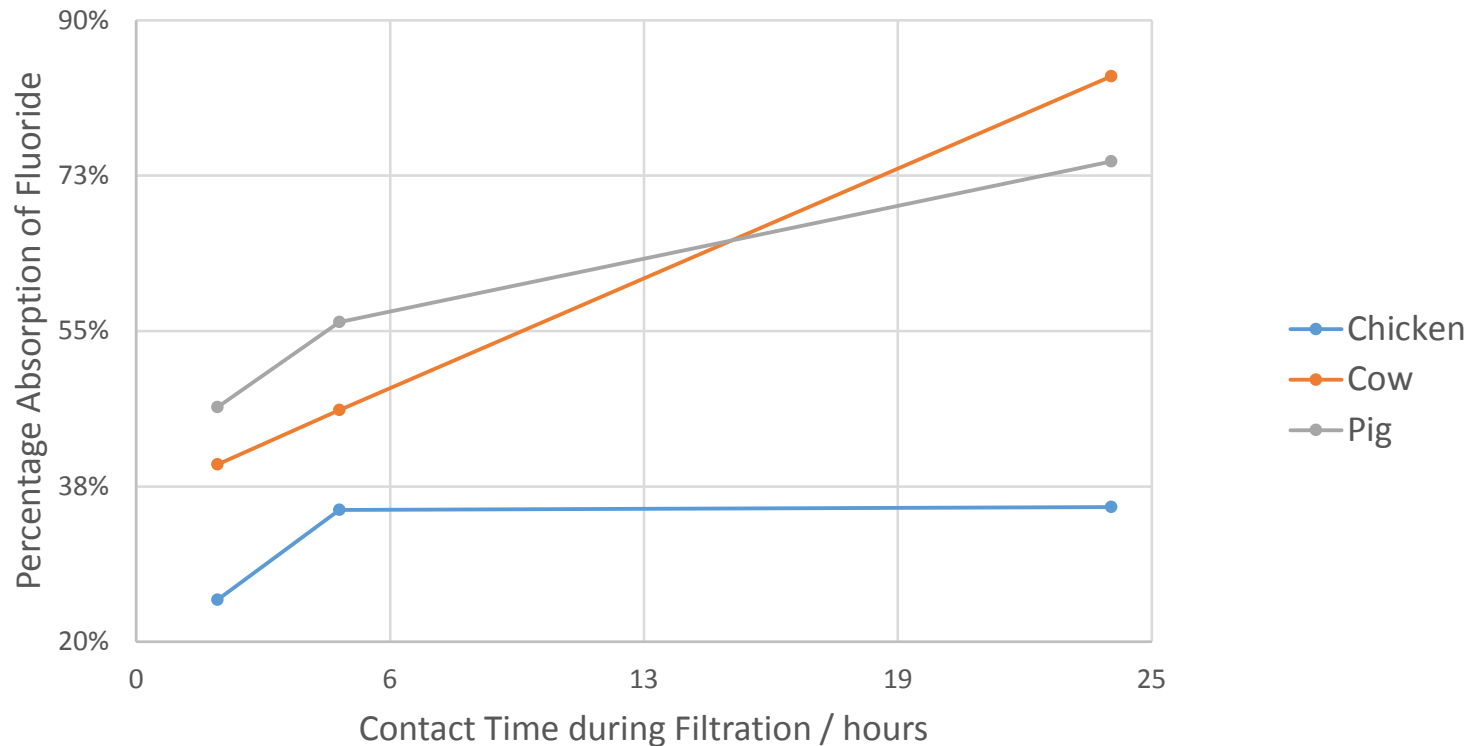
Bone Char Fluoride Adsorption Comparison 500 °C Burns at 1, 2, & 4 Hours



Effect of contact time

These Caminos de Agua absorption tests also show the **importance of contact time on Fluoride absorption.**

Effect of Bone Type and Contact Time during Filtration on Fluoride Absorption Capacities of Bone Char Filters (500°C burn temperature, 2 hour burn time) - Caminos de Agua Tests



