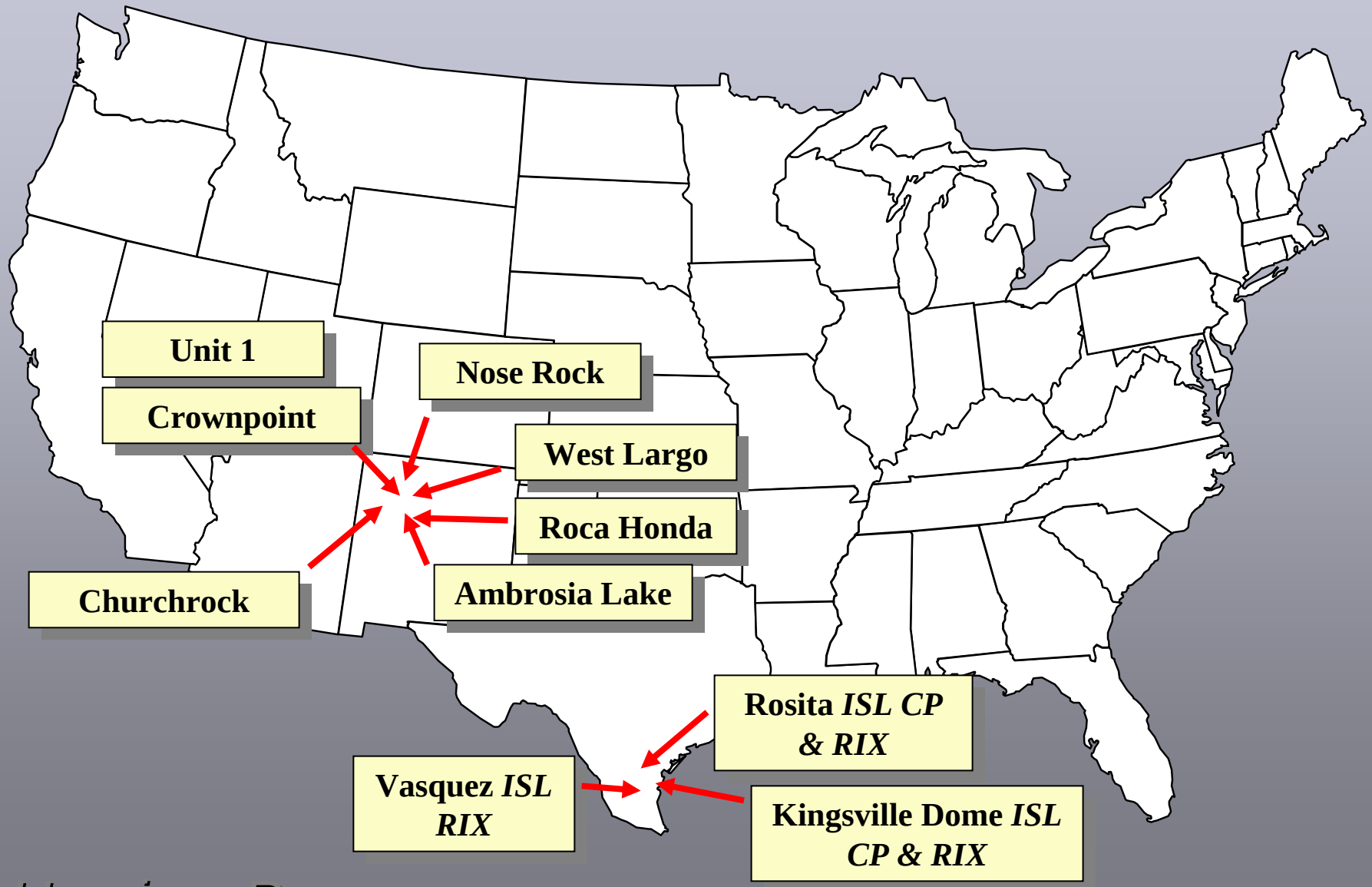
Uranium Resources, Inc's Projects in the Grants Mineral Belt New Mexico

