

INTER-OFFICE MEMORANDUM

SUBJECT: Mixing calculations for Tuscarora and McCoy,
Nevada and Grandview East, Idaho

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TO: W. M. Dolan & H. J. Olson

FROM: Frank Dellechaie

Tuscarora

The Cl-SiO₂ - enthalpy (boiling water) mixing model was employed in minimum temperature calculations (Table 1). The 216°C minimum temperature is slightly higher than the Na-K-Ca subsurface temperature as would be expected with a 54 percent cold water fraction.

McCoy

The SiO₂ - enthalpy (warm water) mixing model applies at McCoy while the boiling model does not. The model indicates a minimum equilibrium temperature of 186°C with an 85% cold water fraction. It must be emphasized that the quantitative significance of the mixing calculations decreases rapidly as the cold water fraction increases. Analysis of other thermal waters from the prospect would lend a clearer understanding of the thermal fraction. Little more can be said at this point.

Grandview East

The warm water mixing model was used to calculate minimum temperatures. The cold water fraction is very high in all cases. The minimum temperatures have been lower by 14 to 17 percent from the quartz temperatures to reflect equilibrium with chalcedony. All waters listed (Table 1) fit the criteria of mixed waters.

Table 1. Minimum subsurface temperatures and other calculations for three AMAX prospects.

<u>Sample Name & Number</u>	<u>Surface T°C</u>	<u>Depth(m)</u>	<u>TSiO₂°C</u>	<u>TNa-K-Ca°C</u>	<u>TMin°C</u>	<u>X Cold</u>
<u>Tuscarora</u>						
Hot Sulfur Springs Geyser W 10828	95	--	149	209	216	54%
<u>McCoy</u>						
McCoy Hot Well W 10981	39	75	96	153	186	85%
<u>Grandview East</u>						
W 11513 1T6SR7E	41	305	120	138	203	88%
W 11521 10T7SR4E	37.5	350	137	198	238	91%
W 11528 23T7SR4E	38.5	247	135	188	234	91%
W 11534 8T7SR5E	40	457	132	183	233	90%

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