SIMON
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September 25, 1991

Mr. Wayne Price
Staff Engineer
Regulatory/Environmental Affairs
Unichem International Inc.
P.O. Box 1499
Hobbs, New Mexico 88241

Subject: Carlsbad Brine Well Collapse and Subsidence Investigation
Simon Environmental Services Project No. 502-939-01

Dear Mr. Price:

Per your request, we have investigated the collapse/subsidence
potential at the Carlsbad brine well. Based on that investigation,
the likelihood that collapse and/or subsidence will occur due to
future brine extraction at the Carlsbad well is low.

Our conclusion is based upon application of the model developed by
Lee Wilson and Associates, Inc. in their report "UIC Evaluation of
Salt Extraction Wells in New Mexico" which was prepared for the New
Mexico Oil Conservation Division, Department of Energy and Minerals
in 1982. The approach developed in this report is similar to that
employed by us in reviews of solution mining permit applications
for EPA Regions II and VIII.

In regard to potential collapse/subsidence, the Lee Wilson report
concludes that "cavity stability is 'relatively high' if the cavity
has at least 50 feet of overburden per million cubic feet of
capacity." Based on actual and estimated brine production since
1976 (see attached), approximately 3,378,000 cubic feet of salt has
been dissolved. Given the well depth of 710 feet, the depth/cavity
volume ratio is 210 feet per million cubic feet, which is
approximately 4 times greater than 50 feet per million cubic feet.

At the average cavity growth rate of 225,000 cubic feet per year
the critical ratio of 50 feet per million cubic feet will not be
reached for approximately 50 years. Presently, monitoring cavity
growth while keeping the cavity full of fluid is recommended to
minimize the chance of collapse/subsidence. Contingency and
remedial plans, while not likely to be necessary, are always a good
idea.

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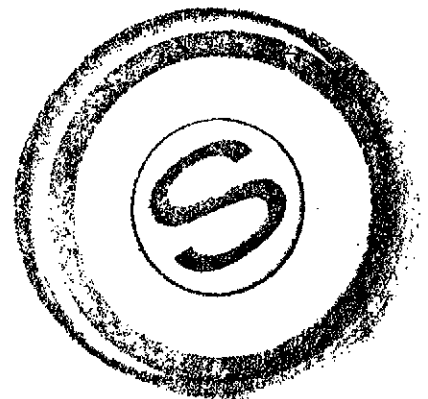Mr. Wayne Price
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Thank you for having us look into this for you. Please contact me if you have any questions or additional needs.

Sincerely,

J.L. Gray
Project Manager

/ns

cc: Talib Syed
    Sheila Baber

CARLSBAD BRINE WELL

	Time	Brine Sales	Sales Rate	Cavity Increase*
1	1976-81 (yrs.)	1,946,441 bbls	390,000/year	1,783,000 ft³
2	1982-86 (yrs.)	1,250,000 bbls ??	250,000/year??	1,145,000 ft³ ??
3	1987-91 (yrs.)	490,982	110,000/year	450,000 ft³
	TOTAL			3,378,000 ft³

Depth = 710'
Depth/Volume Ratio = 210 ft. per million ft³

* Based on net change in TDS of 350,000 mg/L from Lee Wilson report.
1 bbl of brine production = .9157 ft³ of salt.
?? Average of time periods 1 and 3.