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REPORT

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SCALE FORMATION AT VARIOUS LOCATIONS IN A GEOTHERMAL OPERATION DUE TO INJECTION OF IMPORTED WATERS

MASTER

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PREAMBLE

The United States Department of Energy, Division of Geothermal Energy (DOE/DGE) awarded Vetter Research (VR) a contract to perform research work related to the injection and reinjection problems in geothermal operations. This contract (No. DE-AC03-79ET27146) is entitled: "Injection, Injectivity and Injection in Geothermal Operations". The present report is one of the deliverables under this DOE/DGE contract. It deals with the subject of scale formation at various locations in a geothermal operation during and after the initiation of foreign water injection. This report is a continuation of the report "Foreign Water Injection into Geothermal Reservoirs (Chemical Compability Problems)". The report specifically addresses the effect of sulfate deionization of the injection water on the scale prediction at various locations. The report also presents the results of some flow experiments conducted in the laboratory on the scale formation and inhibition in the porous media.

1.0 ABSTRACT

The injection of waters that are not native to a geothermal formation generates various physical and chemical problems. The major chemical problem resulting from such injections is the formation of sulfate scales (particularly CaSO4, BaSO4 and SrSO4) at various locations starting from the injection well through the production well to the surface facilities of any geothermal operation. One of the ways to prevent this type of scale formation is by reducing the sulfate concentration of the injection waters. The present report addresses the effect of this sulfate deionization on scale formation at various locations of the geothermal operations. The report also gives some experimental results on the CaSO4 scale formation in porous media upon heating an injection water with and without addition of scale inhibitors.

The findings of our work are illustrated by some examples. All these examples are concerned with geothermal resources in the Imperial Valley, California.

There are three sources of foreign water in the Imperial Valley area that can be utilized for injection purposes. These waters are characterized by (1) low total dissolved solids (TDS) content (TDS less than 50,000 mg/l), (2) high concentration of SO4-- ions (concentrations ranging between 350 and 8100 mg/l), (3) intermediate concentration of Ca++ ions (concentration ranging between 93 and 350 mg/l) and (4) fairly low concentrations of Ba++ and Sr++ ions (Ba++ concentration less than 0.1 mg/l and Sr++ concentration less than 20 mg/l). An injection of any of these source waters into hot geothermal reservoirs can result in the precipitation of CaSO4 and as a consequence can cause a serious near wellbore damage. To avoid such damage, the injection water should be treated to reduce the SO4-- ion concentration. A computer simulation is used to calculate the maximum SO4-- concentration that is needed to prevent CaSO4 formation from source waters of varying salinity and varying Ca++ ion injected into wells with varying bottomhole temperatures. The results of the simulation calculations are presented in the report in a tabular form so that this information can be used for various compositions of injection waters by means of interpolation or extrapolation of the data.

In addition to the near wellbore damage to the injection wells, the injection of the imported waters can result in scale formation at other locations of the geothermal reservoirs, wells and surface facilities. This type of scale is a direct result of the mixing of the injection water and the native reservoir brine. The types and amounts of scale formed at the various locations depend upon (1) the chemical composition of the injection water, (2) the chemical conposition of the reservoir water, (3) the mixing proportions of the two waters, (injection and reservoir water) and finally, the temperatures and pressures at various locations. A typical geothermal operation using Salton Sea water as the injection water and Mercer 2 brine as the reservoir water has been chosen for illustration. Using these waters, the effect of SO4-- ion content of the injection water on the scale formation at various locations is simulated. The results of this simulation showed that the nature of the scale formation at the skin of the production well and the producing wellbore changes from mainly CaSO4 scale to mainly BaSO4 scale as the SO4-- ion concentration in the mixtures is decreased. The results of this simulation also shows that the SO4-- ion concentration of the Salton Sea water should be reduced to 15 mg/l or less to prevent any sulfate scale damage to the

production well of Mercer 2 reservoir such as MCR's South Brawley field.

Some static experiments were conducted to determine the extent of spontaneous precipitation of CaSO4 upon heating Salton Sea water to various temperatures. The results of these tests showed that the spontaneous precipitation of CaSO4 from Salton Sea water takes longer than 1 hour even at as high a temperature as 200°C. At 90°C, an 8 hours test did not show any evidence of CaSO4 precipitate. From these tests, it is concluded that during the injection of Salton Sea brine into hot wells, no CaSO4 crystal particles are expected to form in the wellbore because of the small residence time of the injection water in the wellbore region. However, this does not exclude the possiblity of near wellbore damage due to CaSO4 precipitation within the porous zone of the formation. Some flow experiments are conducted to determine the nature of precipitation in the porous media.

To represent the porous media, Berea Sandstone cores having a porosity of 22% and a permeability of 100 md are used. All the tests are conducted using Salton Sea water injected into the porous cores at 90°C. The results of these tests showed that CaSO4 crystallites form in the pores of porous media very rapidly even at 90°C and cause plugging. It was noted that no precipitation occurred at 90°C in the static tests. The flow tests also showed that the higher the pumping rate, the deeper inside the reservoir would be the CaSO4 precipitation.

The flow tests are repeated using three different inhibitors at a concentration of 50 mg/l. The three commercial inhibitors used are SP-245, SP-175 and Antiprex-A. The use of these inhibitors eliminated CaSO4 precipitation. It should be pointed out here that there are other (possibly more efficient) inhibitors that can work equally well or better. In the present study only the above three inhibitors are used.

2.0 CONCLUSIONS

Based on the results of the work described in the body of the report, the following conclusions and observations are made:

1. One way of preventing the precipitaions of BaSO4, CaSO4 and SrSO4 during and after the injection of foreign waters into geothermal reservoirs is through prior sulfate deionization of the injection waters.

2. The extent to which the sulfate ions should be removed from a given injection water prior to its injection into a given reservoir depends upon (a) the chemical constituents of the injection water, (b) the chemical constituents of the reservoir brine and (c) the temperatures and pressures at various locations of the geothermal operation (including the reservoir) under consideration.

3. The ranges of chemical constituents of the available source waters in the Imperial Valley region are rather limited. The maximum TDS of the waters is 50,000 mg/l, the SO4-- ion concentration varies between 350 mg/l and 8100 mg/l and the Ca++ ion concentration varies between 93 mg/l and 850 mg/l. These waters contain a fairly low

concentration of Ba++ and Sr++ ions.

4. All the source waters in the Imperial Valley area have a tendency to precipitate CaSO4 if they are injected into hot geothermal reservoirs and can cause severe near wellbore damage even without being mixed with the reservoir waters.

5. Computer modeling to determine the degree of sulfate deionization needed to prevent or reduce scale problems caused by the injection of imported waters is a valuable way of planning an injection operation for geothermal application.

6. Based on the results of computer modeling, it can be said that to prevent injection well damage for a given Ca++ ion concentration of the injection water: the lower the TDS of the injection water, the higher must be the degree of sulfate deionization.

7. Based on the results of computer modeling, it can also be said that to prevent injection well damage when a given injection water is selected. Close attention must be paid to all pertinent temperatures in the field. Generally speaking, the higher the reservoir temperature, the higher must be the degree of sulfate deionization.

8. Another unexpected result of this study is that the sulfate deionization of the injection water to a level that prevents CaSO4 formation near the injection well wellbore region will actually create additional scale problems near the production wells. The BaSO4 precipitation potential begins to develop at various locations (e.g. skin, wellbore, surface facilities) near the production well as the SO4-- ion concentration of the injection water is decreased.

9. The complete elimination of sulfate scale formation at various locations within the entire operation would require that the injection water must be treated to essentially remove the SO4-- ion content of the injection water (e.g. to levels less than 15 mg/l of SO4-- for the specific injection water and reservoir water chosen as an example in this report).

10. The static experiments conducted by heating the Salton Sea water (a potential injection water) to various temperatures showed that the spontaneous precipitation of CaSO4 from solution takes more than 1 hour even at 200°C. At 90°C, even in 8 hours, no visible CaSO4 has formed. The lack of precipitates under static conditions is attributed to the high activation energy needed to precipitate CaSO4 from Salton Sea water. Thus the CaSO4 crystillite formation in the wellbore itself does not seem to constitute a severe problem.

11. The flow experiments at 90°C, using Salton Sea brine as injection water and Berea Sandstone cores as the porous media showed that CaSO4 forms easily in the porous media and thereby causes damage to the formation. The ease with which CaSO4 forms in the porous structure even at 90°C is attributed to the decrease in activation energy for the precipitation reaction due to thee presence of the porous

structure.

12. The flow tests also showed that the higher the rate of injection, the deeper into the porous media would the $CaSO_4$ precipitation occur.

13. The use of some scale inhibitors (SP-245, SP-175 and Antiprex-A were used in the present study) in the injection water prevented $CaSO_4$ precipitation under the experimental conditions described in conclusions 11 and 12 (see above).

3.0 RECOMMENDATIONS

The following recommendations are made for the planning of injection operations using imported waters for geothermal applications:

1. Prior to any injection of imported water into a geothermal reservoir, the chemical compatibility of the injection water and the reservoir water should be studied through computer modeling and laboratory studies.

2. The degree of sulfate deionization required for the prevention or reduction of the scale at various locations for each geothermal operation should be thoroughly studied through computer modeling.

3. The economics of using sulfate deionization alone, or of using scale inhibitors alone or using a combination of both should be thoroughly studied prior to any injection of imported waters. Otherwise, severe damage to the reservoir near the injection wells and within the production wells can be expected.

4.0 INTRODUCTION

The injection of waters into a geothermal reservoir that are not native to the geothermal formation is associated with various physical and chemical problems. The need for such injection operations, the various chemical problems related to such injection operations and some of the ways of solving the associated chemical problems are described in a previous publication [1]. The major chemical problem associated with the injection of imported water is the scale formation at various locations from the injection well through the reservoir and wellbores of the producing wells into the surface facilities of any geothermal operation.

This chemical incompatibility problem has been explained through computer modeling with two field examples in the previous report [1]. One way of preventing scale formation is through the use of scale inhibitors. The efficiencies of various commercial inhibitors to prevent scale formation due to the mixing of incompatible waters has been described in a separate report [2]. The various difficulties of applying scale inhibitors to geothermal situations involving the incompatible water mixing has also been emphasized in the previous report [2]. The main hurdles of applying inhibitors for such applications are as follows:

1. The high temperatures of the geothermal environment causes most of the inhibitors to perform poorly.

2. The high supersaturations of the scale forming compounds, which are caused by mixing of incompatible waters need extremely high concentrations of inhibitors making the operation uneconomical except in some very special situations.

3. Most of the geothermal brines contain substantial amounts of dissolved iron. This presence of iron causes the failure of all the tested inhibitors.

Alternate preventive methods of solving the problem of scale has also been suggested in the previous report [1]. They are:

1. Removing sulfate ions from the injection water to a level which eliminates the potential for sulfate precipitations,

2. Injection of chemically compatible waters prior to injection chemically incompatible waters. This "prepad" may not only cool the reservoir (thus reducing the potential for CaSO4 precipitation) but will also cause a dilution of the chemically incompatible waters, thus reducing the potential for the formation of other scales (BaSO4 and SrSO4).

The first method of solving these scale problems raises two questions:

1. To what level should one reduce the sulfate ion concentration?

2. Which method is better and more economical: through use of inhibitors or through removal of sulfate ions?

The present report addresses the question No. 1.

5.0 OBJECTIVES OF THE PRESENT REPORT

The objectives of the present report are the following:

1. To discuss the effect of sulfate deionization of the injection water on the scale prediction at various locations through computer modeling.

2. To describe the results of experiments related to the precipitation of CaSO4 in porous media caused by the change in temperature of the injection water,

3. To describe the results of experiments related to the prevention of CaSO4 precipitation as in the previous experiments through the use of inhibitors,

6.0 EFFECT OF SULFATE DEIONIZATION ON SCALE FORMATION AT VARIOUS LOCATIONS

If the detrimental SO4-- ions content could be removed from the imported injection water prior to its injection into geothermal reservoir, no serious problems would exist in the field as far as the sulfate scale formation is concerned. Of course, the scale problems that exist during normal geothermal production (scales such as silica, carbonates, sulfides, etc.,) still exist and they have to be treated using entirely different procedures. The question now arises: To what level should the sulfate concentration be reduced to prevent or reduce the sulfate scale formation? To answer this question, some computational simulation of geothermal operations involving various source waters has been made. This section describes the results of this simulation. This simulation is illustrated by using an example from the Imperial Vaalley, California. Obviously, similar simulatin can be performed for any injection operation.

6.1 SOURCE WATERS FOR INJECTION IN THE IMPERIAL VALLEY AREA

The source waters available for injection purposes within the Imperial Valley contain various ionic species at various concentrations. For example, within reach of the Imperial Valley Geothermal region, there are three most obvious major sources of water that could be used for injection purposes. Table 1 shows the compositions of the three injection waters that can be utilized as possible injection waters for geothermal operations in the Imperial Valley. From these analyses the following observations can be made on the source waters in the Imperial Valley area:

1. The source waters contain fairly low amounts of total dissolved solids (maximum of less than 50,000 ppm).

2. The equivalent NaCl molarity (based on Cl- ion concentration) of the source waters range from 0 to about 0.5.

3. The source waters contain high concentrations of SO4-- ions which give rise to a potential formation of sulfate scales. The sulfate ion concentrations range between 350 and 8100 mg/l.

4. The source waters contain Ca++ ions in the concentration range between 93 and 850 mg/l which also give rise to a potential formation of sulfate scale.

5. The source waters contain a fairly low concentration of Ba++ and Sr++ ions which is a beneficial characteristic as far as BaSO4 and SrSO4 scale formation in the injection wellbores is concerned.

Based on the above observations regarding the constituents of the potential source waters, it can be seen that there is a large potential for CaSO4 precipitation if any of these waters is injected into hot geothermal wells. This scale can cause a severe near wellbore damages. In this present section of the report, some computer calculations are presented to give data that can

be used in evaluating the injection of any imported waters into geothermal wells of the Imperial Valley.

6.2 EFFECT OF SULFATE ION CONCENTRATION ON CaSO4 PRECIPITATION IN THE INJECTION WELLS

Most of the available source waters contain both the Ca++ and SO4— ions. The concentration of these two ionic species in these waters are such that they are generally saturated or under saturated (or slightly supersaturated in some cases) with respect to CaSO4 at ambient temperature (20°C). However, due to the reverse solubility of calcium sulfate in aqueous media, these source waters have a tendency to precipitate (CaSO4) as the injection water is heated. SrSO4 also can precipitate at high temperatures if the injection water contains Sr++ ions and has low total dissolved solids content. This could cause plugging of the pores of the reservoir near the injection wellbore surface (skin formation in the injection wells).

The amount of CaSO4 precipitate that can form in source water is a function of (1) the Ca++ and SO4-- ion content and the salinity of the injection water and (2) the temperature and pressure at the injection wellbore. Tables 2 through 33 give some values of the CaSO4 precipitation as the injection water is heated from 20°C to 300°C. The range of parameters chosen in generating these tables cover the range of parameters found in the available source waters of the Imperial Valley geothermal region.

Tables 2 through 6 give the CaSO4 precipitation as the source water (NaCl molarity: 0.42) containing various concentrations Ca++ and SO4— ions, is heated. For example, Salton Sea brine has a NaCl molarity of approximately 0.42. As seen from Table 1, Salton Sea brine contains a Ca++ ion concentration of 850 mg/l and a SO4-- ion concentrations of 8100 mg/l. Thus Tables 2 and 3 can be used (through interpolation) to determine the approximate degree of sulfate deionization needed to minimize the injection wellbore damage if the appropriate temperature profile of the injection well is known. For example, if the reservoir temperature is 200°C for the injection of Salton Sea brine, the sulfate ion concentration should be reduced to 256 mg/l or less in order to completely eliminate the potential for CaSO4 precipitations. Thus these tables (Tables 2 through 33) can be used as a guideline in determining the approximate level to which a given injection water should be treated to remove SO4-- ions for a prevention of injection well damage due to calcium sulfate precipitations.

Some generalizations can be made regarding the needed sulfate deionization to prevent injection well damage based on the data of Tables 1 through 33. Some of these generalizations are as follows:

1. For a given Ca++ ion concentration in the injection water: the lower the TDS of the brine the higher should be the degree of sulfate deionization needed to prevent injection well damage.

2. For a given injection water: the higher the bottomhole temperature of the injection well, the higher should be the degree of sulfate deionization. However, at temperatures higher than about 150°C, the effect of temperature becomes less significant.

6.3 EFFECT OF SULFATE ION CONCENTRATION OF INJECTION WATER ON PRECIPITATION AT VARIOUS LOCATIONS OF A GEOTHERMAL OPERATION

As shown in the previous section, decreasing the sulfate concentration of the injection water to a level that prevents CaSO4 scale formation (at the temperatures encountered at the bottom of the injection well) can eliminate the near wellbore damage of the injection well. However, this creates some problems near the production well.

There are an infinite number of water compositions (reservoir and injection waters) and many combinations of temperatures and pressures within the entire geothermal industry. It is not possible to cover these various possibilities and combinations in this report. The combination of Salton Sea and Mercer 2 water is used as an example to illustrate what one would expect from the point of view of scale formation when the sulfate ion concentration of the injection water is changed. Table 34 gives the chemical compositions of the brines and Table 35 gives the chosen conditions. The conditions chosen here are the same conditions used in the previous report on chemical compatibility problems [1].

Tables 36 through 61 give the amounts of the sulfate precipitations expected at various locations (see Table 35) of a typical geothermal power plant operation when the SO4-- ion concentration of the injection water is varied.

As mentioned in the previous section, the injection of Salton Sea water into an injection well having a bottomhole temperature of 200°C would require that the SO4-- ion concentration should be reduced to 256 mg/l or less to avoid any damage to the injection well.

It becomes interesting to look at the consequence of the reduction in SO4-- ion concentration on the scale formation at other locations of the geothermal operation. From a comparison of Tables 36 and 46 the following observations may be made:

1. Changing the SO4-- ion concentration from 8192 mg/l to 256 mg/l reduces the amounts of scale formed in the reservoir considerably.

2. The reduction of SO4-- ion concentration from 8192 mg/l to 256 mg/l drastically reduced the CaSO4 skin of the production wells . On the other hand, the reduction of SO4-- concentration started to create a potential for BaSO4 and SrSO4 skins at the production well. The BaSO4 skin formation at the production well continues to increase until the SO4-- concentration of the injection water is reduced to 15 mg/l.

3. The reduction in SO4-- ion concentration from 8192 mg/l to 256 mg/l considerably reduced the CaSO4 precipitation at the wellhead of the production well. On the other hand, such reduction created a serious BaSO4 precipitation at the same wellhead. The BaSO4 precipitation at the wellhead of the production well persists until the SO4-- ion concentration in the injection water is reduced to 8 mg/l.

Similar comparisons of the change in the scale forming tendency at other locations within the field can be made by comparing Tables 37 and 47. In general, the BaSO4 scaling tendency starts to develope when the SO4-- ion concentration is being reduced from 8192 mg/l to 256 mg/l. The BaSO4 scale forming tendency continues to exist at the brine discharge system even when the SO4-- concentration of the injection water is reduced to 1 mg/l.

The results of the simulation of the BaSO4, SrSO4 and CaSO4 precipitations at various locations of a geothermal field as the SO4-- ion concentration of the injection water is changed may be summarized as follows:

1. As the SO4-- ion concentration is decreased, the amounts of precipitation of all the three compounds are decreased in the reservoir.

2. As the SO4-- ion concentration is decreasing, the amount and type of scale formed at the producer skin is changing. As the SO4-- ion concentration is decreased, the CaSO4 skin decreased. On the otherhand, a decrease in SO4-- ion concentration increased the BaSO4 and SrSO4 scale in the same location.

3. As the SO4-- ion concentration is decreasing, the amount and type of scale formed at the producer wellhead is changing. The amount of CaSO4 scale is decreasing as the SO4-- ion concentration in the injection water is decreasing. On the other hand, the BaSO4 scale is increasing with this decreasing SO4-- ion concentration.

4. At the surface facilities, the situation is similar to that at the wellhead. As the SO4-- ion concentration of the injection water is decreased, the amount of CaSO4 scale decreased and the amount of BaSO4 increased.

5. In general, the SO4-- ion concentration of the injection water has to be reduced to a fairly low value (on the order of 15 mg/l for the Salton Sea /Mercer 2 water combinations) to prevent sulfate scale formation at various locations.

All these conclusions apply to a given set of temperature and pressure conditions chosen for the test case of a given injection /reservoir water combination. Any different set of conditions and waters should be simulated prior to the starting of any injection of imported water into a geothermal reservoir.

7.0 EXPERIMENTAL STUDIES ON SCALE FORMATION IN POROUS MEDIA

The various potential scale problems associated with injection imported waters into hot geothermal wells and the various methods of solving the scale problems have been discussed previously. In all these discussions, only equilibrium thermodynamic concepts were utilized. However, the formation of scale is a complex problem involving not only the thermodynamic instability of

the scale forming compounds in aqueous media, but also involve the complex effects of kinetics and hydrodynamics effects on precipitation. These factors play a very important role on the scale formation in the porous media which can cause formation damage. However, the knowledge of the kinetic and hydrodynamic effects on scale formation is not advanced enough to apply it mathematically to any given situation. Therefore, no attempt is made in the present report to quantify these effects. Instead, the results of some experimental studies related the the CaSO4 scale formation in porous core plugs are presented in the following sections.

7.1 CaSO4 SCALE FORMATION IN POROUS MEDIA

One of the serious problems associated with injection the available source waters into geothermal wells is the near wellbore damage caused by CaSO4 precipitation. As mentioned in section 6.0 , a thermodynamic analysis of the source water can determine if a given source water has a potential for CaSO4 precipitation when it is heated to the temperatures encountered in the injection wells. Now, one would like to know the answers to the following questions:

1. Does CaSO4 actually precipitate in the injection wells?

2. Where does CaSO4 precipitate: in the wellbore or in the porous formation?

3. Does the location of CaSO4 precipitation depend upon the injection rate?

4. Can CaSO4 precipitation be prevented using scale inhibitors?

Some laboratory experiments were conducted using synthetic Salton Sea water injection into Berea sandstone cores to answer these questions.

7.1.1 BACKGROUND INFORMATION AND SOME PRELIMINARY STUDIES ON CaSO4 PRECIPITATION

The Salton Sea brine has a low value of supersaturation (So=1.5) with respect to CaSO4 at 20°C. This low supersaturation is not high enough to be a driving force for causing a spontaneous crystallization. Schierholtz [3] conducted experiments on the spontaneous crystallization of CaSO4 from solutions of varying degree of supersaturation, varying between 2 and 2.8. In case of the lowest supersaturation (So=2), he found that insignificantly small amounts of CaSO4 crystals formed after many hours (greater than 10 hours). At higher supersaturations, the rate of crystallization is higher. On the other hand, Nancollas and his co-workers [4-7] conducted a series of tests on the calcium sulfate crystal growth in seeded solutions. They found that the rate of growth of calcium sulfate seeded cystals is independent of the fluid dynamics in the system suggesting that the rate of crystallization is not diffusion controlled but depends upon the rate of surface reactions. The presence of seeded crystals apparently offer heterogeneous nucleation sites causing a more rapid crystallization even at low supersaturations. Similar experiments were reported by Loomis et al [8] and Kinzhalov et al [9] to account for the observed effects during heterogeneous precipitations.

