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Records Package

FEP NS-7a: The Effects of Salt Water Disposal and Waterflooding on WIPP

Type Package: Model Description, Calculations and Analysis

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This Record of FEP Screening Work contains the documentation for conducting sidebar screening calculations to address hypothetical effects of salt water disposal wells on future WIPP performance. This work was planned, conducted and documented in accordance with the FEP Management Plan entitled: **Features, Events and Processes (FEPs) Screening: Analysis Plan, Version 5.4, for Phase II FEPs.**

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SCREENING RECOMMENDATIONS (Summary Memo of Record)

A. Statement of Screening Decision

FEP screening Issue NS-7a: The Effects of Salt Water Disposal and Waterflooding on WIPP need NOT be included in the Compliance Certification Application (CCA).

B. Statement of Screening Issue

The issue of injected brine from petroleum injection wells leaking into the Salado formation and saturating the WIPP repository has been raised due proven leaking wells in the Vacuum and alleged leaking wells in the Rhodes-Yates petroleum fields. These fields are relatively close to WIPP (about 40 miles away) and underlie the Salado formation, just as do the WIPP area fields. Since injection operations in the form of salt water disposal (SWD) wells and pressure maintenance (waterflooding) wells are presently taking place just outside the Land Withdrawal Boundary (LWB) surrounding WIPP, there is concern that this injection may endanger the WIPP by leaking brine into the waste panels through the Salado. This in turn may affect long term repository performance by providing an additional source of brine to dissolve and transport radionuclides away from the site. The petroleum fields of the WIPP region are significantly different than these areas, however, and it will be shown that these differences will eliminate the possibility of a nearby injection well leaking through the Salado and reaching the WIPP.

C. Approach

Because certain petroleum practices are hard to define in a probabilistic sense (for example, the quality of the cement and/or casing and its ability to withstand leaks over time), a calculational approach was adopted to test the potential consequence of injection wells leaking into the Salado, should certain barriers to leakage fail. Since comparisons have been made between the older petroleum fields located in the back-reef areas of the Delaware Basin (i.e. Rhodes-Yates and Vacuum) to the WIPP area fields, two sets of conceptual models were developed to quantify and compare the effects that these differences might have on repository performance should the site be placed in the Rhodes-Yates region of the Delaware Basin. The important differences between the two regions are summarized below:

1. The greater vertical distance from the injection interval to the WIPP horizon tends to limit flow up a potential annular casing leak. The added geology represented by the Castile formation increases the amount of "thief" zones into which injected fluid can penetrate. The Castile is not present in the Vacuum and Rhodes-Yates areas.

2. Open-hole and nitro-fractured completions such as those in the early Rhodes-Yates wells are not used in the current WIPP area wells, since cemented and perforated casing with controlled hydrofracturing is the preferred well completion method. Hence the cement integrity in the casing annulus is consistently better than in the early Rhodes-Yates wells, and large casing leaks are highly unlikely.
3. The state requirements of a continuous casing string across the Salado and Castile, and an injection gradient limit of 0.2 psi/ft (4.5 kPa/m) above hydrostatic [~ 0.73 psi/ft (16.42 kPa/m) total in the WIPP area] are further assurances that large leaks into the Salado from injection wells is impossible. Injection gradients of 1.0 psi/ft (22.6 kPa/m) are not uncommon for some of the wells in the Vacuum and Rhodes-Yates fields.

Two sets of BRAGFLO conceptual models were developed: One set representing the geologic cross section through of the WIPP area, and another set representing the geology of the Rhodes-Yates area, should a hypothetical WIPP-like repository exist in that area of the Delaware Basin. Various barriers to flow are systematically removed in both sets of models, i.e. casing leaks are modeled, then casing and tubing leaks together, and finally the anhydrite layers are allowed to fracture significantly to simulate a massive hydro-frac. Each of these models is described in Table 4.

D. Results and Discussion

Two performance metrics were chosen for this analysis: Each model was compared to a WIPP geology baseline run, in which all parameters were the median values from the CCA database. None of the WIPP realizations showed significant deviations in pressure, saturation, and brine flow from the baseline model. This is illustrated in Figures 7 through 12. Even the "worst case" realization for the WIPP geology showed insignificant differences in performance compared to the baseline model. The second performance metric was a comparison to the CCA undisturbed performance of brine entering the repository through the anhydrite layers. As shown in Figures 8 and 16, the amount of brine entering the repository due to salt water injection for all the WIPP geology models is well below both the mean and median curves for the undisturbed calculations in the CCA. The calculations for the Rhodes-Yates geology models, in which the geology is different and injection gradients are higher, show more brine entering the "hypothetical" repository. In summary, these calculations show that present day petroleum injection practices and geology of the WIPP area eliminate the consequences of large amounts of brine leaking to the WIPP.

I. WORK PLAN: STATEMENT OF ISSUE/HYPOTHESIS

The potential impacts of oil and gas production and simultaneous salt water injection/disposal on the WIPP site have come into focus because of documented events in two Delaware Basin oil fields - the Vacuum field, and the Rhodes-Yates field. Both of these fields have been waterflooded for forty years with possible (in the case of the Rhodes-Yates field), or confirmed (as in the Vacuum Field) leaking wells which have resulted in brine water entering the Salado and other formations above the Salado. It has been hypothesized that a similar situation may occur at the WIPP site because of current waterflooding and salt water disposal into formations below the Castile. This may in turn affect the long term performance of the repository should a significant amount of this injection brine migrate into the excavated panels through the Salado and/or marker beds. Several predictive models were developed to evaluate the potential effects of future water injection adjacent to the WIPP land withdrawal boundary. This study looks only at the potential effects of salt water disposal since there are currently several salt water disposal wells in the WIPP area. Salt water disposal is considered to be the bounding (or "worst case") scenario with respect to long-term repository performance for all liquid injection cases associated with the oil and gas activities currently being used in the WIPP area. Waterflooding, in which brine is injected into oil producing formations in order to maintain reservoir pressures and/or displace the oil toward offset producing wells, also involves brine injection. However, the potential risks to repository performance are considerably less (and therefore bounded) by the salt water disposal scenario for several reasons:

- Waterflood injection pressures and volumes are monitored much more closely (compared to disposal wells) by the oil and gas operator, since the injected brine is being used to increase recoverable oil reserves. This reduces the possibility of the injection fluid escaping "out of zone" due to casing leaks. Salt water disposal wells are not as closely monitored, so the possibility of casing leaks is much higher.
- The oil pools around WIPP are of relatively small volume, and most are operated by small independent oil companies. These companies typically do not have the money to invest in large scale waterflood projects, and it is much more economical to simply dispose of the produced brine (via salt water disposal wells) than to build and maintain waterflood facilities.
- The oil producing horizons which would be targeted for waterflooding (Brushy Canyon formation and below) are deeper than the formation (Bell Canyon) being used for salt-water disposal. Therefore a casing leak would have to travel a longer vertical distance to reach the Salado compared to a leak in the shallower disposal well. This is important because a higher pressure gradient is required to move similar fluid volumes over greater linear distances. Additionally, there would be more "thief zones", or intervening formations which could siphon off leaking brine.

- Several other injection methods can be used to enhance oil recovery. Tertiary recovery methods such as Carbon Dioxide flooding (CO₂), steamflooding, polymer flooding and oxygen rich mixtures for fire-flooding are not considered in this study due to economics for the WIPP area fields.
- Another common oil field practice for fluid injection is produced natural gas re-injection for pressure maintenance. This scenario is not considered as a possible future event at WIPP because gas re-injection costs more than waterflooding, and the operators in the area sell the produced gas.

A. Comparison of Present Day WIPP versus Vacuum Field/Rhodes-Yates Field Petroleum Practices

A detailed information packet describing the geologic differences, as well as the differences in petroleum practices between historical Rhodes-Yates and current WIPP areas, can be found in the WIPP central files: WPO# 26317 "Waterflood Records Package", authored by LJ Dotson.

A1. Differences between the two areas

The Vacuum and Rhodes-Yates petroleum fields are different from the WIPP area fields and therefore the possibility of leakage occurring into WIPP from salt water disposal and/or waterflood injection wells is highly unlikely. These differences will decrease the probability of a nearby injection well leaking through the Salado and reaching the WIPP. Because certain petroleum practices are hard to define in a probabilistic sense (for example, the quality of the cement and/or casing and its ability to withstand leaks over time), a calculational approach was adopted to test the potential consequence of injection wells leaking into the Salado, should certain barriers to leakage fail. Since comparisons have been made between the older petroleum fields located in the back-reef areas of the Delaware Basin (i.e. Rhodes-Yates and Vacuum) to the WIPP area fields, two sets of conceptual models were developed to quantify and compare the effects that these differences might have on repository performance should the site be placed in the Rhodes-Yates region of the Delaware Basin. The important differences between the two regions are summarized below:

- Geologic/lithologic differences
- Changes in oil-well completion practices from the 1940's to present day
- Improved reservoir management by operators
- Recent state regulations to reduce the possibility of petroleum wells leaking into the Salado

Geologic/Lithologic Differences

The differences in geology between WIPP and the Vacuum and Rhodes-Yates Fields are significant. WIPP is located in a fore reef area of the Capitan Reef structure, where a thick zone of anhydrite and halite (Castile Formation) exists. Oil production is from the Brushy Canyon and deeper formations at depths greater than 7,000 feet (2,134 m), which is 5,000 feet (1,524 m) below the WIPP repository. By contrast, the Castile Formation is missing at both the Vacuum and Rhodes-Yates Fields which are located in reef and back reef environments, respectively. Oil production at the Vacuum Field is from the San Andres and Grayburg Formations at depths of approximately 4,500 feet (1,372 m) and oil production at the Rhodes-Yates Field is from the Yates and Seven Rivers Formations at depths of approximately 3,000 feet (914 m). If WIPP existed adjacent to the Rhodes-Yates Field, there would be 500 feet (155 m) of vertical separation between the WIPP horizon and the waterflood injection zone. In the WIPP area, salt water disposal occurs in the Upper Bell Canyon formation which is 1900 feet (580 m) below the WIPP horizon (nearly **four times** the vertical distance as compared to the Rhodes-Yates Field). In addition, the oil pools near WIPP are characterized by heterogeneous channel sands with thin net pay zones, low permeabilities, and high irreducible water saturations. These type of formations are not conducive to large scale waterflooding because the injected water tends to "finger" through to the producing wells, by-passing large pockets of oil. In fact, the existing oil pool adjacent to WIPP currently undergoing water injection (the Cabin Lakes pool) is being waterflooded more for in-situ pressure maintenance than for oil displacement. This is an important distinction because fewer injection wells are needed for pressure maintenance than are needed for waterflood projects. It is anticipated that the life of the pools near WIPP will be less than ten years for primary production and an additional ten years for secondary production.

Changes in oil-well completion practices from the 1940's to present day

The petroleum industry has made many advances since the time when the Vacuum and Rhodes-Yates Fields were first developed. Improvements in drilling, casing, and cementing technology have greatly reduced the occurrences of leaks in oil wells. An industry-wide effort to reduce formation damage and increase production has lead to improvements in completion design and advances in stimulation. Open-hole (non-cased) production/injection wells and nitroglycerin treatments are no longer used. Acid stimulation and hydraulic fracturing techniques have improved considerably in the last ten years. Service industry support has made these technologies available to both the large and small operator.

Improved reservoir management by operators

The availability of inexpensive software has lead to improved reservoir management, including waterflood design. As a rule of thumb, fracture gradients are assumed to be one psi/ft, and operators will keep their injection pressures below this level.

Recent state regulations to reduce the possibility of petroleum wells leaking into Salado
New Mexico State regulations require a salt protection casing string for all wells drilled in the Potash Enclave, which includes the WIPP area. Injection pressures are not allowed to exceed the rock's fracture gradient at the injection horizon [or 0.2 psi/ft (4.5 kPa/m) above hydrostatic if fracture pressures are unknown] for all injection/disposal wells. Operators obey these regulations because the state has power to levy fines and/or shut wells in should they become aware of a violation. (order #R-111-P, State of New Mexico Energy, Minerals, and Natural Resources Dept., Oil Conservation Commission, Feb 18, 1988).

A2. Description of Leaking Wellbores

Figure 1a illustrates how salt water disposal wells in the vicinity of the WIPP are completed presently. Wells are completed with three casing strings with cementing requirements dictated by the State of New Mexico Oil Conservation Division. A typical completion starts with the outermost surface casing string (typically 13 3/8" OD - outer diameter) which extends to the base of the Rustler formation. During permanent placement of the casing string, cement is pumped down the interior of the casing and up through the annulus between the drilled borehole and the casing exterior. A rubber "plug" is pumped after the cement to completely displace the cement out of the casing interior. Once the cement hardens, the plug is "drilled out" to deepen the well. The state requires that cement be pumped all the way from the bottom to the surface in the annulus of the surface casing. The intermediate (also called the salt protection) casing string is typically 8 5/8" OD and extends to the base of the salt section (Castile formation). It is also cemented to the surface using the same procedure as used for the surface casing. Finally, the production casing string is typically 5 1/2" OD and is set to the total depth of the well (which is the Upper Bell Canyon formation for salt water disposal wells). This casing string is cemented such that the top of the cement in the annulus extends far enough to overlap the intermediate casing by several hundred meters. The injected brine is pumped through tubing (2 7/8" OD pipe) from the surface. This tubing is secured above the injection perforations by a packer, which has an elastomer seal to keep the injected fluid from entering the casing - tubing annulus. The arrows in Figure 1a illustrate the direction of flow of the injected brine down the tubing and out the perforated interval. The brine enters the Upper Bell Canyon formation through perforations (holes) in the casing and cement created by shaped charge explosives created immediately after the casing is set. At the surface, gages indicate the relative tubing and casing pressures. During injection, the pressure in the tubing-casing annulus is always significantly less than the injection tubing pressure.

Many salt water disposal wells are converted from previously producing oil wells from deeper formations (i.e. the Lower Bell Canyon, Cherry Canyon or Brushy Canyon formations). These former producing wells are plugged back with cement to the injection interval so there is no communication with the deeper perforations. Converted injection wells are cased and cemented under the same state guidelines.

Figure 1b illustrates the preferred pathway for a “leaky” salt water disposal well to communicate directly with a WIPP panel. An open channel would have to exist in the cement sheath between the casing and borehole to connect the perforations at the injection interval (Upper Bell Canyon) with Marker Bed 139 (MB139). In order for injection brine to reach WIPP, it would first have to travel 1900 vertical feet (580 m) through this continuous open channel. It would then have to flow an additional 10,000 horizontal feet (3048 m) through MB139. The accepted industry rule of thumb is that only 10 to 20 feet of continuous cement in the casing-borehole annulus is needed to provide sufficient vertical isolation from leaks. Any channel in the cement sheath would also be in contact with intervening formations. Some of these formations could act as “thief zones” and siphon off portions of the brine prior to its entering MB139. If a well is improperly completed such that poor cement exists throughout its entire vertical length, leaking injection brine will enter the formation with the highest permeability. In the WIPP area, this would be the Culebra formation, since it has the highest known permeability. “Behind-casing” leaks are difficult to detect since the tubing and casing surface pressures are very similar to those for non-leaking wells.

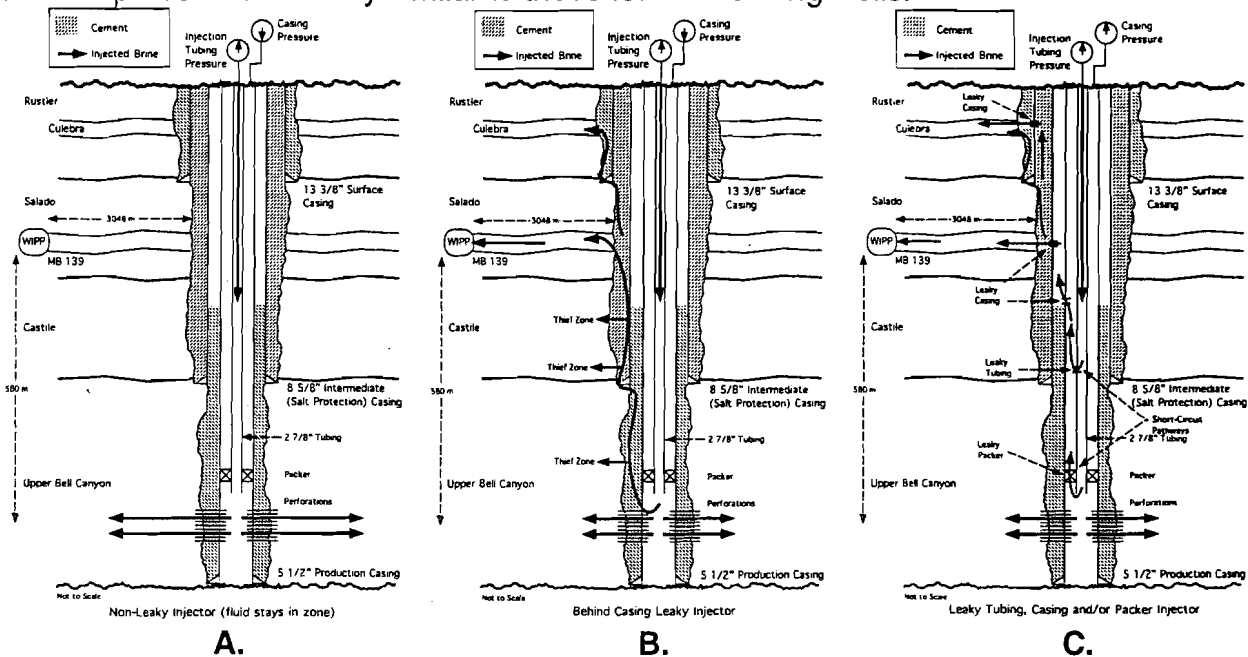


Figure 1: WIPP area geology typical Disposal Well Completion and Hypothetical Leaky Pathways

This pathway could be “short-circuited” if a leak occurred in the casing across the Salado formation. A leak would also have to occur in the tubing and/or through the packer as illustrated in Figure 1c. This is highly unlikely for two reasons:

- 1) A tubing or a packer leak is easy to detect via pressure response at the surface. In this situation the pressure in the tubing-casing annulus is equal to the injection tubing pressure. The state requires that all known tubing and/or packer leaks be corrected.

2) Should a tubing or packer leak exist, there would also have to be holes in both the production and intermediate casing strings as well as the cement in the annular spaces for injected brine to come in contact with the Salado. Similarly the surface casing string would also have to leak for injected brine to reach the Culebra formation.

Figure 2a illustrates the typical wellbore completion for an older (1940's and '50's vintage) Rhodes-Yates converted waterflood injector. In comparison to a present day WIPP area injector, the vertical distance from the surface to the injection interval is significantly less (500 ft or 155 m). Many of the Rhodes-Yates waterflood injectors are converted production wells. These wells were completed "open-hole" or "barefoot" in which the production casing did not extend into the producing formation. Cementing requirements were not mandated and the production casing was probably only cemented across the bottom several hundred feet (60 meters) of annular space. Notice that there is no intermediate (salt protection) casing string. Initially these production wells were "stimulated" using nitroglycerin blasting (termed "nitro-fracs"). Upon conversion to waterflood injectors, the barefoot section remained unaltered.

Figure 2b illustrates the leaky injector scenario similar to Figure 1b for the WIPP area injector. As shown, it is much more likely for a behind casing leak to occur in an early Rhodes-Yates injector since the intermediate casing string (salt protection) does not exist and because of the high probability of reduced cement volumes in the casing - borehole annulus. Because of the shorter vertical distance, fewer potential thief zones are available to siphon off the injected brine.

Figure 2c illustrates the leaky tubing, casing and/or packer scenario similar to Figure 1c. Once again there are fewer barriers to impede the injected brine's ability to come in contact with the Salado.

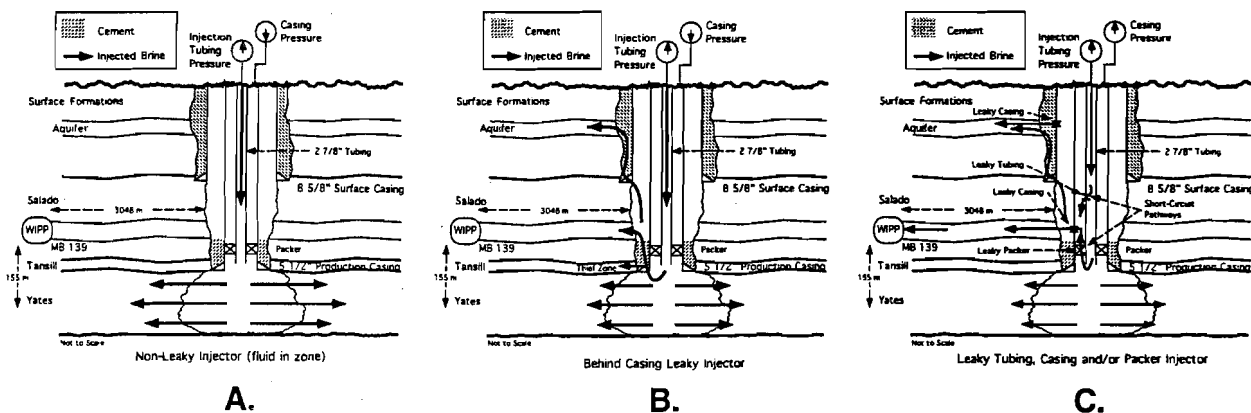


Figure 2: Rhodes-Yates area geology early waterflood injection well and Hypothetical Leaky Pathways

B. Hypothesis

Geological differences, modern petroleum development practices and government regulations will greatly reduce the potential consequences of nearby salt water disposal wells leaking to the Salado and therefore into the WIPP.

II. BRAGFLO MODELS TO TEST HYPOTHESIS

A. Rationale for Selection of Models used in Calculation

In order to test the hypothesis, two sets of conceptual models were developed, representing the different geologies at the WIPP and Rhodes-Yates areas. The models are two-dimensional vertical cross-sections incorporating the properties of the repository/shaft system within the Halite. The Salado, Castile, Marker Beds, and formations above the Salado have properties similar to those used in the CCA BRAGFLO models. The rock strata below the Castile associated with oil and gas production are also included, and differ slightly to represent the two geologic settings. The areal dimensions for all the models are the same, and extend one quarter mile (402.3 m) out from the four mile Land Withdrawal Boundary (LWB) for a 4.5 mile total extent. In order to model the various salt water disposal scenarios, two wellbores are assumed, one at each end of the mesh. The two geologic settings representing the fore and back reef areas are modeled by changing the grid dimensions in the following manner (note the total number of grid block is unchanged):

- The vertical height of the Salado formation beneath the WIPP horizon was reduced from 197.272 m for the WIPP geologic model to 116.8 m for the Rhodes-Yates geologic model. The Salado flow properties are the same for the two models.
- The vertical height of the Castile formation was reduced from 381 m for the WIPP geologic model to 38.1 m for the Tansill formation of the Rhodes-Yates geologic model. All other parameters for this layer (besides the name) remain unchanged, i.e., permeability, porosity, compressibility, etc.
- In order to make the total vertical height of the models the same for the WIPP and Rhodes-Yates geologies, the vertical height of the deepest non-pay interval of the mesh (i.e. Morrow Limestone) was changed from 205.222 m for the WIPP geologic model to 628.59 for the Rhodes-Yates geologic model.

The material properties and layering below the Castile formation (WIPP geology) or Tansill formation (Rhodes-Yates geology) were the same for both models. This part of the mesh was set up to investigate the future effects of simultaneous injection and/or production from the deeper units below the Bell Canyon formation. Because the

consequences of present-day salt water disposal operations adjacent to the LWB are the (current) highest priority oil and gas FEP to the stakeholders, and brine injection into the Bell Canyon formation is considered the near future event of the highest potential consequence, fluid injection into and/or removal from the deeper units will not be modeled at this time.

The following regulations pertain to this FEP:

- 40 CFR 194.32(c) *performance assessments shall include an analysis of the effects on the disposal system of any activities that occur in the vicinity of the disposal system prior to disposal and are expected to occur in the vicinity of the disposal system soon after disposal. Such activities shall include, but shall not be limited to, existing boreholes and the development of any existing leases that can be reasonably expected to be developed in the near future, including boreholes and leases that may be used for fluid injection activities* (emphasis added). (61 FR 5224-5245).
- 40 CFR 194.33(d) *With respect to future drilling events, performance assessments need not analyze the effects of techniques used for resource recovery subsequent to the drilling of the borehole.* (61 FR 5224-5245).

The models used for this analysis reflect these guidelines in the following ways:

- “Near future” for current oil and gas lease development is assumed (by the author) to be fifty years post-closure of the repository.
- The wellbores used in this analysis lie just outside the LWB (not within), as the time frame defined as “near future” occurs during active institutional control, and no new wells will exist within the LWB during this time.
- The wells are only “active”, i.e., injecting, during the fifty year near future time period. After fifty years they go to abandoned (or “passive”) state. The abandoned borehole permeabilities in this model are consistent with those used for the 10,000 year CCA BRAGFLO models.

B. Description of BRAGFLO Model

A cross-sectional view of the model is represented by the following diagram (Figure 3). Note that differences between Rhodes-Yates geology and WIPP geology are bolded under the Rhodes-Yates geology heading. Actual grid block dimensions are given in Tables 1 and 2.

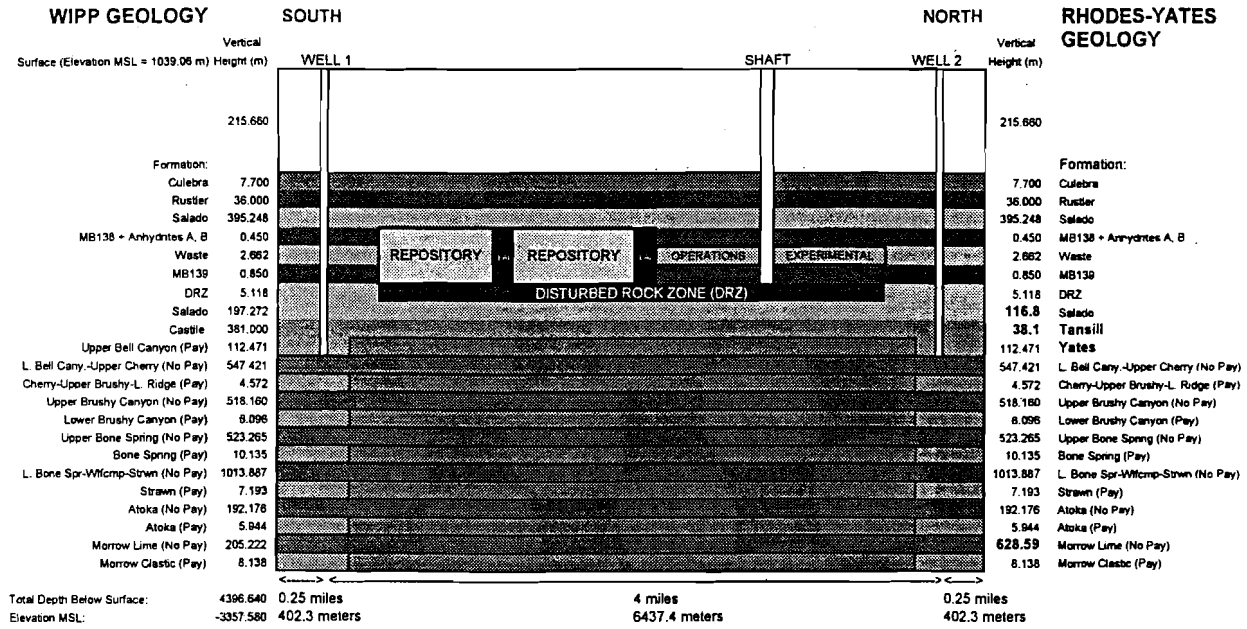


Figure 3: Representation of BRAGFLO fluid injection cross-sectional model

Table 2: Y-direction Gridblock Dimensions

Number		Depths hung from bottom of Salado at shaft coordinates				Formation
From	To	Y direction Increments		Mean Sea Level Elevations		
		Delta Y (ft)	Delta Y (m)	(feet)	(meters)	
34	35	25.26	7.700	2,676.181	815.700	Culebra
33	34	118.11	36.000	2,558.071	779.700	Rustler
32	33	820.21	250.000	1,737.861	529.700	Salado
31	32	476.54	145.248	1,261.325	384.452	Salado
30	31	1.48	0.450	1,259.849	384.002	MB 138, A&B (+waste)
29	30	4.37	1.331	1,255.482	382.671	Waste region
28	29	4.37	1.331	1,251.115	381.340	Waste region
27	28	2.79	0.850	1,248.327	380.490	MB 139 (+ waste)
26	27	16.79	5.118	1,231.537	375.372	DRZ (+Salado)
25	26	647.22	197.272	584.318	178.100	Salado
24	25	1,250.00	381.000	-665.682	-202.900	Castile
23	24	369.00	112.471	-1,034.682	-315.371	Upper Bell Canyon (Delaware Sand) Pay
22	23	796.00	242.621	-1,830.682	-557.992	Lower Bell Canyon - Upper Cherry No pay
21	22	850.00	259.080	-2,680.682	-817.072	Lower Bell Canyon - Upper Cherry No pay
20	21	150.00	45.720	-2,830.682	-862.792	Lower Bell Canyon - Upper Cherry No pay
19	20	15.00	4.572	-2,845.682	-867.364	Cherry - U. Brushy C. (L. Ridge Main Pay)
18	19	150.00	45.720	-2,995.682	-913.084	Upper Brushy Canyon (non-productive)
17	18	1,350.00	411.480	-4,345.682	-1,324.564	Upper Brushy Canyon (non-productive)
16	17	200.00	60.960	-4,545.682	-1,385.524	Upper Brushy Canyon (non-productive)
15	16	20.00	6.096	-4,565.682	-1,391.620	Lower Brushy Canyon (A,B,C,D) Pay
14	15	200.00	60.960	-4,765.682	-1,452.580	Upper Bone Spring (non-productive)
13	14	1,184.25	360.959	-5,949.932	-1,813.539	Upper Bone Spring (non-productive)
12	13	332.50	101.346	-6,282.432	-1,914.885	Upper Bone Spring (non-productive)
11	12	33.25	10.135	-6,315.682	-1,925.020	Bone Spring Pay
10	11	332.50	101.346	-6,648.182	-2,026.366	L. Bone Sp.-Wolfcamp-Strawn (non-productive)
9	10	2,757.90	840.608	-9,406.082	-2,866.974	L. Bone Sp.-Wolfcamp-Strawn (non-productive)
8	9	236.00	71.933	-9,642.082	-2,938.907	L. Bone Sp.-Wolfcamp-Strawn (non-productive)
7	8	23.60	7.193	-9,665.682	-2,946.100	Strawn Pay
6	7	350.00	106.680	-10,015.682	-3,052.780	Atoka (No Pay)
5	6	280.50	85.496	-10,296.182	-3,138.276	Atoka (No Pay)
4	5	19.50	5.944	-10,315.682	-3,144.220	Atoka Pay
3	4	300.00	91.440	-10,615.682	-3,235.660	Morrow Lime (No Pay)
2	3	373.30	113.782	-10,988.982	-3,349.442	Morrow Lime (No Pay)
1	2	26.70	8.138	-11,015.682	-3,357.580	Morrow Clastic (Pay)

B.1 Comparison to 10,000 year BRAGFLO CCA models

The models used for this fluid injection analysis are similar to the 10,000 year BRAGFLO models used in the CCA (WPO# 40514) [CCA PA Task 1] in the following ways:

- Both are two-dimensional cross sections.
- The excavated (or back-filled) volumes of the waste emplacement region, operations area, experimental area, shafts and seals are treated as composites. There is no intervening salt between these regions.
- Material properties for the repository regions, Salado, interbeds, and Rustler formations are the same (i.e. originate from the same database) for the two models.
- Treatment of the shaft seals (changes in permeability over time) is the same.
- Both include one degree formation dip through the salt section (Salado, Castile, interbeds and repository regions).

- Both include the effects of creep closure and gas generation in the waste region, and anhydrite interbed fracturing. These are described in the BRAGFLO Analysis Package (WPO# 40514).

The fluid injection models used in this analysis differ from the BRAGFLO CCA models in the following ways:

- The 10,000 year CCA models use two-dimensional radial flaring in the z direction element thickness to capture equivalent 3-dimensional volumes (360 degree flow) in the surrounding geology. The fluid injection models used in this analysis flare the z direction thicknesses out from the two wellbores near the edges of the mesh. Figure 4 shows the flaring for the South wellbore (left side of grid - Figure 3) for one layer, where the opposite wellbore is a mirror image. The flaring around the wellbore is the same for all layers in the y direction. In addition, the flared volumes of the grid blocks going outward from the wellbore grid blocks represent 90 degrees of flow in each direction, or 180 degrees of total flow in opposite directions instead of 360 degrees. This was done to limit the fluid flow and injection in the wellbores to realistic volumes, since the intervening grid blocks between the wellbores (which include the excavated region) are a constant quarter mile thickness in the z direction, and do not represent full 3-dimensional equivalent geology between the wellbores. The limited z-dimension thickness simulates long, thin reservoir "channels" which could underlie the LWB beneath WIPP. This is conservative with respect to potential releases from WIPP, since fluid movement and pressures are restricted to a quarter mile (402.3 m) "slice" through the center of the LWB. Figure 5 shows how the excavated regions of the repository are descritized. The grid blocks are equivalent in volume to the proposed excavated areas at the WIPP. The "makeup" area represents the volume of salt between the drifts and rooms which is not accounted for in the excavated regions, but needed to maintain the four mile distance between the wells.

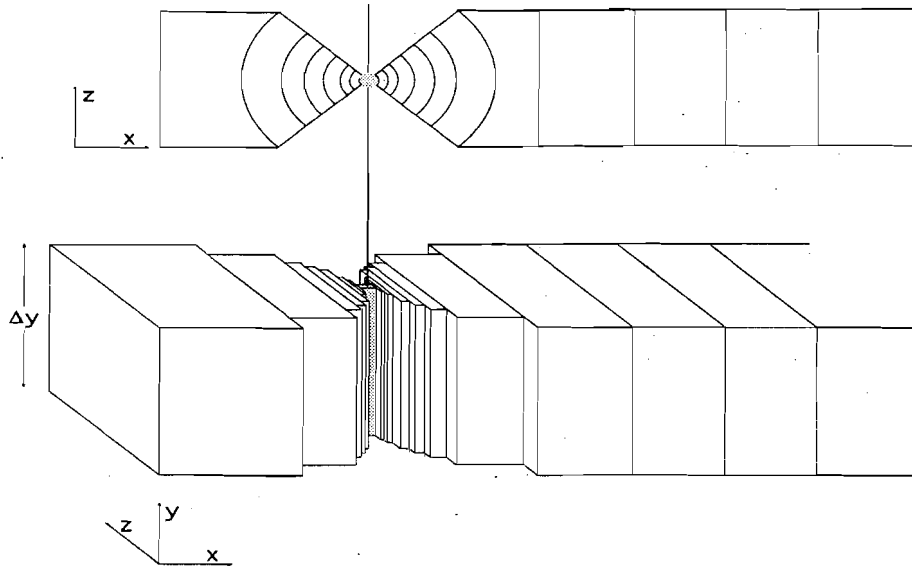
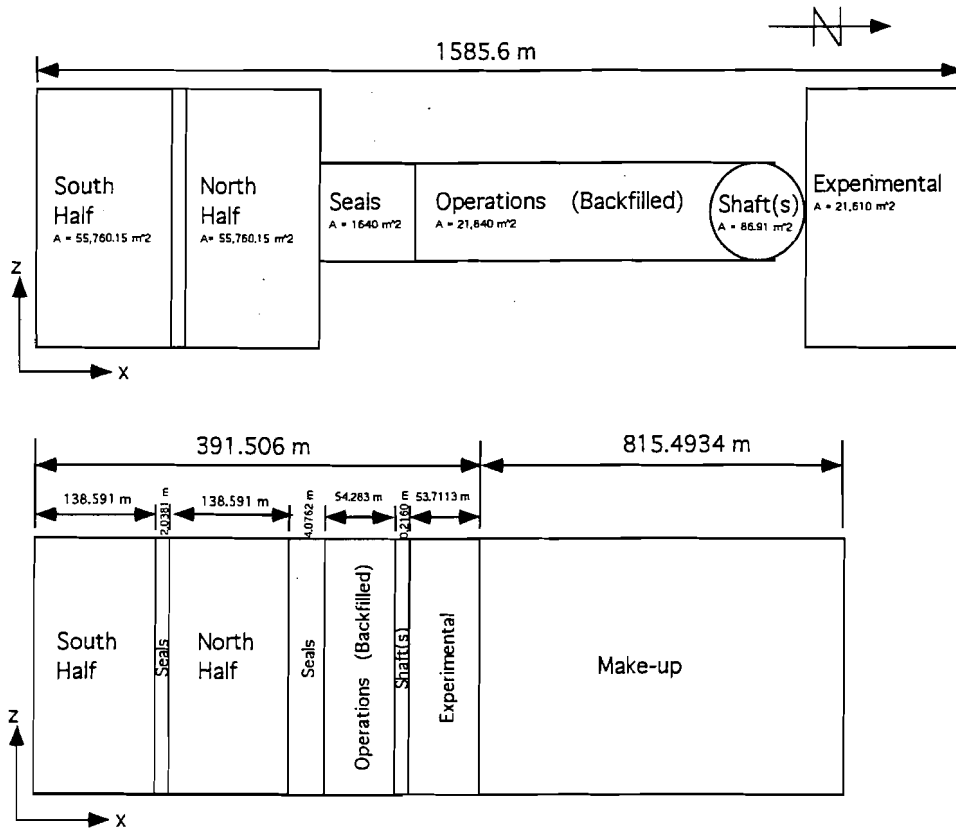


Figure 4: Representation of two dimensional radial flaring out from one wellbore (Fluid Injection Model)



NOT TO SCALE

Figure 5: Plan view of two dimensional treatment of the WIPP excavated regions (Fluid Injection Model)

- The 10,000 year BRAGFLO CCA models for human intrusion scenarios contain a single wellbore region through a waste panel in the approximate center of the mesh. The wellbore exists only in the "passive" (abandoned) state with no active injection or production. The models used for this study have two wellbore regions at the edges of the mesh, and no wellbores in the waste region. The two wells are "active" (injecting) for the first 50 years at which time leaks are allowed up the wellbore. After fifty years, they go to abandoned state.
- The mesh layering for the 10,000 year CCA models includes all formations above the Salado to the surface (Dewey Lake, Santa Rosa, etc.), but do not include the layers deeper than the Castile Formation. The fluid injection models for this analysis contain the sub-Castile formations to the Morrow (but inject into the Bell Canyon only), and do not include the surface formations above the Culebra.
- Several simplifications were made to the Salado/repository system for the fluid injection models. Marker Bed 138 and Anhydrites A&B were combined to form one layer with an equivalent combined height. This combined layer and the layer representing MB 139 were moved closer together to connect directly with the excavated regions. The disturbed rock zone (DRZ) was combined into one layer and placed beneath the excavated regions. These simplifications were made to reduce the bandwidth in the y direction.

B2: Description of Deeper Units

The deeper units (Bell Canyon through Morrow) are divided into two vertical sub-layers: Pay and No-Pay. The No-Pay zones represent non reservoir quality rock and are assigned permeabilities several orders of magnitude lower than the Pay layers. The Pay layers (reservoir quality rock) are divided further into three horizontal sections, each of which can be assigned No-Pay properties to limit the size of the reservoir(s) within each formation. This layering scheme was developed to investigate the effects of combinations of simultaneous production and injection wells at various depths and differing reservoir sizes. This capability was not fully utilized, since (as previously mentioned) the salt water disposal scenario to the Bell Canyon is considered the worst case (bounding) scenario with respect to long-term repository performance. All three sections within the Upper Bell Canyon (Pay) Formation were assigned reservoir quality rock properties for this study. Most of the rock properties were obtained from the New Mexico Bureau of Mines *Atlas of Major Rocky Mountain Gas Reservoirs* [Chapin, et. al., 1993], and are listed in Appendix B.

B3: Treatment of Leaky Boreholes in the Models

The x by z dimension grid block area for the borehole regions are equivalent to a 12.25 inch diameter bit, which is the most common bit size used in the WIPP area while drilling through the salt. During the active injection phase of the wellbores, any leaking fluid would be restricted to the annular space between the casing OD and borehole wall. Therefore, permeability multipliers are applied to the leaky borehole permeability such that the effective permeability is reduced by the ratio of the annular area over the bit diameter area. This maintains equivalent $K \cdot A$ (permeability times area) for the leaky flow path up the borehole without changing the physical dimensions of the borehole grid blocks. Similarly, when the boreholes go to abandoned (passive) state, permeability multipliers are applied to account for the different bit sizes used while drilling through the Rustler (17.5 inch bit), Salado - Castile (12.25 inch bit), and Bell Canyon (7.875 inch bit) formations. The multipliers used for this analysis are presented in Table 3.

Table 3: Permeability multipliers for abandoned and leaky casing boreholes

Baseline BH diameter, area =		12.2500	0.8185	Vertical perm multipliers			
Borehole	casing	Equiv. Borehole Areas		Equiv. Annular Areas		Abandon BH	leaky casing
Size (in)	Size (in)	Sq feet	Sq meters	Sq feet	Sq meters	Multiplier	multiplier
7.8750	5.500	0.3382	3.142E-02	1.7325E-01	1.610E-02	4.133E-01	2.117E-01
12.2500	9.625	0.8185	7.604E-02	3.1319E-01	2.910E-02	1.000E+00	3.827E-01
17.5000	13.375	1.6703	1.552E-01	6.9464E-01	6.453E-02	2.041E+00	8.487E-01

B4: Flow of Calculations: Grid construction, Parameterization, Initial and Boundary Conditions, Modifications to Data, and Analysis

See section I for a flowchart of the calculational process used for the SWD model simulations. The input files (with a .INP extension) provide the instruction sets needed to guide the performance assessment (PA) codes in building, modifying, running, and analyzing the SWD models. A detailed description of the operation of these PA codes can be found in the WIPP central files (see section E). Each of the input files used for this analysis are listed in the Appendices. Comment lines begin with an exclamation (!) and are ignored by all the PA codes.

Appendix C provides a listing of the mesh generator (GENMESH) instruction set used to develop the mesh for the WIPP geology models (GENMESH.INP). The grid is 96 elements (97 nodes) in the X-direction, 34 elements (35 nodes) in the Y-direction, and 1 element (2 nodes) in the Z-direction (also element thickness). Note the dimensions correlate to those in Tables 1 and 2. This code also defines the various material regions tied to the grid. The output from this code is a binary format Camdat Database (.CDB extension) file. All data associated with each model within the PA structure is contained within its CDB file, and these files are modified as they are operated on by each successive code. The Rhodes-Yates grid was constructed by GENMESH using the GM_YATES01.INP instruction set. Many of these input lines are identical to those

in the GENMESH.INP file, therefore, rather than list the entire file a DIFFERENCES command (VMS language) was performed to highlight the different sections between the WIPP geology and Rhodes-Yates geology input files. The resulting DIFFERENCES output file is listed in Appendix D. The two significant differences are in the Y-coordinate descriptions in nodal range 24 - 25, where delta = 381 meters for the WIPP geology (GENMESH.INP line 198) and delta = 38.1 meters for the Rhodes-Yates geology (GM_YATES01.INP line 210), and in nodal range 2 - 3, where delta = 113.78 meters for the WIPP geology (GENMESH.INP line 220) and delta = 537.154 meters for the Rhodes-Yates geology (GM_YATES01.INP line 234).

The assignment of initial material property parameters is handled by the MATSET code. The input file is listed in Appendix E. MATSET assigns names to each material region (block) within the GENMESH output CDB file, as well as creating property regions not directly tied to the mesh (such as the BRINESAL region, which contains the needed physical properties of Salado brine). Matset also creates property (or variable) names within each block to store values within the database. When a material region and property name exactly match similar variables on the database, the median database values are inserted into the variables. View CCA 6 from the INGRESS database was used to supply the necessary values for this analysis. MATSET can be instructed to assign property values if one wishes to over-ride database values, or if the database does not contain the defined material property. This is accomplished in the input lines subsequent to the "SET" command (line 927, page E9). For example, all of the parameters for the deeper units are not defined in the database, and are therefore "SET" in MATSET for the SWD models. Many of the values not contained in the database and assigned in MATSET are placeholders, and will be defined in the subsequent ALGEBRA step. For this analysis, most of the placeholder variables are given a value of zero (for example, properties in material name "BH_SUR_A", lines 1433 to 1437, page E14). A complete listing of parameters is contained in Appendix B. Unmodified parameters originating from the database are described as "Database: View CCA 6" in the last column titled "source".

The next step in the construction of the models is grid initialization. This is accomplished by the codes ICSET and ALGEBRA (input files listed in Appendices F through K). Each grid block is assigned time dependent values for initial brine saturation (SATBREL), iron concentration (FECONC), and cellulose concentration (CH2OCONC). See lines 17 and 18, page F1. ICSET also defines a starting time for the model, which is negative 5 years (-1.5778E08 seconds). Initial Brine pressures for the Salado layers (Salt, Castile, Interbeds, and Excavated Regions) are calculated in ALGEBRA based on the starting pressure of MB 139 and a hydrostatic gradient resulting from one degree formation dip. The pressures in the deeper layers (sub-Castile) are defined in ALGEBRA based on hydrostatic gradients with no dip. The Rustler formations are assigned pressures equal to the database starting pressure for the Culebra (block 40), also without formation dip. Lines 1081 through 1167 (pages G11 to G12) and lines 1123 through 1209 (pages H11 to H12) detail how this was accomplished. The ALGEBRA calculations used to determine initial brine pressure are

identical to the methods used in the 10,000 year BRAGFLO 1996 CCA models (WPO# 40514).

The ALGEBRA code is also used to modify existing parameters in order to convert them to a form usable by BRAGFLO, or create additional parameters needed by BRAGFLO. An example would be to convert log permeability to normal permeability, and convert rock compressibility to pore compressibility. For example, see lines 53 to 65, page G1 for the WIPP geology baseline model. This ALGEBRA file also performs stoichiometric calculations for the reaction chemistry sub-model (lines 193 to 442, pages G2 through G5), modifies time-dependent shaft seal permeabilities (line 500 to 984, pages G5 through G10), and computes grid block elevations (lines 1169 to 1194, page G12). These particular calculations are identical to those used in the 10,000 year BRAGFLO 1996 CCA models (WPO# 40514). The parameters for the deeper units, and the borehole properties for leaky and abandoned boreholes, are modified or calculated in lines 1017 to 1078 (pages G10 and G11). Appendix H contains a listing of the ALGEBRA input used for the Rhodes-Yates geology Case 1 model, and Appendices I, J and K show the differences between this ALGEBRA file and the inputs used for the remaining models. These ALGEBRA files also contain the instructions to change the borehole permeabilities and/or maximum fracturing permeabilities for the WIPP geology cases 1, 2, and 3, and all of the Rhodes-Yates cases. For example, lines 38 through 45 (page I1) show where the section was added to the ALG_WATFLD_BASE01_R003.INP file (Rhodes-Yates geology case 2) which changes the leaky borehole permeabilities (blocks 60, 62, and 64) to 10^{-9} m². Similarly, lines 111 through 115 (page K2) show the lines that were added to the ALGEBRA input file that changes the maximum log fracture permeability (KMAXLOG variable) to -3 (10^{-3} m²), and the un-fractured permeability variable (PERM_X) to $10^{-17.1}$ m² for the WIPP geology case 3 and Rhodes-Yates geology case 4 (ALG_WATFLD_BASE01_R005.INP).

The CDB files output from the ALGEBRA step provide the information that PREBRAG needs to construct the BRAGFLO input file. The prebrag instruction sets (.INP's) are listed in Appendices L, M, and N. Lines 930 through 1036 (pages L9 and L10) define the boundary conditions (BC's) used in the WIPP geology models. Dirichlet (constant pressure) BC's are defined at the edge grid blocks for every Non-pay layer in the deeper units. The Salado and Culebra layers are also assigned Dirichlet BC's at the edge grid blocks. The Dirichlet pressures assigned to the edge grid blocks are equal to initial pressures, and are designed to simulate constant far-field pressures in those layers. The BC's in the wellbore region at the Culebra and edge grid blocks of the anhydrite interbeds are treated as constant pressure wells. This was done to better handle two-phase flows (brine and gas) at these locations. Lines 988 to 1034 (pages L9 and L10; note some lines are commented out) show the pressures used. The constant pressure injection wells (0 to 50 years) are defined in lines 978 to 984. Similarly, Appendices M and N define the boundary conditions for the Rhodes-Yates models. Note that brine is only allowed to enter or leave the grid at the edge grid blocks and Culebra layer, and only injects at the Upper Bell Canyon from 0 to 50 years.

All the parameters used in the BRAGFLO calculations (mesh dimensions, material properties, initial and boundary conditions, etc.) can be found in the BRAGFLO input files, which are generated by PREBRAG. These files are listed in Appendices O through V. Some of the analysis calculations were done in an ALGEBRA following POSTBRAG, and its input instruction set is listed in Appendix W. Some of the results contained in the post ALGEBRA CDB files were converted to ASCII format in SUMMARIZE, and ported to a spreadsheet application (EXCEL) for plotting.

C. Assumptions not Given in the Work Plan

No specific analysis plan was developed for the effects of salt water disposal and waterflooding on WIPP. FEPs NS7 and NS21 do not specifically address water injection issues, however, NS7 was subsequently redefined to include this concern as NS7A.

D. Performance Measures used in the Screening Effort and Rationale for Use

Because each of these models take from one to three days of CPU time to complete, a representative CCDF plot of probability and consequence could not be accomplished. Therefore comparisons are made to a "WIPP geology baseline" model, which is assumed to be representative of a most likely or "median" CCA consequence. Additionally, the results of these models are compared to the cumulative brine flow into the repository from all marker beds from the 10,000 year undisturbed BRAGFLO CCA calculations.

E. Document Software Name and Version Numbers

The following software used in this analysis was run under the VAX/VMS operating system:

- ALGEBRACDB: Version 2.35
- SUMMARIZE_PA96: Version 2.10
- BRAGFLO: Version 4.00
- PREBRAG_PA96: Version 6.00
- POSTBRAG_PA96: Version 4.00
- GM_PA96: Version 6.08 (GENMESH)
- MATSET_PA96: Version 9.00
- ICSET_PA96: Version 2.22
- BLOTADB_PA96: Version 1.37

The following software was used for analysis and documentation using the Microsoft Windows95 and Apple Macintosh operating systems:

- CANVAS: Mac Version 3.54, Deneba Software, 7400 SW 87th Avenue, Miami, Florida 33173, (305) 596-5644
- EXCEL: Mac Version 5.0 and Win95 Version 5.0c, Microsoft Corporation, Product I.D. OEM43-F11-2200217
- WORD: Mac Version 6.0.1 and Win95 Version 6.0c, Microsoft Corporation, Product I.D. OEM43-F11-2200217
- FTP: Microsoft Corporation Windows95 System Software
- ADOBE ILLUSTRATOR: Mac Version 5.5 (used to convert Adobe 3.0 files from BLOTODB_96 to Illustrator 1.1 files for use in CANVAS)

F. Description of Scenarios and Key Parameters

Using the two models, eight scenarios were developed to look at the consequences of salt water injection on WIPP under the following model assumptions (Table 4):

Table 4: Properties for Eight Scenarios Used in Study

MODEL:	WIPP Geology				Rhodes-Yates Geology			
SCENARIO:	Base-line	Case 1	Case 2	Case 3	Case 1	Case 2	Case 3	Case 4
DESCRIPTION:	Median Database, Marker bed high perm. channel	Sand-filled channel behind casing, Marker bed high perm. channel	Tubing and casing leaks, Marker bed high perm. channel	Tubing and casing leaks - Marker bed open channel frac.	Sand-filled channel behind casing - Inj. gradient above frac. gradient, Marker bed high perm. channel	High perm. channel behind casing - Inj. gradient at frac. gradient, Marker bed high perm. channel	Tubing and casing leaks Marker bed high-perm channel, Marker bed high perm. channel	Tubing and casing leaks, Marker bed open channel frac.
BRAGFLO Filename:	BRAGFLO_WATFLD_BASE01_R001.CDB	BRAGFLO_WATFLD_BASE01_R002.CDB	BRAGFLO_WATFLD_BASE01_R004.CDB	BRAGFLO_WATFLD_BASE01_R005.CDB	BRAGFLO_WATFLD_YATES01_R002.CDB	BRAGFLO_WATFLD_YATES01_R003.CDB	BRAGFLO_WATFLD_YATES01_R004.CDB	BRAGFLO_WATFLD_YATES01_R005.CDB
Salado Permeability (m ²)	3.981E-24	1.778E-25	1.778E-25	1.778E-25	1.778E-25	1.778E-25	1.778E-25	1.778E-25
Anhydrite Permeability (m ²)	1.288E-19	7.943E-18	7.943E-18	7.943E-18	7.943E-18	7.943E-18	7.943E-18	7.943E-18
Effective Leaky Borehole Permeability (m ²)	3.162E-13	1.0E-11	1.0E-03	1.0E-03	1.0E-11	1.0E-09	1.0E-03	1.0E-03
Effective Abandoned Borehole Permeability (m ²)	3.162E-13	1.0E-11	1.0E-11	1.0E-11	1.0E-11	1.0E-11	1.0E-11	1.0E-11
Bottomhole Inj. Press. (Pa)	22.8E06	22.8E06	22.8E06	22.8E06	22.8E06	18.53E06	18.53E06	18.53E06
Bottomhole Inj. Press. (psi)	3307	3307	3307	3307	3307	2687	2687	2687
Injection Depth (m)	1298.4	1298.4	1298.4	1298.4	819.13	819.13	819.13	819.13
Injection Depth (ft)	4260	4260	4260	4260	2687.4	2687.4	2687.4	2687.4
Injection Gradient (psi/ft)	0.78	0.78	0.78	0.78	1.23	1.00	1.00	1.00
Max. Marker Bed Perm (m ²)	1.0E-09	1.0E-09	1.0E-09	1.0E-03	1.0E-09	1.0E-09	1.0E-09	1.0E-03

All eight scenarios use the median properties from the CCA database: View CCA6.SDB. Certain properties vary by scenario in the following ways (all other properties remained unchanged):

- The WIPP geology Case 1 and Rhodes-Yates geology Case 1 scenarios use maximum database values for anhydrite and borehole (both leaky and abandoned) permeabilities, and the minimum value for Salado permeability.
- The injection gradient for WIPP Case 1 scenario (and all subsequent cases) is set to approximately 0.2 psi/ft above hydrostatic (~0.78 psi/ft) as mandated by the State of New Mexico. This is equal to 22.8 Mpa (3307 psi) injection pressure at the depth of the Bell Canyon. The Rhodes-Yates Case 1 scenario pressure gradient is set to 1.23 psi/ft, or 22.9 Mpa (3307 psi) injection pressure, which is the alleged maximum injection gradient of some of the Rhodes-Yates waterflood wells. The remaining Rhodes-Yates cases use an injection gradient of 1.0 psi/ft, or 18.53 Mpa (2687 psi) injection pressure, which is a more realistic gradient for non-WIPP area waterfloods.
- The WIPP Case 2 and Rhodes-Yates Case 3 scenarios represent "short-circuit" leak pathways in which a hole exists in both the tubing or packer, and the casing string(s) across the Salado (10^{-3} m^2 permeability).
- The WIPP Case 3 and Rhodes-Yates Case 4 scenarios are similar to the previous two cases except that an "open channel" fracture is allowed in BRAGFLO's Anhydrite Fracture Model (maximum effective Marker Bed permeability set to 10^{-3} m^2). In all previous cases the maximum effective fracture permeability is set to the database value of 10^{-9} m^2 , which represents a high-permeability channel.

G. Treatment of Time Intervals

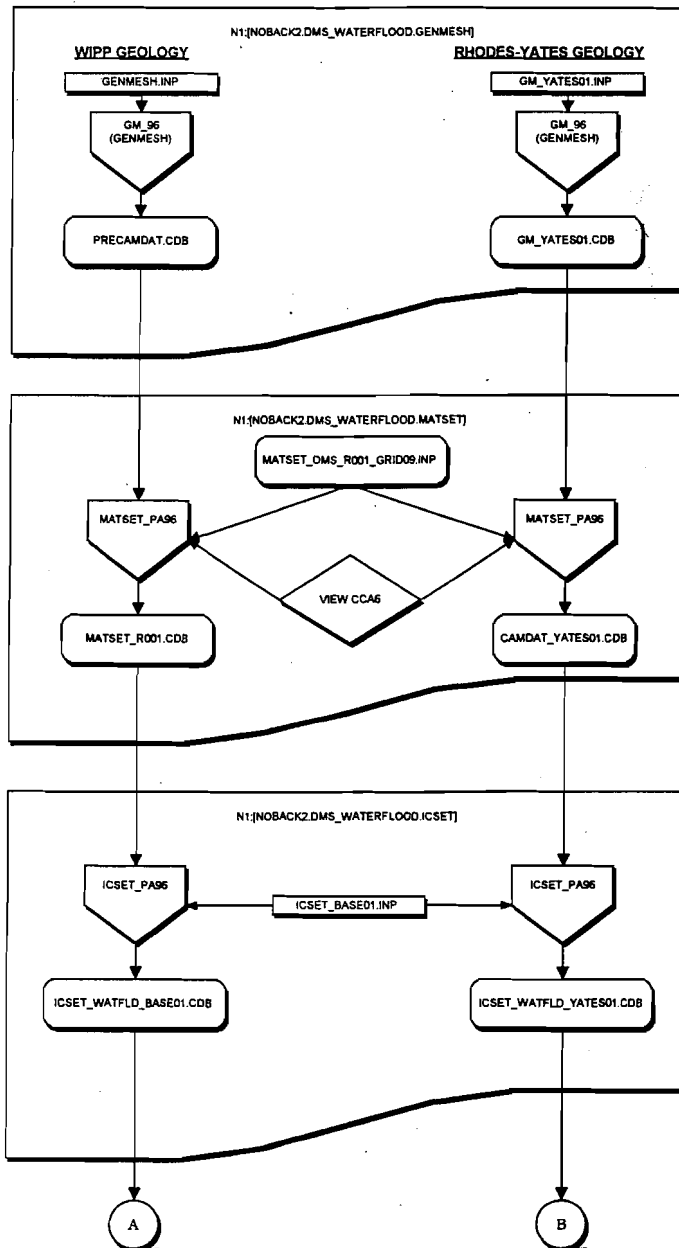
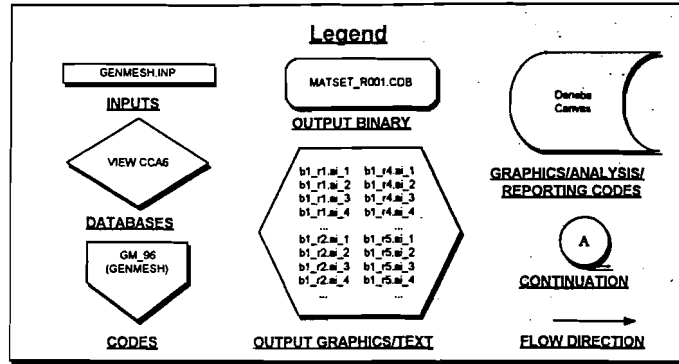
Five time periods have been established for carrying out the simulations. The characteristics of these time periods are as follows:

- 5 to 0 years: Mesh is allowed to equilibrate. Waste areas treated as cavities.
- 0 to 50 years: Introduce waste, initiate creep closure and gas generation. Two salt water disposal wells turned on at opposite sides of 4 mile boundary. Effective "annular leak" allowed from injection interval (Bell Canyon) through Salado only (plugged at Rustler).
- 50 to 250 years: Wells turned off, boreholes go to initial abandoned state with cement plugs (5×10^{-17} m² permeability) at the injection interval and across the Rustler, with brine drilling fluid in the open hole between (10^{-9} m² permeability).
- 250 to 1250 years: Abandoned wells go to "silty sand" state throughout.
- 1250 to 10000 years: Abandoned wells in lower portion of salt have permeability reduced one order of magnitude due to salt creep.

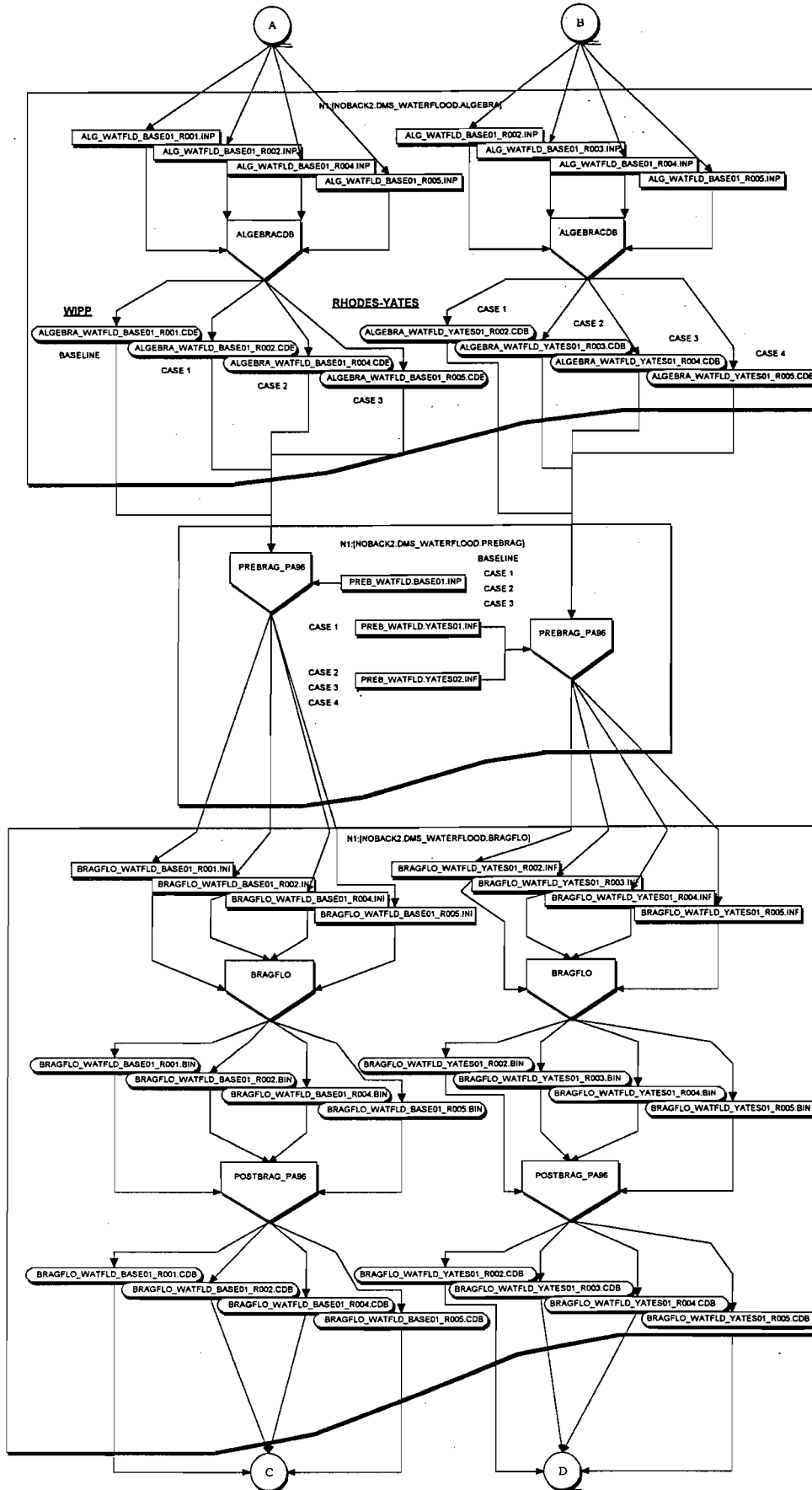
H. Name of Participants

Daniel M. Stoelzel, Senior Member Technical Staff, Sandia National Laboratories Division 6848, served as the Principal Investigator for this work, and also performed the calculations. Darien G. O'Brien, Director of Engineering, petroleum and environmental engineering consultant with Solutions Engineering (based in Lakewood, Colorado) assisted in the analyses.

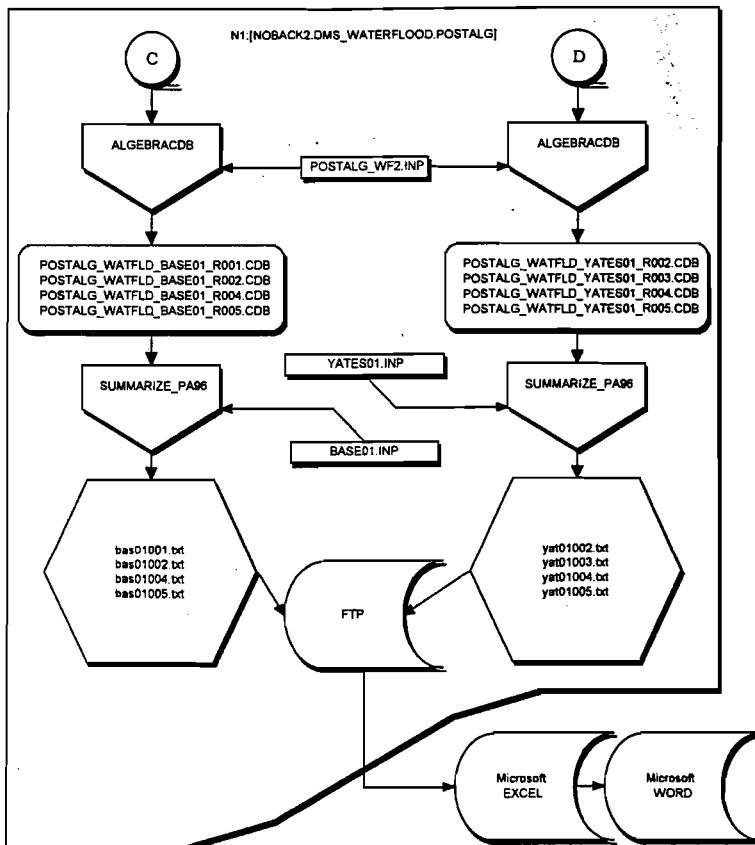
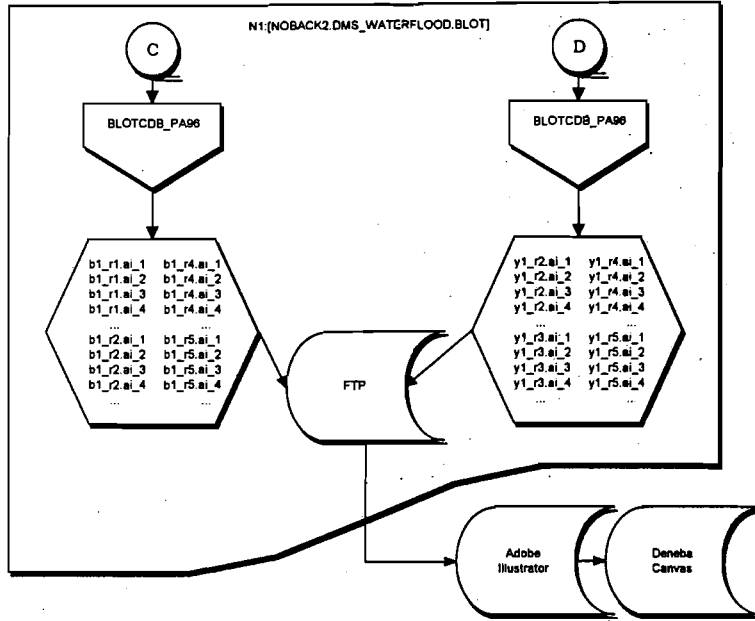
I. Diagram Describing Data Flow



The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a)



The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a)



J. *Input/Output files*

Appendix C through W includes a listing of all input files and output files which have been stored on tape backup.

K. *Documentation of Changes from Work Analysis Plan and Rationale*

No specific analysis plan was developed for the effects of salt water disposal and waterflooding on WIPP. FEPs NS7 and NS21 do not specifically address water injection issues, however, NS7 was subsequently redefined to include this concern as NS7A.

III. RESULTS AND DISCUSSIONS

The following plots show comparisons between the WIPP geology and Rhodes-Yates geology scenarios using the BRAGFLO model run over 10,000 years.

Figure 6 shows the cumulative brine injected in the salt water disposal wells. The plots level off early since all injection takes place in the first 500 years. The WIPP geology scenarios overly one another at ~700,000 m³ brine injected (4.4 million oilfield barrels). This corresponds to ~88,000 barrels per year, or ~7,300 barrels per month brine injected, which is comparable to an average SWD injector in the WIPP area. Differences between the Rhodes-Yates geology Case 1 and remaining cases are caused by the 22.8E+06 Pa (1.23 psi/ft gradient) versus 18.53E+06 Pa (1.0 psi/ft gradient) bottomhole injection pressures, respectively.