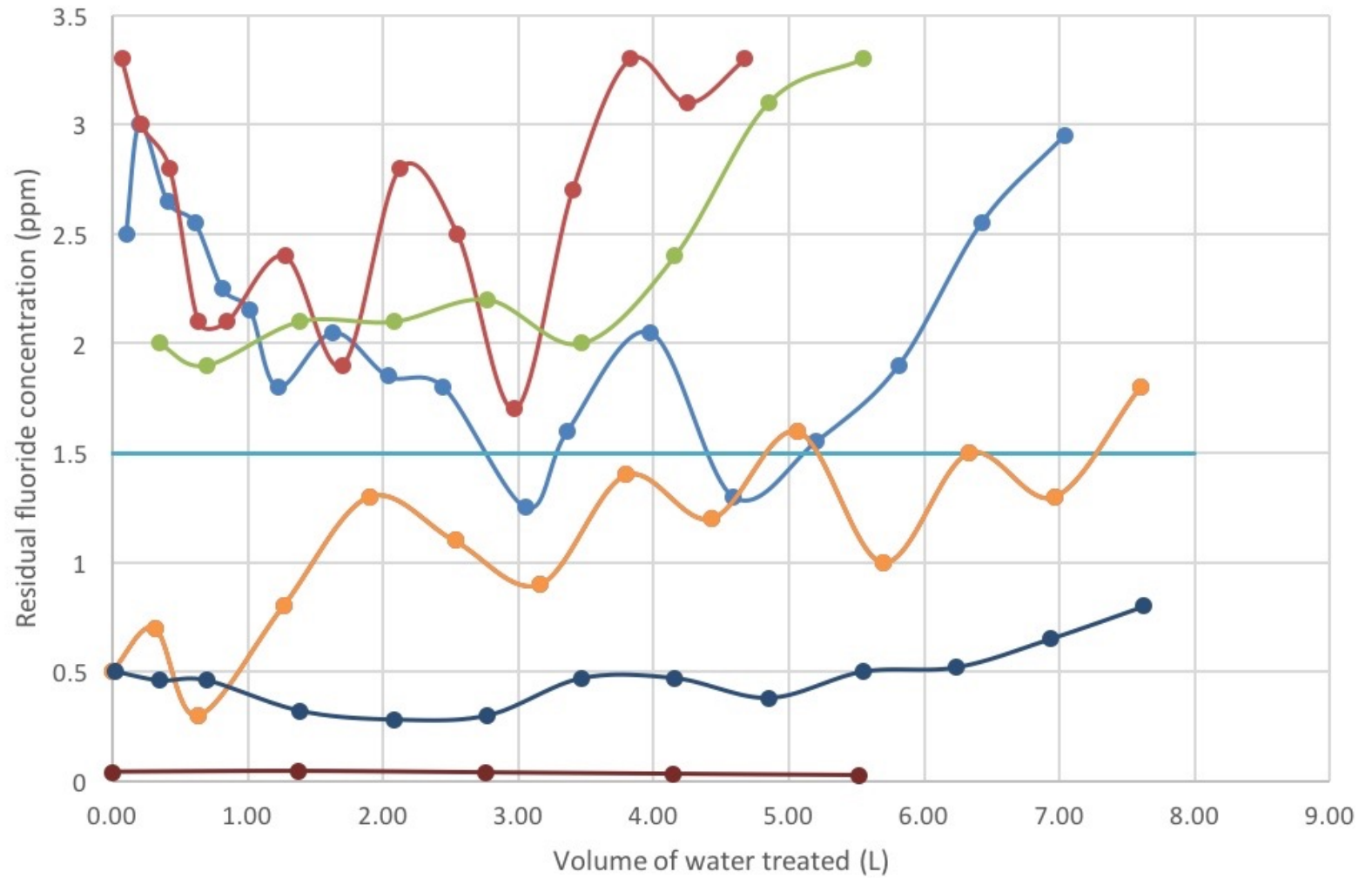
Comparison with commercially-bought char

- The bone chars produced by Caminos de Agua and tested by NIU (under lab conditions) had an **average Fluoride adsorption of 96.4%**.
- This is compared to an average adsorption using commercially-available bone char bought online, tested under the same conditions, of just 76.4%.