The information given above on the nature of the CaSO4 crystallization offers some basic understanding to answer the question: "Does CaSO4 actually precipitate in the injection wells?" Table 64 gives the CaSO4 supersaturation of Salton Sea water at various temperatures. From this table it can be seen that an increase in temperature of the Salton Sea brine increases the potential for CaSO4 precipitation. Also, higher supersaturation generates a higher driving force for its precipitation. This has been confirmed by some static tests conducted in our laboratory. For these static tests, Salton Sea brine was heated to 90°C, 150°C and 200°C in glass bombs for 8 hours. No evidence of CaSO4 precipitation is observed at 90°C even after 8 hours. On the other hand, CaSO4 precipated in less than 1 hour at 200°C. At 150°C, it took longer than 3 hours for the occurrence of CaSO4. These tests clearly indicated that during the injection of Salton Sea brine, probably no spontaneous CaSO4 crystallization would occur in the wellbore. However, this does not eliminate the near wellbore damage due to the CaSO4 precipitation within the porous zone of the formation. The porous matrix and material itself may have a pronounced effect on the CaSO4 precipitation. Therefore some experiments were conducted to determine if such precipitation occurs in the porous media. The results of these experiments are described in the next section.

7.1.2 EXPERIMENTAL STUDIES ON CaSO4 PRECIPITATION IN BEREA SANDSTONE CORES

The damage to the the injection well due to CaSO4 precipitation from the source water could be caused by two mechanisms. These two mechanisms may be described as follows:

1. Fine particles or crystallites of CaSO4 can form in the wellbore of the injection wells and then generate suspended particles in the injection water. These suspended particles may plug the pores of the formation.

2. CaSO4 crystallites can form on the surface of the porous channels of the formation and eventually plug the formation.

The damage caused by the suspended particles is fully discussed in a separate report [10]. Experiments related to the damage caused by the second mechanism are discussed in this section.

7.1.2.1 EXPERIMENTAL PROCEDURE

The experimental studies on CaSO4 scale formation in porous media were conducted using the apparatus shown in Figure 1. To represent the porous media, Berea sandstone cores (1.0 inch diameter and 1.0 inch in length) are used. The average porosity and permeability of the core samples used in all the experiments are 22% and 100 md, repectively.

In conducting the flow experiments, the core sample is tied to two metal plugs of a core holder, first with a teflon tape and then with a teflon shrink tube sleeve. A complete description of the core holder design is given in a separate report [10]. The assembled core holder with the core is immersed in a constant temperature bath which is set at 90°C. The annulus of the core

holder assembly is filled with water and pressurized to 1000 psi simulating the overburden pressure. The core sample is then saturated with deionized water using reservoir 1 and the metering pump.

The reservoir 2 is filled with filtered synthetic Salton Sea brine (see Table 1 for the chemical analysis). This filtered Salton Sea brine is pumped into the core sample at 0.1 ml/min and the effluent is collected using the sample collector. The pressure at the input side of the core sample is constantly monitored using the pressure transducer. When the pressure buildup at the input reaches about 400 psi or larger, the experiment is discontinued. The core is washed by pumping 5 pore volumes of deionized water through the core to displace all the Salton Sea water. Then the core is removed from the assembly and immediately dried. The dried core sample is split transversely in the middle and was examined by a scanning electron microscope (SEM) to locate the CaSO4 precipitate.

The above experiment is repeated at three additional pumping rates (0.15 ml/min, 0.4 ml/min and 5 ml/min). Some of the experiments were repeated using Salton Sea water with three scale inhibitors added to it. The three inhibitors used were SP-245, SP-175 and Antiprex A. These inhibitors were used at a concentration of 50 mg/l.

7.1.2.2 RESULTS OF FLOW EXPERIMENTS

Table 65 shows a summary of the results of experiments on the injection of Salton Sea brine (with and without inhibitor additions) into Berea Sandstone cores at 90°C. For the experiments conducted without any inhibitor addition, four different flow rates of the injection brine are used. The flow rates used are 0.1, 0.15, 0.4 and 5 ml/min. Table 65 shows that a substantial pressure buildup has occurred for cases with low flow rates. For example, at 0.1 ml/min, a pressure buildup of 480 psi has occurred in 120 hours. This corresponds to an injection of 720 ml of the brine, which corresponds to approximately 180 pore volumes in the core. Similarly at an injection rate of 0.15 ml/min, a pressure buildup of 345 psi has occurred in 90 hours. This corresponds to an injection of 810 ml of the brine, which corresponds to approximately 202 pore volumes of the core. On the other hand at higher injection rates, no significant pressure buildup occurred. For example, at 0.4 ml/min, a pressure buildup of less than 50 psi has occurred in 90 hours. This corresponds to an injection of 2160 ml (approximately 540 pore volumes) of brine. At the injection rate 5 ml/min, no pressure buildup has occurred even after an injection of 4800 ml (or 1200 pore volumes) of brine.

The pressure buildup found during injection of Salton Sea brine into Berea Sandstone cores is attributed to the precipitation of CaSO4 inside the pores and subsequent blockage of porous paths. This is confirmed by an observation of the cores using Scanning Electron Microscope (SEM). Figures 2 through 9 show the SEM photographs of the surface of the core No. 1. (i.e., the core used with 0.1 ml/min injection rate) which is split transversely. Figure 2 shows the surface near the injection end and Figure 9 shows the surface near the exiting end. As seen from these figures, CaSO4 crystallites (needle shaped crystals in the micrographs) have formed blocking the pores throughout the length of the core, resulting in severe damage to the cores. Similarly, Figures 10 through 24 show the SEM photographs of the surface of core No. 3

(i.e., core used with 0.1 ml/min injection rate). Figure 10 shows the injection end and Figure 24 shows the exit end of the core. In Figures 10 through 15, which cover the first half of the core (from the injection end), no evidence of CaSO4 crystallites occurred. On the other hand, Figures 16 through 24 show evidence of CaSO4 crystallites. Only, a small amount of pressure buildup occurred in the flow tests using core No. 3. Similarly core No. 4 (flow rate of 5 ml/min) did not show any CaSO4 crystallites and correspondingly no pressure buildup occurred.

The flow experiments (with an injection rate of 0.1 ml/min) conducted using three specific inhibitors (SP-175, SP-245 and ANT-A) showed that no CaSO4 crystallization occurred (see Table 65). In other words, these inhibitors prevented the formation of CaSO4 crystallites in the porous media. Of course, there may be other potential inhibitors (not tested here) that might work equally well against CaSO4 precipitation (see reference [2] for other potential scale inhibitors).

The results of the static experiments using Salton Sea brine (see Section 7.1.1) and the flow tests described above seem to contradict each other. The spontaneous precipitation of CaSO4 from Salton Sea brine at 90°C seemed impossible. Even after 8 hours at 90°C, no evidence of CaSO4 precipitation occurred. On the other hand, the flow test show that CaSO4 precipitation from Salton Sea brine is possible in a relatively short time in porous media under flowing conditions. This apparently contradicting observation can be rationalized qualitatively using the principles of nucleation. The precipitation of CaSO4 from solution at 90°C would require a high activation energy to cause homogeneouss nucleation. The low supersaturation of CaSO4 (So=3.5) is apparently not enough of a driving force to overcome this activation energy. On the other hand, the porous surface seemed to have offered nucleation sites to cause heterogeneous nucleation. The presence of these nucleation sites would require a lower activation energy for the nucleation than that for spontaneous nucleation. Apparently, the driving force supplied by the supersaturation (So=3.5) is adequate for the heterogeneous nucleation. Thus, it is evident that even a low supersaturation of CaSO4 in the injection water can create a danger for damage to the porous formation. Serious efforts should be made to prevent such scale formation to eliminate formation damage.

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TABLE 1

ANALYSIS OF SOME SOURCE WATERS IN THE IMPERIAL VALLEY REGION

CONSTITUENT	SALTON SEA WATER	DRAIN WATER	CANAL WATER
Li++	3.2	0.3	0.1
Na++	10,600.0	923.0	161.0
K+	195.0	19.0	7.0
Ca++	850.0	305.0	93.0
Mg++	1200.0	161.0	37.0
Ba++	0.1	0.1	0.1
Sr++	13.5	3.4	1.6
Cl-	16,730.0	903.0	147.0
SO4--	8,100.0	1,866.0	357.0
TDS	40,000.0	4,560.0	970.0

TABLE 2

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.42
CONCENTRATION OF Ca++ = 1024.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	394.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	734.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	1057.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	1363.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	1669.3	245.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	1957.4	638.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	2216.3	1008.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	2455.0	1368.4	118.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	2672.4	1717.7	493.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	2765.2	1875.2	664.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	2850.6	2025.6	830.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	2930.6	2171.9	993.6	63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	3005.1	2314.1	1154.6	209.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	3074.1	2451.8	1313.6	351.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	3138.3	2585.9	1471.9	490.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	3196.8	2714.7	1628.2	625.4	40.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	3249.9	2837.5	1782.6	754.5	154.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	3297.3	2953.6	1934.7	877.3	261.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	3339.2	3061.9	2084.6	993.0	360.5	32.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	3375.5	3161.2	2231.9	1100.0	450.0	114.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	3406.1	3250.1	2375.8	1196.9	529.1	186.8	14.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	3431.3	3326.7	2515.0	1281.5	596.4	247.7	72.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	3450.8	3389.3	2647.0	1351.4	650.7	296.4	118.5	29.5	0.0	0.0	0.0	0.0	0.0	0.0
250	3464.9	3436.1	2766.0	1404.2	690.8	332.1	152.4	62.5	17.6	0.0	0.0	0.0	0.0	0.0
260	3473.5	3465.5	2858.9	1437.8	715.8	354.3	173.4	83.0	37.7	15.1	3.8	0.0	0.0	0.0
270	3476.7	3476.6	2900.8	1450.5	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
280	3476.7	3476.6	2900.8	1450.5	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
290	3476.7	3476.6	2900.8	1450.5	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
300	3476.7	3476.6	2900.8	1450.5	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4

TABLE 3

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.42
CONCENTRATION OF Ca++ = 512.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	100.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	363.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	599.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	814.9	16.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	1009.9	328.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	1095.6	471.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	1174.3	606.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	1247.6	735.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	1315.7	858.6	154.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	1378.5	975.8	315.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	1436.5	1087.4	473.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	1489.4	1192.1	629.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	1537.0	1289.3	782.0	163.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	1579.6	1378.5	930.5	324.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	1616.9	1459.2	1074.5	483.9	19.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	1649.2	1530.7	1212.9	641.7	162.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	1676.5	1592.4	1343.9	797.6	298.6	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	1698.7	1643.9	1464.8	951.4	425.9	119.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	1715.9	1684.5	1571.6	1102.2	540.3	216.9	50.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	1728.2	1713.9	1658.1	1247.4	634.9	293.6	119.7	32.2	0.0	0.0	0.0	0.0	0.0	0.0
260	1735.7	1731.9	1716.3	1378.0	700.1	343.9	164.7	74.9	30.0	7.5	0.0	0.0	0.0	0.0
270	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
280	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
290	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
300	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4

TABLE 4

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.42
CONCENTRATION OF Ca++ = 256.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	170.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	253.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	329.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	399.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	465.2	82.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	525.6	190.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	581.3	293.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	631.9	388.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	677.5	476.0	117.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	718.2	555.8	249.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	753.8	627.3	374.0	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	784.6	690.2	489.8	160.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	810.6	744.1	594.8	313.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	831.7	788.6	686.8	461.0	157.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	848.1	823.5	762.9	601.6	315.2	76.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	859.7	848.7	820.3	728.5	470.5	208.8	56.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260	866.7	863.9	856.4	827.2	620.2	315.4	145.2	58.4	14.7	0.0	0.0	0.0	0.0	0.0
270	869.2	869.2	869.2	869.1	725.1	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
280	869.2	869.2	869.2	869.1	725.1	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
290	869.2	869.2	869.2	869.1	725.1	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
300	869.2	869.2	869.2	869.1	725.1	362.6	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4

TABLE 5

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.42
CONCENTRATION OF Ca++ = 128.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	39.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	98.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	152.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	202.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	247.2	63.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	287.0	139.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	321.9	207.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	352.1	266.8	102.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	377.4	317.5	197.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	398.1	359.4	278.5	125.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	414.0	392.1	344.6	244.0	78.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	425.4	415.6	393.7	342.1	228.3	76.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260	432.2	429.7	424.0	409.4	362.4	232.8	102.5	26.5	0.0	0.0	0.0	0.0	0.0	0.0
270	434.6	434.6	434.6	434.6	434.5	362.4	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
280	434.6	434.6	434.6	434.6	434.5	362.4	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
290	434.6	434.6	434.6	434.6	434.5	362.4	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4
300	434.6	434.6	434.6	434.6	434.5	362.4	181.3	90.6	45.3	22.6	11.3	5.6	2.8	1.4

TABLE 6

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.42
CONCENTRATION OF Ca++ = 64.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	31.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	71.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	105.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	135.7	54.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	160.8	103.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	181.2	144.4	71.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	197.0	176.2	133.7	51.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	208.3	198.9	179.4	138.8	62.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260	215.0	212.6	207.6	196.4	170.1	112.5	36.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
270	217.3	217.3	217.3	217.3	217.3	217.2	181.0	90.6	45.3	22.6	11.3	5.6	2.8	1.4
280	217.3	217.3	217.3	217.3	217.3	217.2	181.0	90.6	45.3	22.6	11.3	5.6	2.8	1.4
290	217.3	217.3	217.3	217.3	217.3	217.2	181.0	90.6	45.3	22.6	11.3	5.6	2.8	1.4
300	217.3	217.3	217.3	217.3	217.3	217.2	181.0	90.6	45.3	22.6	11.3	5.6	2.8	1.4

TABLE 7

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.28
CONCENTRATION OF Ca++ = 1024.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	1234.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	1468.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	1689.9	272.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	1899.0	557.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	2107.3	850.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	2303.2	1137.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	2479.4	1406.4	158.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	2642.4	1668.1	439.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	2792.1	1921.9	715.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	2874.2	2068.1	877.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	2950.1	2208.6	1034.9	100.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	3020.8	2344.9	1189.9	241.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	3086.3	2476.8	1342.8	377.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	3146.7	2603.9	1493.6	509.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	3202.3	2726.9	1643.4	638.2	52.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	3252.7	2844.2	1791.2	761.5	161.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	3297.9	2955.2	1936.8	879.0	263.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	3338.0	3058.9	2080.3	989.7	357.8	30.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	3373.0	3154.3	2221.2	1092.5	443.8	109.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	3402.8	3240.2	2358.9	1186.0	520.3	178.9	6.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	3427.5	3315.0	2492.6	1268.5	586.2	238.5	63.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	3447.2	3377.4	2620.1	1338.0	640.4	287.2	109.8	21.0	0.0	0.0	0.0	0.0	0.0	0.0
240	3461.8	3425.7	2737.1	1392.4	681.9	324.2	144.9	55.2	10.3	0.0	0.0	0.0	0.0	0.0
250	3471.4	3458.5	2834.6	1429.7	709.9	349.0	168.4	78.1	32.9	10.3	0.0	0.0	0.0	0.0
260	3476.2	3474.8	2893.7	1448.4	723.7	361.3	180.0	89.4	44.1	21.4	10.1	4.4	1.6	0.2
270	3476.2	3474.8	2893.7	1448.4	723.7	361.3	180.0	89.4	44.1	21.4	10.1	4.4	1.6	0.2
280	3476.2	3474.8	2893.7	1448.4	723.7	361.3	180.0	89.4	44.1	21.4	10.1	4.4	1.6	0.2
290	3476.2	3474.8	2893.7	1448.4	723.7	361.3	180.0	89.4	44.1	21.4	10.1	4.4	1.6	0.2
300	3476.2	3474.8	2893.7	1448.4	723.7	361.3	180.0	89.4	44.1	21.4	10.1	4.4	1.6	0.2

TABLE 8

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.28
CONCENTRATION OF Ca++ = 512.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	77.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	285.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	490.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	681.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	852.4	75.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	1008.4	326.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	1150.0	564.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	1221.3	688.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	1286.9	806.0	84.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	1347.7	918.0	235.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	1403.9	1024.3	383.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	1455.5	1124.6	528.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	1503.0	1219.5	671.8	45.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	1545.9	1307.7	812.0	195.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	1584.4	1388.9	948.6	344.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	1618.5	1462.7	1081.0	491.2	26.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	1648.3	1528.5	1208.5	636.6	157.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	1673.7	1586.0	1329.6	780.2	283.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	1694.8	1634.8	1442.5	922.0	402.3	99.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	1711.7	1674.5	1544.1	1061.2	510.6	192.2	27.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	1724.4	1704.8	1630.1	1196.6	604.0	269.0	97.5	11.0	0.0	0.0	0.0	0.0	0.0	0.0
250	1733.0	1725.5	1694.8	1323.8	675.8	325.5	148.3	59.4	14.8	0.0	0.0	0.0	0.0	0.0
260	1737.6	1736.4	1731.7	1425.6	717.6	357.0	176.3	85.9	40.7	18.1	6.8	1.2	0.0	0.0
270	1738.1	1737.7	1736.1	1441.6	722.7	360.7	179.6	89.1	43.8	21.1	9.8	4.1	1.3	0.0
280	1738.1	1737.7	1736.1	1441.6	722.7	360.7	179.6	89.1	43.8	21.1	9.8	4.1	1.3	0.0
290	1738.1	1737.7	1736.1	1441.6	722.7	360.7	179.6	89.1	43.8	21.1	9.8	4.1	1.3	0.0
300	1738.1	1737.7	1736.1	1441.6	722.7	360.7	179.6	89.1	43.8	21.1	9.8	4.1	1.3	0.0

TABLE 9

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.28
CONCENTRATION OF Ca++ = 256.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512.	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	27.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	180.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	318.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	385.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	447.1	50.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	504.0	151.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	556.4	247.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	604.6	336.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	648.8	420.6	28.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	688.9	498.1	153.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	724.8	569.0	271.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	756.5	632.8	383.8	16.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	784.3	689.5	488.4	158.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	808.0	738.7	584.0	296.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	827.7	780.2	669.1	431.1	125.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	843.6	814.0	741.6	559.9	267.5	33.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	855.6	839.7	799.7	679.7	408.3	157.4	11.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	863.8	857.5	841.1	782.6	546.2	266.7	105.6	22.4	0.0	0.0	0.0	0.0	0.0	0.0
260	868.2	867.2	864.3	852.6	674.3	343.8	167.2	78.1	33.4	11.1	0.0	0.0	0.0	0.0
270	869.0	868.8	868.4	866.4	714.7	359.5	179.0	88.6	43.4	20.7	9.4	3.8	1.0	0.0
280	869.0	868.8	868.4	866.4	714.7	359.5	179.0	88.6	43.4	20.7	9.4	3.8	1.0	0.0
290	869.0	868.8	868.4	866.4	714.7	359.5	179.0	88.6	43.4	20.7	9.4	3.8	1.0	0.0
300	869.0	868.8	868.4	866.4	714.7	359.5	179.0	88.6	43.4	20.7	9.4	3.8	1.0	0.0

TABLE 10

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.28
CONCENTRATION OF Ca++ = 128.0 ms/l

AMOUNT OF CaSO4 PRECIPITATE (ms/l) AT SO4-- CONC (ms/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	25.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	80.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	131.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	178.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	220.9	14.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	259.7	87.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	294.4	153.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	325.1	213.7	7.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	352.0	266.6	102.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	374.9	312.5	187.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	394.1	351.2	262.4	98.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	409.5	382.7	325.3	208.1	29.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	421.1	406.7	375.0	303.5	165.8	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	429.2	423.3	410.3	378.1	294.1	149.9	31.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260	433.6	432.5	430.1	423.8	400.5	287.4	143.3	61.0	18.7	0.0	0.0	0.0	0.0	0.0
270	434.5	434.4	434.1	433.4	430.5	348.5	176.6	87.2	42.2	19.7	8.5	2.9	0.0	0.0
280	434.5	434.4	434.1	433.4	430.5	348.5	176.6	87.2	42.2	19.7	8.5	2.9	0.0	0.0
290	434.5	434.4	434.1	433.4	430.5	348.5	176.6	87.2	42.2	19.7	8.5	2.9	0.0	0.0
300	434.5	434.4	434.1	433.4	430.5	348.5	176.6	87.2	42.2	19.7	8.5	2.9	0.0	0.0

TABLE 11

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.28
CONCENTRATION OF Ca++ = 64.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	6.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	44.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	79.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	109.3	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	135.7	54.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	158.3	99.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	177.2	136.4	56.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	192.4	166.8	115.2	18.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	203.9	190.1	161.6	104.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	211.9	206.2	194.4	168.9	115.6	30.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260	216.3	215.2	213.0	207.9	195.3	159.8	89.8	28.8	0.0	0.0	0.0	0.0	0.0	0.0
270	217.2	217.1	216.9	216.5	215.3	210.5	162.6	83.0	39.5	17.5	6.5	0.9	0.0	0.0
280	217.2	217.1	216.9	216.5	215.3	210.5	162.6	83.0	39.5	17.5	6.5	0.9	0.0	0.0
290	217.2	217.1	216.9	216.5	215.3	210.5	162.6	83.0	39.5	17.5	6.5	0.9	0.0	0.0
300	217.2	217.1	216.9	216.5	215.3	210.5	162.6	83.0	39.5	17.5	6.5	0.9	0.0	0.0

TABLE 12

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.28
CONCENTRATION OF Ca++ = 32.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	72.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	240.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	394.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	533.7	21.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	601.7	138.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	664.0	247.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	721.8	351.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	775.2	449.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	824.2	541.9	69.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	869.3	628.5	202.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	910.0	708.6	330.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	946.6	781.8	454.2	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	978.9	848.0	571.6	155.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	1007.1	906.7	681.8	299.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	1031.2	957.8	783.5	442.5	78.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	1051.3	1001.0	874.8	583.0	218.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	1067.4	1036.1	953.4	720.3	355.9	90.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	1079.6	1062.9	1016.9	852.7	487.7	201.4	44.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	1087.9	1081.3	1062.6	974.6	608.8	292.2	123.1	37.2	0.0	0.0	0.0	0.0	0.0	0.0
260	1092.4	1091.3	1088.1	1068.7	701.4	350.1	171.2	81.4	36.5	14.0	2.7	0.0	0.0	0.0
270	1093.1	1092.9	1092.2	1088.1	720.3	360.1	179.3	88.8	43.5	20.9	9.6	3.9	1.1	0.0
280	1093.1	1092.9	1092.2	1088.1	720.3	360.1	179.3	88.8	43.5	20.9	9.6	3.9	1.1	0.0
290	1093.1	1092.9	1092.2	1088.1	720.3	360.1	179.3	88.8	43.5	20.9	9.6	3.9	1.1	0.0
300	1093.1	1092.9	1092.2	1088.1	720.3	360.1	179.3	88.8	43.5	20.9	9.6	3.9	1.1	0.0