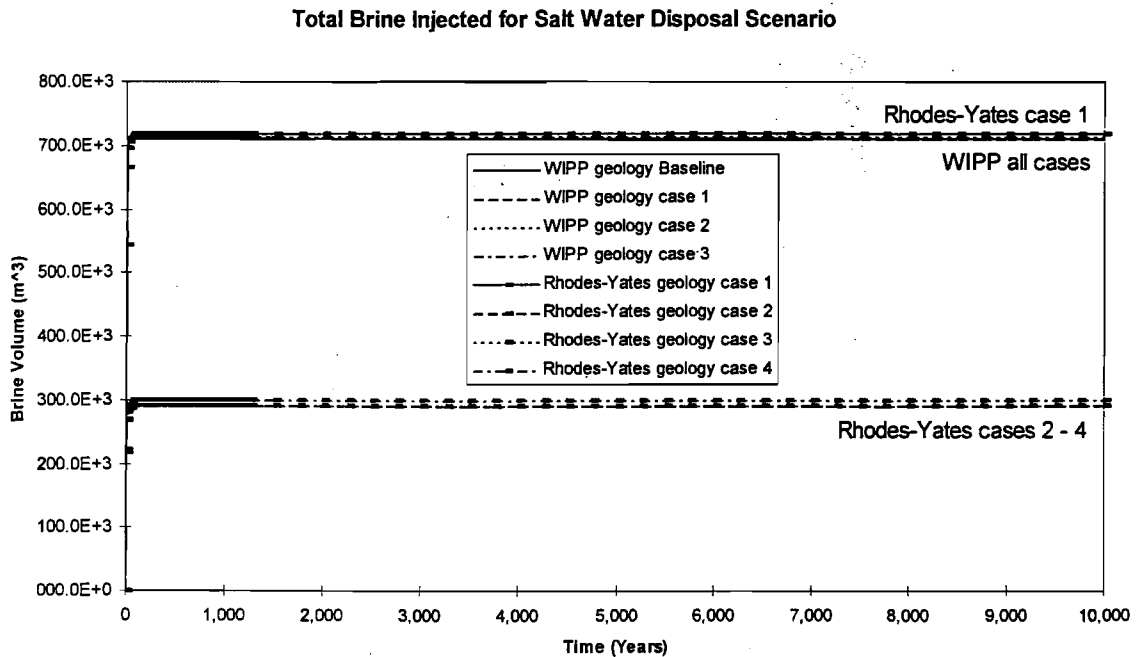


Figure 6: Total Brine Injected for Two Salt Water Disposal Wells

Figure 7 shows the cumulative brine entering the anhydrite marker beds towards the repository from the wellbores. Differences between scenarios are caused by the vertical distance of the formations above the injection interval (i.e. Castile and Salado for the WIPP geology vs. Tansill and Salado for the Rhodes-Yates geology) as well as differences in leaky casing permeabilities for each scenario. The WIPP Worst Case scenario (Case 3) allows ~2,000 m³ to enter the marker beds from the leaky wellbores. Note that in all cases, the majority of the injected brine flowed “in zone” within the injection interval (compare with total injection volume - Figure 6).

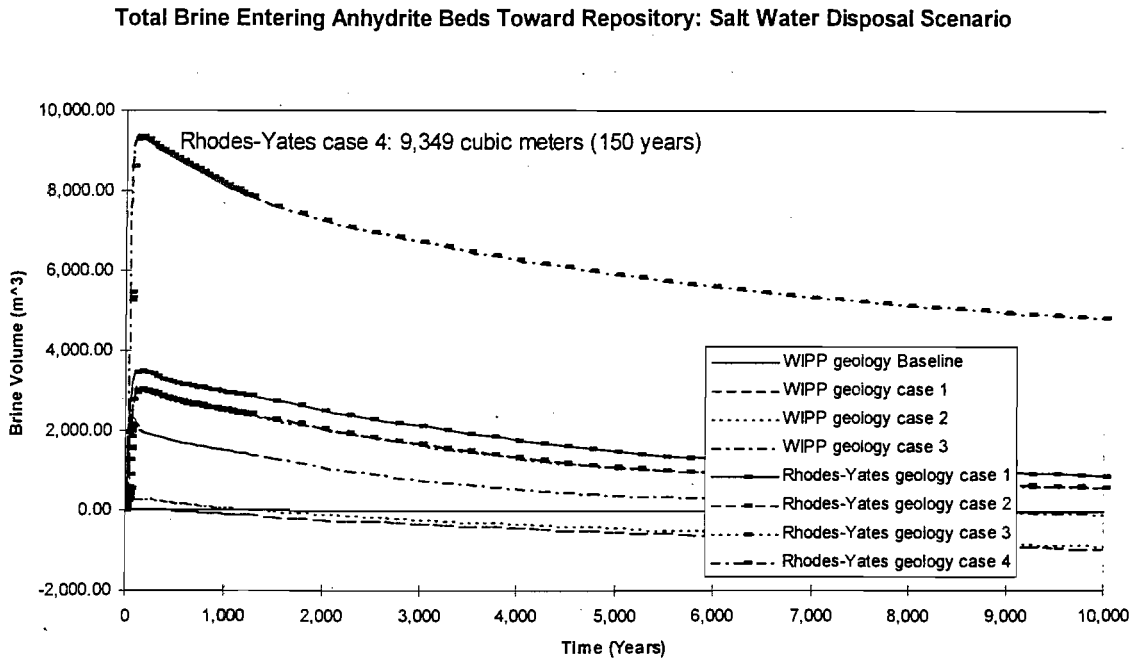


Figure 7: Total Brine Entering Anhydrite beds Toward Repository from Two Salt Water Disposal Wells

Figure 8 shows the cumulative brine entering the repository from the marker beds. Note that for the worst case scenarios (Rhode-Yates Case 4 and WIPP Case 3) about half of the brine that flowed into the interbeds (Figure 7) actually made it to the repository (5,286 of 9,349 m³ for the Rhodes-Yates and ~1,000 of ~2,000 for the WIPP).

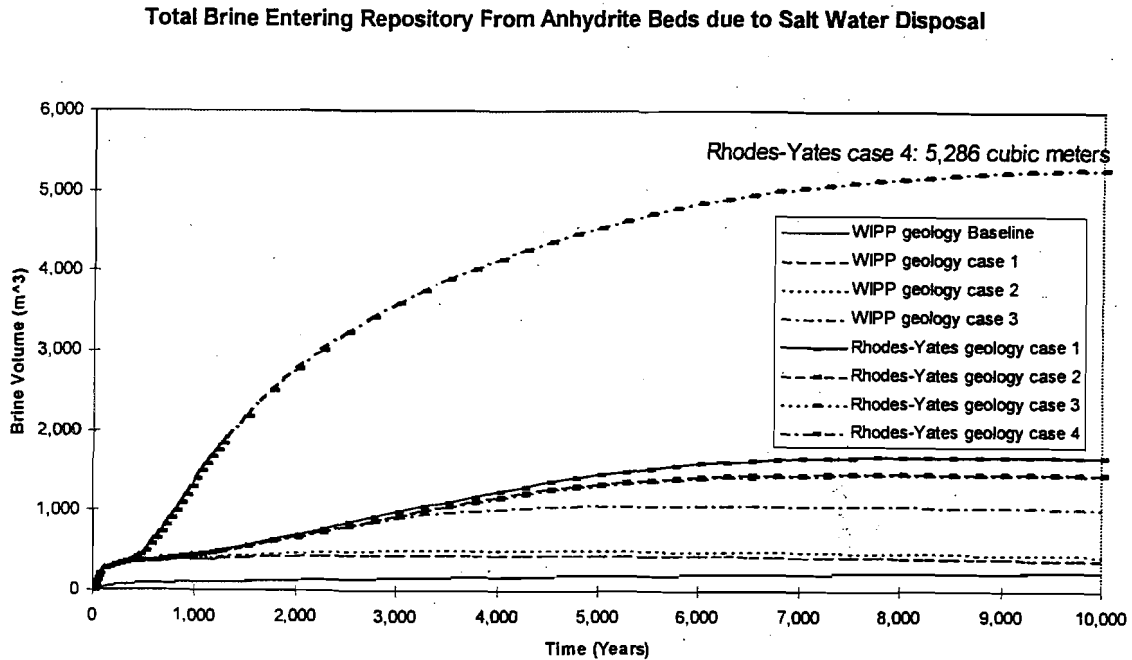


Figure 8: Total Brine Entering Repository from Anhydrite Beds due to Salt Water Injection

Figures 9, 10, and 11 show the effects that fluid injection has on the repository saturations and pressures for the two geologies. The brine flowing into the repository must first fill up the available pore space in the DRZ (Figure 10) before filling the waste regions (Figure 9). Note the only significant increase in saturation occurs in the Rhodes-Yates geology Case 4. All of the WIPP geology cases show little difference from the baseline model. Similarly, pressure response in the repository does not vary significantly from the WIPP geology baseline (Figure 11).

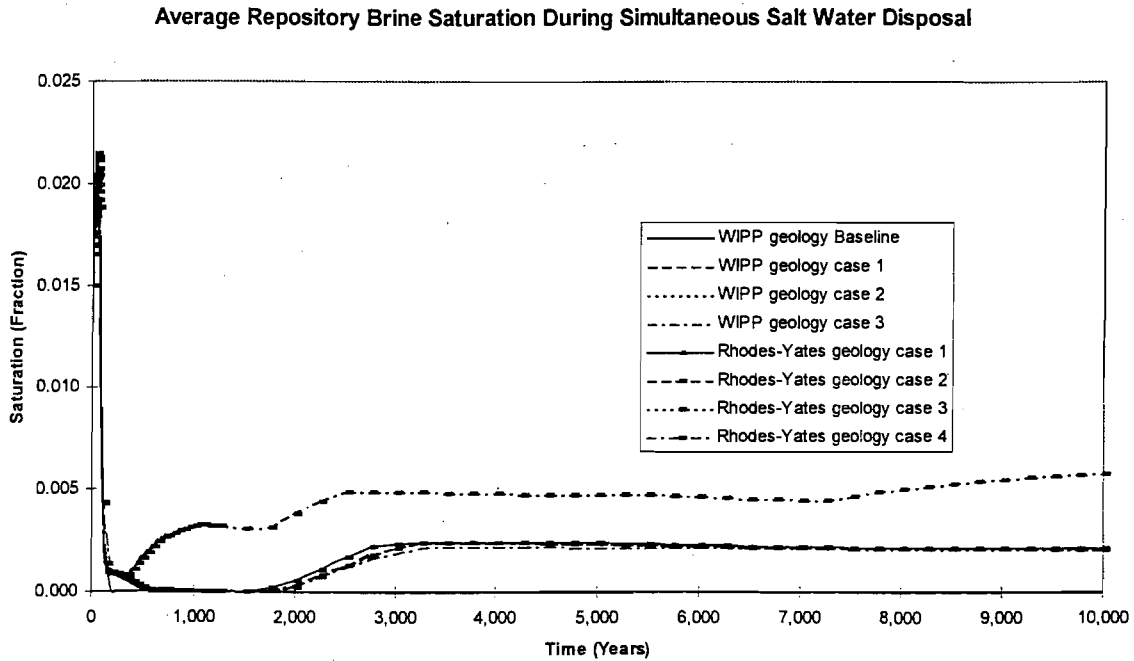


Figure 9: Average Repository Brine Saturation During Simultaneous Salt Water Disposal

Average Brine Saturation in Disturbed Rock Zone During Simultaneous Salt Water Disposal

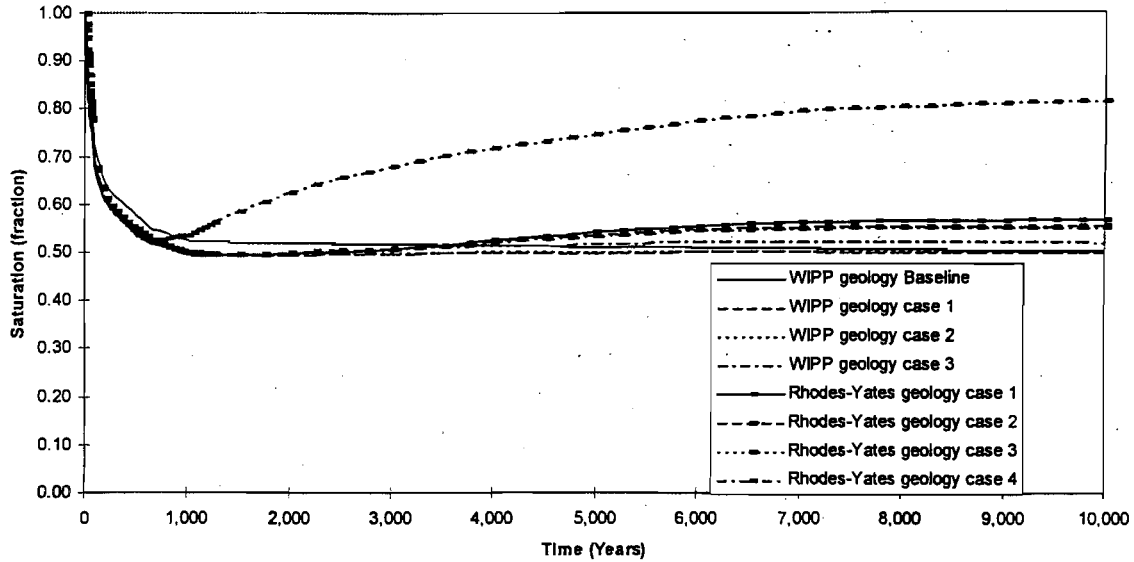


Figure 10: Average Brine Saturation in the DRZ During Simultaneous Salt Water Disposal

Average Repository Pressure During Simultaneous Salt Water Disposal

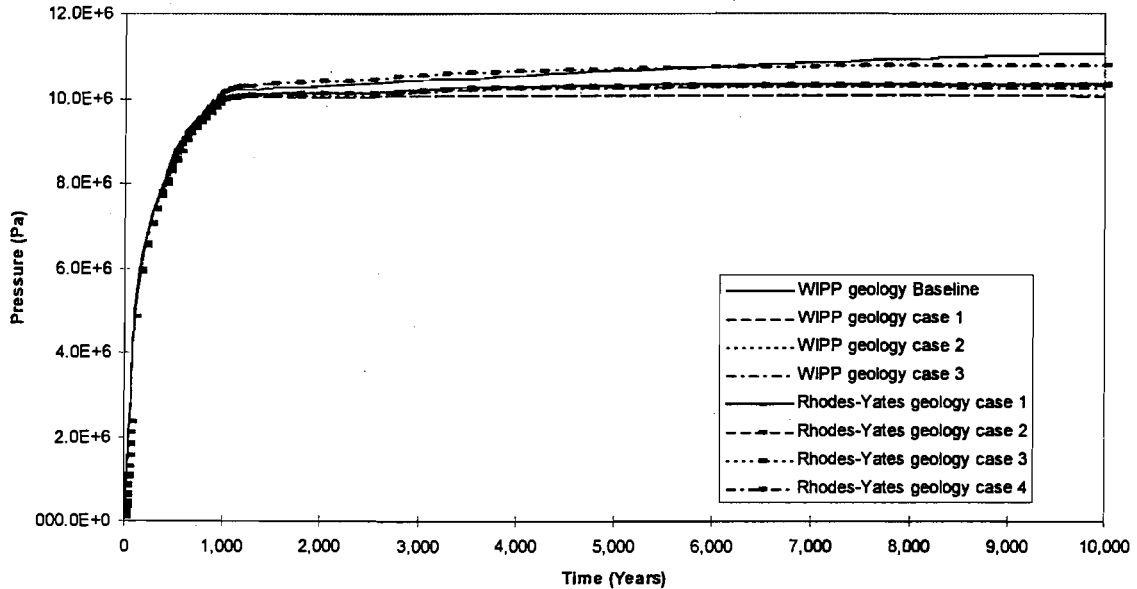


Figure 11: Average Repository Pressure During Simultaneous Salt Water Disposal

Figure 12 shows the pressure response in MB 139. MB 138 and Anhydrite A&B response is similar. Note that the pressures for the WIPP geology cases go much lower than the baseline case. This is because the brine in the interbeds preferentially wants to flow to the 10^{-11} m² permeability wellbore rather than towards the repository, significantly draining the interbeds.

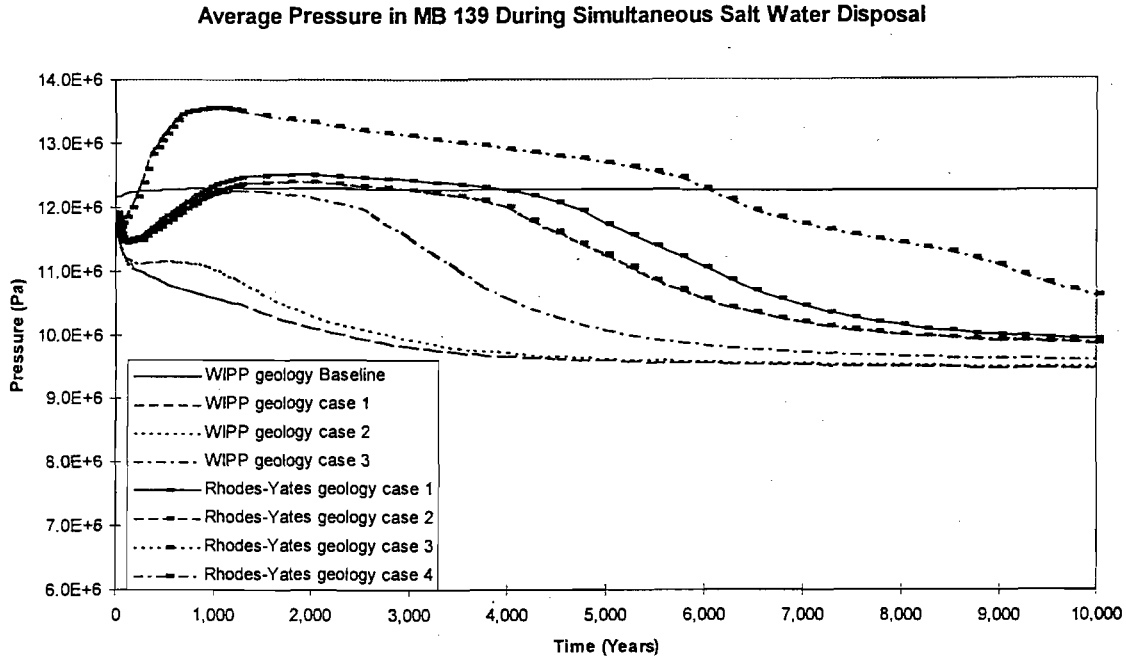


Figure 12: Average Pressure in MB 139 During Simultaneous Salt Water Disposal

Figure 13 and 14 Support the vertical distance theory of the two geologies. Note that for the Rhodes-Yates worst case scenario, nearly all of the injected brine (23% + 76% = 99%, Figure 14) flow into the interbeds. For the WIPP geology (Figure 13) only 79% of the leaking brine goes into the interbeds. The remaining 21% flows into the Castile formation, which acts as a "thief zone".

Path of Leaking Fluid During Active Injection for Disposal Well Scenario: WIPP geology Case 3

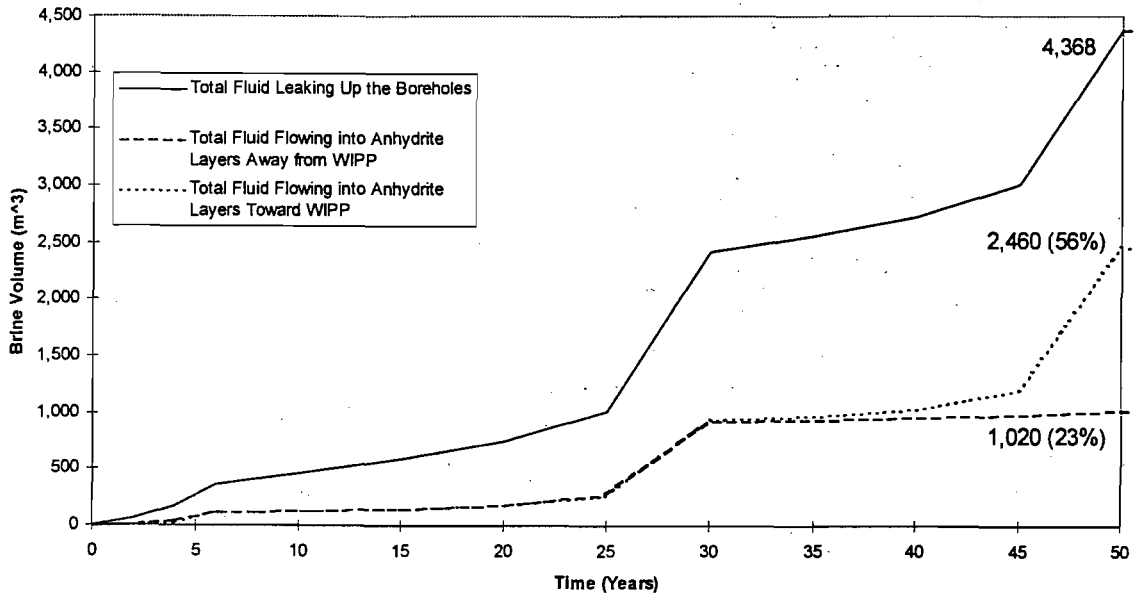


Figure 13: Path of Leaky Fluid During Active Injection for WIPP Geology Case 3

Path of Leaking Fluid During Active Injection for Disposal Well Scenario: Rhodes-Yates geology Case 4

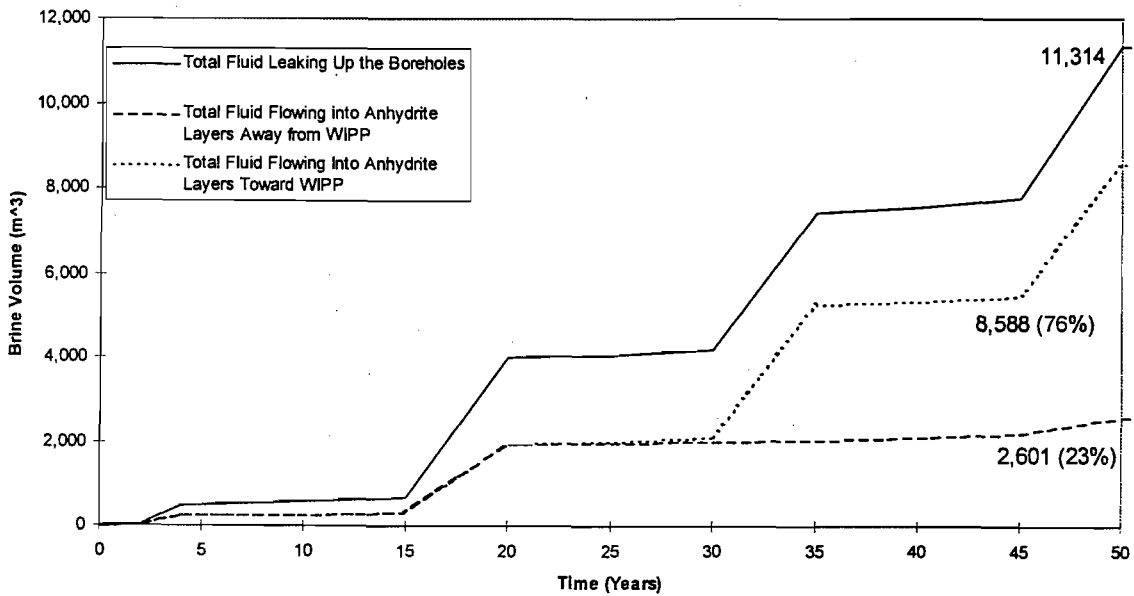


Figure 14: Path of Leaky Fluid During Active Injection for Rhodes-Yates Geology Case 4

Figure 15 shows that the majority of the injected fluid flows back into the Culebra after 10,000 years (compare to Figure 6), by-passing the intervening layers. A detailed analysis of the effects of brine flow to the Culebra from connections to deeper units can be found in FEP NS-7b (WPO# 40819).

Total Flow to the Culebra During Simultaneous Brine Injection: Disposal Well Scenario

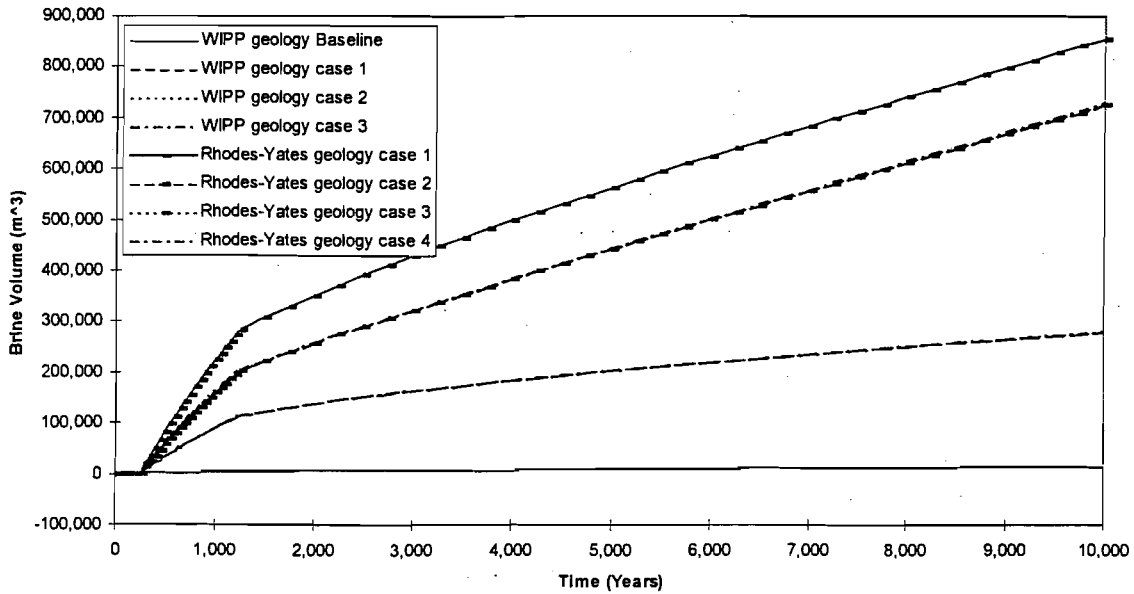


Figure 15: Total Flow to Culebra From Disposal Wells

Figure 16 is important from the perspective of potential impacts on WIPP performance. This plot shows the cumulative brine flow into the repository from all marker beds based from the 1996 CCA undisturbed results. The WIPP Worst Case cumulative releases (~1,000 m³) from salt water disposal well model is significantly less than the mean from the three replicates for the undisturbed CCA calculations.

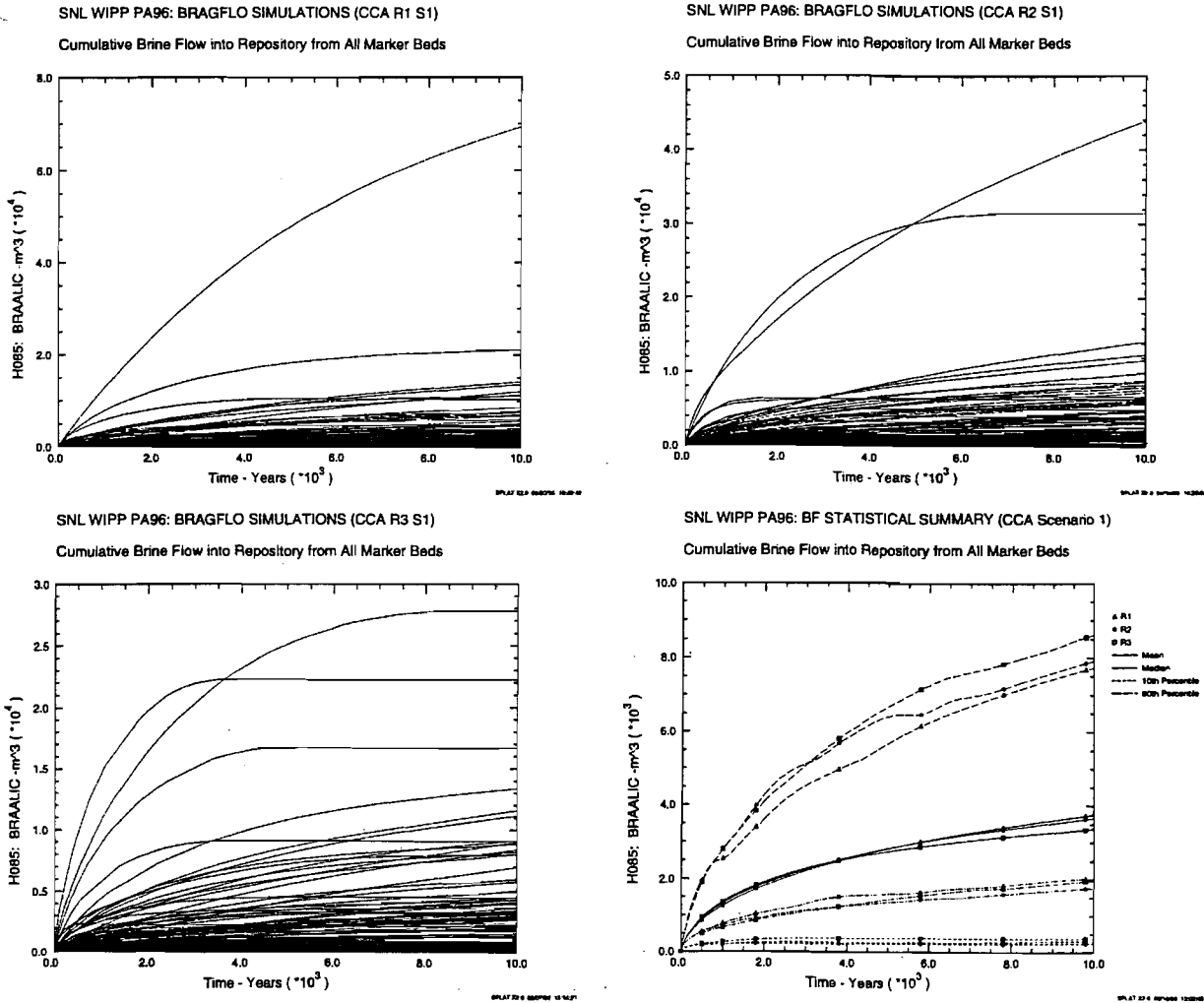


Figure 16: Cumulative Brine Flow into Repository from All Marker Beds (WIPP PA96: CCA Undisturbed Calculations)

Figures 1 through 12 in Appendix A show pressure contours and flow vectors over time for Cases 1, 2 and 3 (WIPP geology) and Cases 2, 3, and 4 (Rhodes-Yates Geology). Note that during the 50 year active injection (while the borehole "leaks"), and for several hundred years after (during the two-plug abandoned phase), pressures are high around the borehole, and flow in the interbeds is toward the repository. At later times, the boreholes act as pressure "sinks" and flow is away from the repository and toward the boreholes. Figure 3 (page A4) shows that during the 50 year injection period for the "worst case" WIPP geology model (case 3), down-dip injection gradients at the interbeds reach 1.0 psi/ft. The 15 Mpa (2,175 psi) pressure contour (labeled "G") at times 19.8 and 50.01 years is seen at the Marker Beds, which are at a depth of approximately 2,150 feet (hence $2,175/2,150 = 1.0$ psi/ft). Figures 13 and 14 in Appendix A show the permeability in MB 139 due to the fracturing model at different (overlaid) times. Note that the regions of enhanced permeability extend much further out from the wellbores in the Rhodes-Yates geology cases compared to the WIPP geology cases. This is due to the higher injection gradients at Rhodes-Yates, as well as shorter vertical distance and fewer "thief zones" to siphon off the injection fluid in the Rhodes-Yates cases.

IV. REFERENCES

[CCA PA Task 1]: Analysis Package for the Salado Flow Calculations (Task 1) of the Performance Assessment Analysis Supporting the Compliance Certification Application (WPO# 40514)

[Chapin, et. al., 1993]: Chapin, C.E., Director and State Geologist, Hjellming, Carol A, Editor, *Atlas of Major Rocky Mountain Gas Reservoirs*, New Mexico Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology, 1993. page 206.

SI Metric Conversion Factors

inch	X 2.54*	E+00	=	cm
ft	X 3.048*	E-01	=	m
mile	X 1.609344*	E+00	=	km
inch ³	X 1.6387	E+02	=	cm ³
lb/ft ³	X 1.602	E-02	=	g/cm ³
psi	X 6.894757	E+00	=	kPa
gal	X 3.785	E+00	=	L
bbbl	X 1.589873	E-01	=	m ³
md	X 9.869233	E-16	=	m ²
bbbl/MMscf	X 5.614583	E-06	=	m ³ /m ³
°F	(°F - 32)/1.8		=	°C
°C	+ 2.7316	E+02	=	K

* Conversion factor is exact.

Appendix A: Salt Water Disposal Model Results

FIGURES

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

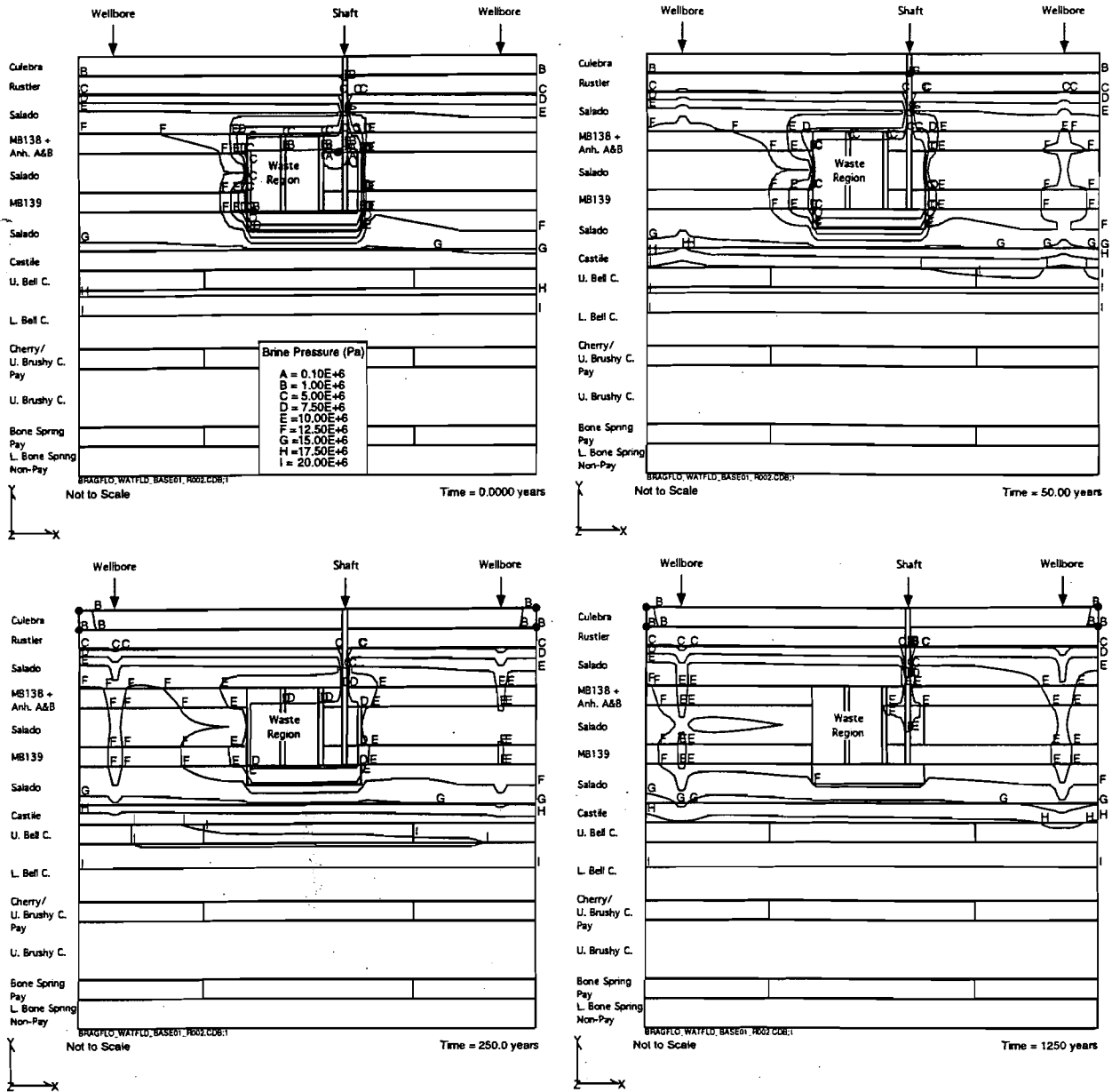


Figure 1: BRAGFLO results showing Pressure Contours: WIPP Geology Case 1

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

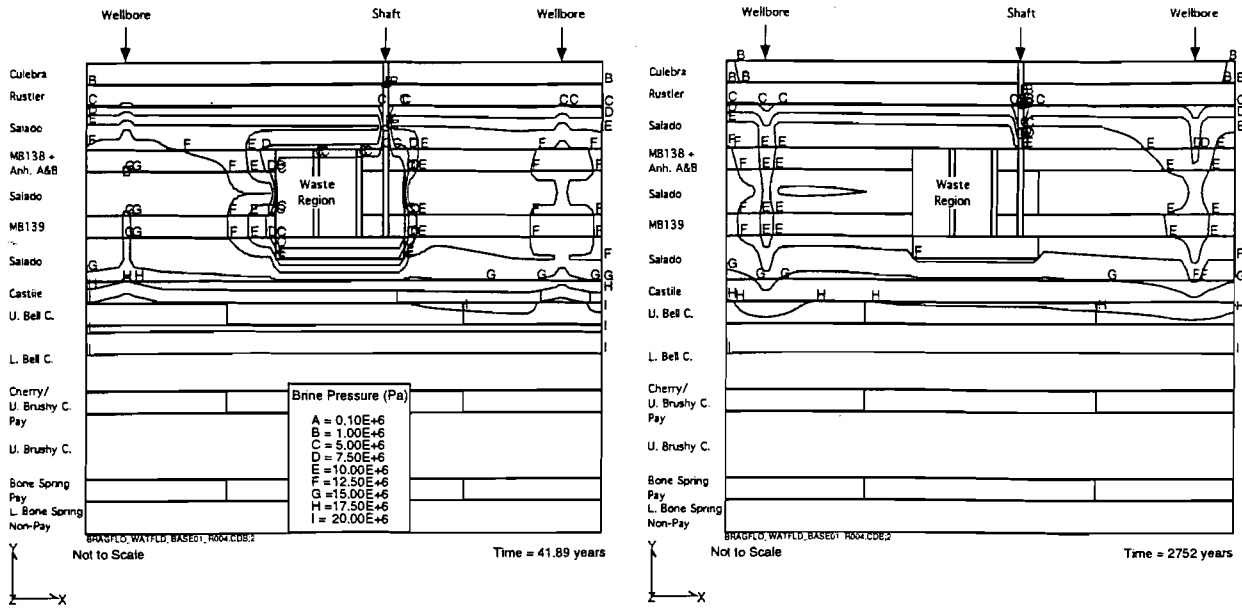


Figure 2: BRAGFLO results showing Pressure Contours: WIPP Geology Case 2

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

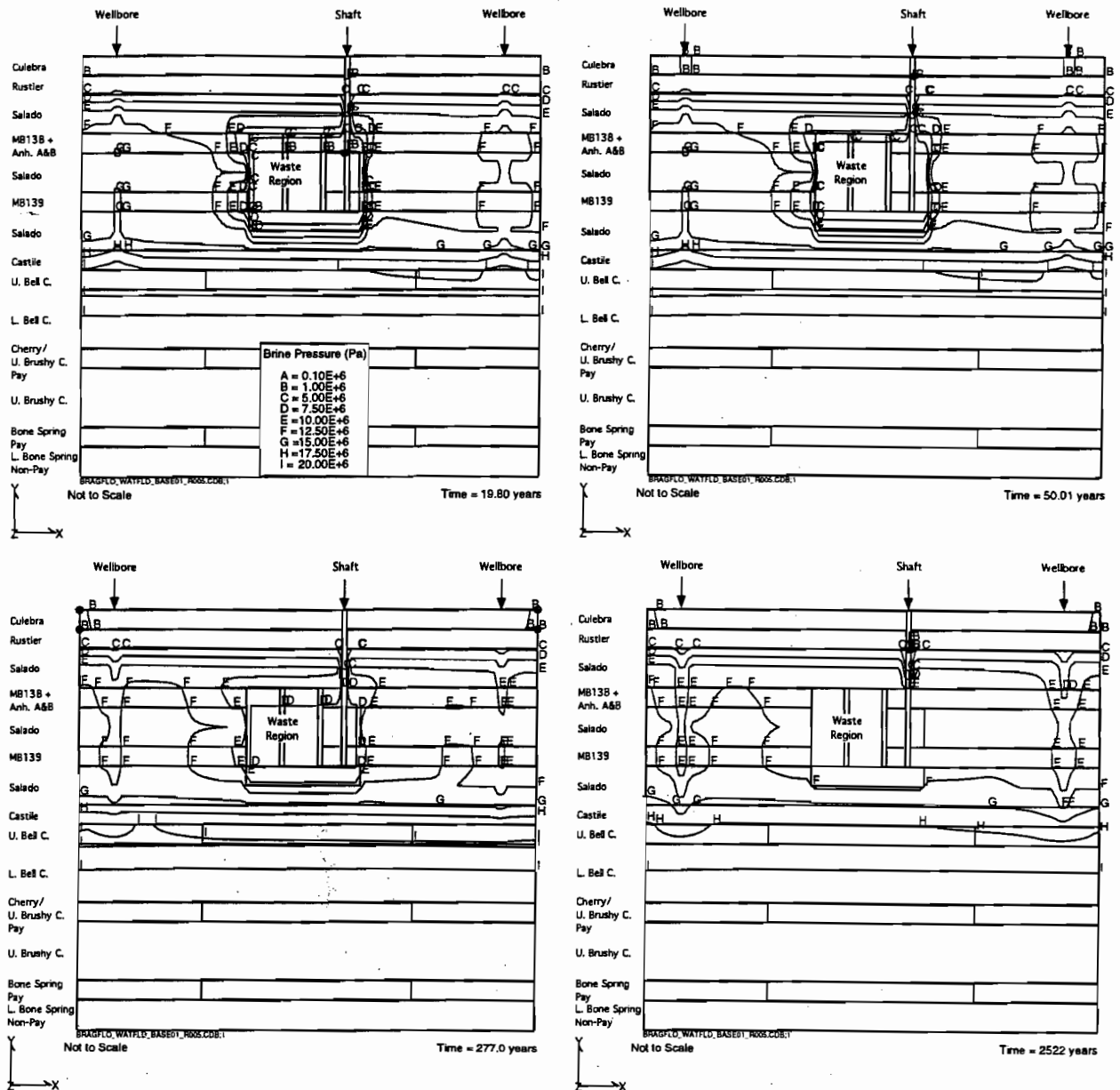


Figure 3: BRAGFLO results showing Pressure Contours: WIPP Geology Case 3

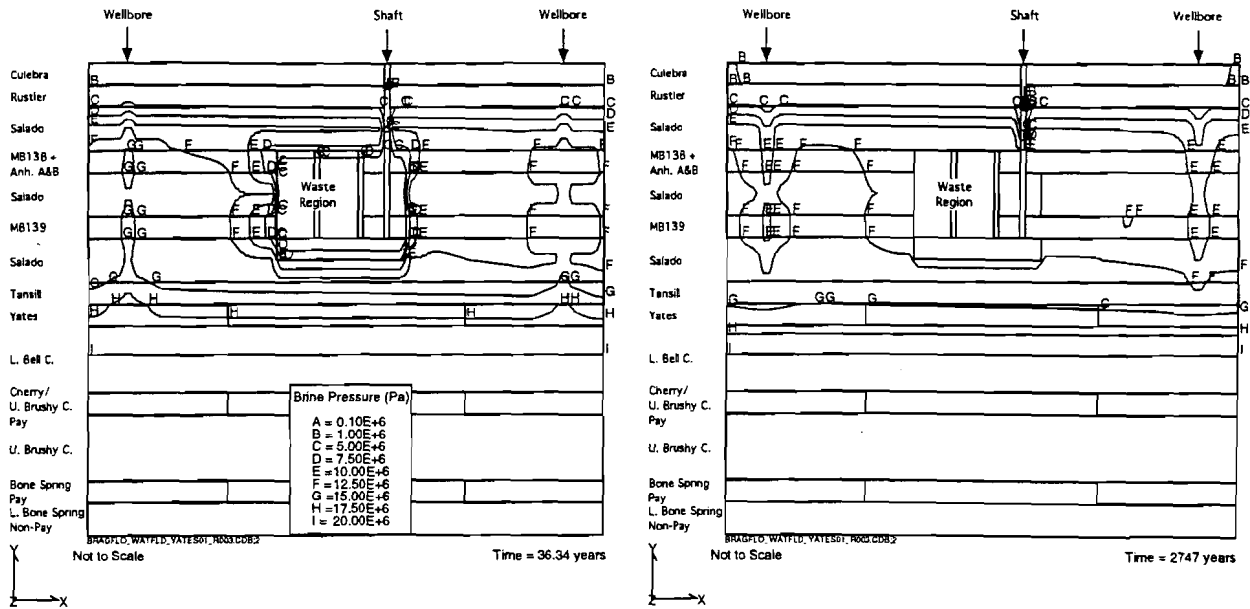


Figure 4: BRAGFLO results showing Pressure Contours: Rhodes-Yates Geology Case 2

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

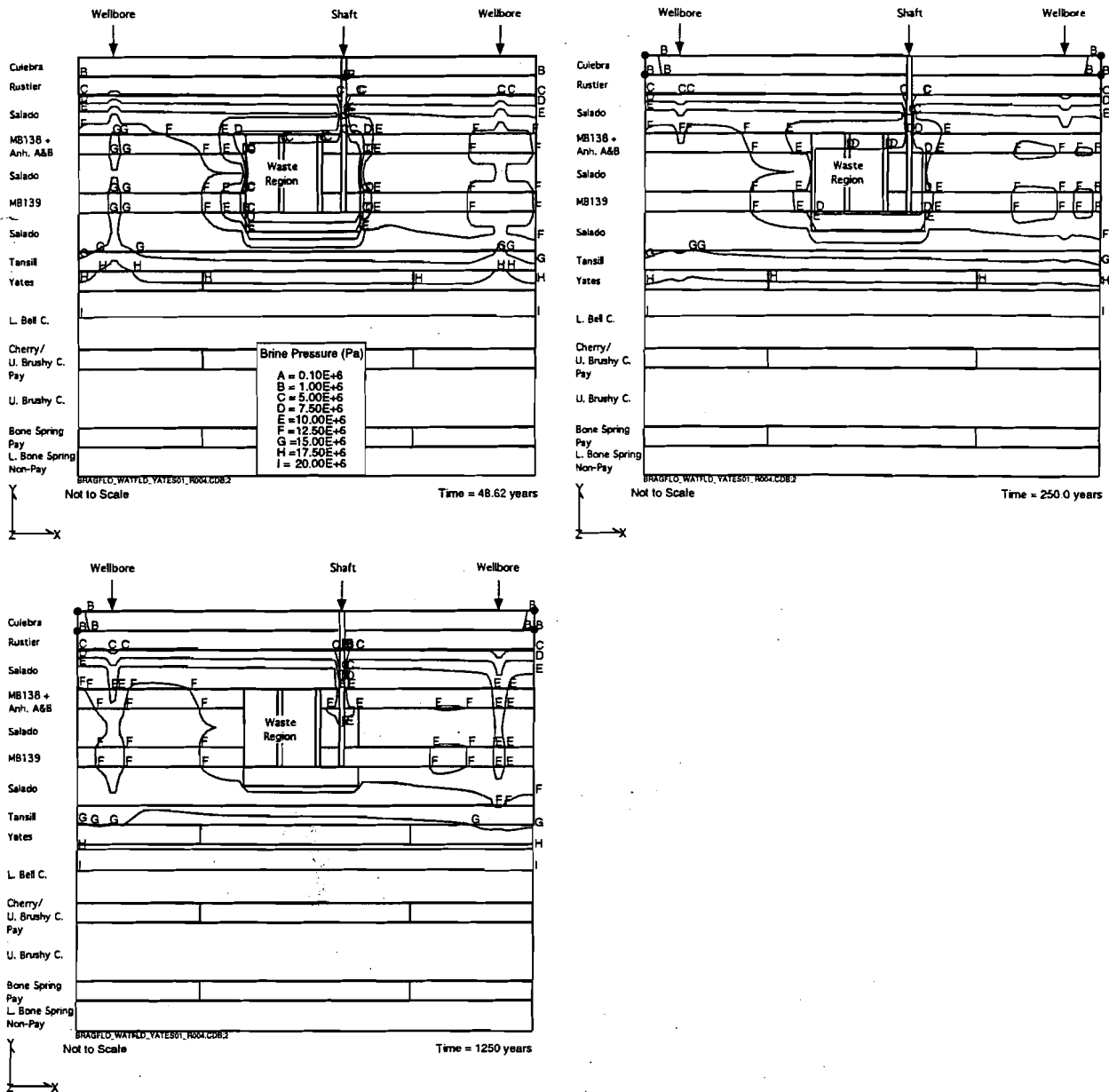


Figure 5: BRAGFLO results showing Pressure Contours: Rhodes-Yates Geology Case 3

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

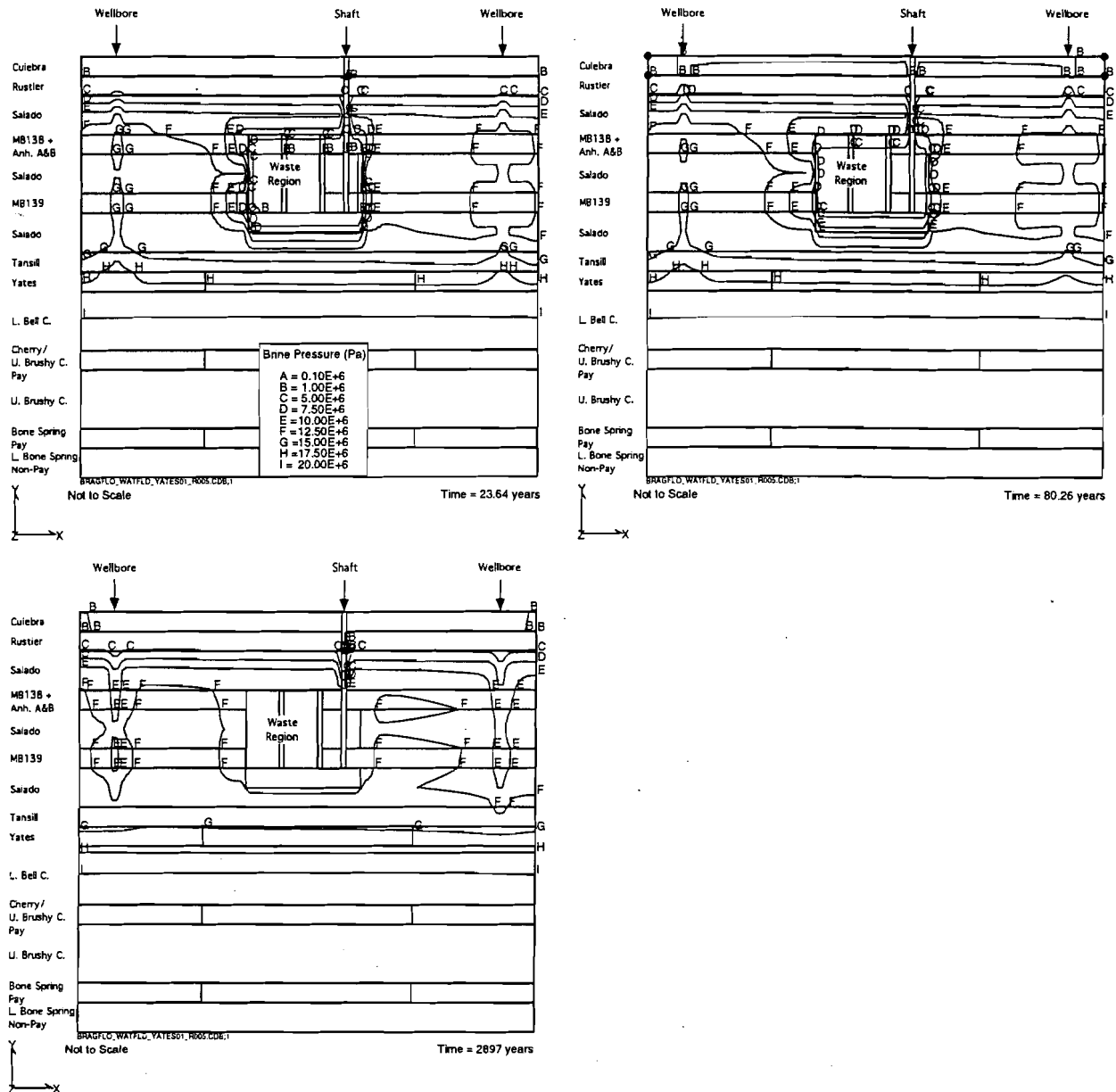


Figure 6: BRAGFLO results showing Pressure Contours: Rhodes-Yates Geology Case 4

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

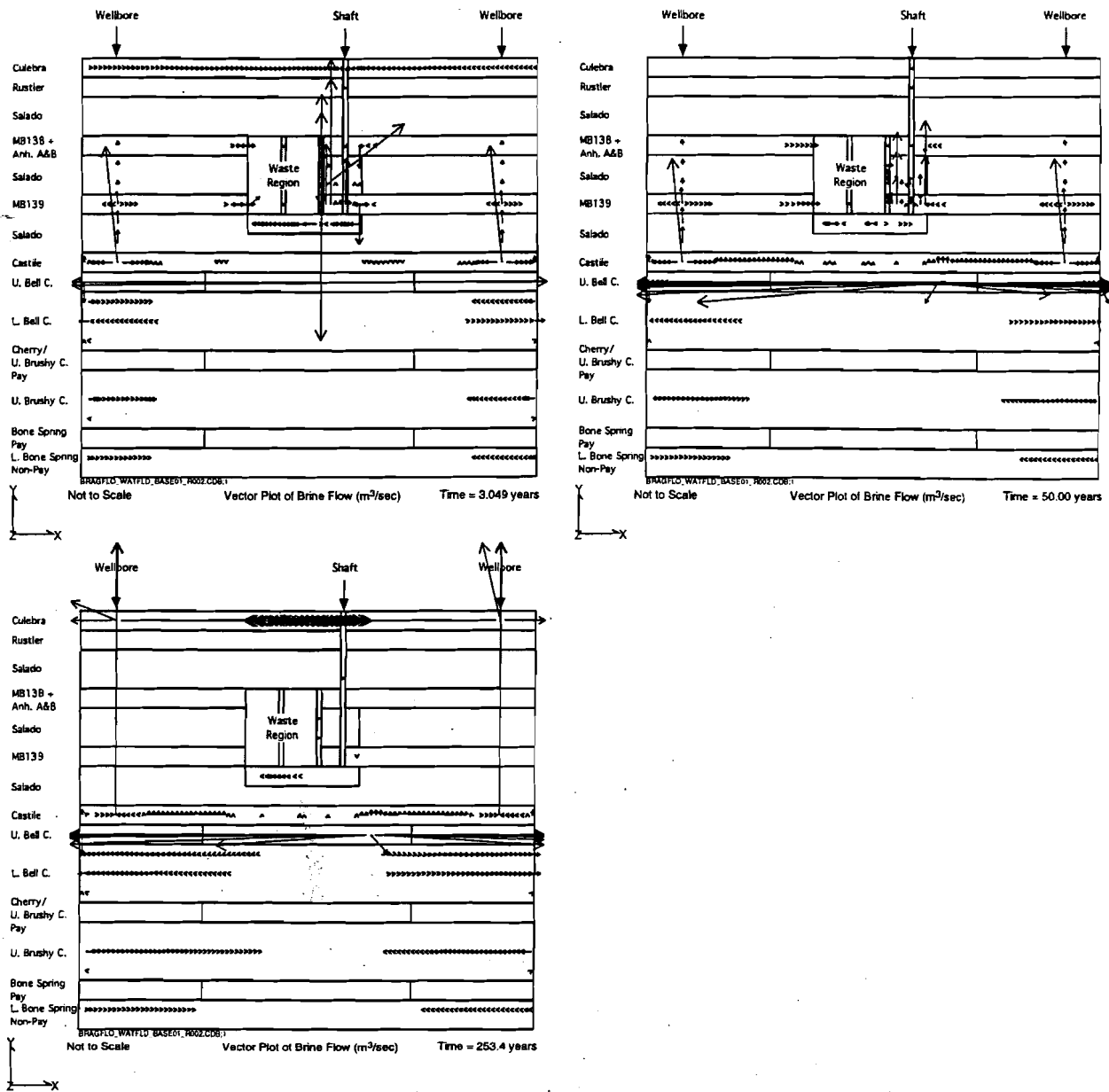


Figure 7: BRAGFLO results showing Flow Vectors: WIPP Geology Case 1

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

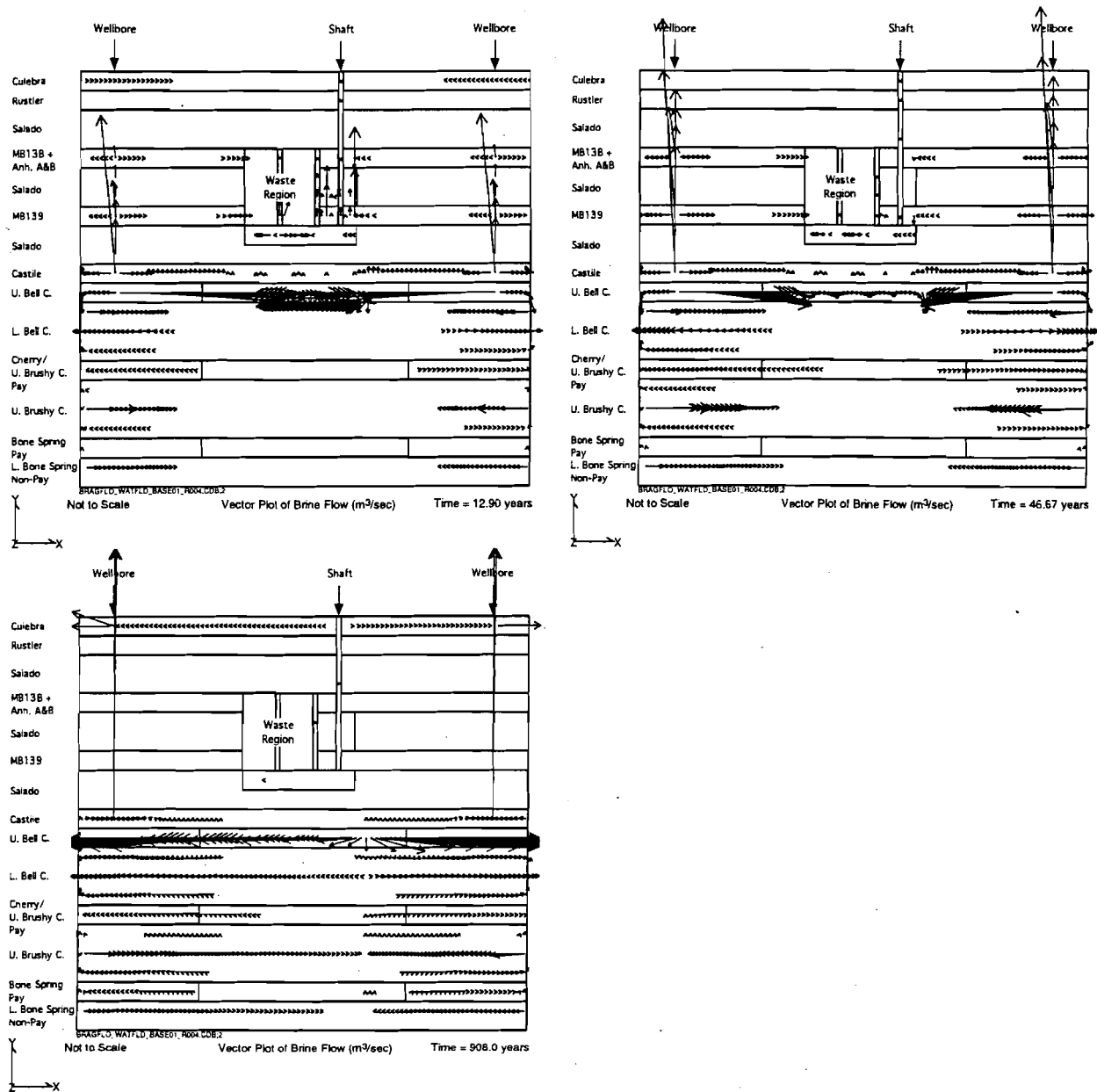


Figure 8: BRAGFLO results showing Flow Vectors: WIPP Geology Case 2

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

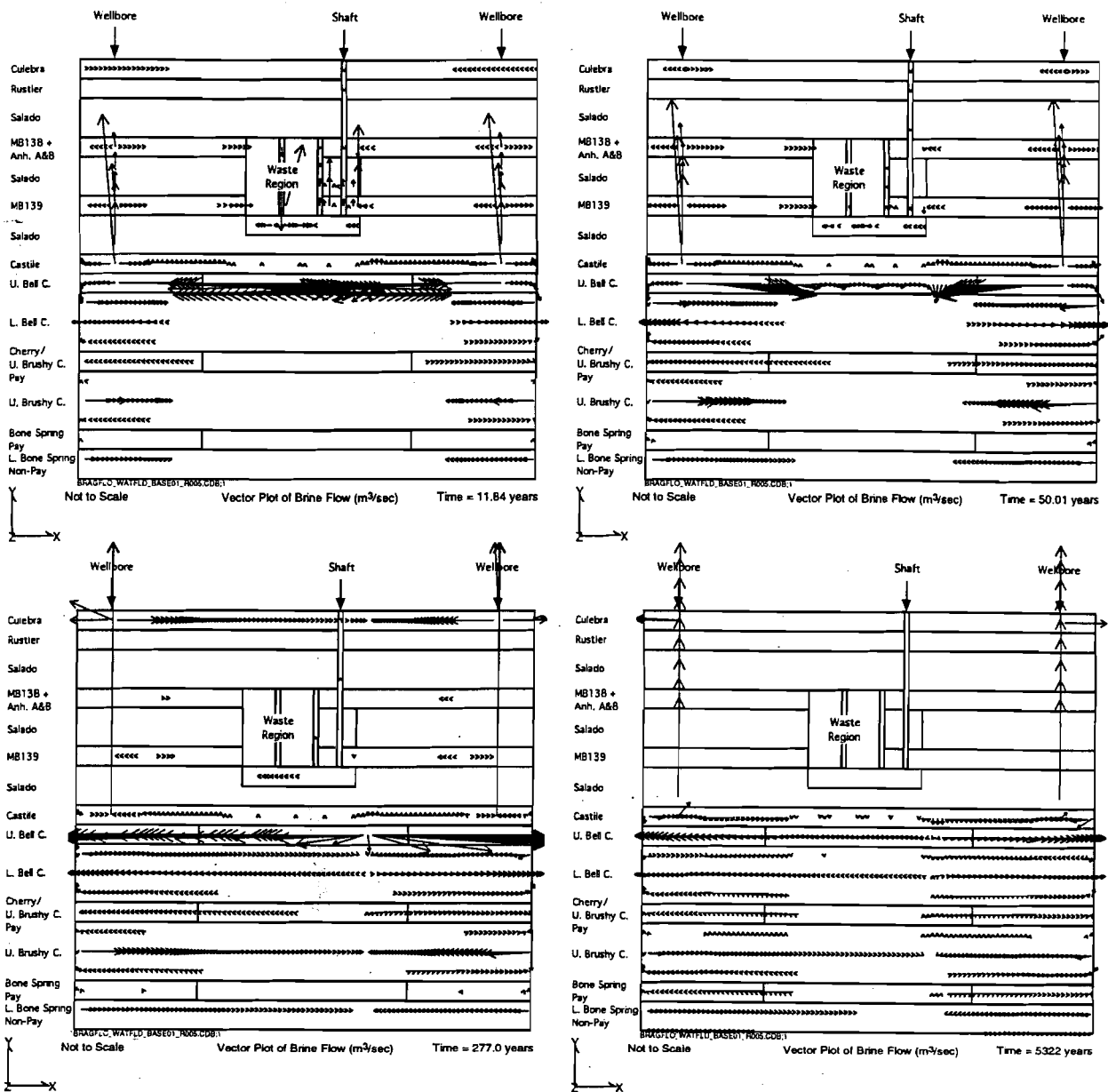


Figure 9: BRAGFLO results showing Flow Vectors: WIPP Geology Case 3

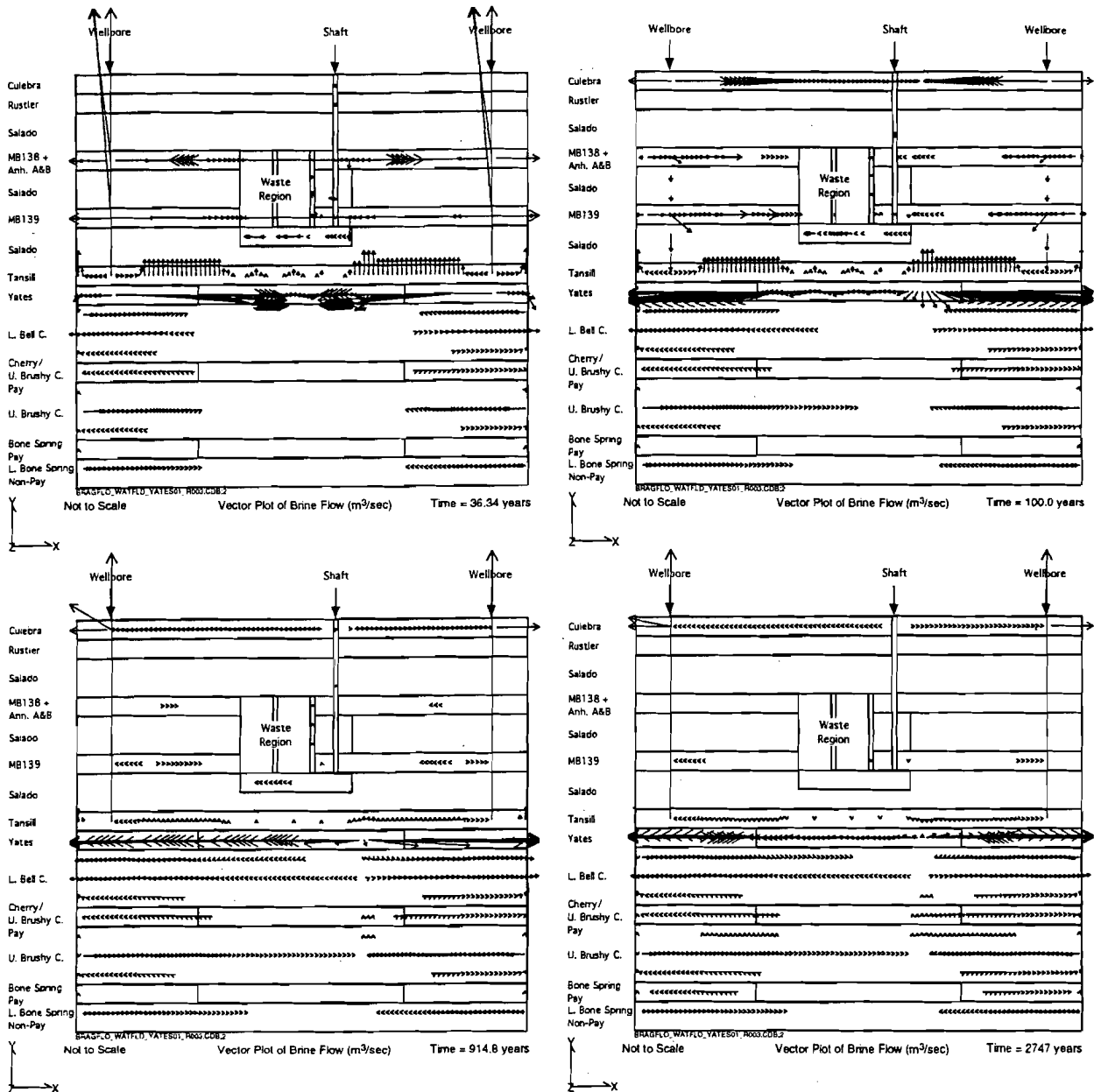


Figure 10: BRAGFLO results showing Flow Vectors: Rhodes-Yates Geology Case 2

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

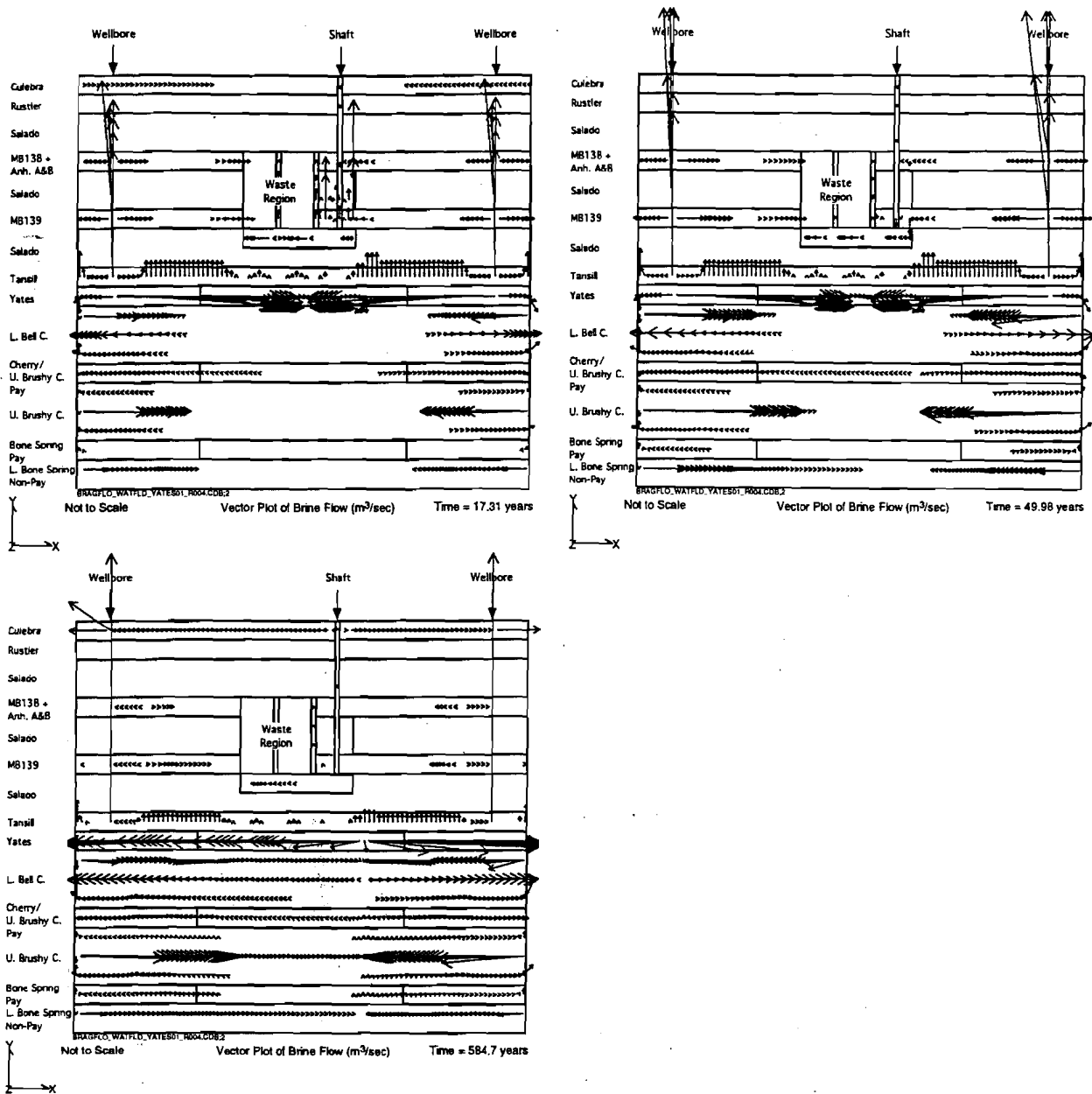


Figure 11: BRAGFLO results showing Flow Vectors: Rhodes-Yates Geology Case 3

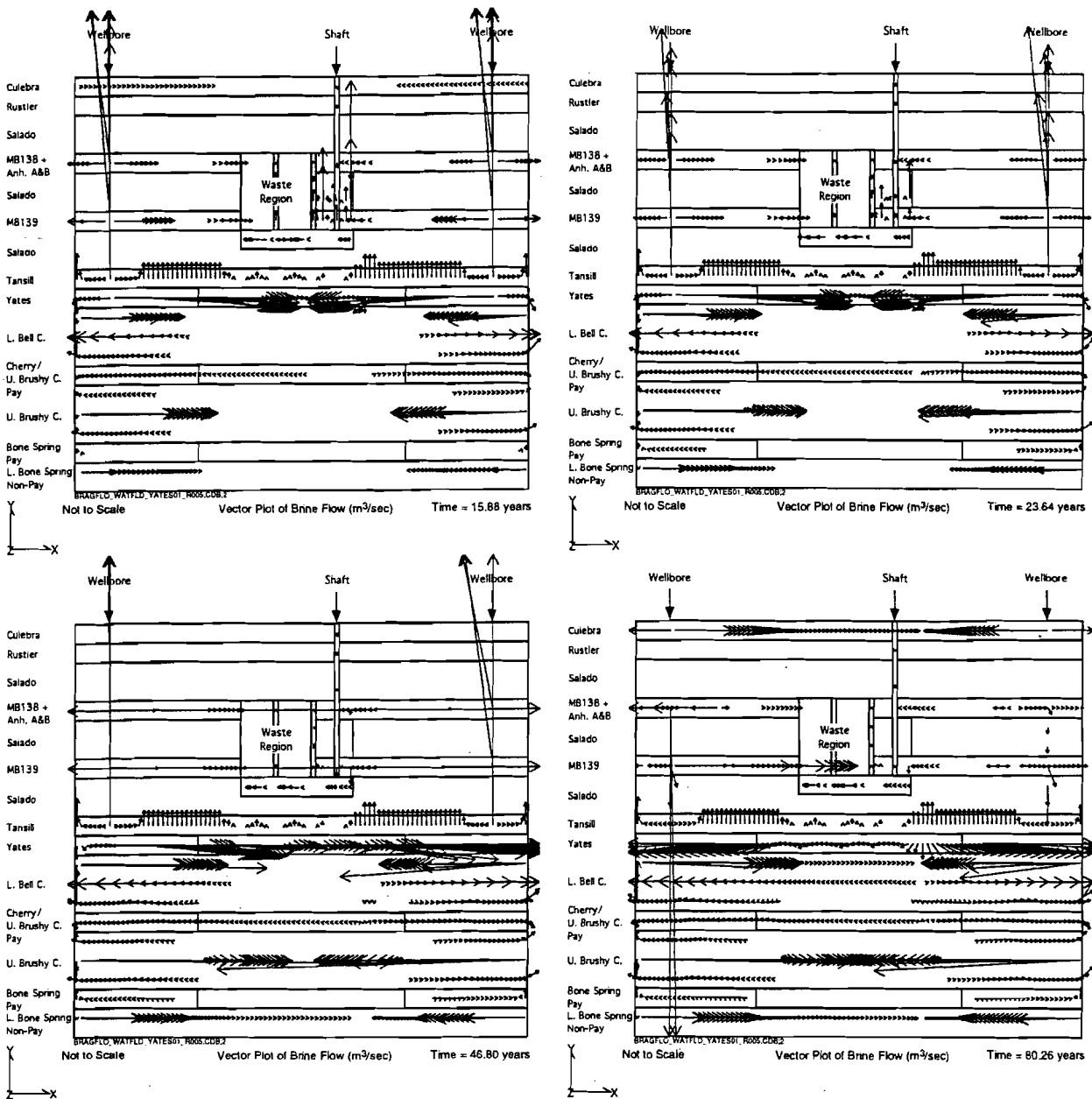


Figure 12: BRAGFLO results showing Flow Vectors: Rhodes-Yates Geology Case 4

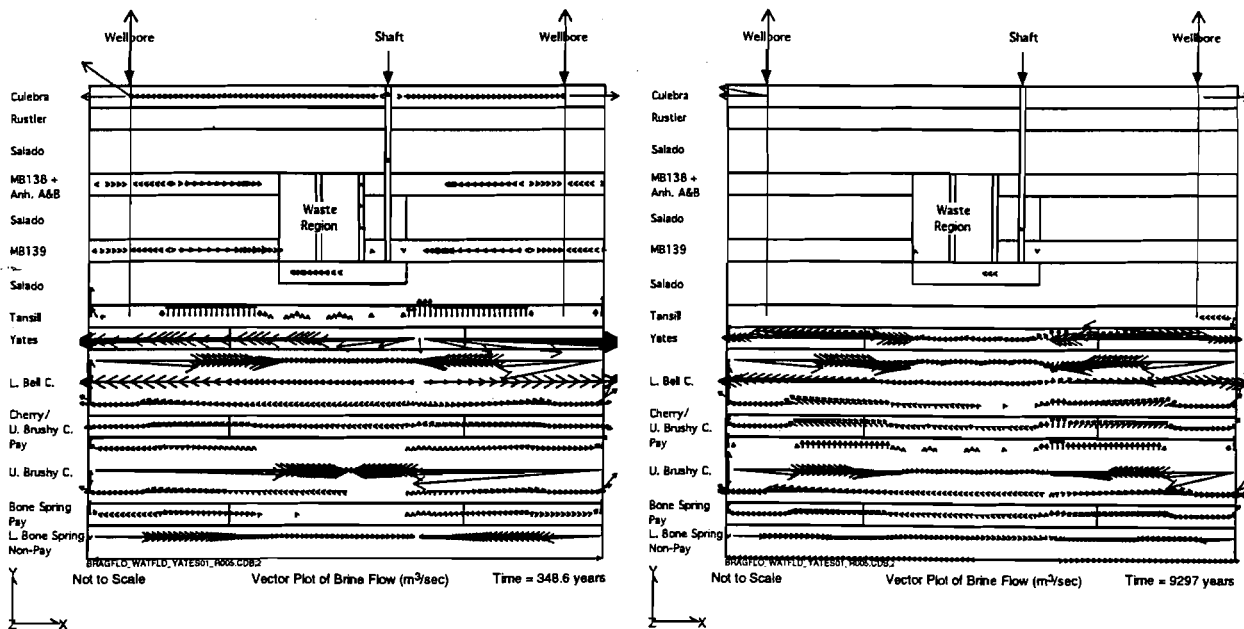


Figure 12 (cont) : BRAGFLO results showing Flow Vectors: Rhodes-Yates Geology Case 4