NRC/NMA Workshop Sidebar
May 14 2007

OPERATIONS, PROJECTS, PROPERTIES



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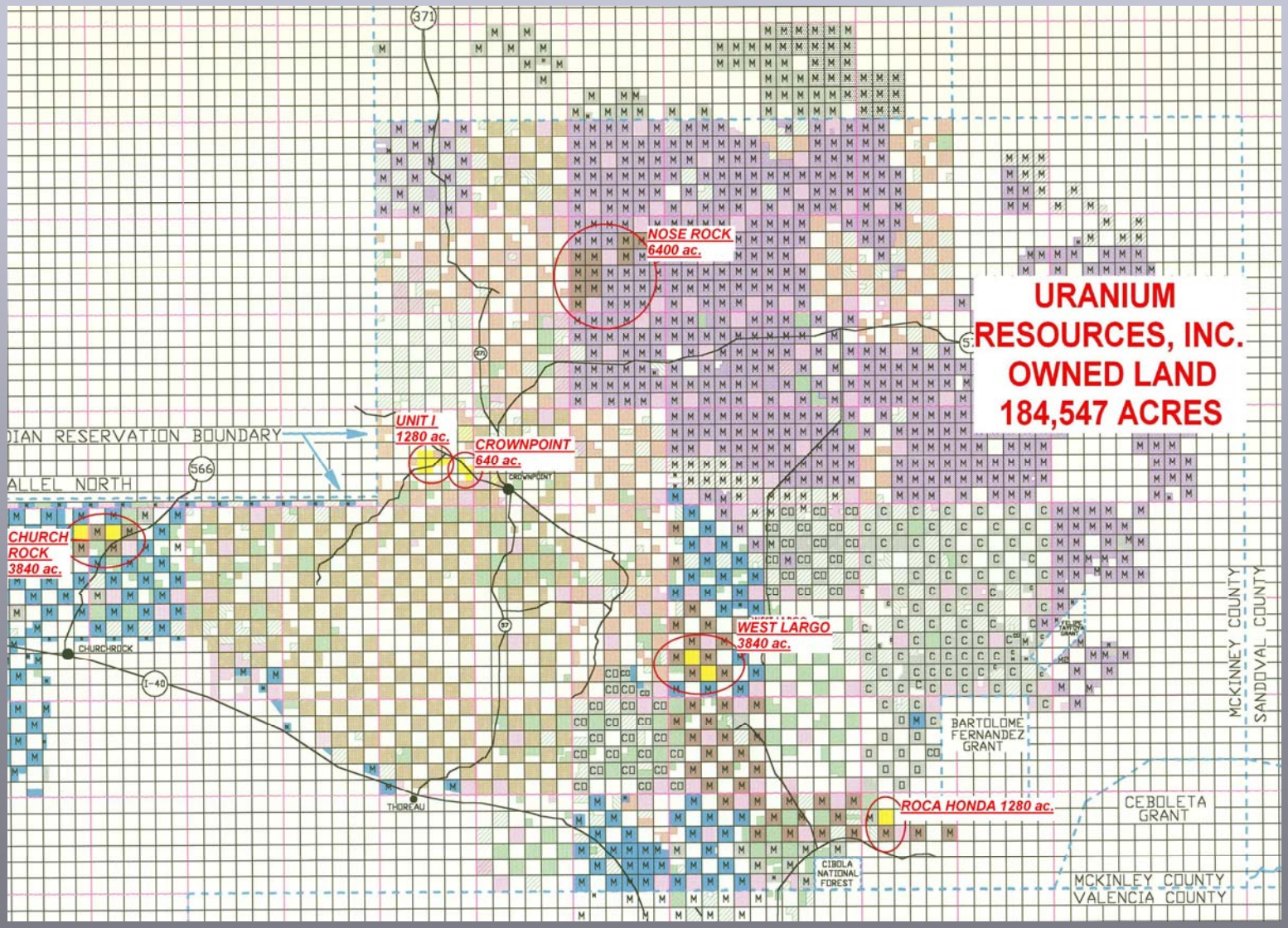
THE NEW MEXICO CHECKERBOARD`



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CONVENTIONAL IX PROCESS

- Water from multiple mining areas are mixed, large process plant
- Larger deposits needed
- Longer pipeline runs may mean higher pressures - higher electrical costs

REMOTE ION EXCHANGE (RIX)

- Each wellfield is mined with its own water.
- Shorter pipeline runs equate lower electrical consumption.
- Instead of pumping water to the mother plant, the resin is loaded with uranium in the field and trucked.