TABLE 13

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.14
CONCENTRATION OF Ca++ = 512.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	417.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	537.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	649.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	755.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	860.2	87.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	958.7	244.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	1047.7	391.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	1130.8	531.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	1208.1	665.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	1275.4	785.3	57.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	1337.8	899.6	210.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	1395.4	1008.0	360.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	1448.2	1110.3	507.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	1496.4	1206.3	651.4	24.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	1540.3	1295.9	792.8	175.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	1579.5	1378.5	930.5	324.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	1614.3	1453.5	1064.0	472.2	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	1644.7	1520.6	1192.6	618.2	141.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	1670.7	1579.3	1315.0	762.4	268.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	1692.5	1629.3	1429.3	904.8	388.3	87.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	1709.9	1670.2	1532.6	1044.7	498.3	181.8	17.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	1723.1	1701.7	1620.9	1180.9	593.9	260.9	90.1	4.0	0.0	0.0	0.0	0.0	0.0	0.0
240	1732.2	1723.5	1688.5	1309.7	668.8	320.1	143.5	54.8	10.4	0.0	0.0	0.0	0.0	0.0
250	1737.2	1735.6	1729.0	1416.5	714.6	354.7	174.3	84.0	38.9	16.3	5.0	0.0	0.0	0.0
260	1738.2	1738.0	1737.3	1446.3	724.0	361.7	180.5	89.9	44.6	21.9	10.6	4.9	2.1	0.7
270	1738.2	1738.0	1737.3	1446.3	724.0	361.7	180.5	89.9	44.6	21.9	10.6	4.9	2.1	0.7
280	1738.2	1738.0	1737.3	1446.3	724.0	361.7	180.5	89.9	44.6	21.9	10.6	4.9	2.1	0.7
290	1738.2	1738.0	1737.3	1446.3	724.0	361.7	180.5	89.9	44.6	21.9	10.6	4.9	2.1	0.7
300	1738.2	1738.0	1737.3	1446.3	724.0	361.7	180.5	89.9	44.6	21.9	10.6	4.9	2.1	0.7

TABLE 14

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.14
CONCENTRATION OF Ca++ = 256.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	22.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	122.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	212.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	295.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	373.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	436.4	31.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	494.7	135.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	548.4	232.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	597.8	323.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	642.7	408.9	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	683.6	487.7	136.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	720.2	559.8	256.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	752.6	624.8	369.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	780.9	682.6	475.4	140.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	805.2	732.9	572.6	279.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	825.5	775.6	659.3	414.8	107.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	841.9	810.3	733.6	544.8	250.4	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	854.4	837.1	793.6	666.1	391.7	143.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	863.0	855.8	837.1	771.8	530.2	255.0	95.8	13.4	0.0	0.0	0.0	0.0	0.0	0.0
250	867.9	866.4	862.6	846.9	660.7	337.3	162.3	73.7	29.3	7.0	0.0	0.0	0.0	0.0
260	869.1	869.1	868.9	868.2	721.3	361.5	180.5	89.9	44.6	22.0	10.7	5.0	2.?	0.7
270	869.1	869.1	868.9	868.2	721.3	361.5	180.5	89.9	44.6	22.0	10.7	5.0	2.?	0.7
280	869.1	869.1	868.9	868.2	721.3	361.5	180.5	89.9	44.6	22.0	10.7	5.0	2.?	0.7
290	869.1	869.1	868.9	868.2	721.3	361.5	180.5	89.9	44.6	22.0	10.7	5.0	2.?	0.7
300	869.1	869.1	868.9	868.2	721.3	361.5	180.5	89.9	44.6	22.0	10.7	5.0	2.?	0.7

TABLE 15

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.14
CONCENTRATION OF Ca++ = 128.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	71.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	123.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	171.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	215.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	254.5	77.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	289.9	145.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	321.3	206.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	348.7	260.2	90.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	372.2	307.1	177.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	391.9	346.9	253.8	84.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	407.8	379.3	318.4	195.5	13.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	419.9	404.2	369.8	293.0	149.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	428.4	421.7	406.9	370.6	279.6	133.4	16.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	433.3	431.8	428.6	420.2	390.4	271.7	132.3	52.0	10.4	0.0	0.0	0.0	0.0	0.0
260	434.6	434.5	434.4	434.2	433.4	358.1	180.0	89.7	44.4	21.8	10.5	4.9	2.0	0.6
270	434.6	434.5	434.4	434.2	433.4	358.1	180.0	89.7	44.4	21.8	10.5	4.9	2.0	0.6
280	434.6	434.5	434.4	434.2	433.4	358.1	180.0	89.7	44.4	21.8	10.5	4.9	2.0	0.6
290	434.6	434.5	434.4	434.2	433.4	358.1	180.0	89.7	44.4	21.8	10.5	4.9	2.0	0.6
300	434.6	434.5	434.4	434.2	433.4	358.1	180.0	89.7	44.4	21.8	10.5	4.9	2.0	0.6

TABLE 16

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.14
CONCENTRATION OF Ca++ = 64.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	39.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	74.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	105.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	132.6	48.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	155.7	93.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	175.1	132.2	48.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	190.7	163.5	108.7	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	202.7	187.7	156.7	94.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	211.1	204.7	191.3	162.5	103.7	14.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	215.9	214.5	211.5	204.8	188.4	145.8	73.5	14.3	0.0	0.0	0.0	0.0	0.0	0.0
260	217.3	217.2	217.2	217.1	216.8	215.6	175.4	88.7	43.9	21.4	10.1	4.5	1.7	0.3
270	217.3	217.2	217.2	217.1	216.8	215.6	175.4	88.7	43.9	21.4	10.1	4.5	1.7	0.3
280	217.3	217.2	217.2	217.1	216.8	215.6	175.4	88.7	43.9	21.4	10.1	4.5	1.7	0.3
290	217.3	217.2	217.2	217.1	216.8	215.6	175.4	88.7	43.9	21.4	10.1	4.5	1.7	0.3
300	217.3	217.2	217.2	217.1	216.8	215.6	175.4	88.7	43.9	21.4	10.1	4.5	1.7	0.3

TABLE 17

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.14
CONCENTRATION OF Ca++ = 32.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	24.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	47.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	66.7	24.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	82.2	55.6	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	94.1	79.4	49.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	102.4	96.1	83.3	57.4	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	107.3	105.9	103.0	96.9	83.9	56.8	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
260	108.6	108.6	108.6	108.5	108.3	107.8	105.9	82.7	42.2	20.3	9.3	3.7	0.9	0.0
270	108.6	108.6	108.6	108.5	108.3	107.8	105.9	82.7	42.2	20.3	9.3	3.7	0.9	0.0
280	108.6	108.6	108.6	108.5	108.3	107.8	105.9	82.7	42.2	20.3	9.3	3.7	0.9	0.0
290	108.6	108.6	108.6	108.5	108.3	107.8	105.9	82.7	42.2	20.3	9.3	3.7	0.9	0.0
300	108.6	108.6	108.6	108.5	108.3	107.8	105.9	82.7	42.2	20.3	9.3	3.7	0.9	0.0

TABLE 18

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.03
CONCENTRATION OF Ca++ = 512.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	959.5	246.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	1002.7	316.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	1043.5	384.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	1082.1	448.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	1120.3	513.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	1156.7	575.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	1190.4	634.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	1222.5	690.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	1253.0	745.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	1317.1	861.3	158.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	1376.9	972.8	310.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	1431.7	1078.1	460.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	1481.8	1176.9	606.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	1527.3	1269.1	749.6	128.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	1568.1	1354.1	889.0	279.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	1604.3	1431.7	1024.3	427.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	1636.1	1501.5	1154.9	574.9	102.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	1663.5	1562.9	1279.6	720.0	231.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	1686.5	1615.6	1396.8	863.3	354.0	57.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	1705.3	1659.3	1503.9	1004.3	467.5	155.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	1719.7	1693.6	1597.2	1142.0	568.0	239.8	70.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	1730.0	1718.2	1671.6	1273.8	649.8	305.3	130.2	42.2	0.0	0.0	0.0	0.0	0.0	0.0
240	1736.2	1733.2	1720.5	1390.0	704.8	347.4	167.9	78.0	33.0	10.5	0.0	0.0	0.0	0.0
250	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.7	45.3	22.7	11.3	5.7	2.8	1.4
260	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.7	45.3	22.7	11.3	5.7	2.8	1.4
270	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.7	45.3	22.7	11.3	5.7	2.8	1.4
280	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.7	45.3	22.7	11.3	5.7	2.8	1.4
290	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.7	45.3	22.7	11.3	5.7	2.8	1.4
300	1738.3	1738.3	1738.3	1450.4	725.2	362.6	181.3	90.7	45.3	22.7	11.3	5.7	2.8	1.4

TABLE 19

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.03
CONCENTRATION OF Ca++ = 256.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	93.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	140.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	185.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	228.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	270.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	310.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	347.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	382.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	415.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	475.3	100.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	531.1	200.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	582.3	295.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	629.1	382.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	671.4	464.1	97.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	709.5	538.6	220.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	743.3	606.0	336.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	772.9	666.2	444.7	98.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	798.5	718.8	544.9	238.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	820.0	763.9	635.0	375.5	65.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	837.5	801.0	713.3	507.6	208.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	851.1	830.2	777.8	632.1	350.9	107.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	860.9	851.2	826.4	743.5	490.6	224.7	70.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	866.9	864.2	857.2	829.7	624.9	318.1	147.3	60.4	16.6	0.0	0.0	0.0	0.0	0.0
250	869.2	869.1	869.0	868.7	723.5	362.1	180.9	90.3	45.0	22.4	11.0	5.4	2.5	1.1
260	869.2	869.1	869.0	868.7	723.5	362.1	180.9	90.3	45.0	22.4	11.0	5.4	2.5	1.1
270	869.2	869.1	869.0	868.7	723.5	362.1	180.9	90.3	45.0	22.4	11.0	5.4	2.5	1.1
280	869.2	869.1	869.0	868.7	723.5	362.1	180.9	90.3	45.0	22.4	11.0	5.4	2.5	1.1
290	869.2	869.1	869.0	868.7	723.5	362.1	180.9	90.3	45.0	22.4	11.0	5.4	2.5	1.1
300	869.2	869.1	869.0	868.7	723.5	362.1	180.9	90.3	45.0	22.4	11.0	5.4	2.5	1.1

TABLE 20

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.03
CONCENTRATION OF Ca++ = 128.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	53.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	107.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	156.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	201.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	242.7	55.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	279.5	125.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	312.3	188.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	340.9	244.8	63.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	365.7	294.0	152.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	386.5	336.0	232.5	49.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	403.5	370.6	300.8	164.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	416.8	397.7	356.3	266.4	110.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	426.3	417.5	397.7	350.7	243.2	92.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	432.2	429.7	424.0	409.3	362.1	232.4	102.1	26.2	0.0	0.0	0.0	0.0	0.0	0.0
250	434.5	434.5	434.4	434.1	433.0	356.6	179.4	89.3	44.1	21.5	10.2	4.6	1.8	0.3
260	434.5	434.5	434.4	434.1	433.0	356.6	179.4	89.3	44.1	21.5	10.2	4.6	1.8	0.3
270	434.5	434.5	434.4	434.1	433.0	356.6	179.4	89.3	44.1	21.5	10.2	4.6	1.8	0.3
280	434.5	434.5	434.4	434.1	433.0	356.6	179.4	89.3	44.1	21.5	10.2	4.6	1.8	0.3
290	434.5	434.5	434.4	434.1	433.0	356.6	179.4	89.3	44.1	21.5	10.2	4.6	1.8	0.3
300	434.5	434.5	434.4	434.1	433.0	356.6	179.4	89.3	44.1	21.5	10.2	4.6	1.8	0.3

TABLE 21

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.03
CONCENTRATION OF Ca++ = 64.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	28.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	64.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	96.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	124.9	33.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	149.2	81.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	169.8	121.6	28.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	186.5	155.1	92.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	199.6	181.4	144.1	71.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	209.0	200.5	182.7	145.3	73.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	214.9	212.4	207.2	195.6	168.3	109.6	33.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	217.2	217.2	217.1	216.8	216.1	213.3	168.9	86.1	41.9	19.6	8.5	2.9	0.1	0.0
260	217.2	217.2	217.1	216.8	216.1	213.3	168.9	86.1	41.9	19.6	8.5	2.9	0.1	0.0
270	217.2	217.2	217.1	216.8	216.1	213.3	168.9	86.1	41.9	19.6	8.5	2.9	0.1	0.0
280	217.2	217.2	217.1	216.8	216.1	213.3	168.9	86.1	41.9	19.6	8.5	2.9	0.1	0.0
290	217.2	217.2	217.1	216.8	216.1	213.3	168.9	86.1	41.9	19.6	8.5	2.9	0.1	0.0
300	217.2	217.2	217.1	216.8	216.1	213.3	168.9	86.1	41.9	19.6	8.5	2.9	0.1	0.0

TABLE 22

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.03
CONCENTRATION OF Ca++ = 32.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	41.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	61.4	14.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	78.0	47.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	91.0	73.2	37.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	100.4	92.0	75.1	41.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	106.2	103.8	98.7	88.3	66.5	26.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	108.6	108.5	108.4	108.1	107.6	106.0	100.4	72.2	36.1	15.5	4.9	0.0	0.0	0.0
260	108.6	108.5	108.4	108.1	107.6	106.0	100.4	72.2	36.1	15.5	4.9	0.0	0.0	0.0
270	108.6	108.5	108.4	108.1	107.6	106.0	100.4	72.2	36.1	15.5	4.9	0.0	0.0	0.0
280	108.6	108.5	108.4	108.1	107.6	106.0	100.4	72.2	36.1	15.5	4.9	0.0	0.0	0.0
290	108.6	108.5	108.4	108.1	107.6	106.0	100.4	72.2	36.1	15.5	4.9	0.0	0.0	0.0
300	108.6	108.5	108.4	108.1	107.6	106.0	100.4	72.2	36.1	15.5	4.9	0.0	0.0	0.0

TABLE 23

$CaSO_4$ PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.03
CONCENTRATION OF Ca^{++} = 16.0 meq/l

AMOUNT OF $CaSO_4$ PRECIPITATE (meq/l) AT SO_4^{--} CONC (meq/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	7.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	36.7	19.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	46.1	37.8	21.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	51.9	49.5	44.5	34.6	14.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	54.3	54.2	54.1	53.8	53.3	52.0	49.0	40.3	22.8	7.5	0.0	0.0	0.0	0.0
260	54.3	54.2	54.1	53.8	53.3	52.0	49.0	40.3	22.8	7.5	0.0	0.0	0.0	0.0
270	54.3	54.2	54.1	53.8	53.3	52.0	49.0	40.3	22.8	7.5	0.0	0.0	0.0	0.0
280	54.3	54.2	54.1	53.8	53.3	52.0	49.0	40.3	22.8	7.5	0.0	0.0	0.0	0.0
290	54.3	54.2	54.1	53.8	53.3	52.0	49.0	40.3	22.8	7.5	0.0	0.0	0.0	0.0
300	54.3	54.2	54.1	53.8	53.3	52.0	49.0	40.3	22.8	7.5	0.0	0.0	0.0	0.0

TABLE 24

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.014
CONCENTRATION OF Ca++ = 256.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	151.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	190.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	228.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	263.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	298.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	332.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	363.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	392.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	420.5	3.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	480.1	108.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	535.6	209.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	586.5	302.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	632.9	390.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	674.9	470.8	108.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	712.6	544.7	230.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	746.0	611.6	345.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	775.3	671.1	453.9	110.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	800.5	723.1	553.3	250.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	821.7	767.5	642.5	387.5	78.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	838.9	803.9	719.6	519.0	221.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	852.2	832.4	782.8	642.7	363.4	118.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	861.6	852.7	829.9	752.5	502.9	234.3	78.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	867.2	865.0	859.0	835.5	636.3	324.5	152.4	64.9	20.9	0.0	0.0	0.0	0.0	0.0
250	869.2	869.2	869.2	869.2	725.1	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
260	869.2	869.2	869.2	869.2	725.1	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
270	869.2	869.2	869.2	869.2	725.1	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
280	869.2	869.2	869.2	869.2	725.1	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
290	869.2	869.2	869.2	869.2	725.1	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
300	869.2	869.2	869.2	869.2	725.1	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4

TABLE 25

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.014
CONCENTRATION OF Ca++ = 128.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	57.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	111.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	160.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	205.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	246.1	61.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	282.6	131.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	314.9	193.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	343.3	249.4	71.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	367.7	298.0	160.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	388.2	339.3	239.1	60.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	404.9	373.3	306.3	173.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	417.8	399.8	360.6	274.8	122.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	427.0	418.8	400.7	357.1	254.5	105.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	432.6	430.4	425.5	413.0	371.3	244.7	111.9	34.6	0.0	0.0	0.0	0.0	0.0	0.0
250	434.6	434.6	434.6	434.5	434.3	361.4	180.9	90.4	45.1	22.5	11.1	5.5	2.6	1.2
260	434.6	434.6	434.6	434.5	434.3	361.4	180.9	90.4	45.1	22.5	11.1	5.5	2.6	1.2
270	434.6	434.6	434.6	434.5	434.3	361.4	180.9	90.4	45.1	22.5	11.1	5.5	2.6	1.2
280	434.6	434.6	434.6	434.5	434.3	361.4	180.9	90.4	45.1	22.5	11.1	5.5	2.6	1.2
290	434.6	434.6	434.6	434.5	434.3	361.4	180.9	90.4	45.1	22.5	11.1	5.5	2.6	1.2
300	434.6	434.6	434.6	434.5	434.3	361.4	180.9	90.4	45.1	22.5	11.1	5.5	2.6	1.2

TABLE 26

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.014
CONCENTRATION OF Ca++ = 64.0 ms/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (ms/l) AT SO4-- CONC (ms/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	31.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	67.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	99.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	127.2	37.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	151.2	84.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	171.4	124.9	34.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	187.8	157.7	97.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	200.6	183.4	148.1	78.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	209.7	201.9	185.5	150.8	82.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	215.3	213.1	208.7	198.7	175.0	121.0	45.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	217.3	217.3	217.2	217.2	217.0	216.3	177.7	89.5	44.5	21.9	10.6	5.0	2.2	0.8
260	217.3	217.3	217.2	217.2	217.0	216.3	177.7	89.5	44.5	21.9	10.6	5.0	2.2	0.8
270	217.3	217.3	217.2	217.2	217.0	216.3	177.7	89.5	44.5	21.9	10.6	5.0	2.2	0.8
280	217.3	217.3	217.2	217.2	217.0	216.3	177.7	89.5	44.5	21.9	10.6	5.0	2.2	0.8
290	217.3	217.3	217.2	217.2	217.0	216.3	177.7	89.5	44.5	21.9	10.6	5.0	2.2	0.8
300	217.3	217.3	217.2	217.2	217.0	216.3	177.7	89.5	44.5	21.9	10.6	5.0	2.2	0.8

TABLE 27

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.014
CONCENTRATION OF Ca++ = 32.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	19.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	43.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	63.0	17.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	79.3	49.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	92.0	75.2	41.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	101.1	93.4	77.7	46.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	106.6	104.5	100.2	91.2	72.3	36.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	108.6	108.6	108.6	108.5	108.4	107.9	106.3	83.5	42.6	20.6	9.5	4.0	1.2	0.0
260	108.6	108.6	108.6	108.5	108.4	107.9	106.3	83.5	42.6	20.6	9.5	4.0	1.2	0.0
270	108.6	108.6	108.6	108.5	108.4	107.9	106.3	83.5	42.6	20.6	9.5	4.0	1.2	0.0
280	108.6	108.6	108.6	108.5	108.4	107.9	106.3	83.5	42.6	20.6	9.5	4.0	1.2	0.0
290	108.6	108.6	108.6	108.5	108.4	107.9	106.3	83.5	42.6	20.6	9.5	4.0	1.2	0.0
300	108.6	108.6	108.6	108.5	108.4	107.9	106.3	83.5	42.6	20.6	9.5	4.0	1.2	0.0

TABLE 28

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.014
CONCENTRATION OF Ca++ = 16.0 ms/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (ms/l) AT SO4-- CONC (ms/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0,0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	8.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	25.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	37.7	21.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	46.7	39.1	23.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	52.3	50.2	45.9	37.4	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	54.3	54.3	54.3	54.2	54.0	53.7	52.8	49.5	35.1	17.3	7.1	1.9	0.0	0.0
260	54.3	54.3	54.3	54.2	54.0	53.7	52.8	49.5	35.1	17.3	7.1	1.9	0.0	0.0
270	54.3	54.3	54.3	54.2	54.0	53.7	52.8	49.5	35.1	17.3	7.1	1.9	0.0	0.0
280	54.3	54.3	54.3	54.2	54.0	53.7	52.8	49.5	35.1	17.3	7.1	1.9	0.0	0.0
290	54.3	54.3	54.3	54.2	54.0	53.7	52.8	49.5	35.1	17.3	7.1	1.9	0.0	0.0
300	54.3	54.3	54.3	54.2	54.0	53.7	52.8	49.5	35.1	17.3	7.1	1.9	0.0	0.0

TABLE 29

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.006
CONCENTRATION OF Ca++ = 256.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	156.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	195.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	232.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	266.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	301.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	334.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	364.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	393.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	420.8	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	480.4	109.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	535.9	209.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	586.8	303.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	633.2	390.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	675.2	471.4	109.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	712.8	545.3	231.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	746.3	612.0	346.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	775.5	671.5	454.7	111.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	800.7	723.5	554.0	252.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	821.8	767.8	643.1	388.6	79.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	839.0	804.2	720.2	520.1	222.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	852.3	832.6	783.3	643.7	364.7	119.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	861.7	852.9	830.2	753.4	504.1	235.2	79.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	867.3	865.1	859.2	836.0	637.4	325.2	152.8	65.3	21.3	0.0	0.0	0.0	0.0	0.0
250	869.2	869.2	869.2	869.2	725.2	362.6	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
260	869.2	869.2	869.2	869.2	725.2	362.6	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
270	869.2	869.2	869.2	869.2	725.2	362.6	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
280	869.2	869.2	869.2	869.2	725.2	362.6	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
290	869.2	869.2	869.2	869.2	725.2	362.6	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
300	869.2	869.2	869.2	869.2	725.2	362.6	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4

TABLE 30

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.006
CONCENTRATION OF Ca++ = 128.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	60.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	113.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	162.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	207.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	247.9	65.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	284.2	134.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	316.4	196.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	344.5	251.9	75.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	368.8	300.2	164.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	389.1	341.1	242.6	66.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	405.6	374.7	309.3	179.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	418.3	400.9	362.9	279.3	129.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	427.4	419.6	402.3	360.5	260.7	112.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	432.8	430.8	426.4	414.9	376.2	251.4	117.1	39.1	0.0	0.0	0.0	0.0	0.0	0.0
250	434.6	434.6	434.6	434.6	434.6	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
260	434.6	434.6	434.6	434.6	434.6	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
270	434.6	434.6	434.6	434.6	434.6	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
280	434.6	434.6	434.6	434.6	434.6	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
290	434.6	434.6	434.6	434.6	434.6	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4
300	434.6	434.6	434.6	434.6	434.6	362.5	181.2	90.6	45.3	22.7	11.3	5.7	2.8	1.4

TABLE 31

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.006
CONCENTRATION OF Ca++ = 64.0 mg/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	33.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	69.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	100.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	128.6	40.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	152.4	87.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	172.4	126.8	37.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	188.6	159.3	100.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	201.2	184.6	150.5	82.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	210.1	202.6	187.1	154.0	88.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	215.4	213.5	209.5	200.5	178.8	127.8	53.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	217.3	217.3	217.3	217.3	217.3	217.2	180.7	90.5	45.2	22.6	11.2	5.6	2.7	1.3
260	217.3	217.3	217.3	217.3	217.3	217.2	180.7	90.5	45.2	22.6	11.2	5.6	2.7	1.3
270	217.3	217.3	217.3	217.3	217.3	217.2	180.7	90.5	45.2	22.6	11.2	5.6	2.7	1.3
280	217.3	217.3	217.3	217.3	217.3	217.2	180.7	90.5	45.2	22.6	11.2	5.6	2.7	1.3
290	217.3	217.3	217.3	217.3	217.3	217.2	180.7	90.5	45.2	22.6	11.2	5.6	2.7	1.3
300	217.3	217.3	217.3	217.3	217.3	217.2	180.7	90.5	45.2	22.6	11.2	5.6	2.7	1.3

TABLE 32

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.006
CONCENTRATION OF Ca++ = 32.0 mg/l