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

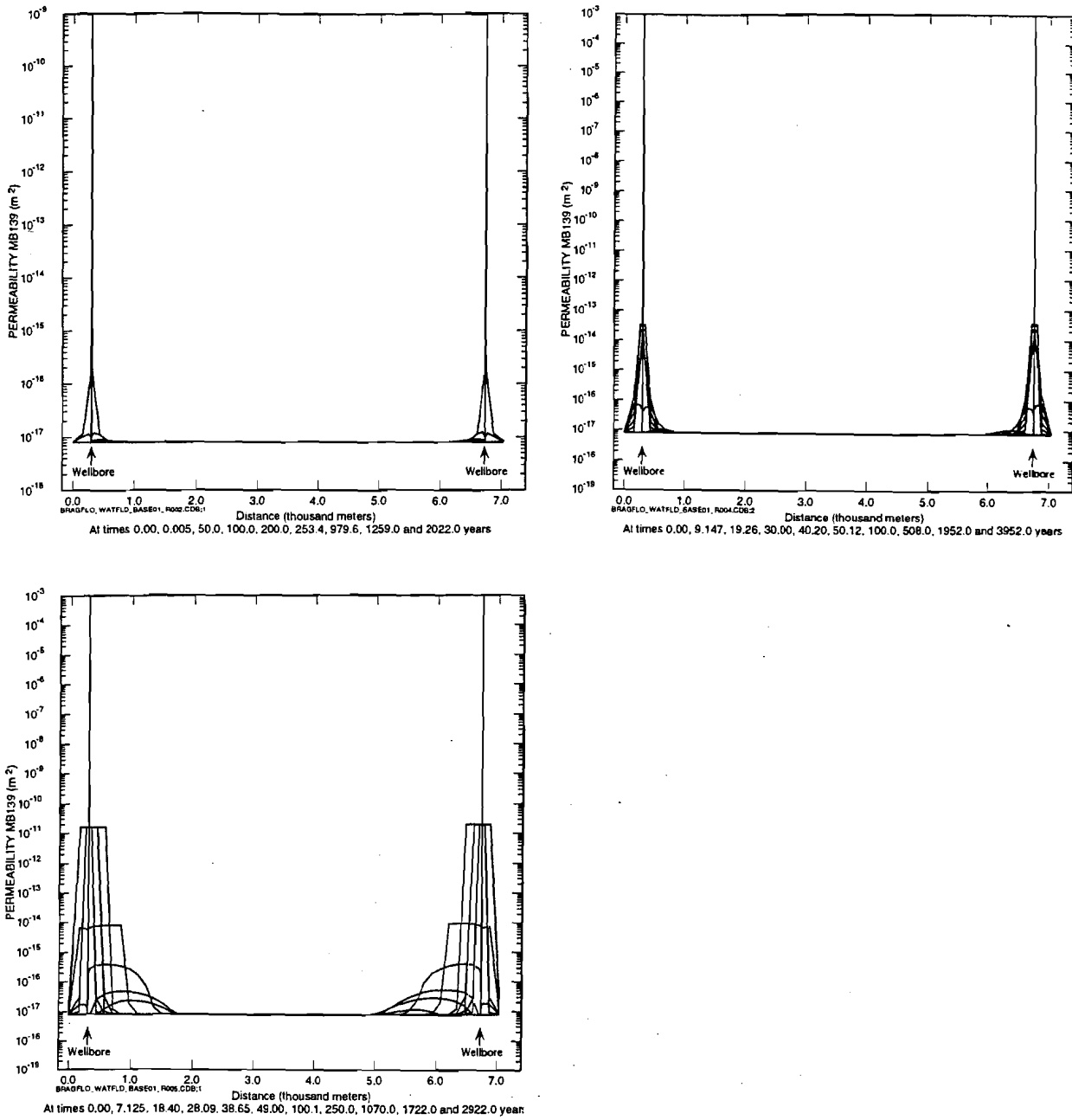


Figure 13: Permeability in MB 139 in response to Fracturing Model: WIPP geology Cases 1, 2 and 3

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix A -- Salt Water Disposal Model Results

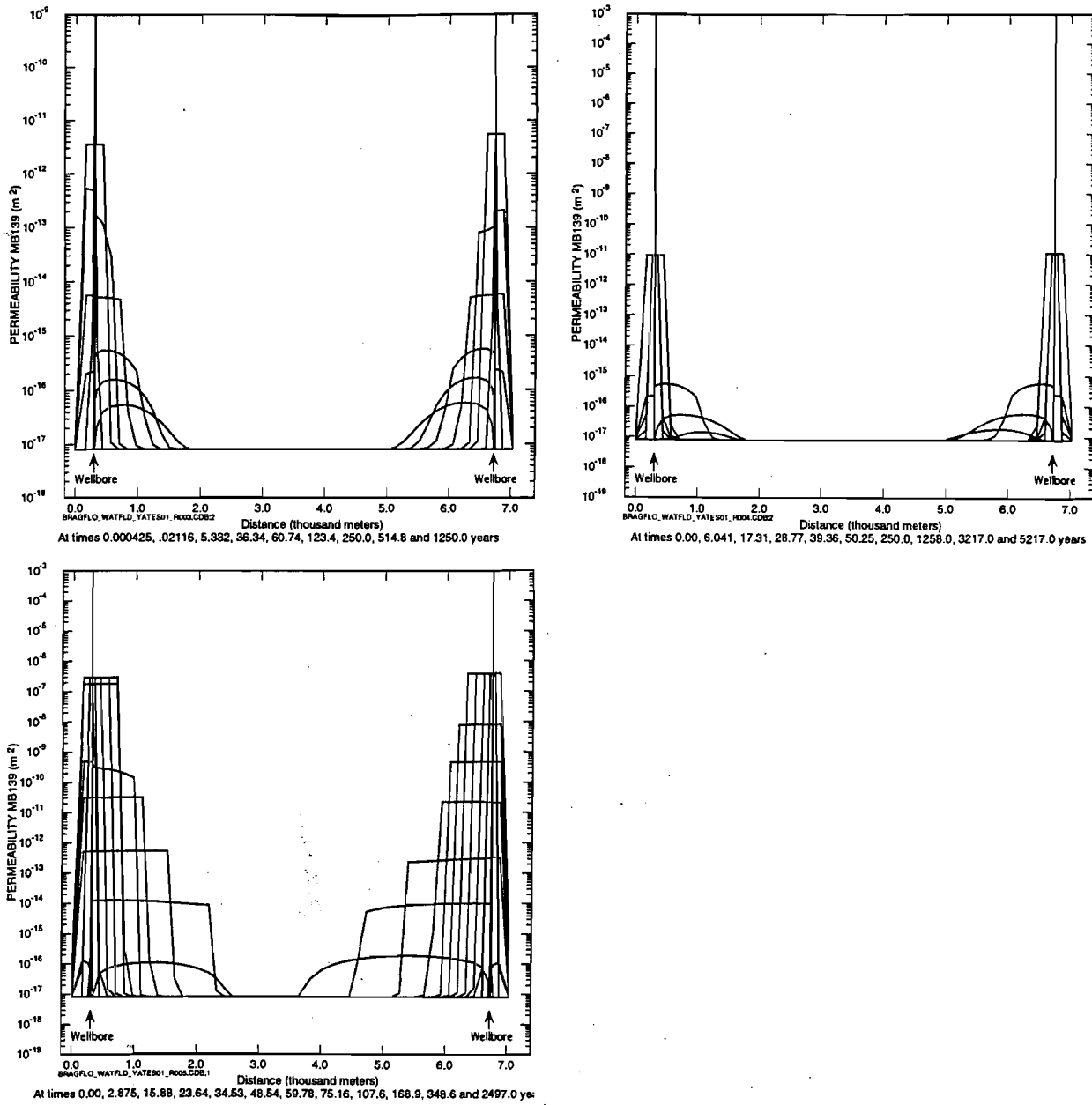


Figure 14: Permeability in MB 139 in response to Fracturing Model: Rhodes-Yates geology Cases 2, 3 and 4

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
MORRO P1	Morrow Formation, Pay 1	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	COMP_RCK	3.02E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PORE_DIS	7.00E-01	Poreosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	POROSITY	1.10E-01	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PRESSURE	5.29E+07	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PRMX_LOG	-1.37E+01	Log y-direction permeability	Not used - 2D model	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PRMY_LOG	-1.97E+01	Log z-direction permeability (BRAGFLO required input)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PRMZ_LOG	-1.37E+01	Log y-direction permeability (BRAGFLO required input)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	REL_P	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P1	Morrow Formation, Pay 1	POR_COMP	3.02E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	COMP_RCK	3.02E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PORE_DIS	7.00E-01	Poreosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	POROSITY	1.10E-01	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PRESSURE	5.29E+07	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PRMX_LOG	-1.37E+01	Log y-direction permeability	Not used - 2D model	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PRMY_LOG	-1.97E+01	Log z-direction permeability (BRAGFLO required input)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PRMZ_LOG	-1.37E+01	Log y-direction permeability (BRAGFLO required input)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	REL_P	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P2	Morrow Formation, Pay 2	POR_COMP	3.02E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	COMP_RCK	3.02E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PORE_DIS	7.00E-01	Poreosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	POROSITY	1.10E-01	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PRESSURE	5.29E+07	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PRMX_LOG	-1.37E+01	Log y-direction permeability	Not used - 2D model	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PRMY_LOG	-1.97E+01	Log z-direction permeability (BRAGFLO required input)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	PRMZ_LOG	-1.37E+01	Log y-direction permeability (BRAGFLO required input)	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	REL_P	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
MORRO P3	Morrow Formation, Pay 3	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
58	MORRO P3	Morrow Formation, Pay 3	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
59	MORRO P3	Morrow Formation, Pay 3	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
60	MORRO P3	Morrow Formation, Pay 3	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
61	MORRO P3	Morrow Formation, Pay 3	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
62	MORRO P3	Morrow Formation, Pay 3	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
63	MORRO P3	Morrow Formation, Pay 3	POR_COMP	3.02E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
64	MORRO NP	Morrow Formation, No pay	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
65	MORRO NP	Morrow Formation, No pay	COMP_RCK	3.08E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
66	MORRO NP	Morrow Formation, No pay	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
67	MORRO NP	Morrow Formation, No pay	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
68	MORRO NP	Morrow Formation, No pay	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
69	MORRO NP	Morrow Formation, No pay	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
70	MORRO NP	Morrow Formation, No pay	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
71	MORRO NP	Morrow Formation, No pay	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
72	MORRO NP	Morrow Formation, No pay	POROSITY	4.00E-02	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
73	MORRO NP	Morrow Formation, No pay	PRESSURE	5.16E+07	Hydrostatic initial pressure (Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
74	MORRO NP	Morrow Formation, No pay	PRMX_LOG	-1.58E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
75	MORRO NP	Morrow Formation, No pay	PRMY_LOG	-1.98E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
76	MORRO NP	Morrow Formation, No pay	PRMZ_LOG	-1.58E+01	Log z-direction permeability (BRAGFLO required input)	Intermediate value	Analyst: DM Stoelzel
77	MORRO NP	Morrow Formation, No pay	REL_PMOD	4.00E+00	Relative permeability model number	Not used - 2D model	Analyst: DM Stoelzel
78	MORRO NP	Morrow Formation, No pay	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
79	MORRO NP	Morrow Formation, No pay	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
80	MORRO NP	Morrow Formation, No pay	PERM_X	1.78E-20	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
81	MORRO NP	Morrow Formation, No pay	PERM_Y	1.78E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
82	MORRO NP	Morrow Formation, No pay	PERM_Z	1.78E-16	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
83	MORRO NP	Morrow Formation, No pay	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
84	MORRO NP	Morrow Formation, No pay	POR_COMP	3.08E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
85	ATOKA P1	Atoka Formation, Pay 1	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
86	ATOKA P1	Atoka Formation, Pay 1	COMP_RCK	3.15E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
87	ATOKA P1	Atoka Formation, Pay 1	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
88	ATOKA P1	Atoka Formation, Pay 1	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
89	ATOKA P1	Atoka Formation, Pay 1	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
90	ATOKA P1	Atoka Formation, Pay 1	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
91	ATOKA P1	Atoka Formation, Pay 1	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
92	ATOKA P1	Atoka Formation, Pay 1	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
93	ATOKA P1	Atoka Formation, Pay 1	POROSITY	9.00E-02	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
94	ATOKA P1	Atoka Formation, Pay 1	PRESSURE	5.04E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
95	ATOKA P1	Atoka Formation, Pay 1	PRMX_LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
96	ATOKA P1	Atoka Formation, Pay 1	PRMY_LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
97	ATOKA P1	Atoka Formation, Pay 1	PRMZ_LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Intermediate value	Analyst: DM Stoelzel
98	ATOKA P1	Atoka Formation, Pay 1	REL_PMOD	4.00E+00	Relative permeability model number	Not used - 2D model	Analyst: DM Stoelzel
99	ATOKA P1	Atoka Formation, Pay 1	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
100	ATOKA P1	Atoka Formation, Pay 1	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
101	ATOKA P1	Atoka Formation, Pay 1	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
102	ATOKA P1	Atoka Formation, Pay 1	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
103	ATOKA P1	Atoka Formation, Pay 1	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
104	ATOKA P1	Atoka Formation, Pay 1	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
105	ATOKA P1	Atoka Formation, Pay 1	POR_COMP	3.15E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
106	ATOKA P2	Atoka Formation, Pay 2	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
107	ATOKA P2	Atoka Formation, Pay 2	COMP_RCK	3.15E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
108	ATOKA P2	Atoka Formation, Pay 2	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
109	ATOKA P2	Atoka Formation, Pay 2	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
110	ATOKA P2	Atoka Formation, Pay 2	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
111	ATOKA P2	Atoka Formation, Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
112	ATOKA P2	Atoka Formation, Pay 2	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
113	ATOKA P2	Atoka Formation, Pay 2	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
114	ATOKA P2	Atoka Formation, Pay 2	POROSITY	9.00E-02	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2\OMS WATERFLOOD\BRAGFLO\BRAGFLO_WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
115	ATOKA P2	Atoka Formation, Pay 2	PRESSURE	5.04E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
116	ATOKA P2	Atoka Formation, Pay 2	PRMX_LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
117	ATOKA P2	Atoka Formation, Pay 2	PRMY_LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
118	ATOKA P2	Atoka Formation, Pay 2	PRMZ_LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
119	ATOKA P2	Atoka Formation, Pay 2	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
120	ATOKA P2	Atoka Formation, Pay 2	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
121	ATOKA P2	Atoka Formation, Pay 2	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
122	ATOKA P2	Atoka Formation, Pay 2	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
123	ATOKA P2	Atoka Formation, Pay 2	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
124	ATOKA P2	Atoka Formation, Pay 2	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
125	ATOKA P2	Atoka Formation, Pay 2	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
126	ATOKA P2	Atoka Formation, Pay 2	POR_COMP	3.15E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
127	ATOKA P3	Atoka Formation, Pay 3	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
128	ATOKA P3	Atoka Formation, Pay 3	COMP_RCK	3.15E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
129	ATOKA P3	Atoka Formation, Pay 3	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
130	ATOKA P3	Atoka Formation, Pay 3	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
131	ATOKA P3	Atoka Formation, Pay 3	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
132	ATOKA P3	Atoka Formation, Pay 3	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
133	ATOKA P3	Atoka Formation, Pay 3	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
134	ATOKA P3	Atoka Formation, Pay 3	POR_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
135	ATOKA P3	Atoka Formation, Pay 3	POROSITY	9.00E-02	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
136	ATOKA P3	Atoka Formation, Pay 3	PRESSURE	5.04E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
137	ATOKA P3	Atoka Formation, Pay 3	PRMX_LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
138	ATOKA P3	Atoka Formation, Pay 3	PRMY_LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
139	ATOKA P3	Atoka Formation, Pay 3	PRMZ_LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
140	ATOKA P3	Atoka Formation, Pay 3	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
141	ATOKA P3	Atoka Formation, Pay 3	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
142	ATOKA P3	Atoka Formation, Pay 3	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
143	ATOKA P3	Atoka Formation, Pay 3	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
144	ATOKA P3	Atoka Formation, Pay 3	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
145	ATOKA P3	Atoka Formation, Pay 3	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
146	ATOKA P3	Atoka Formation, Pay 3	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
147	ATOKA P3	Atoka Formation, Pay 3	POR_COMP	3.15E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
148	ATOKA NP	Atoka Formation, No pay	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
149	ATOKA NP	Atoka Formation, No pay	COMP_RCK	3.22E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
150	ATOKA NP	Atoka Formation, No pay	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
151	ATOKA NP	Atoka Formation, No pay	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
152	ATOKA NP	Atoka Formation, No pay	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
153	ATOKA NP	Atoka Formation, No pay	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
154	ATOKA NP	Atoka Formation, No pay	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
155	ATOKA NP	Atoka Formation, No pay	POR_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
156	ATOKA NP	Atoka Formation, No pay	POROSITY	1.00E-02	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
157	ATOKA NP	Atoka Formation, No pay	PRESSURE	4.92E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
158	ATOKA NP	Atoka Formation, No pay	PRMX_LOG	-1.58E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
159	ATOKA NP	Atoka Formation, No pay	PRMY_LOG	-1.98E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
160	ATOKA NP	Atoka Formation, No pay	PRMZ_LOG	-1.58E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
161	ATOKA NP	Atoka Formation, No pay	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
162	ATOKA NP	Atoka Formation, No pay	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
163	ATOKA NP	Atoka Formation, No pay	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
164	ATOKA NP	Atoka Formation, No pay	PERM_X	1.78E-16	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
165	ATOKA NP	Atoka Formation, No pay	PERM_Y	1.78E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
166	ATOKA NP	Atoka Formation, No pay	PERM_Z	1.78E-16	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
167	ATOKA NP	Atoka Formation, No pay	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
168	ATOKA NP	Atoka Formation, No pay	POR_COMP	3.22E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
169	STRWN P1	Strawn Formation, Pay 1	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
170	STRWN P1	Strawn Formation, Pay 1	COMP_RCK	3.29E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
171	STRWN P1	Strawn Formation, Pay 1	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO_WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
172	STRWN P1	Strawn Formation, Pay 1	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
173	STRWN P1	Strawn Formation, Pay 1	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
174	STRWN P1	Strawn Formation, Pay 1	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
175	STRWN P1	Strawn Formation, Pay 1	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
176	STRWN P1	Strawn Formation, Pay 1	PORE DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
177	STRWN P1	Strawn Formation, Pay 1	POROSITY	1.00E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
178	STRWN P1	Strawn Formation, Pay 1	PRESSURE	4.80E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
179	STRWN P1	Strawn Formation, Pay 1	PRMX LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
180	STRWN P1	Strawn Formation, Pay 1	PRMY LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
181	STRWN P1	Strawn Formation, Pay 1	PRMZ LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
182	STRWN P1	Strawn Formation, Pay 1	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
183	STRWN P1	Strawn Formation, Pay 1	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
184	STRWN P1	Strawn Formation, Pay 1	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
185	STRWN P1	Strawn Formation, Pay 1	PERM X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
186	STRWN P1	Strawn Formation, Pay 1	PERM Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
187	STRWN P1	Strawn Formation, Pay 1	PERM Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
188	STRWN P1	Strawn Formation, Pay 1	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
189	STRWN P1	Strawn Formation, Pay 1	POR COMP	3.29E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
190	STRWN P2	Strawn Formation, Pay 2	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
191	STRWN P2	Strawn Formation, Pay 2	COMP RCK	3.29E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
192	STRWN P2	Strawn Formation, Pay 2	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
193	STRWN P2	Strawn Formation, Pay 2	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
194	STRWN P2	Strawn Formation, Pay 2	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
195	STRWN P2	Strawn Formation, Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
196	STRWN P2	Strawn Formation, Pay 2	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
197	STRWN P2	Strawn Formation, Pay 2	PORE DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
198	STRWN P2	Strawn Formation, Pay 2	POROSITY	1.00E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
199	STRWN P2	Strawn Formation, Pay 2	PRESSURE	4.80E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
200	STRWN P2	Strawn Formation, Pay 2	PRMX LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
201	STRWN P2	Strawn Formation, Pay 2	PRMY LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
202	STRWN P2	Strawn Formation, Pay 2	PRMZ LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
203	STRWN P2	Strawn Formation, Pay 2	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
204	STRWN P2	Strawn Formation, Pay 2	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
205	STRWN P2	Strawn Formation, Pay 2	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
206	STRWN P2	Strawn Formation, Pay 2	PERM X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
207	STRWN P2	Strawn Formation, Pay 2	PERM Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
208	STRWN P2	Strawn Formation, Pay 2	PERM Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
209	STRWN P2	Strawn Formation, Pay 2	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
210	STRWN P2	Strawn Formation, Pay 2	POR COMP	3.29E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
211	STRWN P3	Strawn Formation, Pay 3	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
212	STRWN P3	Strawn Formation, Pay 3	COMP RCK	3.29E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
213	STRWN P3	Strawn Formation, Pay 3	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
214	STRWN P3	Strawn Formation, Pay 3	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
215	STRWN P3	Strawn Formation, Pay 3	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
216	STRWN P3	Strawn Formation, Pay 3	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
217	STRWN P3	Strawn Formation, Pay 3	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
218	STRWN P3	Strawn Formation, Pay 3	PORE DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
219	STRWN P3	Strawn Formation, Pay 3	POROSITY	1.00E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
220	STRWN P3	Strawn Formation, Pay 3	PRESSURE	4.80E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
221	STRWN P3	Strawn Formation, Pay 3	PRMX LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
222	STRWN P3	Strawn Formation, Pay 3	PRMY LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
223	STRWN P3	Strawn Formation, Pay 3	PRMZ LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
224	STRWN P3	Strawn Formation, Pay 3	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
225	STRWN P3	Strawn Formation, Pay 3	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
226	STRWN P3	Strawn Formation, Pay 3	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
227	STRWN P3	Strawn Formation, Pay 3	PERM X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
228	STRWN P3	Strawn Formation, Pay 3	PERM Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
229	STRWN P3	Strawn Formation, Pay 3	PERM Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
230	STRWN P3	Strawn Formation, Pay 3	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
231	STRWN P3	Strawn Formation, Pay 3	POR_COMP	3.29E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
232	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
233	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	COMP_RCK	3.70E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
234	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
235	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
236	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
237	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
238	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
239	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	POR_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
240	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	POROSITY	2.00E-02	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
241	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PRESSURE	4.18E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
242	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PRMX_LOG	-1.58E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
243	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PRMY_LOG	-1.98E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
244	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PRMZ_LOG	-1.58E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
245	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
246	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
247	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
248	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PERM_X	1.78E-16	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
249	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PERM_Y	1.78E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
250	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	PERM_Z	1.78E-16	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
251	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
252	STRWN NP	L Bone Sp-Wolfcamp-Strawn NP	POR_COMP	3.70E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
253	BONES P1	Bone Spring Formation, Pay 1	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
254	BONES P1	Bone Spring Formation, Pay 1	COMP_RCK	4.23E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
255	BONES P1	Bone Spring Formation, Pay 1	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
256	BONES P1	Bone Spring Formation, Pay 1	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
257	BONES P1	Bone Spring Formation, Pay 1	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
258	BONES P1	Bone Spring Formation, Pay 1	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
259	BONES P1	Bone Spring Formation, Pay 1	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
260	BONES P1	Bone Spring Formation, Pay 1	POR_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
261	BONES P1	Bone Spring Formation, Pay 1	POROSITY	1.15E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
262	BONES P1	Bone Spring Formation, Pay 1	PRESSURE	3.56E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
263	BONES P1	Bone Spring Formation, Pay 1	PRMX_LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
264	BONES P1	Bone Spring Formation, Pay 1	PRMY_LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
265	BONES P1	Bone Spring Formation, Pay 1	PRMZ_LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
266	BONES P1	Bone Spring Formation, Pay 1	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
267	BONES P1	Bone Spring Formation, Pay 1	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
268	BONES P1	Bone Spring Formation, Pay 1	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
269	BONES P1	Bone Spring Formation, Pay 1	PERM_X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
270	BONES P1	Bone Spring Formation, Pay 1	PERM_Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
271	BONES P1	Bone Spring Formation, Pay 1	PERM_Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
272	BONES P1	Bone Spring Formation, Pay 1	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
273	BONES P1	Bone Spring Formation, Pay 1	POR_COMP	4.23E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
274	BONES P2	Bone Spring Formation, Pay 2	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
275	BONES P2	Bone Spring Formation, Pay 2	COMP_RCK	4.23E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
276	BONES P2	Bone Spring Formation, Pay 2	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
277	BONES P2	Bone Spring Formation, Pay 2	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
278	BONES P2	Bone Spring Formation, Pay 2	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
279	BONES P2	Bone Spring Formation, Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
280	BONES P2	Bone Spring Formation, Pay 2	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
281	BONES P2	Bone Spring Formation, Pay 2	POR_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
282	BONES P2	Bone Spring Formation, Pay 2	POROSITY	1.15E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
283	BONES P2	Bone Spring Formation, Pay 2	PRESSURE	3.56E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
284	BONES P2	Bone Spring Formation, Pay 2	PRMX_LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
285	BONES P2	Bone Spring Formation, Pay 2	PRMY_LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
286	BONES P2	Bone Spring Formation, Pay 2	PRMZ LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
287	BONES P2	Bone Spring Formation, Pay 2	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
288	BONES P2	Bone Spring Formation, Pay 2	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
289	BONES P2	Bone Spring Formation, Pay 2	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
290	BONES P2	Bone Spring Formation, Pay 2	PERM X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
291	BONES P2	Bone Spring Formation, Pay 2	PERM Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
292	BONES P2	Bone Spring Formation, Pay 2	PERM Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
293	BONES P2	Bone Spring Formation, Pay 2	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
294	BONES P2	Bone Spring Formation, Pay 2	POR COMP	4.23E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
295	BONES P3	Bone Spring Formation, Pay 3	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
296	BONES P3	Bone Spring Formation, Pay 3	COMP RCK	4.23E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
297	BONES P3	Bone Spring Formation, Pay 3	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
298	BONES P3	Bone Spring Formation, Pay 3	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
299	BONES P3	Bone Spring Formation, Pay 3	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
300	BONES P3	Bone Spring Formation, Pay 3	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
301	BONES P3	Bone Spring Formation, Pay 3	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
302	BONES P3	Bone Spring Formation, Pay 3	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
303	BONES P3	Bone Spring Formation, Pay 3	POROSITY	1.15E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
304	BONES P3	Bone Spring Formation, Pay 3	PRESSURE	3.56E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
305	BONES P3	Bone Spring Formation, Pay 3	PRMX LOG	-1.37E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
306	BONES P3	Bone Spring Formation, Pay 3	PRMY LOG	-1.97E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
307	BONES P3	Bone Spring Formation, Pay 3	PRMZ LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
308	BONES P3	Bone Spring Formation, Pay 3	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
309	BONES P3	Bone Spring Formation, Pay 3	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
310	BONES P3	Bone Spring Formation, Pay 3	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
311	BONES P3	Bone Spring Formation, Pay 3	PERM X	2.06E-14	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
312	BONES P3	Bone Spring Formation, Pay 3	PERM Y	2.06E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
313	BONES P3	Bone Spring Formation, Pay 3	PERM Z	2.06E-14	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
314	BONES P3	Bone Spring Formation, Pay 3	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
315	BONES P3	Bone Spring Formation, Pay 3	POR COMP	4.23E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
316	BONES NP	U. Bone Spring Form. No Pay	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
317	BONES NP	U. Bone Spring Form. No Pay	COMP RCK	4.58E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
318	BONES NP	U. Bone Spring Form. No Pay	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
319	BONES NP	U. Bone Spring Form. No Pay	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
320	BONES NP	U. Bone Spring Form. No Pay	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
321	BONES NP	U. Bone Spring Form. No Pay	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
322	BONES NP	U. Bone Spring Form. No Pay	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
323	BONES NP	U. Bone Spring Form. No Pay	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
324	BONES NP	U. Bone Spring Form. No Pay	POROSITY	1.40E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
325	BONES NP	U. Bone Spring Form. No Pay	PRESSURE	3.24E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
326	BONES NP	U. Bone Spring Form. No Pay	PRMX LOG	-1.58E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
327	BONES NP	U. Bone Spring Form. No Pay	PRMY LOG	-1.98E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
328	BONES NP	U. Bone Spring Form. No Pay	PRMZ LOG	-1.58E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
329	BONES NP	U. Bone Spring Form. No Pay	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
330	BONES NP	U. Bone Spring Form. No Pay	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
331	BONES NP	U. Bone Spring Form. No Pay	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
332	BONES NP	U. Bone Spring Form. No Pay	PERM X	1.78E-16	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
333	BONES NP	U. Bone Spring Form. No Pay	PERM Y	1.78E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
334	BONES NP	U. Bone Spring Form. No Pay	PERM Z	1.78E-16	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
335	BONES NP	U. Bone Spring Form. No Pay	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
336	BONES NP	U. Bone Spring Form. No Pay	POR COMP	4.58E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
337	LBRSH P1	L. Brushy Can. (ABCD) Pay 1	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
338	LBRSH P1	L. Brushy Can. (ABCD) Pay 1	COMP RCK	4.98E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
339	LBRSH P1	L. Brushy Can. (ABCD) Pay 1	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
340	LBRSH P1	L. Brushy Can. (ABCD) Pay 1	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
341	LBRSH P1	L. Brushy Can. (ABCD) Pay 1	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
342	LBRSH P1	L. Brushy Can. (ABCD) Pay 1	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO_WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
343	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
344	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
345	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
346	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PRESSURE	2.92E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
347	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PRMX_LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
348	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PRMY_LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
349	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PRMZ_LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
350	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
351	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
352	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
353	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PERM_X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
354	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PERM_Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
355	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	PERM_Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
356	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
357	LBRSH_P1	L. Brushy Can. (ABCD) Pay 1	POR_COMP	4.98E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
358	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
359	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	COMP_RCK	4.98E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
360	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
361	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
362	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
363	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
364	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
365	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
366	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
367	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PRESSURE	2.92E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
368	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PRMX_LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
369	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PRMY_LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
370	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PRMZ_LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
371	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
372	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
373	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
374	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PERM_X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
375	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PERM_Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
376	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	PERM_Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
377	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
378	LBRSH_P2	L. Brushy Can. (ABCD) Pay 2	POR_COMP	4.98E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
379	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	CAP_MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
380	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	COMP_RCK	4.98E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
381	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PC_MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
382	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PCT_A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
383	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PCT_EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
384	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
385	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
386	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
387	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
388	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PRESSURE	2.92E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
389	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PRMX_LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
390	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PRMY_LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
391	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PRMZ_LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
392	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
393	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
394	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
395	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PERM_X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
396	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PERM_Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
397	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	PERM_Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
398	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
399	LBRSH_P3	L. Brushy Can. (ABCD) Pay 3	POR_COMP	4.98E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
400	UBRSH NP	U. Brushy Canyon -- No Pay	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
401	UBRSH NP	U. Brushy Canyon -- No Pay	COMP_RCK	5.45E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
402	UBRSH NP	U. Brushy Canyon -- No Pay	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
403	UBRSH NP	U. Brushy Canyon -- No Pay	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
404	UBRSH NP	U. Brushy Canyon -- No Pay	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
405	UBRSH NP	U. Brushy Canyon -- No Pay	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
406	UBRSH NP	U. Brushy Canyon -- No Pay	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
407	UBRSH NP	U. Brushy Canyon -- No Pay	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
408	UBRSH NP	U. Brushy Canyon -- No Pay	POROSITY	1.40E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
409	UBRSH NP	U. Brushy Canyon -- No Pay	PRESSURE	2.61E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
410	UBRSH NP	U. Brushy Canyon -- No Pay	PRMX LOG	-1.60E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
411	UBRSH NP	U. Brushy Canyon -- No Pay	PRMY LOG	-1.90E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
412	UBRSH NP	U. Brushy Canyon -- No Pay	PRMZ LOG	-1.60E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
413	UBRSH NP	U. Brushy Canyon -- No Pay	REL MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
414	UBRSH NP	U. Brushy Canyon -- No Pay	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
415	UBRSH NP	U. Brushy Canyon -- No Pay	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
416	UBRSH NP	U. Brushy Canyon -- No Pay	PERM X	9.86E-17	X-direction permeability (m^2) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
417	UBRSH NP	U. Brushy Canyon -- No Pay	PERM Y	9.86E-20	Y-direction permeability (m^2) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
418	UBRSH NP	U. Brushy Canyon -- No Pay	PERM Z	9.86E-17	Z-direction permeability (m^2) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
419	UBRSH NP	U. Brushy Canyon -- No Pay	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
420	UBRSH NP	U. Brushy Canyon -- No Pay	POR_COMP	5.45E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
421	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
422	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	COMP_RCK	6.02E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
423	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
424	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
425	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
426	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
427	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
428	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
429	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
430	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PRESSURE	2.29E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
431	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PRMX LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
432	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PRMY LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
433	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PRMZ LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
434	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	REL MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
435	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
436	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	SAT_RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
437	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PERM X	1.27E-13	X-direction permeability (m^2) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
438	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PERM Y	1.27E-20	Y-direction permeability (m^2) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
439	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	PERM Z	1.27E-13	Z-direction permeability (m^2) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
440	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
441	UBRSH P1	U. Brushy Can - Cherry C, Pay 1	POR_COMP	6.02E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
442	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
443	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	COMP_RCK	6.02E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
444	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
445	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
446	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
447	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
448	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
449	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
450	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
451	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PRESSURE	2.29E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
452	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PRMX LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
453	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PRMY LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
454	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PRMZ LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
455	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	REL MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
456	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
457	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
458	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PERM X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
459	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PERM Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
460	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	PERM Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
461	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
462	UBRSH P2	U. Brushy Can - Cherry C, Pay 2	POR COMP	6.02E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
463	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
464	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	COMP RCK	6.02E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
465	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
466	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
467	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
468	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
469	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
470	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
471	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
472	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PRESSURE	2.29E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
473	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PRMX LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
474	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PRMY LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
475	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PRMZ LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
476	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
477	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
478	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
479	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PERM X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
480	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PERM Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
481	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	PERM Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
482	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
483	UBRSH P3	U. Brushy Can - Cherry C, Pay 3	POR COMP	6.02E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
484	LBELL NP	L. Bell Canyon-U. Cherry No Pay	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
485	LBELL NP	L. Bell Canyon-U. Cherry No Pay	COMP RCK	6.77E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
486	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
487	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
488	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
489	LBELL NP	L. Bell Canyon-U. Cherry No Pay	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
490	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
491	LBELL NP	L. Bell Canyon-U. Cherry No Pay	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
492	LBELL NP	L. Bell Canyon-U. Cherry No Pay	POROSITY	1.40E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
493	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PRESSURE	1.96E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
494	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PRMX LOG	-1.60E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
495	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PRMY LOG	-1.90E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
496	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PRMZ LOG	-1.60E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
497	LBELL NP	L. Bell Canyon-U. Cherry No Pay	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
498	LBELL NP	L. Bell Canyon-U. Cherry No Pay	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
499	LBELL NP	L. Bell Canyon-U. Cherry No Pay	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
500	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PERM X	9.86E-17	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
501	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PERM Y	9.86E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
502	LBELL NP	L. Bell Canyon-U. Cherry No Pay	PERM Z	9.86E-17	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
503	LBELL NP	L. Bell Canyon-U. Cherry No Pay	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
504	LBELL NP	L. Bell Canyon-U. Cherry No Pay	POR COMP	6.77E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
505	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
506	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	COMP RCK	7.95E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
507	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
508	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
509	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
510	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
511	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
512	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
513	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
514	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PRESSURE	1.56E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
515	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PRMX LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
516	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PRMY LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
517	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PRMZ LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
518	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
519	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
520	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
521	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PERM X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
522	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PERM Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
523	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	PERM Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
524	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
525	UBELL P1	U Bell Canyon Pay 1 (SWD zone)	POR COMP	7.95E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
526	UBELL P2	U Bell Canyon Pay 2	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
527	UBELL P2	U Bell Canyon Pay 2	COMP RCK	7.95E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
528	UBELL P2	U Bell Canyon Pay 2	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
529	UBELL P2	U Bell Canyon Pay 2	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
530	UBELL P2	U Bell Canyon Pay 2	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
531	UBELL P2	U Bell Canyon Pay 2	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
532	UBELL P2	U Bell Canyon Pay 2	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
533	UBELL P2	U Bell Canyon Pay 2	PORE DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
534	UBELL P2	U Bell Canyon Pay 2	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
535	UBELL P2	U Bell Canyon Pay 2	PRESSURE	1.56E+07	Hydrostatic initial pressure (Pa)	Initialize deeper layers	Analyst: DM Stoelzel
536	UBELL P2	U Bell Canyon Pay 2	PRMX LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
537	UBELL P2	U Bell Canyon Pay 2	PRMY LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
538	UBELL P2	U Bell Canyon Pay 2	PRMZ LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
539	UBELL P2	U Bell Canyon Pay 2	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
540	UBELL P2	U Bell Canyon Pay 2	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
541	UBELL P2	U Bell Canyon Pay 2	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
542	UBELL P2	U Bell Canyon Pay 2	PERM X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
543	UBELL P2	U Bell Canyon Pay 2	PERM Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
544	UBELL P2	U Bell Canyon Pay 2	PERM Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
545	UBELL P2	U Bell Canyon Pay 2	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
546	UBELL P2	U Bell Canyon Pay 2	POR COMP	7.95E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
547	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	CAP MOD	2.00E+00	Capillary Pressure Model Number (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
548	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	COMP RCK	7.95E-10	Rock compressibility (also pore compress) from Petroleum literature	Not used	Analyst: DM Stoelzel
549	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PC MAX	1.00E+08	Max capillary pressure (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
550	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PCT A	2.60E-01	Capillary pressure multiplier (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
551	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PCT EXP	-3.48E-01	Capillary pressure exponent (same as Culebra)	Required for BRAGFLO	Analyst: DM Stoelzel
552	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	KPT	0.00E+00	Not used - placeholder	Not used	Analyst: DM Stoelzel
553	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Stoelzel
554	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PORE DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
555	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	POROSITY	2.90E-01	Porosity (fraction)	Required for BRAGFLO	Analyst: DM Stoelzel
556	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PRESSURE	1.56E+07	Hydrostatic initial pressure (Pa)	Not used	Analyst: DM Stoelzel
557	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PRMX LOG	-1.29E+01	Log x-direction permeability (from NM Bureau of Mines)	Intermediate value	Analyst: DM Stoelzel
558	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PRMY LOG	-1.99E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoelzel
559	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PRMZ LOG	-1.29E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoelzel
560	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Analyst: DM Stoelzel
561	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Analyst: DM Stoelzel
562	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	SAT RGAS	1.00E-02	Residual Gas saturation	Required for BRAGFLO	Analyst: DM Stoelzel
563	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PERM X	1.27E-13	X-direction permeability (m ²) from Log value (NM B of Mines)	Required for BRAGFLO	Analyst: DM Stoelzel
564	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PERM Y	1.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Analyst: DM Stoelzel
565	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	PERM Z	1.27E-13	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Analyst: DM Stoelzel
566	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Analyst: DM Stoelzel
567	UBELL P3	U Bell Canyon Pay 3 (SWD zone)	POR COMP	7.95E-10	Pore compress from petroleum literature as function of depth (1/Pa)	Required for BRAGFLO	Analyst: DM Stoelzel
568	CASTILER	Castile Formation - non reservoir	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
569	CASTILER	Castile Formation - non reservoir	COMP RCK	-1.00E+01	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
570	CASTILER	Castile Formation - non reservoir	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
571	CASTILER	Castile Formation - non reservoir	PCT A	5.60E-01	Capillary pressure multiplier	Required for BRAGFLO	Database: CCA view 6
572	CASTILER	Castile Formation - non reservoir	PCT EXP	-3.46E-01	Capillary pressure exponent	Required for BRAGFLO	Database: CCA view 6
573	CASTILER	Castile Formation - non reservoir	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
574	CASTILER	Castile Formation - non reservoir	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
575	CASTILER	Castile Formation - non reservoir	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
576	CASTILER	Castile Formation - non reservoir	POROSITY	8.70E-03	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
577	CASTILER	Castile Formation - non reservoir	PRESSURE	1.27E+07	Hydrostatic initial pressure (Pa)	Not used	Database: CCA view 6
578	CASTILER	Castile Formation - non reservoir	PRMX LOG	-1.80E+01	Log x-direction permeability	Intermediate value	Analyst: DM Stoetzel
579	CASTILER	Castile Formation - non reservoir	PRMY LOG	-1.90E+01	Log y-direction permeability	Intermediate value	Analyst: DM Stoetzel
580	CASTILER	Castile Formation - non reservoir	PRMZ LOG	-1.80E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Analyst: DM Stoetzel
581	CASTILER	Castile Formation - non reservoir	REL MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
582	CASTILER	Castile Formation - non reservoir	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
583	CASTILER	Castile Formation - non reservoir	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
584	CASTILER	Castile Formation - non reservoir	PERM X	1.00E-18	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
585	CASTILER	Castile Formation - non reservoir	PERM Y	1.00E-19	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
586	CASTILER	Castile Formation - non reservoir	PERM Z	1.00E-18	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
587	CASTILER	Castile Formation - non reservoir	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
588	CASTILER	Castile Formation - non reservoir	POR COMP	1.15E-08	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
589	S HALITE	Salado Formation - impure halite	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
590	S HALITE	Salado Formation - impure halite	COMP RCK	9.75E-11	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
591	S HALITE	Salado Formation - impure halite	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
592	S HALITE	Salado Formation - impure halite	PCT A	5.60E-01	Capillary pressure multiplier	Required for BRAGFLO	Database: CCA view 6
593	S HALITE	Salado Formation - impure halite	PCT EXP	-3.46E-01	Capillary pressure exponent	Required for BRAGFLO	Database: CCA view 6
594	S HALITE	Salado Formation - impure halite	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
595	S HALITE	Salado Formation - impure halite	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
596	S HALITE	Salado Formation - impure halite	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
597	S HALITE	Salado Formation - impure halite	POROSITY	1.00E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
598	S HALITE	Salado Formation - impure halite	PRESSURE	1.25E+07	Initial pressure (Pa)	Initialize Salado grid blo	Database: CCA view 6
599	S HALITE	Salado Formation - impure halite	PRMX LOG	-2.25E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
600	S HALITE	Salado Formation - impure halite	PRMY LOG	-2.25E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
601	S HALITE	Salado Formation - impure halite	PRMZ LOG	-2.25E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
602	S HALITE	Salado Formation - impure halite	REL MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
603	S HALITE	Salado Formation - impure halite	SAT RBRN	3.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
604	S HALITE	Salado Formation - impure halite	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
605	S HALITE	Salado Formation - impure halite	PERM X	3.16E-23	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
606	S HALITE	Salado Formation - impure halite	PERM Y	3.16E-23	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
607	S HALITE	Salado Formation - impure halite	PERM Z	3.16E-23	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
608	S HALITE	Salado Formation - impure halite	SB MIN	3.15E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
609	S HALITE	Salado Formation - impure halite	POR COMP	9.75E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
610	S MB139	Interbed: Marker Bed 139	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
611	S MB139	Interbed: Marker Bed 139	COMP RCK	8.26E-11	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
612	S MB139	Interbed: Marker Bed 139	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
613	S MB139	Interbed: Marker Bed 139	PCT A	2.60E-01	Capillary pressure multiplier	Required for BRAGFLO	Database: CCA view 6
614	S MB139	Interbed: Marker Bed 139	PCT EXP	-3.48E-01	Capillary pressure exponent	Required for BRAGFLO	Database: CCA view 6
615	S MB139	Interbed: Marker Bed 139	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
616	S MB139	Interbed: Marker Bed 139	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
617	S MB139	Interbed: Marker Bed 139	POR DIS	6.44E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
618	S MB139	Interbed: Marker Bed 139	POROSITY	1.10E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
619	S MB139	Interbed: Marker Bed 139	PRMX LOG	-1.89E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
620	S MB139	Interbed: Marker Bed 139	PRMY LOG	-1.89E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
621	S MB139	Interbed: Marker Bed 139	PRMZ LOG	-1.89E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
622	S MB139	Interbed: Marker Bed 139	REL MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
623	S MB139	Interbed: Marker Bed 139	SAT RBRN	8.36E-02	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
624	S MB139	Interbed: Marker Bed 139	SAT RGAS	7.71E-02	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
625	S MB139	Interbed: Marker Bed 139	BKLINK	2.71E-01	Klinkenberg Effects multiplier	Not used	Database: CCA view 6
626	S MB139	Interbed: Marker Bed 139	EXPLINK	-3.41E-01	Klinkenberg exponent	Not used	Database: CCA view 6
627	S MB139	Interbed: Marker Bed 139	DPHIMAX	3.90E-02	Maximum delta change in porosity for fracture model	Required for BRAGFLO	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
628	S MB139	Interbed: Marker Bed 139	PI DELTA	2.00E+05	Fracture initiation pressure - reference pressure (Pa)	Required for BRAGFLO	Database: CCA view 6
629	S MB139	Interbed: Marker Bed 139	PF DELTA	3.80E+06	Maximum final fracture pressure - reference pressure (Pa)	Required for BRAGFLO	Database: CCA view 6
630	S MB139	Interbed: Marker Bed 139	IFRX	1.00E+00	X-direction fracturing flag (1 = true, 0 = false)	Required for BRAGFLO	Database: CCA view 6
631	S MB139	Interbed: Marker Bed 139	IFRY	1.00E+00	Y-direction fracturing flag (1 = true, 0 = false)	Required for BRAGFLO	Database: CCA view 6
632	S MB139	Interbed: Marker Bed 139	IFRZ	0.00E+00	Z-direction fracturing flag (1 = true, 0 = false)	Required for BRAGFLO	Database: CCA view 6
633	S MB139	Interbed: Marker Bed 139	KMAXLOG	-9.00E+00	Log maximum allowable permeability in fracturing model log(m ²)	Used for fracturing mod	Database: CCA view 6
634	S MB139	Interbed: Marker Bed 139	PERM X	1.29E-19	X-direction permeability (from PRMX LOG) (m ²)	Required for BRAGFLO	Calculated
635	S MB139	Interbed: Marker Bed 139	PERM Y	1.29E-19	Y-direction permeability (from PRMY LOG) (m ²)	Required for BRAGFLO	Calculated
636	S MB139	Interbed: Marker Bed 139	PERM Z	1.29E-19	Z-direction permeability (from PRMZ LOG) (m ²)	Not used - 2D model	Calculated
637	S MB139	Interbed: Marker Bed 139	SB MIN	8.78E-02	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Calculated
638	S MB139	Interbed: Marker Bed 139	POR COMP	7.51E-09	Calculated: = COMP_RCK/POROSITY	Required for BRAGFLO	Calculated
639	S MB139	Interbed: Marker Bed 139	PHIMAX	5.00E-02	Calculated: = POROSITY + DPHIMAX for fracturing model	Required for BRAGFLO	Calculated
640	S MB139	Interbed: Marker Bed 139	TEMP	1.10E-02	Temporary variable: = POROSITY*(EXP(POR_COMP*(PI_DELTA)))	Used for fracturing mod	Calculated
641	S MB139	Interbed: Marker Bed 139	PERM EXP	1.51E+01	Calculated: = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))	Required for BRAGFLO	Calculated
642	S MB138	Interbed: Marker Bed 138 + A&B	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
643	S MB138	Interbed: Marker Bed 138 + A&B	COMP RCK	8.26E-11	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
644	S MB138	Interbed: Marker Bed 138 + A&B	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
645	S MB138	Interbed: Marker Bed 138 + A&B	PCT A	2.60E-01	Capillary pressure multiplier	Required for BRAGFLO	Database: CCA view 6
646	S MB138	Interbed: Marker Bed 138 + A&B	PCT EXP	-3.48E-01	Capillary pressure exponent	Required for BRAGFLO	Database: CCA view 6
647	S MB138	Interbed: Marker Bed 138 + A&B	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
648	S MB138	Interbed: Marker Bed 138 + A&B	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
649	S MB138	Interbed: Marker Bed 138 + A&B	PORE DIS	6.44E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
650	S MB138	Interbed: Marker Bed 138 + A&B	POROSITY	1.10E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
651	S MB138	Interbed: Marker Bed 138 + A&B	PRMX LOG	-1.89E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
652	S MB138	Interbed: Marker Bed 138 + A&B	PRMY LOG	-1.89E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
653	S MB138	Interbed: Marker Bed 138 + A&B	PRMZ LOG	-1.89E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
654	S MB138	Interbed: Marker Bed 138 + A&B	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
655	S MB138	Interbed: Marker Bed 138 + A&B	SAT RBRN	8.36E-02	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
656	S MB138	Interbed: Marker Bed 138 + A&B	SAT RGAS	7.71E-02	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
657	S MB138	Interbed: Marker Bed 138 + A&B	DPHIMAX	3.90E-02	Maximum delta change in porosity for fracture model	Required for BRAGFLO	Database: CCA view 6
658	S MB138	Interbed: Marker Bed 138 + A&B	PI DELTA	2.00E+05	Fracture initiation pressure - reference pressure (Pa)	Required for BRAGFLO	Database: CCA view 6
659	S MB138	Interbed: Marker Bed 138 + A&B	PF DELTA	3.80E+06	Maximum final fracture pressure - reference pressure (Pa)	Required for BRAGFLO	Database: CCA view 6
660	S MB138	Interbed: Marker Bed 138 + A&B	IFRX	1.00E+00	X-direction fracturing flag (1 = true, 0 = false)	Required for BRAGFLO	Database: CCA view 6
661	S MB138	Interbed: Marker Bed 138 + A&B	IFRY	1.00E+00	Y-direction fracturing flag (1 = true, 0 = false)	Required for BRAGFLO	Database: CCA view 6
662	S MB138	Interbed: Marker Bed 138 + A&B	IFRZ	0.00E+00	Z-direction fracturing flag (1 = true, 0 = false)	Required for BRAGFLO	Database: CCA view 6
663	S MB138	Interbed: Marker Bed 138 + A&B	KMAXLOG	-9.00E+00	Log maximum allowable permeability in fracturing model log(m ²)	Used for fracturing mod	Database: CCA view 6
664	S MB138	Interbed: Marker Bed 138 + A&B	PERM X	1.29E-19	X-direction permeability (from PRMX LOG) (m ²)	Required for BRAGFLO	Calculated
665	S MB138	Interbed: Marker Bed 138 + A&B	PERM Y	1.29E-19	Y-direction permeability (from PRMY LOG) (m ²)	Required for BRAGFLO	Calculated
666	S MB138	Interbed: Marker Bed 138 + A&B	PERM Z	1.29E-19	Z-direction permeability (from PRMZ LOG) (m ²)	Not used - 2D model	Calculated
667	S MB138	Interbed: Marker Bed 138 + A&B	SB MIN	8.78E-02	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Calculated
668	S MB138	Interbed: Marker Bed 138 + A&B	POR COMP	7.51E-09	Calculated: = COMP_RCK/POROSITY	Required for BRAGFLO	Calculated
669	S MB138	Interbed: Marker Bed 138 + A&B	PHIMAX	5.00E-02	Calculated: = POROSITY + DPHIMAX for fracturing model	Required for BRAGFLO	Calculated
670	S MB138	Interbed: Marker Bed 138 + A&B	TEMP	1.10E-02	Temporary variable: = POROSITY*(EXP(POR_COMP*(PI_DELTA)))	Used for fracturing mod	Calculated
671	S MB138	Interbed: Marker Bed 138 + A&B	PERM EXP	1.51E+01	Calculated: = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))	Required for BRAGFLO	Calculated
672	UNNAMED	Un-named member of Rustler	CAP MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
673	UNNAMED	Un-named member of Rustler	COMP RCK	0.00E+00	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
674	UNNAMED	Un-named member of Rustler	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
675	UNNAMED	Un-named member of Rustler	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
676	UNNAMED	Un-named member of Rustler	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
677	UNNAMED	Un-named member of Rustler	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
678	UNNAMED	Un-named member of Rustler	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
679	UNNAMED	Un-named member of Rustler	PORE DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
680	UNNAMED	Un-named member of Rustler	POROSITY	1.81E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
681	UNNAMED	Un-named member of Rustler	PRMX LOG	-3.50E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
682	UNNAMED	Un-named member of Rustler	PRMY LOG	-3.50E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
683	UNNAMED	Un-named member of Rustler	PRMZ LOG	-3.50E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
684	UNNAMED	Un-named member of Rustler	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6

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Material Name	Material Description	Property Value	Property Value Description	Usage	Source
685 UNNAMED	Un-named member of Rustler	SAT_RBRN	2.00E-01	Required for BRAGFLO	Database: CCA view 6
686 UNNAMED	Un-named member of Rustler	SAT_RGAS	2.00E-01	Required for BRAGFLO	Database: CCA view 6
687 UNNAMED	Un-named member of Rustler	PERM_X	1.00E-35	X-direction permeability (m ²) from Log value (impermeable)	Calculated
688 UNNAMED	Un-named member of Rustler	PERM_Y	1.00E-35	Y-direction permeability (m ²) from Log value (impermeable)	Calculated
689 UNNAMED	Un-named member of Rustler	PERM_Z	1.00E-35	Z-direction permeability (m ²) Not used in 2D	Calculated
690 UNNAMED	Un-named member of Rustler	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Database: CCA view 6
691 IMPERM_Z	Becomes Culebra @ time 0	CAP_MOD	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Database: CCA view 6
692 IMPERM_Z	Becomes Culebra @ time 0	COMP_RCK	1.00E+00	Capillary Pressure Model Number	Database: CCA view 6
693 IMPERM_Z	Becomes Culebra @ time 0	PC_MAX	1.00E+08	Rock compressibility (1/Pa)	Database: CCA view 6
694 IMPERM_Z	Becomes Culebra @ time 0	PCT_A	0.00E+00	Max capillary pressure	Database: CCA view 6
695 IMPERM_Z	Becomes Culebra @ time 0	PCT_EXP	0.00E+00	Capillary pressure multiplier (placeholder)	Database: CCA view 6
696 IMPERM_Z	Becomes Culebra @ time 0	KPT	0.00E+00	Capillary pressure exponent (placeholder)	Database: CCA view 6
697 IMPERM_Z	Becomes Culebra @ time 0	PO_MIN	1.01E+05	Not used - placeholder	Database: CCA view 6
698 IMPERM_Z	Becomes Culebra @ time 0	PORE_DIS	7.00E-01	Minimum Brine pressure (same for all materials)	Database: CCA view 6
699 IMPERM_Z	Becomes Culebra @ time 0	POROSITY	5.00E-03	Pore distribution (fraction)	Database: CCA view 6
700 IMPERM_Z	Becomes Culebra @ time 0	PRMX_LOG	-3.50E+01	Porosity (fraction)	Database: CCA view 6
701 IMPERM_Z	Becomes Culebra @ time 0	PRMY_LOG	-3.50E+01	Log x-direction permeability	Database: CCA view 6
702 IMPERM_Z	Becomes Culebra @ time 0	PRMZ_LOG	-3.50E+01	Log y-direction permeability	Database: CCA view 6
703 IMPERM_Z	Becomes Culebra @ time 0	RELP_MOD	4.00E+00	Log z-direction permeability (BRAGFLO required input)	Database: CCA view 6
704 IMPERM_Z	Becomes Culebra @ time 0	SAT_RBRN	0.00E+00	Relative permeability model number	Database: CCA view 6
705 IMPERM_Z	Becomes Culebra @ time 0	SAT_RGAS	0.00E+00	Residual Brine saturation	Database: CCA view 6
706 IMPERM_Z	Becomes Culebra @ time 0	PERM_X	1.00E-35	Residual Gas saturation	Database: CCA view 6
707 IMPERM_Z	Becomes Culebra @ time 0	PERM_Y	1.00E-35	X-direction permeability (m ²) from Log value (impermeable)	Calculated
708 IMPERM_Z	Becomes Culebra @ time 0	PERM_Z	1.00E-35	Y-direction permeability (m ²) from Log value (impermeable)	Calculated
709 IMPERM_Z	Becomes Culebra @ time 0	SB_MIN	0.00E+00	Z-direction permeability (m ²) Not used in 2D	Database: CCA view 6
710 IMPERM_Z	Becomes Culebra @ time 0	POR_COMP	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Database: CCA view 6
711 IMPERM_Z	Becomes Culebra @ time 0	CAP_MOD	1.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Database: CCA view 6
712 CAVITY_2	Becomes Waste area @ time 0	COMP_RCK	0.00E+00	Capillary Pressure Model Number	Database: CCA view 6
713 CAVITY_2	Becomes Waste area @ time 0	PC_MAX	1.00E+08	Rock compressibility (1/Pa)	Database: CCA view 6
714 CAVITY_2	Becomes Waste area @ time 0	PCT_A	0.00E+00	Max capillary pressure	Database: CCA view 6
715 CAVITY_2	Becomes Waste area @ time 0	PCT_EXP	0.00E+00	Capillary pressure multiplier (placeholder)	Database: CCA view 6
716 CAVITY_2	Becomes Waste area @ time 0	KPT	0.00E+00	Capillary pressure exponent (placeholder)	Database: CCA view 6
717 CAVITY_2	Becomes Waste area @ time 0	PO_MIN	1.01E+05	Not used - placeholder	Database: CCA view 6
718 CAVITY_2	Becomes Waste area @ time 0	PORE_DIS	7.00E-01	Minimum Brine pressure (same for all materials)	Database: CCA view 6
719 CAVITY_2	Becomes Waste area @ time 0	POROSITY	1.00E+00	Pore distribution (fraction)	Database: CCA view 6
720 CAVITY_2	Becomes Waste area @ time 0	PRESSURE	1.00E+00	Porosity (fraction)	Database: CCA view 6
721 CAVITY_2	Becomes Waste area @ time 0	PRMX_LOG	-1.00E+01	Initial brine pressure (Pa)	Database: CCA view 6
722 CAVITY_2	Becomes Waste area @ time 0	PRMY_LOG	-1.00E+01	Log x-direction permeability	Database: CCA view 6
723 CAVITY_2	Becomes Waste area @ time 0	PRMZ_LOG	-1.00E+01	Log y-direction permeability	Database: CCA view 6
724 CAVITY_2	Becomes Waste area @ time 0	REL_P_MOD	4.00E+00	Log z-direction permeability (BRAGFLO required input)	Database: CCA view 6
725 CAVITY_2	Becomes Waste area @ time 0	SAT_RBRN	0.00E+00	Relative permeability model number	Database: CCA view 6
726 CAVITY_2	Becomes Waste area @ time 0	SAT_RGAS	0.00E+00	Residual Brine saturation	Database: CCA view 6
727 CAVITY_2	Becomes Waste area @ time 0	SAT_TBRN	0.00E+00	Residual Gas saturation	Database: CCA view 6
728 CAVITY_2	Becomes Waste area @ time 0	PERM_X	1.00E-10	Initial brine saturation @ t = -5 years	Database: CCA view 6
729 CAVITY_2	Becomes Waste area @ time 0	PERM_Y	1.00E-10	X-direction permeability (m ²) from Log value	Calculated
730 CAVITY_2	Becomes Waste area @ time 0	PERM_Z	1.00E-10	Y-direction permeability (m ²) from Log value	Calculated
731 CAVITY_2	Becomes Waste area @ time 0	SB_MIN	0.00E+00	Z-direction permeability (m ²) Not used in 2D	Database: CCA view 6
732 CAVITY_2	Becomes Waste area @ time 0	POR_COMP	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Database: CCA view 6
733 CAVITY_2	Becomes Waste area @ time 0	CAP_MOD	1.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Database: CCA view 6
734 CAVITY_3	Becomes Exp. & Oper. areas t=0	COMP_RCK	0.00E+00	Capillary Pressure Model Number	Database: CCA view 6
735 CAVITY_3	Becomes Exp. & Oper. areas t=0	PC_MAX	1.00E+08	Rock compressibility (1/Pa)	Database: CCA view 6
736 CAVITY_3	Becomes Exp. & Oper. areas t=0	PCT_A	0.00E+00	Max capillary pressure	Database: CCA view 6
737 CAVITY_3	Becomes Exp. & Oper. areas t=0	PCT_EXP	0.00E+00	Capillary pressure multiplier (placeholder)	Database: CCA view 6
738 CAVITY_3	Becomes Exp. & Oper. areas t=0	KPT	0.00E+00	Capillary pressure exponent (placeholder)	Database: CCA view 6
739 CAVITY_3	Becomes Exp. & Oper. areas t=0	PO_MIN	1.01E+05	Not used - placeholder	Database: CCA view 6
740 CAVITY_3	Becomes Exp. & Oper. areas t=0	PORE_DIS	7.00E-01	Minimum Brine pressure (same for all materials)	Database: CCA view 6
741 CAVITY_3	Becomes Exp. & Oper. areas t=0	PORE_DIS	7.00E-01	Pore distribution (fraction)	Database: CCA view 6