Effect of using real community water

Fluoride adsorption percentage (500C at 2 hours, 24 hour contact time)	NIU	CDA
Cow bones	98.5%	83.7%
Pig bones	99.8%	74.1%
Chicken Bones	96.3%	35.2%

Caminos de Agua Bone Char Column Tests



- Char 1
- Char 2
- Char 3
- Char 4
- WHO limit
- Char 5
- Char 6
- Char 5 Treated*

Combustion Chamber

Fuel Chamber filled with wood chunks



Retort containing animal bones

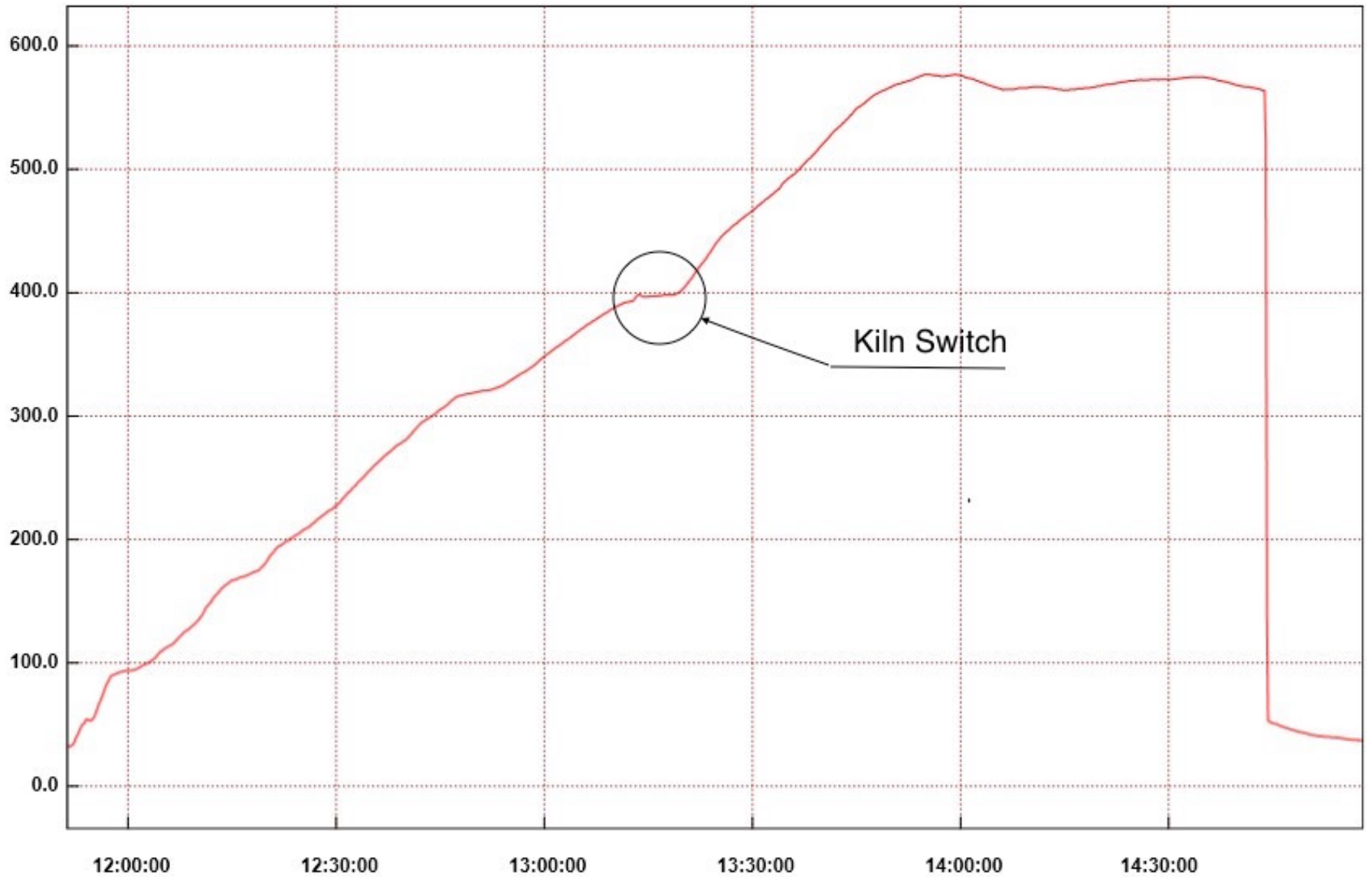








Bone Char Produced in Two TLUD-K Burns





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