AMOUNT OF CaSO4 PRECIPITATE (mg/l) AT SO4-- CONC (mg/l) OF

TEMP (oC)	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	44.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	64.0	19.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	80.1	51.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	92.6	76.3	43.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	101.4	94.1	79.3	49.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	106.8	104.9	101.0	92.9	75.7	41.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	108.6	108.6	108.6	108.6	108.6	108.5	108.2	88.9	44.8	22.3	11.0	5.3	2.5	1.1
260	108.6	108.6	108.6	108.6	108.6	108.5	108.2	88.9	44.8	22.3	11.0	5.3	2.5	1.1
270	108.6	108.6	108.6	108.6	108.6	108.5	108.2	88.9	44.8	22.3	11.0	5.3	2.5	1.1
280	108.6	108.6	108.6	108.6	108.6	108.5	108.2	88.9	44.8	22.3	11.0	5.3	2.5	1.1
290	108.6	108.6	108.6	108.6	108.6	108.5	108.2	88.9	44.8	22.3	11.0	5.3	2.5	1.1
300	108.6	108.6	108.6	108.6	108.6	108.5	108.2	88.9	44.8	22.3	11.0	5.3	2.5	1.1

TABLE 33

CaSO4 PRECIPITATION AS THE INJECTION WATER IS HEATED

EQUIVALENT NaCl MOLARITY = 0.006
CONCENTRATION OF Ca++ = 16.0 ms/l

TEMP (oC)	AMOUNT OF CaSO4 PRECIPITATE (ms/l) AT SO4-- CONC (ms/l) OF													
	8192	4096	2048	1024	512	256	128	64	32	16	8	4	2	1
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
120	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
130	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
160	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
170	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
180	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
200	9.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210	25.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
220	38.3	22.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
230	47.1	39.9	25.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
240	52.5	50.6	46.7	39.0	23.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
250	54.3	54.3	54.3	54.3	54.3	54.2	54.0	53.2	41.9	21.4	10.4	4.8	2.0	0.6
260	54.3	54.3	54.3	54.3	54.3	54.2	54.0	53.2	41.9	21.4	10.4	4.8	2.0	0.6
270	54.3	54.3	54.3	54.3	54.3	54.2	54.0	53.2	41.9	21.4	10.4	4.8	2.0	0.6
280	54.3	54.3	54.3	54.3	54.3	54.2	54.0	53.2	41.9	21.4	10.4	4.8	2.0	0.6
290	54.3	54.3	54.3	54.3	54.3	54.2	54.0	53.2	41.9	21.4	10.4	4.8	2.0	0.6
300	54.3	54.3	54.3	54.3	54.3	54.2	54.0	53.2	41.9	21.4	10.4	4.8	2.0	0.6

TABLE 34

CHEMICAL ANALYSIS OF THE INJECTION AND PRODUCTION WATERS

CONSTITUENT	CONCENTRATION (mg/l) INJECTION WATER	PRODUCTION WATER
Li+	3.2	710.0
Na+	10,600.0	61,970.0
K+	195.0	8,730.0
Ca++	850.0	20,080.0
Mg++	1,200.0	400.0
Ba++	0.07	1,745.0
Sr++	13.5	1,430.0
Cl-	14,730.0	147,000.0
SO4--	VARIABLE	<1.0

TABLE 35

ASSUMED PRESSURES AND TEMPERATURES FOR INJECTION OPERATION

NO.	LOCATION	TEMP (°C)	PRES. (ATM)
1.	Injector Feed	38	24.8
2.	Bottom of Injector	94	400.0
3.	Reservoir (Static)	288	390.0
4.	Flowing Bottom Hole	288	383.0
5.	Producer Wellhead	240	30.0
6.	Surface Facilities		
	a) First Flash Cycle	237	28.5
	b) Second Flash Cycle	125	5.0
	c) Third Flash Cycle	115	2.0
	d) Brine Discharge System	91	1.0

TABLE 36

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (ms/l) OF THHE INJECTION WATER = 8192.0)

PRECIPITATION (ms/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	191.22	0.00	0.00	0.00	0.00	0.00	0.00
4	222.06	1.60	250.98	0.00	0.00	0.00	0.00	0.00	0.00
6	473.57	56.45	254.09	0.00	0.00	0.00	0.00	0.00	0.00
8	701.43	128.53	258.18	0.00	0.00	0.00	0.00	0.00	0.00
10	894.74	225.29	264.09	0.00	0.00	0.00	0.00	0.00	0.00
12	1038.06	356.18	273.84	0.00	0.00	0.00	0.00	0.00	0.00
14	1115.35	526.47	292.87	0.00	0.00	0.00	0.00	0.00	0.00
16	1124.22	678.93	364.99	0.00	0.00	0.00	0.00	0.00	0.00
18	1097.88	821.99	464.58	0.00	0.00	0.00	0.00	0.00	0.00
20	1060.92	928.99	597.05	0.00	0.00	0.00	0.00	0.00	0.00
22	1021.45	988.28	766.15	0.00	0.00	0.00	0.00	0.00	0.00
24	985.37	1142.13	862.74	0.00	0.00	0.01	0.00	0.00	0.00
26	953.11	1251.58	989.61	0.00	0.00	0.01	0.00	0.00	0.00
28	921.80	1315.56	1149.49	0.00	0.00	0.02	0.00	0.00	0.00
30	888.13	1347.84	1334.42	0.00	0.00	0.02	0.00	0.00	0.00
32	860.56	1366.79	1525.48	0.00	0.00	0.03	0.00	0.00	0.00
34	835.97	1313.32	1768.25	0.00	0.00	0.04	0.00	0.00	0.00
36	814.02	1210.88	2045.52	0.00	0.00	0.04	0.00	0.00	2.39
38	794.90	1108.47	2320.84	0.00	0.00	0.06	0.00	0.00	5.59
40	779.12	1006.45	2593.59	0.00	0.00	0.07	0.00	0.00	8.77
42	774.65	907.18	2856.59	0.00	0.00	0.09	0.00	0.00	13.20
44	775.53	820.73	3106.37	0.00	0.00	0.11	0.00	0.00	18.29
46	783.59	786.77	3312.40	0.00	0.00	0.13	0.00	0.00	24.12
48	796.45	756.17	3512.38	0.00	0.00	0.16	0.00	0.00	30.81
50	813.49	729.83	3705.87	0.00	0.00	0.20	0.00	0.00	38.52
52	833.51	708.82	3892.65	0.00	0.00	0.24	0.00	0.00	47.58
54	889.08	716.21	4031.00	0.00	0.00	0.32	0.00	0.00	64.01
56	940.70	744.59	4151.81	0.00	0.00	0.42	0.00	0.00	85.15
58	970.41	784.91	4272.62	0.00	0.00	0.54	0.00	0.00	110.61
60	969.47	811.33	4421.21	0.00	0.00	0.67	0.00	0.00	136.43
62	953.71	824.66	4585.49	0.00	0.00	0.81	0.00	0.00	165.13
64	929.16	826.41	4758.48	0.00	0.00	0.99	0.00	0.00	199.01
66	897.75	816.93	4937.58	0.00	0.00	1.20	0.00	0.00	238.96
68	860.94	797.71	5119.16	0.00	0.00	1.45	0.00	0.00	286.69
70	819.83	771.00	5298.68	0.00	0.00	1.76	0.00	0.00	345.09
72	776.47	737.90	5471.68	0.00	0.00	2.15	0.00	0.00	416.26
74	730.39	699.73	5633.23	0.00	0.04	2.59	0.00	0.00	504.41
76	681.46	657.70	5775.61	0.00	0.01	3.20	0.00	0.00	616.42
78	630.25	612.36	5888.58	0.00	0.02	3.93	0.00	0.00	761.48
80	577.19	564.33	5957.07	0.00	0.00	4.87	0.00	0.00	952.88
82	522.62	513.91	5958.90	0.00	0.02	5.98	0.00	0.00	1209.07
84	466.76	461.29	5877.80	0.01	0.03	7.22	0.00	0.00	1533.80
86	409.80	406.80	5697.22	0.01	0.03	8.34	0.00	0.00	1903.29
88	352.21	351.05	5342.23	0.01	0.03	9.20	0.00	0.00	2254.08
90	294.11	293.92	4782.61	0.01	0.03	9.49	0.00	0.00	2271.63
92	235.64	235.95	4064.31	0.01	0.03	9.02	0.32	0.00	1934.76
94	176.88	177.45	3170.34	0.01	0.03	8.18	0.41	0.00	1568.51
96	117.95	118.55	2145.89	0.00	0.02	7.25	0.33	0.00	1283.93
98	58.90	59.38	1031.35	0.00	0.02	6.39	0.24	0.00	1071.23
100	0.00	0.03	0.00	0.00	0.02	0.00	0.00	0.00	750.13

TABLE 37

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 8192.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.51	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.99	0.00	0.00	3.53	0.00	0.00
30	0.00	0.00	0.00	1.82	0.00	0.00	1.71	0.00	0.00	3.49	0.00	0.00
32	0.00	0.00	0.00	4.76	0.00	0.00	1.72	0.00	0.00	3.47	0.00	0.00
34	0.00	0.00	0.00	8.09	0.00	0.00	1.80	0.00	0.00	3.52	0.00	0.00
36	0.00	0.00	0.00	6.99	0.00	0.00	1.84	0.00	0.00	3.61	0.00	0.00
38	0.00	0.00	0.00	4.82	0.00	0.00	1.89	0.00	0.00	3.69	0.00	0.00
40	0.00	0.00	0.00	3.39	0.00	0.00	1.94	0.00	0.00	3.80	0.00	0.00
42	0.00	0.00	0.00	1.83	0.00	0.00	2.03	0.00	0.00	3.96	0.00	0.00
44	0.00	0.00	0.00	0.25	0.00	0.00	2.06	0.00	0.00	4.15	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00	4.32	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	2.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	3.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	4.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	6.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	9.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	12.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	18.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	27.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	42.42	0.00	0.00	0.00	0.00	0.00	0.00	0.90	0.00	0.00
86	0.00	0.00	72.18	0.00	0.00	0.00	0.00	0.00	0.00	2.78	0.00	0.00
88	0.00	0.00	125.74	1.49	0.00	0.00	0.60	0.00	0.00	1.27	0.00	0.00
90	0.00	0.00	135.82	2.33	0.00	0.00	0.19	0.00	0.00	0.41	0.00	0.00
92	0.00	0.00	80.53	1.44	0.00	0.00	0.08	0.00	0.00	0.18	0.00	0.00
94	0.01	0.00	55.98	0.77	0.00	0.00	0.04	0.00	0.00	0.09	0.00	0.00
96	0.01	0.00	37.48	0.46	0.00	0.00	0.03	0.00	0.00	0.06	0.00	0.00
98	0.01	0.00	29.34	0.28	0.00	0.00	0.02	0.00	0.00	0.04	0.00	0.00
100	0.00	0.00	23.72	0.06	0.00	17.05	0.01	0.00	0.00	0.02	0.00	0.00

TABLE 38

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 4096.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	92.68	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	184.60	0.00	0.00	0.00	0.00	0.00	0.00
6	58.74	0.00	242.23	0.00	0.00	0.00	0.00	0.00	0.00
8	179.41	16.43	251.54	0.00	0.00	0.00	0.00	0.00	0.00
10	295.11	47.94	252.53	0.00	0.00	0.00	0.00	0.00	0.00
12	404.28	84.42	253.62	0.00	0.00	0.00	0.00	0.00	0.00
14	505.19	124.67	256.71	0.00	0.00	0.00	0.00	0.00	0.00
16	595.81	126.70	294.10	0.00	0.00	0.00	0.00	0.00	0.00
18	679.61	128.70	335.45	0.00	0.00	0.00	0.00	0.00	0.00
20	752.43	132.77	381.65	0.00	0.00	0.00	0.00	0.00	0.00
22	810.22	142.77	432.00	0.00	0.00	0.00	0.00	0.00	0.00
24	852.35	267.42	406.07	0.00	0.00	0.01	0.00	0.00	0.00
26	875.76	407.44	379.27	0.00	0.00	0.01	0.00	0.00	0.00
28	877.80	558.45	356.73	0.00	0.00	0.02	0.00	0.00	0.00
30	862.02	714.01	341.35	0.00	0.00	0.02	0.00	0.00	0.00
32	843.58	867.23	329.10	0.00	0.00	0.03	0.00	0.00	0.00
34	823.53	949.61	370.07	0.00	0.00	0.04	0.00	0.00	0.09
36	803.68	963.75	461.28	0.00	0.00	0.04	0.00	0.00	3.24
38	785.22	950.30	571.88	0.00	0.00	0.05	0.00	0.00	5.96
40	769.75	910.87	699.63	0.00	0.00	0.06	0.00	0.00	9.06
42	763.91	851.65	835.45	0.00	0.00	0.08	0.00	0.00	13.23
44	762.61	788.52	971.00	0.00	0.00	0.10	0.00	0.00	17.97
46	767.74	767.90	1070.73	0.00	0.00	0.12	0.00	0.00	23.34
48	777.00	742.57	1170.89	0.00	0.00	0.15	0.00	0.00	29.42
50	789.90	717.02	1268.35	0.00	0.00	0.18	0.00	0.00	36.53
52	805.53	694.14	1361.41	0.00	0.00	0.22	0.00	0.00	44.51
54	861.41	698.43	1404.17	0.00	0.00	0.29	0.00	0.00	59.86
56	911.08	718.43	1435.95	0.00	0.00	0.38	0.00	0.00	78.45
58	942.35	750.68	1466.24	0.00	0.00	0.49	0.00	0.00	100.44
60	942.18	770.67	1524.88	0.00	0.00	0.60	0.00	0.00	121.31
62	929.12	783.92	1593.74	0.00	0.00	0.71	0.00	0.00	144.39
64	907.04	788.21	1671.05	0.00	0.00	0.85	0.00	0.00	170.56
66	877.82	782.13	1756.08	0.00	0.00	1.02	0.00	0.00	200.59
68	842.97	766.47	1846.51	0.00	0.00	1.21	0.00	0.00	235.73
70	803.62	742.80	1939.46	0.00	0.00	1.44	0.00	0.00	276.80
72	762.12	712.52	2031.81	0.00	0.00	1.71	0.00	0.00	324.39
74	717.91	676.88	2120.97	0.00	0.00	2.03	0.00	0.00	380.43
76	670.68	637.22	2203.50	0.00	0.04	2.39	0.00	0.00	447.50
78	620.99	594.16	2275.39	0.00	0.00	2.88	0.00	0.00	528.57
80	569.32	548.19	2331.59	0.00	0.02	3.43	0.00	0.00	627.73
82	516.03	499.87	2365.29	0.00	0.02	4.11	0.00	0.00	750.55
84	461.17	448.89	2384.83	0.00	0.00	4.87	0.00	0.00	885.57
86	405.09	396.05	2382.96	0.00	0.02	5.66	0.00	0.00	1035.99
88	348.39	342.12	2330.02	0.00	0.02	6.60	0.00	0.00	1226.52
90	291.15	286.57	2214.67	0.01	0.03	7.63	0.00	0.00	1469.51
92	233.49	230.26	2032.79	0.01	0.03	8.57	0.00	0.00	1729.32
94	175.42	173.54	1721.80	0.01	0.03	9.36	0.00	0.00	1996.86
96	117.03	116.32	1246.98	0.01	0.03	9.74	0.00	0.00	2140.22
98	58.35	58.54	591.43	0.00	0.03	9.55	0.08	0.00	1991.78
100	0.00	0.06	0.00	0.00	0.04	0.00	0.00	0.00	1437.37

TABLE 39

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 4096.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.85	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.00	3.41	0.00	0.00
30	0.00	0.00	0.00	1.89	0.00	0.00	1.68	0.00	0.00	3.42	0.00	0.00
32	0.00	0.00	0.00	4.66	0.00	0.00	1.70	0.00	0.00	3.42	0.00	0.00
34	0.00	0.00	0.00	7.60	0.00	0.00	1.78	0.00	0.00	3.48	0.00	0.00
36	0.00	0.00	0.00	4.67	0.00	0.00	1.82	0.00	0.00	3.57	0.00	0.00
38	0.00	0.00	0.00	3.19	0.00	0.00	1.87	0.00	0.00	3.66	0.00	0.00
40	0.00	0.00	0.00	1.71	0.00	0.00	1.92	0.00	0.00	3.76	0.00	0.00
42	0.00	0.00	0.00	0.14	0.00	0.00	2.00	0.00	0.00	3.91	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	4.08	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.20	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	3.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	4.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	5.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	7.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	9.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	12.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	15.97	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00
84	0.00	0.00	20.86	0.00	0.00	0.00	0.00	0.00	0.00	2.48	0.00	0.00
86	0.00	0.00	27.74	0.00	0.00	0.00	0.00	0.00	0.00	3.67	0.00	0.00
88	0.00	0.00	37.98	0.00	0.00	0.00	0.00	0.00	0.00	4.04	0.00	0.00
90	0.00	0.00	46.21	0.00	0.00	0.00	1.05	0.00	0.00	2.61	0.00	0.00
92	0.00	0.00	65.85	0.86	0.00	0.00	0.69	0.00	0.00	1.49	0.00	0.00
94	0.00	0.00	91.43	1.40	0.00	0.00	0.34	0.00	0.00	0.73	0.00	0.00
96	0.00	0.00	101.97	1.43	0.00	0.00	0.15	0.00	0.00	0.32	0.00	0.00
98	0.00	0.00	84.92	1.01	0.00	0.00	0.06	0.00	0.00	0.13	0.00	0.00
100	0.00	0.00	59.46	0.00	0.00	48.07	0.00	0.00	0.00	0.03	0.00	0.00

TABLE 40

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 2048.0)

PRECIPITATION (mg/l)

%INJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	56.57	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	112.37	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	168.14	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	223.88	0.00	0.00	0.00	0.00	0.00	0.00
10	42.29	6.43	250.14	0.00	0.00	0.00	0.00	0.00	0.00
12	110.78	27.61	250.18	0.00	0.00	0.00	0.00	0.00	0.00
14	176.64	48.67	251.80	0.00	0.00	0.00	0.00	0.00	0.00
16	239.42	27.60	286.43	0.00	0.00	0.00	0.00	0.00	0.00
18	303.55	1.89	323.67	0.00	0.00	0.00	0.00	0.00	0.00
20	367.16	0.00	343.54	0.00	0.00	0.00	0.00	0.00	0.00
22	430.08	0.00	362.16	0.00	0.00	0.00	0.00	0.00	0.00
24	494.05	14.88	368.70	0.00	0.00	0.01	0.00	0.00	0.00
26	556.91	93.13	328.53	0.00	0.00	0.01	0.00	0.00	0.00
28	611.00	177.34	289.06	0.00	0.00	0.02	0.00	0.00	0.00
30	653.27	267.99	251.82	0.00	0.00	0.02	0.00	0.00	0.00
32	690.47	364.05	213.35	0.00	0.00	0.03	0.00	0.00	0.00
34	718.28	418.36	211.11	0.00	0.00	0.03	0.00	0.00	0.47
36	735.56	440.44	238.67	0.00	0.00	0.04	0.00	0.00	3.51
38	742.98	461.36	272.61	0.00	0.00	0.05	0.00	0.00	6.22
40	744.62	477.96	312.71	0.00	0.00	0.07	0.00	0.00	9.38
42	748.31	488.21	355.44	0.00	0.00	0.08	0.00	0.00	13.50
44	752.05	497.84	398.11	0.00	0.00	0.10	0.00	0.00	18.15
46	759.52	546.21	409.36	0.00	0.00	0.12	0.00	0.00	23.37
48	769.37	584.82	425.86	0.00	0.00	0.15	0.00	0.00	29.31
50	781.74	612.59	448.25	0.00	0.00	0.18	0.00	0.00	36.12
52	800.46	632.00	471.84	0.00	0.00	0.22	0.00	0.00	44.28
54	856.29	666.30	456.51	0.00	0.00	0.29	0.00	0.00	59.33
56	904.16	701.48	442.64	0.00	0.00	0.38	0.00	0.00	77.08
58	934.05	738.50	435.19	0.00	0.00	0.48	0.00	0.00	97.76
60	932.18	756.91	461.69	0.00	0.00	0.57	0.00	0.00	116.49
62	919.71	770.20	495.62	0.00	0.00	0.68	0.00	0.00	137.48
64	898.30	774.96	538.12	0.00	0.00	0.81	0.00	0.00	161.01
66	869.73	769.71	588.73	0.00	0.00	0.96	0.00	0.00	187.99
68	835.50	755.19	645.39	0.00	0.00	1.14	0.00	0.00	219.00
70	796.73	732.69	705.71	0.00	0.00	1.34	0.00	0.00	254.70
72	755.86	703.22	767.36	0.00	0.00	1.58	0.00	0.00	295.13
74	712.38	668.64	827.49	0.00	0.00	1.85	0.00	0.00	342.05
76	665.81	629.91	884.02	0.00	0.00	2.18	0.00	0.00	396.99
78	616.73	587.66	934.10	0.00	0.05	2.53	0.00	0.00	461.79
80	565.62	542.60	974.26	0.00	0.01	3.01	0.00	0.00	538.95
82	512.85	495.08	1000.42	0.00	0.02	3.55	0.00	0.00	631.68
84	458.26	444.31	1029.22	0.00	0.03	4.09	0.00	0.00	720.73
86	402.52	392.10	1044.28	0.00	0.00	4.71	0.00	0.00	820.65
88	346.16	338.76	1031.88	0.00	0.02	5.42	0.00	0.00	948.11
90	289.20	283.41	998.83	0.00	0.02	6.19	0.00	0.00	1092.81
92	231.88	227.48	934.64	0.00	0.03	7.00	0.00	0.00	1254.49
94	174.16	171.34	805.46	0.00	0.03	7.90	0.00	0.00	1465.32
96	116.10	114.90	584.48	0.00	0.03	8.81	0.00	0.00	1722.26
98	57.73	58.08	239.02	0.00	0.03	9.55	0.00	0.00	1977.25
100	0.00	0.10	0.00	0.00	0.07	0.00	0.00	0.00	1798.62

TABLE 41
RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 2048.0)

PRECIPITATION (mg/l)

XINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	2.70	0.00	0.00
28	0.00	0.00	0.00	1.13	0.00	0.00	1.38	0.00	0.00	2.81	0.00	0.00
30	0.00	0.00	0.00	3.27	0.00	0.00	1.43	0.00	0.00	2.91	0.00	0.00
32	0.00	0.00	0.00	5.78	0.00	0.00	1.51	0.00	0.00	3.03	0.00	0.00
34	0.00	0.00	0.00	7.67	0.00	0.00	1.63	0.00	0.00	3.18	0.00	0.00
36	0.00	0.00	0.00	4.71	0.00	0.00	1.72	0.00	0.00	3.36	0.00	0.00
38	0.00	0.00	0.00	3.01	0.00	0.00	1.80	0.00	0.00	3.51	0.00	0.00
40	0.00	0.00	0.00	1.34	0.00	0.00	1.88	0.00	0.00	3.67	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	1.62	0.00	0.00	3.85	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.04	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.52	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	2.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	3.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	4.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	5.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	7.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	8.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	10.93	0.00	0.00	0.00	0.00	0.00	0.00	1.15	0.00	0.00
82	0.00	0.00	13.63	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00	0.00
84	0.00	0.00	17.05	0.00	0.00	0.00	0.00	0.00	0.00	4.49	0.00	0.00
86	0.00	0.00	21.49	0.00	0.00	0.00	0.00	0.00	0.00	5.33	0.00	0.00
88	0.00	0.00	24.46	0.00	0.00	0.00	0.00	0.00	0.00	5.29	0.00	0.00
90	0.00	0.00	30.49	0.00	0.00	0.00	0.85	0.00	0.00	3.72	0.00	0.00
92	0.00	0.00	39.12	0.16	0.00	0.00	1.13	0.00	0.00	2.44	0.00	0.00
94	0.00	0.00	46.00	0.69	0.00	0.00	0.70	0.00	0.00	1.50	0.00	0.00
96	0.00	0.00	61.63	0.89	0.00	0.00	0.41	0.00	0.00	0.88	0.00	0.00
98	0.00	0.00	83.80	0.97	0.00	0.00	0.20	0.00	0.00	0.44	0.00	0.00
100	0.00	0.00	95.74	0.00	0.00	109.53	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 42