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File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO_WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
742	CAVITY_3	Becomes Exp. & Oper. areas t=0	POROSITY	1.00E+00	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
743	CAVITY_3	Becomes Exp. & Oper. areas t=0	PRESSURE	1.01E+05	Initial brine pressure (Pa)	Used in ICSET	Database: CCA view 6
744	CAVITY_3	Becomes Exp. & Oper. areas t=0	PRMX_LOG	-1.00E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
745	CAVITY_3	Becomes Exp. & Oper. areas t=0	PRMY_LOG	-1.00E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
746	CAVITY_3	Becomes Exp. & Oper. areas t=0	PRMZ_LOG	-1.00E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
747	CAVITY_3	Becomes Exp. & Oper. areas t=0	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
748	CAVITY_3	Becomes Exp. & Oper. areas t=0	SAT_RBRN	0.00E+00	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
749	CAVITY_3	Becomes Exp. & Oper. areas t=0	SAT_RGAS	0.00E+00	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
750	CAVITY_3	Becomes Exp. & Oper. areas t=0	SAT_IBRN	0.00E+00	Initial brine saturation @ t = -5 years	Used in ICSET	Database: CCA view 6
751	CAVITY_3	Becomes Exp. & Oper. areas t=0	PERM_X	1.00E-10	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
752	CAVITY_3	Becomes Exp. & Oper. areas t=0	PERM_Y	1.00E-10	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
753	CAVITY_3	Becomes Exp. & Oper. areas t=0	PERM_Z	1.00E-10	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
754	CAVITY_3	Becomes Exp. & Oper. areas t=0	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
755	CAVITY_3	Becomes Exp. & Oper. areas t=0	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
756	CAVITY_4	Becomes shaft & seals @ t=0	CAP_MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
757	CAVITY_4	Becomes shaft & seals @ t=0	COMP_RCK	0.00E+00	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
758	CAVITY_4	Becomes shaft & seals @ t=0	PC_MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
759	CAVITY_4	Becomes shaft & seals @ t=0	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
760	CAVITY_4	Becomes shaft & seals @ t=0	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
761	CAVITY_4	Becomes shaft & seals @ t=0	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
762	CAVITY_4	Becomes shaft & seals @ t=0	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
763	CAVITY_4	Becomes shaft & seals @ t=0	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
764	CAVITY_4	Becomes shaft & seals @ t=0	POROSITY	1.00E+00	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
765	CAVITY_4	Becomes shaft & seals @ t=0	PRESSURE	1.01E+05	Initial brine pressure (Pa)	Used in ICSET	Database: CCA view 6
766	CAVITY_4	Becomes shaft & seals @ t=0	PRMX_LOG	-1.00E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
767	CAVITY_4	Becomes shaft & seals @ t=0	PRMY_LOG	-1.00E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
768	CAVITY_4	Becomes shaft & seals @ t=0	PRMZ_LOG	-1.00E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
769	CAVITY_4	Becomes shaft & seals @ t=0	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
770	CAVITY_4	Becomes shaft & seals @ t=0	SAT_RBRN	0.00E+00	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
771	CAVITY_4	Becomes shaft & seals @ t=0	SAT_RGAS	0.00E+00	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
772	CAVITY_4	Becomes shaft & seals @ t=0	PERM_X	1.00E-10	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
773	CAVITY_4	Becomes shaft & seals @ t=0	PERM_Y	1.00E-10	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
774	CAVITY_4	Becomes shaft & seals @ t=0	PERM_Z	1.00E-10	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
775	CAVITY_4	Becomes shaft & seals @ t=0	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
776	CAVITY_4	Becomes shaft & seals @ t=0	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
777	DRZ_0	DRZ @ -5 to 0 years	CAP_MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
778	DRZ_0	DRZ @ -5 to 0 years	COMP_RCK	7.41E-10	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
779	DRZ_0	DRZ @ -5 to 0 years	PC_MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
780	DRZ_0	DRZ @ -5 to 0 years	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
781	DRZ_0	DRZ @ -5 to 0 years	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
782	DRZ_0	DRZ @ -5 to 0 years	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
783	DRZ_0	DRZ @ -5 to 0 years	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
784	DRZ_0	DRZ @ -5 to 0 years	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
785	DRZ_0	DRZ @ -5 to 0 years	POROSITY	1.29E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
786	DRZ_0	DRZ @ -5 to 0 years	PRMX_LOG	-1.70E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
787	DRZ_0	DRZ @ -5 to 0 years	PRMY_LOG	-1.70E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
788	DRZ_0	DRZ @ -5 to 0 years	PRMZ_LOG	-1.70E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
789	DRZ_0	DRZ @ -5 to 0 years	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
790	DRZ_0	DRZ @ -5 to 0 years	SAT_RBRN	0.00E+00	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
791	DRZ_0	DRZ @ -5 to 0 years	SAT_RGAS	0.00E+00	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
792	DRZ_0	DRZ @ -5 to 0 years	PERM_X	1.00E-17	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
793	DRZ_0	DRZ @ -5 to 0 years	PERM_Y	1.00E-17	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
794	DRZ_0	DRZ @ -5 to 0 years	PERM_Z	1.00E-17	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
795	DRZ_0	DRZ @ -5 to 0 years	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
796	DRZ_0	DRZ @ -5 to 0 years	POR_COMP	5.74E-08	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
797	BOREHOLE	Borehole- not used for SWD mod	CAP_MOD	2.00E+00	Capillary Pressure Model Number	Not used	Database: CCA view 6
798	BOREHOLE	Borehole- not used for SWD mod	COMP_RCK	2.64E-09	Rock compressibility (1/Pa)	Not used	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

Material Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
799	BOREHOLE	Borehole- not used for SWD mod	PC MAX	1.00E+08	Max capillary pressure	Not used	Database: CCA view 6
800	BOREHOLE	Borehole- not used for SWD mod	PCT_A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
801	BOREHOLE	Borehole- not used for SWD mod	PCT_EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
802	BOREHOLE	Borehole- not used for SWD mod	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
803	BOREHOLE	Borehole- not used for SWD mod	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Not used	Database: CCA view 6
804	BOREHOLE	Borehole- not used for SWD mod	PORE_DIS	9.40E-01	Pore distribution (fraction)	Not used	Database: CCA view 6
805	BOREHOLE	Borehole- not used for SWD mod	POROSITY	5.00E-02	Porosity (fraction)	Not used	Database: CCA view 6
806	BOREHOLE	Borehole- not used for SWD mod	PRMX_LOG	-1.25E+01	Log x-direction permeability	Not used	Database: CCA view 6
807	BOREHOLE	Borehole- not used for SWD mod	PRMY_LOG	-1.25E+01	Log y-direction permeability	Not used	Database: CCA view 6
808	BOREHOLE	Borehole- not used for SWD mod	PRMZ_LOG	-1.25E+01	Log z-direction permeability (BRAGFLO required input)	Not used	Database: CCA view 6
809	BOREHOLE	Borehole- not used for SWD mod	REL_P_MOD	4.00E+00	Relative permeability model number	Not used	Database: CCA view 6
810	BOREHOLE	Borehole- not used for SWD mod	SAT_RBRN	2.00E-01	Residual Brine saturation	Not used	Database: CCA view 6
811	BOREHOLE	Borehole- not used for SWD mod	SAT_RGAS	2.00E-01	Residual Gas saturation	Not used	Database: CCA view 6
812	BOREHOLE	Borehole- not used for SWD mod	PERM_X	3.16E-13	X-direction permeability (m ²) from Log value	Not used	Database: CCA view 6
813	BOREHOLE	Borehole- not used for SWD mod	PERM_Y	3.16E-13	Y-direction permeability (m ²) from Log value	Not used	Database: CCA view 6
814	BOREHOLE	Borehole- not used for SWD mod	PERM_Z	3.16E-13	Z-direction permeability (m ²) from Log value	Not used	Database: CCA view 6
815	BOREHOLE	Borehole- not used for SWD mod	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Not used	Database: CCA view 6
816	BOREHOLE	Borehole- not used for SWD mod	POR_COMP	2.64E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Not used	Database: CCA view 6
817	DRZ_1	DRZ @ time = 0	CAP_MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
818	DRZ_1	DRZ @ time = 0	COMP_RCK	7.41E-10	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
819	DRZ_1	DRZ @ time = 0	PC_MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
820	DRZ_1	DRZ @ time = 0	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
821	DRZ_1	DRZ @ time = 0	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
822	DRZ_1	DRZ @ time = 0	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
823	DRZ_1	DRZ @ time = 0	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Not used	Database: CCA view 6
824	DRZ_1	DRZ @ time = 0	PORE_DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
825	DRZ_1	DRZ @ time = 0	POROSITY	1.29E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
826	DRZ_1	DRZ @ time = 0	PRMX_LOG	-1.50E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
827	DRZ_1	DRZ @ time = 0	PRMY_LOG	-1.50E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
828	DRZ_1	DRZ @ time = 0	PRMZ_LOG	-1.50E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
829	DRZ_1	DRZ @ time = 0	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
830	DRZ_1	DRZ @ time = 0	SAT_RBRN	0.00E+00	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
831	DRZ_1	DRZ @ time = 0	SAT_RGAS	0.00E+00	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
832	DRZ_1	DRZ @ time = 0	PERM_X	1.00E-15	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Database: CCA view 6
833	DRZ_1	DRZ @ time = 0	PERM_Y	1.00E-15	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Database: CCA view 6
834	DRZ_1	DRZ @ time = 0	PERM_Z	1.00E-15	Z-direction permeability (m ²) from Log value	Required for BRAGFLO	Database: CCA view 6
835	DRZ_1	DRZ @ time = 0	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
836	DRZ_1	DRZ @ time = 0	POR_COMP	5.74E-08	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
837	CULEBRA	Replaces IMPERM_Z @ t=0	CAP_MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
838	CULEBRA	Replaces IMPERM_Z @ t=0	PC_MAX	1.00E+08	Max capillary pressure	Intermediate value	Database: CCA view 6
839	CULEBRA	Replaces IMPERM_Z @ t=0	PCT_A	2.60E-01	Capillary pressure multiplier	Required for BRAGFLO	Database: CCA view 6
840	CULEBRA	Replaces IMPERM_Z @ t=0	PCT_EXP	-3.48E-01	Capillary pressure exponent	Required for BRAGFLO	Database: CCA view 6
841	CULEBRA	Replaces IMPERM_Z @ t=0	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
842	CULEBRA	Replaces IMPERM_Z @ t=0	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
843	CULEBRA	Replaces IMPERM_Z @ t=0	POROSITY	6.44E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
844	CULEBRA	Replaces IMPERM_Z @ t=0	PRESSURE	8.22E+05	Initial pressure for Culebra, Unnamed formations (Pa)	Required for BRAGFLO	Database: CCA view 6
845	CULEBRA	Replaces IMPERM_Z @ t=0	PRMX_LOG	-1.37E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
846	CULEBRA	Replaces IMPERM_Z @ t=0	PRMY_LOG	-1.37E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
847	CULEBRA	Replaces IMPERM_Z @ t=0	PRMZ_LOG	-1.37E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
848	CULEBRA	Replaces IMPERM_Z @ t=0	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
849	CULEBRA	Replaces IMPERM_Z @ t=0	SAT_RBRN	8.36E-02	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
850	CULEBRA	Replaces IMPERM_Z @ t=0	SAT_RGAS	7.71E-02	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
851	CULEBRA	Replaces IMPERM_Z @ t=0	PERM_X	2.10E-14	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Database: CCA view 6
852	CULEBRA	Replaces IMPERM_Z @ t=0	PERM_Y	2.10E-14	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Database: CCA view 6
853	CULEBRA	Replaces IMPERM_Z @ t=0	PERM_Z	2.10E-14	Z-direction permeability (m ²) from Log value	Required for BRAGFLO	Database: CCA view 6
854	CULEBRA	Replaces IMPERM_Z @ t=0				Not used in 2D	Database: CCA view 6
855	CULEBRA	Replaces IMPERM_Z @ t=0				Not used in 2D	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
856	CULEBRA	Replaces IMPERM_Z @ t=0	SB_MIN	8.78E-02	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
857	CULEBRA	Replaces IMPERM_Z @ t=0	POR_COMP	6.62E-10	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
858	WAS AREA	Replaces CAVITY_2 @ t=0	CAP_MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
859	WAS AREA	Replaces CAVITY_2 @ t=0	COMP_RCK	0.00E+00	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
860	WAS AREA	Replaces CAVITY_2 @ t=0	PC_MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
861	WAS AREA	Replaces CAVITY_2 @ t=0	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
862	WAS AREA	Replaces CAVITY_2 @ t=0	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
863	WAS AREA	Replaces CAVITY_2 @ t=0	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
864	WAS AREA	Replaces CAVITY_2 @ t=0	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
865	WAS AREA	Replaces CAVITY_2 @ t=0	PORE_DIS	2.89E+00	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
866	WAS AREA	Replaces CAVITY_2 @ t=0	POROSITY	8.48E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
867	WAS AREA	Replaces CAVITY_2 @ t=0	PRMX_LOG	-1.28E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
868	WAS AREA	Replaces CAVITY_2 @ t=0	PRMY_LOG	-1.28E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
869	WAS AREA	Replaces CAVITY_2 @ t=0	PRMZ_LOG	-1.28E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
870	WAS AREA	Replaces CAVITY_2 @ t=0	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
871	WAS AREA	Replaces CAVITY_2 @ t=0	SAT_RBRN	2.76E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
872	WAS AREA	Replaces CAVITY_2 @ t=0	SAT_RGAS	7.50E-02	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
873	WAS AREA	Replaces CAVITY_2 @ t=0	SAT_IBRN	1.50E-02	Initial brine saturation @ t = -5 years	Used in ICSET	Database: CCA view 6
874	WAS AREA	Replaces CAVITY_2 @ t=0	GRATMICH	3.71E-09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
875	WAS AREA	Replaces CAVITY_2 @ t=0	GRATMICH	1.29E-01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
876	WAS AREA	Replaces CAVITY_2 @ t=0	DCCELLCHW	5.40E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
877	WAS AREA	Replaces CAVITY_2 @ t=0	DCCELLRH	1.70E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
878	WAS AREA	Replaces CAVITY_2 @ t=0	DIRONCHW	1.70E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
879	WAS AREA	Replaces CAVITY_2 @ t=0	DIRONRH	1.00E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
880	WAS AREA	Replaces CAVITY_2 @ t=0	DPLASCHW	3.40E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
881	WAS AREA	Replaces CAVITY_2 @ t=0	DPLASRH	1.50E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
882	WAS AREA	Replaces CAVITY_2 @ t=0	DRUBBCHW	1.00E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
883	WAS AREA	Replaces CAVITY_2 @ t=0	DRUBBRH	3.30E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
884	WAS AREA	Replaces CAVITY_2 @ t=0	DIRNCHW	1.39E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
885	WAS AREA	Replaces CAVITY_2 @ t=0	DIRNCRH	2.59E+03	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
886	WAS AREA	Replaces CAVITY_2 @ t=0	DPLSCCHW	2.80E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
887	WAS AREA	Replaces CAVITY_2 @ t=0	DPLSCRH	3.10E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
888	WAS AREA	Replaces CAVITY_2 @ t=0	VOLCHW	1.69E+05	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
889	WAS AREA	Replaces CAVITY_2 @ t=0	VOLRH	7.08E+03	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
890	WAS AREA	Replaces CAVITY_2 @ t=0	SAT_WICK	5.00E-01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
891	WAS AREA	Replaces CAVITY_2 @ t=0	PROBDEG	2.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Gas generation sub-mod	Database: CCA view 6
892	WAS AREA	Replaces CAVITY_2 @ t=0	PERM_X	1.70E-13	X-direction permeability (m^2) from Log value	Required for BRAGFLO	Calculated
893	WAS AREA	Replaces CAVITY_2 @ t=0	PERM_Y	1.70E-13	Y-direction permeability (m^2) from Log value	Required for BRAGFLO	Calculated
894	WAS AREA	Replaces CAVITY_2 @ t=0	PERM_Z	1.70E-13	Z-direction permeability (m^2) Not used in 2D	Required for BRAGFLO	Calculated
895	WAS AREA	Replaces CAVITY_2 @ t=0	SB_MIN	2.90E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
896	WAS AREA	Replaces CAVITY_2 @ t=0	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
897	WAS AREA	Replaces CAVITY_2 @ t=0	STOICOR	1.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
898	WAS AREA	Replaces CAVITY_2 @ t=0	SCOR_H2	1.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
899	WAS AREA	Replaces CAVITY_2 @ t=0	SCOR_H2O	2.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
900	WAS AREA	Replaces CAVITY_2 @ t=0	SCOR_FE	1.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
901	WAS AREA	Replaces CAVITY_2 @ t=0	DRH_METL	2.69E+03	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
902	WAS AREA	Replaces CAVITY_2 @ t=0	DRH_RUPL	3.41E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
903	WAS AREA	Replaces CAVITY_2 @ t=0	DRH_BIO	5.11E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
904	WAS AREA	Replaces CAVITY_2 @ t=0	DCH_METL	3.09E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
905	WAS AREA	Replaces CAVITY_2 @ t=0	DCH_RUPL	1.12E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
906	WAS AREA	Replaces CAVITY_2 @ t=0	DCH_BIO	1.66E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
907	WAS AREA	Replaces CAVITY_2 @ t=0	WTFELTOT	7.13E+07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
908	WAS AREA	Replaces CAVITY_2 @ t=0	WTCELTOT	9.25E+06	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
909	WAS AREA	Replaces CAVITY_2 @ t=0	WTPLTOT	1.92E+07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
910	WAS AREA	Replaces CAVITY_2 @ t=0	PLASIDX	1.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
911	WAS AREA	Replaces CAVITY_2 @ t=0	BIOIDX	1.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
912	WAS AREA	Replaces CAVITY_2 @ t=0	WTBIOTOT	2.84E+07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA

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File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
913	WAS AREA	Replaces CAVITY 2 @ t=0	CONCFE	1.63E+02	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
914	WAS AREA	Replaces CAVITY 2 @ t=0	CONCBIO	6.52E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
915	WAS AREA	Replaces CAVITY 2 @ t=0	CH20CONC	2.12E+01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
916	WAS AREA	Replaces CAVITY 2 @ t=0	DRUMVOL	1.87E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
917	WAS AREA	Replaces CAVITY 2 @ t=0	DRUMTOT	8.14E+05	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
918	WAS AREA	Replaces CAVITY 2 @ t=0	DRPANEL	8.61E+04	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
919	WAS AREA	Replaces CAVITY 2 @ t=0	A1	1.05E+09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
920	WAS AREA	Replaces CAVITY 2 @ t=0	A2	4.41E+10	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
921	WAS AREA	Replaces CAVITY 2 @ t=0	MAX CELL	1.05E+09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
922	WAS AREA	Replaces CAVITY 2 @ t=0	B1	1.27E+09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
923	WAS AREA	Replaces CAVITY 2 @ t=0	B2	2.24E+10	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
924	WAS AREA	Replaces CAVITY 2 @ t=0	MAX FE	1.27E+09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
925	WAS AREA	Replaces CAVITY 2 @ t=0	NUM1	4.57E+07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
926	WAS AREA	Replaces CAVITY 2 @ t=0	NUM2	1.98E+07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
927	WAS AREA	Replaces CAVITY 2 @ t=0	NUM3	1.01E+09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
928	WAS AREA	Replaces CAVITY 2 @ t=0	YMAX	1.02E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
929	WAS AREA	Replaces CAVITY 2 @ t=0	C1	5.56E+08	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
930	WAS AREA	Replaces CAVITY 2 @ t=0	C2	1.27E+09	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
931	WAS AREA	Replaces CAVITY 2 @ t=0	G	5.56E+08	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
932	WAS AREA	Replaces CAVITY 2 @ t=0	YMIN	4.91E-01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
933	WAS AREA	Replaces CAVITY 2 @ t=0	STOIMIC	7.55E-01	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
934	WAS AREA	Replaces CAVITY 2 @ t=0	KCGSI	1.63E-07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
935	WAS AREA	Replaces CAVITY 2 @ t=0	KCGSH	0.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
936	WAS AREA	Replaces CAVITY 2 @ t=0	GRATCORI	1.45E-08	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
937	WAS AREA	Replaces CAVITY 2 @ t=0	GRATCORH	0.00E+00	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
938	WAS AREA	Replaces CAVITY 2 @ t=0	KBGSI	3.20E-07	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
939	WAS AREA	Replaces CAVITY 2 @ t=0	KBGSH	4.13E-08	Variable for gas generation stoichiometry (see Task 1, WPO# 40514)	Reaction chemistry mod	Calculated in ALGEBRA
940	OPS AREA	Resets Oper area of CAVITY 3	CAP MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
941	OPS AREA	Resets Oper area of CAVITY 3	COMP RCK	0.00E+00	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
942	OPS AREA	Resets Oper area of CAVITY 3	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
943	OPS AREA	Resets Oper area of CAVITY 3	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
944	OPS AREA	Resets Oper area of CAVITY 3	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
945	OPS AREA	Resets Oper area of CAVITY 3	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
946	OPS AREA	Resets Oper area of CAVITY 3	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
947	OPS AREA	Resets Oper area of CAVITY 3	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
948	OPS AREA	Resets Oper area of CAVITY 3	POROSITY	1.80E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
949	OPS AREA	Resets Oper area of CAVITY 3	PRMX LOG	-1.10E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
950	OPS AREA	Resets Oper area of CAVITY 3	PRMY LOG	-1.10E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
951	OPS AREA	Resets Oper area of CAVITY 3	PRMZ LOG	-1.10E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
952	OPS AREA	Resets Oper area of CAVITY 3	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
953	OPS AREA	Resets Oper area of CAVITY 3	SAT RBRN	0.00E+00	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
954	OPS AREA	Resets Oper area of CAVITY 3	SAT RGAS	0.00E+00	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
955	OPS AREA	Resets Oper area of CAVITY 3	PERM X	1.00E-11	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
956	OPS AREA	Resets Oper area of CAVITY 3	PERM Y	1.00E-11	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
957	OPS AREA	Resets Oper area of CAVITY 3	PERM Z	1.00E-11	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
958	OPS AREA	Resets Oper area of CAVITY 3	SB MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
959	OPS AREA	Resets Oper area of CAVITY 3	POR COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
960	EXP AREA	Resets Exp area of CAVITY 3	CAP MOD	1.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
961	EXP AREA	Resets Exp area of CAVITY 3	COMP RCK	0.00E+00	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
962	EXP AREA	Resets Exp area of CAVITY 3	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
963	EXP AREA	Resets Exp area of CAVITY 3	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
964	EXP AREA	Resets Exp area of CAVITY 3	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
965	EXP AREA	Resets Exp area of CAVITY 3	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
966	EXP AREA	Resets Exp area of CAVITY 3	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
967	EXP AREA	Resets Exp area of CAVITY 3	POR DIS	7.00E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
968	EXP AREA	Resets Exp area of CAVITY 3	POROSITY	1.80E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
969	EXP AREA	Resets Exp area of CAVITY 3	PRMX LOG	-1.10E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
970	EXP AREA	Resets Exp area of CAVITITY 3	PRMY LOG	-1.10E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
971	EXP AREA	Resets Exp area of CAVITITY 3	PRMZ LOG	-1.10E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
972	EXP AREA	Resets Exp area of CAVITITY 3	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
973	EXP AREA	Resets Exp area of CAVITITY 3	SAT RBRN	0.00E+00	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
974	EXP AREA	Resets Exp area of CAVITITY 3	SAT RGAS	0.00E+00	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
975	EXP AREA	Resets Exp area of CAVITITY 3	PERM X	1.00E-11	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
976	EXP AREA	Resets Exp area of CAVITITY 3	PERM Y	1.00E-11	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
977	EXP AREA	Resets Exp area of CAVITITY 3	PERM Z	1.00E-11	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
978	EXP AREA	Resets Exp area of CAVITITY 3	SB MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
979	EXP AREA	Resets Exp area of CAVITITY 3	POR COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
980	PAN SEAL	Resets Panel seals @ t=0	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
981	PAN SEAL	Resets Panel seals @ t=0	COMP RCK	2.64E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
982	PAN SEAL	Resets Panel seals @ t=0	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
983	PAN SEAL	Resets Panel seals @ t=0	PCT A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
984	PAN SEAL	Resets Panel seals @ t=0	PCT EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
985	PAN SEAL	Resets Panel seals @ t=0	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
986	PAN SEAL	Resets Panel seals @ t=0	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
987	PAN SEAL	Resets Panel seals @ t=0	PORE DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
988	PAN SEAL	Resets Panel seals @ t=0	POROSITY	7.50E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
989	PAN SEAL	Resets Panel seals @ t=0	PRMX LOG	-1.50E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
990	PAN SEAL	Resets Panel seals @ t=0	PRMY LOG	-1.50E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
991	PAN SEAL	Resets Panel seals @ t=0	PRMZ LOG	-1.50E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
992	PAN SEAL	Resets Panel seals @ t=0	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
993	PAN SEAL	Resets Panel seals @ t=0	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
994	PAN SEAL	Resets Panel seals @ t=0	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
995	PAN SEAL	Resets Panel seals @ t=0	SAT IBRN	1.00E+00	Initial brine saturation @ t = -5 years	Used in ICSET	Database: CCA view 6
996	PAN SEAL	Resets Panel seals @ t=0	PERM X	1.00E-15	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
997	PAN SEAL	Resets Panel seals @ t=0	PERM Y	1.00E-15	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
998	PAN SEAL	Resets Panel seals @ t=0	PERM Z	1.00E-15	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
999	PAN SEAL	Resets Panel seals @ t=0	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,000	PAN SEAL	Resets Panel seals @ t=0	POR COMP	2.64E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,001	CLAY RUS	Clay seal in shaft across Rustler	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
1,002	CLAY RUS	Clay seal in shaft across Rustler	COMP RCK	1.96E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
1,003	CLAY RUS	Clay seal in shaft across Rustler	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
1,004	CLAY RUS	Clay seal in shaft across Rustler	PCT A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
1,005	CLAY RUS	Clay seal in shaft across Rustler	PCT EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
1,006	CLAY RUS	Clay seal in shaft across Rustler	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
1,007	CLAY RUS	Clay seal in shaft across Rustler	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Analyst: DM Staelzel
1,008	CLAY RUS	Clay seal in shaft across Rustler	PORE DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
1,009	CLAY RUS	Clay seal in shaft across Rustler	POROSITY	2.40E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
1,010	CLAY RUS	Clay seal in shaft across Rustler	PRMX LOG	-1.83E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
1,011	CLAY RUS	Clay seal in shaft across Rustler	PRMY LOG	-1.83E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
1,012	CLAY RUS	Clay seal in shaft across Rustler	PRMZ LOG	-1.83E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
1,013	CLAY RUS	Clay seal in shaft across Rustler	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
1,014	CLAY RUS	Clay seal in shaft across Rustler	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
1,015	CLAY RUS	Clay seal in shaft across Rustler	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
1,016	CLAY RUS	Clay seal in shaft across Rustler	SAT IBRN	7.90E-01	Initial brine saturation @ t = -5 years	Used in ICSET	Database: CCA view 6
1,017	CLAY RUS	Clay seal in shaft across Rustler	PERM X	5.00E-19	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,018	CLAY RUS	Clay seal in shaft across Rustler	PERM Y	5.00E-19	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,019	CLAY RUS	Clay seal in shaft across Rustler	PERM Z	5.00E-19	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,020	CLAY RUS	Clay seal in shaft across Rustler	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,021	CLAY RUS	Clay seal in shaft across Rustler	POR COMP	1.96E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,022	CL L T1	Clay seal in shaft: L Sai (0-50 yrs)	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
1,023	CL L T1	Clay seal in shaft: L Sai (0-50 yrs)	COMP RCK	1.59E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
1,024	CL L T1	Clay seal in shaft: L Sai (0-50 yrs)	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
1,025	CL L T1	Clay seal in shaft: L Sai (0-50 yrs)	PCT A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
1,026	CL L T1	Clay seal in shaft: L Sai (0-50 yrs)	PCT EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO_WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,027	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
1,028	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
1,029	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PORE_DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
1,030	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	POROSITY	2.40E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
1,031	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PRMX_LOG	-1.83E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
1,032	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PRMY_LOG	-1.83E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
1,033	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PRMZ_LOG	-1.83E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
1,034	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RELPMOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
1,035	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
1,036	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SAT_RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
1,037	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SAT_IBRN	7.90E-01	Initial brine saturation @ t = -5 years	Used in ICSET	Database: CCA view 6
1,038	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RSH_AIR	3.09E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,039	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RSH_SAL	1.80E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,040	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RSH_WAS	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,041	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RSH_EXH	2.30E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,042	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RADN_DRZ	1.86E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,043	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PERM_X	5.97E-19	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,044	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PERM_Y	5.97E-19	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,045	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PERM_Z	5.97E-19	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,046	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,047	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	POR_COMP	1.59E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,048	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	PX_SALT	3.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,049	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AKIS1	5.00E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,050	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AAS1	3.00E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,051	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ASS2	1.02E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,052	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AWS3	3.85E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,053	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AES4	1.66E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,054	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AST	9.53E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,055	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	RDF	2.45E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,056	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AAD1	7.36E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,057	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ASD2	2.50E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,058	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AWD3	9.44E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,059	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AED4	4.08E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,060	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ADR	2.65E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,061	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ANUM1	-5.82E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,062	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	DEN	9.35E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,063	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ATRM1	-1.97E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,064	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ANUM2	-3.25E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,065	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ATRM2	-1.74E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,066	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	AKDRZ	3.94E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,067	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SDR	1.54E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,068	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SNUM1	-3.39E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,069	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	STRM1	-1.15E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,070	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SNUM2	-1.89E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,071	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	STRM2	-1.01E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,072	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	SKDRZ	3.94E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,073	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	WDR	3.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,074	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	WNUM1	-6.59E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,075	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	WTRM1	-2.23E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,076	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	WNUM2	-3.68E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,077	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	WTRM2	-1.97E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,078	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	WKDRZ	3.94E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,079	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	EDR	1.97E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,080	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ENUM1	-4.33E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,081	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ETRM1	-1.46E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,082	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ENUM2	-2.42E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,083	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	ETRM2	-1.30E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,084	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	EKDRZ	3.94E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,085	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	KDAD	9.21E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,086	CL L T1	Clay seal in shaft: L Sal (0-50 yrs)	KMOD	5.97E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,087	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
1,088	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	COMP RCK	1.59E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
1,089	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
1,090	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PCT A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
1,091	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PCT EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
1,092	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
1,093	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
1,094	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	POR DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
1,095	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	POROSITY	2.40E-01	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
1,096	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PRMX LOG	-1.83E+01	Log x-direction permeability	Intermediate value	Database: CCA view 6
1,097	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PRMY LOG	-1.83E+01	Log y-direction permeability	Intermediate value	Database: CCA view 6
1,098	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PRMZ LOG	-1.83E+01	Log z-direction permeability (BRAGFLO required input)	Not used - 2D model	Database: CCA view 6
1,099	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
1,100	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
1,101	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
1,102	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	RSH AIR	3.09E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,103	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	RSH SAL	1.80E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,104	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	RSH WAS	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,105	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	RSH EXH	2.30E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,106	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	RADN DRZ	1.00E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,107	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PERM X	5.00E-19	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,108	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PERM Y	5.00E-19	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,109	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PERM Z	5.00E-19	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,110	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SB MIN	2.10E-01	Minimum saturation (SAT RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,111	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	POR COMP	1.59E-09	Pore compressibility COMP RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,112	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	PX SALT	3.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,113	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AKIS1	5.00E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,114	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AAS1	3.00E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,115	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ASS2	1.02E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,116	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AWS3	3.85E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,117	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AES4	1.66E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,118	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AST	9.53E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,119	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	RDF	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,120	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AAD1	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,121	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ASD2	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,122	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AWD3	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,123	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AED4	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,124	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ADR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,125	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ANUM1	-2.99E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,126	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	DEN	9.35E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,127	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ATRM1	-1.01E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,128	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ANUM2	-2.99E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,129	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ATRM2	-1.60E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,130	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	AKDRZ	5.17E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,131	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,132	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SNUM1	-1.74E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,133	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	STRM1	-5.89E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,134	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SNUM2	-1.74E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,135	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	STRM2	-9.31E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,136	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	SKDRZ	5.17E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,137	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	WDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,138	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	WNUM1	-3.38E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,139	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	WTRM1	-1.14E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,140	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	WNUM2	-3.38E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,141	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	WTRM2	-1.81E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,142	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	WKDRZ	5.17E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,143	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	EDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,144	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ENUM1	-2.22E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,145	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ETRM1	-7.52E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,146	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ENUM2	-2.22E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,147	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	ETRM2	-1.19E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,148	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	EKDRZ	5.17E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,149	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	KDAD	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,150	CL L T4	Cl seal in shaft: L Sal (50-10k yrs)	KMOD	5.00E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,151	SALT T1	Salt seal in shaft (0-50 yrs)	CAP_MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
1,152	SALT T1	Salt seal in shaft (0-50 yrs)	COMP_RCK	1.60E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
1,153	SALT T1	Salt seal in shaft (0-50 yrs)	PC_MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
1,154	SALT T1	Salt seal in shaft (0-50 yrs)	PCT_A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
1,155	SALT T1	Salt seal in shaft (0-50 yrs)	PCT_EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
1,156	SALT T1	Salt seal in shaft (0-50 yrs)	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
1,157	SALT T1	Salt seal in shaft (0-50 yrs)	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
1,158	SALT T1	Salt seal in shaft (0-50 yrs)	PORE_DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
1,159	SALT T1	Salt seal in shaft (0-50 yrs)	POROSITY	5.00E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
1,160	SALT T1	Salt seal in shaft (0-50 yrs)	REL_P_MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
1,161	SALT T1	Salt seal in shaft (0-50 yrs)	SAT_RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
1,162	SALT T1	Salt seal in shaft (0-50 yrs)	SAT_RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
1,163	SALT T1	Salt seal in shaft (0-50 yrs)	SAT_IBRN	3.20E-01	Initial brine saturation @ t = -5 years	Used in ICSET	Database: CCA view 6
1,164	SALT T1	Salt seal in shaft (0-50 yrs)	RSH_AIR	3.09E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,165	SALT T1	Salt seal in shaft (0-50 yrs)	RSH_SAL	1.80E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,166	SALT T1	Salt seal in shaft (0-50 yrs)	RSH_WAS	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,167	SALT T1	Salt seal in shaft (0-50 yrs)	RSH_EXH	2.30E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,168	SALT T1	Salt seal in shaft (0-50 yrs)	RADN_DRZ	1.81E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,169	SALT T1	Salt seal in shaft (0-50 yrs)	PMLT_MD	-1.48E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,170	SALT T1	Salt seal in shaft (0-50 yrs)	PMLT_LO	-1.73E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,171	SALT T1	Salt seal in shaft (0-50 yrs)	PMLT_HI	-1.23E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,172	SALT T1	Salt seal in shaft (0-50 yrs)	CUMPROB	5.00E-01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,173	SALT T1	Salt seal in shaft (0-50 yrs)	PERM_X	1.81E-15	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,174	SALT T1	Salt seal in shaft (0-50 yrs)	PERM_Y	1.81E-15	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,175	SALT T1	Salt seal in shaft (0-50 yrs)	PERM_Z	1.81E-15	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,176	SALT T1	Salt seal in shaft (0-50 yrs)	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,177	SALT T1	Salt seal in shaft (0-50 yrs)	POR_COMP	1.60E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,178	SALT T1	Salt seal in shaft (0-50 yrs)	PX_SALT	3.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,179	SALT T1	Salt seal in shaft (0-50 yrs)	AKIS1	1.65E-15	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,180	SALT T1	Salt seal in shaft (0-50 yrs)	AAS1	3.00E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,181	SALT T1	Salt seal in shaft (0-50 yrs)	ASS2	1.02E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,182	SALT T1	Salt seal in shaft (0-50 yrs)	AWS3	3.85E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,183	SALT T1	Salt seal in shaft (0-50 yrs)	AES4	1.66E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,184	SALT T1	Salt seal in shaft (0-50 yrs)	AST	9.53E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,185	SALT T1	Salt seal in shaft (0-50 yrs)	RDF	2.29E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,186	SALT T1	Salt seal in shaft (0-50 yrs)	AAD1	6.87E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,187	SALT T1	Salt seal in shaft (0-50 yrs)	ASD2	2.33E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,188	SALT T1	Salt seal in shaft (0-50 yrs)	AWD3	8.82E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,189	SALT T1	Salt seal in shaft (0-50 yrs)	AED4	3.81E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,190	SALT T1	Salt seal in shaft (0-50 yrs)	ADR	2.52E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,191	SALT T1	Salt seal in shaft (0-50 yrs)	ANUM1	-1.02E+02	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,192	SALT T1	Salt seal in shaft (0-50 yrs)	DEN	3.16E+02	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,193	SALT T1	Salt seal in shaft (0-50 yrs)	ATRM1	-1.02E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,194	SALT T1	Salt seal in shaft (0-50 yrs)	ANUM2	-5.74E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,195	SALT T1	Salt seal in shaft (0-50 yrs)	ATRM2	-3.00E-16	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,196	SALT T1	Salt seal in shaft (0-50 yrs)	AKDRZ	6.90E-17	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,197	SALT T1	Salt seal in shaft (0-50 yrs)	SDR	1.47E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,198	SALT T1	Salt seal in shaft (0-50 yrs)	SNUM1	-5.95E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,199	SALT T1	Salt seal in shaft (0-50 yrs)	STRM1	-5.96E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,200	SALT T1	Salt seal in shaft (0-50 yrs)	SNUM2	-3.35E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,201	SALT T1	Salt seal in shaft (0-50 yrs)	STRM2	-1.75E-16	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,202	SALT T1	Salt seal in shaft (0-50 yrs)	SKDRZ	6.90E-17	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,203	SALT T1	Salt seal in shaft (0-50 yrs)	WDR	2.85E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,204	SALT T1	Salt seal in shaft (0-50 yrs)	WNUM1	-1.16E+02	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,205	SALT T1	Salt seal in shaft (0-50 yrs)	WTRM1	-1.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,206	SALT T1	Salt seal in shaft (0-50 yrs)	WNUM2	-6.50E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,207	SALT T1	Salt seal in shaft (0-50 yrs)	WTRM2	-3.40E-16	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,208	SALT T1	Salt seal in shaft (0-50 yrs)	WKDRZ	6.90E-17	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,209	SALT T1	Salt seal in shaft (0-50 yrs)	EDR	1.87E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,210	SALT T1	Salt seal in shaft (0-50 yrs)	ENUM1	-7.60E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,211	SALT T1	Salt seal in shaft (0-50 yrs)	ETRM1	-7.61E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,212	SALT T1	Salt seal in shaft (0-50 yrs)	ENUM2	-4.27E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,213	SALT T1	Salt seal in shaft (0-50 yrs)	ETRM2	-2.23E-16	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,214	SALT T1	Salt seal in shaft (0-50 yrs)	EKDRZ	6.90E-17	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,215	SALT T1	Salt seal in shaft (0-50 yrs)	KDAD	1.51E-14	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,216	SALT T1	Salt seal in shaft (0-50 yrs)	KMOD	1.81E-15	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,217	SALT T1	Salt seal in shaft (0-50 yrs)	A	-1.73E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,218	SALT T1	Salt seal in shaft (0-50 yrs)	B	-1.48E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,219	SALT T1	Salt seal in shaft (0-50 yrs)	C	-1.23E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,220	SALT T4	Salt seal in shaft (50-100 yrs)	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
1,221	SALT T4	Salt seal in shaft (50-100 yrs)	COMP RCK	1.60E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
1,222	SALT T4	Salt seal in shaft (50-100 yrs)	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
1,223	SALT T4	Salt seal in shaft (50-100 yrs)	PCT A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
1,224	SALT T4	Salt seal in shaft (50-100 yrs)	PCT EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
1,225	SALT T4	Salt seal in shaft (50-100 yrs)	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
1,226	SALT T4	Salt seal in shaft (50-100 yrs)	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
1,227	SALT T4	Salt seal in shaft (50-100 yrs)	POR DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
1,228	SALT T4	Salt seal in shaft (50-100 yrs)	POROSITY	5.00E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
1,229	SALT T4	Salt seal in shaft (50-100 yrs)	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
1,230	SALT T4	Salt seal in shaft (50-100 yrs)	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
1,231	SALT T4	Salt seal in shaft (50-100 yrs)	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
1,232	SALT T4	Salt seal in shaft (50-100 yrs)	RSH AIR	3.09E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,233	SALT T4	Salt seal in shaft (50-100 yrs)	RSH SAL	1.80E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,234	SALT T4	Salt seal in shaft (50-100 yrs)	RSH WAS	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,235	SALT T4	Salt seal in shaft (50-100 yrs)	RSH EXH	2.30E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,236	SALT T4	Salt seal in shaft (50-100 yrs)	RADN DRZ	1.00E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,237	SALT T4	Salt seal in shaft (50-100 yrs)	PMLT MD	-1.72E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,238	SALT T4	Salt seal in shaft (50-100 yrs)	PMLT LO	-2.29E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,239	SALT T4	Salt seal in shaft (50-100 yrs)	PMLT HI	-1.40E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,240	SALT T4	Salt seal in shaft (50-100 yrs)	PERM X	6.83E-18	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,241	SALT T4	Salt seal in shaft (50-100 yrs)	PERM Y	6.83E-18	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,242	SALT T4	Salt seal in shaft (50-100 yrs)	PERM Z	6.83E-18	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,243	SALT T4	Salt seal in shaft (50-100 yrs)	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,244	SALT T4	Salt seal in shaft (50-100 yrs)	POR COMP	1.60E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,245	SALT T4	Salt seal in shaft (50-100 yrs)	PX_SALT	3.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,246	SALT T4	Salt seal in shaft (50-100 yrs)	AKIS1	6.83E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,247	SALT T4	Salt seal in shaft (50-100 yrs)	AAS1	3.00E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,248	SALT T4	Salt seal in shaft (50-100 yrs)	ASS2	1.02E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,249	SALT T4	Salt seal in shaft (50-100 yrs)	AW53	3.85E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,250	SALT T4	Salt seal in shaft (50-100 yrs)	AES4	1.66E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,251	SALT T4	Salt seal in shaft (50-100 yrs)	AST	9.53E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,252	SALT T4	Salt seal in shaft (50-100 yrs)	RDF	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,253	SALT T4	Salt seal in shaft (50-100 yrs)	AAD1	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,254	SALT T4	Salt seal in shaft (50-100 yrs)	ASD2	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO_WATFLD_BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,255	SALT T4	Salt seal in shaft (50-100 yrs)	AWD3	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,256	SALT T4	Salt seal in shaft (50-100 yrs)	AED4	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,257	SALT T4	Salt seal in shaft (50-100 yrs)	ADR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,258	SALT T4	Salt seal in shaft (50-100 yrs)	ANUM1	-3.80E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,259	SALT T4	Salt seal in shaft (50-100 yrs)	DEN	1.51E+02	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,260	SALT T4	Salt seal in shaft (50-100 yrs)	ATRM1	-7.96E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,261	SALT T4	Salt seal in shaft (50-100 yrs)	ANUM2	-3.80E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,262	SALT T4	Salt seal in shaft (50-100 yrs)	ATRM2	-1.72E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,263	SALT T4	Salt seal in shaft (50-100 yrs)	AKDRZ	5.56E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,264	SALT T4	Salt seal in shaft (50-100 yrs)	SDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,265	SALT T4	Salt seal in shaft (50-100 yrs)	SNUM1	-2.21E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,266	SALT T4	Salt seal in shaft (50-100 yrs)	STRM1	-4.63E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,267	SALT T4	Salt seal in shaft (50-100 yrs)	SNUM2	-2.21E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,268	SALT T4	Salt seal in shaft (50-100 yrs)	STRM2	-1.00E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,269	SALT T4	Salt seal in shaft (50-100 yrs)	SKDRZ	5.56E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,270	SALT T4	Salt seal in shaft (50-100 yrs)	WDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,271	SALT T4	Salt seal in shaft (50-100 yrs)	WNUM1	-4.30E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,272	SALT T4	Salt seal in shaft (50-100 yrs)	WTRM1	-9.01E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,273	SALT T4	Salt seal in shaft (50-100 yrs)	WNUM2	-4.30E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,274	SALT T4	Salt seal in shaft (50-100 yrs)	WTRM2	-1.95E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,275	SALT T4	Salt seal in shaft (50-100 yrs)	WKDRZ	5.56E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,276	SALT T4	Salt seal in shaft (50-100 yrs)	EDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,277	SALT T4	Salt seal in shaft (50-100 yrs)	ENUM1	-2.83E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,278	SALT T4	Salt seal in shaft (50-100 yrs)	ETRM1	-5.92E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,279	SALT T4	Salt seal in shaft (50-100 yrs)	ENUM2	-2.83E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,280	SALT T4	Salt seal in shaft (50-100 yrs)	ETRM2	-1.28E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,281	SALT T4	Salt seal in shaft (50-100 yrs)	EKDRZ	5.56E-19	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,282	SALT T4	Salt seal in shaft (50-100 yrs)	KDAD	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,283	SALT T4	Salt seal in shaft (50-100 yrs)	KMOD	6.83E-18	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,284	SALT T4	Salt seal in shaft (50-100 yrs)	A	-2.29E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,285	SALT T4	Salt seal in shaft (50-100 yrs)	B	-1.72E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,286	SALT T4	Salt seal in shaft (50-100 yrs)	C	-1.40E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,287	SALT T5	Salt seal in shaft (100-200 yrs)	CAP MOD	2.00E+00	Capillary Pressure Model Number	Required for BRAGFLO	Database: CCA view 6
1,288	SALT T5	Salt seal in shaft (100-200 yrs)	COMP RCK	1.60E-09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6
1,289	SALT T5	Salt seal in shaft (100-200 yrs)	PC MAX	1.00E+08	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6
1,290	SALT T5	Salt seal in shaft (100-200 yrs)	PCT A	5.60E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6
1,291	SALT T5	Salt seal in shaft (100-200 yrs)	PCT EXP	-3.46E-01	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6
1,292	SALT T5	Salt seal in shaft (100-200 yrs)	KPT	0.00E+00	Not used - placeholder	Not used	Database: CCA view 6
1,293	SALT T5	Salt seal in shaft (100-200 yrs)	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6
1,294	SALT T5	Salt seal in shaft (100-200 yrs)	PORE DIS	9.40E-01	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6
1,295	SALT T5	Salt seal in shaft (100-200 yrs)	POROSITY	5.00E-02	Porosity (fraction)	Required for BRAGFLO	Database: CCA view 6
1,296	SALT T5	Salt seal in shaft (100-200 yrs)	REL P MOD	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6
1,297	SALT T5	Salt seal in shaft (100-200 yrs)	SAT RBRN	2.00E-01	Residual Brine saturation	Required for BRAGFLO	Database: CCA view 6
1,298	SALT T5	Salt seal in shaft (100-200 yrs)	SAT RGAS	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6
1,299	SALT T5	Salt seal in shaft (100-200 yrs)	RSH AIR	3.09E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,300	SALT T5	Salt seal in shaft (100-200 yrs)	RSH SAL	1.80E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,301	SALT T5	Salt seal in shaft (100-200 yrs)	RSH WAS	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,302	SALT T5	Salt seal in shaft (100-200 yrs)	RSH EXH	2.30E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,303	SALT T5	Salt seal in shaft (100-200 yrs)	RADN DRZ	1.00E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,304	SALT T5	Salt seal in shaft (100-200 yrs)	PMLT MD	-1.93E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,305	SALT T5	Salt seal in shaft (100-200 yrs)	PMLT LO	-2.29E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,306	SALT T5	Salt seal in shaft (100-200 yrs)	PMLT HI	-1.54E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,307	SALT T5	Salt seal in shaft (100-200 yrs)	PERM X	5.27E-20	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,308	SALT T5	Salt seal in shaft (100-200 yrs)	PERM Y	5.27E-20	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,309	SALT T5	Salt seal in shaft (100-200 yrs)	PERM Z	5.27E-20	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,310	SALT T5	Salt seal in shaft (100-200 yrs)	SB MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,311	SALT T5	Salt seal in shaft (100-200 yrs)	POR COMP	1.60E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

Number	Material Name	Material Description	File Name: NI:INOBACK2.DMS WATERFLOOD.BRAGFLO.BRAGFLO.WATFLD.BASE01.R001.CDB	Property	Value	Property Value Description	Usage	Source
1,312	SALT T5	Salt seal in shaft (100-200 yrs)	PX_SALT	3.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,313	SALT T5	Salt seal in shaft (100-200 yrs)	AKIS1	5.27E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,314	SALT T5	Salt seal in shaft (100-200 yrs)	AAS1	3.00E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,315	SALT T5	Salt seal in shaft (100-200 yrs)	AAS2	1.02E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,316	SALT T5	Salt seal in shaft (100-200 yrs)	AWS3	3.85E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,317	SALT T5	Salt seal in shaft (100-200 yrs)	AES4	1.66E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,318	SALT T5	Salt seal in shaft (100-200 yrs)	AST	9.53E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,319	SALT T5	Salt seal in shaft (100-200 yrs)	ADF	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,320	SALT T5	Salt seal in shaft (100-200 yrs)	AAD1	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,321	SALT T5	Salt seal in shaft (100-200 yrs)	ASD2	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,322	SALT T5	Salt seal in shaft (100-200 yrs)	AWD3	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,323	SALT T5	Salt seal in shaft (100-200 yrs)	AED4	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,324	SALT T5	Salt seal in shaft (100-200 yrs)	ADR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,325	SALT T5	Salt seal in shaft (100-200 yrs)	ANUM1	-2.29E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,326	SALT T5	Salt seal in shaft (100-200 yrs)	DEN	5.50E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,327	SALT T5	Salt seal in shaft (100-200 yrs)	ATRM1	-1.32E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,328	SALT T5	Salt seal in shaft (100-200 yrs)	ANUM2	-2.29E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,329	SALT T5	Salt seal in shaft (100-200 yrs)	ATRM2	-2.29E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,330	SALT T5	Salt seal in shaft (100-200 yrs)	AKDR2	7.10E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,331	SALT T5	Salt seal in shaft (100-200 yrs)	SDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,332	SALT T5	Salt seal in shaft (100-200 yrs)	SNUM1	-1.34E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,333	SALT T5	Salt seal in shaft (100-200 yrs)	STRM1	-7.67E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,334	SALT T5	Salt seal in shaft (100-200 yrs)	SNUM2	-1.34E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,335	SALT T5	Salt seal in shaft (100-200 yrs)	STRM2	-1.28E+20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,336	SALT T5	Salt seal in shaft (100-200 yrs)	SKDR2	7.10E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,337	SALT T5	Salt seal in shaft (100-200 yrs)	WDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,338	SALT T5	Salt seal in shaft (100-200 yrs)	WNUM1	-2.60E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,339	SALT T5	Salt seal in shaft (100-200 yrs)	WTRM1	-1.49E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,340	SALT T5	Salt seal in shaft (100-200 yrs)	WNUM2	-2.60E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,341	SALT T5	Salt seal in shaft (100-200 yrs)	WTRM2	-2.49E+20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,342	SALT T5	Salt seal in shaft (100-200 yrs)	WKDR2	7.10E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,343	SALT T5	Salt seal in shaft (100-200 yrs)	EDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,344	SALT T5	Salt seal in shaft (100-200 yrs)	ENUM1	-1.71E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,345	SALT T5	Salt seal in shaft (100-200 yrs)	ETRM1	-9.80E-24	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,346	SALT T5	Salt seal in shaft (100-200 yrs)	ENUM2	-1.71E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,347	SALT T5	Salt seal in shaft (100-200 yrs)	ETRM2	-1.63E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,348	SALT T5	Salt seal in shaft (100-200 yrs)	EKDRZ	7.10E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,349	SALT T5	Salt seal in shaft (100-200 yrs)	KDAD	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,350	SALT T5	Salt seal in shaft (100-200 yrs)	5.27E-20	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated		
1,351	SALT T5	Salt seal in shaft (100-200 yrs)	A	-2.29E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,352	SALT T5	Salt seal in shaft (100-200 yrs)	B	-1.93E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,353	SALT T5	Salt seal in shaft (100-200 yrs)	C	-1.54E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated	
1,354	SALT T6	Salt seal in shaft (200-10,000 yrs)	CAP_MOD	2.00E+00	Capillary Pressure Model Number	Used in ALGEBRA	Calculated	
1,355	SALT T6	Salt seal in shaft (200-10,000 yrs)	COMP_RCK	1.60E+09	Rock compressibility (1/Pa)	Intermediate value	Database: CCA view 6	
1,356	SALT T6	Salt seal in shaft (200-10,000 yrs)	PC_MAX	5.60E-01	Max capillary pressure	Required for BRAGFLO	Database: CCA view 6	
1,357	SALT T6	Salt seal in shaft (200-10,000 yrs)	PCT_A	-3.46E-01	Capillary pressure multiplier (placeholder)	Not used	Database: CCA view 6	
1,358	SALT T6	Salt seal in shaft (200-10,000 yrs)	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not used	Database: CCA view 6	
1,359	SALT T6	Salt seal in shaft (200-10,000 yrs)	KPT	1.01E+05	Minimum Brine pressure	Not used	Database: CCA view 6	
1,360	SALT T6	Salt seal in shaft (200-10,000 yrs)	PO_MIN	9.40E-01	Minimum Brine pressure (same for all materials)	Required for BRAGFLO	Database: CCA view 6	
1,361	SALT T6	Salt seal in shaft (200-10,000 yrs)	PORE_DIS	5.00E-02	Pore distribution (fraction)	Required for BRAGFLO	Database: CCA view 6	
1,362	SALT T6	Salt seal in shaft (200-10,000 yrs)	POROSITY	4.00E+00	Relative permeability model number	Required for BRAGFLO	Database: CCA view 6	
1,363	SALT T6	Salt seal in shaft (200-10,000 yrs)	RELP_MOD	2.00E-01	Relative brine saturation	Required for BRAGFLO	Database: CCA view 6	
1,364	SALT T6	Salt seal in shaft (200-10,000 yrs)	SAT_RBRN	2.00E-01	Residual Gas saturation	Required for BRAGFLO	Database: CCA view 6	
1,365	SALT T6	Salt seal in shaft (200-10,000 yrs)	SAT_RGAS	3.09E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6	
1,366	SALT T6	Salt seal in shaft (200-10,000 yrs)	RSH_AIR	1.80E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6	
1,367	SALT T6	Salt seal in shaft (200-10,000 yrs)	RSH_SAL	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6	
1,368	SALT T6	Salt seal in shaft (200-10,000 yrs)	RSH_WAS	3.50E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6	

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,369	SALT T6	Salt seal in shaft (200-10,000 yrs)	RSH_EXH	2.30E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,370	SALT T6	Salt seal in shaft (200-10,000 yrs)	RADN_DRZ	1.00E+00	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,371	SALT T6	Salt seal in shaft (200-10,000 yrs)	PMLT_MD	-2.03E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,372	SALT T6	Salt seal in shaft (200-10,000 yrs)	PMLT_LO	-2.29E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,373	SALT T6	Salt seal in shaft (200-10,000 yrs)	PMLT_HI	-1.77E+01	Permeability modifiers for shaft: see Task 1 (WPO# 40514)	Used in ALGEBRA	Database: CCA view 6
1,374	SALT T6	Salt seal in shaft (200-10,000 yrs)	PERM_X	5.35E-21	X-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,375	SALT T6	Salt seal in shaft (200-10,000 yrs)	PERM_Y	5.35E-21	Y-direction permeability (m ²) from Log value	Required for BRAGFLO	Calculated
1,376	SALT T6	Salt seal in shaft (200-10,000 yrs)	PERM_Z	5.35E-21	Z-direction permeability (m ²) Not used in 2D	Required for BRAGFLO	Calculated
1,377	SALT T6	Salt seal in shaft (200-10,000 yrs)	SB_MIN	2.10E-01	Minimum saturation (SAT_RBRN * 1.05)	Required for BRAGFLO	Database: CCA view 6
1,378	SALT T6	Salt seal in shaft (200-10,000 yrs)	POR_COMP	1.60E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Required for BRAGFLO	Database: CCA view 6
1,379	SALT T6	Salt seal in shaft (200-10,000 yrs)	PX_SALT	3.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,380	SALT T6	Salt seal in shaft (200-10,000 yrs)	AKIS1	5.35E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,381	SALT T6	Salt seal in shaft (200-10,000 yrs)	AAS1	3.00E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,382	SALT T6	Salt seal in shaft (200-10,000 yrs)	ASS2	1.02E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,383	SALT T6	Salt seal in shaft (200-10,000 yrs)	AWS3	3.85E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,384	SALT T6	Salt seal in shaft (200-10,000 yrs)	AES4	1.66E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,385	SALT T6	Salt seal in shaft (200-10,000 yrs)	AST	9.53E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,386	SALT T6	Salt seal in shaft (200-10,000 yrs)	RDF	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,387	SALT T6	Salt seal in shaft (200-10,000 yrs)	AAD1	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,388	SALT T6	Salt seal in shaft (200-10,000 yrs)	ASD2	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,389	SALT T6	Salt seal in shaft (200-10,000 yrs)	AWD3	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,390	SALT T6	Salt seal in shaft (200-10,000 yrs)	AED4	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,391	SALT T6	Salt seal in shaft (200-10,000 yrs)	ADR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,392	SALT T6	Salt seal in shaft (200-10,000 yrs)	ANUM1	-1.59E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,393	SALT T6	Salt seal in shaft (200-10,000 yrs)	DEN	2.63E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,394	SALT T6	Salt seal in shaft (200-10,000 yrs)	ATRM1	-1.90E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,395	SALT T6	Salt seal in shaft (200-10,000 yrs)	ANUM2	-1.59E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,396	SALT T6	Salt seal in shaft (200-10,000 yrs)	ATRM2	-3.22E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,397	SALT T6	Salt seal in shaft (200-10,000 yrs)	AKDRZ	1.04E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,398	SALT T6	Salt seal in shaft (200-10,000 yrs)	SDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,399	SALT T6	Salt seal in shaft (200-10,000 yrs)	SNUM1	-9.24E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,400	SALT T6	Salt seal in shaft (200-10,000 yrs)	STRM1	-1.11E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,401	SALT T6	Salt seal in shaft (200-10,000 yrs)	SNUM2	-9.24E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,402	SALT T6	Salt seal in shaft (200-10,000 yrs)	STRM2	-1.88E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,403	SALT T6	Salt seal in shaft (200-10,000 yrs)	SKDRZ	1.04E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,404	SALT T6	Salt seal in shaft (200-10,000 yrs)	WDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,405	SALT T6	Salt seal in shaft (200-10,000 yrs)	WNUM1	-1.80E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,406	SALT T6	Salt seal in shaft (200-10,000 yrs)	WTRM1	-2.16E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,407	SALT T6	Salt seal in shaft (200-10,000 yrs)	WNUM2	-1.80E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,408	SALT T6	Salt seal in shaft (200-10,000 yrs)	WTRM2	-3.65E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,409	SALT T6	Salt seal in shaft (200-10,000 yrs)	WKDRZ	1.04E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,410	SALT T6	Salt seal in shaft (200-10,000 yrs)	EDR	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,411	SALT T6	Salt seal in shaft (200-10,000 yrs)	ENUM1	-1.18E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,412	SALT T6	Salt seal in shaft (200-10,000 yrs)	ETRM1	-1.42E-23	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,413	SALT T6	Salt seal in shaft (200-10,000 yrs)	ENUM2	-1.18E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,414	SALT T6	Salt seal in shaft (200-10,000 yrs)	ETRM2	-2.40E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,415	SALT T6	Salt seal in shaft (200-10,000 yrs)	EKDRZ	1.04E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,416	SALT T6	Salt seal in shaft (200-10,000 yrs)	KDAD	0.00E+00	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,417	SALT T6	Salt seal in shaft (200-10,000 yrs)	KMOD	5.35E-21	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,418	SALT T6	Salt seal in shaft (200-10,000 yrs)	A	-2.29E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,419	SALT T6	Salt seal in shaft (200-10,000 yrs)	B	-2.03E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,420	SALT T6	Salt seal in shaft (200-10,000 yrs)	C	-1.77E+01	Temporary variable to modify shaft properties (Task 1 WPO# 40514)	Used in ALGEBRA	Calculated
1,421	BRINESAL	Salado Brine	DNSFLUID	1.22E+03	Density (kg/m ³)	BRAGFLO input	Database: CCA view 6
1,422	BRINESAL	Salado Brine	WTF	3.24E-01	Salinity	BRAGFLO input	Database: CCA view 6
1,423	BRINESAL	Salado Brine	COMPRES	3.10E-10	Fluid compressibility (1/Pa)	BRAGFLO input	Database: CCA view 6
1,424	BRINESAL	Salado Brine	VISCO	2.10E-03	Brine viscosity (Pa-s)	BRAGFLO input	Database: CCA view 6
1,425	BRINESAL	Salado Brine	REF_TEMP	3.00E+02	Brine reference temperature (deg Kelvin)	BRAGFLO input	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01_R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,426	BRINESAL	Salado Brine	REF PRES	1.01E+05	Brine reference pressure (Pa)	BRAGFLO input	Database: CCA view 6
1,427	BRINESAL	Salado Brine	COMP	3.10E-10	Set equal to compressibility: COMP = COMPRES (1/Pa)	BRAGFLO key word	Calculated
1,428	H2	Hydrogen gas	VISCO	8.93E-06	Gas viscosity (Pa-s)	BRAGFLO key word	Database: CCA view 6
1,429	SULFATE	Sulfate	QINIT	6.59E+06	Initial Moles of Sulfate for reaction chemistry model	Used in ALGEBRA	Database: CCA view 6
1,430	NITRATE	Nitrate	QINIT	2.61E+07	Initial Moles of Sulfate for reaction chemistry model	Used in ALGEBRA	Database: CCA view 6
1,431	STEEL	Steel properties	CORRMCO2	7.94E-15	INUNDATED STEEL CORROSION RATE [M/SEC] WITHOUT microb	ALGEBRA: Chem mod	Database: CCA view 6
1,432	STEEL	Steel properties	CORRWCO2	1.03E-13	INUNDATED STEEL CORROSION RATE [M/SEC] WITH microbes	ALGEBRA: Chem mod	Database: CCA view 6
1,433	STEEL	Steel properties	HUMCORR	0.00E+00	HUMID STEEL CORROSION RATE	ALGEBRA: Chem mod	Database: CCA view 6
1,434	STEEL	Steel properties	STOIFX	1.00E+00	IRON-CORROSION STOICHIOMETRIC FACTOR (Y.WANG MEMO)	ALGEBRA: Chem mod	Database: CCA view 6
1,435	CELLULS	Cellulosics property	FBETA	5.00E-01	Stoichiometry factor used in Reaction Chemistry model	ALGEBRA: Chem mod	Database: CCA view 6
1,436	REFCON	Reference props or conversions	GRAVACC	9.81E+00	Acceleration due to gravity	ALGEBRA: Chem mod	Database: CCA view 6
1,437	REFCON	Reference props or conversions	PI	3.14E+00	constant PI	ALGEBRA: Chem mod	Database: CCA view 6
1,438	REFCON	Reference props or conversions	VPANLEX	4.61E+04	Conversion used in gas generation rates (see task 1 WPO# 40514)	ALGEBRA: Chem mod	Database: CCA view 6
1,439	REFCON	Reference props or conversions	VROOM	3.64E+03	Conversion used in gas generation rates (see task 1 WPO# 40514)	ALGEBRA: Chem mod	Database: CCA view 6
1,440	REFCON	Reference props or conversions	VREPOS	4.36E+05	Conversion used in gas generation rates (see task 1 WPO# 40514)	ALGEBRA: Chem mod	Database: CCA view 6
1,441	REFCON	Reference props or conversions	DRROOM	6.80E+03	Conversion used in gas generation rates (see task 1 WPO# 40514)	ALGEBRA: Chem mod	Database: CCA view 6
1,442	REFCON	Reference props or conversions	YRSEC	3.16E+07	Years to seconds conversion	ALGEBRA: Chem mod	Database: CCA view 6
1,443	REFCON	Reference props or conversions	SECYR	3.17E-08	Seconds to year conversion	ALGEBRA: Chem mod	Database: CCA view 6
1,444	REFCON	Reference props or conversions	ASDRUM	6.00E+00	Conversion used in gas generation rates (see task 1 WPO# 40514)	ALGEBRA: Chem mod	Database: CCA view 6
1,445	REFCON	Reference props or conversions	ATMPA	1.01E+05	Atmospheric pressure (Pa)	ALGEBRA: Chem mod	Database: CCA view 6
1,446	BH_SUR A	Abandoned Borehole @ surface	CAP MOD	1.00E+00	Capillary Pressure Model Number (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,447	BH_SUR A	Abandoned Borehole @ surface	COMP RCK	0.00E+00	Rock compressibility (1/Pa) (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,448	BH_SUR A	Abandoned Borehole @ surface	PC MAX	1.00E+08	Max capillary pressure (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,449	BH_SUR A	Abandoned Borehole @ surface	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	Not Used	Analyst: DM Stoelzel
1,450	BH_SUR A	Abandoned Borehole @ surface	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not Used	Analyst: DM Stoelzel
1,451	BH_SUR A	Abandoned Borehole @ surface	KPT	0.00E+00	Not used - placeholder	Not Used	Analyst: DM Stoelzel
1,452	BH_SUR A	Abandoned Borehole @ surface	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,453	BH_SUR A	Abandoned Borehole @ surface	POR DIS	9.40E-01	Pore distribution (fraction) (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,454	BH_SUR A	Abandoned Borehole @ surface	POROSITY	3.20E-01	Porosity (fraction) (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,455	BH_SUR A	Abandoned Borehole @ surface	REL P MOD	4.00E+00	Relative permeability model number (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,456	BH_SUR A	Abandoned Borehole @ surface	SAT RBRN	0.00E+00	Residual Brine saturation (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,457	BH_SUR A	Abandoned Borehole @ surface	SAT RGAS	0.00E+00	Residual Gas saturation (same as BH_SAND)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,458	BH_SUR A	Abandoned Borehole @ surface	PRMY MUL	2.04E+00	Y direction permeability multiplier	Borehole props @ Rustler	Analyst: DM Stoelzel
1,459	BH_SUR A	Abandoned Borehole @ surface	PERM X	3.16E-13	X-direction permeability (m ²)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,460	BH_SUR A	Abandoned Borehole @ surface	PERM Y	6.45E-13	Y-direction permeability (m ²)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,461	BH_SUR A	Abandoned Borehole @ surface	PERM Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	Borehole props @ Rustler	Analyst: DM Stoelzel
1,462	BH_SUR A	Abandoned Borehole @ surface	SB MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,463	BH_SUR A	Abandoned Borehole @ surface	POR COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,464	BH_SUR L	Leaky Borehole @ surface	CAP MOD	1.00E+00	Capillary Pressure Model Number (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,465	BH_SUR L	Leaky Borehole @ surface	COMP RCK	0.00E+00	Rock compressibility (1/Pa) (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,466	BH_SUR L	Leaky Borehole @ surface	PC MAX	1.00E+08	Max capillary pressure (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,467	BH_SUR L	Leaky Borehole @ surface	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	Not Used	Analyst: DM Stoelzel
1,468	BH_SUR L	Leaky Borehole @ surface	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not Used	Analyst: DM Stoelzel
1,469	BH_SUR L	Leaky Borehole @ surface	KPT	0.00E+00	Not used - placeholder	Not Used	Analyst: DM Stoelzel
1,470	BH_SUR L	Leaky Borehole @ surface	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,471	BH_SUR L	Leaky Borehole @ surface	POR DIS	9.40E-01	Pore distribution (fraction) (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,472	BH_SUR L	Leaky Borehole @ surface	POROSITY	3.20E-01	Porosity (fraction) (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,473	BH_SUR L	Leaky Borehole @ surface	REL P MOD	4.00E+00	Relative permeability model number (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,474	BH_SUR L	Leaky Borehole @ surface	SAT RBRN	0.00E+00	Residual Brine saturation (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,475	BH_SUR L	Leaky Borehole @ surface	SAT RGAS	0.00E+00	Residual Gas saturation (same as BH_OPEN)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,476	BH_SUR L	Leaky Borehole @ surface	PRMY MUL	8.49E-01	Y direction permeability multiplier	Borehole props @ Rustler	Analyst: DM Stoelzel
1,477	BH_SUR L	Leaky Borehole @ surface	PERM X	3.16E-13	X-direction permeability (m ²)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,478	BH_SUR L	Leaky Borehole @ surface	PERM Y	2.68E-13	Y-direction permeability (m ²)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,479	BH_SUR L	Leaky Borehole @ surface	PERM Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	Borehole props @ Rustler	Analyst: DM Stoelzel
1,480	BH_SUR L	Leaky Borehole @ surface	SB MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,481	BH_SUR L	Leaky Borehole @ surface	POR COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Borehole props @ Rustler	Analyst: DM Stoelzel
1,482	BH_SLT A	Abandoned Borehole @ salt	CAP MOD	1.00E+00	Capillary Pressure Model Number (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoelzel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1.483	BH SLT A	Abandoned Borehole @ salt	COMP_RCK	0.00E+00	Rock compressibility (1/Pa) (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.484	BH SLT A	Abandoned Borehole @ salt	PC_MAX	1.00E+08	Max capillary pressure (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.485	BH SLT A	Abandoned Borehole @ salt	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not Used	Analyst: DM Stoezel
1.486	BH SLT A	Abandoned Borehole @ salt	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not Used	Analyst: DM Stoezel
1.487	BH SLT A	Abandoned Borehole @ salt	KPT	0.00E+00	Not used - placeholder	Not Used	Analyst: DM Stoezel
1.488	BH SLT A	Abandoned Borehole @ salt	PO_MIN	1.01E+05	Minimum Brine pressure (same as all materials)	Borehole props @ salt	Analyst: DM Stoezel
1.489	BH SLT A	Abandoned Borehole @ salt	PORE_DIS	3.20E-01	Porosity (fraction) (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.490	BH SLT A	Abandoned Borehole @ salt	POROSITY	3.20E-01	Porosity (fraction) (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.491	BH SLT A	Abandoned Borehole @ salt	REL_MOD	4.00E+00	Relative permeability model number (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.492	BH SLT A	Abandoned Borehole @ salt	SAT_RBRN	0.00E+00	Residual Brine saturation (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.493	BH SLT A	Abandoned Borehole @ salt	SAT_RGAS	0.00E+00	Residual Gas saturation (same as BH_SAND)	Borehole props @ salt	Analyst: DM Stoezel
1.494	BH SLT A	Abandoned Borehole @ salt	PRMY_MUL	1.00E+00	Y direction permeability multiplier	Borehole props @ salt	Analyst: DM Stoezel
1.495	BH SLT A	Abandoned Borehole @ salt	PERM_X	3.16E-13	X-direction permeability (m ²)	Borehole props @ salt	Analyst: DM Stoezel
1.496	BH SLT A	Abandoned Borehole @ salt	PERM_Y	3.16E-13	Y-direction permeability (m ²)	Borehole props @ salt	Analyst: DM Stoezel
1.497	BH SLT A	Abandoned Borehole @ salt	PERM_Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	Borehole props @ salt	Analyst: DM Stoezel
1.498	BH SLT A	Abandoned Borehole @ salt	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Borehole props @ salt	Analyst: DM Stoezel
1.499	BH SLT A	Abandoned Borehole @ salt	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Borehole props @ salt	Analyst: DM Stoezel
1.500	BH SLT A	Abandoned Borehole @ salt	CAP_MOD	1.00E+00	Capillary Pressure Model Number (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.501	BH SLT L	Leaky Borehole @ salt	COMP_RCK	0.00E+00	Rock compressibility (1/Pa) (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.502	BH SLT L	Leaky Borehole @ salt	PC_MAX	1.00E+08	Max capillary pressure (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.503	BH SLT L	Leaky Borehole @ salt	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not Used	Analyst: DM Stoezel
1.504	BH SLT L	Leaky Borehole @ salt	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not Used	Analyst: DM Stoezel
1.505	BH SLT L	Leaky Borehole @ salt	KPT	0.00E+00	Not used - placeholder	Not Used	Analyst: DM Stoezel
1.506	BH SLT L	Leaky Borehole @ salt	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Borehole props @ salt	Analyst: DM Stoezel
1.507	BH SLT L	Leaky Borehole @ salt	PORE_DIS	9.40E-01	Pore distribution (fraction) (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.508	BH SLT L	Leaky Borehole @ salt	POROSITY	3.20E-01	Porosity (fraction) (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.509	BH SLT L	Leaky Borehole @ salt	REL_MOD	4.00E+00	Relative permeability model number (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.510	BH SLT L	Leaky Borehole @ salt	SAT_RBRN	0.00E+00	Residual Brine saturation (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.511	BH SLT L	Leaky Borehole @ salt	SAT_RGAS	0.00E+00	Residual Gas saturation (same as BH_OPEN)	Borehole props @ salt	Analyst: DM Stoezel
1.512	BH SLT L	Leaky Borehole @ salt	PRMY_MUL	3.83E-01	Y direction permeability multiplier	Borehole props @ salt	Analyst: DM Stoezel
1.513	BH SLT L	Leaky Borehole @ salt	PERM_X	3.16E-13	X-direction permeability (m ²)	Borehole props @ salt	Analyst: DM Stoezel
1.514	BH SLT L	Leaky Borehole @ salt	PERM_Y	1.21E-13	Y-direction permeability (m ²)	Borehole props @ salt	Analyst: DM Stoezel
1.515	BH SLT L	Leaky Borehole @ salt	PERM_Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	Borehole props @ salt	Analyst: DM Stoezel
1.516	BH SLT L	Leaky Borehole @ salt	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Borehole props @ salt	Analyst: DM Stoezel
1.517	BH SLT L	Leaky Borehole @ salt	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Borehole props @ salt	Analyst: DM Stoezel
1.518	BH LOW A	Abandoned Borehole @ U Bell C	CAP_MOD	1.00E+00	Capillary Pressure Model Number (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.519	BH LOW A	Abandoned Borehole @ U Bell C	COMP_RCK	0.00E+00	Rock compressibility (1/Pa) (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.520	BH LOW A	Abandoned Borehole @ U Bell C	PC_MAX	1.00E+08	Max capillary pressure (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.521	BH LOW A	Abandoned Borehole @ U Bell C	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not Used	Analyst: DM Stoezel
1.522	BH LOW A	Abandoned Borehole @ U Bell C	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not Used	Analyst: DM Stoezel
1.523	BH LOW A	Abandoned Borehole @ U Bell C	KPT	0.00E+00	Not used - placeholder	Not Used	Analyst: DM Stoezel
1.524	BH LOW A	Abandoned Borehole @ U Bell C	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.525	BH LOW A	Abandoned Borehole @ U Bell C	PORE_DIS	9.40E-01	Pore distribution (fraction) (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.526	BH LOW A	Abandoned Borehole @ U Bell C	POROSITY	3.20E-01	Porosity (fraction) (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.527	BH LOW A	Abandoned Borehole @ U Bell C	REL_MOD	4.00E+00	Relative permeability model number (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.528	BH LOW A	Abandoned Borehole @ U Bell C	SAT_RBRN	0.00E+00	Residual Brine saturation (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.529	BH LOW A	Abandoned Borehole @ U Bell C	SAT_RGAS	0.00E+00	Residual Gas saturation (same as BH_SAND)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.530	BH LOW A	Abandoned Borehole @ U Bell C	PRMY_MUL	2.40E-01	Y direction permeability multiplier	Borehole props @ U Bell C	Analyst: DM Stoezel
1.531	BH LOW A	Abandoned Borehole @ U Bell C	PERM_X	3.16E-13	X-direction permeability (m ²)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.532	BH LOW A	Abandoned Borehole @ U Bell C	PERM_Y	7.99E-14	Y-direction permeability (m ²)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.533	BH LOW A	Abandoned Borehole @ U Bell C	PERM_Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	Borehole props @ U Bell C	Analyst: DM Stoezel
1.534	BH LOW A	Abandoned Borehole @ U Bell C	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.535	BH LOW A	Abandoned Borehole @ U Bell C	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.536	BH LOW L	Leaky Borehole @ U Bell C	CAP_MOD	1.00E+00	Capillary Pressure Model Number (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.537	BH LOW L	Leaky Borehole @ U Bell C	COMP_RCK	0.00E+00	Rock compressibility (1/Pa) (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.538	BH LOW L	Leaky Borehole @ U Bell C	PC_MAX	1.00E+08	Max capillary pressure (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoezel
1.539	BH LOW L	Leaky Borehole @ U Bell C	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	Not Used	Analyst: DM Stoezel