- Individual RIX units have a small footprint, are semi portable, are of standard design and are low cost.
- Minimal environmental impact = faster licensing.
- Low cost = exploitation of small deposits.

SAME CENTRAL PLANT PROCESSING

Resin is eluted via brine & is loaded back into the trailer for the trip back to mine.

ISR WELLFIELD

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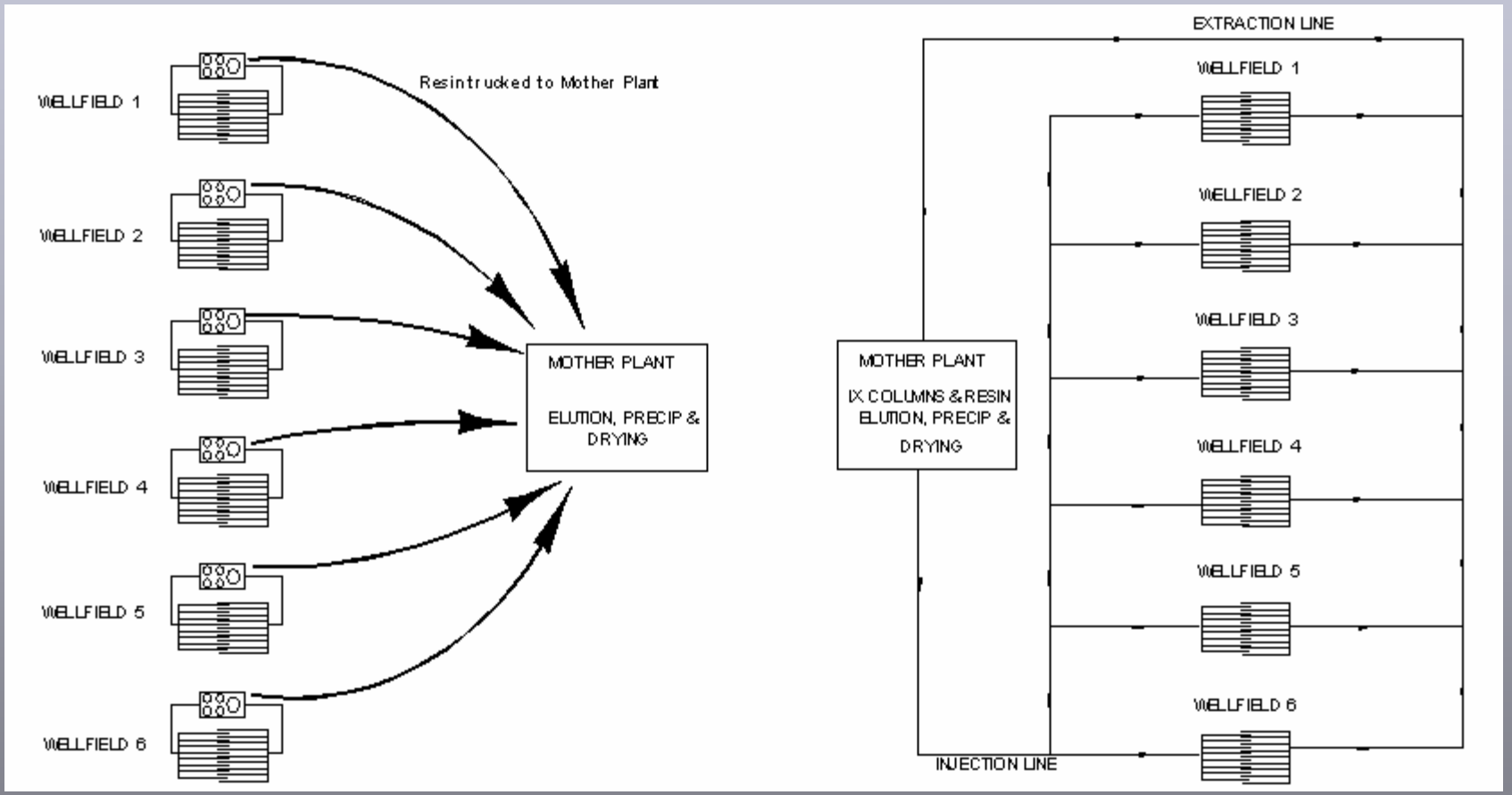
ION EXCHANGE (IX)

$$Na_2UO_2(CO_3)_2 + 2RCl \rightarrow R_2\,UO_2(CO_3)_2 + 2NaCl$$

CONVENTIONAL VS. RIX



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THE RIX

- Pregnant solutions from the wellfield are loaded onto ion exchange resin in columns at the mine.
- When fully loaded with uranium, the column is taken off line and the loaded resin is transferred from the column to a resin trailer.