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 1024.0)

PRECIPITATION (mg/l)

%INJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00
26	0.00	0.00	0.00	0.10	0.00	0.00	1.07	0.00	0.00	2.17	0.00	0.00
28	0.00	0.00	0.00	2.63	0.00	0.00	1.09	0.00	0.00	2.22	0.00	0.00
30	0.00	0.00	0.00	4.91	0.00	0.00	1.12	0.00	0.00	2.27	0.00	0.00
32	0.00	0.00	0.00	7.54	0.00	0.00	1.17	0.00	0.00	2.33	0.00	0.00
34	0.00	0.00	0.00	9.45	0.00	0.00	1.26	0.00	0.00	2.45	0.00	0.00
36	0.00	0.00	0.00	6.58	0.00	0.00	1.33	0.00	0.00	2.60	0.00	0.00
38	0.00	0.00	0.00	4.84	0.00	0.00	1.41	0.00	0.00	2.76	0.00	0.00
40	0.00	0.00	0.00	3.07	0.00	0.00	1.51	0.00	0.00	2.95	0.00	0.00
42	0.00	0.00	0.00	1.22	0.00	0.00	1.63	0.00	0.00	3.18	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	1.07	0.00	0.00	3.45	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	2.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	3.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	4.27	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
74	0.00	0.00	5.37	0.00	0.00	0.00	0.00	0.00	0.00	2.36	0.00	0.00
76	0.00	0.00	6.71	0.00	0.00	0.00	0.00	0.00	0.00	4.08	0.00	0.00
78	0.00	0.00	8.31	0.00	0.00	0.00	0.00	0.00	0.00	5.57	0.00	0.00
80	0.00	0.00	10.26	0.00	0.00	0.00	0.00	0.00	0.00	6.47	0.00	0.00
82	0.00	0.00	12.64	0.00	0.00	0.00	0.00	0.00	0.00	6.90	0.00	0.00
84	0.00	0.00	15.61	0.00	0.00	0.00	0.00	0.00	0.00	6.94	0.00	0.00
86	0.00	0.00	19.33	0.00	0.00	0.00	0.00	0.00	0.00	7.13	0.00	0.00
88	0.00	0.00	21.35	0.00	0.00	0.00	0.76	0.00	0.00	5.97	0.00	0.00
90	0.00	0.00	25.80	0.00	0.00	0.00	1.81	0.00	0.00	4.24	0.00	0.00
92	0.00	0.00	31.76	0.98	0.00	0.00	1.34	0.00	0.00	2.88	0.00	0.00
94	0.00	0.00	35.79	1.59	0.00	0.00	0.88	0.00	0.00	1.90	0.00	0.00
96	0.00	0.00	45.12	1.93	0.00	0.00	0.57	0.00	0.00	1.21	0.00	0.00
98	0.00	0.00	59.01	2.10	0.00	0.00	0.32	0.00	0.00	0.69	0.00	0.00
100	0.00	0.00	77.30	0.00	0.00	123.06	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 43

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (ms/l) OF THHE INJECTION WATER = 1024.0)

PRECIPITATION (ms/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	29.77	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	58.78	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	87.76	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	116.70	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	145.61	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	174.49	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	203.34	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	232.17	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	260.97	0.00	0.00	0.00	0.00	0.00	0.00
20	18.50	0.00	278.95	0.00	0.00	0.00	0.00	0.00	0.00
22	59.02	0.00	283.83	0.00	0.00	0.00	0.00	0.00	0.00
24	105.39	0.00	284.87	0.00	0.00	0.01	0.00	0.00	0.00
26	156.58	0.00	282.70	0.00	0.00	0.01	0.00	0.00	0.00
28	205.58	14.22	271.28	0.00	0.00	0.02	0.00	0.00	0.00
30	250.34	71.55	230.48	0.00	0.00	0.02	0.00	0.00	0.00
32	298.37	128.64	187.78	0.00	0.00	0.03	0.00	0.00	0.00
34	346.91	141.95	177.05	0.00	0.00	0.03	0.00	0.00	0.52
36	395.08	123.44	189.89	0.00	0.00	0.04	0.00	0.00	3.54
38	442.39	104.73	203.16	0.00	0.00	0.05	0.00	0.00	6.25
40	490.54	86.64	215.06	0.00	0.00	0.06	0.00	0.00	9.41
42	544.34	71.17	220.85	0.00	0.00	0.08	0.00	0.00	13.51
44	596.44	66.93	218.83	0.00	0.00	0.10	0.00	0.00	18.13
46	647.38	108.90	182.74	0.00	0.00	0.12	0.00	0.00	23.30
48	693.59	157.92	143.61	0.00	0.00	0.15	0.00	0.00	29.18
50	733.84	214.02	102.06	0.00	0.00	0.18	0.00	0.00	35.86
52	772.74	279.67	52.92	0.00	0.00	0.21	0.00	0.00	43.91
54	812.67	344.56	0.00	0.00	0.29	0.00	0.00	0.00	56.11
56	803.99	385.31	0.00	0.00	0.32	0.00	0.00	0.00	60.67
58	794.51	425.54	0.00	0.00	0.35	0.00	0.00	0.00	66.08
60	784.06	464.95	0.00	0.00	0.38	0.00	0.00	0.00	72.61
62	774.77	501.47	0.00	0.00	0.42	0.00	0.00	0.00	80.13
64	765.79	534.93	0.00	0.00	0.47	0.00	0.00	0.00	89.19
66	755.94	564.89	0.00	0.03	0.50	0.00	0.00	0.00	101.36
68	743.73	590.45	0.00	0.10	0.51	0.00	0.00	0.00	118.06
70	727.67	609.68	0.00	0.10	0.56	0.00	0.00	0.00	141.82
72	708.59	618.72	0.00	0.18	0.56	0.00	0.00	0.00	175.13
74	682.93	616.04	0.00	0.19	0.56	0.00	0.00	0.00	221.53
76	648.73	600.61	0.00	0.16	0.53	0.00	0.00	0.00	282.89
78	607.06	573.22	0.00	0.17	0.46	0.00	0.00	0.00	357.46
80	559.92	536.45	0.00	0.14	0.39	0.00	0.00	0.00	441.34
82	509.09	493.09	0.00	0.10	0.34	0.00	0.00	0.00	530.35
84	455.76	445.28	0.00	0.09	0.29	0.00	0.00	0.00	620.84
86	400.61	394.50	0.00	0.08	0.24	0.00	0.00	0.00	709.72
88	344.40	341.45	0.00	0.06	0.21	0.00	0.00	0.00	800.39
90	287.53	285.96	0.00	0.05	0.19	0.00	0.00	0.00	886.39
92	230.30	229.68	0.00	0.04	0.18	0.00	0.00	0.00	960.84
94	172.61	172.80	0.00	0.03	0.16	0.00	0.00	0.00	1025.98
96	114.62	115.48	0.00	0.03	0.15	0.00	0.00	0.00	1060.50
98	56.38	57.82	0.00	0.02	0.14	0.00	0.00	0.00	1031.58

TABLE 44

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (ms/l) OF THHE INJECTION WATER = 512.0)

PRECIPITATION (ms/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	15.40	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	30.04	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	44.65	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	59.23	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	73.77	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	88.28	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	102.76	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	117.22	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	131.65	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	146.05	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	160.20	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	173.91	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	187.23	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	200.55	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	213.98	0.00	0.00	0.02	0.00	0.00	0.00
32	14.28	51.11	181.03	0.00	0.00	0.03	0.00	0.00	0.00
34	54.68	53.32	168.89	0.00	0.00	0.03	0.00	0.00	0.52
36	97.41	23.11	179.21	0.00	0.00	0.04	0.00	0.00	3.54
38	142.49	0.00	182.68	0.00	0.00	0.05	0.00	0.00	6.25
40	192.51	0.00	165.72	0.00	0.00	0.06	0.00	0.00	9.41
42	253.92	0.00	141.25	0.00	0.00	0.08	0.00	0.00	13.50
44	319.76	0.00	113.74	0.00	0.00	0.10	0.00	0.00	18.10
46	391.32	0.00	82.36	0.00	0.00	0.12	0.00	0.00	23.26
48	465.88	0.00	48.67	0.00	0.00	0.15	0.00	0.00	29.12
50	541.93	0.00	13.46	0.00	0.00	0.18	0.00	0.00	35.79
52	584.06	0.00	0.00	0.19	0.00	0.00	0.00	0.00	40.28
54	592.88	10.88	0.00	0.00	0.23	0.00	0.00	0.00	42.18
56	593.71	28.38	0.00	0.00	0.24	0.00	0.00	0.00	43.74
58	590.27	48.91	0.00	0.00	0.25	0.00	0.00	0.00	45.45
60	581.55	73.16	0.00	0.00	0.27	0.00	0.00	0.00	47.33
62	570.47	98.82	0.00	0.00	0.28	0.00	0.00	0.00	48.91
64	557.48	125.44	0.00	0.00	0.30	0.00	0.00	0.00	50.13
66	543.16	152.42	0.00	0.00	0.32	0.00	0.00	0.00	51.54
68	528.01	179.20	0.00	0.00	0.35	0.00	0.00	0.00	52.95
70	512.61	205.12	0.00	0.00	0.38	0.00	0.00	0.00	54.42
72	502.92	225.67	0.00	0.00	0.41	0.00	0.00	0.00	55.64
74	495.01	243.34	0.00	0.00	0.44	0.00	0.00	0.00	56.92
76	484.56	260.48	0.00	0.07	0.44	0.00	0.00	0.00	58.85
78	470.75	276.49	0.00	0.05	0.50	0.00	0.00	0.00	62.13
80	452.48	290.28	0.00	0.14	0.50	0.00	0.00	0.00	67.98
82	428.90	299.61	0.00	0.17	0.53	0.00	0.00	0.00	78.28
84	399.23	301.35	0.00	0.13	0.58	0.00	0.00	0.00	95.37
86	361.97	292.68	0.00	0.17	0.55	0.00	0.00	0.00	121.35
88	318.63	271.26	0.00	0.14	0.51	0.00	0.00	0.00	161.80
90	270.56	236.51	0.00	0.12	0.46	0.00	0.00	0.00	210.56
92	219.20	194.44	0.00	0.08	0.40	0.00	0.00	0.00	257.34
94	165.24	147.47	0.00	0.07	0.35	0.00	0.00	0.00	303.22
96	109.71	97.21	0.00	0.05	0.31	0.00	0.00	0.00	329.88
98	53.13	44.72	0.00	0.04	0.28	0.00	0.85	0.00	314.36
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	198.61

TABLE 45
RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 512.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	0.00
26	0.00	0.00	0.00	0.47	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.15	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	5.60	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	8.38	0.00	0.00	1.00	0.00	0.00	2.00	0.00	0.00
34	0.00	0.00	0.00	10.41	0.00	0.00	1.07	0.00	0.00	2.07	0.00	0.00
36	0.00	0.00	0.00	7.66	0.00	0.00	1.11	0.00	0.00	2.17	0.00	0.00
38	0.00	0.00	0.00	6.06	0.00	0.00	1.16	0.00	0.00	2.27	0.00	0.00
40	0.00	0.00	0.00	4.44	0.00	0.00	1.23	0.00	0.00	2.39	0.00	0.00
42	0.00	0.00	0.00	2.75	0.00	0.00	1.31	0.00	0.00	2.55	0.00	0.00
44	0.00	0.00	0.00	1.09	0.00	0.00	1.36	0.00	0.00	2.74	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00	2.92	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	2.49	0.00	0.00	0.00	0.00	0.00	0.00	1.93	0.00	0.00
70	0.00	0.00	3.26	0.00	0.00	0.00	1.76	0.00	0.00	5.44	0.00	0.00
72	0.00	0.00	4.15	5.11	0.00	0.00	2.83	0.00	0.00	5.96	0.00	0.00
74	0.00	0.00	5.17	12.52	0.00	0.00	3.18	0.00	0.00	6.74	0.00	0.00
76	0.00	0.00	6.36	21.60	0.00	0.00	3.69	0.00	0.00	7.82	0.00	0.00
78	0.00	0.00	7.74	32.16	0.00	0.00	4.45	0.00	0.00	9.62	0.00	0.00
80	0.00	0.00	9.36	42.85	0.00	0.00	5.51	0.00	0.00	12.35	0.00	0.00
82	0.00	0.00	11.31	50.33	0.00	0.00	6.56	0.00	0.00	15.55	0.00	0.00
84	0.00	0.00	13.68	49.76	0.00	0.00	6.18	0.00	0.00	16.34	0.00	0.00
86	0.00	0.00	16.64	42.54	0.00	0.00	4.61	0.00	0.00	10.63	0.00	0.00
88	0.00	0.00	18.82	31.83	0.00	0.00	3.21	0.00	0.00	7.14	0.00	0.00
90	0.00	0.00	22.40	22.88	0.00	0.00	2.21	0.00	0.00	4.82	0.00	0.00
91	0.00	0.00	27.13	16.29	0.00	0.00	1.48	0.00	0.00	3.21	0.00	0.00
94	0.00	0.00	31.23	11.72	0.00	0.00	0.99	0.00	0.00	2.13	0.00	0.00
96	0.00	0.00	38.47	8.63	0.00	0.00	0.65	0.00	0.00	1.39	0.00	0.00
98	0.00	0.00	49.11	5.36	0.00	5.04	0.38	0.00	0.00	0.83	0.00	0.00
100	0.00	0.00	64.23	0.00	0.00	121.42	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 46

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 256.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	8.15	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	15.54	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	22.89	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	30.22	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	37.50	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	44.76	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	51.99	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	59.20	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	66.37	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	73.52	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	80.42	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	86.88	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.00	92.95	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	99.01	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	105.19	0.00	0.00	0.02	0.00	0.00	0.00
32	0.00	0.00	111.19	0.00	0.00	0.03	0.00	0.00	0.00
34	0.00	0.00	117.00	0.00	0.00	0.04	0.00	0.00	0.54
36	0.00	0.00	122.60	0.00	0.00	0.04	0.00	0.00	3.55
38	0.00	0.00	127.98	0.00	0.00	0.05	0.00	0.00	6.26
40	12.86	0.00	125.43	0.00	0.00	0.06	0.00	0.00	9.41
42	71.33	0.00	95.44	0.00	0.00	0.08	0.00	0.00	13.50
44	136.03	0.00	61.34	0.00	0.00	0.10	0.00	0.00	18.09
46	208.64	0.00	22.12	0.00	0.00	0.12	0.00	0.00	23.23
48	254.57	0.00	0.00	0.13	0.00	0.00	0.00	0.00	26.79
50	266.22	0.00	0.00	0.14	0.00	0.00	0.00	0.00	28.00
52	277.76	0.00	0.00	0.15	0.00	0.00	0.00	0.00	29.18
54	289.17	0.00	0.00	0.15	0.00	0.00	0.00	0.00	30.34
56	300.42	0.00	0.00	0.16	0.00	0.00	0.00	0.00	31.50
58	311.27	0.00	0.00	0.18	0.00	0.00	0.00	0.00	32.78
60	321.51	0.00	0.00	0.19	0.00	0.00	0.00	0.00	34.26
62	331.37	0.00	0.00	0.20	0.00	0.00	0.00	0.00	35.33
64	340.78	0.00	0.00	0.22	0.00	0.00	0.00	0.00	35.89
66	349.59	0.00	0.00	0.24	0.00	0.00	0.00	0.00	36.44
68	357.63	0.00	0.00	0.26	0.00	0.00	0.00	0.00	36.80
70	364.66	0.00	0.00	0.28	0.00	0.00	0.00	0.00	36.99
72	371.89	0.00	0.00	0.31	0.00	0.00	0.00	0.00	36.08
74	375.33	3.09	0.00	0.00	0.33	0.00	0.00	0.00	33.82
76	368.68	14.47	0.00	0.00	0.35	0.00	0.00	0.00	29.87
78	359.21	27.12	0.00	0.00	0.38	0.00	34.46	0.00	4.83
80	346.83	40.76	0.00	0.00	0.41	0.00	42.64	0.00	0.00
82	331.45	54.92	0.00	0.05	0.41	0.00	43.71	0.00	0.00
84	312.66	69.10	0.00	0.06	0.45	0.00	43.84	0.00	0.00
86	288.40	83.29	0.00	0.05	0.50	0.00	43.27	0.00	0.00
88	260.28	93.79	0.00	0.15	0.50	0.00	39.94	0.00	0.00
90	228.89	94.57	0.00	0.15	0.55	0.00	32.67	0.00	0.00
92	191.85	86.76	0.00	0.13	0.59	0.00	23.36	0.00	0.00
94	148.18	68.63	0.00	0.11	0.58	0.00	16.05	0.00	0.00
96	99.39	39.92	0.00	0.07	0.54	0.00	10.64	0.00	0.00
98	46.97	2.52	0.00	0.07	0.48	0.00	6.92	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 47
RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 256.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00
26	0.00	0.00	0.00	0.47	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.14	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
29	0.00	0.00	0.00	5.57	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	8.40	0.00	0.00	1.00	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	10.49	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	7.90	0.00	0.00	1.05	0.00	0.00	2.06	0.00	0.00
38	0.00	0.00	0.00	6.47	0.00	0.00	1.07	0.00	0.00	2.10	0.00	0.00
40	0.00	0.00	0.00	5.02	0.00	0.00	1.10	0.00	0.00	2.15	0.00	0.00
42	0.00	0.00	0.00	3.44	0.00	0.00	1.17	0.00	0.00	2.27	0.00	0.00
44	0.00	0.00	0.00	1.88	0.00	0.00	1.20	0.00	0.00	2.41	0.00	0.00
45	0.00	0.00	0.00	0.31	0.00	0.00	1.27	0.00	0.00	2.54	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.61	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
68	0.00	0.00	2.48	0.00	0.00	0.00	0.28	0.00	0.00	3.70	0.00	0.00
70	0.00	0.00	3.25	3.36	0.00	0.00	1.90	0.00	0.00	3.95	0.00	0.00
72	0.00	0.00	4.13	9.85	0.00	0.00	2.06	0.00	0.00	4.29	0.00	0.00
74	0.00	0.00	5.14	18.34	0.00	0.00	2.26	0.00	0.00	4.74	0.00	0.00
76	0.00	0.00	6.32	29.48	0.00	0.00	2.51	0.00	0.00	5.22	0.00	0.00
78	0.00	0.00	7.63	41.41	0.00	0.00	3.20	0.00	0.00	6.72	0.00	0.00
80	0.00	0.00	3.15	56.39	0.00	0.00	4.00	0.00	0.00	8.56	0.00	0.00
82	1.49	0.00	0.00	65.26	0.00	0.00	5.02	0.00	0.00	11.12	0.00	0.00
84	1.49	0.00	0.00	68.50	0.00	0.00	5.87	0.00	0.00	14.33	0.00	0.00
85	1.42	0.00	0.00	66.14	0.00	0.00	5.83	0.00	0.00	14.36	0.00	0.00
88	1.28	0.00	0.00	54.07	0.00	0.00	4.25	0.00	0.00	9.82	0.00	0.00
90	1.00	0.00	0.00	38.09	0.00	0.00	2.56	0.00	0.00	5.65	0.00	0.00
91	0.39	0.00	2.07	25.44	0.00	0.00	1.56	0.00	0.00	3.38	0.00	0.00
94	0.00	0.00	20.09	15.88	0.00	0.00	1.04	0.00	0.00	2.24	0.00	0.00
96	0.00	0.00	31.37	9.92	0.00	0.00	0.69	0.00	0.00	1.46	0.00	0.00
97	0.00	0.00	16.72	6.40	0.00	9.91	0.42	0.00	0.00	0.90	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 48

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (meq/l) OF THE INJECTION WATER = 128.0)

PRECIPITATION (meq/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	4.53	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	8.28	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	12.01	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	15.71	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	19.37	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	23.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	26.60	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	30.18	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	33.73	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	37.25	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	40.52	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	43.36	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.00	45.80	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	48.25	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	50.80	0.00	0.00	0.02	0.00	0.00	0.00
32	0.00	0.00	53.17	0.00	0.00	0.03	0.00	0.00	0.00
34	0.00	0.00	55.36	0.00	0.00	0.03	0.00	0.00	0.57
36	0.00	0.00	57.34	0.00	0.00	0.04	0.00	0.00	3.56
38	0.00	0.00	59.09	0.00	0.00	0.05	0.00	0.00	6.26
40	0.00	0.00	60.42	0.00	0.00	0.06	0.00	0.00	9.40
42	0.00	0.00	60.89	0.00	0.00	0.08	0.00	0.00	13.49
44	36.17	0.00	39.81	0.00	0.00	0.10	0.00	0.00	18.08
46	103.94	0.00	0.00	0.11	0.00	0.00	0.00	0.00	23.04
48	109.89	0.00	0.00	0.12	0.00	0.00	0.00	0.00	23.83
50	115.81	0.00	0.00	0.12	0.00	0.00	0.00	0.00	24.71
52	121.69	0.00	0.00	0.13	0.00	0.00	0.00	0.00	25.53
54	127.51	0.00	0.00	0.14	0.00	0.00	0.00	0.00	26.28
56	133.27	0.00	0.00	0.14	0.00	0.00	0.00	0.00	26.95
58	138.79	0.00	0.00	0.15	0.00	0.00	0.00	0.00	27.65
60	143.91	0.00	0.00	0.16	0.00	0.00	0.00	0.00	28.42
62	148.88	0.00	0.00	0.17	0.00	0.00	0.00	0.00	28.61
64	153.68	0.00	0.00	0.18	0.00	0.00	0.00	0.00	28.11
66	158.26	0.00	0.00	0.19	0.00	0.00	0.00	0.00	27.35
68	162.58	0.00	0.00	0.20	0.00	0.00	0.00	0.00	26.07
70	166.57	0.00	0.00	0.22	0.00	0.00	0.00	0.00	24.17
72	171.32	0.00	0.00	0.23	0.00	0.00	0.00	0.00	20.78
74	176.41	0.00	0.00	0.24	0.00	0.00	28.16	0.00	0.00
76	181.12	0.00	0.00	0.25	0.00	0.00	28.00	0.00	0.00
78	185.27	0.00	0.00	0.26	0.00	0.00	28.91	0.00	0.00
80	188.67	0.00	0.00	0.28	0.00	0.00	30.07	0.00	0.00
82	190.96	0.00	0.00	0.29	0.00	0.00	31.53	0.00	0.00
84	191.58	0.00	0.00	0.31	0.00	0.00	33.34	0.00	0.00
86	188.78	0.00	0.00	0.33	0.00	0.00	36.41	0.00	0.00
88	181.66	0.00	0.00	0.35	0.00	0.00	39.44	0.00	0.00
90	168.57	0.00	0.00	0.35	0.00	0.00	39.96	0.00	0.00
92	148.29	0.00	0.00	0.33	0.00	0.00	35.18	0.00	0.00
94	118.20	0.00	0.00	0.28	0.00	0.00	27.98	0.00	0.00
96	79.31	0.00	0.00	0.21	0.00	0.00	20.18	0.00	0.00
98	33.73	0.00	0.00	0.15	0.00	0.00	13.76	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 49