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,540	BH LOW L	Leaky Borehole @ U Bell C	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	Not Used	Analyst: DM Stoelzel
1,541	BH LOW L	Leaky Borehole @ U Bell C	KPT	0.00E+00	Not used - placeholder	Not Used	Analyst: DM Stoelzel
1,542	BH LOW L	Leaky Borehole @ U Bell C	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,543	BH LOW L	Leaky Borehole @ U Bell C	PORE_DIS	9.40E-01	Pore distribution (fraction) (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,544	BH LOW L	Leaky Borehole @ U Bell C	POROSITY	3.20E-01	Porosity (fraction) (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,545	BH LOW L	Leaky Borehole @ U Bell C	REL_PMOD	4.00E+00	Relative permeability model number (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,546	BH LOW L	Leaky Borehole @ U Bell C	SAT_RBRN	0.00E+00	Residual Brine saturation (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,547	BH LOW L	Leaky Borehole @ U Bell C	SAT_RGAS	0.00E+00	Residual Gas saturation (same as BH_OPEN)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,548	BH LOW L	Leaky Borehole @ U Bell C	PRMY_MUL	1.05E-01	Y direction permeability multiplier	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,549	BH LOW L	Leaky Borehole @ U Bell C	PERM_X	3.16E-13	X-direction permeability (m ²)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,550	BH LOW L	Leaky Borehole @ U Bell C	PERM_Y	3.32E-14	Y-direction permeability (m ²)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,551	BH LOW L	Leaky Borehole @ U Bell C	PERM_Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,552	BH LOW L	Leaky Borehole @ U Bell C	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,553	BH LOW L	Leaky Borehole @ U Bell C	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	Borehole props @ U Bell C	Analyst: DM Stoelzel
1,554	CONC PLG	Concrete Plug	CAP_MOD	1.00E+00	Capillary Pressure Model Number	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,555	CONC PLG	Concrete Plug	COMP_RCK	1.20E-09	Rock compressibility (1/Pa)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,556	CONC PLG	Concrete Plug	PC_MAX	1.00E+08	Max capillary pressure	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,557	CONC PLG	Concrete Plug	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,558	CONC PLG	Concrete Plug	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,559	CONC PLG	Concrete Plug	KPT	0.00E+00	Not used - placeholder	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,560	CONC PLG	Concrete Plug	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,561	CONC PLG	Concrete Plug	PORE_DIS	9.40E-01	Pore distribution (fraction)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,562	CONC PLG	Concrete Plug	POROSITY	3.20E-01	Porosity (fraction)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,563	CONC PLG	Concrete Plug	PRMX_LOG	-1.63E+01	Log x-direction permeability	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,564	CONC PLG	Concrete Plug	PRMY_LOG	-1.63E+01	Log y-direction permeability	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,565	CONC PLG	Concrete Plug	PRMZ_LOG	-1.63E+01	Log z-direction permeability (BRAGFLO required input)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,566	CONC PLG	Concrete Plug	REL_PMOD	4.00E+00	Relative permeability model number	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,567	CONC PLG	Concrete Plug	SAT_RBRN	0.00E+00	Residual Brine saturation	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,568	CONC PLG	Concrete Plug	SAT_RGAS	0.00E+00	Residual Gas saturation	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,569	CONC PLG	Concrete Plug	PERM_X	5.00E-17	X-direction permeability (m ²) from Log value	U Bell & Rustler: 50-250 yrs	Calculated
1,570	CONC PLG	Concrete Plug	PERM_Y	5.00E-17	Y-direction permeability (m ²) from Log value	U Bell & Rustler: 50-250 yrs	Calculated
1,571	CONC PLG	Concrete Plug	PERM_Z	5.00E-17	Z-direction permeability (m ²) Not used in 2D	U Bell & Rustler: 50-250 yrs	Calculated
1,572	CONC PLG	Concrete Plug	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,573	CONC PLG	Concrete Plug	POR_COMP	1.20E-09	Pore compressibility COMP_RCK/POROSITY (1/Pa)	U Bell & Rustler: 50-250 yrs	Database: CCA view 6
1,574	BH_OPEN	Open or channel borehole props	CAP_MOD	1.00E+00	Capillary Pressure Model Number	For leaky boreholes	Database: CCA view 6
1,575	BH_OPEN	Open or channel borehole props	COMP_RCK	0.00E+00	Rock compressibility (1/Pa)	For leaky boreholes	Database: CCA view 6
1,576	BH_OPEN	Open or channel borehole props	PC_MAX	1.00E+08	Max capillary pressure	For leaky boreholes	Database: CCA view 6
1,577	BH_OPEN	Open or channel borehole props	PCT_A	0.00E+00	Capillary pressure multiplier (placeholder)	For leaky boreholes	Database: CCA view 6
1,578	BH_OPEN	Open or channel borehole props	PCT_EXP	0.00E+00	Capillary pressure exponent (placeholder)	For leaky boreholes	Database: CCA view 6
1,579	BH_OPEN	Open or channel borehole props	KPT	0.00E+00	Not used - placeholder	For leaky boreholes	Database: CCA view 6
1,580	BH_OPEN	Open or channel borehole props	PO_MIN	1.01E+05	Minimum Brine pressure (same for all materials)	For leaky boreholes	Database: CCA view 6
1,581	BH_OPEN	Open or channel borehole props	PORE_DIS	7.00E-01	Pore distribution (fraction)	For leaky boreholes	Database: CCA view 6
1,582	BH_OPEN	Open or channel borehole props	POROSITY	3.20E-01	Porosity (fraction)	For leaky boreholes	Database: CCA view 6
1,583	BH_OPEN	Open or channel borehole props	PRMX_LOG	-9.00E+00	Log x-direction permeability	For leaky boreholes	Database: CCA view 6
1,584	BH_OPEN	Open or channel borehole props	PRMY_LOG	-9.00E+00	Log y-direction permeability	For leaky boreholes	Database: CCA view 6
1,585	BH_OPEN	Open or channel borehole props	PRMZ_LOG	-9.00E+00	Log z-direction permeability (BRAGFLO required input)	For leaky boreholes	Database: CCA view 6
1,586	BH_OPEN	Open or channel borehole props	REL_PMOD	5.00E+00	Relative permeability model number	For leaky boreholes	Database: CCA view 6
1,587	BH_OPEN	Open or channel borehole props	SAT_RBRN	0.00E+00	Residual Brine saturation	For leaky boreholes	Database: CCA view 6
1,588	BH_OPEN	Open or channel borehole props	SAT_RGAS	0.00E+00	Residual Gas saturation	For leaky boreholes	Database: CCA view 6
1,589	BH_OPEN	Open or channel borehole props	PERM_X	1.00E-09	X-direction permeability (m ²) from Log value	For leaky boreholes	Calculated
1,590	BH_OPEN	Open or channel borehole props	PERM_Y	1.00E-09	Y-direction permeability (m ²) from Log value	For leaky boreholes	Calculated
1,591	BH_OPEN	Open or channel borehole props	PERM_Z	1.00E-09	Z-direction permeability (m ²) Not used in 2D	For leaky boreholes	Calculated
1,592	BH_OPEN	Open or channel borehole props	SB_MIN	0.00E+00	Minimum saturation (SAT_RBRN * 1.05)	For leaky boreholes	Database: CCA view 6
1,593	BH_OPEN	Open or channel borehole props	POR_COMP	0.00E+00	Pore compressibility COMP_RCK/POROSITY (1/Pa)	For leaky boreholes	Database: CCA view 6
1,594	BH_SAND	Sand-filled Borehole properties	CAP_MOD	1.00E+00	Capillary Pressure Model Number	For abandoned boreholes	Database: CCA view 6
1,595	BH_SAND	Sand-filled Borehole properties	COMP_RCK	0.00E+00	Rock compressibility (1/Pa)	For abandoned boreholes	Database: CCA view 6
1,596	BH_SAND	Sand-filled Borehole properties	PC_MAX	1.00E+08	Max capillary pressure	For abandoned boreholes	Database: CCA view 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix B -- Listing of All Parameters

File Name: N1:\NOBACK2.DMS WATERFLOOD.BRAGFLO\BRAGFLO WATFLD BASE01 R001.CDB							
Number	Material Name	Material Description	Property	Value	Property Value Description	Usage	Source
1,597	BH SAND	Sand-filled Borehole properties	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	For abandoned boreholes	Database: CCA view 6
1,598	BH SAND	Sand-filled Borehole properties	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	For abandoned boreholes	Database: CCA view 6
1,599	BH SAND	Sand-filled Borehole properties	KPT	0.00E+00	Not used - placeholder	For abandoned boreholes	Database: CCA view 6
1,600	BH SAND	Sand-filled Borehole properties	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	For abandoned boreholes	Database: CCA view 6
1,601	BH SAND	Sand-filled Borehole properties	PORE DIS	9.40E-01	Pore distribution (fraction)	For abandoned boreholes	Database: CCA view 6
1,602	BH SAND	Sand-filled Borehole properties	POROSITY	3.20E-01	Porosity (fraction)	For abandoned boreholes	Database: CCA view 6
1,603	BH SAND	Sand-filled Borehole properties	PRMX LOG	-1.25E+01	Log x-direction permeability	For abandoned boreholes	Database: CCA view 6
1,604	BH SAND	Sand-filled Borehole properties	PRMY LOG	-1.25E+01	Log y-direction permeability	For abandoned boreholes	Database: CCA view 6
1,605	BH SAND	Sand-filled Borehole properties	PRMZ LOG	-1.25E+01	Log z-direction permeability (BRAGFLO required input)	For abandoned boreholes	Database: CCA view 6
1,606	BH SAND	Sand-filled Borehole properties	REL P MOD	4.00E+00	Relative permeability model number	For abandoned boreholes	Database: CCA view 6
1,607	BH SAND	Sand-filled Borehole properties	SAT RBRN	0.00E+00	Residual Brine saturation	For abandoned boreholes	Database: CCA view 6
1,608	BH SAND	Sand-filled Borehole properties	SAT RGAS	0.00E+00	Residual Gas saturation	For abandoned boreholes	Database: CCA view 6
1,609	BH SAND	Sand-filled Borehole properties	PERM X	3.16E-13	X-direction permeability (m ²) from Log value	For abandoned boreholes	Calculated
1,610	BH SAND	Sand-filled Borehole properties	PERM Y	3.16E-13	Y-direction permeability (m ²) from Log value	For abandoned boreholes	Calculated
1,611	BH SAND	Sand-filled Borehole properties	PERM Z	3.16E-13	Z-direction permeability (m ²) Not used in 2D	For abandoned boreholes	Calculated
1,612	BH SAND	Sand-filled Borehole properties	SB MIN	0.00E+00	Minimum saturation (SAT RBRN * 1.05)	For abandoned boreholes	Database: CCA view 6
1,613	BH SAND	Sand-filled Borehole properties	POR COMP	0.00E+00	Pore compressibility COMP RCK/POROSITY (1/Pa)	For abandoned boreholes	Database: CCA view 6
1,614	BH CREEP	BH props for lower part after 1k yrs	CAP MOD	1.00E+00	Capillary Pressure Model Number	Salt creep portion of BH	Database: CCA view 6
1,615	BH CREEP	BH props for lower part after 1k yrs	COMP RCK	0.00E+00	Rock compressibility (1/Pa)	Salt creep portion of BH	Database: CCA view 6
1,616	BH CREEP	BH props for lower part after 1k yrs	PC MAX	1.00E+08	Max capillary pressure	Salt creep portion of BH	Database: CCA view 6
1,617	BH CREEP	BH props for lower part after 1k yrs	PCT A	0.00E+00	Capillary pressure multiplier (placeholder)	Salt creep portion of BH	Database: CCA view 6
1,618	BH CREEP	BH props for lower part after 1k yrs	PCT EXP	0.00E+00	Capillary pressure exponent (placeholder)	Salt creep portion of BH	Database: CCA view 6
1,619	BH CREEP	BH props for lower part after 1k yrs	KPT	0.00E+00	Not used - placeholder	Salt creep portion of BH	Database: CCA view 6
1,620	BH CREEP	BH props for lower part after 1k yrs	PO MIN	1.01E+05	Minimum Brine pressure (same for all materials)	Salt creep portion of BH	Database: CCA view 6
1,621	BH CREEP	BH props for lower part after 1k yrs	PORE DIS	9.40E-01	Pore distribution (fraction)	Salt creep portion of BH	Database: CCA view 6
1,622	BH CREEP	BH props for lower part after 1k yrs	POROSITY	3.20E-01	Porosity (fraction)	Salt creep portion of BH	Database: CCA view 6
1,623	BH CREEP	BH props for lower part after 1k yrs	PRMX LOG	-1.35E+01	Log x-direction permeability	Salt creep portion of BH	Database: CCA view 6
1,624	BH CREEP	BH props for lower part after 1k yrs	PRMY LOG	-1.35E+01	Log y-direction permeability	Salt creep portion of BH	Database: CCA view 6
1,625	BH CREEP	BH props for lower part after 1k yrs	PRMZ LOG	-1.35E+01	Log z-direction permeability (BRAGFLO required input)	Salt creep portion of BH	Database: CCA view 6
1,626	BH CREEP	BH props for lower part after 1k yrs	REL P MOD	4.00E+00	Relative permeability model number	Salt creep portion of BH	Database: CCA view 6
1,627	BH CREEP	BH props for lower part after 1k yrs	SAT RBRN	0.00E+00	Residual Brine saturation	Salt creep portion of BH	Database: CCA view 6
1,628	BH CREEP	BH props for lower part after 1k yrs	SAT RGAS	0.00E+00	Residual Gas saturation	Salt creep portion of BH	Database: CCA view 6
1,629	BH CREEP	BH props for lower part after 1k yrs	PERM X	3.16E-14	X-direction permeability (m ²) from Log value	Salt creep portion of BH	Calculated
1,630	BH CREEP	BH props for lower part after 1k yrs	PERM Y	3.16E-14	Y-direction permeability (m ²) from Log value	Salt creep portion of BH	Calculated
1,631	BH CREEP	BH props for lower part after 1k yrs	PERM Z	3.16E-14	Z-direction permeability (m ²) Not used in 2D	Salt creep portion of BH	Calculated
1,632	BH CREEP	BH props for lower part after 1k yrs	SB MIN	0.00E+00	Minimum saturation (SAT RBRN * 1.05)	Salt creep portion of BH	Database: CCA view 6
1,633	BH CREEP	BH props for lower part after 1k yrs	POR COMP	0.00E+00	Pore compressibility COMP RCK/POROSITY (1/Pa)	Salt creep portion of BH	Database: CCA view 6

1!
2!
3! TITLE: GENMESH Input. Cross - sectional model for FEP analysis
4! ANALYST: Daniel M. Stoelzel
5! NOTES: This cross - sectional model will be used to analyse the effects
6! of oil and gas development on the WIPP site. It will specifically
7! address FEPs NS - 7: Leakage from wells from brine pockets,
8! injection, fluids from drilling; NS - 21: connections to units
9! beneath the repository, and S - 9: Near - miss boreholes.
10! Because current well spacing is at 40 acre intervals (1/4 mile
11! square), the thickness dimension is set at a constant 1320 feet
12! throughout (402.334 meters). There are 5 discrete well regions
13! corresponding to an equivalent area of an 7-7/8 inch wellbore.
14! Boreholes will be treated in several ways: intact, in which no
15! vertical communication is allowed, leaky casing, in which vertical
16! permeability multipliers are used to represent equivalent K*A of
17! the annular space between casing and open - hole (the multiplier
18! changes according to the casing design & bit size used), and plug-
19! ged and abandoned (P&A), in which the vert. perm multipliers
20! represent the bit - size equivalent (sand - filled hole) for long
21! term (to 10,000 years) leakage
22!
23! CREATED: June 22, 1995
24!
25! REVISED: August 2, 1995
26! Revised repository area to reflect excavated volume only, added
27! backfill area (operations and experimental regions), and shaft.
28! This increased mesh to 95 x 25 (2375 elements) from 90 x 25
29! (2250 elements) for 125 elem increase
30!
31! August 7, 1995
32! Changed grid to add seals and DRZ. Mesh now at 106 by 25 nodes.
33!
34! August 9, 1995
35! added an additional region to the shaft to represent the shaft
36! seals.
37!
38! AUG 25, 1995
39! TOOK OUT THE WELLS AS DISCRETE REGIONS. MESH REMAINS THE SAME,
40! (105 BY 24 ELEMENTS) BUT WELLS WILL BE "TURNED ON" IN THE PREBRAG/
41! BRAGFLO STEPS. THIS WILL ALLOW THE LAYER PROPERTIES TO BE
42! CONTINUOUS IF THE WELLS DO NOT EXIST.
43!
44! Aug 29, 1995
45! NEW MESH!!! BRAGFLO struggling with small grid blocks. Changing
46! mesh to add more cells around wellbore regions, also taking out
47! upper Rustler and Dewey Lake regions, stopping mesh at Culebra.
48! Also added one more layer in waste region. Grid now at 131 x 23
49! blocks.
50!
51! Sep 1, 1995
52! NEW MESH!!!! BRAGFLO still having problems. Changing del X to 155

53! from 131. Del Y remains the same.
54!
55! Sep 26, 1995
56! BRAGFLO appears to be time-step limited due to the extremely
57! small pore volume represented by the well grid blocks. Changing
58! the grid to increase the wellbore del-x's to 0.78 meters. The
59! perms will be reduced to maintain equiv. KA's, and the rock
60! compress for well regions will be 1e-99 to minimize storage
61! effects. New mesh is 124 by 34 elements.
62!
63! Feb 26, 1996
64! New model to reflect new 40CFR 194 regulations, which do not
65! require active phase for future BH intrusions. Therefore have
66! removed wells 2, 3, and 4, and re-named well 5 as well 2. The two
67! wells are located opposite each other at the LWB, and radially
68! flared outward from an equivalent BH area of a 12-1/4 inch bit.
69! Only half the flow area out the borehole will be considered, and
70! the radial flaring will reflect 1/4 flow volume toward the WIPP,
71! and 1/4 flow volume away. The production/injection at the
72! productive zones in the wellbore will reflect 1/2 average
73! production (or injection) for a Delaware Basin Well. The
74! excavated volume will remain "undisturbed" (no future intrusions).
75! The latest assumptions used in PA will be incorporated into the
76! model; gas generation, salt creep, fracture parameters, abandoned
77! borehole perms, etc.
78! Mesh is now 96 by 34 elements.
79!
80! Feb 27, 1996
81! Eliminated CAVITY_1 region, (Panel) since this model only models
82! entire repository.
83!
84!
85! *SETUP
86! DIM= 3
87! ORIGIN= 0., -3357.58, 0.
88! IJKMAX= 97, 35, 2
89!
90! *GRID
91! DEL, COORD = X, DEL = 2.0117E+02, INRANGE = 1,2, FACTOR = 1
92! DEL, COORD = X, DEL = 1.3106E+02, INRANGE = 2,3, FACTOR = 1
93! DEL, COORD = X, DEL = 5.4864E+01, INRANGE = 3,4, FACTOR = 1
94! DEL, COORD = X, DEL = 1.0973E+01, INRANGE = 4,5, FACTOR = 1
95! DEL, COORD = X, DEL = 2.7432E+00, INRANGE = 5,6, FACTOR = 1
96! DEL, COORD = X, DEL = 9.1440E-01, INRANGE = 6,7, FACTOR = 1
97! DEL, COORD = X, DEL = 4.5403E-01, INRANGE = 7,8, FACTOR = 1
98! DEL, COORD = X, DEL = 3.1117E-01, INRANGE = 8,9, FACTOR = 1
99! DEL, COORD = X, DEL = 4.5403E-01, INRANGE = 9,10, FACTOR = 1
100! DEL, COORD = X, DEL = 9.1440E-01, INRANGE = 10,11, FACTOR = 1
101! DEL, COORD = X, DEL = 2.7432E+00, INRANGE = 11,12, FACTOR = 1
102! DEL, COORD = X, DEL = 1.0973E+01, INRANGE = 12,13, FACTOR = 1
103! DEL, COORD = X, DEL = 5.4864E+01, INRANGE = 13,14, FACTOR = 1
104! DEL, COORD = X, DEL = 1.3106E+02, INRANGE = 14,15, FACTOR = 1

105 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 15,16,FACTOR = 1
 106 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 16,17,FACTOR = 1
 107 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 17,18,FACTOR = 1
 108 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 18,19,FACTOR = 1
 109 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 19,20,FACTOR = 1
 110 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 20,21,FACTOR = 1
 111 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 21,22,FACTOR = 1
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 113 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 23,24,FACTOR = 1
 114 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 24,25,FACTOR = 1
 115 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 25,26,FACTOR = 1
 116 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 26,27,FACTOR = 1
 117 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 27,28,FACTOR = 1
 118 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 28,29,FACTOR = 1
 119 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 29,30,FACTOR = 1
 120 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 30,31,FACTOR = 1
 121 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 31,32,FACTOR = 1
 122 DEL, COORD = X, DEL = 6.0960E+01, INRANGE = 32,33,FACTOR = 1
 123 DEL, COORD = X, DEL = 4.8768E+01, INRANGE = 33,34,FACTOR = 1
 124 DEL, COORD = X, DEL = 1.8288E+01, INRANGE = 34,35,FACTOR = 1
 125 DEL, COORD = X, DEL = 6.0960E+00, INRANGE = 35,36,FACTOR = 1
 126 DEL, COORD = X, DEL = 6.0960E+00, INRANGE = 36,37,FACTOR = 1
 127 DEL, COORD = X, DEL = 1.2192E+01, INRANGE = 37,38,FACTOR = 1
 128 DEL, COORD = X, DEL = 2.4384E+01, INRANGE = 38,39,FACTOR = 1
 129 DEL, COORD = X, DEL = 5.4864E+01, INRANGE = 39,40,FACTOR = 1
 130 DEL, COORD = X, DEL = 2.4384E+01, INRANGE = 40,41,FACTOR = 1
 131 DEL, COORD = X, DEL = 1.2192E+01, INRANGE = 41,42,FACTOR = 1
 132 DEL, COORD = X, DEL = 4.4790E+00, INRANGE = 42,43,FACTOR = 1
 133 DEL, COORD = X, DEL = 2.0381E+00, INRANGE = 43,44,FACTOR = 1
 134 DEL, COORD = X, DEL = 4.4790E+00, INRANGE = 44,45,FACTOR = 1
 135 DEL, COORD = X, DEL = 1.2192E+01, INRANGE = 45,46,FACTOR = 1
 136 DEL, COORD = X, DEL = 2.4384E+01, INRANGE = 46,47,FACTOR = 1
 137 DEL, COORD = X, DEL = 4.8768E+01, INRANGE = 47,48,FACTOR = 1
 138 DEL, COORD = X, DEL = 3.0480E+01, INRANGE = 48,49,FACTOR = 1
 139 DEL, COORD = X, DEL = 1.2192E+01, INRANGE = 49,50,FACTOR = 1
 140 DEL, COORD = X, DEL = 6.0960E+00, INRANGE = 50,51,FACTOR = 1
 141 DEL, COORD = X, DEL = 4.0762E+00, INRANGE = 51,52,FACTOR = 1
 142 DEL, COORD = X, DEL = 1.0000E+01, INRANGE = 52,53,FACTOR = 1
 143 DEL, COORD = X, DEL = 3.8283E+01, INRANGE = 53,54,FACTOR = 1
 144 DEL, COORD = X, DEL = 5.0000E+01, INRANGE = 54,55,FACTOR = 1
 145 DEL, COORD = X, DEL = 9.9999E-01, INRANGE = 55,56,FACTOR = 1
 146 DEL, COORD = X, DEL = 2.1601E-01, INRANGE = 56,57,FACTOR = 1
 147 DEL, COORD = X, DEL = 9.9999E-01, INRANGE = 57,58,FACTOR = 1
 148 DEL, COORD = X, DEL = 8.0000E+00, INRANGE = 58,59,FACTOR = 1
 149 DEL, COORD = X, DEL = 4.4711E+01, INRANGE = 59,60,FACTOR = 1
 150 DEL, COORD = X, DEL = 1.1175E+02, INRANGE = 60,61,FACTOR = 1
 151 DEL, COORD = X, DEL = 1.1175E+02, INRANGE = 61,62,FACTOR = 1
 152 DEL, COORD = X, DEL = 1.9733E+02, INRANGE = 62,63,FACTOR = 1
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 166 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 76,77,FACTOR = 1
 167 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 77,78,FACTOR = 1
 168 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 78,79,FACTOR = 1
 169 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 79,80,FACTOR = 1
 170 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 80,81,FACTOR = 1
 171 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 81,82,FACTOR = 1
 172 DEL, COORD = X, DEL = 1.3411E+02, INRANGE = 82,83,FACTOR = 1
 173 DEL, COORD = X, DEL = 1.3106E+02, INRANGE = 83,84,FACTOR = 1
 174 DEL, COORD = X, DEL = 5.4864E+01, INRANGE = 84,85,FACTOR = 1
 175 DEL, COORD = X, DEL = 1.0973E+01, INRANGE = 85,86,FACTOR = 1
 176 DEL, COORD = X, DEL = 2.7432E+00, INRANGE = 86,87,FACTOR = 1
 177 DEL, COORD = X, DEL = 9.1440E-01, INRANGE = 87,88,FACTOR = 1
 178 DEL, COORD = X, DEL = 4.5403E-01, INRANGE = 88,89,FACTOR = 1
 179 DEL, COORD = X, DEL = 3.1117E-01, INRANGE = 89,90,FACTOR = 1
 180 DEL, COORD = X, DEL = 4.5403E-01, INRANGE = 90,91,FACTOR = 1
 181 DEL, COORD = X, DEL = 9.1440E-01, INRANGE = 91,92,FACTOR = 1
 182 DEL, COORD = X, DEL = 2.7432E+00, INRANGE = 92,93,FACTOR = 1
 183 DEL, COORD = X, DEL = 1.0973E+01, INRANGE = 93,94,FACTOR = 1
 184 DEL, COORD = X, DEL = 5.4864E+01, INRANGE = 94,95,FACTOR = 1
 185 DEL, COORD = X, DEL = 1.3106E+02, INRANGE = 95,96,FACTOR = 1
 186 DEL, COORD = X, DEL = 2.0117E+02, INRANGE = 96,97,FACTOR = 1
 187
 188 DEL, COORD = Y, DEL = 7.7000E+00, INRANGE = 34,35,FACTOR = 1
 189 DEL, COORD = Y, DEL = 3.6000E+01, INRANGE = 33,34,FACTOR = 1
 190 DEL, COORD = Y, DEL = 2.5000E+02, INRANGE = 32,33,FACTOR = 1
 191 DEL, COORD = Y, DEL = 1.4525E+02, INRANGE = 31,32,FACTOR = 1
 192 DEL, COORD = Y, DEL = 4.5000E-01, INRANGE = 30,31,FACTOR = 1
 193 DEL, COORD = Y, DEL = 1.3310E+00, INRANGE = 29,30,FACTOR = 1
 194 DEL, COORD = Y, DEL = 1.3310E+00, INRANGE = 28,29,FACTOR = 1
 195 DEL, COORD = Y, DEL = 8.5000E-01, INRANGE = 27,28,FACTOR = 1
 196 DEL, COORD = Y, DEL = 5.1176E+00, INRANGE = 26,27,FACTOR = 1
 197 DEL, COORD = Y, DEL = 1.9727E+02, INRANGE = 25,26,FACTOR = 1
 198 DEL, COORD = Y, DEL = 3.8100E+02, INRANGE = 24,25,FACTOR = 1
 199 DEL, COORD = Y, DEL = 1.1247E+02, INRANGE = 23,24,FACTOR = 1
 200 DEL, COORD = Y, DEL = 2.4262E+02, INRANGE = 22,23,FACTOR = 1
 201 DEL, COORD = Y, DEL = 2.5908E+02, INRANGE = 21,22,FACTOR = 1
 202 DEL, COORD = Y, DEL = 4.5720E+01, INRANGE = 20,21,FACTOR = 1
 203 DEL, COORD = Y, DEL = 4.5720E+00, INRANGE = 19,20,FACTOR = 1
 204 DEL, COORD = Y, DEL = 4.5720E+01, INRANGE = 18,19,FACTOR = 1
 205 DEL, COORD = Y, DEL = 4.1148E+02, INRANGE = 17,18,FACTOR = 1
 206 DEL, COORD = Y, DEL = 6.0960E+01, INRANGE = 16,17,FACTOR = 1
 207 DEL, COORD = Y, DEL = 6.0960E+00, INRANGE = 15,16,FACTOR = 1
 208 DEL, COORD = Y, DEL = 6.0960E+01, INRANGE = 14,15,FACTOR = 1

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix C -- GENMESH.INP File Listing

209 DEL, COORD = Y, DEL = 3.6096E+02, INRANGE = 13,14, FACTOR = 1
 210 DEL, COORD = Y, DEL = 1.0135E+02, INRANGE = 12,13, FACTOR = 1
 211 DEL, COORD = Y, DEL = 1.0135E+01, INRANGE = 11,12, FACTOR = 1
 212 DEL, COORD = Y, DEL = 1.0135E+02, INRANGE = 10,11, FACTOR = 1
 213 DEL, COORD = Y, DEL = 8.4061E+02, INRANGE = 9,10, FACTOR = 1
 214 DEL, COORD = Y, DEL = 7.1933E+01, INRANGE = 8,9, FACTOR = 1
 215 DEL, COORD = Y, DEL = 7.1933E+00, INRANGE = 7,8, FACTOR = 1
 216 DEL, COORD = Y, DEL = 1.0668E+02, INRANGE = 6,7, FACTOR = 1
 217 DEL, COORD = Y, DEL = 8.5496E+01, INRANGE = 5,6, FACTOR = 1
 218 DEL, COORD = Y, DEL = 5.9436E+00, INRANGE = 4,5, FACTOR = 1
 219 DEL, COORD = Y, DEL = 9.1440E+01, INRANGE = 3,4, FACTOR = 1
 220 DEL, COORD = Y, DEL = 1.1378E+02, INRANGE = 2,3, FACTOR = 1
 221 DEL, COORD = Y, DEL = 8.1382E+00, INRANGE = 1,2, FACTOR = 1
 222!
 223 *ELEVATION_ELEMENT, ADJUST_Z_COORD
 224 LOCATION, THICK=402.336, ELEVAT=-3357.58, IRANGE=1, 2, JRANGE=1,35, KRANGE=1,2
 225 LOCATION, THICK=213.0553, ELEVAT=-3357.58, IRANGE=2, 3, JRANGE=1,35, KRANGE=1,2
 226 LOCATION, THICK=67.0286, ELEVAT=-3357.58, IRANGE=3, 4, JRANGE=1,35, KRANGE=1,2
 227 LOCATION, THICK=15.3208, ELEVAT=-3357.58, IRANGE=4, 5, JRANGE=1,35, KRANGE=1,2
 228 LOCATION, THICK=4.5485, ELEVAT=-3357.58, IRANGE=5, 6, JRANGE=1,35, KRANGE=1,2
 229 LOCATION, THICK=1.6757, ELEVAT=-3357.58, IRANGE=6, 7, JRANGE=1,35, KRANGE=1,2
 230 LOCATION, THICK=0.6010, ELEVAT=-3357.58, IRANGE=7, 8, JRANGE=1,35, KRANGE=1,2
 231 LOCATION, THICK=0.2444, ELEVAT=-3357.58, IRANGE=8, 9, JRANGE=1,35, KRANGE=1,2
 232 LOCATION, THICK=0.6010, ELEVAT=-3357.58, IRANGE=9,10, JRANGE=1,35, KRANGE=1,2
 233 LOCATION, THICK=1.6757, ELEVAT=-3357.58, IRANGE=10,11, JRANGE=1,35, KRANGE=1,2
 234 LOCATION, THICK=4.5485, ELEVAT=-3357.58, IRANGE=11,12, JRANGE=1,35, KRANGE=1,2
 235 LOCATION, THICK=15.3208, ELEVAT=-3357.58, IRANGE=12,13, JRANGE=1,35, KRANGE=1,2
 236 LOCATION, THICK=67.0286, ELEVAT=-3357.58, IRANGE=13,14, JRANGE=1,35, KRANGE=1,2
 237 LOCATION, THICK=213.0553, ELEVAT=-3357.58, IRANGE=14,15, JRANGE=1,35, KRANGE=1,2
 238 LOCATION, THICK=402.336, ELEVAT=-3357.58, IRANGE=15,83, JRANGE=1,35, KRANGE=1,2
 239 LOCATION, THICK=213.0553, ELEVAT=-3357.58, IRANGE=83,84, JRANGE=1,35, KRANGE=1,2
 240 LOCATION, THICK=67.0286, ELEVAT=-3357.58, IRANGE=84,85, JRANGE=1,35, KRANGE=1,2
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 243 LOCATION, THICK=1.6757, ELEVAT=-3357.58, IRANGE=87,88, JRANGE=1,35, KRANGE=1,2
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 247 LOCATION, THICK=1.6757, ELEVAT=-3357.58, IRANGE=91,92, JRANGE=1,35, KRANGE=1,2
 248 LOCATION, THICK=4.5485, ELEVAT=-3357.58, IRANGE=92,93, JRANGE=1,35, KRANGE=1,2
 249 LOCATION, THICK=15.3208, ELEVAT=-3357.58, IRANGE=93,94, JRANGE=1,35, KRANGE=1,2
 250 LOCATION, THICK=67.0286, ELEVAT=-3357.58, IRANGE=94,95, JRANGE=1,35, KRANGE=1,2
 251 LOCATION, THICK=213.0553, ELEVAT=-3357.58, IRANGE=95,96, JRANGE=1,35, KRANGE=1,2
 252 LOCATION, THICK=402.336, ELEVAT=-3357.58, IRANGE=96,97, JRANGE=1,35, KRANGE=1,2
 253!
 254 *REGIONS
 255! Bottom - up stratigraphy
 256!
 257! -- Morrow_pay, zone 1
 258 REGION=1, IRANGE= 1,27, JRANGE= 1, 2, KRANGE=1,2
 259! -- Morrow_pay, zone 2
 260 REGION=2, IRANGE= 27,71, JRANGE= 1, 2, KRANGE=1,2

261! -- Morrow Pay, zone 3
 262 REGION=3, IRANGE= 71,97, JRANGE= 1, 2, KRANGE=1,2
 263!
 264!
 265! -- Morrow_lime no pay
 266!
 267!
 268 REGION=4, IRANGE= 1,97, JRANGE= 2, 4, KRANGE=1,2
 269!
 270! -- Atoka_pay, zone 1
 271!
 272 REGION=5, IRANGE= 1,27, JRANGE= 4, 5, KRANGE=1,2
 273! -- Atoka_pay, zone 2
 274 REGION=6, IRANGE= 27,71, JRANGE= 4, 5, KRANGE=1,2
 275! -- Atoka Pay, zone 3
 276 REGION=7, IRANGE= 71,97, JRANGE= 4, 5, KRANGE=1,2
 277!
 278!
 279! -- Atoka no pay
 280!
 281!
 282 REGION=8, IRANGE= 1,97, JRANGE= 5, 7, KRANGE=1,2
 283!
 284! -- Strawn_pay, zone 1
 285!
 286 REGION=9, IRANGE= 1,27, JRANGE= 7, 8, KRANGE=1,2
 287! -- Strawn_pay, zone 2
 288 REGION=10, IRANGE= 27,71, JRANGE= 7, 8, KRANGE=1,2
 289! -- Strawn Pay, zone 3
 290 REGION=11, IRANGE= 71,97, JRANGE= 7, 8, KRANGE=1,2
 291!
 292!
 293! -- Strawn no pay
 294!
 295!
 296 REGION=12, IRANGE= 1,97, JRANGE= 8,11, KRANGE=1,2
 297!
 298! -- Bone Spring_pay, zone 1
 299!
 300 REGION=13, IRANGE= 1,27, JRANGE= 11,12, KRANGE=1,2
 301! -- Bone Spring_pay, zone 2
 302 REGION=14, IRANGE= 27,71, JRANGE= 11,12, KRANGE=1,2
 303! -- Bone Spring Pay, zone 3
 304 REGION=15, IRANGE= 71,97, JRANGE= 11,12, KRANGE=1,2
 305!
 306!
 307! -- Upper Bone Spring no pay
 308!
 309!
 310 REGION=16, IRANGE= 1,97, JRANGE= 12,15, KRANGE=1,2
 311!
 312! -- Lower Brushy Canyon_pay, zone 1

313!
 314 REGION=17, IRANGE= 1,27, JRANGE= 15,16, KRANGE=1,2
 315! -- Lower Brushy Canyon_pay, zone 2
 316 REGION=18, IRANGE= 27,71, JRANGE= 15,16, KRANGE=1,2
 317! -- Lower Brushy Canyon Pay, zone 3
 318 REGION=19, IRANGE= 71,97, JRANGE= 15,16, KRANGE=1,2
 319!
 320!
 321! -- Upper Brushy Canyon no pay
 322!
 323!
 324 REGION=20, IRANGE= 1,97, JRANGE= 16,19, KRANGE=1,2
 325!
 326! -- Upper Brushy Canyon (Livingston Ridge Main pay), zone 1
 327!
 328 REGION=21, IRANGE= 1,27, JRANGE= 19,20, KRANGE=1,2
 329! -- Upper Brushy Canyon (Livingston Ridge Main pay), zone 2
 330 REGION=22, IRANGE= 27,71, JRANGE= 19,20, KRANGE=1,2
 331! -- Upper Brushy Canyon (Livingston Ridge Main pay), zone 3
 332 REGION=23, IRANGE= 71,97, JRANGE= 19,20, KRANGE=1,2
 333!
 334!
 335! -- Lower Bell Canyon - Upper Cherry Canyon no pay
 336!
 337!
 338 REGION=24, IRANGE= 1,97, JRANGE= 20,23, KRANGE=1,2
 339!
 340! -- Upper Bell Canyon (Delaware Sandstone pay), zone 1
 341!
 342 REGION=25, IRANGE= 1,27, JRANGE= 23,24, KRANGE=1,2
 343! -- Upper Bell Canyon (Delaware Sandstone pay), zone 2
 344 REGION=26, IRANGE= 27,71, JRANGE= 23,24, KRANGE=1,2
 345! -- Upper Bell Canyon (Delaware Sandstone pay), zone 3
 346 REGION=27, IRANGE= 71,97, JRANGE= 23,24, KRANGE=1,2
 347!
 348!
 349! -- Castile
 350!
 351!
 352 REGION=28, IRANGE= 1,97, JRANGE= 24,25, KRANGE=1,2
 353!
 354!
 355! -- Salado
 356!
 357!
 358 REGION=29, IRANGE= 1,97, JRANGE= 25,26, KRANGE=1,2
 359!
 360 REGION=29, IRANGE= 1,36, JRANGE= 26,27, KRANGE=1,2
 361 REGION=29, IRANGE= 60,97, JRANGE= 26,27, KRANGE=1,2
 362!
 363 REGION=29, IRANGE= 1,36, JRANGE= 28,30, KRANGE=1,2
 364 REGION=29, IRANGE= 60,97, JRANGE= 28,30, KRANGE=1,2

365!
 366 REGION=29, IRANGE= 1,56, JRANGE= 31,33, KRANGE=1,2
 367 REGION=29, IRANGE= 57,97, JRANGE= 31,33, KRANGE=1,2
 368!
 369! -- MB 139
 370!
 371 REGION=30, IRANGE= 1,36, JRANGE= 27,28, KRANGE=1,2
 372 REGION=30, IRANGE= 52,56, JRANGE= 27,28, KRANGE=1,2
 373 REGION=30, IRANGE= 57,97, JRANGE= 27,28, KRANGE=1,2
 374!
 375! -- MB 138, plus anhy. A&B
 376!
 377 REGION=31, IRANGE= 1,36, JRANGE= 30,31, KRANGE=1,2
 378 REGION=31, IRANGE= 52,56, JRANGE= 30,31, KRANGE=1,2
 379 REGION=31, IRANGE= 57,97, JRANGE= 30,31, KRANGE=1,2
 380!
 381!
 382! -- Rustler
 383!
 384!
 385 REGION=32, IRANGE= 1,56, JRANGE= 33,34, KRANGE=1,2
 386 REGION=32, IRANGE= 57,97, JRANGE= 33,34, KRANGE=1,2
 387!
 388!
 389! -- Culebra
 390!
 391!
 392 REGION=33, IRANGE= 1,56, JRANGE= 34,35, KRANGE=1,2
 393 REGION=33, IRANGE= 57,97, JRANGE= 34,35, KRANGE=1,2
 394!
 395!
 396! --CAVITY REGION == CLOSURE WILL BE ALLOWED
 397! -- CAVITY: will be WASTE REGION after 100 years
 398! ----- CAVITY_2 -----
 399 REGION=34, IRANGE= 36,43, JRANGE= 27,31, KRANGE=1,2
 400 REGION=34, IRANGE= 44,51, JRANGE= 27,31, KRANGE=1,2
 401!
 402!
 403! -- Operations (backfill) AND EXP_AREA TOGETHER area --
 404! ----- CAVITY_3 -----
 405 REGION=35, IRANGE= 52,56, JRANGE= 28,30, KRANGE=1,2
 406!
 407 REGION=35, IRANGE= 57,60, JRANGE= 28,30, KRANGE=1,2
 408!
 409!
 410! ----- Shaft(s), & PANEL SEALS -----
 411!
 412! ----- CAVITY_4 -----
 413! -- Seals -----
 414!
 415 REGION=36, IRANGE= 43,44, JRANGE= 27,31, KRANGE=1,2
 416 REGION=36, IRANGE= 51,52, JRANGE= 27,31, KRANGE=1,2

417!
418!----- SHAFT(S) -----
419!
420 REGION=36, IRANGE= 56,57, JRANGE= 27,35, KRANGE=1,2
421!