- Clean resin that was brought from the mother plant is loaded into the column just emptied and the column is put back on line.
- The loaded resin is drained and hauled to the mother plant for stripping.

RESIN TRANSFER FROM RIX

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RESIN PREP FROM RIX

Resin that is delivered to the central plant also contains formation sand and scale.

The resin is physically clean by washing.

ELUTION/PRECIPITATION

$$R_2UO_2(CO_3)_2 + 2NaCl + Na_2CO_3 \rightarrow Na_4UO_2(CO_3)_3 + 2RCl$$

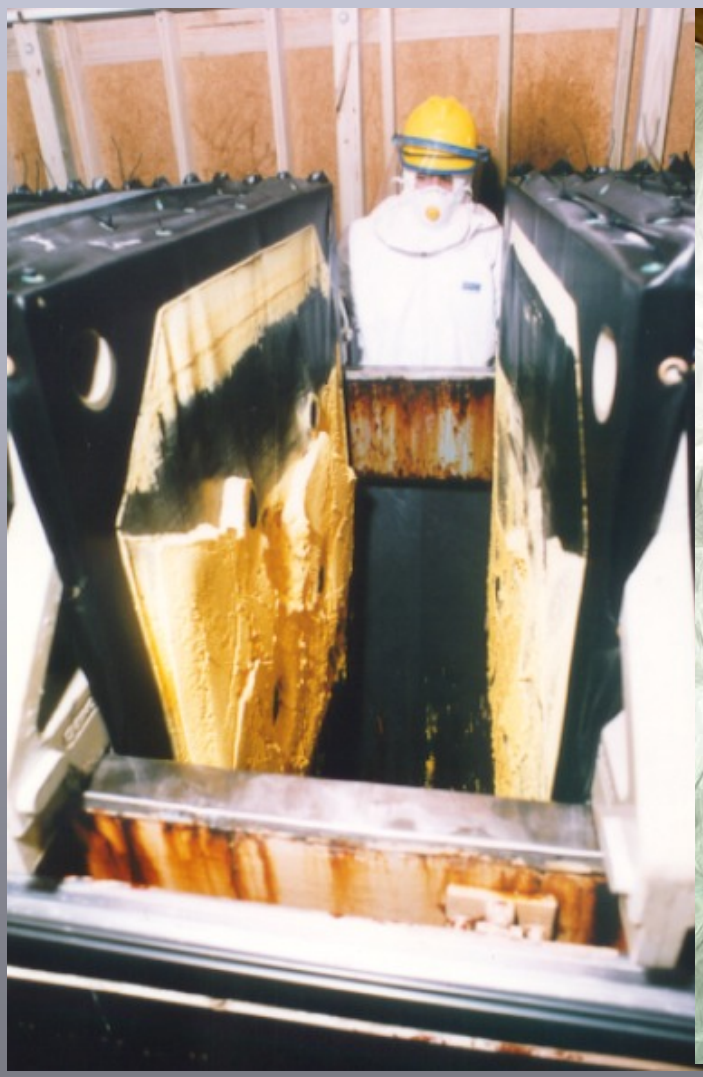
$$Na_4UO_2(CO_3)_3 + 6HCl \rightarrow UO_2Cl_2 + 4NaCl + 3CO_2 + 3H_2O$$

or

$$Na_2UO_2(CO_3)_2 + 4HCl \rightarrow UO_2Cl_2 + 2NaCl + 2CO_2 + 2H_2O$$

$$UO_2Cl_2 + H_2O_2 + xH_2O \rightarrow UO_4\ xH_2O + 2HCl$$

FILTRATION



DRYING

Product is dried in zero emissions food-quality vacuum dryer.

Yields uranyl trioxide (yellowcake, U_3O_8).

PACKAGING

Yellowcake is packaged in 55 gallon drums and shipped to converter in exclusive use carriers.