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 128.0)

PRECIPITATION (mg/l)

%INJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00
26	0.00	0.00	0.00	0.46	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.13	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	5.56	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	8.39	0.00	0.00	1.00	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	10.41	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	7.85	0.00	0.00	1.05	0.00	0.00	2.06	0.00	0.00
38	0.00	0.00	0.00	6.42	0.00	0.00	1.07	0.00	0.00	2.09	0.00	0.00
40	0.00	0.00	0.00	5.02	0.00	0.00	1.09	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	3.65	0.00	0.00	1.12	0.00	0.00	2.18	0.00	0.00
44	0.00	0.00	0.00	2.25	0.00	0.00	1.12	0.00	0.00	2.26	0.00	0.00
46	0.00	0.00	0.00	0.75	0.00	0.00	1.18	0.00	0.00	2.36	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.52	0.00	0.00	2.39	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.00	0.00
68	0.00	0.00	2.47	1.01	0.00	0.00	1.35	0.00	0.00	2.79	0.00	0.00
70	0.00	0.00	3.24	6.35	0.00	0.00	1.39	0.00	0.00	2.87	0.00	0.00
72	0.00	0.00	4.11	13.52	0.00	0.00	1.44	0.00	0.00	2.99	0.00	0.00
74	0.00	0.00	4.67	22.51	0.00	0.00	1.58	0.00	0.00	3.29	0.00	0.00
76	0.90	0.00	0.00	33.13	0.00	0.00	1.70	0.00	0.00	3.51	0.00	0.00
78	0.92	0.00	0.00	34.08	0.00	0.00	1.83	0.00	0.00	3.82	0.00	0.00
80	0.95	0.00	0.00	35.47	0.00	0.00	2.05	0.00	0.00	4.25	0.00	0.00
82	0.99	0.00	0.00	37.51	0.00	0.00	2.34	0.00	0.00	4.86	0.00	0.00
84	1.05	0.00	0.00	40.62	0.00	0.00	2.64	0.00	0.00	5.80	0.00	0.00
86	1.12	0.00	0.00	45.58	0.00	0.00	3.15	0.00	0.00	6.93	0.00	0.00
88	1.26	0.00	0.00	52.24	0.00	0.00	4.01	0.00	0.00	9.18	0.00	0.00
90	1.30	0.00	0.00	57.45	0.00	0.00	4.95	0.00	0.00	12.12	0.00	0.00
92	1.17	0.00	0.00	49.74	0.00	0.00	3.92	0.00	0.00	9.25	0.00	0.00
94	0.82	0.00	0.00	33.73	0.00	0.00	2.27	0.00	0.00	5.03	0.00	0.00
96	0.56	0.00	0.00	21.34	0.00	0.00	1.38	0.00	0.00	2.97	0.00	0.00
98	0.36	0.00	0.00	13.46	0.00	0.00	0.85	0.00	0.00	1.84	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 50

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 64.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	2.71	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	4.66	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	6.57	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	8.46	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	10.30	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	12.12	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	13.91	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	15.68	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	17.41	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	19.12	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	20.58	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	21.60	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	22.23	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	22.86	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	23.60	0.00	0.00	0.02	0.00	0.00	0.00
32	0.00	0.00	24.16	0.00	0.00	0.03	0.00	0.00	0.00
34	0.00	0.00	24.54	0.00	0.00	0.03	0.00	0.00	0.58
36	0.00	0.00	24.71	0.00	0.00	0.04	0.00	0.00	3.56
38	0.00	0.00	24.65	0.00	0.00	0.05	0.00	0.00	6.26
40	0.00	0.00	24.17	0.00	0.00	0.06	0.00	0.00	9.40
42	0.00	0.00	22.83	0.00	0.00	0.08	0.00	0.00	13.49
44	0.00	0.00	21.02	0.00	0.00	0.10	0.00	0.00	18.08
46	34.22	0.00	0.00	0.11	0.00	0.00	0.00	0.00	21.88
48	37.23	0.00	0.00	0.11	0.00	0.00	0.00	0.00	22.55
50	40.22	0.00	0.00	0.12	0.00	0.00	0.00	0.00	23.32
52	43.19	0.00	0.00	0.12	0.00	0.00	0.00	0.00	24.01
54	46.13	0.00	0.00	0.13	0.00	0.00	0.00	0.00	24.61
56	49.03	0.00	0.00	0.13	0.00	0.00	0.00	0.00	25.12
58	51.73	0.00	0.00	0.14	0.00	0.00	0.00	0.00	25.63
60	54.09	0.00	0.00	0.15	0.00	0.00	0.00	0.00	26.16
62	56.37	0.00	0.00	0.16	0.00	0.00	0.00	0.00	26.08
64	58.54	0.00	0.00	0.16	0.00	0.00	0.00	0.00	25.26
66	60.58	0.00	0.00	0.17	0.00	0.00	0.00	0.00	24.13
68	62.47	0.00	0.00	0.18	0.00	0.00	0.00	0.00	22.40
70	64.17	0.00	0.00	0.19	0.00	0.00	0.00	0.00	19.96
72	66.68	0.00	0.00	0.20	0.00	0.00	2.33	0.00	14.64
74	69.64	0.00	0.00	0.21	0.00	0.00	24.21	0.00	0.00
76	72.45	0.00	0.00	0.21	0.00	0.00	23.68	0.00	0.00
78	75.05	0.00	0.00	0.22	0.00	0.00	23.97	0.00	0.00
80	77.37	0.00	0.00	0.23	0.00	0.00	24.36	0.00	0.00
82	79.31	0.00	0.00	0.24	0.00	0.00	24.89	0.00	0.00
84	80.70	0.00	0.00	0.25	0.00	0.00	25.62	0.00	0.00
86	80.61	0.00	0.00	0.26	0.00	0.00	27.37	0.00	0.00
88	79.05	0.00	0.00	0.28	0.00	0.00	29.61	0.00	0.00
90	75.57	0.00	0.00	0.30	0.00	0.00	31.71	0.00	0.00
92	69.88	0.00	0.00	0.31	0.00	0.00	32.54	0.00	0.00
94	58.85	0.00	0.00	0.31	0.00	0.00	33.07	0.00	0.00
96	39.82	0.00	0.00	0.29	0.00	0.00	30.07	0.00	0.00
98	10.39	0.00	0.00	0.24	0.00	0.00	22.95	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 51

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 64.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00
26	0.00	0.00	0.00	0.46	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.13	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	5.55	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	8.38	0.00	0.00	1.00	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	10.37	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	7.82	0.00	0.00	1.05	0.00	0.00	2.06	0.00	0.00
38	0.00	0.00	0.00	6.40	0.00	0.00	1.07	0.00	0.00	2.10	0.00	0.00
40	0.00	0.00	0.00	4.99	0.00	0.00	1.09	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	3.63	0.00	0.00	1.12	0.00	0.00	2.18	0.00	0.00
44	0.00	0.00	0.00	2.36	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
46	0.00	0.00	0.00	1.01	0.00	0.00	1.13	0.00	0.00	2.25	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.76	0.00	0.00	2.27	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00
68	0.00	0.00	2.47	1.87	0.00	0.00	1.20	0.00	0.00	2.47	0.00	0.00
70	0.00	0.00	3.24	7.33	0.00	0.00	1.22	0.00	0.00	2.52	0.00	0.00
72	0.00	0.00	4.11	14.66	0.00	0.00	1.25	0.00	0.00	2.58	0.00	0.00
74	0.00	0.00	1.52	24.04	0.00	0.00	1.32	0.00	0.00	2.75	0.00	0.00
76	0.75	0.00	0.00	27.18	0.00	0.00	1.38	0.00	0.00	2.83	0.00	0.00
78	0.75	0.00	0.00	27.17	0.00	0.00	1.45	0.00	0.00	2.98	0.00	0.00
80	0.75	0.00	0.00	27.31	0.00	0.00	1.54	0.00	0.00	3.16	0.00	0.00
82	0.76	0.00	0.00	27.64	0.00	0.00	1.65	0.00	0.00	3.41	0.00	0.00
84	0.77	0.00	0.00	28.34	0.00	0.00	1.73	0.00	0.00	3.75	0.00	0.00
86	0.80	0.00	0.00	29.75	0.00	0.00	1.85	0.00	0.00	3.97	0.00	0.00
88	0.87	0.00	0.00	31.99	0.00	0.00	2.05	0.00	0.00	4.43	0.00	0.00
90	0.95	0.00	0.00	36.01	0.00	0.00	2.38	0.00	0.00	5.22	0.00	0.00
92	1.05	0.00	0.00	41.91	0.00	0.00	2.97	0.00	0.00	6.70	0.00	0.00
94	1.02	0.00	0.00	47.07	0.00	0.00	3.83	0.00	0.00	9.13	0.00	0.00
96	0.92	0.00	0.00	41.85	0.00	0.00	3.50	0.00	0.00	8.27	0.00	0.00
98	0.64	0.00	0.00	26.84	0.00	0.00	1.90	0.00	0.00	4.25	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 52

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 32.0)

PRECIPITATION (mg/l)

%INJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00
26	0.00	0.00	0.00	0.45	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.12	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	5.56	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	8.37	0.00	0.00	1.00	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	10.35	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	7.81	0.00	0.00	1.05	0.00	0.00	2.06	0.00	0.00
38	0.00	0.00	0.00	6.38	0.00	0.00	1.07	0.00	0.00	2.09	0.00	0.00
40	0.00	0.00	0.00	4.98	0.00	0.00	1.09	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	3.61	0.00	0.00	1.12	0.00	0.00	2.18	0.00	0.00
44	0.00	0.00	0.00	2.34	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
46	0.00	0.00	0.00	1.13	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	2.22	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.72	0.00	0.00
68	0.00	0.00	2.47	2.23	0.00	0.00	1.13	0.00	0.00	2.34	0.00	0.00
70	0.00	0.00	3.24	7.74	0.00	0.00	1.15	0.00	0.00	2.37	0.00	0.00
72	0.00	0.00	4.10	15.02	0.00	0.00	1.18	0.00	0.00	2.46	0.00	0.00
74	0.79	0.00	0.00	24.26	0.00	0.00	1.22	0.00	0.00	2.54	0.00	0.00
76	0.69	0.00	0.00	24.90	0.00	0.00	1.25	0.00	0.00	2.58	0.00	0.00
78	0.68	0.00	0.00	24.62	0.00	0.00	1.30	0.00	0.00	2.68	0.00	0.00
80	0.68	0.00	0.00	24.41	0.00	0.00	1.36	0.00	0.00	2.80	0.00	0.00
82	0.67	0.00	0.00	24.31	0.00	0.00	1.44	0.00	0.00	2.96	0.00	0.00
84	0.68	0.00	0.00	24.41	0.00	0.00	1.47	0.00	0.00	3.17	0.00	0.00
86	0.68	0.00	0.00	24.96	0.00	0.00	1.52	0.00	0.00	3.25	0.00	0.00
88	0.73	0.00	0.00	25.95	0.00	0.00	1.61	0.00	0.00	3.46	0.00	0.00
90	0.78	0.00	0.00	27.99	0.00	0.00	1.75	0.00	0.00	3.79	0.00	0.00
92	0.84	0.00	0.00	31.16	0.00	0.00	1.99	0.00	0.00	4.35	0.00	0.00
94	0.85	0.00	0.00	35.17	0.00	0.00	2.41	0.00	0.00	5.36	0.00	0.00
96	0.89	0.00	0.00	39.97	0.00	0.00	3.23	0.00	0.00	7.50	0.00	0.00
98	0.82	0.00	0.00	37.94	0.00	0.00	3.24	0.00	0.00	7.86	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 53

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 32.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	2.84	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	3.85	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	4.83	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	5.77	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	6.68	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	7.56	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	8.42	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	9.25	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	10.06	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	10.61	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	10.72	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.00	10.44	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	10.17	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	10.00	0.00	0.00	0.02	0.00	0.00	0.00
32	0.00	0.00	9.66	0.00	0.00	0.03	0.00	0.00	0.00
34	0.00	0.00	9.13	0.00	0.00	0.04	0.00	0.00	0.59
36	0.00	0.00	8.39	0.00	0.00	0.04	0.00	0.00	3.57
38	0.00	0.00	7.42	0.00	0.00	0.05	0.00	0.00	6.27
40	0.00	0.00	6.04	0.00	0.00	0.06	0.00	0.00	9.40
42	0.00	0.00	3.80	0.00	0.00	0.08	0.00	0.00	13.49
44	0.00	0.00	1.08	0.00	0.00	0.10	0.00	0.00	18.07
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.95
48	0.84	0.00	0.00	0.11	0.00	0.00	0.00	0.00	21.96
50	2.35	0.00	0.00	0.11	0.00	0.00	0.00	0.00	22.68
52	3.85	0.00	0.00	0.12	0.00	0.00	0.00	0.00	23.31
54	5.32	0.00	0.00	0.12	0.00	0.00	0.00	0.00	23.85
56	6.77	0.00	0.00	0.13	0.00	0.00	0.00	0.00	24.29
58	8.04	0.00	0.00	0.14	0.00	0.00	0.00	0.00	24.72
60	8.99	0.00	0.00	0.14	0.00	0.00	0.00	0.00	25.15
62	9.88	0.00	0.00	0.15	0.00	0.00	0.00	0.00	24.97
64	10.68	0.00	0.00	0.16	0.00	0.00	0.00	0.00	24.02
66	11.39	0.00	0.00	0.17	0.00	0.00	0.00	0.00	22.74
68	11.98	0.00	0.00	0.17	0.00	0.00	0.00	0.00	20.84
70	12.43	0.00	0.00	0.18	0.00	0.00	0.00	0.00	18.20
72	13.69	0.00	0.00	0.19	0.00	0.00	17.46	0.00	3.87
74	15.42	0.00	0.00	0.19	0.00	0.00	22.59	0.00	0.00
76	17.06	0.00	0.00	0.20	0.00	0.00	21.94	0.00	0.00
78	18.58	0.00	0.00	0.20	0.00	0.00	22.01	0.00	0.00
80	19.94	0.00	0.00	0.21	0.00	0.00	22.14	0.00	0.00
82	21.09	0.00	0.00	0.21	0.00	0.00	22.36	0.00	0.00
84	21.94	0.00	0.00	0.22	0.00	0.00	22.68	0.00	0.00
86	21.75	0.00	0.00	0.23	0.00	0.00	23.85	0.00	0.00
88	20.74	0.00	0.00	0.24	0.00	0.00	25.36	0.00	0.00
90	18.81	0.00	0.00	0.26	0.00	0.00	26.75	0.00	0.00
92	16.18	0.00	0.00	0.27	0.00	0.00	27.34	0.00	0.00
94	10.88	0.00	0.00	0.28	0.00	0.00	28.77	0.00	0.00
96	1.20	0.00	0.00	0.29	0.00	0.00	29.53	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	9.13	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 54

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 16.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00
26	0.00	0.00	0.00	0.45	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.12	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	5.55	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	8.37	0.00	0.00	1.00	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	10.34	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	7.81	0.00	0.00	1.05	0.00	0.00	2.06	0.00	0.00
38	0.00	0.00	0.00	6.38	0.00	0.00	1.07	0.00	0.00	2.09	0.00	0.00
40	0.00	0.00	0.00	4.98	0.00	0.00	1.09	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	3.61	0.00	0.00	1.12	0.00	0.00	2.18	0.00	0.00
44	0.00	0.00	0.00	2.34	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
46	0.00	0.00	0.00	1.13	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	2.22	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00	1.76	0.00	0.00
68	0.00	0.00	2.46	2.32	0.00	0.00	1.12	0.00	0.00	2.31	0.00	0.00
70	0.00	0.00	3.23	7.84	0.00	0.00	1.13	0.00	0.00	2.33	0.00	0.00
72	0.00	0.00	3.99	15.21	0.00	0.00	1.15	0.00	0.00	2.39	0.00	0.00
74	0.76	0.00	0.00	23.38	0.00	0.00	1.17	0.00	0.00	2.44	0.00	0.00
76	0.67	0.00	0.00	23.89	0.00	0.00	1.20	0.00	0.00	2.47	0.00	0.00
78	0.66	0.00	0.00	23.51	0.00	0.00	1.24	0.00	0.00	2.55	0.00	0.00
80	0.65	0.00	0.00	23.17	0.00	0.00	1.29	0.00	0.00	2.65	0.00	0.00
82	0.64	0.00	0.00	22.91	0.00	0.00	1.35	0.00	0.00	2.78	0.00	0.00
84	0.64	0.00	0.00	22.81	0.00	0.00	1.37	0.00	0.00	2.94	0.00	0.00
86	0.64	0.00	0.00	23.06	0.00	0.00	1.40	0.00	0.00	2.98	0.00	0.00
88	0.67	0.00	0.00	23.63	0.00	0.00	1.45	0.00	0.00	3.11	0.00	0.00
90	0.71	0.00	0.00	25.02	0.00	0.00	1.54	0.00	0.00	3.32	0.00	0.00
92	0.76	0.00	0.00	27.19	0.00	0.00	1.69	0.00	0.00	3.67	0.00	0.00
94	0.76	0.00	0.00	29.84	0.00	0.00	1.94	0.00	0.00	4.25	0.00	0.00
96	0.82	0.00	0.00	33.80	0.00	0.00	2.48	0.00	0.00	5.54	0.00	0.00
98	0.00	0.00	0.00	21.33	0.00	0.00	3.19	0.00	0.00	7.67	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 55

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 16.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	1.94	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	2.49	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	3.02	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	3.50	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	3.96	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	4.39	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	4.80	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	5.17	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	5.52	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	5.62	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	5.28	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.00	4.55	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	3.82	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	3.20	0.00	0.00	0.02	0.00	0.00	0.00
32	0.00	0.00	2.41	0.00	0.00	0.03	0.00	0.00	0.00
34	0.00	0.00	1.42	0.00	0.00	0.04	0.00	0.00	0.59
36	0.00	0.00	0.23	0.00	0.00	0.04	0.00	0.00	3.57
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.21
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.28
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	9.32
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.43
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.62
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.71
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.70
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.58
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.32
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.87
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.75
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14.82
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.49
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.46
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.60
72	0.00	0.00	0.00	0.00	0.00	0.00	8.34	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	8.66	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	9.10	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	10.13	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	11.07	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	11.89	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	12.55	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	12.97	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	12.97	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	12.10	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	10.18	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	7.08	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 56

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (ms/l) OF THHE INJECTION WATER = 8.0)

PRECIPITATION (ms/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.13	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	1.48	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	2.11	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	2.37	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	2.60	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	2.80	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	2.98	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	3.13	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	3.25	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	3.13	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	2.57	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	1.61	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	0.65	0.00	0.00	0.02	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.91
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.72
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.50
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.36
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.28
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.12
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.85
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.46
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.94
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.23
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.85
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.66
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.07
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.78
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 57

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 8.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00
26	0.00	0.00	0.00	0.45	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	3.12	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	5.15	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	5.61	0.00	0.00	1.00	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	6.02	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	6.43	0.00	0.00	1.05	0.00	0.00	2.06	0.00	0.00
38	0.00	0.00	0.00	6.38	0.00	0.00	1.07	0.00	0.00	2.10	0.00	0.00
40	0.00	0.00	0.00	4.97	0.00	0.00	1.10	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	3.61	0.00	0.00	1.12	0.00	0.00	2.18	0.00	0.00
44	0.00	0.00	0.00	2.34	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
46	0.00	0.00	0.00	1.13	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	2.22	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.79	0.00	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00
68	0.00	0.00	2.46	2.33	0.00	0.00	1.12	0.00	0.00	2.31	0.00	0.00
70	0.00	0.00	2.87	7.85	0.00	0.00	1.13	0.00	0.00	2.33	0.00	0.00
72	0.00	0.00	0.00	14.42	0.00	0.00	1.14	0.00	0.00	2.37	0.00	0.00
74	0.00	0.00	0.00	14.81	0.00	0.00	1.15	0.00	0.00	2.39	0.00	0.00
76	0.00	0.00	0.00	15.18	0.00	0.00	1.18	0.00	0.00	2.42	0.00	0.00
78	0.00	0.00	0.00	15.52	0.00	0.00	1.21	0.00	0.00	2.49	0.00	0.00
80	0.00	0.00	0.00	15.80	0.00	0.00	1.26	0.00	0.00	2.58	0.00	0.00
82	0.00	0.00	0.00	16.00	0.00	0.00	1.31	0.00	0.00	2.70	0.00	0.00
84	0.00	0.00	0.00	16.18	0.00	0.00	1.32	0.00	0.00	2.84	0.00	0.00
86	0.00	0.00	0.00	16.43	0.00	0.00	1.34	0.00	0.00	2.86	0.00	0.00
88	0.00	0.00	0.00	16.52	0.00	0.00	1.38	0.00	0.00	2.96	0.00	0.00
90	0.00	0.00	0.00	16.36	0.00	0.00	1.45	0.00	0.00	3.12	0.00	0.00
92	0.00	0.00	0.00	15.75	0.00	0.00	1.57	0.00	0.00	3.40	0.00	0.00
94	0.00	0.00	0.00	14.31	0.00	0.00	1.76	0.00	0.00	3.83	0.00	0.00
96	0.00	0.00	0.00	10.82	0.00	0.00	2.18	0.00	0.00	4.81	0.00	0.00
98	0.00	0.00	0.00	0.98	0.00	0.00	2.84	0.00	0.00	6.67	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 58

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 4.0)

PRECIPITATION (mg/l)

%INJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	1.01	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	1.47	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	1.66	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	1.80	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	1.92	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	2.01	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	2.08	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	2.11	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	2.12	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	1.88	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	1.20	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.00	0.13	0.00	0.00	0.01	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.32
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.12
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.82
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.42
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.91
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.26
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.41
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.91
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.58
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.85
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 59

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (meq/l) OF THE INJECTION WATER = 4.0)

PRECIPITATION (meq/l)

%INJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00
26	0.00	0.00	0.00	0.46	0.00	0.00	0.99	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	1.00	0.00	0.00	0.99	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	1.22	0.00	0.00	0.98	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	1.41	0.00	0.00	0.99	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	1.55	0.00	0.00	1.03	0.00	0.00	2.01	0.00	0.00
36	0.00	0.00	0.00	1.68	0.00	0.00	1.05	0.00	0.00	2.05	0.00	0.00
38	0.00	0.00	0.00	1.81	0.00	0.00	1.07	0.00	0.00	2.09	0.00	0.00
40	0.00	0.00	0.00	1.93	0.00	0.00	1.09	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	2.05	0.00	0.00	1.12	0.00	0.00	2.17	0.00	0.00
44	0.00	0.00	0.00	2.21	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
46	0.00	0.00	0.00	1.13	0.00	0.00	1.10	0.00	0.00	2.21	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	2.22	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	1.79	0.00	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00
68	0.00	0.00	0.88	2.33	0.00	0.00	1.12	0.00	0.00	2.31	0.00	0.00
70	0.00	0.00	0.00	4.35	0.00	0.00	1.13	0.00	0.00	2.33	0.00	0.00
72	0.00	0.00	0.00	4.47	0.00	0.00	1.13	0.00	0.00	2.35	0.00	0.00
74	0.00	0.00	0.00	4.56	0.00	0.00	1.14	0.00	0.00	2.37	0.00	0.00
76	0.00	0.00	0.00	4.63	0.00	0.00	1.17	0.00	0.00	2.39	0.00	0.00
78	0.00	0.00	0.00	4.66	0.00	0.00	1.20	0.00	0.00	2.46	0.00	0.00
80	0.00	0.00	0.00	4.63	0.00	0.00	1.24	0.00	0.00	2.55	0.00	0.00
82	0.00	0.00	0.00	4.54	0.00	0.00	1.29	0.00	0.00	2.66	0.00	0.00
84	0.00	0.00	0.00	4.41	0.00	0.00	1.30	0.00	0.00	2.79	0.00	0.00
86	0.00	0.00	0.00	4.36	0.00	0.00	1.32	0.00	0.00	2.80	0.00	0.00
88	0.00	0.00	0.00	4.16	0.00	0.00	1.35	0.00	0.00	2.89	0.00	0.00
90	0.00	0.00	0.00	3.73	0.00	0.00	1.41	0.00	0.00	3.03	0.00	0.00
92	0.00	0.00	0.00	2.90	0.00	0.00	1.51	0.00	0.00	3.27	0.00	0.00
94	0.00	0.00	0.00	1.35	0.00	0.00	1.68	0.00	0.00	3.65	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00	4.50	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 60