422! -- DRZ -----
423!
424 REGION=37, IRANGE= 36,60, JRANGE= 26,27, KRANGE=1,2
425*END

```

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GENMESH.INP;9
3 85 *SETUP
4 *****
5 File N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GM_YATES01.INP;2
6 85
7 86
8 87
9 88
10 89
11 90
12 91
13 92 *SETUP
14 *****
15 *****
16 File N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GENMESH.INP;9
17 197 DEL, COORD = Y, DEL = 1.9727E+02, INRANGE = 25,26, FACTOR = 1
18 198 DEL, COORD = Y, DEL = 3.8100E+02, INRANGE = 24,25, FACTOR = 1
19 199 DEL, COORD = Y, DEL = 1.1247E+02, INRANGE = 23,24, FACTOR = 1
20 *****
21 File N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GM_YATES01.INP;2
22 204
23 205
24 206
25 207
26 208

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27 209 DEL, COORD = Y, DEL = 1.1680E+02, INRANGE = 25,26, FACTOR = 1
28 210 DEL, COORD = Y, DEL = 3.8100E+01, INRANGE = 24,25, FACTOR = 1
29 211
30 212 DEL, COORD = Y, DEL = 1.1247E+02, INRANGE = 23,24, FACTOR = 1
31 *****
32 *****
33 File N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GENMESH.INP;9
34 220 DEL, COORD = Y, DEL = 1.1378E+02, INRANGE = 2,3, FACTOR = 1
35 221 DEL, COORD = Y, DEL = 8.1382E+00, INRANGE = 1,2, FACTOR = 1
36 *****
37 File N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GM_YATES01.INP;2
38 233
39 234 DEL, COORD = Y, DEL = 5.37154+02, INRANGE = 2,3, FACTOR = 1
40 235
41 236 DEL, COORD = Y, DEL = 8.1382E+00, INRANGE = 1,2, FACTOR = 1
42 *****
43
44 Number of difference sections found: 3
45 Number of difference records found: 18
46
47 DIFFERENCES
48 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[
49 NOBACK2.DMS_WATERFLOOD.GENMESH]GENMESH.DIFF;1-
50 N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GENMESH.INP;9-
51 N1:[NOBACK2.DMS_WATERFLOOD.GENMESH]GM_YATES01.INP;2

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1
2
3 TITLE: BRAGFLO CROSS-SECTIONAL MODEL FOR FEP SCREENING CALCULATIONS
4 ANALYST: Daniel M. Stoelzel ,SNL
5 CREATED: June 29, 1995
6 PURPOSE: Define material and property names and selected values that
7 are not in the PROPERTY.SDB
8 Modified: Aug 8, 1995
9 Redefined block assignments to reflect 3rd grid revision
10
11 AUG 15, 1995
12 ADDED PAN_S_2 REGION, CHANGED SOME PROPERTIES TO BE READ FROM
13 DATABASE
14
15 Aug 16, 1995
16 Reduced vertical perms one order of magnitude for all lower zones
17 (Bell Canyon through Morrow) to contain any potential gas
18 saturations in-zone.
19 Added PTHRESH property for S_HALITE (needed in algebra)
20
21 Aug 21, 1995
22 Added CAVITY_3 & CAVITY_4 Regions to define backfill and exp_area
23 initial conditions (-5 to 0 years)
24
25 Aug 22, 1995
26 Changed well PRMY_MUL's to reflect scenario no 1: wells 1 & 5
27 to disposal (present-day development), well 2 to disposal (future
28 development), well 4 to future abandoned to bonespring (never
29 produced).
30
31 Eliminated one IMPERM_Z block. Only Culebra is impermeable.
32
33 AUG 23, 1995
34 CHANGED CASTILLE PERM TO 1E-18H, E-19V (WAS 1E-11). CHANGED WELLBORE
35 VERT PERM MULT FOR MIDDLE AND LOWER SECTIONS TO 1E-5 TO ALLOW
36 EASIER EQUILIBRATION.
37
38 AUG 25, 1995
39 RE-DO MATSET TO REFLECT NEW GRID REGIONS. DISCRETE WELL REGIONS
40 HAVE BEEN REMOVED FROM GENMESH. WELLS WILL NOW BE DEFINED IN
41 PREBRAG/BRAGFLO. THIS WILL ALLOW UNIFORM PROPERTIES FOR EACH LAYER
42 AT TIMES WHEN WELLS DO NOT EXIST
43
44 AUG 26, 1995
45 CHANGED MARKER BED LOG PERMEABILITIES TO -15, WHICH IS MAX ON DATA-
46 BASE.
47
48 Aug 28, 1995
49 Fixed fracture params. Changed pay zone cap models to zero cap
50 pressure. Also lowered pay zone vert perm 3 orders of magnitude
51
52 AUG 29, 1995

53 NEW MESH!! INCREASED DEL-X TO REFINE GRID AROUND WELLBORES. STOP AT
54 CULEBRA
55
56 Feb. 27, 1996
57 New grid reflecting the new 194 requirements. No wells will be
58 included inside the LWB, since no future active phase is required.
59 Will therefore have only three time periods: -5 to 0 years, 0 to 50
60 years (active well phase with possible casing leaks), and 50 to
61 10,000 years (abandoned well phase). Will also attempt to read as
62 many variables as possible off the database for the upper units
63 (Castile and above) instead of hard-wiring. Database should be
64 QA'ed.
65
66 FEB 29, 1996
67 ADDED REGIONS 59 TO 64 TO REPRESENT THE BOREHOLE PERMS FOR
68 SURFACE, SALT, AND DEEP SECTIONS OF BOREHOLE (USING A VERTICAL PERM
69 MULTIPLIER: PERMY_MUL)
70
71 JUNE 14, 1996
72 ADDED CONC_PLUG, BH_OPEN, BH_SAND, BH_CREED. LATEST MATERIAL
73 PROPERTIES FOR BOREHOLE PERMEABILITY (cca CALCS)
74
75 *PRINT_ASSIGNED_VALUES
76
77 *HEADING
78 TITLE, BRAGFLO: 1996 FEPs: OIL DEVEL. X-SECTIONAL MODEL WITH 2 WELLS
79 SCALE, LOCAL
80 SCENARIO, UNDIST
81
82 *UNITS=SI
83
84 *CREATE_BLOCKS
85 !...Create additional blocks for FLUID, WELL, and other properties
86 for modeling corrosion and biodegradation reactions
87 BLOCK_IDS=38
88 BLOCK_IDS=39
89 BLOCK_IDS=40
90 BLOCK_IDS=41
91 BLOCK_IDS=42
92 BLOCK_IDS=43
93 BLOCK_IDS=44
94 BLOCK_IDS=45
95 BLOCK_IDS=46
96 BLOCK_IDS=47
97 BLOCK_IDS=48
98 BLOCK_IDS=49
99 BLOCK_IDS=50
100 BLOCK_IDS=51
101 BLOCK_IDS=52
102 BLOCK_IDS=53
103 BLOCK_IDS=54
104 BLOCK_IDS=55

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105 BLOCK_IDS=56
106 BLOCK_IDS=57
107 BLOCK_IDS=58
108 BLOCK_IDS=59
109 BLOCK_IDS=60
110 BLOCK_IDS=61
111 BLOCK_IDS=62
112 BLOCK_IDS=63
113 BLOCK_IDS=64
114 BLOCK_IDS=65
115 BLOCK_IDS=66
116 BLOCK_IDS=67
117 BLOCK_IDS=68
118!
119*RETRIEVE
120 COORD, DIM=3, NAMES= X,Y,Z
121!
122!...Define region names
123 MATERIAL, 1=MORRO_P1, 2=MORRO_P2, 3=MORRO_P3, 4=MORRO_NP,&
124 5=ATOKA_P1, 6=ATOKA_P2, 7=ATOKA_P3, 8=ATOKA_NP,&
125 9=STRWN_P1, 10=STRWN_P2, 11=STRWN_P3, 12=STRWN_NP,&
126 13=BONES_P1, 14=BONES_P2, 15=BONES_P3, 16=BONES_NP,&
127 17=LBRSH_P1, 18=LBRSH_P2, 19=LBRSH_P3, 20=UBRSH_NP,&
128 21=UBRSH_P1, 22=UBRSH_P2, 23=UBRSH_P3, 24=LBELL_NP,&
129 25=UBELL_P1, 26=UBELL_P2, 27=UBELL_P3, 28=CASTILER,&
130 29=S_HALITE, 30=S_MB139, 31=S_MB138, 32=UNNAMED,&
131 33=IMPERM_Z, 34=CAVITY_2, 35=CAVITY_3, 36=CAVITY_4,&
132 37=DRZ_0, 38=BOREHOLE, 39=DRZ_1, 40=CULEBRA,&
133 41=WAS_AREA, 42=OPS_AREA, 43=EXP_AREA, 44=PAN_SEAL,&
134 45=CLAY_RUS, 46=CL_L_T1, 47=CL_L_T4, 48=SALT_T1,&
135 49=SALT_T4, 50=SALT_T5, 51=SALT_T6,&
136 52=BRINESAL, 53=H2, 54=SULFATE, 55=NITRATE,&
137 56=STEEL, 57=CELLULS, 58=REFCON, 59=BH_SUR_A,&
138 60=BH_SUR_L, 61=BH_SLT_A, 62=BH_SLT_L, 63=BH_LOW_A,&
139 64=BH_LOW_L, 65=CONC_PLG, 66=BH_OPEN, 67=BH_SAND,&
140 68=BH_CREEP
141!
142! ...Define Morrow Zone 1 property names,
143 PROPERTY,MAT=MORRO_P1,NAMES = &
144 CAP_MOD,&
145 COMP_RCK,&
146 PC_MAX,&
147 PCT_A,&
148 PCT_EXP,&
149 KPT,&
150 PO_MIN,&
151 PORE_DIS,&
152 POROSITY,&
153 PRESSURE,&
154 PRMX_LOG,&
155 PRMY_LOG,&
156 PRMZ_LOG,&

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157 RELP_MOD,&
158 SAT_RBRN,&
159 SAT_RGAS
160!2 ...Define Morrow Zone 2 property names,
161 PROPERTY,MAT=MORRO_P2,NAMES = &
162 CAP_MOD,&
163 COMP_RCK,&
164 PC_MAX,&
165 PCT_A,&
166 PCT_EXP,&
167 KPT,&
168 PO_MIN,&
169 PORE_DIS,&
170 POROSITY,&
171 PRESSURE,&
172 PRMX_LOG,&
173 PRMY_LOG,&
174 PRMZ_LOG,&
175 RELP_MOD,&
176 SAT_RBRN,&
177 SAT_RGAS
178!3 ...Define Morrow Zone 3 property names,
179 PROPERTY,MAT=MORRO_P3,NAMES = &
180 CAP_MOD,&
181 COMP_RCK,&
182 PC_MAX,&
183 PCT_A,&
184 PCT_EXP,&
185 KPT,&
186 PO_MIN,&
187 PORE_DIS,&
188 POROSITY,&
189 PRESSURE,&
190 PRMX_LOG,&
191 PRMY_LOG,&
192 PRMZ_LOG,&
193 RELP_MOD,&
194 SAT_RBRN,&
195 SAT_RGAS
196!4 ...Define Morrow Zone NO PAY property names,
197 PROPERTY,MAT=MORRO_NP,NAMES = &
198 CAP_MOD,&
199 COMP_RCK,&
200 PC_MAX,&
201 PCT_A,&
202 PCT_EXP,&
203 KPT,&
204 PO_MIN,&
205 PORE_DIS,&
206 POROSITY,&
207 PRESSURE,&
208 PRMX_LOG,&

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209 PRMY_LOG,&
 210 PRMZ_LOG,&
 211 RELP_MOD,&
 212 SAT_RBRN,&
 213 SAT_RGAS
 214!5 ...Define ATOKA Zone 1 property names,
 215 PROPERTY,MAT=ATOKA_P1,NAMES = &
 216 CAP_MOD,&
 217 COMP_RCK,&
 218 PC_MAX,&
 219 PCT_A,&
 220 PCT_EXP,&
 221 KPT,&
 222 PO_MIN,&
 223 PORE_DIS,&
 224 POROSITY,&
 225 PRESSURE,&
 226 PRMX_LOG,&
 227 PRMY_LOG,&
 228 PRMZ_LOG,&
 229 RELP_MOD,&
 230 SAT_RBRN,&
 231 SAT_RGAS
 232!6 ...Define ATOKA Zone 2 property names,
 233 PROPERTY,MAT=ATOKA_P2,NAMES = &
 234 CAP_MOD,&
 235 COMP_RCK,&
 236 PC_MAX,&
 237 PCT_A,&
 238 PCT_EXP,&
 239 KPT,&
 240 PO_MIN,&
 241 PORE_DIS,&
 242 POROSITY,&
 243 PRESSURE,&
 244 PRMX_LOG,&
 245 PRMY_LOG,&
 246 PRMZ_LOG,&
 247 RELP_MOD,&
 248 SAT_RBRN,&
 249 SAT_RGAS
 250!7 ...Define ATOKA Zone 3 property names,
 251 PROPERTY,MAT=ATOKA_P3,NAMES = &
 252 CAP_MOD,&
 253 COMP_RCK,&
 254 PC_MAX,&
 255 PCT_A,&
 256 PCT_EXP,&
 257 KPT,&
 258 PO_MIN,&
 259 PORE_DIS,&
 260 POROSITY,&

261 PRESSURE,&
 262 PRMX_LOG,&
 263 PRMY_LOG,&
 264 PRMZ_LOG,&
 265 RELP_MOD,&
 266 SAT_RBRN,&
 267 SAT_RGAS
 268!8 ...Define ATOKA NO PAY property names,
 269 PROPERTY,MAT=ATOKA_NP,NAMES = &
 270 CAP_MOD,&
 271 COMP_RCK,&
 272 PC_MAX,&
 273 PCT_A,&
 274 PCT_EXP,&
 275 KPT,&
 276 PO_MIN,&
 277 PORE_DIS,&
 278 POROSITY,&
 279 PRESSURE,&
 280 PRMX_LOG,&
 281 PRMY_LOG,&
 282 PRMZ_LOG,&
 283 RELP_MOD,&
 284 SAT_RBRN,&
 285 SAT_RGAS
 286!9 ...Define STRWN Zone 1 property names,
 287 PROPERTY,MAT=STRWN_P1,NAMES = &
 288 CAP_MOD,&
 289 COMP_RCK,&
 290 PC_MAX,&
 291 PCT_A,&
 292 PCT_EXP,&
 293 KPT,&
 294 PO_MIN,&
 295 PORE_DIS,&
 296 POROSITY,&
 297 PRESSURE,&
 298 PRMX_LOG,&
 299 PRMY_LOG,&
 300 PRMZ_LOG,&
 301 RELP_MOD,&
 302 SAT_RBRN,&
 303 SAT_RGAS
 304!10 ...Define STRAWN Zone 2 property names,
 305 PROPERTY,MAT=STRWN_P2,NAMES = &
 306 CAP_MOD,&
 307 COMP_RCK,&
 308 PC_MAX,&
 309 PCT_A,&
 310 PCT_EXP,&
 311 KPT,&
 312 PO_MIN,&


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313 PORE_DIS,&
314 POROSITY,&
315 PRESSURE,&
316 PRMX_LOG,&
317 PRMY_LOG,&
318 PRMZ_LOG,&
319 RELP_MOD,&
320 SAT_RBRN,&
321 SAT_RGAS
322!11 ...Define STRAWN Zone 3 property names,
323 PROPERTY,MAT=STRWN_P3,NAMES = &
324 CAP_MOD,&
325 COMP_RCK,&
326 PC_MAX,&
327 PCT_A,&
328 PCT_EXP,&
329 KPT,&
330 PO_MIN,&
331 PORE_DIS,&
332 POROSITY,&
333 PRESSURE,&
334 PRMX_LOG,&
335 PRMY_LOG,&
336 PRMZ_LOG,&
337 RELP_MOD,&
338 SAT_RBRN,&
339 SAT_RGAS
340!12 ...Define STRAWN NO PAY property names,
341 PROPERTY,MAT=STRWN_NP,NAMES = &
342 CAP_MOD,&
343 COMP_RCK,&
344 PC_MAX,&
345 PCT_A,&
346 PCT_EXP,&
347 KPT,&
348 PO_MIN,&
349 PORE_DIS,&
350 POROSITY,&
351 PRESSURE,&
352 PRMX_LOG,&
353 PRMY_LOG,&
354 PRMZ_LOG,&
355 RELP_MOD,&
356 SAT_RBRN,&
357 SAT_RGAS
358!13 ...Define BONE SPRING Zone 1 property names,
359 PROPERTY,MAT=BONES_P1,NAMES = &
360 CAP_MOD,&
361 COMP_RCK,&
362 PC_MAX,&
363 PCT_A,&
364 PCT_EXP,&

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365 KPT,&
366 PO_MIN,&
367 PORE_DIS,&
368 POROSITY,&
369 PRESSURE,&
370 PRMX_LOG,&
371 PRMY_LOG,&
372 PRMZ_LOG,&
373 RELP_MOD,&
374 SAT_RBRN,&
375 SAT_RGAS
376!14 ...Define BONE SPRING Zone 2 property names,
377 PROPERTY,MAT=BONES_P2,NAMES = &
378 CAP_MOD,&
379 COMP_RCK,&
380 PC_MAX,&
381 PCT_A,&
382 PCT_EXP,&
383 KPT,&
384 PO_MIN,&
385 PORE_DIS,&
386 POROSITY,&
387 PRESSURE,&
388 PRMX_LOG,&
389 PRMY_LOG,&
390 PRMZ_LOG,&
391 RELP_MOD,&
392 SAT_RBRN,&
393 SAT_RGAS
394!15 ...Define BONE SPRING Zone 3 property names,
395 PROPERTY,MAT=BONES_P3,NAMES = &
396 CAP_MOD,&
397 COMP_RCK,&
398 PC_MAX,&
399 PCT_A,&
400 PCT_EXP,&
401 KPT,&
402 PO_MIN,&
403 PORE_DIS,&
404 POROSITY,&
405 PRESSURE,&
406 PRMX_LOG,&
407 PRMY_LOG,&
408 PRMZ_LOG,&
409 RELP_MOD,&
410 SAT_RBRN,&
411 SAT_RGAS
412!16 ...Define BONE SPRING NO PAY property names,
413 PROPERTY,MAT=BONES_NP,NAMES = &
414 CAP_MOD,&
415 COMP_RCK,&
416 PC_MAX,&

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417 PCT_A,&
418 PCT_EXP,&
419 KPT,&
420 PO_MIN,&
421 PORE_DIS,&
422 POROSITY,&
423 PRESSURE,&
424 PRMX_LOG,&
425 PRMY_LOG,&
426 PRMZ_LOG,&
427 RELP_MOD,&
428 SAT_RBRN,&
429 SAT_RGAS
430!17 ...Define LOWER BRUSHY CANYON Zone 1 property names,
431 PROPERTY,MAT=LBRSH_P1,NAMES = &
432 CAP_MOD,&
433 COMP_RCK,&
434 PC_MAX,&
435 PCT_A,&
436 PCT_EXP,&
437 KPT,&
438 PO_MIN,&
439 PORE_DIS,&
440 POROSITY,&
441 PRESSURE,&
442 PRMX_LOG,&
443 PRMY_LOG,&
444 PRMZ_LOG,&
445 RELP_MOD,&
446 SAT_RBRN,&
447 SAT_RGAS
448!18 ...Define LOWER BRUSHY CANYON Zone 2 property names,
449 PROPERTY,MAT=LBRSH_P2,NAMES = &
450 CAP_MOD,&
451 COMP_RCK,&
452 PC_MAX,&
453 PCT_A,&
454 PCT_EXP,&
455 KPT,&
456 PO_MIN,&
457 PORE_DIS,&
458 POROSITY,&
459 PRESSURE,&
460 PRMX_LOG,&
461 PRMY_LOG,&
462 PRMZ_LOG,&
463 RELP_MOD,&
464 SAT_RBRN,&
465 SAT_RGAS
466!19 ...Define LOWER BRUSHY CANYON Zone 3 property names,
467 PROPERTY,MAT=LBRSH_P3,NAMES = &
468 CAP_MOD,&

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469 COMP_RCK,&
470 PC_MAX,&
471 PCT_A,&
472 PCT_EXP,&
473 KPT,&
474 PO_MIN,&
475 PORE_DIS,&
476 POROSITY,&
477 PRESSURE,&
478 PRMX_LOG,&
479 PRMY_LOG,&
480 PRMZ_LOG,&
481 RELP_MOD,&
482 SAT_RBRN,&
483 SAT_RGAS
484!20 ...Define UPPER BRUSHY CANYON NO PAY property names,
485 PROPERTY,MAT=UBRSH_NP,NAMES = &
486 CAP_MOD,&
487 COMP_RCK,&
488 PC_MAX,&
489 PCT_A,&
490 PCT_EXP,&
491 KPT,&
492 PO_MIN,&
493 PORE_DIS,&
494 POROSITY,&
495 PRESSURE,&
496 PRMX_LOG,&
497 PRMY_LOG,&
498 PRMZ_LOG,&
499 RELP_MOD,&
500 SAT_RBRN,&
501 SAT_RGAS
502!21 ...Define UPPER BRUSHY CANYON Zone 1 property names,
503 PROPERTY,MAT=UBRSH_P1,NAMES = &
504 CAP_MOD,&
505 COMP_RCK,&
506 PC_MAX,&
507 PCT_A,&
508 PCT_EXP,&
509 KPT,&
510 PO_MIN,&
511 PORE_DIS,&
512 POROSITY,&
513 PRESSURE,&
514 PRMX_LOG,&
515 PRMY_LOG,&
516 PRMZ_LOG,&
517 RELP_MOD,&
518 SAT_RBRN,&
519 SAT_RGAS
520!22 ...Define UPPER BRUSHY CANYON Zone 2 property names,

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521 PROPERTY,MAT=UBRSH_P2,NAMES = &
522 CAP_MOD,&
523 COMP_RCK,&
524 PC_MAX,&
525 PCT_A,&
526 PCT_EXP,&
527 KPT,&
528 PO_MIN,&
529 PORE_DIS,&
530 POROSITY,&
531 PRESSURE,&
532 PRMX_LOG,&
533 PRMY_LOG,&
534 PRMZ_LOG,&
535 RELP_MOD,&
536 SAT_RBRN,&
537 SAT_RGAS
538!23 ...Define UPPER BRUSHY CANYON Zone 3 property names,
539 PROPERTY,MAT=UBRSH_P3,NAMES = &
540 CAP_MOD,&
541 COMP_RCK,&
542 PC_MAX,&
543 PCT_A,&
544 PCT_EXP,&
545 KPT,&
546 PO_MIN,&
547 PORE_DIS,&
548 POROSITY,&
549 PRESSURE,&
550 PRMX_LOG,&
551 PRMY_LOG,&
552 PRMZ_LOG,&
553 RELP_MOD,&
554 SAT_RBRN,&
555 SAT_RGAS
556!24 ...Define LOWER BELL CANYON NO PAY property names,
557 PROPERTY,MAT=LBELL_NP,NAMES = &
558 CAP_MOD,&
559 COMP_RCK,&
560 PC_MAX,&
561 PCT_A,&
562 PCT_EXP,&
563 KPT,&
564 PO_MIN,&
565 PORE_DIS,&
566 POROSITY,&
567 PRESSURE,&
568 PRMX_LOG,&
569 PRMY_LOG,&
570 PRMZ_LOG,&
571 RELP_MOD,&
572 SAT_RBRN,&

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573 SAT_RGAS
574!25 ...Define UPPER BELL CANYON Zone 1 property names,
575 PROPERTY,MAT=UBELL_P1,NAMES = &
576 CAP_MOD,&
577 COMP_RCK,&
578 PC_MAX,&
579 PCT_A,&
580 PCT_EXP,&
581 KPT,&
582 PO_MIN,&
583 PORE_DIS,&
584 POROSITY,&
585 PRESSURE,&
586 PRMX_LOG,&
587 PRMY_LOG,&
588 PRMZ_LOG,&
589 RELP_MOD,&
590 SAT_RBRN,&
591 SAT_RGAS
592!26 ...Define UPPER BELL CANYON Zone 2 property names,
593 PROPERTY,MAT=UBELL_P2,NAMES = &
594 CAP_MOD,&
595 COMP_RCK,&
596 PC_MAX,&
597 PCT_A,&
598 PCT_EXP,&
599 KPT,&
600 PO_MIN,&
601 PORE_DIS,&
602 POROSITY,&
603 PRESSURE,&
604 PRMX_LOG,&
605 PRMY_LOG,&
606 PRMZ_LOG,&
607 RELP_MOD,&
608 SAT_RBRN,&
609 SAT_RGAS
610!27 ...Define UPPER BELL CANYON Zone 3 property names,
611 PROPERTY,MAT=UBELL_P3,NAMES = &
612 CAP_MOD,&
613 COMP_RCK,&
614 PC_MAX,&
615 PCT_A,&
616 PCT_EXP,&
617 KPT,&
618 PO_MIN,&
619 PORE_DIS,&
620 POROSITY,&
621 PRESSURE,&
622 PRMX_LOG,&
623 PRMY_LOG,&
624 PRMZ_LOG,&

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625 RELP_MOD,&
626 SAT_RBRN,&
627 SAT_RGAS
628!28...Define castiler property names,
629 PROPERTY, MAT=CASTILER, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
630 POROSITY, PORE_DIS, SAT_RGAS,&
631 SAT_RBRN, COMP_RCK, CAP_MOD,&
632 RELP_MOD, PC_MAX, PO_MIN,&
633 PCT_A, PCT_EXP, KPT,&
634 PRESSURE
635!29...Define SALADO HALITE property names,
636 PROPERTY, MAT=S_HALITE, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
637 POROSITY, PORE_DIS, SAT_RGAS,&
638 SAT_RBRN, COMP_RCK, CAP_MOD,&
639 RELP_MOD, PC_MAX, PO_MIN,&
640 PCT_A, PCT_EXP, KPT,&
641 PRESSURE
642!30...Define MB 139 property names,
643 PROPERTY, MAT=S_MB139, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
644 POROSITY, PORE_DIS, SAT_RGAS,&
645 SAT_RBRN, COMP_RCK, CAP_MOD,&
646 RELP_MOD, PC_MAX, PO_MIN,&
647 PCT_A, PCT_EXP, KPT,&
648 BKLINK, EXPKLINK
649!30b...Define MARKER BED 139 fracture model parameters
650 PROPERTY, MAT=S_MB139, NAMES= DPHIMAX, PI_DELTA, PF_DELTA,&
651 IFRX, IFRY, IFRZ,&
652 KMAXLOG
653!31...Define S_MB138 + S_ANH_AB property names
654 PROPERTY, MAT=S_MB138, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
655 POROSITY, PORE_DIS, SAT_RGAS,&
656 SAT_RBRN, COMP_RCK, CAP_MOD,&
657 RELP_MOD, PC_MAX, PO_MIN,&
658 PCT_A, PCT_EXP, KPT
659!31b...Define MARKER BED 138 fracture model parameters
660 PROPERTY, MAT=S_MB138, NAMES= DPHIMAX, PI_DELTA, PF_DELTA,&
661 IFRX, IFRY, IFRZ,&
662 KMAXLOG
663!32...Define UNNAMED property names,
664 PROPERTY, MAT=UNNAMED, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
665 POROSITY, PORE_DIS, SAT_RGAS,&
666 SAT_RBRN, COMP_RCK, CAP_MOD,&
667 RELP_MOD, PC_MAX, PO_MIN,&
668 PCT_A, PCT_EXP, KPT
669!33...Define impermeable zone (Rustler including Culebra (for time period
670! -5 to 0 yrs) property names
671 PROPERTY, MAT=IMPERM_Z, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
672 POROSITY, PORE_DIS, SAT_RGAS,&
673 SAT_RBRN, COMP_RCK, CAP_MOD,&
674 RELP_MOD, PC_MAX, PO_MIN,&
675 PCT_A, PCT_EXP, KPT
676!34...Define empty CAVITY (ENTIRE repository)

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677! property names
678 PROPERTY, MAT=CAVITY_2, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
679 POROSITY, PORE_DIS, SAT_RGAS,&
680 SAT_RBRN, COMP_RCK, CAP_MOD,&
681 RELP_MOD, PC_MAX, PO_MIN,&
682 PCT_A, PCT_EXP, KPT,&
683 PRESSURE, SAT_IBRN
684!35...Define empty CAVITY (experimental room, backfill)
685! property names
686 PROPERTY, MAT=CAVITY_3, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
687 POROSITY, PORE_DIS, SAT_RGAS,&
688 SAT_RBRN, COMP_RCK, CAP_MOD,&
689 RELP_MOD, PC_MAX, PO_MIN,&
690 PCT_A, PCT_EXP, KPT,&
691 PRESSURE, SAT_IBRN
692!36...Define empty CAVITY (shaft and seals including drift and panel seals)
693! property names
694 PROPERTY, MAT=CAVITY_4, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
695 POROSITY, PORE_DIS, SAT_RGAS,&
696 SAT_RBRN, COMP_RCK, CAP_MOD,&
697 RELP_MOD, PC_MAX, PO_MIN,&
698 PCT_A, PCT_EXP, KPT,&
699 PRESSURE
700!37...Define INITIAL DRZ property names
701 PROPERTY, MAT=DRZ_0, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
702 POROSITY, PORE_DIS, SAT_RGAS,&
703 SAT_RBRN, COMP_RCK, CAP_MOD,&
704 RELP_MOD, PC_MAX, PO_MIN,&
705 PCT_A, PCT_EXP, KPT
706!38...Define INTRUSION BOREHOLE FOR 2 WELLS OUTSIDE LWB. PERM WILL BE ADDED
707! IN ALGEBRA (PERM MULTIPLIERS FOR LEAKY CASING, ETC)
708! property names
709 PROPERTY, MAT=BOREHOLE, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
710 POROSITY, PORE_DIS, SAT_RGAS,&
711 SAT_RBRN, COMP_RCK, CAP_MOD,&
712 RELP_MOD, PC_MAX, PO_MIN,&
713 PCT_A, PCT_EXP, KPT
714!39...Define DRZ (Time period 2 : 0-10000 yrs)
715! property names
716 PROPERTY, MAT=DRZ_1, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
717 POROSITY, PORE_DIS, SAT_RGAS,&
718 SAT_RBRN, COMP_RCK, CAP_MOD,&
719 RELP_MOD, PC_MAX, PO_MIN,&
720 PCT_A, PCT_EXP, KPT
721!40...Define CULEBRA property names,
722 PROPERTY, MAT=CULEBRA, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
723 POROSITY, PORE_DIS, SAT_RGAS,&
724 SAT_RBRN, COMP_RCK, CAP_MOD,&
725 RELP_MOD, PC_MAX, PO_MIN,&
726 PCT_A, PCT_EXP, KPT,&
727 PRESSURE
728!41a...Define WASTE property names

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729 PROPERTY, MAT=WAS_AREA, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 730 POROSITY, PORE_DIS, SAT_RGAS,&
 731 SAT_RBRN, COMP_RCK, CAP_MOD,&
 732 RELP_MOD, PC_MAX, PO_MIN,&
 733 PCT_A, PCT_EXP, KPT,&
 734 SAT_IBRN
 735!41b..Define the waste properties that will control gas generation by
 736! corrosion reaction and biodegradation
 737 PROPERTY, MAT=WAS_AREA, NAMES= GRATMICI, GRATMICH,&
 738 DCELLCHW, DCELLRHW, DIRONCHW,&
 739 DIRONRHW, DPLASCHW, DPLASRHW,&
 740 DRUBBCHW, DRUBBRHW, DIRNCCHW,&
 741 DIRNCRHW, DPLSCCHW, DPLSCRHW,&
 742 VOLCHW, VOLRHW, SAT_WICK,&
 743 PROBDEG
 744!42...Define OPERATIONS AREA property names
 745 PROPERTY, MAT=OPS_AREA, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 746 POROSITY, PORE_DIS, SAT_RGAS,&
 747 SAT_RBRN, COMP_RCK, CAP_MOD,&
 748 RELP_MOD, PC_MAX, PO_MIN,&
 749 PCT_A, PCT_EXP, KPT
 750!43...Define Experimental Area property names
 751 PROPERTY, MAT=EXP_AREA, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 752 POROSITY, PORE_DIS, SAT_RGAS,&
 753 SAT_RBRN, COMP_RCK, CAP_MOD,&
 754 RELP_MOD, PC_MAX, PO_MIN,&
 755 PCT_A, PCT_EXP, KPT
 756!44...Define Panel Seal (Time period 1 : 0-10000 yrs) property names
 757 PROPERTY, MAT=PAN_SEAL, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 758 POROSITY, PORE_DIS, SAT_RGAS,&
 759 SAT_RBRN, COMP_RCK, CAP_MOD,&
 760 RELP_MOD, PC_MAX, PO_MIN,&
 761 PCT_A, PCT_EXP, KPT,&
 762 SAT_IBRN
 763!45...Define upper shaft fill Rustler Clay w/o DRZ (0-10000 yrs) property names
 764 PROPERTY, MAT=CLAY_RUS, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 765 POROSITY, PORE_DIS, SAT_RGAS,&
 766 SAT_RBRN, COMP_RCK, CAP_MOD,&
 767 RELP_MOD, PC_MAX, PO_MIN,&
 768 PCT_A, PCT_EXP, KPT,&
 769 SAT_IBRN
 770!46a..Define Lower clay seal w/ DRZ (Time period 1 : 0-10 yrs) property names
 771 PROPERTY, MAT=CL_L_T1, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 772 POROSITY, PORE_DIS, SAT_RGAS,&
 773 SAT_RBRN, COMP_RCK, CAP_MOD,&
 774 RELP_MOD, PC_MAX, PO_MIN,&
 775 PCT_A, PCT_EXP, KPT,&
 776 SAT_IBRN
 777!46b..Define Lower clay seal w/ DRZ (Time period 1 : 0-10 yrs) drz dimensions
 778 PROPERTY, MAT=CL_L_T1, NAMES= RSH_AIR, RSH_SAL, RSH_WAS,&
 779 RSH_EXH, RADN_DRZ
 780!47a..Define Lower clay seal w/ DRZ (Time period 4 : 50-10000 yrs) property names

781 PROPERTY, MAT=CL_L_T4, NAMES= PRMX_LOG, PRMY_LOG, PRMZ_LOG,&
 782 POROSITY, PORE_DIS, SAT_RGAS,&
 783 SAT_RBRN, COMP_RCK, CAP_MOD,&
 784 RELP_MOD, PC_MAX, PO_MIN,&
 785 PCT_A, PCT_EXP, KPT
 786!47b..Define Lower clay seal w/ DRZ (Time period 4 : 50-10000 yrs) drz dimensions
 787 PROPERTY, MAT=CL_L_T4, NAMES= RSH_AIR, RSH_SAL, RSH_WAS,&
 788 RSH_EXH, RADN_DRZ
 789!48a..Define Salt column seal w/ DRZ (Time period 1 : 0-10 yrs) property names
 790 PROPERTY, MAT=SALT_T1, NAMES= POROSITY, PORE_DIS, SAT_RGAS,&
 791 SAT_RBRN, COMP_RCK, CAP_MOD,&
 792 RELP_MOD, PC_MAX, PO_MIN,&
 793 PCT_A, PCT_EXP, KPT,&
 794 SAT_IBRN
 795!48b..Define Salt column seal w/ DRZ (Time period 1 : 0-10 yrs) drz dimensions
 796 PROPERTY, MAT=SALT_T1, NAMES= RSH_AIR, RSH_SAL, RSH_WAS,&
 797 RSH_EXH, RADN_DRZ, PMLT_MD,&
 798 PMLT_LO, PMLT_HI, CUMPROB
 799!49a..Define Salt column seal w/ DRZ (Time period 4 : 50-100 yrs)
 800! property names
 801 PROPERTY, MAT=SALT_T4, NAMES= POROSITY, PORE_DIS, SAT_RGAS,&
 802 SAT_RBRN, COMP_RCK, CAP_MOD,&
 803 RELP_MOD, PC_MAX, PO_MIN,&
 804 PCT_A, PCT_EXP, KPT
 805!49b..Define Salt column seal w/ DRZ (Time period 4 : 50-100 yrs)
 806! drz dimensions
 807 PROPERTY, MAT=SALT_T4, NAMES= RSH_AIR, RSH_SAL, RSH_WAS,&
 808 RSH_EXH, RADN_DRZ, PMLT_MD,&
 809 PMLT_LO, PMLT_HI
 810!50a..Define Salt column seal w/ DRZ (Time period 5 : 100-200 yrs)
 811! property names
 812 PROPERTY, MAT=SALT_T5, NAMES= POROSITY, PORE_DIS, SAT_RGAS,&
 813 SAT_RBRN, COMP_RCK, CAP_MOD,&
 814 RELP_MOD, PC_MAX, PO_MIN,&
 815 PCT_A, PCT_EXP, KPT
 816!50b..Define Salt column seal w/ DRZ (Time period 5 : 100-200 yrs)
 817! drz dimensions
 818 PROPERTY, MAT=SALT_T5, NAMES= RSH_AIR, RSH_SAL, RSH_WAS,&
 819 RSH_EXH, RADN_DRZ, PMLT_MD,&
 820 PMLT_LO, PMLT_HI
 821!51a..Define Salt column seal w/ DRZ (Time period 6 : 200-10000 yrs)
 822! property names
 823 PROPERTY, MAT=SALT_T6, NAMES= POROSITY, PORE_DIS, SAT_RGAS,&
 824 SAT_RBRN, COMP_RCK, CAP_MOD,&
 825 RELP_MOD, PC_MAX, PO_MIN,&
 826 PCT_A, PCT_EXP, KPT
 827!51b..Define Salt column seal w/ DRZ (Time period 6 : 200-10000 yrs)
 828! drz dimensions
 829 PROPERTY, MAT=SALT_T6, NAMES= RSH_AIR, RSH_SAL, RSH_WAS,&
 830 RSH_EXH, RADN_DRZ, PMLT_MD,&
 831 PMLT_LO, PMLT_HI
 832!

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833!52. Define BRINE property names
834 PROPERTY, MAT=BRINESAL, NAMES=  DNSFLUID, WTF,  COMPRES,&
835          VISCO,  REF_TEMP, REF_PRES
836!53. Define GAS (H2) property names
837 PROPERTY, MAT=H2,  NAMES=  VISCO
838!54. Define SULFATE property names
839 PROPERTY, MAT=SULFATE, NAMES=  QINIT
840!55. Define NITRATE property names
841 PROPERTY, MAT=NITRATE, NAMES=  QINIT
842!56. Define STEEL property names
843 PROPERTY, MAT=STEEL, NAMES=  CORRMC02, CORRWCO2, HUMCORR,&
844          STOIFX
845!57. Define CELLULS property names
846 PROPERTY, MAT=CELLULS, NAMES=  FBETA
847!58. Define REFCON property names
848 PROPERTY, MAT=REFCON, NAMES=  GRAVACC, PI,  VPANLEX,&
849          VROOM,  VREPOS, DRROOM,&
850          YRSEC,  SECYR,  ASDRUM,&
851          ATPA,
852!
853!59 SURFACE BOREHOLE, ABANDONED PERMEABILITY
854! property names
855 PROPERTY, MAT=BH_SUR_A, NAMES=  PRMY_MUL,&
856          POROSITY,  PORE_DIS, SAT_RGAS,&
857          SAT_RBRN,  COMP_RCK, CAP_MOD,&
858          RELP_MOD,  PC_MAX,  PO_MIN,&
859          PCT_A,  PCT_EXP, KPT
860!60 SURFACE BOREHOLE, LEAKING PERMEABILITY
861! property names
862 PROPERTY, MAT=BH_SUR_L, NAMES=  PRMY_MUL,&
863          POROSITY,  PORE_DIS, SAT_RGAS,&
864          SAT_RBRN,  COMP_RCK, CAP_MOD,&
865          RELP_MOD,  PC_MAX,  PO_MIN,&
866          PCT_A,  PCT_EXP, KPT
867!
868!61 BOREHOLE THRU SALT, ABANDONED PERMEABILITY
869! property names
870 PROPERTY, MAT=BH_SLT_A, NAMES=  PRMY_MUL,&
871          POROSITY,  PORE_DIS, SAT_RGAS,&
872          SAT_RBRN,  COMP_RCK, CAP_MOD,&
873          RELP_MOD,  PC_MAX,  PO_MIN,&
874          PCT_A,  PCT_EXP, KPT
875!62 BOREHOLE THRU SALT, LEAKING PERMEABILITY
876! property names
877 PROPERTY, MAT=BH_SLT_L, NAMES=  PRMY_MUL,&
878          POROSITY,  PORE_DIS, SAT_RGAS,&
879          SAT_RBRN,  COMP_RCK, CAP_MOD,&
880          RELP_MOD,  PC_MAX,  PO_MIN,&
881          PCT_A,  PCT_EXP, KPT
882!
883!63 DEEP UNITS BOREHOLE, ABANDONED PERMEABILITY
884! property names

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885 PROPERTY, MAT=BH_LOW_A, NAMES=  PRMY_MUL,&
886          POROSITY,  PORE_DIS, SAT_RGAS,&
887          SAT_RBRN,  COMP_RCK, CAP_MOD,&
888          RELP_MOD,  PC_MAX,  PO_MIN,&
889          PCT_A,  PCT_EXP, KPT
890!64 DEEP UNITS BOREHOLE, LEAKING PERMEABILITY
891! property names
892 PROPERTY, MAT=BH_LOW_L, NAMES=  PRMY_MUL,&
893          POROSITY,  PORE_DIS, SAT_RGAS,&
894          SAT_RBRN,  COMP_RCK, CAP_MOD,&
895          RELP_MOD,  PC_MAX,  PO_MIN,&
896          PCT_A,  PCT_EXP, KPT
897!65...Define INTRUSION BOREHOLE: CONCRETE PLUG SECTION
898! property names
899 PROPERTY, MAT=CONC_PLG, NAMES=  PRMX_LOG,  PRMY_LOG,  PRMZ_LOG,&
900          POROSITY,  PORE_DIS, SAT_RGAS,&
901          SAT_RBRN,  COMP_RCK, CAP_MOD,&
902          RELP_MOD,  PC_MAX,  PO_MIN,&
903          PCT_A,  PCT_EXP, KPT
904!66...Define INTRUSION BOREHOLE: OPEN BOREHOLE SECTION
905! property names
906 PROPERTY, MAT=BH_OPEN, NAMES=  PRMX_LOG,  PRMY_LOG,  PRMZ_LOG,&
907          POROSITY,  PORE_DIS, SAT_RGAS,&
908          SAT_RBRN,  COMP_RCK, CAP_MOD,&
909          RELP_MOD,  PC_MAX,  PO_MIN,&
910          PCT_A,  PCT_EXP, KPT
911!67...Define INTRUSION BOREHOLE: SILTY-SAND BOREHOLE SECTION
912! property names
913 PROPERTY, MAT=BH_SAND, NAMES=  PRMX_LOG,  PRMY_LOG,  PRMZ_LOG,&
914          POROSITY,  PORE_DIS, SAT_RGAS,&
915          SAT_RBRN,  COMP_RCK, CAP_MOD,&
916          RELP_MOD,  PC_MAX,  PO_MIN,&
917          PCT_A,  PCT_EXP, KPT
918!68...Define INTRUSION BOREHOLE: CREEP CLOSURE SILTY SAND SECTION
919! property names
920 PROPERTY, MAT=BH_CREEP, NAMES=  PRMX_LOG,  PRMY_LOG,  PRMZ_LOG,&
921          POROSITY,  PORE_DIS, SAT_RGAS,&
922          SAT_RBRN,  COMP_RCK, CAP_MOD,&
923          RELP_MOD,  PC_MAX,  PO_MIN,&
924          PCT_A,  PCT_EXP, KPT
925!
926=
927*SET
928!
929!...Specify property values for those not currently obtainable from the
930! PROPERTY.SDB. Also those that may be equal to a sampled value in ALGERBA
931! (many will be redefined in the ALGEBRA step)
932!
933!
934!...Set values Morrow Zone 1 properties not in database,
935 PROPERTY, MAT=MORRO_P1, NAME*VALUE: &
936 CAP_MOD=1.0000E+000,&

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937 COMP_RCK=3.0154E-010,&
 938 PC_MAX=1.0000E+008,&
 939 PCT_A=0.0000E+000,&
 940 PCT_EXP=0.0000E+000,&
 941 KPT=0.0000E+000,&
 942 PO_MIN=1.0132E+005,&
 943 PORE_DIS=7.0000E-001,&
 944 POROSITY=1.1000E-001,&
 945 PRESSURE=5.2920E+007,&
 946 PRMX_LOG=-1.3686E+001,&
 947 PRMY_LOG=-1.9686E+001,&
 948 PRMZ_LOG=-1.3686E+001,&
 949 RELP_MOD=4.0000E+000,&
 950 SAT_RBRN=2.0000E-001,&
 951 SAT_RGAS=1.0000E-002
 952!2 ...Set values Morrow Zone 2 properties not in database.,
 953 PROPERTY,MAT=MORRO_P2,NAME*VALUE: &
 954 CAP_MOD=1.0000E+000,&
 955 COMP_RCK=3.0154E-010,&
 956 PC_MAX=1.0000E+008,&
 957 PCT_A=0.0000E+000,&
 958 PCT_EXP=0.0000E+000,&
 959 KPT=0.0000E+000,&
 960 PO_MIN=1.0132E+005,&
 961 PORE_DIS=7.0000E-001,&
 962 POROSITY=1.1000E-001,&
 963 PRESSURE=5.2920E+007,&
 964 PRMX_LOG=-1.3686E+001,&
 965 PRMY_LOG=-1.9686E+001,&
 966 PRMZ_LOG=-1.3686E+001,&
 967 RELP_MOD=4.0000E+000,&
 968 SAT_RBRN=2.0000E-001,&
 969 SAT_RGAS=1.0000E-002
 970!3 ...Set values Morrow Zone 3 properties not in database.,
 971 PROPERTY,MAT=MORRO_P3,NAME*VALUE: &
 972 CAP_MOD=1.0000E+000,&
 973 COMP_RCK=3.0154E-010,&
 974 PC_MAX=1.0000E+008,&
 975 PCT_A=0.0000E+000,&
 976 PCT_EXP=0.0000E+000,&
 977 KPT=0.0000E+000,&
 978 PO_MIN=1.0132E+005,&
 979 PORE_DIS=7.0000E-001,&
 980 POROSITY=1.1000E-001,&
 981 PRESSURE=5.2920E+007,&
 982 PRMX_LOG=-1.3686E+001,&
 983 PRMY_LOG=-1.9686E+001,&
 984 PRMZ_LOG=-1.3686E+001,&
 985 RELP_MOD=4.0000E+000,&
 986 SAT_RBRN=2.0000E-001,&
 987 SAT_RGAS=1.0000E-002
 988!4 ...Set values Morrow Zone NO PAY properties not in database.,

989 PROPERTY,MAT=MORRO_NP,NAME*VALUE: &
 990 CAP_MOD=1.0000E+000,&
 991 COMP_RCK=3.0813E-010,&
 992 PC_MAX=1.0000E+008,&
 993 PCT_A=0.0000E+000,&
 994 PCT_EXP=0.0000E+000,&
 995 KPT=0.0000E+000,&
 996 PO_MIN=1.0132E+005,&
 997 PORE_DIS=7.0000E-001,&
 998 POROSITY=4.0000E-002,&
 999 PRESSURE=5.1634E+007,&
 1000 PRMX_LOG=-1.5750E+001,&
 1001 PRMY_LOG=-1.9750E+001,&
 1002 PRMZ_LOG=-1.5750E+001,&
 1003 RELP_MOD=4.0000E+000,&
 1004 SAT_RBRN=2.0000E-001,&
 1005 SAT_RGAS=1.0000E-002
 1006!5 ...Set values ATOKA Zone 1 properties not in database.,
 1007 PROPERTY,MAT=ATOKA_P1,NAME*VALUE: &
 1008 CAP_MOD=1.0000E+000,&
 1009 COMP_RCK=3.1494E-010,&
 1010 PC_MAX=1.0000E+008,&
 1011 PCT_A=0.0000E+000,&
 1012 PCT_EXP=0.0000E+000,&
 1013 KPT=0.0000E+000,&
 1014 PO_MIN=1.0132E+005,&
 1015 PORE_DIS=7.0000E-001,&
 1016 POROSITY=9.0000E-002,&
 1017 PRESSURE=5.0362E+007,&
 1018 PRMX_LOG=-1.3686E+001,&
 1019 PRMY_LOG=-1.9686E+001,&
 1020 PRMZ_LOG=-1.3686E+001,&
 1021 RELP_MOD=4.0000E+000,&
 1022 SAT_RBRN=2.0000E-001,&
 1023 SAT_RGAS=1.0000E-002
 1024!6 ...Set values ATOKA Zone 2 properties not in database.,
 1025 PROPERTY,MAT=ATOKA_P2,NAME*VALUE: &
 1026 CAP_MOD=1.0000E+000,&
 1027 COMP_RCK=3.1494E-010,&
 1028 PC_MAX=1.0000E+008,&
 1029 PCT_A=0.0000E+000,&
 1030 PCT_EXP=0.0000E+000,&
 1031 KPT=0.0000E+000,&
 1032 PO_MIN=1.0132E+005,&
 1033 PORE_DIS=7.0000E-001,&
 1034 POROSITY=9.0000E-002,&
 1035 PRESSURE=5.0362E+007,&
 1036 PRMX_LOG=-1.3686E+001,&
 1037 PRMY_LOG=-1.9686E+001,&
 1038 PRMZ_LOG=-1.3686E+001,&
 1039 RELP_MOD=4.0000E+000,&
 1040 SAT_RBRN=2.0000E-001,&

1041 SAT_RGAS=1.0000E-002
 1042!7 ...Set values ATOKA Zone 3 properties not in database.,
 1043 PROPERTY,MAT=ATOKA_P3,NAME*VALUE: &
 1044 CAP_MOD=1.0000E+000,&
 1045 COMP_RCK=3.1494E-010,&
 1046 PC_MAX=1.0000E+008,&
 1047 PCT_A=0.0000E+000,&
 1048 PCT_EXP=0.0000E+000,&
 1049 KPT=0.0000E+000,&
 1050 PO_MIN=1.0132E+005,&
 1051 PORE_DIS=7.0000E-001,&
 1052 POROSITY=9.0000E-002,&
 1053 PRESSURE=5.0362E+007,&
 1054 PRMX_LOG=-1.3686E+001,&
 1055 PRMY_LOG=-1.9686E+001,&
 1056 PRMZ_LOG=-1.3686E+001,&
 1057 RELP_MOD=4.0000E+000,&
 1058 SAT_RBRN=2.0000E-001,&
 1059 SAT_RGAS=1.0000E-002
 1060!8 ...Set values ATOKA NO PAY properties not in database.,
 1061 PROPERTY,MAT=ATOKA_NP,NAME*VALUE: &
 1062 CAP_MOD=1.0000E+000,&
 1063 COMP_RCK=3.2162E-010,&
 1064 PC_MAX=1.0000E+008,&
 1065 PCT_A=0.0000E+000,&
 1066 PCT_EXP=0.0000E+000,&
 1067 KPT=0.0000E+000,&
 1068 PO_MIN=1.0132E+005,&
 1069 PORE_DIS=7.0000E-001,&
 1070 POROSITY=1.0000E-002,&
 1071 PRESSURE=4.9169E+007,&
 1072 PRMX_LOG=-1.5750E+001,&
 1073 PRMY_LOG=-1.9750E+001,&
 1074 PRMZ_LOG=-1.5750E+001,&
 1075 RELP_MOD=4.0000E+000,&
 1076 SAT_RBRN=2.0000E-001,&
 1077 SAT_RGAS=1.0000E-002
 1078!9 ...Set values STRWN Zone 1 properties not in database.,
 1079 PROPERTY,MAT=STRWN_P1,NAME*VALUE: &
 1080 CAP_MOD=1.0000E+000,&
 1081 COMP_RCK=3.2863E-010,&
 1082 PC_MAX=1.0000E+008,&
 1083 PCT_A=0.0000E+000,&
 1084 PCT_EXP=0.0000E+000,&
 1085 KPT=0.0000E+000,&
 1086 PO_MIN=1.0132E+005,&
 1087 PORE_DIS=7.0000E-001,&
 1088 POROSITY=1.0000E-001,&
 1089 PRESSURE=4.7968E+007,&
 1090 PRMX_LOG=-1.3686E+001,&
 1091 PRMY_LOG=-1.9686E+001,&
 1092 PRMZ_LOG=-1.3686E+001,&

1093 RELP_MOD=4.0000E+000,&
 1094 SAT_RBRN=2.0000E-001,&
 1095 SAT_RGAS=1.0000E-002
 1096!10 ...Set values STRAWN Zone 2 properties not in database.,
 1097 PROPERTY,MAT=STRWN_P2,NAME*VALUE: &
 1098 CAP_MOD=1.0000E+000,&
 1099 COMP_RCK=3.2863E-010,&
 1100 PC_MAX=1.0000E+008,&
 1101 PCT_A=0.0000E+000,&
 1102 PCT_EXP=0.0000E+000,&
 1103 KPT=0.0000E+000,&
 1104 PO_MIN=1.0132E+005,&
 1105 PORE_DIS=7.0000E-001,&
 1106 POROSITY=1.0000E-001,&
 1107 PRESSURE=4.7968E+007,&
 1108 PRMX_LOG=-1.3686E+001,&
 1109 PRMY_LOG=-1.9686E+001,&
 1110 PRMZ_LOG=-1.3686E+001,&
 1111 RELP_MOD=4.0000E+000,&
 1112 SAT_RBRN=2.0000E-001,&
 1113 SAT_RGAS=1.0000E-002
 1114!11 ...Set values STRAWN Zone 3 properties not in database.,
 1115 PROPERTY,MAT=STRWN_P3,NAME*VALUE: &
 1116 CAP_MOD=1.0000E+000,&
 1117 COMP_RCK=3.2863E-010,&
 1118 PC_MAX=1.0000E+008,&
 1119 PCT_A=0.0000E+000,&
 1120 PCT_EXP=0.0000E+000,&
 1121 KPT=0.0000E+000,&
 1122 PO_MIN=1.0132E+005,&
 1123 PORE_DIS=7.0000E-001,&
 1124 POROSITY=1.0000E-001,&
 1125 PRESSURE=4.7968E+007,&
 1126 PRMX_LOG=-1.3686E+001,&
 1127 PRMY_LOG=-1.9686E+001,&
 1128 PRMZ_LOG=-1.3686E+001,&
 1129 RELP_MOD=4.0000E+000,&
 1130 SAT_RBRN=2.0000E-001,&
 1131 SAT_RGAS=1.0000E-002
 1132!12 ...Set values STRAWN NO PAY properties not in database.,
 1133 PROPERTY,MAT=STRWN_NP,NAME*VALUE: &
 1134 CAP_MOD=1.0000E+000,&
 1135 COMP_RCK=3.6990E-010,&
 1136 PC_MAX=1.0000E+008,&
 1137 PCT_A=0.0000E+000,&
 1138 PCT_EXP=0.0000E+000,&
 1139 KPT=0.0000E+000,&
 1140 PO_MIN=1.0132E+005,&
 1141 PORE_DIS=7.0000E-001,&
 1142 POROSITY=2.0000E-002,&
 1143 PRESSURE=4.1817E+007,&
 1144 PRMX_LOG=-1.5750E+001,&

1145 PRMY_LOG=-1.9750E+001,&
 1146 PRMZ_LOG=-1.5750E+001,&
 1147 RELP_MOD=4.0000E+000,&
 1148 SAT_RBRN=2.0000E-001,&
 1149 SAT_RGAS=1.0000E-002
 1150!13 ...Set values BONE SPRING Zone 1 properties not in database.,
 1151 PROPERTY,MAT=BONES_P1,NAME*VALUE: &
 1152 CAP_MOD=1.0000E+000,&
 1153 COMP_RCK=4.2321E-010,&
 1154 PC_MAX=1.0000E+008,&
 1155 PCT_A=0.0000E+000,&
 1156 PCT_EXP=0.0000E+000,&
 1157 KPT=0.0000E+000,&
 1158 PO_MIN=1.0132E+005,&
 1159 PORE_DIS=7.0000E-001,&
 1160 POROSITY=1.1500E-001,&
 1161 PRESSURE=3.5649E+007,&
 1162 PRMX_LOG=-1.3686E+001,&
 1163 PRMY_LOG=-1.9686E+001,&
 1164 PRMZ_LOG=-1.3686E+001,&
 1165 RELP_MOD=4.0000E+000,&
 1166 SAT_RBRN=2.0000E-001,&
 1167 SAT_RGAS=1.0000E-002
 1168!14 ...Set values BONE SPRING Zone 2 properties not in database.,
 1169 PROPERTY,MAT=BONES_P2,NAME*VALUE: &
 1170 CAP_MOD=1.0000E+000,&
 1171 COMP_RCK=4.2321E-010,&
 1172 PC_MAX=1.0000E+008,&
 1173 PCT_A=0.0000E+000,&
 1174 PCT_EXP=0.0000E+000,&
 1175 KPT=0.0000E+000,&
 1176 PO_MIN=1.0132E+005,&
 1177 PORE_DIS=7.0000E-001,&
 1178 POROSITY=1.1500E-001,&
 1179 PRESSURE=3.5649E+007,&
 1180 PRMX_LOG=-1.3686E+001,&
 1181 PRMY_LOG=-1.9686E+001,&
 1182 PRMZ_LOG=-1.3686E+001,&
 1183 RELP_MOD=4.0000E+000,&
 1184 SAT_RBRN=2.0000E-001,&
 1185 SAT_RGAS=1.0000E-002
 1186!15 ...Set values BONE SPRING Zone 3 properties not in database.,
 1187 PROPERTY,MAT=BONES_P3,NAME*VALUE: &
 1188 CAP_MOD=1.0000E+000,&
 1189 COMP_RCK=4.2321E-010,&
 1190 PC_MAX=1.0000E+008,&
 1191 PCT_A=0.0000E+000,&
 1192 PCT_EXP=0.0000E+000,&
 1193 KPT=0.0000E+000,&
 1194 PO_MIN=1.0132E+005,&
 1195 PORE_DIS=7.0000E-001,&
 1196 POROSITY=1.1500E-001,&

1197 PRESSURE=3.5649E+007,&
 1198 PRMX_LOG=-1.3686E+001,&
 1199 PRMY_LOG=-1.9686E+001,&
 1200 PRMZ_LOG=-1.3686E+001,&
 1201 RELP_MOD=4.0000E+000,&
 1202 SAT_RBRN=2.0000E-001,&
 1203 SAT_RGAS=1.0000E-002
 1204!16 ...Set values BONE SPRING NO PAY properties not in database.,
 1205 PROPERTY,MAT=BONES_NP,NAME*VALUE: &
 1206 CAP_MOD=1.0000E+000,&
 1207 COMP_RCK=4.5756E-010,&
 1208 PC_MAX=1.0000E+008,&
 1209 PCT_A=0.0000E+000,&
 1210 PCT_EXP=0.0000E+000,&
 1211 KPT=0.0000E+000,&
 1212 PO_MIN=1.0132E+005,&
 1213 PORE_DIS=7.0000E-001,&
 1214 POROSITY=1.4000E-001,&
 1215 PRESSURE=3.2436E+007,&
 1216 PRMX_LOG=-1.5750E+001,&
 1217 PRMY_LOG=-1.9750E+001,&
 1218 PRMZ_LOG=-1.5750E+001,&
 1219 RELP_MOD=4.0000E+000,&
 1220 SAT_RBRN=2.0000E-001,&
 1221 SAT_RGAS=1.0000E-002
 1222!17 ...Set values LOWER BRUSHY CANYON Zone 1 properties not in database.,
 1223 PROPERTY,MAT=LBRSH_P1,NAME*VALUE: &
 1224 CAP_MOD=1.0000E+000,&
 1225 COMP_RCK=4.9765E-010,&
 1226 PC_MAX=1.0000E+008,&
 1227 PCT_A=0.0000E+000,&
 1228 PCT_EXP=0.0000E+000,&
 1229 KPT=0.0000E+000,&
 1230 PO_MIN=1.0132E+005,&
 1231 PORE_DIS=7.0000E-001,&
 1232 POROSITY=2.9000E-001,&
 1233 PRESSURE=2.9247E+007,&
 1234 PRMX_LOG=-1.2897E+001,&
 1235 PRMY_LOG=-1.9897E+001,&
 1236 PRMZ_LOG=-1.2897E+001,&
 1237 RELP_MOD=4.0000E+000,&
 1238 SAT_RBRN=2.0000E-001,&
 1239 SAT_RGAS=1.0000E-002
 1240!18 ...Set values LOWER BRUSHY CANYON Zone 2 properties not in database.,
 1241 PROPERTY,MAT=LBRSH_P2,NAME*VALUE: &
 1242 CAP_MOD=1.0000E+000,&
 1243 COMP_RCK=4.9765E-010,&
 1244 PC_MAX=1.0000E+008,&
 1245 PCT_A=0.0000E+000,&
 1246 PCT_EXP=0.0000E+000,&
 1247 KPT=0.0000E+000,&
 1248 PO_MIN=1.0132E+005,&

1249 PORE_DIS=7.0000E-001,&
 1250 POROSITY=2.9000E-001,&
 1251 PRESSURE=2.9247E+007,&
 1252 PRMX_LOG=-1.2897E+001,&
 1253 PRMY_LOG=-1.9897E+001,&
 1254 PRMZ_LOG=-1.2897E+001,&
 1255 RELP_MOD=4.0000E+000,&
 1256 SAT_RBRN=2.0000E-001,&
 1257 SAT_RGAS=1.0000E-002
 1258 !19 ...Set values LOWER BRUSHY CANYON Zone 3 properties not in database.,
 1259 PROPERTY,MAT=LBRSR_P3,NAME*VALUE: &
 1260 CAP_MOD=1.0000E+000,&
 1261 COMP_RCK=4.9765E-010,&
 1262 PC_MAX=1.0000E+008,&
 1263 PCT_A=0.0000E+000,&
 1264 PCT_EXP=0.0000E+000,&
 1265 KPT=0.0000E+000,&
 1266 PO_MIN=1.0132E+005,&
 1267 PORE_DIS=7.0000E-001,&
 1268 POROSITY=2.9000E-001,&
 1269 PRESSURE=2.9247E+007,&
 1270 PRMX_LOG=-1.2897E+001,&
 1271 PRMY_LOG=-1.9897E+001,&
 1272 PRMZ_LOG=-1.2897E+001,&
 1273 RELP_MOD=4.0000E+000,&
 1274 SAT_RBRN=2.0000E-001,&
 1275 SAT_RGAS=1.0000E-002
 1276 !20 ...Set values UPPER BRUSHY CANYON NO PAY properties not in database.,
 1277 PROPERTY,MAT=UBRSR NP,NAME*VALUE: &
 1278 CAP_MOD=1.0000E+000,&
 1279 COMP_RCK=5.4493E-010,&
 1280 PC_MAX=1.0000E+008,&
 1281 PCT_A=0.0000E+000,&
 1282 PCT_EXP=0.0000E+000,&
 1283 KPT=0.0000E+000,&
 1284 PO_MIN=1.0132E+005,&
 1285 PORE_DIS=7.0000E-001,&
 1286 POROSITY=1.4000E-001,&
 1287 PRESSURE=2.6089E+007,&
 1288 PRMX_LOG=-1.6006E+001,&
 1289 PRMY_LOG=-1.9006E+001,&
 1290 PRMZ_LOG=-1.6006E+001,&
 1291 RELP_MOD=4.0000E+000,&
 1292 SAT_RBRN=2.0000E-001,&
 1293 SAT_RGAS=1.0000E-002
 1294 !21 ...Set values UPPER BRUSHY CANYON Zone 1 properties not in database.,
 1295 PROPERTY,MAT=UBRSR_P1,NAME*VALUE: &
 1296 CAP_MOD=1.0000E+000,&
 1297 COMP_RCK=6.0195E-010,&
 1298 PC_MAX=1.0000E+008,&
 1299 PCT_A=0.0000E+000,&
 1300 PCT_EXP=0.0000E+000,&

1301 KPT=0.0000E+000,&
 1302 PO_MIN=1.0132E+005,&
 1303 PORE_DIS=7.0000E-001,&
 1304 POROSITY=2.9000E-001,&
 1305 PRESSURE=2.2940E+007,&
 1306 PRMX_LOG=-1.2897E+001,&
 1307 PRMY_LOG=-1.9897E+001,&
 1308 PRMZ_LOG=-1.2897E+001,&
 1309 RELP_MOD=4.0000E+000,&
 1310 SAT_RBRN=2.0000E-001,&
 1311 SAT_RGAS=1.0000E-002
 1312 !22 ...Set values UPPER BRUSHY CANYON Zone 2 properties not in database.,
 1313 PROPERTY,MAT=UBRSR_P2,NAME*VALUE: &
 1314 CAP_MOD=1.0000E+000,&
 1315 COMP_RCK=6.0195E-010,&
 1316 PC_MAX=1.0000E+008,&
 1317 PCT_A=0.0000E+000,&
 1318 PCT_EXP=0.0000E+000,&
 1319 KPT=0.0000E+000,&
 1320 PO_MIN=1.0132E+005,&
 1321 PORE_DIS=7.0000E-001,&
 1322 POROSITY=2.9000E-001,&
 1323 PRESSURE=2.2940E+007,&
 1324 PRMX_LOG=-1.2897E+001,&
 1325 PRMY_LOG=-1.9897E+001,&
 1326 PRMZ_LOG=-1.2897E+001,&
 1327 RELP_MOD=4.0000E+000,&
 1328 SAT_RBRN=2.0000E-001,&
 1329 SAT_RGAS=1.0000E-002
 1330 !23 ...Set values UPPER BRUSHY CANYON Zone 3 properties not in database.,
 1331 PROPERTY,MAT=UBRSR_P3,NAME*VALUE: &
 1332 CAP_MOD=1.0000E+000,&
 1333 COMP_RCK=6.0195E-010,&
 1334 PC_MAX=1.0000E+008,&
 1335 PCT_A=0.0000E+000,&
 1336 PCT_EXP=0.0000E+000,&
 1337 KPT=0.0000E+000,&
 1338 PO_MIN=1.0132E+005,&
 1339 PORE_DIS=7.0000E-001,&
 1340 POROSITY=2.9000E-001,&
 1341 PRESSURE=2.2940E+007,&
 1342 PRMX_LOG=-1.2897E+001,&
 1343 PRMY_LOG=-1.9897E+001,&
 1344 PRMZ_LOG=-1.2897E+001,&
 1345 RELP_MOD=4.0000E+000,&
 1346 SAT_RBRN=2.0000E-001,&
 1347 SAT_RGAS=1.0000E-002
 1348 !24 ...Set values LOWER BELL CANYON NO PAY properties not in database.,
 1349 PROPERTY,MAT=LBELL NP,NAME*VALUE: &
 1350 CAP_MOD=1.0000E+000,&
 1351 COMP_RCK=6.7673E-010,&
 1352 PC_MAX=1.0000E+008,&

1353 PCT_A=0.0000E+000,&
 1354 PCT_EXP=0.0000E+000,&
 1355 KPT=0.0000E+000,&
 1356 PO_MIN=1.0132E+005,&
 1357 PORE_DIS=7.0000E-001,&
 1358 POROSITY=1.4000E-001,&
 1359 PRESSURE=1.9615E+007,&
 1360 PRMX_LOG=-1.6006E+001,&
 1361 PRMY_LOG=-1.9006E+001,&
 1362 PRMZ_LOG=-1.6006E+001,&
 1363 RELP_MOD=4.0000E+000,&
 1364 SAT_RBRN=2.0000E-001,&
 1365 SAT_RGAS=1.0000E-002
 1366!25 ...Set values UPPER BELL CANYON Zone 1 properties not in database.,
 1367 PROPERTY,MAT=UBELL_P1,NAME*VALUE: &
 1368 CAP_MOD=1.0000E+000,&
 1369 COMP_RCK=7.9476E-010,&
 1370 PC_MAX=1.0000E+008,&
 1371 PCT_A=0.0000E+000,&
 1372 PCT_EXP=0.0000E+000,&
 1373 KPT=0.0000E+000,&
 1374 PO_MIN=1.0132E+005,&
 1375 PORE_DIS=7.0000E-001,&
 1376 POROSITY=2.9000E-001,&
 1377 PRESSURE=1.5640E+007,&
 1378 PRMX_LOG=-1.2897E+001,&
 1379 PRMY_LOG=-1.9897E+001,&
 1380 PRMZ_LOG=-1.2897E+001,&
 1381 RELP_MOD=4.0000E+000,&
 1382 SAT_RBRN=2.0000E-001,&
 1383 SAT_RGAS=1.0000E-002
 1384!26 ...Set values UPPER BELL CANYON Zone 2 properties not in database.,
 1385 PROPERTY,MAT=UBELL_P2,NAME*VALUE: &
 1386 CAP_MOD=1.0000E+000,&
 1387 COMP_RCK=7.9476E-010,&
 1388 PC_MAX=1.0000E+008,&
 1389 PCT_A=0.0000E+000,&
 1390 PCT_EXP=0.0000E+000,&
 1391 KPT=0.0000E+000,&
 1392 PO_MIN=1.0132E+005,&
 1393 PORE_DIS=7.0000E-001,&
 1394 POROSITY=2.9000E-001,&
 1395 PRESSURE=1.5640E+007,&
 1396 PRMX_LOG=-1.2897E+001,&
 1397 PRMY_LOG=-1.9897E+001,&
 1398 PRMZ_LOG=-1.2897E+001,&
 1399 RELP_MOD=4.0000E+000,&
 1400 SAT_RBRN=2.0000E-001,&
 1401 SAT_RGAS=1.0000E-002
 1402!27 ...Set values UPPER BELL CANYON Zone 3 properties not in database.,
 1403 PROPERTY,MAT=UBELL_P3,NAME*VALUE: &
 1404 CAP_MOD=1.0000E+000,&

1405 COMP_RCK=7.9476E-010,&
 1406 PC_MAX=1.0000E+008,&
 1407 PCT_A=0.0000E+000,&
 1408 PCT_EXP=0.0000E+000,&
 1409 KPT=0.0000E+000,&
 1410 PO_MIN=1.0132E+005,&
 1411 PORE_DIS=7.0000E-001,&
 1412 POROSITY=2.9000E-001,&
 1413 PRESSURE=1.5640E+007,&
 1414 PRMX_LOG=-1.2897E+001,&
 1415 PRMY_LOG=-1.9897E+001,&
 1416 PRMZ_LOG=-1.2897E+001,&
 1417 RELP_MOD=4.0000E+000,&
 1418 SAT_RBRN=2.0000E-001,&
 1419 SAT_RGAS=1.0000E-002
 1420!28 ...Set values castiler properties not in database
 1421! PERMEABILITIES FOR CASTILE NOT BRINE POCKET
 1422 PROPERTY,MAT=CASTILER,NAME*VALUE: &
 1423 PRMX_LOG=-1.8000E+001,&
 1424 PRMY_LOG=-1.9000E+001,&
 1425 PRMZ_LOG=-1.8000E+001,&
 1426!
 1427 PROPERTY, MAT=CLAY_RUS, NAMES*VALUE: PO_MIN= 101325.0
 1428 PROPERTY, MAT=REFCON, NAMES*VALUE: ASDRUM= 6.0
 1429 PROPERTY, MAT=REFCON, NAMES*VALUE: DRROOM= 6804.0
 1430!
 1431!59 SURFACE BOREHOLE, ABANDONED PERMEABILITY
 1432! property names
 1433 PROPERTY, MAT=BH_SUR_A, NAMES*VALUE: PRMY_MUL=2.041,&
 1434 POROSITY=0, PORE_DIS=0, SAT_RGAS=0,&
 1435 SAT_RBRN=0, COMP_RCK=0, CAP_MOD=0,&
 1436 RELP_MOD=0, PC_MAX=0, PO_MIN=0,&
 1437 PCT_A=0, PCT_EXP=0, KPT=0
 1438!60 SURFACE BOREHOLE, LEAKING PERMEABILITY
 1439! property names
 1440 PROPERTY, MAT=BH_SUR_L, NAMES*VALUE: PRMY_MUL=8.487E-01,&
 1441 POROSITY=0, PORE_DIS=0, SAT_RGAS=0,&
 1442 SAT_RBRN=0, COMP_RCK=0, CAP_MOD=0,&
 1443 RELP_MOD=0, PC_MAX=0, PO_MIN=0,&
 1444 PCT_A=0, PCT_EXP=0, KPT=0
 1445!
 1446!61 BOREHOLE THRU SALT, ABANDONED PERMEABILITY
 1447! property names
 1448 PROPERTY, MAT=BII_SLT_A, NAMES*VALUE: PRMY_MUL=1.0,&
 1449 POROSITY=0, PORE_DIS=0, SAT_RGAS=0,&
 1450 SAT_RBRN=0, COMP_RCK=0, CAP_MOD=0,&
 1451 RELP_MOD=0, PC_MAX=0, PO_MIN=0,&
 1452 PCT_A=0, PCT_EXP=0, KPT=0
 1453!62 BOREHOLE THRU SALT, LEAKING PERMEABILITY
 1454! property names
 1455 PROPERTY, MAT=BII_SLT_L, NAMES*VALUE: PRMY_MUL=3.827E-01,&
 1456 POROSITY=0, PORE_DIS=0, SAT_RGAS=0,&

1457 SAT_RBRN=0, COMP_RCK=0, CAP_MOD=0,&
1458 RELP_MOD=0, PC_MAX=0, PO_MIN=0,&
1459 PCT_A=0, PCT_EXP=0, KPT=0
1460!
1461 !63 DEEP UNITS BOREHOLE, ABANDONED PERMEABILITY
1462! property names
1463 PROPERTY, MAT=BH_LOW_A, NAMES*VALUE: PRMY_MUL=2.399E-01,&
1464 POROSITY=0, PORE_DIS=0, SAT_RGAS=0,&
1465 SAT_RBRN=0, COMP_RCK=0, CAP_MOD=0,&
1466 RELP_MOD=0, PC_MAX=0, PO_MIN=0,&
1467 PCT_A=0, PCT_EXP=0, KPT=0

1468 !64 DEEP UNITS BOREHOLE, LEAKING PERMEABILITY
1469! property names
1470 PROPERTY, MAT=BH_LOW_L, NAMES*VALUE: PRMY_MUL=1.050E-01,&
1471 POROSITY=0, PORE_DIS=0, SAT_RGAS=0,&
1472 SAT_RBRN=0, COMP_RCK=0, CAP_MOD=0,&
1473 RELP_MOD=0, PC_MAX=0, PO_MIN=0,&
1474 PCT_A=0, PCT_EXP=0, KPT=0
1475!
1476!
1477*END

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1!=====
2!
3! TITLE: INITIAL CONDITIONS FOR BRAGFLO 1995 SIDEBAR CALCS - WATERFLOOD MODEL
4! ANALYST: D. M. STOELZEL, SNL
5! DATE: AUG 15, 1995
6!
7!   AUG 23, 1995
8!   CHANGED INITIAL BRINE SATURATIONS IN DEWEY LAKE FROM 0.20 TO 0.90
9!   (SANTA ROSA INCLUDED IN THIS LAYER)
10!
11!   FEB 29 1996
12!   NEW WATERFLOOD MESH (96X34 ELEMENTS). BASE01.INP FOR ALL DEEPER
13!   UNITS SET TO 100% BRINE FOR INITIAL CONDITIONS
14!=====
15!
16!*SET_NAMES
17 INITIAL_NAMES TYPE=ELEMENT, NUM=4, NAMES=SATBREL, PRESEL, FECONC, &
18           CH2OCONC
19!
20*SET_VALUES
21!Define start time = -5 years
22 INITIAL_VALUE, TYPE=TIME, VALUE=-1.57785e8
23!
24!Define initial brine saturations: some regions will be changed below
25 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=1,97, JRANGE=1,35, &
26           KRANGE=1,2, VALUE=1.0
27!
28!Define initial Fe concentrations
29 INITIAL_VALUE, TYPE=ELEMENT, NAME=FECONC, IRANGE=1,97, JRANGE=1,35, &
30           KRANGE=1,2, VALUE=0.0
31!
32!Define initial CH2O concentrations
33 INITIAL_VALUE, TYPE=ELEMENT, NAME=CH2OCONC, IRANGE=1,97, JRANGE=1,35, &
34           KRANGE=1,2, VALUE=0.0

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35!
36!=====
37!Set initial brine saturations
38!=====
39!
40!Define initial waste brine saturation
41 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, MATERIAL=CAVITY_2, &
42           VALUE=CAVITY_2:SAT_IBRN
43 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, MATERIAL=CAVITY_3, &
44           VALUE=CAVITY_3:SAT_IBRN
45 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, MATERIAL=CAVITY_4, &
46           VALUE=CAVITY_3:SAT_IBRN
47!Define initial saturation in panel seal
48 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=43,44, JRANGE=27,31, &
49           KRANGE=1,2, VALUE=PAN_SEAL:SAT_IBRN
50!Define initial saturation in Drift seal
51 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=51,52, JRANGE=27,31, &
52           KRANGE=1,2, VALUE=PAN_SEAL:SAT_IBRN
53!Define initial saturation in shaft
54 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=56,57, JRANGE=29,32, &
55           KRANGE=1,2, VALUE=CL_L_T1:SAT_IBRN
56 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=56,57, JRANGE=32,33, &
57           KRANGE=1,2, VALUE=SALT_T1:SAT_IBRN
58 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=56,57, JRANGE=33,35, &
59           KRANGE=1,2, VALUE=CLAY_RUS:SAT_IBRN
60!Define initial saturation in Morrow Pay regions 1,2,3. 90% gas sat assumed
61 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=1,97, JRANGE=1,2, &
62           KRANGE=1,2, VALUE=0.10
63!Define initial saturation in Atoka Pay regions 1,2,3. 90% gas sat assumed
64 INITIAL_VALUE, TYPE=ELEMENT, NAME=SATBREL, IRANGE=1,97, JRANGE=3,4, &
65           KRANGE=1,2, VALUE=0.10
66!
67*END

