

Analysis of Brine Samples

Transcribed from Division of Water microfiche which isn't that clear.

Constituent mg/l	WV Brines Range	WV Brines Mean	Reported Range WV, OH, PA
TDS	90,420-323,700	218,600	80,000-373,000
pH	2.72-6.14	4.3	4.4-6.5
Chloride	57,510-192,420	128,600	52,500-190,840
Sodium	29,130-82,240	52,740	37,150-75,000
Calcium	5,470-57,900	31,310	8,790-49,000
Magnesium	645-4,950	3,200	1,900-10,000
Potassium	30-3,310	590	122-8,200
Iron	28-750	276	2-560
Sulfate	<5-547	163	0-1,100
Barium	1.3-2,500	545	0-1,150
Ammonia	11-386	51	7-450
TOC	6-45	29	NA
Cadmium	<0.01-1.627	0.365	<0.1-6.0
Chromium	<0.06	<0.06	<0.1-0.7
Arsenic	0.138-0.457	0.263	NA
Lead	1.583-6.100	3.360	<0.1-6.0
Zinc	0.212-1.739	0.619	0-13

Comparison of Project Brine Concentrations

Adapted from White (1983), Melvin (1983), Poskins (1947), Poth (1962), Nichols (1982), Stith (1975), Young (1982)

The range and average value for each test parameter are given in table. While the average values are presented in each case, the average concentrations are not felt to be very meaningful for parameters such as for barium where variations in various levels between brines from different formations are very large. Table also presents a range of values reported for brines in West Virginia, Pennsylvania and Ohio. It should be noted that the range given is not meant to be comprehensive, but represents a sampling of brines with TDS greater than 80,000 mg/l which were judged to be typical brines produced in the three states. The constituents determined were divided into four main groups: (1) general parameters -- total dissolved solids (TDS) and pH; (2) major constituents -- chloride, sodium, calcium, magnesium, and potassium; (3) minor constituents -- iron, sulfate, barium, ammonia, and total organic carbon (TOC); and (4) trace constituents -- zinc, cadmium, arsenic, lead and chromium.