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 2.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.96	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	1.15	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	1.43	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	1.52	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	1.58	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	1.61	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	1.62	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	1.61	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	1.26	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.71
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.13
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.41
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.51
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 61

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 2.0)

PRECIPITATION (mg/l)

ZINJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	2.01	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	2.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00	1.99	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00	1.98	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	2.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	2.05	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.00	2.09	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	2.13	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	2.17	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00	2.21	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	2.20	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	2.22	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.52	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	1.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	0.53	0.00	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.65	0.00	0.00	2.31	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00	0.64	0.00	0.00	2.32	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	2.34	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.00	0.00	2.36	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00	2.38	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.00	2.45	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	2.53	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	2.64	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.35	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.10	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.02	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 62

RESERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THHE INJECTION WATER = 1.0)

PRECIPITATION (mg/l)

ZINJ	RESERVOIR			SKIN			WELLHEAD		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.74	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	1.09	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	1.22	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	1.32	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	1.38	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	1.41	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	1.42	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	1.40	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	1.35	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	1.27	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.18	0.00	0.00	0.01	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.24
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.49
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.55
62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.94
64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 63

RSERVOIR/INJECTION WATER MIXTURES

(SO4-- ION CONC. (mg/l) OF THE INJECTION WATER = 1.0)

PRECIPITATION (mg/l)

%INJ	FIRST FLASH			SECOND FLASH			THIRD FLASH			BRINE DISCHARGE		
	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4	BaSO4	SrSO4	CaSO4
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.74	0.00	0.00
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.00	0.00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.00	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.18	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.17	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.16	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.13	0.00	0.00
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.08	0.00	0.00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.01	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00
52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
62	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	0.00	0.00
70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00
74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00
76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TABLE 64

CaSO4 SUPERSATURATION IN SALTON SEA BRINE AT VARIOUS TEMPERATURES

TEMP. (°C)	SOLUBILITY PRODUCT	IONIC PRODUCT	SUPERSATURATION
20	1210E-06	1810E-06	1.5
90	518E-06	1810E-06	3.5
150	190E-06	1810E-06	9.5
200	63E-06	1810E-06	28.6

TABLE 65

SUMMARY OF RESULTS ON INJECTION OF SYNTHETIC SALTON SEA WATER INTO BEREA SANDSTONE CORES (TEMPERATUE = 90°C)

CORE NO	INHIBITOR	INJECTION RATE (ml/min)	PRESSURE BUILD UP (psi)	TIME FOR BUILD UP (hrs)	PRECIPITATION
1	NO	0.1	480	120	YES
2	NO	0.15	345	90	YES
3	NO	0.4	<50	90	YES
4	NO	5.0	<5	16	NO
5	SP-175	0.1	<5	120	NO
6	SP-245	0.1	<5	120	NO
7	ANT-A	0.1	<5	120	NO