```

```

1!=====
2!
3!TITLE: ALGEBRACDB INPUT FILE FOR...
4! BRAGFLO 1996 NMVP calculations
5!
6!ANAYLST: James E. Bean, New Mexico Engineering Research Institute (NMERI)
7! Robert J. Mackinnon, Ecodynamics Research Associates Inc (ERAII)
8! David McArthur, Sandia National Laboratory, Albuquerque
9!
10!CREATED: February 8-??,1996
11!
12!PURPOSE: ALGEBRA file computes properties that can not be obtained
13! from CAMDAT and/or assigns properties to element blocks.
14!
15!NOTE: This input file is for the waste panel located down-dip or
16! south of the rest of the repository. Only the Salado formation
17! is dipping.
18!
19! Different gas generation and salt seal treatment from the one
20! to be used in the CCA calculations.
21!
22! FEB 29, 1996
23! THIS ALGEBRA FILE WAS ORIGINALLY JEBOAN'S .INP FOR THE 1996 NMVP
24! CALCULATION. CHANGES SPECIFIC TO THE WATERFLOOD MODEL, BASE01
25! WERE ADDED BY DM STOELZEL. BASE01 REPRESENTS MEDIAN VALUES FOR UPPER
26! UNITS, AND MEDIAN GAS GEN PARAMS (NO CO2 SORPTION)
27!
28! JUNE 14, 1996
29! CHANGES TO REFLECT NEW BHOLE PERMS
30!=====
31!*****
32!CHAPTER 0: DEFINE NEW VARIABLE NAMES AND SOME NEEDED CONSTANTS
33!*****
34!=====
35!
36!***VARIABLE DEFINITION
37! DIP1 ( IN DEGREES) = ANGLE OF DIP FOR SALADO FORMATION
38! DIP2 ( IN DEGREES) = ANGLE OF DIP FOR NON-SALADO FORMATIONS =
39! THETA1 AND THETA2 ARE IN RADIANS
40!=====
41!=====
42!DIP1 = 1.0
43!DIP2 = 0.0
44!THETA1 = DIP1*2.0*PI[B:58]/360.0
45!THETA2 = DIP2*2.0*PI[B:58]/360.0
46!=====
47!*****
48!CHAPTER 1: DEFINE AND COMPUTE HYDROLOGIC MATERIAL PROPERTIES
49!*****
50!=====
51!=====
52!*****

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53!BLOCK 29 = S_HALITE = SALADO HALITE
54!*****
55!***COMMENTS: SAMPLED PARAMETERS ARE:
56! PRMX_LOG, POROSITY, SAT_RBRN, SAT_RGAS, RELP_MOD, PORE_DIS
57! COMP_RCK
58!*****
59!LIMIT BLOCK 29
60!SINCE PRMX_LOG IS SAMPLED ASSIGN PERM_Y AND PERM_Z
61!PERM_X = 10**PRMX_LOG
62!PERM_Y = 10**PRMX_LOG
63!PERM_Z = 10**PRMX_LOG
64!SB_MIN = 1.05*SAT_RBRN
65!POR_COMP = COMP_RCK/POROSITY
66!
67!*****
68!BLOCK 37 = DRZ_0 = DRZ FROM -5 YRS TO 0 YRS
69!*****
70!***COMMENTS: SAMPLED PARAMETERS: NONE
71!CORRELATE DRZ_0 POROSITY TO SAMPLED S_HALITE BY ADDING 0.0029
72!*****
73!LIMIT BLOCK 37
74!PERM_X = 10**PRMX_LOG
75!PERM_Y = 10**PRMY_LOG
76!PERM_Z = 10**PRMZ_LOG
77!POROSITY = POROSITY[B:29] + 0.0029
78!PORE_DIS = PORE_DIS
79!RELP_MOD = RELP_MOD
80!SB_MIN = 1.05*SAT_RBRN
81!POR_COMP = COMP_RCK/POROSITY
82!
83!*****
84!BLOCK 30 = S_MB139 = SALADO MARKER BED 139
85!*****
86!***COMMENTS: SAMPLED PARAMETERS: SAT_RBRN, SAT_RGAS, PORE_DIS, AND
87! RELP_MOD
88!*****
89!LIMIT BLOCK 30
90!PERM_X = 10**PRMX_LOG
91!PERM_Y = 10**PRMY_LOG
92!PERM_Z = 10**PRMZ_LOG
93!SB_MIN = 1.05*SAT_RBRN
94!POR_COMP = COMP_RCK/POROSITY
95!PHIMAX = POROSITY + DPHIMAX
96!TEMP = POROSITY AT FRACTURE INITIATION PRESSURE
97!PI_DELTA = FRACTURE INITIATION PRESSURE - REFERENCE PRESSURE
98!TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
99!PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
100!
101!*****
102!BLOCK 31 = S_ANH_AB = SALADO ANHYDRITE LAYERS A + B
103! PLUS S_MB138 = SALADO MARKER BED 138
104!*****

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105!***COMMENTS: SAMPLED PARAMETERS: NONE
106!1) USE S_MBI39 SAMPLED VALUES FOR: SAT_RBRN, SAT_RGAS, PORE_DIS, AND RELP_MOD
107!*****
108!
109!LIMIT BLOCK 31
110!PERM_X = 10**PRMX_LOG
111!PERM_Y = 10**PRMY_LOG
112!PERM_Z = 10**PRMZ_LOG
113!RELP_MOD = RELP_MOD[B:30]
114!PORE_DIS = PORE_DIS[B:30]
115!SAT_RBRN = SAT_RBRN[B:30]
116!SAT_RGAS = SAT_RGAS[B:30]
117!SB_MIN = 1.05*SAT_RBRN
118!POR_COMP = COMP_RCK/POROSITY
119!PHIMAX = POROSITY + DPHIMAX
120!TEMP = POROSITY AT FRACTURE INITIATION PRESSURE
121!PI_DELTA = FRACTURE INITIATION PRESSURE - REFERENCE PRESSURE
122!TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
123!PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
124!
125!*****
126!BLOCK 34=CAVITY_2 = REST OF REPOSITORY WHERE WASTE WILL BE PLACED AT T=0
127!YEARS
128!BLOCK 35 = CAVITY_3 = EXPERIMENTAL REGION AND BACKFILLED REGION
129!BLOCK 36 = CAVITY_4 = SHAFT AND PANEL SEALS
130!*****
131!***COMMENTS:
132!*****
133!LIMIT BLOCK 34 35 36
134!PERM_X = 10**PRMX_LOG
135!PERM_Y = 10**PRMY_LOG
136!PERM_Z = 10**PRMZ_LOG
137!SB_MIN = 1.05*SAT_RBRN
138!POR_COMP = COMP_RCK/POROSITY
139!
140!*****
141!BLOCK 33 = IMPERM_Z
142!*****
143!***COMMENTS:
144! INCLUDES THE RUSTLER, SANTA ROSA, DEWEY LAKE, AND CASTILE.
145! USED TO CONTROL DRAINAGE OF FORMATIONS ABOVE THE SALADO INTO THE
146! SHAFT PRIOR TO T=0 YEARS. IT IS ALSO USED TO PREVENT BRINE POCKET
147! FROM BECOMING DE-PRESSURIZED PRIOR TO DRILLING INTRUSION.
148!*****
149!LIMIT BLOCK 33
150!PERM_X = 10**PRMX_LOG
151!PERM_Y = 10**PRMY_LOG
152!PERM_Z = 10**PRMZ_LOG
153!SB_MIN = 1.05*SAT_RBRN
154!POR_COMP = COMP_RCK/POROSITY
155!
156!*****

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157!BLOCK 28 = CASTILER = NO BRINE POCKET: PERMEABILITIES HAVE BEEN DECREASED
158! IN MATSET
159!*****
160!***COMMENTS:
161!*****
162!LIMIT BLOCK 28
163!PERM_X = 10**PRMX_LOG
164!PERM_Y = 10**PRMY_LOG
165!PERM_Z = 10**PRMZ_LOG
166!SB_MIN = 1.05*SAT_RBRN
167!THE COMPRESSIBILITY COMP_RCK IS LOG10(BULK COMPRESSIBILITY) (G. FREEZE)
168!POR_COMP = (10**COMP_RCK)/POROSITY
169!ACOMP_RCK = LOG(COMP_RCK*PERM_X)
170!COMP_RCK = (10**(ACOMP_RCK))/PERM_X *NOTE: HARDWIRE MEDIAN BRINE POCKET
171!PERM
172!COMP_RCK = (10**(ACOMP_RCK))/1.584892E-12
173!POR_COMP = COMP_RCK/POROSITY
174!
175!*****
176!BLOCK 41 = WAS_AREA = WASTE MATERIAL
177!*****
178!***COMMENTS: SAMPLED PARAMETERS ARE:
179!1) SAT_RBRN, SAT_RGAS, SAT_WICK
180!2) THE FOLLOWING GAS GENERATION PARAMETERS ARE PRESENTED IN TABLE 1.
181! IN THE MEMO DATED 01/02/1996, FROM Y.WANG AND L BRUSH TO M. TIERNEY,
182! SUBJECT: ESTIMATES OF GAS GENERATION PARAMETERS FOR THE LONG-TERM
183! WIPP PERFORMANCE ASSESSMENT
184!
185!*****
186!LIMIT BLOCK 41
187!HYDROLOGIC PARAMETERS
188!PERM_X = 10**PRMX_LOG
189!PERM_Y = 10**PRMY_LOG
190!PERM_Z = 10**PRMZ_LOG
191!SB_MIN = 1.05*SAT_RBRN
192!POR_COMP = COMP_RCK/POROSITY
193!*****
194! GAS GENERATION DEFINITIONS
195! SAMPLED PARAMETERS: GRATMICI, GRATMICII, PROBDEG,
196! ASSOCIATED SAMPLED PARAMETERS: CORRMC02[B:56], CORRWCO2[B:56], FBETA[B:57]
197!
198! CORRMC02[B:56] = INUNDATED STEEL CORROSION RATE [M/SEC] WITHOUT
199! MICROBIAL GAS GENERATION
200! CORRWCO2[B:56] = INUNDATED STEEL CORROSION RATE [M/SEC] WITH
201! MICROBIAL GAS GENERATION
202! GRATMICII[B:41] = RATE OF HUMID CELLULOSICS BIODEGRADATION [MOLE C/KG/SEC]
203! GRATMICI[B:41] = RATE OF INUNDATED CELLULOSICS BIODEGRADATION
204! [MOLE C/KG/SEC]
205! FBETA[B:57] = SCALING FACTOR FOR THE AVERAGE STOICHIOMETRIC FACTOR Y IN
206! THE MICROBIAL REACTION
207! PROBDEG = FLAG TO INDICATE IF BIODEGRADATION IS ACTIVATED
208! (0=NO,1=YES)

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209! PROBDEG = 0 => NO BIODEGRADATION
210! PROBDEG = 1 => BIODEGRADATION BUT NO PLASTICS AND RUBBERS
211! PROBDEG = 2 => BIODEGRADATION WITH PLASTICS AND RUBBERS
212! INCLUDED
213! PROBDEG IS A SAMPLED PARAMETER DEFINED SUCH THAT
214! IT'S VALUE IS 0 50% OF THE TIME,
215! 1 25% OF THE TIME,
216! 2 25% OF THE TIME.
217!*****
218!*****
219! STOICOR = IRON-CORROSION STOICHIOMETRIC FACTOR (Y.WANG MEMO)
220 STOICOR = MAKEPROP(STOIFX[B:56])
221!
222! CORROSION STOICHIOMETRIC FACTOR FOR H2 PRODUCTION=SCOR_H2=S(1,1)
223! SELL LINE 9.8 IN THE BRAGFLO INPUT MANUAL
224 SCOR_H2 = MAKEPROP((4 - STOICOR)/3)
225!
226! CORROSION STOICHIOMETRIC FACTOR FOR H2O CONSUMPTION=SCOR_H2O=S(1,2)
227 SCOR_H2O = MAKEPROP((4 + 2*STOICOR)/3)
228!
229! CORROSION STOICHIOMETRIC FACTOR FOR FE CONSUMPTION=SCOR_FE=S(1,3)
230 SCOR_FE = MAKEPROP(1.0)
231!
232! HUMID STEEL CORROSION RATES (KCGSH) ARE ZERO
233! HUMCORR = HUMID STEEL CORROSION RATE
234!
235!*****
236! THE FOLLOWING INVENTORY PARAMETERS ARE OBTAINED FROM THE DATA BASE
237! **REMOTE HANDLED WASTE
238! DIRONRHW = 100 KG/M**3
239! DIRNCRHW = 2591 KG/M**3
240! DCELLRHW = 17 KG/M**3
241! DRUBBRHW = 3.3 KG/M**3
242! DPLASRHW = 15 KG/M**3
243! DPLSCRHW = 3.1 KG/M**3
244! VOLRHW = 7080 M**3
245!
246! **CONTACT HANDLED WASTE
247! DIRONCHW = 170 KG/M**3
248! DIRNCCHW = 139 KG/M**3
249! DCELLCHW = 54 KG/M**3
250! DRUBBCHW = 10 KG/M**3
251! DPLASCHW = 34 KG/M**3
252! DPLSCCHW = 26 KG/M**3
253! VOLCHW = 1.69E5 M**3
254!
255!*****
256! COMPUTE AVERAGE DENSITIES
257!
258! DRH_METL = AVERAGE DENSITY OF RH METALS
259! DRH_BIO = AVERAGE DENSITY OF RH BIO
260! DCELLRIW = AVERAGE DENSITY OF RH CELL

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261! DCH_METL = AVERAGE DENSITY OF CH METALS
262! DCH_BIO = AVERAGE DENSITY OF CH BIO
263! DCELLCHW = AVERAGE DENSITY OF CH CELLULOSE
264! DRH_RUPL = AVERAGE DENSITY OF RH RUBBERS AND PLASTICS
265! DCH_RUPL = AVERAGE DENSITY OF CH RUBBERS AND PLASTICS
266!
267 DRH_METL = DIRONRHW + DIRNCRHW
268 DRH_RUPL = DRUBBRHW + 1.7*(DPLASRHW+DPLSCRHW)
269 DRH_BIO = DCELLRHW + DRH_RUPL
270 DCH_METL = DIRONCHW + DIRNCCHW
271 DCH_RUPL = DRUBBCHW + 1.7*(DPLASCHW+DPLSCCHW)
272 DCH_BIO = DCELLCHW + DCH_RUPL
273
274!
275!*****
276!
277! VPANLEX = VOLUME OF EXCAVATED PANEL = 46097.65 M**3
278! VROOM = VOLUME OF EXCAVATED ROOM = 3644.4 M**3
279! VREPOS = VOLUME OF WASTE STORAGE AREA = 436023 M**3
280! DRROOM = NUMBER OF DRUMS PER ROOM = 6804
281!
282!*****
283!
284! BIOIDX = 1 ==> MICROBIAL GAS GENERATION = YES
285! = 0 ==> MICROBIAL GAS GENERATION = NO
286! IF BIOIDX = 1, THEN
287! PLASIDX = 1 ==> DEGRADATION OF RUBBERS, PLASTICS, AND CELLULOSICS
288! = 0 ==> DEGRADATION OF CELLULOSE ONLY
289!*****
290!
291! TOTAL MASS OF CORRODIBLE METAL
292 WTFETOT = DRH_METL*VOLRHW + DCH_METL*VOLCHW
293!
294! TOTAL MASS OF CELLULOSICS ONLY
295 WTCELTOT = DCELLRHW*VOLRHW + DCELLCHW*VOLCHW
296!
297! TOTAL MASS OF RUBBER AND PLASTICS
298 WTRPLTOT = DRH_RUPL*VOLRHW + DCH_RUPL*VOLCHW
299!
300! TOTAL MASS OF BIODEGRADABLE MATERIAL
301! IF PROBDEG > 0, NOZERO BIODEGRADATION REACTION RATES (BIOIDX = 1)
302! IF PROBDEG = 2, ADD IN PLASTICS AND RUBBERS (PLASIDX = 1)
303 PLASIDX = IFEQ0(PROBDEG-2,1,0,0)
304 BIOIDX = IFGT0(PROBDEG,1,0,0)
305!
306!ALTERNATE FORM FOR SETTING PLASIDX AND BIOIDX IF DISTRIBUTION IS DIFFERENT
307! BIOIDX = MAKEPROP(0)
308! PLASIDX = MAKEPROP(0)
309! BIOIDX = IFGT0(PROBDEG - 0.50, 1,BIOIDX)
310! PLASIDX = IFGT0(PROBDEG - 0.50, 1,PLASIDX)
311! PLASIDX = IFGT0(PROBDEG - 0.75, 2,PLASIDX)
312!

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13 WTBIOTOT = WTCELTOT + WTRPLTOT*PLASIDX
14!
15! INITIAL FE CONCENTRATION = CONCFE
16! (APPEARS IN THE BRAGFLO INPUT INITIAL CONDITIONS (SEE LINE 5.6
17! IN THE BRAGFLO INPUT MANUAL))
18!
19 CONCFE = WTFETOT/VREPOS[B:58]
20!
21! INITIAL BIODEGRADABLE MATERIAL CONCENTRATION = CONCBIO
22! (APPEARS IN THE BRAGFLO INPUT INITIAL CONDITIONS (SEE LINE 5.8
23! IN THE BRAGFLO INPUT MANUAL))
24!
25 CONCBIO = WTBIOTOT/VREPOS[B:58]
26!
27! INITIAL CELLULOSICS CONCENTRATION = CONCCEL
28!
29 CH20CONC = WTCELTOT/VREPOS[B:58]
30!
31!*****
32!*****
33! THE FOLLOWING CALCULATIONS DETERMINE THE AVERAGE STOICHIOMETRIC
34! COEFFICIENT IN THE BIODEGRADATION REACTION
35!
36! DRUMVOL = NO OF DRUMS PER UNIT VOL OF WASTE STORAGE
37! DRPANEL = NO OF DRUMS PER PANEL
38! DRUMTOT = NUMBER OF DRUMS IN REPOSITORY
39
40 DRUMVOL = MAKEPROP(DRROOM[B:58]/VROOM[B:58])
41 DRUMTOT = MAKEPROP(VREPOS[B:58]*DRUMVOL)
42 DRPANEL = MAKEPROP(DRROOM[B:58]*VPANLEX[B:58]/VROOM[B:58])
43!
44! CALCULATE THE MAXIMUM QUANTITIES (IN MOLES) OF CELLULOSICS AND STEEL
45! THAT WILL BE POTENTIALLY CONSUMED IN 10000 YEARS
46! (SEE EQUATIONS 12 AND 13 IN THE Y. WANG MEMO)
47! CONVERT FROM DATABASE UNITS OF MOLES C/(KG-SEC) TO MOLES C/(KG-YR)
48!*****
49! 6 = 6 MOLES OF C/MOLE OF CELLULOSE C6-H10-O5
50! 1000 = 1000 GRAMS/KG
51! WTBIOTOT = KG
52! 162 = MW OF CELLULOSE C6-H10-O5
53 A1 = 6*1000*WTBIOTOT/162
54! 10000 = YEARS
55! GRATMIC1 = MOLES C/KG-SEC
56! YRSEC = 3.15569E7 SEC/YR
57 A2 = 10000*GRATMIC1*YRSEC[B:58]*WTBIOTOT
58 MAX_CELL = MIN(A1,A2)
59!*****
60! 10000 = GRAMS/KG
61! WTFETOT = KG
62! 56 = MW OF FE
63 B1 = 1000*WTFETOT/56
64!*****

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365! 1410 = 10000 YRS* 0.141 MOLES/MICROMETER/M**2
366! CORRWCO2 = M/SEC
367! 1000000 = MICROMETERS/M
368! YRSEC = 3.15569E7 YEARS/SEC
369! ASDRUM = M**2 STEEL/DRUM
370! DRUMTOT = DRUMS/REPOSITORY
371! B2 = MOLES
372 B2 = 1410*CORRWCO2[B:56]*1000000*YRSEC[B:58]*ASDRUM[B:58]*DRUMTOT
373 MAX_FE = MIN(B1,B2)
374!*****
375!
376! CALCULATE THE MAXIMUM VALUE OF THE AVERAGE STOICHIOMETRIC COEFFICIENT
377! Y IN THE BIODEGRADATION REACTION (SEE EQUATION 15 IN THE y. WANG MEMO)
378 MOL_NO3 = QINIT[B:55]
379 MOL_SO4 = QINIT[B:54]
380! EQUATION 15 IS NEXT
381 NUM1 = MAKEPROP(8.4*MOL_NO3/4.8)
382 NUM2 = MAKEPROP(9*MOL_SO4/3)
383 NUM3 = MAX_CELL - 6*MOL_NO3/4.8 - 6*MOL_SO4/3
384 YMAX = (NUM1+NUM2+NUM3)/MAX_CELL
385!
386! CALCULATE THE MINIMUM VALUE OF Y (SEE EQUATIONS 16 AND 17)
387 C1 = 6*MOL_NO3/4.8 + NUM2 + 0.5*NUM3
388 C2 = MAX_FE
389 G = MIN(C1,C2)
390 YMIN = YMAX - G/MAX_CELL
391!
392! THE VALUE OF Y (STOIMIC) IS (EQUATION 18)
393 STOIMIC = YMIN + FBETA[B:57]*(YMAX - YMIN)
394!
395! SBIO_H2 = S(2,1), SEE LINE 9.10 IN BRAGFLO INPUT MANUAL
396! SBIO_H2 = STOIMIC
397!
398! BIODEGRADATION STOICHIOMETRIC FACTOR FOR H2O CONSUMPTION
399! SBIO_H2O = S(2,2) = 0
400!
401! BIODEGRADATION STOICHIOMETRIC FACTOR FOR CELLULOSIC CONSUMPTION
402! SBIO_CH2O = S(2,3) = 1
403!
404! DETERMINE THE INUNDATED STEEL CORROSION RATE
405 KCGSI = CORRWCO2[B:56]*BIOIDX + CORRMCO2[B:56]*(1 - BIOIDX)
406!
407! CONVERT REACTION RATES TO GAS GENERATION RATES REQUIRED BY PREBRAG
408!
409! CONVERT THE UNITS OF KCGSI FROM M/SEC TO MOLE-FE/M3-S
410! KCGSI = KCGSI(M/SEC)*0.141 (MOLE-FE/MICRON-M2)*6(M2/DRUM)
411! *100000 MICRONS/M* (6804 DRUMS/3644.4 M3)
412 KCGSI = MAKEPROP(KCGSI*0.141*1000000*ASDRUM[B:58]* &
413 DRROOM[B:58]/VROOM[B:58])
414!
415! CONVERT THE UNITS OF HUMCORR (= KCGSI) FROM M/SEC TO MOLE-FE/M3-S
416 KCGSI = MAKEPROP(HUMCORR[B:56]*0.141*1000000*ASDRUM[B:58]* &

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417 DRROOM[B:58]/VROOM[B:58])
418!
419! COMPUTE THE INUNDATED GAS (H2) PRODUCTION RATE FROM THE REACTION RATE
420 GRATCORI = MAKEPROP(KCGSI*VPANLEX[B:58]*SCOR_H2/ASDRUM[B:58]/DRPANEL)
421!
422! COMPUTE THE HUMID GAS (H2) PRODUCTION RATE FROM THE REACTION RATE
423 GRATCORH = MAKEPROP(KCGSH*VPANLEX[B:58]*SCOR_H2/ASDRUM[B:58]/DRPANEL)
424!
425! CONVERT THE UNITS OF THE INUNDATED BIODEGRADATION RATE GRATMICI
426! GRATMICI = GRATMICI(MOLE-C/KG/SEC)*(KG-CELL/M3)
427 KBGSI = GRATMICI*CONCBIO
428!
429! COMPUTE THE INUNDATED GAS (CO2) PRODUCTION RATE FROM THE REACTION RATE
430 GRATMICI = KBGSI*STOIMIC/CONCBIO
431!
432! CONVERT THE UNITS OF THE HUMID BIODEGRADATION RATE GRATMICH
433! GRATMICH = GRATMICH(MOLE-C/KG/SEC)
434 KBGSH = GRATMICH*CONCBIO
435!
436! NOW CONVERT KBGSH TO THE GAS GENERATION RATE REQUIRED BY PREBRAG
437 GRATMICH = KBGSH*STOIMIC/CONCBIO
438!
439! COMPUTE RATIO OF HUMID TO INUNDATED (STORE IN HUMID)
440! FOR INPUT TO PREBRAG
441 GRATMICH = GRATMICH/GRATMICI
442 GRATCORH = GRATCORH/GRATCORI
443!
444!*****
445!BLOCK 32 UNNAMED MEMBER OF RUSTLER
446!*****
447!***COMMENTS:
448!*****
449LIMIT BLOCK 32
450PERM_X = 10**PRMX_LOG
451PERM_Y = 10**PRMY_LOG
452PERM_Z = 10**PRMZ_LOG
453SB_MIN = 1.05*SAT_RBRN
454POR_COMP = COMP_RCK/POROSITY
455!
456!*****
457!BLOCK 40 CULEBRA MEMBER OF RUSTLER
458!*****
459!***COMMENTS:
460!*****
461LIMIT BLOCK 40
462PERM_X = 10**PRMX_LOG
463PERM_Y = 10**PRMY_LOG
464PERM_Z = 10**PRMZ_LOG
465SB_MIN = 1.05*SAT_RBRN
466POR_COMP = COMP_RCK/POROSITY
467!
468!*****

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469!
470!*****
471!BLOCK 42 OPERATIONS REGION
472!BLOCK 43 EXPERIMENTAL REGION
473!*****
474!***COMMENTS:
475! Operations and experimental region have same properties
476!*****
477LIMIT BLOCK 42 43
478PERM_X = 10**PRMX_LOG
479PERM_Y = 10**PRMY_LOG
480PERM_Z = 10**PRMZ_LOG
481SB_MIN = 1.05*SAT_RBRN
482POR_COMP = COMP_RCK/POROSITY
483!
484!*****
485!BLOCK 45 CLAY_RUS
486!*****
487!***COMMENTS:
488! Clay shaft fill used in the Rustler formation:
489! Constant properties from 0 to 10000 years
490!*****
491LIMIT BLOCK 45
492!*****
493PERM_X = 10**PRMX_LOG
494PERM_Y = 10**PRMY_LOG
495PERM_Z = 10**PRMZ_LOG
496SB_MIN = 1.05*SAT_RBRN
497!POR_COMP = COMP_RCK/POROSITY
498POR_COMP = COMP_RCK
499!
500!*****
501!BLOCK 46 CL_L_T1
502!*****
503!***COMMENTS:
504! Clay shaft material
505! Time period 1: 0 to 10 years
506!*****
507LIMIT BLOCK 46
508PX_SALT = MAKEPROP(PERM_X[B:29])
509AKIS1 = 10**PRMX_LOG
510!*****
511! CALCULATE AREA OF THE FOUR SHAFTS:
512AAS1 = PI[B:58]*RSH_AIR**2
513ASS2 = PI[B:58]*RSH_SAL**2
514AWS3 = PI[B:58]*RSH_WAS**2
515AES4 = PI[B:58]*RSH_EXH**2
516AST = AAS1 + ASS2 + AWS3 + AES4
517!*****
518! CALCULATE DRZ AREAS FOR EACH SHAFT:
519RDF = RADN_DRZ**2 - 1.0
520AAD1 = PI[B:58]*RDF*RSH_AIR**2

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521 ASD2 = PI[B:58]*RDF*RSH_SAL**2
522 AWD3 = PI[B:58]*RDF*RSH_WAS**2
523 AED4 = PI[B:58]*RDF*RSH_EXH**2
524 !*****
525 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
526 !
527 ADR = (RADN_DRZ - 1)*RSH_AIR
528 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
529 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
530 ATRM1 = ANUM1/DEN*PX_SALT
531 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
532 ATRM2 = ANUM2/DEN*AKIS1
533 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
534 !*****
535 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
536 !
537 SDR = (RADN_DRZ - 1)*RSH_SAL
538 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
539 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
540 STRM1 = SNUM1/DEN*PX_SALT
541 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
542 STRM2 = SNUM2/DEN*AKIS1
543 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
544 !*****
545 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
546 !
547 WDR = (RADN_DRZ - 1)*RSH_WAS
548 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
549 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
550 WTRM1 = WNUM1/DEN*PX_SALT
551 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
552 WTRM2 = WNUM2/DEN*AKIS1
553 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
554 !*****
555 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
556 !
557 EDR = (RADN_DRZ - 1)*RSH_EXH
558 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
559 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
560 ETRM1 = ENUM1/DEN*PX_SALT
561 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
562 ETRM2 = ENUM2/DEN*AKIS1
563 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
564 !*****
565 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
566 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
567 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
568 ! PERMEABILITY (EQ. 3):
569 KMOD = (AKIS1*AST + KDAD)/AST
570 !*****
571 PERM_Y = KMOD
572 PERM_X = PERM_Y

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573 PERM_Z = PERM_Y
574 SB_MIN = 1.05*SAT_RBRN
575 !POR_COMP = COMP_RCK/POROSITY
576 POR_COMP = COMP_RCK
577 !
578 !*****
579 !BLOCK 47 CL_L_T4
580 !*****
581 !**COMMENTS:
582 ! Clay shaft material
583 ! Time period 4: 50 to 10000 years
584 !*****
585 LIMIT BLOCK 47
586 PX_SALT = MAKEPROP(PERM_X[B:29])
587 AKIS1 = 10**PRMX_LOG
588 !*****
589 ! CALCULATE AREA OF THE FOUR SHAFTS:
590 AAS1 = PI[B:58]*RSH_AIR**2
591 ASS2 = PI[B:58]*RSH_SAL**2
592 AWS3 = PI[B:58]*RSH_WAS**2
593 AES4 = PI[B:58]*RSH_EXH**2
594 AST = AAS1 + ASS2 + AWS3 + AES4
595 !*****
596 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
597 RDF = RADN_DRZ**2 - 1.0
598 AAD1 = PI[B:58]*RDF*RSH_AIR**2
599 ASD2 = PI[B:58]*RDF*RSH_SAL**2
600 AWD3 = PI[B:58]*RDF*RSH_WAS**2
601 AED4 = PI[B:58]*RDF*RSH_EXH**2
602 !*****
603 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
604 !
605 ADR = (RADN_DRZ - 1)*RSH_AIR
606 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
607 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
608 ATRM1 = ANUM1/DEN*PX_SALT
609 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
610 ATRM2 = ANUM2/DEN*AKIS1
611 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
612 !*****
613 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
614 !
615 SDR = (RADN_DRZ - 1)*RSH_SAL
616 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
617 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
618 STRM1 = SNUM1/DEN*PX_SALT
619 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
620 STRM2 = SNUM2/DEN*AKIS1
621 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
622 !*****
623 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
624 !

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625 WDR = (RADN_DRZ - 1)*RSII_WAS
626 WNUM1 = RADN_DRZ*RSII_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
627 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
628 WTRM1 = WNUM1/DEN*PX_SALT
629 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
630 WTRM2 = WNUM2/DEN*AKIS1
631 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
632 !*****
633 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
634 !
635 EDR = (RADN_DRZ - 1)*RSH_EXH
636 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
637 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
638 ETRM1 = ENUM1/DEN*PX_SALT
639 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
640 ETRM2 = ENUM2/DEN*AKIS1
641 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
642 !*****
643 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
644 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
645 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
646 ! PERMEABILITY (EQ. 3):
647 KMOD = (AKIS1*AST + KDAD)/AST
648 !*****
649 PERM_Y = KMOD
650 PERM_X = PERM_Y
651 PERM_Z = PERM_Y
652 SB_MIN = 1.05*SAT_RBRN
653 !POR_COMP = COMP_RCK/POROSITY
654 POR_COMP = COMP_RCK
655 !
656 !*****
657 !BLOCK 48 SALT_TI
658 !*****
659 !**COMMENTS:
660 ! Crushed salt shaft material
661 ! Time period 1: 0 to 10 years
662 !*****
663 LIMIT BLOCK 48
664 PX_SALT = MAKEPROP(PERM_X[B:29])
665 !*****
666 ! CALCULATE AREA OF THE FOUR SHAFTS:
667 AAS1 = PI[B:58]*RSH_AIR**2
668 ASS2 = PI[B:58]*RSH_SAL**2
669 AWS3 = PI[B:58]*RSH_WAS**2
670 AES4 = PI[B:58]*RSH_EXH**2
671 AST = AAS1 + ASS2 + AWS3 + AES4
672 !*****
673 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
674 RDF = RADN_DRZ**2 - 1.0
675 AAD1 = PI[B:58]*RDF*RSII_AIR**2
676 ASD2 = PI[B:58]*RDF*RSII_SAL**2

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677 AWD3 = PI[B:58]*RDF*RSH_WAS**2
678 AED4 = PI[B:58]*RDF*RSH_EXH**2
679 !*****
680 !*****
681 ! AKIS1 = MODE OF DISTRIBUTION
682 A = PMLT_LO
683 B = PMLT_MD
684 C = PMLT_HI
685 AKIS1 = 10**B
686 !*****
687 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
688 !
689 ADR = (RADN_DRZ - 1)*RSH_AIR
690 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
691 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
692 ATRM1 = ANUM1/DEN*PX_SALT
693 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
694 ATRM2 = ANUM2/DEN*AKIS1
695 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
696 !*****
697 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
698 !
699 SDR = (RADN_DRZ - 1)*RSH_SAL
700 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
701 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
702 STRM1 = SNUM1/DEN*PX_SALT
703 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
704 STRM2 = SNUM2/DEN*AKIS1
705 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
706 !*****
707 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
708 !
709 WDR = (RADN_DRZ - 1)*RSH_WAS
710 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
711 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
712 WTRM1 = WNUM1/DEN*PX_SALT
713 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
714 WTRM2 = WNUM2/DEN*AKIS1
715 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
716 !*****
717 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
718 !
719 EDR = (RADN_DRZ - 1)*RSH_EXH
720 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
721 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
722 ETRM1 = ENUM1/DEN*PX_SALT
723 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
724 ETRM2 = ENUM2/DEN*AKIS1
725 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
726 !*****
727 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
728 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4

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729! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
730! PERMEABILITY (EQ. 3):
731 KMOD = (AKIS1*AST + KDAD)/AST
732 !*****
733 PERM_Y = KMOD
734 PERM_X = PERM_Y
735 PERM_Z = PERM_Y
736 SB_MIN = 1.05*SAT_RBRN
737 !POR_COMP = COMP_RCK/POROSITY
738 POR_COMP = COMP_RCK
739 !
740 !*****
741 !BLOCK 49 SALT_T4
742 !*****
743 !**COMMENTS:
744 ! Crushed salt shaft material
745 ! Time period 4: 50 to 100 years
746 !*****
747 LIMIT BLOCK 49
748 PX_SALT = MAKEPROP(PERM_X[B:29])
749 ! CALCULATE AREA OF THE FOUR SHAFTS:
750 AAS1 = PI[B:58]*RSH_AIR**2
751 ASS2 = PI[B:58]*RSH_SAL**2
752 AWS3 = PI[B:58]*RSH_WAS**2
753 AES4 = PI[B:58]*RSH_EXH**2
754 AST = AAS1 + ASS2 + AWS3 + AES4
755 !*****
756 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
757 RDF = RADN_DRZ**2 - 1.0
758 AAD1 = PI[B:58]*RDF*RSH_AIR**2
759 ASD2 = PI[B:58]*RDF*RSH_SAL**2
760 AWD3 = PI[B:58]*RDF*RSH_WAS**2
761 AED4 = PI[B:58]*RDF*RSH_EXH**2
762 !*****
763 !*****
764 ! AKIS1 = MODE OF THE DISTRIBUTION
765 A = PMLT_LO
766 B = PMLT_MD
767 C = PMLT_HI
768 AKIS1 = 10**B
769 !*****
770 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
771 !
772 ADR = (RADN_DRZ - 1)*RSH_AIR
773 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
774 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
775 ATRM1 = ANUM1/DEN*PX_SALT
776 ANUM2 = RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
777 ATRM2 = ANUM2/DEN*AKIS1
778 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
779 !*****
780 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:

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781 !
782 SDR = (RADN_DRZ - 1)*RSH_SAL
783 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
784 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
785 STRM1 = SNUM1/DEN*PX_SALT
786 SNUM2 = RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
787 STRM2 = SNUM2/DEN*AKIS1
788 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
789 !*****
790 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
791 !
792 WDR = (RADN_DRZ - 1)*RSH_WAS
793 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
794 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
795 WTRM1 = WNUM1/DEN*PX_SALT
796 WNUM2 = RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
797 WTRM2 = WNUM2/DEN*AKIS1
798 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
799 !*****
800 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
801 !
802 EDR = (RADN_DRZ - 1)*RSH_EXH
803 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
804 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
805 ETRM1 = ENUM1/DEN*PX_SALT
806 ENUM2 = RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
807 ETRM2 = ENUM2/DEN*AKIS1
808 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
809 !*****
810 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
811 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
812 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
813 ! PERMEABILITY (EQ. 3):
814 KMOD = (AKIS1*AST + KDAD)/AST
815 !*****
816 PERM_Y = KMOD
817 PERM_X = PERM_Y
818 PERM_Z = PERM_Y
819 SB_MIN = 1.05*SAT_RBRN
820 !POR_COMP = COMP_RCK/POROSITY
821 POR_COMP = COMP_RCK
822 !
823 !*****
824 !BLOCK 50 SALT_T5
825 !*****
826 !**COMMENTS:
827 ! Crushed salt shaft material
828 ! Time period 5: 100 to 200 years
829 !*****
830 LIMIT BLOCK 50
831 PX_SALT = MAKEPROP(PERM_X[B:29])
832 ! CALCULATE AREA OF THE FOUR SHAFTS:

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833 AAS1 = PI[B:58]*RSH_AIR**2
834 ASS2 = PI[B:58]*RSH_SAL**2
835 AWS3 = PI[B:58]*RSH_WAS**2
836 AES4 = PI[B:58]*RSH_EXH**2
837 AST = AAS1 + ASS2 + AWS3 + AES4
838 !*****
839 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
840 RDF = RADN_DRZ**2 - 1.0
841 AAD1 = PI[B:58]*RDF*RSH_AIR**2
842 ASD2 = PI[B:58]*RDF*RSH_SAL**2
843 AWD3 = PI[B:58]*RDF*RSH_WAS**2
844 AED4 = PI[B:58]*RDF*RSH_EXH**2
845 !*****
846 !*****
847 ! AKIS1 = MODE OF THE DISTRIBUTION
848 A = PMLT_LO
849 B = PMLT_MD
850 C = PMLT_HI
851 AKIS1 = 10**B
852 !*****
853 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
854 !
855 ADR = (RADN_DRZ - 1)*RSH_AIR
856 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
857 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
858 ATRM1 = ANUM1/DEN*PX_SALT
859 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
860 ATRM2 = ANUM2/DEN*AKIS1
861 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
862 !*****
863 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
864 !
865 SDR = (RADN_DRZ - 1)*RSH_SAL
866 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
867 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
868 STRM1 = SNUM1/DEN*PX_SALT
869 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
870 STRM2 = SNUM2/DEN*AKIS1
871 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
872 !*****
873 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
874 !
875 WDR = (RADN_DRZ - 1)*RSH_WAS
876 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
877 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
878 WTRM1 = WNUM1/DEN*PX_SALT
879 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
880 WTRM2 = WNUM2/DEN*AKIS1
881 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
882 !*****
883 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
884 !

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885 EDR = (RADN_DRZ - 1)*RSH_EXH
886 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
887 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
888 ETRM1 = ENUM1/DEN*PX_SALT
889 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
890 ETRM2 = ENUM2/DEN*AKIS1
891 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
892 !*****
893 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
894 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
895 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
896 ! PERMEABILITY (EQ. 3):
897 KMOD = (AKIS1*AST + KDAD)/AST
898 !*****
899 PERM_Y = KMOD
900 PERM_X = PERM_Y
901 PERM_Z = PERM_Y
902 SB_MIN = 1.05*SAT_RBRN
903 !POR_COMP = COMP_RCK/POROSITY
904 POR_COMP = COMP_RCK
905 !
906 !*****
907 ! BLOCK 51 SALT_T6
908 !*****
909 !***COMMENTS:
910 ! Crushed salt shaft material
911 ! Time period 6: 200 to 10000 years
912 !*****
913 LIMIT BLOCK 51
914 PX_SALT = MAKEPROP(PERM_X[B:29])
915 ! CALCULATE AREA OF THE FOUR SHAFTS:
916 AAS1 = PI[B:58]*RSH_AIR**2
917 ASS2 = PI[B:58]*RSH_SAL**2
918 AWS3 = PI[B:58]*RSH_WAS**2
919 AES4 = PI[B:58]*RSH_EXH**2
920 AST = AAS1 + ASS2 + AWS3 + AES4
921 !*****
922 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
923 RDF = RADN_DRZ**2 - 1.0
924 AAD1 = PI[B:58]*RDF*RSH_AIR**2
925 ASD2 = PI[B:58]*RDF*RSH_SAL**2
926 AWD3 = PI[B:58]*RDF*RSH_WAS**2
927 AED4 = PI[B:58]*RDF*RSH_EXH**2
928 !*****
929 !*****
930 ! AKIS1 = MODE OF THE DISTRIBUTION
931 A = PMLT_LO
932 B = PMLT_MD
933 C = PMLT_HI
934 AKIS1 = 10**B
935 !*****
936 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:

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```

937!
938ADR = (RADN_DRZ - 1)*RSH_AIR
939ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
940DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
941ATRM1 = ANUM1/DEN*PX_SALT
942ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
943ATRM2 = ANUM2/DEN*AKIS1
944AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
945!*****
946! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
947!
948SDR = (RADN_DRZ - 1)*RSH_SAL
949SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
950DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
951STRM1 = SNUM1/DEN*PX_SALT
952SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
953STRM2 = SNUM2/DEN*AKIS1
954SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
955!*****
956! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
957!
958WDR = (RADN_DRZ - 1)*RSH_WAS
959WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
960DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
961WTRM1 = WNUM1/DEN*PX_SALT
962WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
963WTRM2 = WNUM2/DEN*AKIS1
964WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
965!*****
966! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
967!
968EDR = (RADN_DRZ - 1)*RSH_EXH
969ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
970DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
971ETRM1 = ENUM1/DEN*PX_SALT
972ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
973ETRM2 = ENUM2/DEN*AKIS1
974EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
975!*****
976! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
977KADAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
978! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
979! PERMEABILITY (EQ. 3):
980KMOD = (AKIS1*AST + KADAD)/AST
981!*****
982PERM_Y = KMOD
983PERM_X = PERM_Y
984PERM_Z = PERM_Y
985SB_MIN = 1.05*SAT_RBRN
986POR_COMP = COMP_RCK/POROSITY
987POR_COMP = COMP_RCK
988!

```

```

989!
990!*****
991!BLOCK 44 PAN_SEAL = PANEL and DRIFT Seals
992!*****
993!***COMMENTS:
994!*****
995LIMIT BLOCK 44
996PERM_X = 10**PRMX_LOG
997PERM_Y = 10**PRMY_LOG
998PERM_Z = 10**PRMZ_LOG
999SB_MIN = 1.05*SAT_RBRN
1000!POR_COMP = COMP_RCK/POROSITY
1001POR_COMP = COMP_RCK
1002!
1003!*****
1004!BLOCK 39 DRZ_I = DRZ
1005!*****
1006!***COMMENTS:
1007! Time period 2 (0 - 10000 years)
1008!*****
1009LIMIT BLOCK 39
1010PERM_X = 10**PRMX_LOG
1011PERM_Y = 10**PRMY_LOG
1012PERM_Z = 10**PRMZ_LOG
1013POROSITY = POROSITY[B:29] + 0.0029
1014SB_MIN = 1.05*SAT_RBRN
1015POR_COMP = COMP_RCK/POROSITY
1016!
1017!*****
1018! DEFINE PROPERTIES FOR DEEPER UNITS (BELL CAN. TO MORROW)
1019!*****
1020!***COMMENTS: COMP_RCK IS ALREADY PORE COMPRESSIBILITY. USE SAME CAP
1021! PRESSURE - REL PERM PARAMETERS AS CULEBRA. PERM_Y IS 100X
1022! SMALLER THAN PERM_X TO KEEP FLUIDS IN-ZONE. (FOR NON-PAY REGIONS)
1023!*****
1024LIMIT BLOCK 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 &
1025 24 25 26 27
1026PERM_X = 10**PRMX_LOG
1027PERM_Y = 10**PRMY_LOG
1028PERM_Z = PERM_X
1029CAP_MOD = CAP_MOD[ID:40]
1030PCT_EXP = PCT_EXP[ID:40]
1031PCT_A = PCT_A[ID:40]
1032KPT = KPT[ID:40]
1033SB_MIN = 1.05*SAT_RBRN
1034POR_COMP = COMP_RCK
1035!*****
1036!BLOCK 38,65,66,67,68 BOREHOLE, CONC_PLG, BH_OPEN, BH_SAND, BH_CREEP
1037!*****
1038!***COMMENTS: VALUES READ IN FROM DATABASE
1039!*****
1040LIMIT BLOCK 38 65 66 67 68

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1041! BL 38 (BOREHOLE) PROPERTIES WILL NO LONGER BE USED (BH_SAND INSTEAD),
1042! BUT WILL BE KEPT IN TO MINIMIZE CHANGES TO MATSET 6/14/96
1043 PERM_X = 10**PRMX_LOG
1044 PERM_Y = 10**PRMY_LOG
1045 PERM_Z = 10**PRMZ_LOG
1046 SB_MIN = 1.05*SAT_RBRN
1047! POR_COMP = COMP_RCK/POROSITY
1048 POR_COMP = COMP_RCK
1049!
1050!*****
1051! CALCULATE VERTICAL PERMEABILITIES FOR BH's AT LWB AT DIFFERENT DEPTHS,
1052! BASED ON PEMRY MULTIPLIER AND BOREHOLE PROPERTIES FROM DBASE (BL67:BH_SAND)
1053 LIMIT BLOCK 59 60 61 62 63 64
1054 PERM_X = PERM_X[ID:67]
1055 PERM_Y = PERM_Y[ID:67]*PRMY_MUL
1056 PERM_Z = PERM_Z[ID:67]
1057 CAP_MOD = CAP_MOD[ID:67]
1058 PCT_EXP = PCT_EXP[ID:67]
1059 PC_MAX = PC_MAX[ID:67]
1060 PCT_A = PCT_A[ID:67]
1061 KPT = KPT[ID:67]
1062 PO_MIN = PO_MIN[ID:67]
1063 PORE_DIS = PORE_DIS[ID:67]
1064 POROSITY = POROSITY[ID:67]
1065 RELP_MOD = RELP_MOD[ID:67]
1066 SAT_RBRN = SAT_RBRN[ID:67]
1067 SAT_RGAS = SAT_RGAS[ID:67]
1068 SB_MIN = SB_MIN[ID:67]
1069 COMP_RCK = COMP_RCK[ID:67]
1070 POR_COMP = POR_COMP[ID:67]
1071!*****
1072! now modify bh_creep by vertical perm multiplier (6/14/96)
1073 limit block 68
1074 PERM_Y = PERM_Y*PRMY_MUL[ID:61]
1075!*****
1076! BLOCK 52 = BRINESAL
1077 LIMIT BLOCK 52
1078 COMP = COMPRES
1079!
1080!-----
1081!*****
1082! CHAPTER 2. COMPUTE BRINE PRESSURE INITIAL CONDITIONS
1083! ACCOUNTING FOR DIP IN SPECIFIED FORMATIONS
1084! (THIS FORMULATION ACCOUNTS FOR COMPRESSIBILITY OF LIQUID)
1085!*****
1086!-----
1087! 1) P0 IS THE INITIAL FAR FIELD PRESSURE IN SALADO
1088! AND IS USED FOR DEFINING THE PRESSURE IN ALL OTHER BLOCKS
1089! IN THE SALADO
1090! 2) DENO IS THE FLUID DENSITY AT PRESSURE P0
1091! 3) XPT AND YPT ARE CENTER COORDINATES OF SHAFT AT LEVEL OF MB139
1092! I.E. THE REFERENCE POINT

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1093! 4) PHIREF IS THE TOTAL POTENTIAL RELATIVE TO XPT AND YPT
1094! 5) DENND IS THE DENSITY CALCULATED AT THE GRID CELL CORNERS (NODES)
1095! 6) PRESND IS THE LIQUID PRESSURE CALCULATED AT THE GRID CELL CORNERS
1096! 7) DENEL IS THE DENSITY AVERAGED FROM THE CELL CORNERS
1097! 8) PRESEL IS THE LIQUID PRESSURE AVERAGED FROM THE CELL CORNERS
1098!
1099 P0 = PRESSURE[B:29]
1100 DENO = DNSFLUID[B:52]*EXP(COMPRES[B:52]*(P0 - REF_PRES[B:52]))
1101 PHIREF = (1.0/DNSFLUID[B:52] - 1.0/DENO)/(GRAVACC[B:58]*COMPRES[B:52])
1102!
1103!*****
1104! DEFINE PRESSURES IN SALADO
1105!*****
1106! STEP 1) CALCULATE PRESSURES AT NODES WITH COORDINATES X AND Y
1107! STEP 2) CONVERT FROM NODAL VALUES TO CELL VALUES
1108 LIMIT ELEMENTS OFF
1109 YPT = ( Y[N:2578] + Y[N:2675])/2.0
1110 XPT = ( X[N:2578] + X[N:2579])/2.0
1111 LIMIT BLOCK 28 29 30 31 37
1112 DENND = MAKENODE(-1.0/((GRAVACC[B:58]*COMPRES[B:52])* &
1113 (PHIREF - (COS(THETA1)*(Y-YPT) + SIN(THETA1)*(X-XPT)) - &
1114 1.0/(GRAVACC[B:58]*DNSFLUID[B:52]*COMPRES[B:52])))
1115 PRESND = (1.0/COMPRES[B:52])*LOG(DENND/DNSFLUID[B:52]) + REF_PRES[B:52]
1116! NOW COMPUTE THE PRESSURE AT THE ELEMENT CENTER
1117 DENEL = NOD2ELE(DENND)
1118 PRESEL = NOD2ELE(PRESND)
1119!*****
1120! DEFINE THE PRESSURES IN THE CULEBRA, UNNAMED
1121!*****
1122 LIMIT BLOCK 32 33
1123 DENEL = DENO*EXP(COMPRES[B:52]*(PRESSURE[B:40] - REF_PRES[B:52]))
1124 PRESEL = PRESSURE[B:40]
1125!*****
1126! DEFINE PRESSURES IN CAVITIES (WASTE AREAS, NORTH END EXCAVATIONS AND SHAFTS)
1127!*****
1128! CAVITY 2
1129 LIMIT BLOCK 34
1130 DENEL = DNSFLUID[B:52]*EXP(COMPRES[B:52]*(PRESSURE[B:34] - REF_PRES[B:52]))
1131 PRESEL = PRESSURE[B:34]
1132! CAVITY 3
1133 LIMIT BLOCK 35
1134 DENEL = DNSFLUID[B:52]*EXP(COMPRES[B:52]*(PRESSURE[B:34] - REF_PRES[B:52]))
1135 PRESEL = PRESSURE[B:35]
1136! CAVITY 4
1137 LIMIT BLOCK 36
1138 DENEL = DNSFLUID[B:52]*EXP(COMPRES[B:52]*(PRESSURE[B:36] - REF_PRES[B:52]))
1139 PRESEL = PRESSURE[B:36]
1140!*****
1141! NOW CALCULATE PRESSURE FOR DEEPER UNITS WITH NO DIP
1142! PRESSURES ARE CALCULATED AT HYDROSTATIC WITH REFERENCE POINT AT SHAFT
1143! COORDINATES AT BELL CANYON ELEVATION
1144 LIMIT ELEMENTS OFF

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1145 P0 = PRESSURE[B:26]
1146 DEN0 = DNSFLUID[B:52]*EXP(COMPRES[B:52]*(P0 - REF_PRES[B:52]))
1147 PHIREF = (1.0/DNSFLUID[B:52] - 1.0/DEN0)/(GRAVACC[B:58]*COMPRES[B:52])
1148!
1149 YPT = (Y[N:2190] + Y[N:2287])/2.0
1150 XPT = (X[N:2190] + X[N:2191])/2.0
1151 LIMIT BLOCK 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 &
1152      24 25 26 27
1153 DENND = MAKENODE(-1.0/((GRAVACC[B:58]*COMPRES[B:52])* &
1154      (PHIREF - (COS(THETA2)*(Y-YPT) + SIN(THETA2)*(X-XPT)) - &
1155      1.0/(GRAVACC[B:58]*DNSFLUID[B:52]*COMPRES[B:52])))
1156 PRESND = (1.0/COMPRES[B:52])*LOG(DENND/DNSFLUID[B:52]) + REF_PRES[B:52]
1157! NOW COMPUTE THE PRESSURE AT THE ELEMENT CENTER
1158 DENEL = NOD2ELE(DENND)
1159 PRESEL = NOD2ELE(PRESND)
1160!*****
1161!*****
1162 LIMIT ELEMENTS 1 TO 3264
1163! IF PRESSURES ARE NEGATIVE (INDICATING POINTS ABOVE THE WATERTABLE)
1164! SET THEM TO ATMPA[B:58] = 101325.0
1165 PRESEL = IFGT0(PRESEL,PRESEL,ATMPA[B:58])
1166!
1167!-----
1168!*****
1169! CHAPTER 3. COMPUTE THE GRID BLOCK ELEVATIONS ACCOUNTING FOR
1170! 1 DEGREE DIP IN SALADO. FIRST DO SALADO. THE LAYERS ABOVE AND
1171! BELOW WILL HAVE NO DIP

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1172! ALSO CALCULATE THE TOTAL POTENTIAL
1173!*****
1174!-----
1175 LIMIT ELEMENTS OFF
1176 YORIGIN = (Y[N:2578] + Y[N:2675])/2.0
1177 XORIGIN = (X[N:2578] + X[N:2579])/2.0
1178 LIMIT BLOCK 28 29 30 31 34 35 36 37
1179! DEFINE GRID BLOCK ELEVATIONS DUE TO DIP
1180! (MEASURE WITH RESPECT TO I=23+24, J=6+7, K=1) SHAFT AT ELEVATION OF MB139
1181 ELEVN = MAKENODE(COS(THETA1)*(Y-YORIGIN) + SIN(THETA1)*(X-XORIGIN))
1182 ELEVE = NOD2ELE(ELEVN) + YORIGIN
1183! COMPUTE GRID BLOCK POTENTIAL
1184 POTE = ELEVE + 1.0/(GRAVACC[B:58]*DNSFLUID[B:52]*COMPRES[B:52]) - &
1185      1.0/(GRAVACC[B:58]*DENEL*COMPRES[B:52])
1186!*****
1187! NOW DO BELL CANYON AND DEEPER AND RUSTLER WITH NO DIP (THETA2 = 0)
1188!*****
1189 LIMIT ELEMENTS 1 TO 2208, 2965 TO 3154, 3239, 3240
1190 ELEVN = MAKENODE(COS(THETA2)*(Y-YORIGIN) + SIN(THETA2)*(X-XORIGIN))
1191 ELEVE = NOD2ELE(ELEVN) + YORIGIN
1192 POTE = ELEVE + 1.0/(GRAVACC[B:58]*DNSFLUID[B:52]*COMPRES[B:52]) - &
1193      1.0/(GRAVACC[B:58]*DENEL*COMPRES[B:52])
1194!*****
1195 LIMIT ELEMENTS OFF
1196 DELETE THETA1, THETA2, ELEVN, XORIGIN, YORIGIN, P0, DENEL, PRESND, XPT, YPT
1197 DELETE DIP1, DIP2, MOL_NO3, MOL_SO4, DEN0, PHIREF, DENND
1198 EXIT

```

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1!
2!
3! TITLE: ALGEBRACDB INPUT FILE FOR...
4!   BRAGFLO 1996 NMVP calculations
5!
6! ANAYLST: James E. Bean, New Mexico Engineering Research Institute (NMERI)
7!   Robert J. Mackinnon, Ecodynamics Research Associates Inc (ERAL)
8!   David McArthur, Sandia National Laboratory, Albuquerque
9!
10! CREATED: February 8-??, 1996
11!
12! PURPOSE: ALGEBRA file computes properties that can not be obtained
13!   from CAMDAT and/or assigns properties to element blocks.
14!
15! NOTE: This input file is for the waste panel located down-dip or
16!   south of the rest of the repository. Only the Salado formation
17!   is dipping.
18!
19!   Different gas generation and salt seal treatment from the one
20!   to be used in the CCA calculations..
21!
22!   FEB 29, 1996
23!   THIS ALGEBRA FILE WAS ORIGINALLY JEBEAN'S .INP FOR THE 1996 NMVP
24!   CALCULATION. CHANGES SPECIFIC TO THE WATERFLOOD MODEL, BASE01
25!   WERE ADDED BY DM STOELZEL. BASE01 REPRESENTS MEDIAN VALUES FOR UPPER
26!   UNITS, AND MEDIAN GAS GEN PARAMS (NO CO2 SORPTION)
27!
28!   JUNE 14, 1996
29!   CHANGES TO REFLECT NEW BHOLE PERMS
30!
31!   JUNE 17, 1996
32!   BASE01_R002 REPRESENTS A "WORST CASE" WATERFLOOD SCENARIO IN WHICH
33!   THE TWO DISPOSAL WELLS CAN LEAK TO THE HIGHEST PERM MARKER BEDS
34!   THROUGH THE HIGHEST PERM BOREHOLES (10E-11) AND HIGHEST PERM SHAFT
35!   SEALS. EVERYTHING ELSE WILL
36!   BE MEDIAN VALUES (GAS GEN, FRACTURING, ETC)
37!
38!   JUNE 17, 1996
39!   CHANGED SO MAX SALADO PERM IS USED (10**-24.75)
40!
41! *****
42! CHAPTER 0: DEFINE NEW VARIABLE NAMES AND SOME NEEDED CONSTANTS
43! *****
44!
45!
46! ***VARIABLE DEFINITION
47! DIP1 ( IN DEGREES) = ANGLE OF DIP FOR SALADO FORMATION
48! DIP2 ( IN DEGREES) = ANGLE OF DIP FOR NON-SALADO FORMATIONS =
49! THETA1 AND THETA2 ARE IN RADIANS
50!
51! ==
52! DIP1 = 1.0

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53! DIP2 = 0.0
54! THETA1 = DIP1*2.0*PI/[B:58]/360.0
55! THETA2 = DIP2*2.0*PI/[B:58]/360.0
56!
57! *****
58! CHAPTER 1: DEFINE AND COMPUTE HYDROLOGIC MATERIAL PROPERTIES
59! *****
60!
61!
62! *****
63! BLOCK 29 = S_HALITE = SALADO HALITE
64! *****
65! ***COMMENTS: SAMPLED PARAMETERS ARE:
66! PRMX_LOG, POROSITY, SAT_RBRN, SAT_RGAS, RELP_MOD, PORE_DIS
67! COMP_RCK
68! *****
69! LIMIT BLOCK 29
70! SINCE PRMX_LOG IS SAMPLED ASSIGN PERM_Y AND PERM_Z
71! 6/17/96
72! PERM_X = MAKEPROP(10**(-24.75))
73! PERM_Y = PERM_X
74! PERM_Z = PERM_X
75! SB_MIN = 1.05*SAT_RBRN
76! POR_COMP = COMP_RCK/POROSITY
77!
78! *****
79! BLOCK 37 = DRZ_0 = DRZ FROM -5 YRS TO 0 YRS
80! *****
81! ***COMMENTS: SAMPLED PARAMETERS: NONE
82! )CORRELATE DRZ_0 POROSITY TO SAMPLED S_HALITE BY ADDING 0.0029
83! *****
84! LIMIT BLOCK 37
85! PERM_X = 10**PRMX_LOG
86! PERM_Y = 10**PRMY_LOG
87! PERM_Z = 10**PRMZ_LOG
88! POROSITY = POROSITY[B:29] + 0.0029
89! PORE_DIS = PORE_DIS
90! RELP_MOD = RELP_MOD
91! SB_MIN = 1.05*SAT_RBRN
92! POR_COMP = COMP_RCK/POROSITY
93!
94! *****
95! BLOCK 30 = S_MB139 = SALADO MARKER BED 139
96! *****
97! ***COMMENTS: SAMPLED PARAMETERS: SAT_RBRN, SAT_RGAS, PORE_DIS, AND
98! RELP_MOD
99! *****
100! LIMIT BLOCK 30
101! 6/17/96
102! NEW PERMS HERE!! 10**-17.1 = 7.9433E-18
103! PERM_X = MAKEPROP(10**(-17.1))
104! PERM_Y = PERM_X

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105!PERM_Z = PERM_X
106!SB_MIN = 1.05*SAT_RBRN
107!POR_COMP = COMP_RCK/POROSITY
108!PHIMAX = POROSITY + DPHIMAX
109!TEMP = POROSITY AT FRACTURE INITIATION PRESSURE
110!PI_DELTA = FRACTURE INITIATION PRESSURE - REFERENCE PRESSURE
111!TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
112!PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
113!
114!*****
115!BLOCK 31 = S_ANH_AB = SALADO ANHYDRITE LAYERS A + B
116! PLUS S_MB138 = SALADO MARKER BED 138
117!*****
118!***COMMENTS: SAMPLED PARAMETERS: NONE
119!1) USE S_MB139 SAMPLED VALUES FOR:SAT_RBRN, SAT_RGAS, PORE_DIS, AND RELP_MOD
120!*****
121!6/17/96 PERMS EQUAL S_MB139
122!LIMIT BLOCK 31
123!PERM_X = PERM_X[B:30]
124!PERM_Y = PERM_Y[B:30]
125!PERM_Z = PERM_Z[B:30]
126!RELP_MOD = RELP_MOD[B:30]
127!PORE_DIS = PORE_DIS[B:30]
128!SAT_RBRN = SAT_RBRN[B:30]
129!SAT_RGAS = SAT_RGAS[B:30]
130!SB_MIN = 1.05*SAT_RBRN
131!POR_COMP = COMP_RCK/POROSITY
132!PHIMAX = POROSITY + DPHIMAX
133!TEMP = POROSITY AT FRACTURE INITIATION PRESSURE
134!PI_DELTA = FRACTURE INITIATION PRESSURE - REFERENCE PRESSURE
135!TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
136!PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
137!
138!*****
139!BLOCK 34=CAVITY_2 = REST OF REPOSITORY WHERE WASTE WILL BE PLACED AT T=0
140!YEARS
141!BLOCK 35 = CAVITY_3 = EXPERIMENTAL REGION AND BACKFILLED REGION
142!BLOCK 36 = CAVITY_4 = SHAFT AND PANEL SEALS
143!*****
144!***COMMENTS:
145!*****
146!LIMIT BLOCK 34 35 36
147!PERM_X = 10**PRMX_LOG
148!PERM_Y = 10**PRMY_LOG
149!PERM_Z = 10**PRMZ_LOG
150!SB_MIN = 1.05*SAT_RBRN
151!POR_COMP = COMP_RCK/POROSITY
152!
153!*****
154!BLOCK 33 = IMPERM_Z
155!*****
156!***COMMENTS:

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157! INCLUDES THE RUSTLER, SANTA ROSA, DEWEY LAKE, AND CASTILE.
158! USED TO CONTROL DRAINAGE OF FORMATIONS ABOVE THE SALADO INTO THE
159! SHAFT PRIOR TO T=0 YEARS. IT IS ALSO USED TO PREVENT BRINE POCKET
160! FROM BECOMING DE-PRESSURIZED PRIOR TO DRILLING INTRUSION.
161!*****
162!LIMIT BLOCK 33
163!PERM_X = 10**PRMX_LOG
164!PERM_Y = 10**PRMY_LOG
165!PERM_Z = 10**PRMZ_LOG
166!SB_MIN = 1.05*SAT_RBRN
167!POR_COMP = COMP_RCK/POROSITY
168!
169!*****
170!BLOCK 28 = CASTILE = NO BRINE POCKET: PERMEABILITIES HAVE BEEN DECREASED
171! IN MATSET
172!*****
173!***COMMENTS:
174!*****
175!LIMIT BLOCK 28
176!PERM_X = 10**PRMX_LOG
177!PERM_Y = 10**PRMY_LOG
178!PERM_Z = 10**PRMZ_LOG
179!SB_MIN = 1.05*SAT_RBRN
180!THE COMPRESSIBILITY COMP_RCK IS LOG10(BULK COMPRESSIBILITY) (G. FREEZE)
181!POR_COMP = (10**COMP_RCK)/POROSITY
182!ACOMP_PRRM = LOG(COMP_RCK*PERM_X)
183!COMP_RCK = (10**(ACOMP_PRRM))/PERM_X *NOTE: HARDWARE MEDIAN BRINE POCKET
184!PERM
185!COMP_RCK = (10**(ACOMP_PRRM))/1.584892E-12
186!POR_COMP = COMP_RCK/POROSITY
187!
188!*****
189!BLOCK 41 = WAS_AREA = WASTE MATERIAL
190!*****
191!***COMMENTS: SAMPLED PARAMETERS ARE:
192!1) SAT_RBRN, SAT_RGAS, SAT_WICK
193!2) THE FOLLOWING GAS GENERATION PARAMETERS ARE PRESENTED IN TABLE I.
194! IN THE MEMO DATED 01/02/1996, FROM Y.WANG AND L BRUSH TO M. TIERNEY,
195! SUBJECT: ESTIMATES OF GAS GENERATION PARAMETERS FOR THE LONG-TERM
196! WIPP PERFORMANCE ASSESSMENT
197!
198!*****
199!LIMIT BLOCK 41
200!HYDROLOGIC PARAMETERS
201!PERM_X = 10**PRMX_LOG
202!PERM_Y = 10**PRMY_LOG
203!PERM_Z = 10**PRMZ_LOG
204!SB_MIN = 1.05*SAT_RBRN
205!POR_COMP = COMP_RCK/POROSITY
206!*****
207! GAS GENERATION DEFINITIONS
208! SAMPLED PARAMETERS: GRATMICI, GRATMICII, PROBDEG.

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209! ASSOCIATED SAMPLED PARAMETERS: CORRMC02[B:56], CORRWCO2[B:56], FBETA[B:57]
210!
211! CORRMC02[B:56] = INUNDATED STEEL CORROSION RATE [M/SEC] WITHOUT
212!     MICROBIAL GAS GENERATION
213! CORRWCO2[B:56] = INUNDATED STEEL CORROSION RATE [M/SEC] WITH
214!     MICROBIAL GAS GENERATION
215! GRATMICH[B:41] = RATE OF HUMID CELLULOSICS BIODEGRADATION [MOLE C/KG/SEC]
216! GRATMICI[B:41] = RATE OF INUNDATED CELLULOSICS BIODEGRADATION
217!     [MOLE C/KG/SEC]
218! FBETA[B:57] = SCALING FACTOR FOR THE AVERAGE STOICHIOMETRIC FACTOR Y IN
219!     THE MICROBIAL REACTION
220! PROBDEG = FLAG TO INDICATE IF BIODEGRADATION IS ACTIVATED
221!     (0=NO,1=YES)
222!     PROBDEG = 0 => NO BIODEGRADATION
223!     PROBDEG = 1 => BIODEGRADATION BUT NO PLASTICS AND RUBBERS
224!     PROBDEG = 2 => BIODEGRADATION WITH PLASTICS AND RUBBERS
225!     INCLUDED
226!     PROBDEG IS A SAMPLED PARAMETER DEFINED SUCH THAT
227!     ITS VALUE IS 0 50% OF THE TIME,
228!     1 25% OF THE TIME,
229!     2 25% OF THE TIME.
230! *****
231! *****
232! STOICOR = IRON-CORROSION STOICHIOMETRIC FACTOR (Y.WANG MEMO)
233! STOICOR = MAKEPROP(STOIFX[B:56])
234!
235! CORROSION STOICHIOMETRIC FACTOR FOR H2 PRODUCTION=SCOR_H2=S(1,1)
236! SELL LINE 9.8 IN THE BRAGFLO INPUT MANUAL
237! SCOR_H2 = MAKEPROP((4 - STOICOR)/3)
238!
239! CORROSION STOICHIOMETRIC FACTOR FOR H2O CONSUMPTION=SCOR_H2O=S(1,2)
240! SCOR_H2O = MAKEPROP((4 + 2*STOICOR)/3)
241!
242! CORROSION STOICHIOMETRIC FACTOR FOR FE CONSUMPTION=SCOR_FE=S(1,3)
243! SCOR_FE = MAKEPROP(1.0)
244!
245! HUMID STEEL CORROSION RATES (KCGSH) ARE ZERO
246! HUMCORR = HUMID STEEL CORROSION RATE
247!
248! *****
249! THE FOLLOWING INVENTORY PARAMETERS ARE OBTAINED FROM THE DATA BASE
250! **REMOTE HANDLED WASTE
251! DIRONRHW = 100 KG/M**3
252! DIRNCRHW = 2591 KG/M**3
253! DCELLRHW = 17 KG/M**3
254! DRUBBRHW = 3.3 KG/M**3
255! DPLASRHW = 15 KG/M**3
256! DPLSCRHW = 3.1 KG/M**3
257! VOLRHW = 7080 M**3
258!
259! **CONTACT HANDLED WASTE
260! DIRONCIHW = 170 KG/M**3

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261! DIRNCCHW = 139 KG/M**3
262! DCELLCHW = 54 KG/M**3
263! DRUBBCHW = 10 KG/M**3
264! DPLASCHW = 34 KG/M**3
265! DPLSCCHW = 26 KG/M**3
266! VOLCHW = 1.69E5 M**3
267!
268! *****
269! COMPUTE AVERAGE DENSITIES
270!
271! DRH_METL = AVERAGE DENSITY OF RH METALS
272! DRH_BIO = AVERAGE DENSITY OF RH BIO
273! DCELLRHW = AVERAGE DENSITY OF RH CELL
274! DCH_METL = AVERAGE DENSITY OF CH METALS
275! DCH_BIO = AVERAGE DENSITY OF CH BIO
276! DCELLCHW = AVERAGE DENSITY OF CH CELLULOSE
277! DRH_RUPL = AVERAGE DENSITY OF RH RUBBERS AND PLASTICS
278! DCH_RUPL = AVERAGE DENSITY OF CH RUBBERS AND PLASTICS
279!
280! DRH_METL = DIRONRHW + DIRNCRHW
281! DRH_RUPL = DRUBBRHW + 1.7*(DPLASRHW+DPLSCRHW)
282! DRH_BIO = DCELLRHW + DRH_RUPL
283! DCH_METL = DIRONCHW + DIRNCCHW
284! DCH_RUPL = DRUBBCHW + 1.7*(DPLASCHW+DPLSCCHW)
285! DCH_BIO = DCELLCHW + DCH_RUPL
286!
287!
288! *****
289!
290! VPANLEX = VOLUME OF EXCAVATED PANEL = 46097.65 M**3
291! VROOM = VOLUME OF EXCAVATED ROOM = 3644.4 M**3
292! VREPOS = VOLUME OF WASTE STORAGE AREA = 436023 M**3
293! DRROOM = NUMBER OF DRUMS PER ROOM = 6804
294!
295! *****
296!
297! BIOIDX = 1 ==> MICROBIAL GAS GENERATION = YES
298!     = 0 ==> MICROBIAL GAS GENERATION = NO
299! IF BIOIDX = 1, THEN
300!     PLASIDX = 1 ==> DEGRADATION OF RUBBERS, PLASTICS, AND CELLULOSICS
301!     = 0 ==> DEGRADATION OF CELLULOSE ONLY
302! *****
303!
304! TOTAL MASS OF CORRODIBLE METAL
305! WTFETOT = DRH_METL*VOLRHW + DCH_METL*VOLCHW
306!
307! TOTAL MASS OF CELLULOSICS ONLY
308! WTCELTOT = DCELLRHW*VOLRHW + DCELLCHW*VOLCHW
309!
310! TOTAL MASS OF RUBBER AND PLASTICS
311! WTRPLTOT = DRH_RUPL*VOLRHW + DCH_RUPL*VOLCHW
312!

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313! TOTAL MASS OF BIODEGRADABLE MATERIAL
314! IF PROBDEG > 0, NOZERO BIODEGRADATION REACTION RATES (BIOIDX = 1)
315! IF PROBDEG = 2, ADD IN PLASTICS AND RUBBERS (PLASIDX = 1)
316! PLASIDX = IFEQ0(PROBDEG-2,1.0,0.0)
317! BIOIDX = IFGT0(PROBDEG,1.0,0.0)
318!
319! ALTERNATE FORM FOR SETTING PLASIDX AND BIOIDX IF DISTRIBUTION IS DIFFERENT
320! BIOIDX = MAKEPROP(0)
321! PLASIDX = MAKEPROP(0)
322! BIOIDX = IFGT0(PROBDEG - 0.50, 1,BIOIDX)
323! PLASIDX = IFGT0(PROBDEG - 0.50, 1,PLASIDX)
324! PLASIDX = IFGT0(PROBDEG - 0.75, 2,PLASIDX)
325!
326! WTBIOTOT = WTCELTOT + WTRPLTOT*PLASIDX
327!
328! INITIAL FE CONCENTRATION = CONCFE
329! (APPEARS IN THE BRAGFLO INPUT INITIAL CONDITIONS (SEE LINE 5.6
330! IN THE BRAGFLO INPUT MANUAL))
331!
332! CONCFE = WTFETOT/VREPOS[B:58]
333!
334! INITIAL BIODEGRADABLE MATERIAL CONCENTRATION = CONCBIO
335! (APPEARS IN THE BRAGFLO INPUT INITIAL CONDITIONS (SEE LINE 5.8
336! IN THE BRAGFLO INPUT MANUAL))
337!
338! CONCBIO = WTBIOTOT/VREPOS[B:58]
339!
340! INITIAL CELLULOSICS CONCENTRATION = CONCCEL
341!
342! CH20CONC = WTCELTOT/VREPOS[B:58]
343!
344!*****
345!*****
346! THE FOLLOWING CALCULATIONS DETERMINE THE AVERAGE STOICHIOMETRIC
347! COEFFICIENT IN THE BIODEGRADATION REACTION
348!
349! DRUMVOL = NO OF DRUMS PER UNIT VOL OF WASTE STORAGE
350! DRPANEL = NO OF DRUMS PER PANEL
351! DRUMTOT = NUMBER OF DRUMS IN REPOSITORY
352!
353! DRUMVOL = MAKEPROP(DRROOM[B:58]/VROOM[B:58])
354! DRUMTOT = MAKEPROP(VREPOS[B:58]*DRUMVOL)
355! DRPANEL = MAKEPROP(DRROOM[B:58]*VPANLEX[B:58]/VROOM[B:58])
356!
357! CALCULATE THE MAXIMUM QUANTITIES (IN MOLES) OF CELLULOSICS AND STEEL
358! THAT WILL BE POTENTIALLY CONSUMED IN 10000 YEARS
359! (SEE EQUATIONS 12 AND 13 IN THE Y. WANG MEMO)
360! CONVERT FROM DATABASE UNITS OF MOLES C/(KG-SEC) TO MOLES C/(KG-YR)
361!*****
362! 6 = 6 MOLES OF C/MOLE OF CELLULOSE C6-H10-O5
363! 1000 = 1000 GRAMS/KG
364! WTBIOTOT = KG

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365! 162 = MW OF CELLULOSE C6-H10-O5
366! A1 = 6*1000*WTBIOTOT/162
367! 10000 = YEARS
368! GRATMICI = MOLES C/KG-SEC
369! YRSEC = 3.15569E7 SEC/YR
370! A2 = 10000*GRATMICI*YRSEC[B:58]*WTBIOTOT
371! MAX_CELL = MIN(A1,A2)
372!*****
373! 10000 = GRAMS/KG
374! WTFETOT = KG
375! 56 = MW OF FE
376! B1 = 1000*WTFETOT/56
377!*****
378! 1410 = 10000 YRS* 0.141MOLES/MICROMETER/M**2
379! CORRWCO2 = M/SEC
380! 1000000 = MICROMETERS/M
381! YRSEC = 3.15569E7 YEARS/SEC
382! ASDRUM = M**2 STEEL/DRUM
383! DRUMTOT = DRUMS/REPOSITORY
384! B2 = MOLES
385! B2 = 1410*CORRWCO2[B:56]*1000000*YRSEC[B:58]*ASDRUM[B:58]*DRUMTOT
386! MAX_FE = MIN(B1,B2)
387!*****
388!
389! CALCULATE THE MAXIMUM VALUE OF THE AVERAGE STOICHIOMETRIC COEFFICIENT
390! Y IN THE BIODEGRADATION REACTION (SEE EQUATION 15 IN THE y. WANG MEMO)
391! MOL_NO3 = QINIT[B:55]
392! MOL_SO4 = QINIT[B:54]
393! EQUATION 15 IS NEXT
394! NUM1 = MAKEPROP(8.4*MOL_NO3/4.8)
395! NUM2 = MAKEPROP(9*MOL_SO4/3)
396! NUM3 = MAX_CELL - 6*MOL_NO3/4.8 - 6*MOL_SO4/3
397! YMAX = (NUM1+NUM2+NUM3)/MAX_CELL
398!
399! CALCULATE THE MINIMUM VALUE OF Y (SEE EQUATIONS 16 AND 17)
400! C1 = 6*MOL_NO3/4.8 + NUM2 + 0.5*NUM3
401! C2 = MAX_FE
402! G = MIN(C1,C2)
403! YMIN = YMAX - G/MAX_CELL
404!
405! THE VALUE OF Y (STOIMIC) IS (EQUATION 18)
406! STOIMIC = YMIN + FBETA[B:57]*(YMAX - YMIN)
407!
408! SBIO_H2 = S(2,1), SEE LINE 9.10 IN BRAGFLO INPUT MANUAL
409! SBIO_H2 = STOIMIC
410!
411! BIODEGRADATION STOICHIOMETRIC FACTOR FOR H2O CONSUMPTION
412! SBIO_H2O = S(2,2) = 0
413!
414! BIODEGRADATION STOICHIOMETRIC FACTOR FOR CELLULOSIC CONSUMPTION
415! SBIQ_C1H2O = S(2,3) = 1
416!