SCHEMATIC DIAGRAM OF FLOW TEST EXPERIMENTS

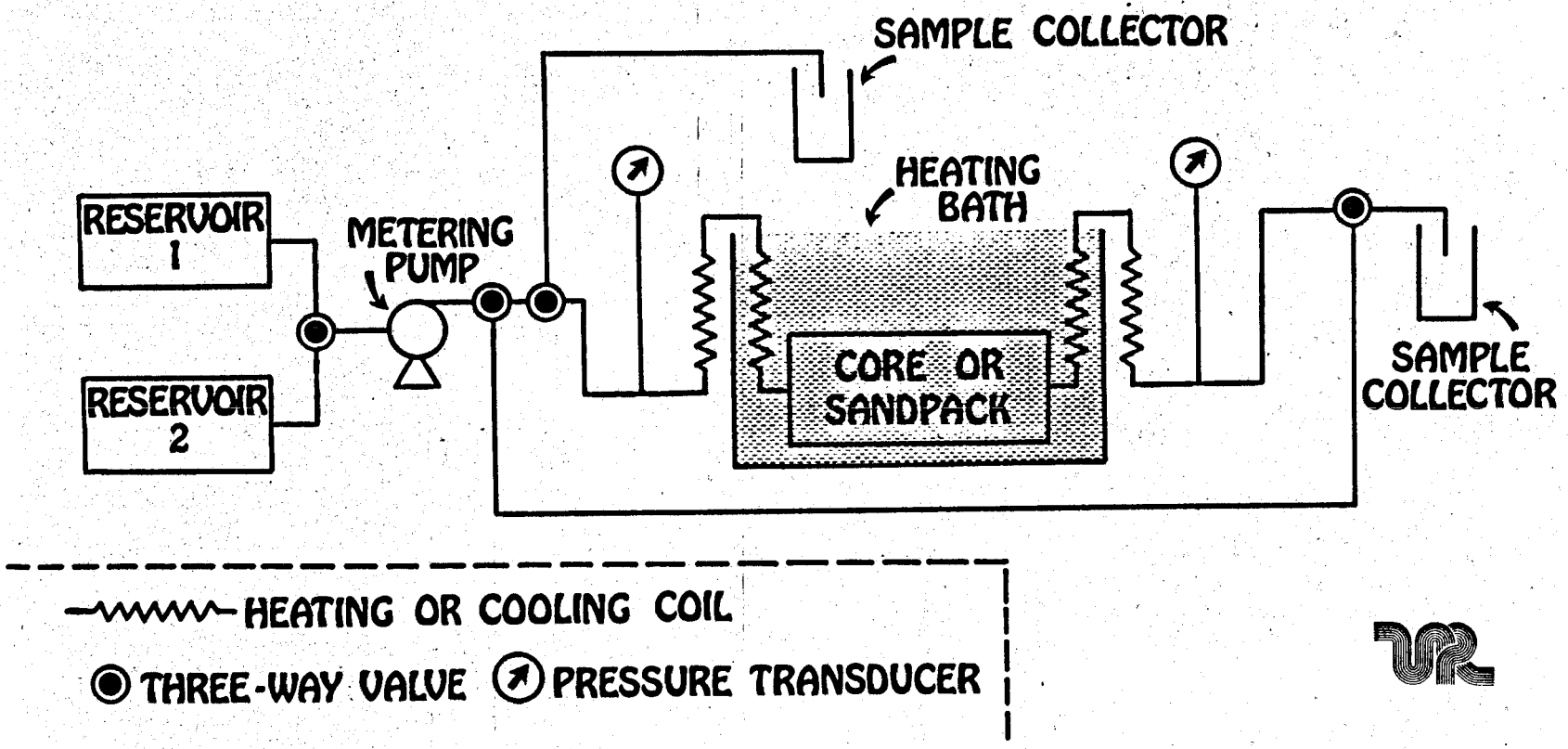

FIGURE 1

FIGURE 2

CaSO4 Precipitation in Porous Media During Flow Tests

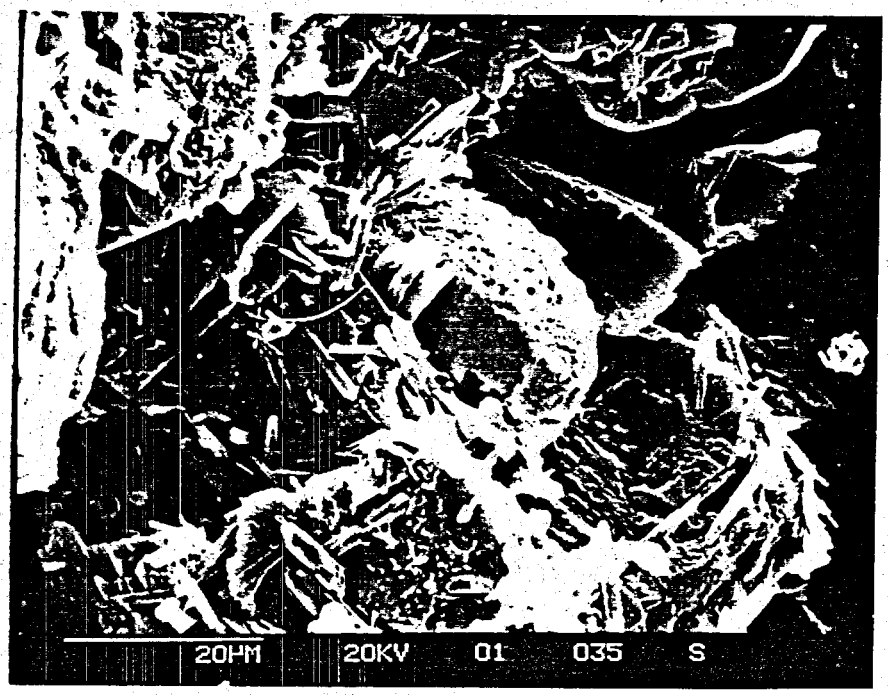

FIGURE 3

CaSO4 Precipitation in Porous Media During Flow Tests

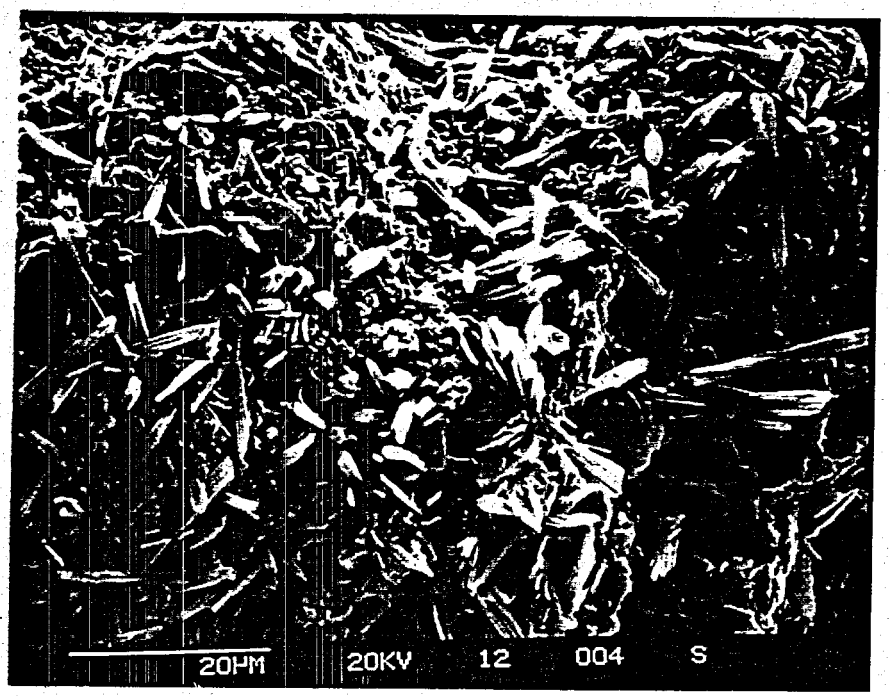

FIGURE 4

CaSO4 Precipitation in Porous Media During Flow Tests

FIGURE 5

CaSO4 Precipitation in Porous Media During Flow Tests

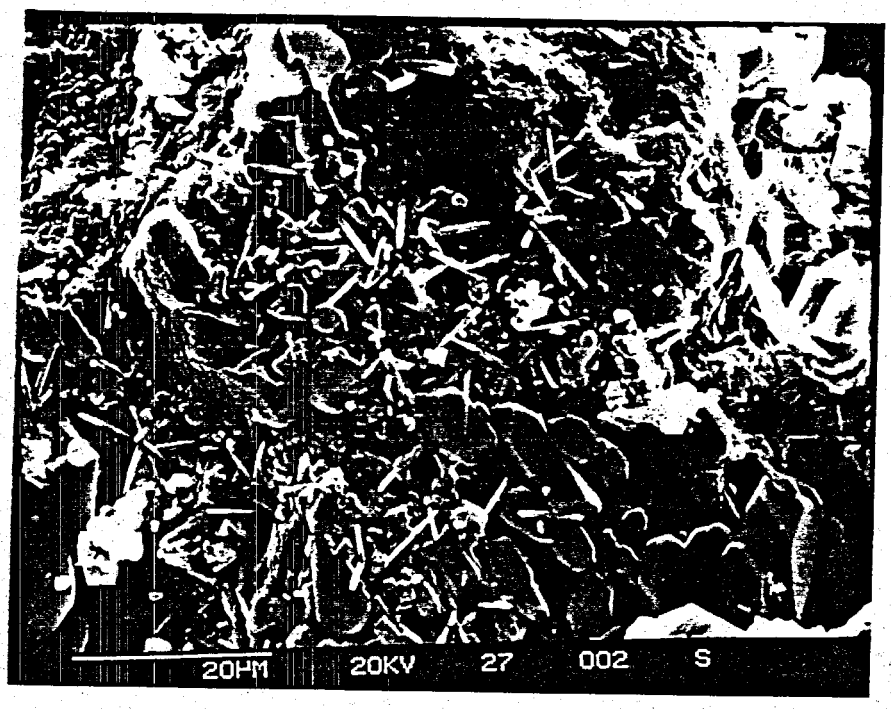

FIGURE 6

CaSO4 Precipitation in Porous Media During Flow Tests

FIGURE 7

CaSO4 Precipitation in Porous Media During Flow Tests

FIGURE 8

CaSO4 Precipitation in Porous Media During Flow Tests

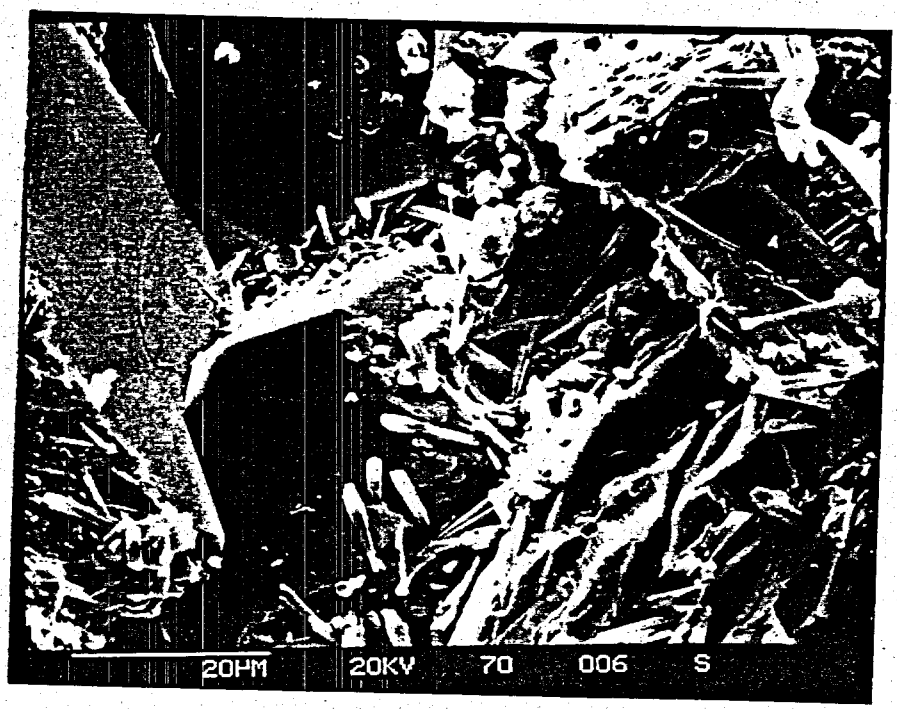

FIGURE 9

CaSO4 Precipitation in Porous Media During Flow Tests

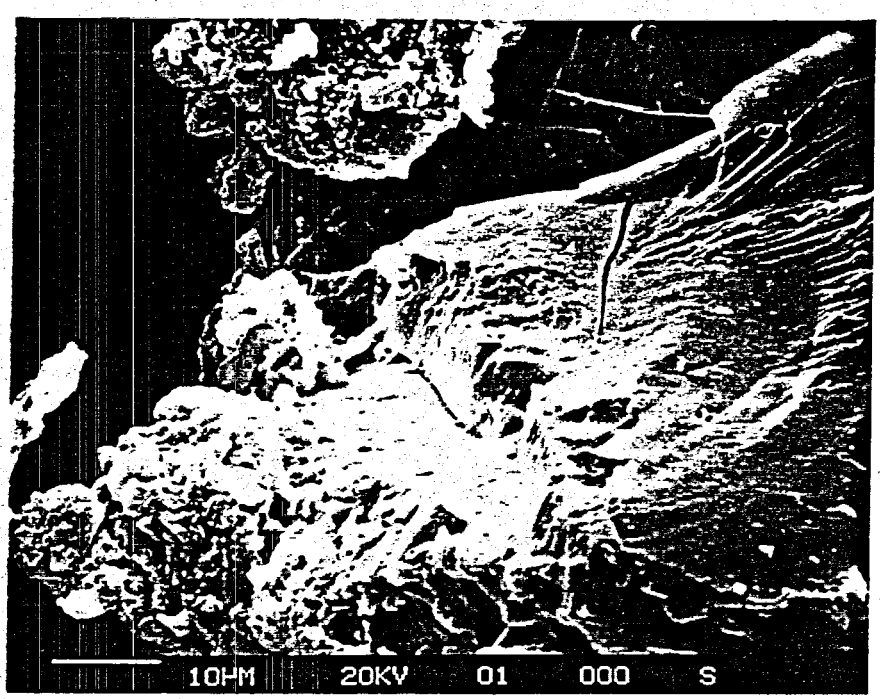

FIGURE 10

CaSO4 Precipitation in Porous Media During Flow Tests

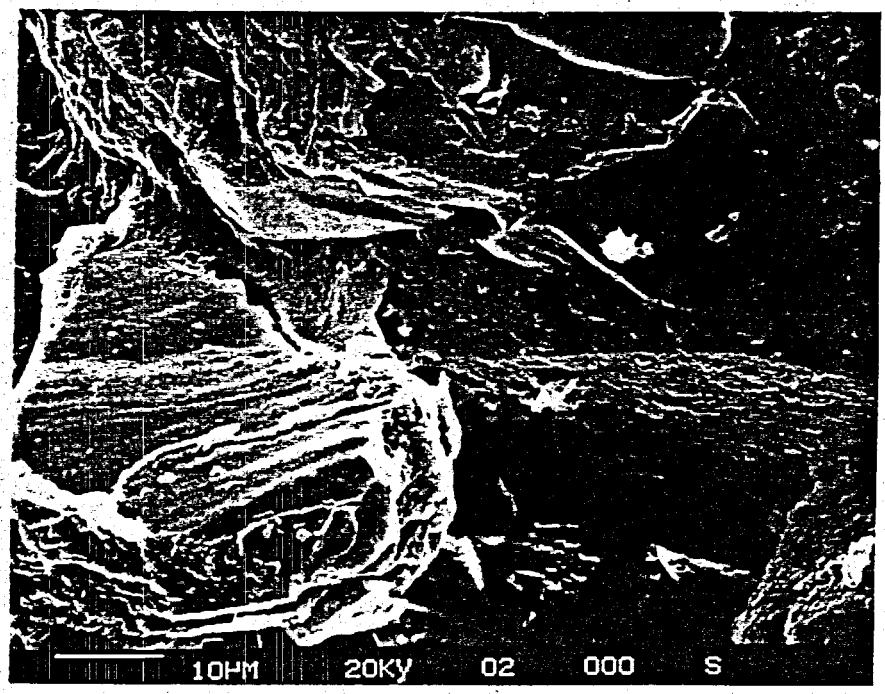

FIGURE 11

CaSO4 Precipitation in Porous Media During Flow Tests

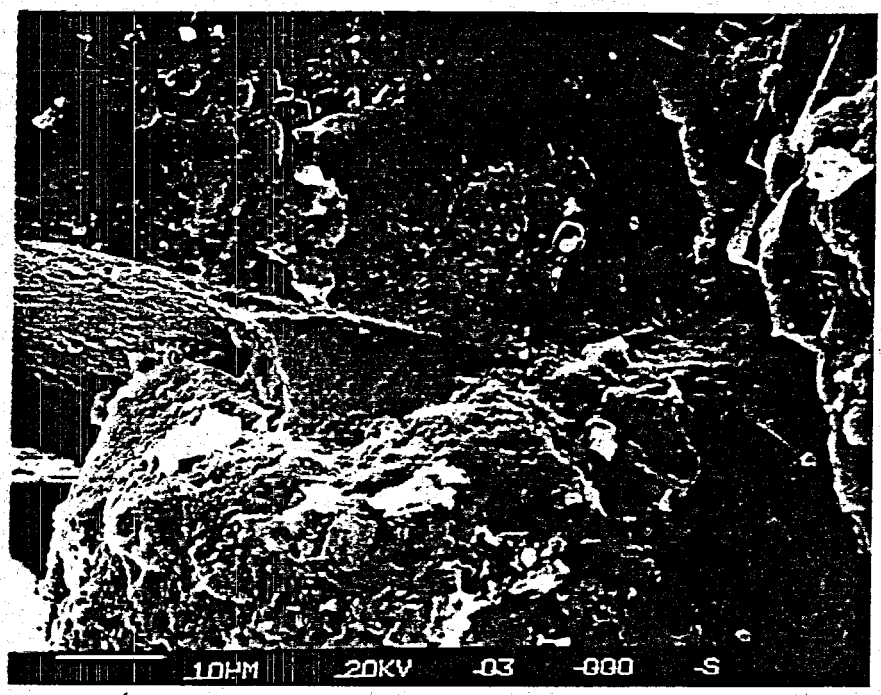

FIGURE 12

CaSO4 Precipitation in Porous Media During Flow Tests

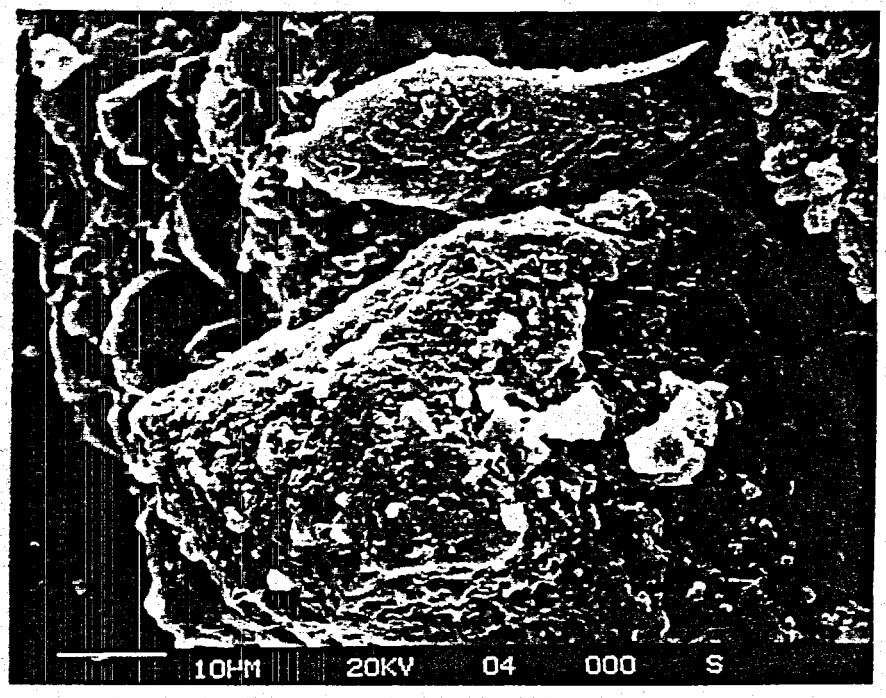

FIGURE 13

CaSO4 Precipitation in Porous Media During Flow Tests

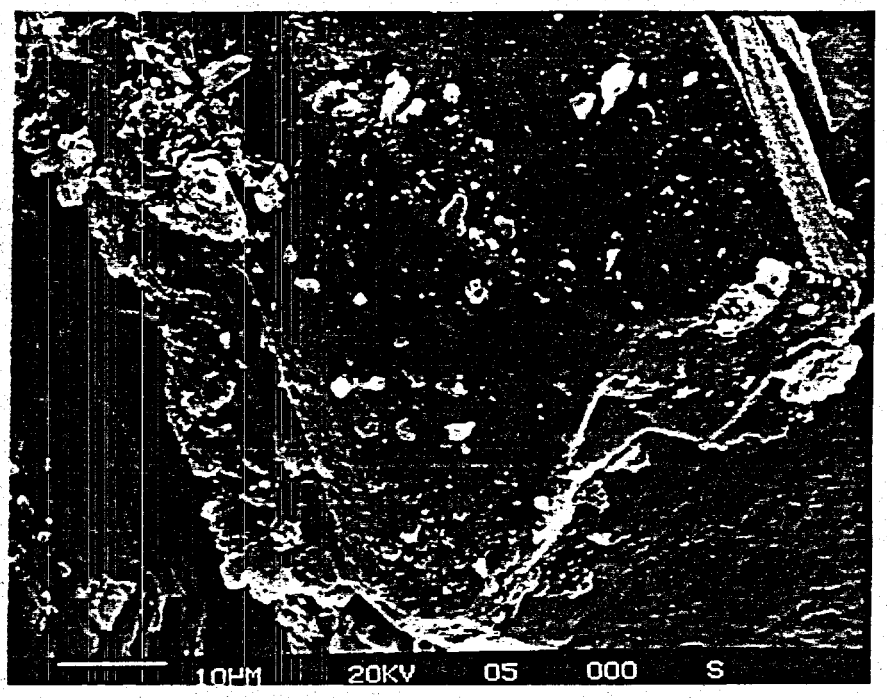

FIGURE 14

CaSO4 Precipitation in Porous Media During Flow Tests

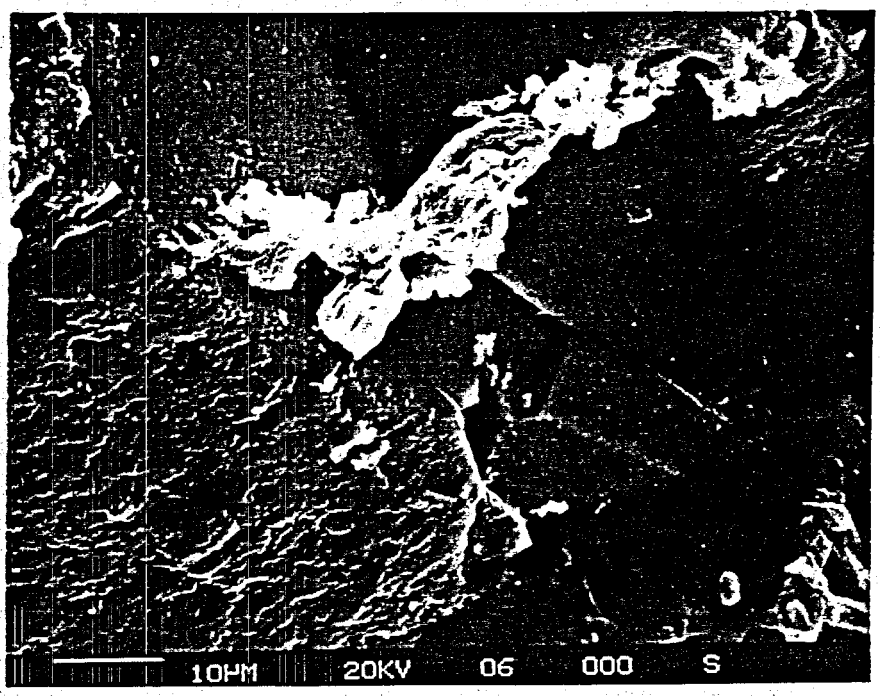

FIGURE 15

CaSO4 Precipitation in Porous Media During Flow Tests

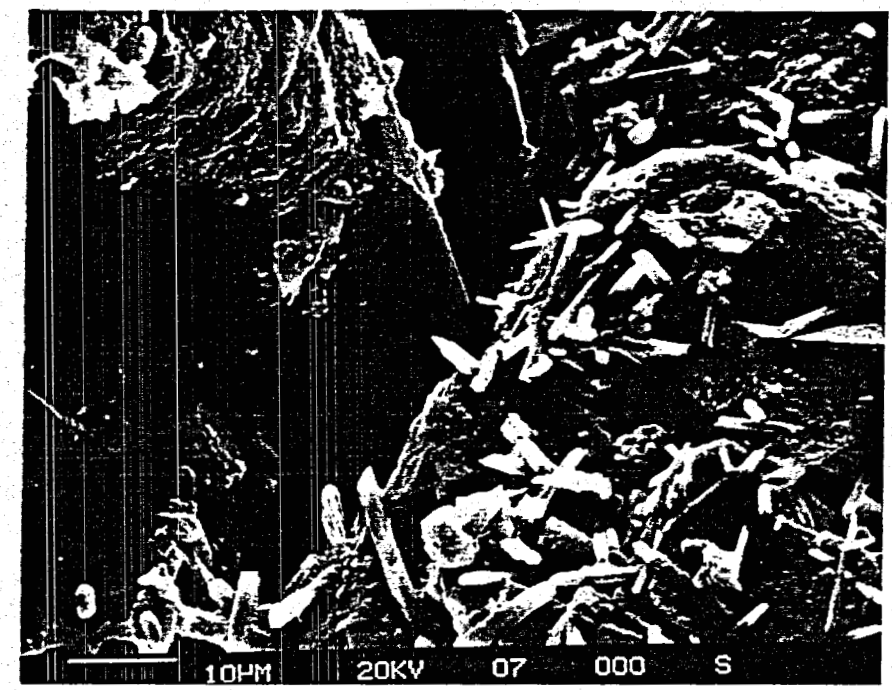

FIGURE 16

CaSO4 Precipitation in Porous Media During Flow Tests

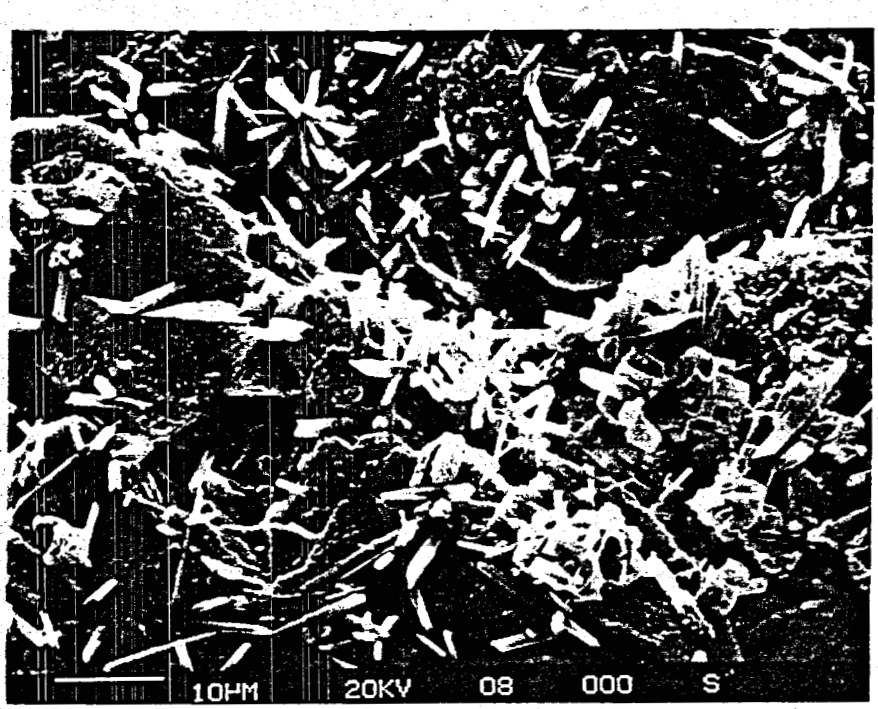

FIGURE 17

CaSO4 Precipitation in Porous Media During Flow Tests

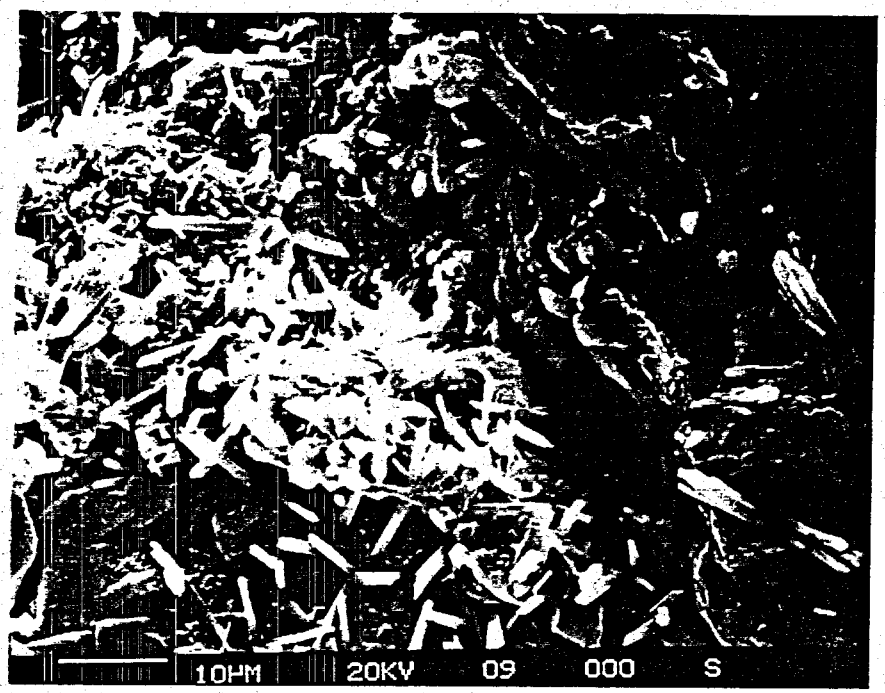

FIGURE 18

CaSO4 Precipitation in Porous Media During Flow Tests

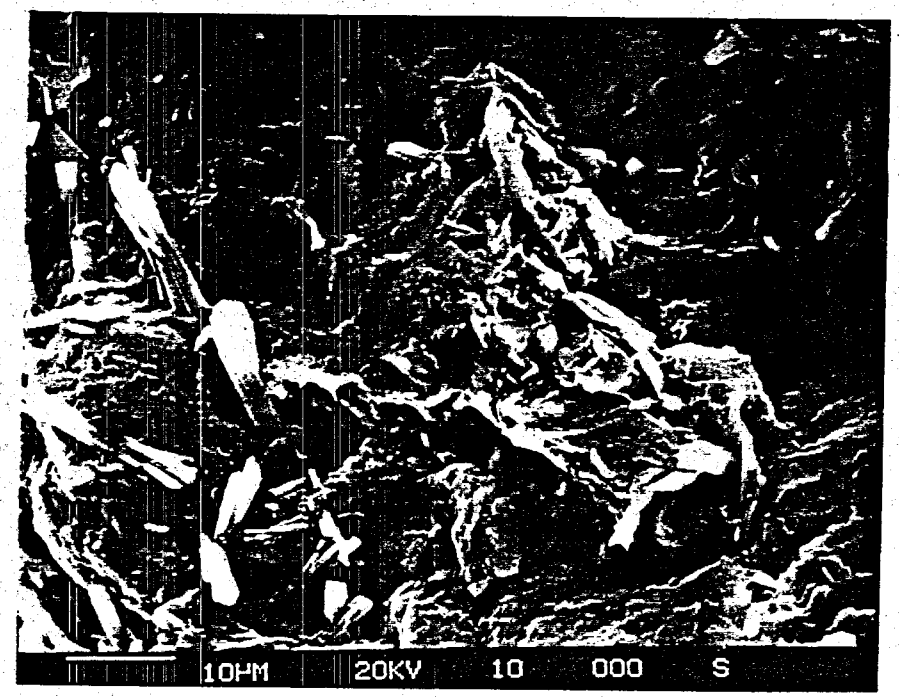

FIGURE 19

CaSO4 Precipitation in Porous Media During Flow Tests

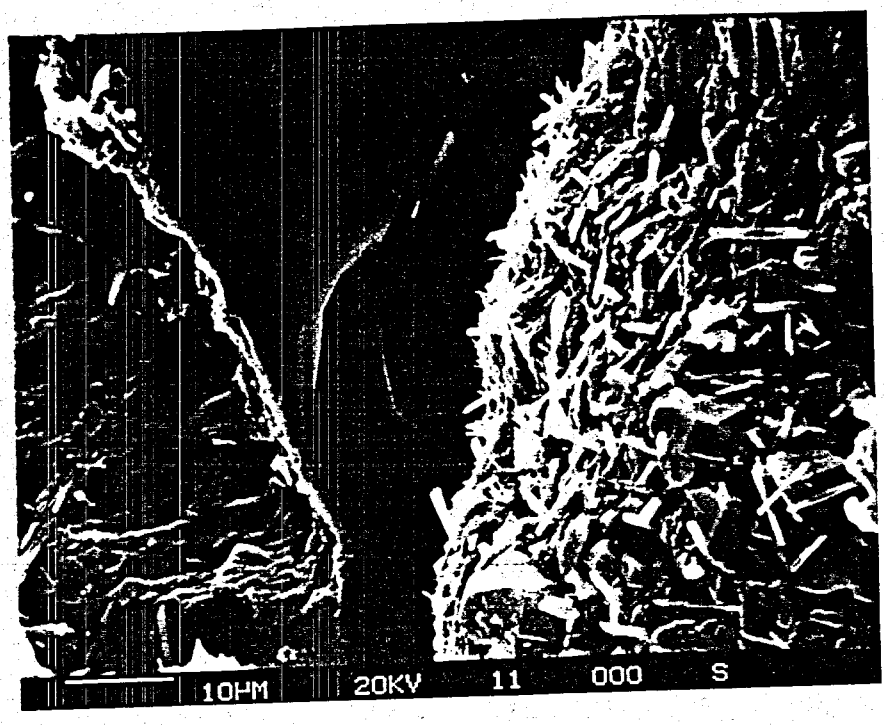

FIGURE 20

CaSO4 Precipitation in Porous Media During Flow Tests

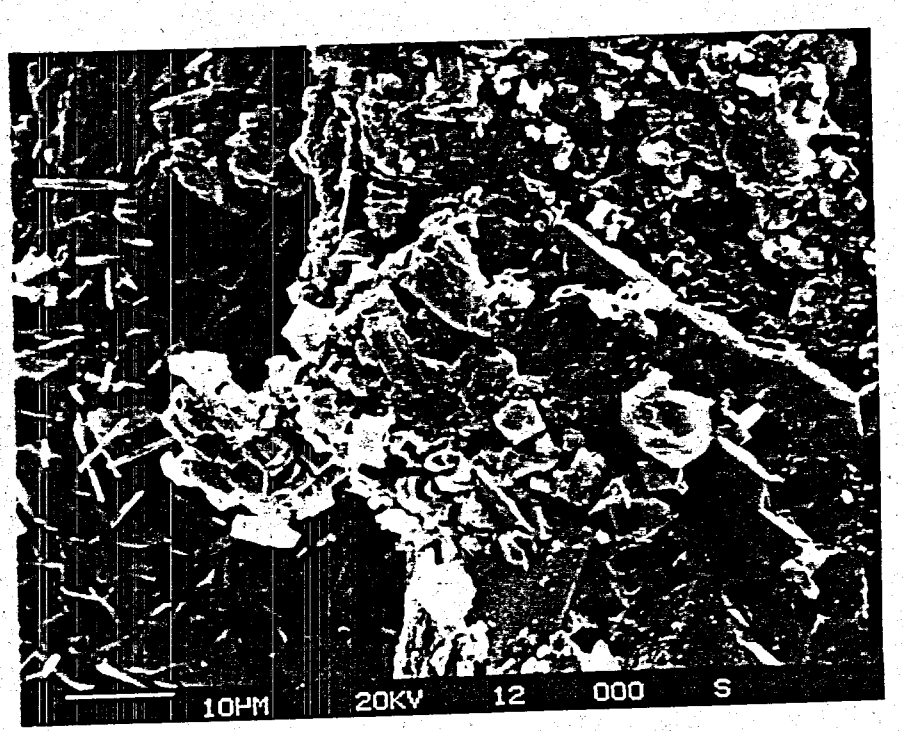

FIGURE 21

CaSO4 Precipitation in Porous Media During Flow Tests

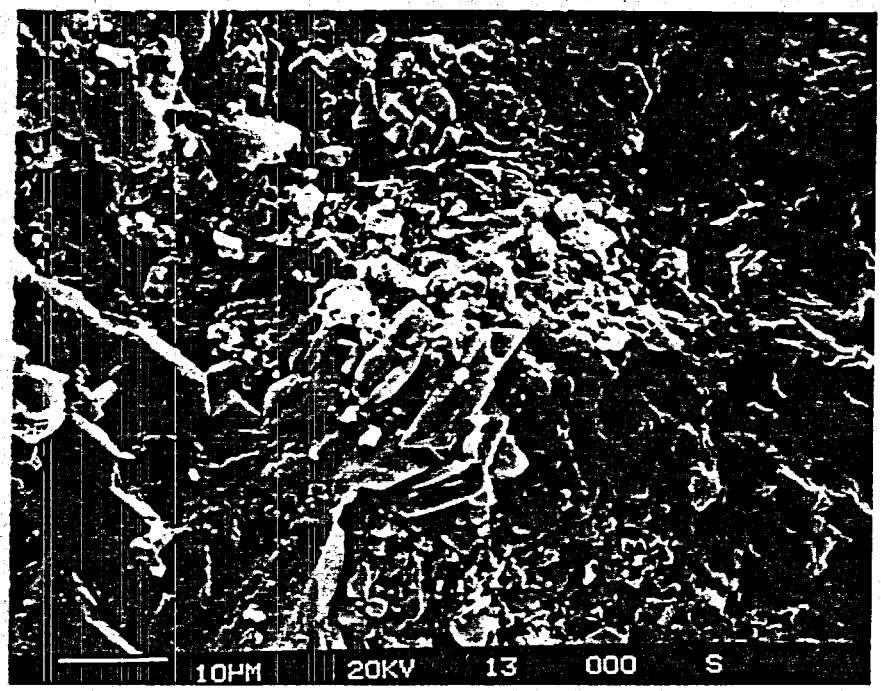

FIGURE 22

CaSO4 Precipitation in Porous Media During Flow Tests

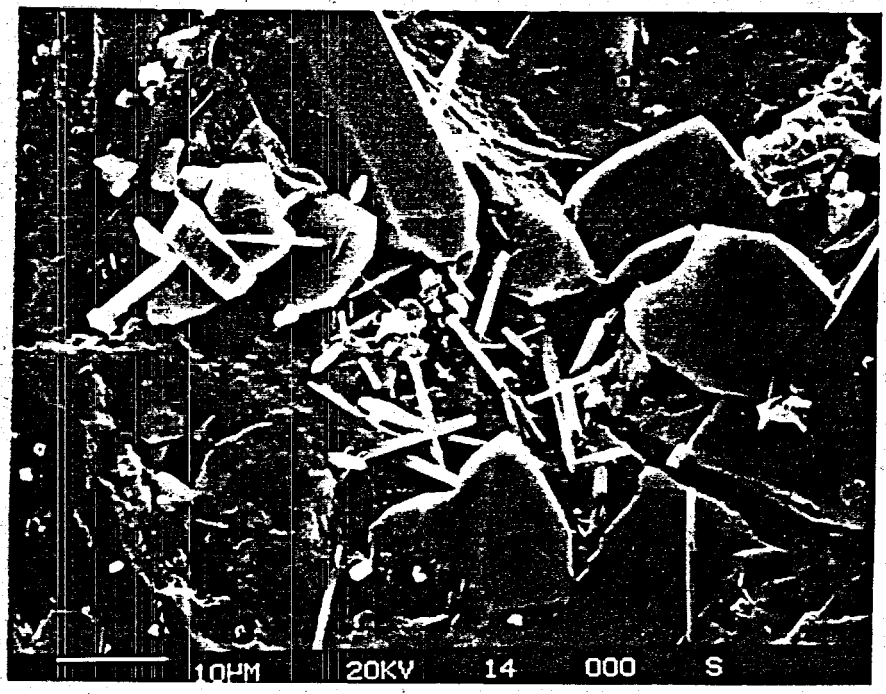

FIGURE 23

CaSO4 Precipitation in Porous Media During Flow Tests

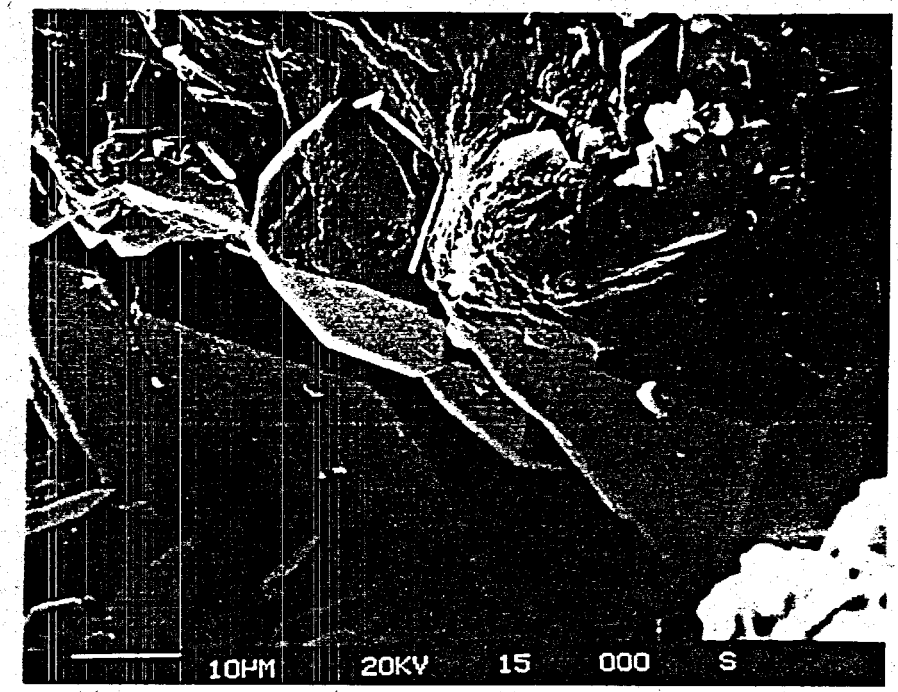

FIGURE 24

CaSO4 Precipitation in Porous Media During Flow Tests