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417! DETERMINE THE INUNDATED STEEL CORROSION RATE
418 KCGSI = CORRWC02[B:56]*BIOIDX + CORRMCO2[B:56]*(1 - BIOIDX)
419!
420! CONVERT REACTION RATES TO GAS GENERATION RATES REQUIRED BY PREBRAG
421!
422! CONVERT THE UNITS OF KCGSI FROM M/SEC TO MOLE-FE/M3-S
423! KCGSI = KCGSI(M/SEC)*0.141 (MOLE-FE/MICRON-M2)*6(M2/DRUM)
424! *100000 MICRONS/M* (6804 DRUMS/3644.4 M3)
425 KCGSI = MAKEPROP(KCGSI)*0.141*1000000*ASDRUM[B:58]* &
      DRROOM[B:58]/VROOM[B:58]
426!
427!
428! CONVERT THE UNITS OF HUMCORR (= KCGSH) FROM M/SEC TO MOLE-FE/M3-S
429 KCGSH = MAKEPROP(HUMCORR[B:56])*0.141*1000000*ASDRUM[B:58]* &
      DRROOM[B:58]/VROOM[B:58]
430!
431!
432! COMPUTE THE INUNDATED GAS (H2) PRODUCTION RATE FROM THE REACTION RATE
433 GRATCORI = MAKEPROP(KCGSI)*VPANLEX[B:58]*SCOR_H2/ASDRUM[B:58]/DRPANEL)
434!
435! COMPUTE THE HUMID GAS (H2) PRODUCTION RATE FROM THE REACTION RATE
436 GRATCORH = MAKEPROP(KCGSH)*VPANLEX[B:58]*SCOR_H2/ASDRUM[B:58]/DRPANEL)
437!
438! CONVERT THE UNITS OF THE INUNDATED BIODEGRADATION RATE GRATMICI
439! GRATMICI = GRATMICI(MOLE-C/KG/SEC)*(KG-CELL/M3)
440 KBGSI = GRATMICI*CONCBIO
441!
442! COMPUTE THE INUNDATED GAS (CO2) PRODUCTION RATE FROM THE REACTION RATE
443 GRATMICI = KBGSI*STOIMIC/CONCBIO
444!
445! CONVERT THE UNITS OF THE HUMID BIODEGRADATION RATE GRATMICH
446! GRATMICH = GRATMICH(MOLE-C/KG/SEC)
447 KBGSH = GRATMICH*CONCBIO
448!
449! NOW CONVERT KBGSH TO THE GAS GENERATION RATE REQUIRED BY PREBRAG
450 GRATMICH = KBGSH*STOIMIC/CONCBIO
451!
452! COMPUTE RATIO OF HUMID TO INUNDATED (STORE IN HUMID)
453! FOR INPUT TO PREBRAG
454 GRATMICH = GRATMICH/GRATMICI
455 GRATCORH = GRATCORH/GRATCORI
456!
457! *****
458! BLOCK 32 UNNAMED MEMBER OF RUSTLER
459! *****
460! *****COMMENTS:
461! *****
462! LIMIT BLOCK 32
463! PERM_X = 10**PRMX_LOG
464! PERM_Y = 10**PRMY_LOG
465! PERM_Z = 10**PRMZ_LOG
466! SB_MIN = 1.05*SAT_RBRN
467! POR_COMP = COMP_RCK/POROSITY
468!
469! *****
470! BLOCK 40 CULEBRA MEMBER OF RUSTLER
471! *****
472! *****COMMENTS:
473! *****
474! LIMIT BLOCK 40
475! PERM_X = 10**PRMX_LOG
476! PERM_Y = 10**PRMY_LOG
477! PERM_Z = 10**PRMZ_LOG
478! SB_MIN = 1.05*SAT_RBRN
479! POR_COMP = COMP_RCK/POROSITY
480!
481! *****
482! *****
483! *****
484! BLOCK 42 OPERATIONS REGION
485! BLOCK 43 EXPERIMENTAL REGION
486! *****
487! *****COMMENTS:
488! Operations and experimental region have same properties
489! *****
490! LIMIT BLOCK 42 43
491! PERM_X = 10**PRMX_LOG
492! PERM_Y = 10**PRMY_LOG
493! PERM_Z = 10**PRMZ_LOG
494! SB_MIN = 1.05*SAT_RBRN
495! POR_COMP = COMP_RCK/POROSITY
496!
497! *****
498! BLOCK 45 CLAY_RUS
499! *****
500! *****COMMENTS:
501! Clay shaft fill used in the Rustler formation:
502! Constant properties from 0 to 10000 years
503! *****
504! LIMIT BLOCK 45
505! *****
506! HIGHEST PERM GOES HERE!! PERM = 5E-18
507! 6/1796
508! PERM_X = 5E-18
509! PERM_Y = 5E-18
510! PERM_Z = 5E-18
511! SB_MIN = 1.05*SAT_RBRN
512! POR_COMP = COMP_RCK/POROSITY
513! POR_COMP = COMP_RCK
514!
515! *****
516! BLOCK 46 CL_L_T1
517! *****
518! *****COMMENTS:
519! Clay shaft material
520! Time period 1: 0 to 10 years

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521 !*****
522 LIMIT BLOCK 46
523 PX_SALT = MAKEPROP(PERM_X[B:29])
524 ! MAXIMUM PERM GOES HERE!
525 ! 6/17/96
526 AKIS1 = MAKEPROP(SE-18)
527 !*****
528 ! CALCULATE AREA OF THE FOUR SHAFTS:
529 AAS1 = PI[B:58]*RSH_AIR**2
530 ASS2 = PI[B:58]*RSH_SAL**2
531 AWS3 = PI[B:58]*RSH_WAS**2
532 AES4 = PI[B:58]*RSH_EXH**2
533 AST = AAS1 + ASS2 + AWS3 + AES4
534 !*****
535 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
536 RDF = RADN_DRZ**2 - 1.0
537 AAD1 = PI[B:58]*RDF*RSH_AIR**2
538 ASD2 = PI[B:58]*RDF*RSH_SAL**2
539 AWD3 = PI[B:58]*RDF*RSH_WAS**2
540 AED4 = PI[B:58]*RDF*RSH_EXH**2
541 !*****
542 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
543 !
544 ADR = (RADN_DRZ - 1)*RSH_AIR
545 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
546 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
547 ATRM1 = ANUM1/DEN*PX_SALT
548 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
549 ATRM2 = ANUM2/DEN*AKIS1
550 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
551 !*****
552 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
553 !
554 SDR = (RADN_DRZ - 1)*RSH_SAL
555 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
556 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
557 STRM1 = SNUM1/DEN*PX_SALT
558 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
559 STRM2 = SNUM2/DEN*AKIS1
560 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
561 !*****
562 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
563 !
564 WDR = (RADN_DRZ - 1)*RSH_WAS
565 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
566 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
567 WTRM1 = WNUM1/DEN*PX_SALT
568 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
569 WTRM2 = WNUM2/DEN*AKIS1
570 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
571 !*****
572 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:

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573 !
574 EDR = (RADN_DRZ - 1)*RSH_EXH
575 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
576 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
577 ETRM1 = ENUM1/DEN*PX_SALT
578 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
579 ETRM2 = ENUM2/DEN*AKIS1
580 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
581 !*****
582 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
583 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
584 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
585 ! PERMEABILITY (EQ. 3):
586 KMOD = (AKIS1*AST + KDAD)/AST
587 !*****
588 PERM_Y = KMOD
589 PERM_X = PERM_Y
590 PERM_Z = PERM_Y
591 SB_MIN = 1.05*SAT_RBRN
592 !POR_COMP = COMP_RCK/POROSITY
593 POR_COMP = COMP_RCK
594 !
595 !*****
596 !BLOCK 47 CL_L T4
597 !*****
598 !**COMMENTS:
599 ! Clay shaft material
600 ! Time period 4: 50 to 10000 years
601 !*****
602 LIMIT BLOCK 47
603 PX_SALT = MAKEPROP(PERM_X[B:29])
604 ! MAXIMUM PERM GOES HERE!
605 ! 6/17/96
606 AKIS1 = MAKEPROP(SE-18)
607 !*****
608 ! CALCULATE AREA OF THE FOUR SHAFTS:
609 AAS1 = PI[B:58]*RSH_AIR**2
610 ASS2 = PI[B:58]*RSH_SAL**2
611 AWS3 = PI[B:58]*RSH_WAS**2
612 AES4 = PI[B:58]*RSH_EXH**2
613 AST = AAS1 + ASS2 + AWS3 + AES4
614 !*****
615 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
616 RDF = RADN_DRZ**2 - 1.0
617 AAD1 = PI[B:58]*RDF*RSH_AIR**2
618 ASD2 = PI[B:58]*RDF*RSH_SAL**2
619 AWD3 = PI[B:58]*RDF*RSH_WAS**2
620 AED4 = PI[B:58]*RDF*RSH_EXH**2
621 !*****
622 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
623 !
624 ADR = (RADN_DRZ - 1)*RSH_AIR

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625 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
626 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
627 ATRM1 = ANUM1/DEN*PX_SALT
628 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
629 ATRM2 = ANUM2/DEN*AKIS1
630 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
631 !*****
632 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
633 !
634 SDR = (RADN_DRZ - 1)*RSH_SAL
635 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
636 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
637 STRM1 = SNUM1/DEN*PX_SALT
638 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
639 STRM2 = SNUM2/DEN*AKIS1
640 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
641 !*****
642 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
643 !
644 WDR = (RADN_DRZ - 1)*RSH_WAS
645 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
646 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
647 WTRM1 = WNUM1/DEN*PX_SALT
648 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
649 WTRM2 = WNUM2/DEN*AKIS1
650 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
651 !*****
652 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
653 !
654 EDR = (RADN_DRZ - 1)*RSH_EXH
655 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
656 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
657 ETRM1 = ENUM1/DEN*PX_SALT
658 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
659 ETRM2 = ENUM2/DEN*AKIS1
660 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
661 !*****
662 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
663 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
664 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
665 ! PERMEABILITY (EQ. 3):
666 KMOD = (AKIS1*AST + KDAD)/AST
667 !*****
668 PERM_Y = KMOD
669 PERM_X = PERM_Y
670 PERM_Z = PERM_Y
671 SB_MIN = 1.05*SAT_RBRN
672 !POR_COMP = COMP_RCK/POROSITY
673 POR_COMP = COMP_RCK
674 !
675 !*****
676 !BLOCK 48 SALT_T1
    
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677 !*****
678 !***COMMENTS:
679 ! Crushed salt shaft material
680 ! Time period 1: 0 to 10 years
681 !*****
682 LIMIT BLOCK 48
683 PX_SALT = MAKEPROP(PERM_X[B:29])
684 !*****
685 ! CALCULATE AREA OF THE FOUR SHAFTS:
686 AAS1 = PI[B:58]*RSH_AIR**2
687 ASS2 = PI[B:58]*RSH_SAL**2
688 AWS3 = PI[B:58]*RSH_WAS**2
689 AES4 = PI[B:58]*RSH_EXH**2
690 AST = AAS1 + ASS2 + AWS3 + AES4
691 !*****
692 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
693 RDF = RADN_DRZ**2 - 1.0
694 AAD1 = PI[B:58]*RDF*RSH_AIR**2
695 ASD2 = PI[B:58]*RDF*RSH_SAL**2
696 AWD3 = PI[B:58]*RDF*RSH_WAS**2
697 AED4 = PI[B:58]*RDF*RSH_EXH**2
698 !*****
699 !*****
700 ! AKIS1 = MODE OF DISTRIBUTION
701 A = PMLT_LO
702 B = PMLT_MD
703 C = PMLT_HI
704 AKIS1 = 10**B
705 !*****
706 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
707 !
708 ADR = (RADN_DRZ - 1)*RSH_AIR
709 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
710 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
711 ATRM1 = ANUM1/DEN*PX_SALT
712 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
713 ATRM2 = ANUM2/DEN*AKIS1
714 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
715 !*****
716 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
717 !
718 SDR = (RADN_DRZ - 1)*RSH_SAL
719 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
720 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
721 STRM1 = SNUM1/DEN*PX_SALT
722 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
723 STRM2 = SNUM2/DEN*AKIS1
724 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
725 !*****
726 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
727 !
728 WDR = (RADN_DRZ - 1)*RSH_WAS
    
```



```

729 WNUM1 = RADN_DRZ*RSII_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
730 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
731 WTRM1 = WNUM1/DEN*PX_SALT
732 WNUM2 = RSII_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
733 WTRM2 = WNUM2/DEN*AKIS1
734 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSII_WAS + RSII_WAS)
735 !*****
736 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
737 !
738 EDR = (RADN_DRZ - 1)*RSII_EXH
739 ENUM1 = RADN_DRZ*RSII_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
740 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
741 ETRM1 = ENUM1/DEN*PX_SALT
742 ENUM2 = RSII_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
743 ETRM2 = ENUM2/DEN*AKIS1
744 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSII_EXH + RSII_EXH)
745 !*****
746 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
747 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
748 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
749 ! PERMEABILITY (EQ. 3):
750 KMOD = (AKIS1*AST + KDAD)/AST
751 !*****
752 PERM_Y = KMOD
753 PERM_X = PERM_Y
754 PERM_Z = PERM_Y
755 SB_MIN = 1.05*SAT_RBRN
756 !POR_COMP = COMP_RCK/POROSITY
757 POR_COMP = COMP_RCK
758 !
759 !*****
760 !BLOCK 49 SALT_T4
761 !*****
762 !**COMMENTS:
763 ! Crushed salt shaft material
764 ! Time period 4: 50 to 100 years
765 !*****
766 !LIMIT BLOCK 49
767 PX_SALT = MAKEPROP(PERM_X[B:29])
768 ! CALCULATE AREA OF THE FOUR SHAFTS:
769 AAS1 = PI[B:58]*RSII_AIR**2
770 ASS2 = PI[B:58]*RSII_SAL**2
771 AWS3 = PI[B:58]*RSII_WAS**2
772 AES4 = PI[B:58]*RSII_EXH**2
773 AST = AAS1 + ASS2 + AWS3 + AES4
774 !*****
775 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
776 RDF = RADN_DRZ**2 - 1.0
777 AAD1 = PI[B:58]*RDF*RSII_AIR**2
778 ASD2 = PI[B:58]*RDF*RSII_SAL**2
779 AWD3 = PI[B:58]*RDF*RSII_WAS**2
780 AED4 = PI[B:58]*RDF*RSII_EXH**2
    
```

```

781 !*****
782 !*****
783 ! AKIS1 = MODE OF THE DISTRIBUTION
784A = PMLT_LO
785B = PMLT_MD
786C = PMLT_HI
787 AKIS1 = 10**B
788 !*****
789 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHAFT:
790 !
791 ADR = (RADN_DRZ - 1)*RSII_AIR
792 ANUM1 = RADN_DRZ*RSII_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
793 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
794 ATRM1 = ANUM1/DEN*PX_SALT
795 ANUM2 = RSII_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
796 ATRM2 = ANUM2/DEN*AKIS1
797 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSII_AIR + RSII_AIR)
798 !*****
799 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
800 !
801 SDR = (RADN_DRZ - 1)*RSII_SAL
802 SNUM1 = RADN_DRZ*RSII_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
803 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
804 STRM1 = SNUM1/DEN*PX_SALT
805 SNUM2 = RSII_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
806 STRM2 = SNUM2/DEN*AKIS1
807 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSII_SAL + RSII_SAL)
808 !*****
809 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
810 !
811 WDR = (RADN_DRZ - 1)*RSII_WAS
812 WNUM1 = RADN_DRZ*RSII_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
813 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
814 WTRM1 = WNUM1/DEN*PX_SALT
815 WNUM2 = RSII_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
816 WTRM2 = WNUM2/DEN*AKIS1
817 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSII_WAS + RSII_WAS)
818 !*****
819 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
820 !
821 EDR = (RADN_DRZ - 1)*RSII_EXH
822 ENUM1 = RADN_DRZ*RSII_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
823 DEN = (LOG(PX_SALT) - LOG(AKIS1))*2
824 ETRM1 = ENUM1/DEN*PX_SALT
825 ENUM2 = RSII_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
826 ETRM2 = ENUM2/DEN*AKIS1
827 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSII_EXH + RSII_EXH)
828 !*****
829 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
830 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
831 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
832 ! PERMEABILITY (EQ. 3):
    
```

```

833 KMOD = (AKIS1*AST + KDAD)/AST
834 !*****
835 PERM_Y = KMOD
836 PERM_X = PERM_Y
837 PERM_Z = PERM_Y
838 SB_MIN = 1.05*SAT_RBRN
839 !POR_COMP = COMP_RCK/POROSITY
840 POR_COMP = COMP_RCK
841 !
842 !*****
843 !BLOCK 50 SALT_T5
844 !*****
845 !**COMMENTS:
846 ! Crushed salt shaft material
847 ! Time period 5: 100 to 200 years
848 !*****
849 LIMIT BLOCK 50
850 PX_SALT = MAKEPROP(PERM_X[B:29])
851 ! CALCULATE AREA OF THE FOUR SHAFTS:
852 AAS1 = PI[B:58]*RSH_AIR**2
853 ASS2 = PI[B:58]*RSH_SAL**2
854 AWS3 = PI[B:58]*RSH_WAS**2
855 AES4 = PI[B:58]*RSH_EXH**2
856 AST = AAS1 + ASS2 + AWS3 + AES4
857 !*****
858 ! CALCULATE DRZ AREAS FOR EACH SHAFT:
859 RDF = RADN_DRZ**2 - 1.0
860 AAD1 = PI[B:58]*RDF*RSH_AIR**2
861 ASD2 = PI[B:58]*RDF*RSH_SAL**2
862 AWD3 = PI[B:58]*RDF*RSH_WAS**2
863 AED4 = PI[B:58]*RDF*RSH_EXH**2
864 !*****
865 !*****
866 ! AKIS1 = MODE OF THE DISTRIBUTION
867 A = PMLT_LO
868 B = PMLT_MD
869 C = PMLT_HI
870 AKIS1 = 10**B
871 !*****
872 ! CALCULATE EFFECTIVE DRZ PERM FOR AIR SHIAFT:
873 !
874 ADR = (RADN_DRZ - 1)*RSH_AIR
875 ANUM1 = RADN_DRZ*RSH_AIR*(LOG(PX_SALT) - LOG(AKIS1)) - ADR
876 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
877 ATRM1 = ANUM1/DEN*PX_SALT
878 ANUM2 = RSH_AIR*(LOG(PX_SALT)-LOG(AKIS1))-ADR
879 ATRM2 = ANUM2/DEN*AKIS1
880 AKDRZ = 2*(ATRM1 - ATRM2)/(RADN_DRZ*RSH_AIR + RSH_AIR)
881 !*****
882 ! CALCULATE EFFECTIVE DRZ PERM FOR SALT SHAFT:
883 !
884 SDR = (RADN_DRZ - 1)*RSH_SAL

```

```

885 SNUM1 = RADN_DRZ*RSH_SAL*(LOG(PX_SALT) - LOG(AKIS1)) - SDR
886 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
887 STRM1 = SNUM1/DEN*PX_SALT
888 SNUM2 = RSH_SAL*(LOG(PX_SALT)-LOG(AKIS1))-SDR
889 STRM2 = SNUM2/DEN*AKIS1
890 SKDRZ = 2*(STRM1 - STRM2)/(RADN_DRZ*RSH_SAL + RSH_SAL)
891 !*****
892 ! CALCULATE EFFECTIVE DRZ PERM FOR WASTE SHAFT:
893 !
894 WDR = (RADN_DRZ - 1)*RSH_WAS
895 WNUM1 = RADN_DRZ*RSH_WAS*(LOG(PX_SALT) - LOG(AKIS1)) - WDR
896 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
897 WTRM1 = WNUM1/DEN*PX_SALT
898 WNUM2 = RSH_WAS*(LOG(PX_SALT)-LOG(AKIS1))-WDR
899 WTRM2 = WNUM2/DEN*AKIS1
900 WKDRZ = 2*(WTRM1 - WTRM2)/(RADN_DRZ*RSH_WAS + RSH_WAS)
901 !*****
902 ! CALCULATE EFFECTIVE DRZ PERM FOR EXHAUST SHAFT:
903 !
904 EDR = (RADN_DRZ - 1)*RSH_EXH
905 ENUM1 = RADN_DRZ*RSH_EXH*(LOG(PX_SALT) - LOG(AKIS1)) - EDR
906 DEN = (LOG(PX_SALT) - LOG(AKIS1))**2
907 ETRM1 = ENUM1/DEN*PX_SALT
908 ENUM2 = RSH_EXH*(LOG(PX_SALT)-LOG(AKIS1))-EDR
909 ETRM2 = ENUM2/DEN*AKIS1
910 EKDRZ = 2*(ETRM1 - ETRM2)/(RADN_DRZ*RSH_EXH + RSH_EXH)
911 !*****
912 ! NOW CALCULATE KDRZ x AREA FOR EACH SHAFT AND SUM:
913 KDAD = AKDRZ*AAD1 + SKDRZ*ASD2 + WKDRZ*AWD3 + EKDRZ*AED4
914 ! NOW USE THE SAMPLED SHAFT FILL? PERMEABILITY TO FORM THE MODEL SHAFT
915 ! PERMEABILITY (EQ. 3):
916 KMOD = (AKIS1*AST + KDAD)/AST
917 !*****
918 PERM_Y = KMOD
919 PERM_X = PERM_Y
920 PERM_Z = PERM_Y
921 SB_MIN = 1.05*SAT_RBRN
922 !POR_COMP = COMP_RCK/POROSITY
923 POR_COMP = COMP_RCK
924 !
925 !*****
926 !BLOCK 51 SALT_T6
927 !*****
928 !**COMMENTS:
929 ! Crushed salt shaft material
930 ! Time period 6: 200 to 10000 years
931 !*****
932 LIMIT BLOCK 51
933 PX_SALT = MAKEPROP(PERM_X[B:29])
934 ! CALCULATE AREA OF THE FOUR SHAFTS:
935 AAS1 = PI[B:58]*RSH_AIR**2
936 ASS2 = PI[B:58]*RSH_SAL**2

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix J --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R004.INP (Algebra) File Listings

```

105 106 LIMIT BLOCK 30
106 107
107 108
108 109 PERM_X = MAKEPROP(10**(-17.1))
109 110 PERM_Y = PERM_X
110 111 PERM_Z = PERM_X
111 112 SB_MIN = 1.05*SAT_RBRN
112 *****
113 *****
114 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
115 143 LIMIT BLOCK 34 35 36
116 144 PERM_X = 10**PRMX_LOG
117 145 PERM_Y = 10**PRMY_LOG
118 146 PERM_Z = 10**PRMZ_LOG
119 147 SB_MIN = 1.05*SAT_RBRN
120 148 POR_COMP = COMP_RCK/POROSITY
121 149
122 *****
123 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
124 127
125 128 LIMIT BLOCK 31
126 129 PERM_X = PERM_X[B:30]
127 130 PERM_Y = PERM_Y[B:30]
128 131 PERM_Z = PERM_Z[B:30]
129 132 RELP_MOD = RELP_MOD[B:30]
130 133 PORE_DIS = PORE_DIS[B:30]
131 134 SAT_RBRN = SAT_RBRN[B:30]
132 135 SAT_RGAS = SAT_RGAS[B:30]
133 136 SB_MIN = 1.05*SAT_RBRN
134 137 POR_COMP = COMP_RCK/POROSITY
135 138 PHIMAX = POROSITY + DPHIMAX
136 139
137 140
138 141 TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
139 142 PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
140 143
141 *****
142 *****
143 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
144 157
145 158
146 159 LIMIT BLOCK 33
147 160 PERM_X = 10**PRMX_LOG
148 *****
149 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
150 151 LIMIT BLOCK 34 35 36
151 152 PERM_X = 10**PRMX_LOG
152 *****
153 *****
154 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
155 172 LIMIT BLOCK 28
156 173 PERM_X = 10**PRMX_LOG

```

```

157*****
158 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
159 164
160 165
161 166
162 167 LIMIT BLOCK 33
163 168 PERM_X = 10**PRMX_LOG
164 *****
165 *****
166 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
167 177
168 178 POR_COMP = (10**COMP_RCK)/POROSITY
169 179
170*****
171 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
172 172 POR_COMP = COMP_RCK/POROSITY
173 173
174 *****
175 *****
176 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
177 186
178*****
179 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
180 180 LIMIT BLOCK 28
181 181 PERM_X = 10**PRMX_LOG
182 182 PERM_Y = 10**PRMY_LOG
183 183 PERM_Z = 10**PRMZ_LOG
184 184 SB_MIN = 1.05*SAT_RBRN
185 185
186 186 POR_COMP = (10**COMP_RCK)/POROSITY
187 187
188 *****
189 *****
190 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
191 195 LIMIT BLOCK 41
192 196
193 197 PERM_X = 10**PRMX_LOG
194 198 PERM_Y = 10**PRMY_LOG
195 199 PERM_Z = 10**PRMZ_LOG
196 200 SB_MIN = 1.05*SAT_RBRN
197 201 POR_COMP = COMP_RCK/POROSITY
198 202
199*****
200 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
201 196
202 *****
203 *****
204 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
205 209
206*****
207 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
208 203 LIMIT BLOCK 41

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix J --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R004.INP (Algebra) File Listings

```

209 204
210 205 PERM_X = 10**PRMX_LOG
211 206 PERM_Y = 10**PRMY_LOG
212 207 PERM_Z = 10**PRMZ_LOG
213 208 SB_MIN = 1.05*SAT_RBRN
214 209 POR_COMP = COMP_RCK/POROSITY
215 210
216 *****
217 *****
218 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
219 229 STOICOR = MAKEPROP(STOIFX[B:56])
220 230
221 *****
222 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
223 230
224 *****
225 *****
226 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
227 233 SCOR_H2 = MAKEPROP((4 - STOICOR)/3)
228 234
229 235
230 236 SCOR_H2O = MAKEPROP((4 + 2*STOICOR)/3)
231 237
232 238
233 239 SCOR_FE = MAKEPROP(1.0)
234 240
235 *****
236 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
237 233
238 *****
239 *****
240 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
241 244
242 *****
243 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
244 237 STOICOR = MAKEPROP(STOIFX[B:56])
245 238
246 *****
247 *****
248 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
249 247
250 *****
251 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
252 241 SCOR_H2 = MAKEPROP((4 - STOICOR)/3)
253 242
254 243
255 244 SCOR_H2O = MAKEPROP((4 + 2*STOICOR)/3)
256 245
257 246
258 247 SCOR_FE = MAKEPROP(1.0)
259 248
260 *****

```

```

261 *****
262 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
263 276 DRH_METL = DIRONRIHW + DIRNCRHW
264 277 DRH_RUPL = DRUBBRIHW + 1.7*(DPLASRIHW+DPLSCRHW)
265 278 DRH_BIO = DCELLRIHW + DRH_RUPL
266 279 DCH_METL = DIRONCHW + DIRNCCHW
267 280 DCH_RUPL = DRUBBCHW + 1.7*(DPLASCHW+DPLSCCHW)
268 281 DCH_BIO = DCELLCHW + DCH_RUPL
269 282
270 *****
271 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
272 277
273 *****
274 *****
275 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
276 289
277 *****
278 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
279 284 DRH_METL = DIRONRHW + DIRNCRHW
280 285 DRH_RUPL = DRUBBRHW + 1.7*(DPLASRHW+DPLSCRHW)
281 286 DRH_BIO = DCELLRHW + DRH_RUPL
282 287 DCH_METL = DIRONCHW + DIRNCCHW
283 288 DCH_RUPL = DRUBBCHW + 1.7*(DPLASCHW+DPLSCCHW)
284 289 DCH_BIO = DCELLCHW + DCH_RUPL
285 290
286 *****
287 *****
288 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
289 301 WTFETOT = DRH_METL*VOLRHW + DCH_METL*VOLCHW
290 302
291 303
292 304 WTCELTOT = DCELLRHW*VOLRHW + DCELLCHW*VOLCHW
293 305
294 306
295 307 WTRPLTOT = DRH_RUPL*VOLRHW + DCH_RUPL*VOLCHW
296 308
297 *****
298 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
299 302
300 *****
301 *****
302 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
303 312 PLASIDX = IFEQ0(PROBDEG-2,1.0,0.0)
304 313 BIOIDX = IFGT0(PROBDEG,1.0,0.0)
305 314
306 *****
307 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
308 306
309 *****
310 *****
311 File NI:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
312 317

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix J --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R004.INP (Algebra) File Listings

```

13*****
14 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
15 309 WTFETOT = DRH_METL*VOLRIIW + DCH_METL*VOLCHW
16 310
17 311
18 312 WTCELTOT = DCELLRH*VOLRIIW + DCELLCHW*VOLCHW
19 313
20 314
21 315 WTRPLTOT = DRH_RUPL*VOLRH*W + DCH_RUPL*VOLCHW
22 316
23*****
24*****
25 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
26 321
27 322 WTBIOTOT = WTCELTOT + WTRPLTOT*PLASIDX
28 323
29*****
30 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
31 320 PLASIDX = IFEQ0(PROBDEG-2,1.0,0.0)
32 321 BIOIDX = IFGT0(PROBDEG,1.0,0.0)
33 322
34*****
35*****
36 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
37 328 CONCFE = WTFETOT/VREPOS[B:58]
38 329
39*****
40 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
41 327
42*****
43*****
44 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
45 332
46 333
47 334 CONCBIO = WTBIOTOT/VREPOS[B:58]
48 335
49*****
50 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
51 330 WTBIOTOT = WTCELTOT + WTRPLTOT*PLASIDX
52 331
53*****
54*****
55 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
56 338 CH20CONC = WTCELTOT/VREPOS[B:58]
57 339
58*****
59 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
60 334
61 335
62 336 CONCFE = WTFETOT/VREPOS[B:58]
63 337
64*****

```

```

365*****
366 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
367 344
368*****
369 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
370 342 CONCBIO = WTBIOTOT/VREPOS[B:58]
371 343
372*****
373*****
374 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
375 347
376 348
377 349 DRUMVOL = MAKEPROP(DRROOM[B:58]/VROOM[B:58])
378 350 DRUMTOT = MAKEPROP(VREPOS[B:58]*DRUMVOL)
379 351 DRPANEL = MAKEPROP(DRROOM[B:58]*VPANLEX[B:58]/VROOM[B:58])
380 352
381*****
382 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
383 346 CH20CONC = WTCELTOT/VREPOS[B:58]
384 347
385*****
386*****
387 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
388 362 A1 = 6*1000*WTBIOTOT/162
389 363
390*****
391 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
392 357 DRUMVOL = MAKEPROP(DRROOM[B:58]/VROOM[B:58])
393 358 DRUMTOT = MAKEPROP(VREPOS[B:58]*DRUMVOL)
394 359 DRPANEL = MAKEPROP(DRROOM[B:58]*VPANLEX[B:58]/VROOM[B:58])
395 360
396*****
397*****
398 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
399 366 A2 = 10000*GRATMICI*YRSEC[B:58]*WTBIOTOT
400 367 MAX_CELL = MIN(A1,A2)
401 368
402*****
403 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
404 363
405*****
406*****
407 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
408 372 B1 = 1000*WTFETOT/56
409 373
410*****
411 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
412 367
413*****
414*****
415 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
416 376

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix J --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R004.INP (Algebra) File Listings

```

417*****
418 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
419 370 A1 = 6*1000*WTBIOTOT/162
420 371
421 *****
422 *****
423 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
424 379
425 380
426 381 B2 = 1410*CORRWCO2[B:56]*1000000*YRSEC[B:58]*ASDRUM[B:58]*DRUMTOT
427 382 MAX_FE = MIN(B1,B2)
428 383
429 *****
430 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
431 374 A2 = 10000*GRATMICI*YRSEC[B:58]*WTBIOTOT
432 375 MAX_CELL = MIN(A1,A2)
433 376
434 *****
435 *****
436 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
437 387 MOL_NO3 = QINIT[B:55]
438 *****
439 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
440 380 B1 = 1000*WTFETOT/56
441 381
442 382
443 383
444 384
445 385
446 386
447 387
448 388

```

```

449 389 B2 = 1410*CORRWCO2[B:56]*1000000*YRSEC[B:58]*ASDRUM[B:58]*DRUMTOT
450 390 MAX_FE = MIN(B1,B2)
451 391
452 392
453 393
454 394
455 395 MOL_NO3 = QINIT[B:55]
456 *****
457 *****
458 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
459 1111 limit block 68
460 *****
461 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1
462 1119
463 1120
464 1121 LIMIT BLOCK 60 62 64
465 1122 PERM_X = 1E-3
466 1123 PERM_Y = 1E-3*PRMY_MUL
467 1124 PERM_Z = 1E-3
468 1125
469 1126
470 1127 limit block 68
471 *****
472
473 Number of difference sections found: 35
474 Number of difference records found: 186
475
476 DIFFERENCES
477 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[
478 NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_R2_4.DIFF;1-
479 N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6-
480 N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R004.INP;1

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix K --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R005.INP (Algebra) File Listings

```

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
3 51 DIP1 = 1.0
4 52 DIP2 = 0.0
5 53 THETA1 = DIP1*2.0*PI[B:58]/360.0
6 54 THETA2 = DIP2*2.0*PI[B:58]/360.0
7 55
8 *****
9 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
10 51
11 *****
12 *****
13 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
14 63
15 *****
16 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
17 59 DIP1 = 1.0
18 60 DIP2 = 0.0
19 61 THETA1 = DIP1*2.0*PI[B:58]/360.0
20 62 THETA2 = DIP2*2.0*PI[B:58]/360.0
21 63
22 *****
23 *****
24 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
25 68 LIMIT BLOCK 29
26 69
27 70
28 71 PERM_X = MAKEPROP(10**(-24.75))
29 72 PERM_Y = PERM_X
30 73 PERM_Z = PERM_X
31 74 SB_MIN = 1.05*SAT_RBRN
32 75 POR_COMP = COMP_RCK/POROSITY
33 76
34 *****
35 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
36 68
37 *****
38 *****
39 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
40 83 LIMIT BLOCK 37
41 84 PERM_X = 10**PRMX_LOG
42 85 PERM_Y = 10**PRMY_LOG
43 86 PERM_Z = 10**PRMZ_LOG
44 87 POROSITY = POROSITY[B:29] + 0.0029
45 88 PORE_DIS = PORE_DIS
46 89 RELP_MOD = RELP_MOD
47 90 SB_MIN = 1.05*SAT_RBRN
48 *****
49 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
50 75
51 76 LIMIT BLOCK 29
52 77

```

```

53 78
54 79 PERM_X = MAKEPROP(10**(-24.75))
55 80 PERM_Y = PERM_X
56 81 PERM_Z = PERM_X
57 82 SB_MIN = 1.05*SAT_RBRN
58 *****
59 *****
60 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
61 98 LIMIT BLOCK 30
62 99
63 100
64 101 PERM_X = MAKEPROP(10**(-17.1))
65 102 PERM_Y = PERM_X
66 103 PERM_Z = PERM_X
67 104 SB_MIN = 1.05*SAT_RBRN
68 105 POR_COMP = COMP_RCK/POROSITY
69 106 PHIMAX = POROSITY + DPHIMAX
70 107
71 108
72 109 TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
73 110 PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
74 111
75 *****
76 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
77 90
78 91 LIMIT BLOCK 37
79 92 PERM_X = 10**PRMX_LOG
80 93 PERM_Y = 10**PRMY_LOG
81 94 PERM_Z = 10**PRMZ_LOG
82 95 POROSITY = POROSITY[B:29] + 0.0029
83 96 PORE_DIS = PORE_DIS
84 97 RELP_MOD = RELP_MOD
85 98 SB_MIN = 1.05*SAT_RBRN
86 99 POR_COMP = COMP_RCK/POROSITY
87 100
88 *****
89 *****
90 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
91 117
92 *****
93 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
94 106 LIMIT BLOCK 30
95 107
96 *****
97 *****
98 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
99 120 LIMIT BLOCK 31
100 121 PERM_X = PERM_X[B:30]
101 122 PERM_Y = PERM_Y[B:30]
102 123 PERM_Z = PERM_Z[B:30]
103 124 RELP_MOD = RELP_MOD[B:30]
104 125 PORE_DIS = PORE_DIS[B:30]

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix K --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R005.INP (Algebra) File Listings

```

105 126 SAT_RBRN = SAT_RBRN[B:30]
106 127 SAT_RGAS = SAT_RGAS[B:30]
107 128 SB_MIN = 1.05*SAT_RBRN
108*****
109 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
110 110
111 111 KMAXLOG = -3.0
112 112 PERM_X = MAKEPROP(10**(-17.1))
113 113 PERM_Y = PERM_X
114 114 PERM_Z = PERM_X
115 115 SB_MIN = 1.05*SAT_RBRN
116*****
117*****
118 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
119 143 LIMIT BLOCK 34 35 36
120 144 PERM_X = 10**PRMX_LOG
121 145 PERM_Y = 10**PRMY_LOG
122 146 PERM_Z = 10**PRMZ_LOG
123 147 SB_MIN = 1.05*SAT_RBRN
124 148 POR_COMP = COMP_RCK/POROSITY
125 149
126*****
127 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
128 130
129 131 LIMIT BLOCK 31
130 132 KMAXLOG = KMAXLOG[ID:30]
131 133 PERM_X = PERM_X[B:30]
132 134 PERM_Y = PERM_Y[B:30]
133 135 PERM_Z = PERM_Z[B:30]
134 136 RELP_MOD = RELP_MOD[B:30]
135 137 PORE_DIS = PORE_DIS[B:30]
136 138 SAT_RBRN = SAT_RBRN[B:30]
137 139 SAT_RGAS = SAT_RGAS[B:30]
138 140 SB_MIN = 1.05*SAT_RBRN
139 141 POR_COMP = COMP_RCK/POROSITY
140 142 PHIMAX = POROSITY + DPHIMAX
141 143
142 144
143 145 TEMP = POROSITY*(EXP(POR_COMP*(PI_DELTA)))
144 146 PERM_EXP = LOG((10**KMAXLOG)/PERM_X)/(LOG(PHIMAX/TEMP))
145 147
146*****
147*****
148 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
149 157
150 158
151 159 LIMIT BLOCK 33
152 160 PERM_X = 10**PRMX_LOG
153*****
154 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
155 155 LIMIT BLOCK 34 35 36
156 156 PERM_X = 10**PRMX_LOG

```

```

157*****
158*****
159 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
160 172 LIMIT BLOCK 28
161 173 PERM_X = 10**PRMX_LOG
162*****
163 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
164 168
165 169
166 170
167 171 LIMIT BLOCK 33
168 172 PERM_X = 10**PRMX_LOG
169*****
170*****
171 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
172 177
173 178 POR_COMP = (10**COMP_RCK)/POROSITY
174 179
175*****
176 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
177 176 POR_COMP = COMP_RCK/POROSITY
178 177
179*****
180*****
181 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
182 186
183*****
184 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
185 184 LIMIT BLOCK 28
186 185 PERM_X = 10**PRMX_LOG
187 186 PERM_Y = 10**PRMY_LOG
188 187 PERM_Z = 10**PRMZ_LOG
189 188 SB_MIN = 1.05*SAT_RBRN
190 189
191 190 POR_COMP = (10**COMP_RCK)/POROSITY
192 191
193*****
194*****
195 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
196 195 LIMIT BLOCK 41
197 196
198 197 PERM_X = 10**PRMX_LOG
199 198 PERM_Y = 10**PRMY_LOG
200 199 PERM_Z = 10**PRMZ_LOG
201 200 SB_MIN = 1.05*SAT_RBRN
202 201 POR_COMP = COMP_RCK/POROSITY
203 202
204*****
205 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
206 200
207*****
208*****

```


The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix K --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R005.INP (Algebra) File Listings

```

09 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
10 209
11 *****
12 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
13 207 LIMIT BLOCK 41
14 208
15 209 PERM_X = 10**PRMX_LOG
16 210 PERM_Y = 10**PRMY_LOG
17 211 PERM_Z = 10**PRMZ_LOG
18 212 SB_MIN = 1.05*SAT_RBRN
19 213 POR_COMP = COMP_RCK/POROSITY
20 214
21 *****
22 *****
23 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
24 229 STOICOR = MAKEPROP(STOIFX[B:56])
25 230
26 *****
27 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
28 234
29 *****
30 *****
31 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
32 233 SCOR_H2 = MAKEPROP((4 - STOICOR)/3)
33 234
34 235
35 236 SCOR_H2O = MAKEPROP((4 + 2*STOICOR)/3)
36 237
37 238
38 239 SCOR_FE = MAKEPROP(1.0)
39 240
40 *****
41 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
42 237
43 *****
44 *****
45 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
46 244
47 *****
48 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
49 241 STOICOR = MAKEPROP(STOIFX[B:56])
50 242
51 *****
52 *****
53 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
54 247
55 *****
56 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
57 245 SCOR_H2 = MAKEPROP((4 - STOICOR)/3)
58 246
59 247
60 248 SCOR_H2O = MAKEPROP((4 + 2*STOICOR)/3)

```

```

261 249
262 250
263 251 SCOR_FE = MAKEPROP(1.0)
264 252
265 *****
266 *****
267 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
268 276 DRH_METL = DIRONRHW + DIRNCRHW
269 277 DRH_RUPL = DRUBBRHW + 1.7*(DPLASRHW+DPLSCRHW)
270 278 DRH_BIO = DCELLRHW + DRH_RUPL
271 279 DCH_METL = DIRONCHW + DIRNCCHW
272 280 DCH_RUPL = DRUBBCHW + 1.7*(DPLASCHW+DPLSCCHW)
273 281 DCH_BIO = DCELLCHW + DCH_RUPL
274 282
275 *****
276 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
277 281
278 *****
279 *****
280 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
281 289
282 *****
283 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
284 288 DRH_METL = DIRONRHW + DIRNCRHW
285 289 DRH_RUPL = DRUBBRHW + 1.7*(DPLASRHW+DPLSCRHW)
286 290 DRH_BIO = DCELLRHW + DRH_RUPL
287 291 DCH_METL = DIRONCHW + DIRNCCHW
288 292 DCH_RUPL = DRUBBCHW + 1.7*(DPLASCHW+DPLSCCHW)
289 293 DCH_BIO = DCELLCHW + DCH_RUPL
290 294
291 *****
292 *****
293 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
294 301 WTFOTOT = DRH_METL*VOLRHW + DCH_METL*VOLCHW
295 302
296 303
297 304 WTCELTOT = DCELLRHW*VOLRHW + DCELLCHW*VOLCHW
298 305
299 306
300 307 WTRPLTOT = DRH_RUPL*VOLRHW + DCH_RUPL*VOLCHW
301 308
302 *****
303 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
304 306
305 *****
306 *****
307 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
308 312 PLASIDX = IFEQ0(PROBDEG-2,1.0,0.0)
309 313 BIOIDX = IFGT0(PROBDEG,1.0,0.0)
310 314
311 *****
312 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix K --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R005.INP (Algebra) File Listings

```

313 310
314*****
315*****
316 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
317 317
318*****
319 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
320 313  WTFETOT = DRH_METL*VOLRHW + DCH_METL*VOLCHW
321 314
322 315
323 316  WTCELTOT = DCELLRHW*VOLRHW + DCELLCHW*VOLCHW
324 317
325 318
326 319  WTRPLTOT = DRH_RUPL*VOLRHW + DCH_RUPL*VOLCHW
327 320
328*****
329*****
330 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
331 321
332 322  WTBIOTOT = WTCELTOT + WTRPLTOT*PLASIDX
333 323
334*****
335 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
336 324  PLASIDX = IFEQ0(PROBDEG-2,1.0,0.0)
337 325  BIOIDX = IFGT0(PROBDEG,1.0,0.0)
338 326
339*****
340*****
341 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
342 328  CONCFE = WTFETOT/VREPOS[B:58]
343 329
344*****
345 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
346 331
347*****
348*****
349 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
350 332
351 333
352 334  CONC BIO = WTBIOTOT/VREPOS[B:58]
353 335
354*****
355 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
356 334  WTBIOTOT = WTCELTOT + WTRPLTOT*PLASIDX
357 335
358*****
359*****
360 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
361 338  CH20CONC = WTCELTOT/VREPOS[B:58]
362 339
363*****
364 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1

```

```

365 338
366 339
367 340  CONC FE = WTFETOT/VREPOS[B:58]
368 341
369*****
370*****
371 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
372 344
373*****
374 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
375 346  CONC BIO = WTBIOTOT/VREPOS[B:58]
376 347
377*****
378*****
379 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
380 347
381 348
382 349  DRUMVOL = MAKEPROP(DRROOM[B:58]/VROOM[B:58])
383 350  DRUMTOT = MAKEPROP(VREPOS[B:58]*DRUMVOL)
384 351  DRPANEL = MAKEPROP(DRROOM[B:58]*VPANLEX[B:58]/VROOM[B:58])
385 352
386*****
387 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
388 350  CH20CONC = WTCELTOT/VREPOS[B:58]
389 351
390*****
391*****
392 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
393 362  A1 = 6*1000*WTBIOTOT/162
394 363
395*****
396 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
397 361  DRUMVOL = MAKEPROP(DRROOM[B:58]/VROOM[B:58])
398 362  DRUMTOT = MAKEPROP(VREPOS[B:58]*DRUMVOL)
399 363  DRPANEL = MAKEPROP(DRROOM[B:58]*VPANLEX[B:58]/VROOM[B:58])
400 364
401*****
402*****
403 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
404 366  A2 = 10000*GRATMICI*YRSEC[B:58]*WTBIOTOT
405 367  MAX_CELL = MIN(A1,A2)
406 368
407*****
408 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
409 367
410*****
411*****
412 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
413 372  B1 = 1000*WTFETOT/56
414 373
415*****
416 File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix K --Differences between ALG_WATFLD_BASE01_R002.INP & ALG_WATFLD_BASE01_R005.INP (Algebra) File Listings

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417 371
418*****
419*****
420File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
421 376
422*****
423File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
424 374 A1 = 6*1000*WTBIOTOT/162
425 375
426*****
427*****
428File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
429 379
430 380
431 381 B2 = 1410*CORRWCO2[B:56]*1000000*YRSEC[B:58]*ASDRUM[B:58]*DRUMTOT
432 382 MAX_FE = MIN(B1,B2)
433 383
434*****
435File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
436 378 A2 = 10000*GRATMICI*YRSEC[B:58]*WTBIOTOT
437 379 MAX_CELL = MIN(A1,A2)
438 380
439*****
440*****
441File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
442 387 MOL_NO3 = QINIT[B:55]
443*****
444File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
445 384 B1 = 1000*WTFETOT/56
446 385
447 386
448 387
449 388
450 389
451 390

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452 391
453 392
454 393 B2 = 1410*CORRWCO2[B:56]*1000000*YRSEC[B:58]*ASDRUM[B:58]*DRUMTOT
455 394 MAX_FE = MIN(B1,B2)
456 395
457 396
458 397
459 398
460 399 MOL_NO3 = QINIT[B:55]
461*****
462*****
463File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6
464 1111 limit block 68
465*****
466File N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1
467 1123
468 1124
469 1125 LIMIT BLOCK 60 62 64
470 1126 PERM_X = 1E-3
471 1127 PERM_Y = 1E-3*PRMY_MUL
472 1128 PERM_Z = 1E-3
473 1129
474 1130
475 1131 limit block 68
476*****
477
478Number of difference sections found: 36
479Number of difference records found: 185
480
481DIFFERENCES
482/IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1;1
483NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_R2_5.DIFF;1-
484 N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R002.INP;6-
485 N1:[NOBACK2.DMS_WATERFLOOD.ALGEBRA]ALG_WATFLD_BASE01_R005.INP;1

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1|-----
2|
3| TITLE: PREBRAG INPUT FOR 1995 2D OIL & GAS SCENARIO (WATERFLOOD) MODEL
4|   SIDEBAR CALCULATIONS
5| ANALYST: DANIEL M. STOELZEL
6| DATE: AUGUST 19, 1995
7| SCENARIO: DISTURBED WITH 2 WELLS AT 2400m, 2 WELLS PENETRATING WASTE, ONE
8|   WELL OFFSET TO WASTE AREA (5 TOTAL)
9|   : SINGLE CLOSURE SURFACE
10|  : A) CREEP CLOSURE IN WASTE AREAS
11|  : FRACTURE IN MARKER BEDS
12|  : LOWER GEOLOGICAL UNITS INCLUDED (BELL C. TO MORROW)
13|  : ONE DEGREE DIP FOR SALADO AND DEEPER, SHAFT UP-DIP
14|
15|   MODIFIED: 3/5/96
16|   BY: D.M. STOELZEL
17|   CHANGES TO REFLECT NEW DATABASE, AND NEW MESH THAT FOLLOWS 40CFR194
18|   REGULATIONS:
19|   : NO ACTIVE PHASE FOR FUTURE WELLS BOTH IN AND AROUND LWB
20|   : ONLY ACTIVE PHASE TO REFLECT CURRENT OIL & GAS ACTIVITY
21|   : TWO WELLS AT 2400 METERS WILL BE RADIIALLY FLARED FOR 1/2 FLOW
22|   : NO TIME-DEPENDENT SHAFT SEAL PERMS (SIMPLIFIED FOR THIS MODEL)
23|
24|   6/14/96
25|   CHANGES TO REFLECT CCA BOREHOLE ABANDONING
26|   : CASING LEAK IN SALT ONLY FOR 50 YEAR ACTIVE PHASE
27|   : 200 YEARS OF CEMENT PLUG IN RUSTLER AND BELL CANYON, WITH
28|     OPEN PIPE BETWEEN
29|   : SAND FILLED BOREHOLE FOR THE NEXT 1,000 YEARS
30|   : CREEP CLOSED IN LOWER PART OF SALT TO 10,000 YEARS
31|-----
32|*HEADING
33| TITLE2 = 1996 FEPS: Present day effects of oil and gas development
34|-----
35| CLOSURE INFORMATION
36|*CLOSURE
37| CONTROL, TYPE = PRESSURE, AVE = CELL
38| SURFACE, MODEL = JAN_96, PRES_LITHO = 50.0E6, TIME_OFF = 3.155693E12,&
39|   PERM_FACTOR = WAS_AREA:PERM_X, PERM_EXP = 0.0
40| REGION, MAT = WAS_AREA, MODEL = JAN_96
41|-----
42|*RESET
43| RESET REGIONS ARE GIVEN THE INITIAL PRESSURE AND SATURATION SPECIFIED IN
44| THE INITIAL CONDITIONS AT THE RESET TIME
45| REGION,MAT=CAVITY_2
46| REGION,MAT=CAVITY_3
47| REGION,MAT=CAVITY_4
48| TIME=0.0
49| WASTE,MAT_OLD=CAVITY_2,MAT_NEW=WAS_AREA,&
50|   PRES_BRINE=101325.0, SAT_BRINE=0.0
51|-----
52|*INITIAL CONDITIONS
53| BEGIN SIMULATION AT -5 YEARS
54| BEGIN, TIME=-1.577846E8
55| SATBR, ID_BRINE = SATBR_EL
56| PRESSURE, ID PRES = PRESEL

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57| CONFE , ID_CONFE = FECONC
58| CONCELL, ID_CONCEL = CII2OCONC
59| ELEVAT, ID_ELEV = ELEVE
60|-----
61|*STEP_CONTROL
62| TIME STEP IS REDUCED
63| 1. AT 0 YEARS: WASTE IS INTRODUCED,
64|   TIME,BEGIN=0.0, DT=864.0
65| 2. AT 50 YEARS: MATERIAL CHANGE
66|   TIME,BEGIN=1.577846E9, DT=864.0
67| 3. AT 100 YEARS: MATERIAL CHANGE
68|   TIME,BEGIN=3.155693E9, DT=864.0
69| 4. AT 200 YEARS: MATERIAL CHANGE
70|   TIME,BEGIN=6.311385E9, DT=864.0
71| 5. AT 250 YEARS: MATERIAL CHANGE
72|   TIME,BEGIN=7.889225E9, DT=864.0
73| 6. AT 1250 YEARS: MATERIAL CHANGE
74|   TIME,BEGIN=3.944613E10,DT=864.0
75|-----
76|*MODIFY_MAP
77| ID=1 => 0 YEARS : WASTE INTRODUCED, SHAFT SEALS AND FILL INTRODUCED
78|   ACTIVE PHASE OF WELLS AT 2,400 METERS
79|   CASING LEAK THRU SALT
80|<<<<<<< TIME PERIODS 2 (10 YRS) & 3 (25 YRS) EXCLUDED FOR SIMPLICITY >>>>>>
81| ID=2 => 50 YEARS : MIDDLE AND LOWER CLAY AND COMPACTED SALT (TIME PERIOD 4)
82|   WELLS TURNED OFF
83|   CMT PLUGS IN RUSTLER AND BELL C. OPEN BH BETWEEN
84| ID=3 => 100 YEARS : MIDDLE CLAY AND COMPACTED SALT (TIME PERIOD 5)
85| ID=4 => 200 YEARS : COMPACTED SALT (TIME PERIOD 6)
86|
87| ID=5 => 250 YEARS : ENTIRE BOREHOLE(S) TO SAND FILLED
88| ID=6 => 1250 YEARS: LOWER SALT SECTION OF BH TO CREEP CLOSED
89|<<<<<<< 400 YEARS : CONCRETE (TIME PERIOD 2) NOT INCLUDED >>>>>>>>
90| TIME,TIME_ID=1, BEGIN= 0.0
91| TIME,TIME_ID=2, BEGIN= 1.577846E9
92| TIME,TIME_ID=3, BEGIN= 3.155693E9
93| TIME,TIME_ID=4, BEGIN= 6.311385E9
94| TIME,TIME_ID=5, BEGIN= 7.889225E9
95| TIME,TIME_ID=6, BEGIN= 3.944613E10
96|*****
97| 0 YEARS
98|*****
99| INTRODUCED FINAL DRZ MATERIAL
100| MODIFY, MAT=DRZ_1, TIME_ID=1, IRANGE=36,59, JRANGE=26,26, KRANGE=1,1
101| INTRODUCED WASTE INTO REST OF REPOSITORY
102| MODIFY, MAT=WAS_AREA, TIME_ID=1, IRANGE= 36,42, JRANGE=27,30, KRANGE=1,1
103| MODIFY, MAT=WAS_AREA, TIME_ID=1, IRANGE= 44,50, JRANGE=27,30, KRANGE=1,1
104| INTRODUCED PANEL SEAL MATERIAL
105| MODIFY, MAT=PAN_SEAL, TIME_ID=1, IRANGE=43,43, JRANGE=27,30, KRANGE=1,1
106| MODIFY, MAT=EXP_SEAL, TIME_ID=1, IRANGE=51,51, JRANGE=27,30, KRANGE=1,1
107| INTRODUCED OPERATIONS REGION MATERIAL
108| MODIFY, MAT=OPS_AREA, TIME_ID=1, IRANGE=52,55, JRANGE=28,29, KRANGE=1,1
109| INTRODUCED EXPERIMENTAL REGION MATERIAL
110| MODIFY, MAT=EXP_AREA, TIME_ID=1, IRANGE=57,59, JRANGE=28,29, KRANGE=1,1
111| INTRODUCED TRUE CULEBRA REGION TO ALLOW BRINE INFLOW TO SHAFT
112| MODIFY, MAT=CULEBRA, TIME_ID=1, IRANGE= 1,55, JRANGE=34,34, KRANGE=1,1

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13 MODIFY, MAT=CULEBRA, TIME_ID=1, IRANGE=57,96, JRANGE=34,34, KRANGE=1,1
14 INTRODUCE UPPER CLAY FILL (RUSTLER)
15 MODIFY, MAT=CLAY_RUS, TIME_ID=1, IRANGE=56,56, JRANGE=33,34, KRANGE=1,1
16 INTRODUCE CRUSHED SALT
17 MODIFY, MAT=SALT_T1, TIME_ID=1, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
18 INTRODUCE LOWER CLAY
19 MODIFY, MAT=CL_L_T1, TIME_ID=1, IRANGE=56,56, JRANGE=29,31, KRANGE=1,1
20 INTRODUCE LOWER SHAFT: SAME AS OPS_AREA, NO CONCRETE MONOLITH
21 MODIFY, MAT=OPS_AREA, TIME_ID=1, IRANGE=56,56, JRANGE=27,28, KRANGE=1,1
22 TURN ON TWO WELLS OUTSIDE THE LWA
23 DISPOSAL WELLS INTO UPPER BELL CANYON. LEAKING CASING THROUGH SALADO
24 WELL NO. 1
25 MODIFY, MAT=BH_LOW_L, TIME_ID=1, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
26 MODIFY, MAT=BH_SLT_L, TIME_ID=1, IRANGE= 8, 8, JRANGE=24,32, KRANGE=1,1
27 WELL NO. 2
28 MODIFY, MAT=BH_LOW_L, TIME_ID=1, IRANGE=89, 89, JRANGE=23,23, KRANGE=1,1
29 MODIFY, MAT=BH_SLT_L, TIME_ID=1, IRANGE=89, 89, JRANGE=24,32, KRANGE=1,1
30 *****
31 END OF TIME PERIOD 1 MATERIAL RESETS
32 *****
33 *****
34 50 YEARS
35 *****
36 INTRODUCE CRUSHED SALT
37 MODIFY, MAT=SALT_T4, TIME_ID=2, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
38 INTRODUCE LOWER CLAY
39 MODIFY, MAT=CL_L_T4, TIME_ID=2, IRANGE=56,56, JRANGE=29,31, KRANGE=1,1
40 TURN OFF TWO WELLS OUTSIDE THE LWA
41 DISPOSAL WELLS INTO UPPER BELL CANYON GO TO PLUGGED STATE AT BELL C & RUSTLER
42 WELL NO. 1
43 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
44 MODIFY, MAT=BH_OPEN, TIME_ID=2, IRANGE= 8, 8, JRANGE=24,32, KRANGE=1,1
45 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE= 8, 8, JRANGE=33,34, KRANGE=1,1
46 WELL NO. 2
47 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE=89, 89, JRANGE=23,23, KRANGE=1,1
48 MODIFY, MAT=BH_OPEN, TIME_ID=2, IRANGE=89, 89, JRANGE=24,32, KRANGE=1,1
49 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE=89, 89, JRANGE=33,34, KRANGE=1,1
50 *****
51 END OF TIME PERIOD 2 MATERIAL RESETS
52 *****
53 *****
54 100 YEARS
55 *****
56 INTRODUCE CRUSHED SALT
57 MODIFY, MAT=SALT_T5, TIME_ID=3, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
58 *****
59 END OF TIME PERIOD 3 MATERIAL RESETS
60 *****
61 *****
62 200 YEARS
63 *****
64 INTRODUCE CRUSHED SALT
65 MODIFY, MAT=SALT_T6, TIME_ID=4, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
66 *****
67 END OF TIME PERIOD 4 MATERIAL RESETS
68 *****

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169 *****
170 250 YEARS
171 *****
172 DISPOSAL WELLS INTO UPPER BELL CANYON GO TO ABANDONED STATE (SAND-FILLED)
173 WELL NO. 1
174 MODIFY, MAT=BH_LOW_A, TIME_ID=5, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
175 MODIFY, MAT=BH_SLT_A, TIME_ID=5, IRANGE= 8, 8, JRANGE=24,32, KRANGE=1,1
176 MODIFY, MAT=BH_SUR_A, TIME_ID=5, IRANGE= 8, 8, JRANGE=33,34, KRANGE=1,1
177 WELL NO. 2
178 MODIFY, MAT=BH_LOW_A, TIME_ID=5, IRANGE=89, 89, JRANGE=23,23, KRANGE=1,1
179 MODIFY, MAT=BH_SLT_A, TIME_ID=5, IRANGE=89, 89, JRANGE=24,32, KRANGE=1,1
180 MODIFY, MAT=BH_SUR_A, TIME_ID=5, IRANGE=89, 89, JRANGE=33,34, KRANGE=1,1
181 *****
182 END OF TIME PERIOD 5 MATERIAL RESETS
183 *****
184 *****
185 1250 YEARS
186 *****
187 LOWER SALT GOES TO CREEP CLOSED PERM
188 WELL NO. 1
189 MODIFY, MAT=BH_CREEP, TIME_ID=6, IRANGE= 8, 8, JRANGE=25,26, KRANGE=1,1
190 WELL NO. 2
191 MODIFY, MAT=BH_CREEP, TIME_ID=6, IRANGE=89, 89, JRANGE=25,26, KRANGE=1,1
192 *****
193 END OF TIME PERIOD 6 MATERIAL RESETS
194 *****
195 *****
196 *****
197 *GEOMETRY
198 COORD= CARTESIAN
199 *****
200 *SIMULATION CONTROL
201 INTEGRATION, TMAX=3.155693E11, DT_INIT=8.64, DT_MIN= 8.64E-4, DT_MAX=3.1557E8,&
202 DT_INCR=1.25, DT_REDU=0.25, AUTODT=YES, TSWITCH=1.0,&
203 MAXSTEPS=10000
204 *****
205 ITERATION, DSATLIM= 2.E-1, DPRESLIM = -1.E8, SATLIM= 1.E-3,&
206 SATNORM=0.30, PRESNORM = 5.0E5,&
207 ITMAX= 8, IRESETMAX= 40, IJACINT= 1,&
208 IJACSWITCH=41, IJACMIN= 1, IJACRESET= 5,&
209 IUPRFLAG =9, IUPMFFLAG= 9, IUPRPOOSE= 9,&
210 IUPMFLOOSE=9
211 *****
212 ITERATION, DHSAT_REL= 1.0E-8, DHPRES_REL=1.0E-8,&
213 DHSAT_MIN= 1.0E-10, DHPRES_MIN=1.0E-2
214 *****
215 ITERATION, EPS_SAT = 3.0E+0, EPS_PRES = 1.E-2,&
216 R_EPS_SAT= 3.0E+0, R_EPS_PRES = 1.E-2,&
217 FTOL_SAT = 1.0E-2, FTOL_PRES = 1.0E-2,&
218 R_FTOL_SAT=1.0E-2, R_FTOL_PRES = 1.0E-2, CONV_TEST = AND
219 *****
220 NUMERICS,SOLVER=LU
221 NUMERICS,JACSCALE= 1.0e7,VSWITCH=NO
222 NUMERICS,ITRAVE= HARMONIC, IMFRAVE=UPSTREAM
223 *****
224 *****

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225 *OUTPUT_CONTROL
226
227 UNITS= SI
228 MONITOR, ILOC = 47, JLOC = 23, KLOC = 1
229 MONITOR, ILOC = 9, JLOC = 27, KLOC = 1
230 MONITOR, ILOC = 46, JLOC = 28, KLOC = 1
231 MONITOR, ILOC = 57, JLOC = 30, KLOC = 1
232
233 STEPS, FILE= BINARY, NSTEP=40
234 TIMES, FILE= ASCII, VALUES= 0.0, 3.1557E11
235 TIMES, FILE= RESTART, VALUES= 0.0, 3.1557E09, 3.1557E10
236
237 PRIBIN,&
238 PRESBRIN, PRES GAS, POROS, DENGAS, PERMBRX, PERMGASX,&
239 SATGAS, FLOWGASX, FLOWGASY, FLOWBRX, FLOWBRY,&
240 FECONC, CELLCONC, BRINRATE
241
242 PRIASC,&
243 PRESBRIN, PRES GAS, POROS, SATGAS, FECONC, CELLCONC
244
245 !HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (MARKER BEDS)
246 HISTORY, NAMES= FLOWBRX, IRANGE= 9,9, JRANGE=27,27, KRANGE=1,1
247 HISTORY, NAMES= FLOWBRX, IRANGE= 9,9, JRANGE=30,30, KRANGE=1,1
248 !HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (CULEBRA)
249 HISTORY, NAMES= FLOWBRX, IRANGE= 9,9, JRANGE=34,34, KRANGE=1,1
250 !HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (MARKER BEDS)
251 HISTORY, NAMES= FLOWBRX, IRANGE=89,89, JRANGE=27,27, KRANGE=1,1
252 HISTORY, NAMES= FLOWBRX, IRANGE=89,89, JRANGE=30,30, KRANGE=1,1
253 !HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (CULEBRA)
254 HISTORY, NAMES= FLOWBRX, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
255 !HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (MARKER BEDS)
256 HISTORY, NAMES= FLOWGASX, IRANGE= 9,9, JRANGE=27,27, KRANGE=1,1
257 HISTORY, NAMES= FLOWGASX, IRANGE= 9,9, JRANGE=30,30, KRANGE=1,1
258 !HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (CULEBRA)
259 HISTORY, NAMES= FLOWGASX, IRANGE= 9,9, JRANGE=34,34, KRANGE=1,1
260 !HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (MARKER BEDS)
261 HISTORY, NAMES= FLOWGASX, IRANGE=89,89, JRANGE=27,27, KRANGE=1,1
262 HISTORY, NAMES= FLOWGASX, IRANGE=89,89, JRANGE=30,30, KRANGE=1,1
263 !HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (CULEBRA)
264 HISTORY, NAMES= FLOWGASX, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
265 !BRINE FLOW ACROSS MARKER BEDS BOUNDARY SOUTH (FROM REPOSITORY)
266 HISTORY, NAMES= FLOWBRX, IRANGE=36,36, JRANGE=27,27, KRANGE=1,1
267 HISTORY, NAMES= FLOWBRX, IRANGE=36,36, JRANGE=30,30, KRANGE=1,1
268 !BRINE FLOW ACROSS MARKER BEDS BOUNDARY NORTH (FROM REPOSITORY)
269 HISTORY, NAMES= FLOWBRX, IRANGE=60,60, JRANGE=27,27, KRANGE=1,1
270 HISTORY, NAMES= FLOWBRX, IRANGE=60,60, JRANGE=30,30, KRANGE=1,1
271 !GAS FLOW ACROSS MARKER BEDS BOUNDARY SOUTH (FROM REPOSITORY)
272 HISTORY, NAMES= FLOWGASX, IRANGE=36,36, JRANGE=27,27, KRANGE=1,1
273 HISTORY, NAMES= FLOWGASX, IRANGE=36,36, JRANGE=30,30, KRANGE=1,1
274 !GAS FLOW ACROSS MARKER BEDS BOUNDARY NORTH (FROM REPOSITORY)
275 HISTORY, NAMES= FLOWGASX, IRANGE=60,60, JRANGE=27,27, KRANGE=1,1
276 HISTORY, NAMES= FLOWGASX, IRANGE=60,60, JRANGE=30,30, KRANGE=1,1
277
278 !VERTICAL BRINE FLOW UP SHAFT AT CULEBRA
279 HISTORY, NAMES= FLOWBRY, IRANGE=56,56, JRANGE=34,34, KRANGE=1,1
280 !VERTICAL GAS FLOW UP SHAFT AT CULEBRA

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281 HISTORY, NAMES= FLOWGASY, IRANGE=56,56, JRANGE=34,34, KRANGE=1,1
282
283 !VERTICAL BRINE FLOW UP SHAFT AT REPOSITORY
284 HISTORY, NAMES= FLOWBRY, IRANGE=56,56, JRANGE=31,31, KRANGE=1,1
285 !VERTICAL GAS FLOW UP SHAFT AT REPOSITORY
286 HISTORY, NAMES= FLOWGASY, IRANGE=56,56, JRANGE=31,31, KRANGE=1,1
287
288 !FLOW RATE OF INJECTED BRINE FOR TWO DISPOSAL WELLS
289 HISTORY, NAMES= WELLBRINE, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
290 HISTORY, NAMES= WELLBRINE, IRANGE=89,89, JRANGE=23,23, KRANGE=1,1
291 !WATER TABLE WELLS BRINE AND GAS INFLOW OR OUTFLOW TO SURFACE
292 HISTORY, NAMES= WELLBRINE, IRANGE= 8, 8, JRANGE=34,34, KRANGE=1,1
293 HISTORY, NAMES= WELLBRINE, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
294 HISTORY, NAMES= WELLGAS, IRANGE= 8, 8, JRANGE=34,34, KRANGE=1,1
295 HISTORY, NAMES= WELLGAS, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
296 !*****
297 ! END OF HISTORY VARIABLES
298 !*****
299
300 *REACTION_CHEMISTRY
301
302 WICKING, MAT= WAS_AREA, VALUE=SAT_WICK
303 NUMERICS, SMOOTH=ON, ALPHARXN=1000.0
304 RATES, MAT=WAS_AREA, COR_IN=GRATCORI, COR_HUM=GRATCORH,&
305 MIC_IN=GRATMICI, MIC_HUM=GRATMICH,&
306 SCOR_GAS=STOICOR, SMIC_GAS=STOIMIC
307
308 VOLUME, MAT=WAS_AREA, VOL_CHW = VOLCHW, VOL_RHW = VOLRHW
309
310 DENSITY, MAT=WAS_AREA, METAL_RH= DRH_METL, BIO_RH= DRH_BIO,&
311 METAL_CH= DCH_METL, BIO_CH= DCH_BIO
312
313 SATURATION, MAT=WAS_AREA, VALUE= SAT_IBRN
314 !=====
315 !=====
316 *PROPERTIES
317 ! GET SOLID properties from CAMDAT file
318 !Salado Halite
319 SOLID, MAT=S_HALITE,&
320 PRM_X = PERM_X, PRM_Y = PERM_Y,&
321 PRM_Z = PERM_Z, POROSITY = POROSITY,&
322 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
323 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
324 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
325 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
326 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
327 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
328
329 SOLID, MAT=DRZ_0,&
330 PRM_X = PERM_X, PRM_Y = PERM_Y,&
331 PRM_Z = PERM_Z, POROSITY = POROSITY,&
332 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
333 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
334 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
335 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
336 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&

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337 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
338!
339 SOLID, MAT=DRZ_1,&
340 PRM_X = PERM_X, PRM_Y = PERM_Y,&
341 PRM_Z = PERM_Z, POROSITY = POROSITY,&
342 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
343 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
344 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
345 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
346 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
347 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
348!
349 SOLID, MAT=S_MB139,&
350 PRM_X = PERM_X, PRM_Y = PERM_Y,&
351 PRM_Z = PERM_Z, POROSITY = POROSITY,&
352 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
353 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
354 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
355 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
356 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
357 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
358!
359 SOLID, MAT=S_MB138,&
360 PRM_X = PERM_X, PRM_Y = PERM_Y,&
361 PRM_Z = PERM_Z, POROSITY = POROSITY,&
362 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
363 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
364 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
365 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
366 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
367 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
368!
369 SOLID, MAT=CAVITY_2,&
370 PRM_X = PERM_X, PRM_Y = PERM_Y,&
371 PRM_Z = PERM_Z, POROSITY = POROSITY,&
372 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
373 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
374 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
375 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
376 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
377 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
378!
379 SOLID, MAT=CAVITY_3,&
380 PRM_X = PERM_X, PRM_Y = PERM_Y,&
381 PRM_Z = PERM_Z, POROSITY = POROSITY,&
382 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
383 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
384 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
385 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
386 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
387 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
388!
389 SOLID, MAT=CAVITY_4,&
390 PRM_X = PERM_X, PRM_Y = PERM_Y,&
391 PRM_Z = PERM_Z, POROSITY = POROSITY,&
392 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&

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393 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
394 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
395 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
396 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
397 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
398!
399 SOLID, MAT=IMPERM_Z,&
400 PRM_X = PERM_X, PRM_Y = PERM_Y,&
401 PRM_Z = PERM_Z, POROSITY = POROSITY,&
402 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
403 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
404 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
405 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
406 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
407 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
408!
409 SOLID, MAT=CASTILER,&
410 PRM_X = PERM_X, PRM_Y = PERM_Y,&
411 PRM_Z = PERM_Z, POROSITY = POROSITY,&
412 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
413 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
414 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
415 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
416 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
417 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
418!
419 SOLID, MAT=WAS_AREA,&
420 PRM_X = PERM_X, PRM_Y = PERM_Y,&
421 PRM_Z = PERM_Z, POROSITY = POROSITY,&
422 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
423 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
424 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
425 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
426 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
427 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
428!
429 SOLID, MAT=UNNAMED,&
430 PRM_X = PERM_X, PRM_Y = PERM_Y,&
431 PRM_Z = PERM_Z, POROSITY = POROSITY,&
432 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
433 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
434 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
435 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
436 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
437 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
438!
439 SOLID, MAT=CULEBRA,&
440 PRM_X = PERM_X, PRM_Y = PERM_Y,&
441 PRM_Z = PERM_Z, POROSITY = POROSITY,&
442 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
443 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
444 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
445 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
446 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
447 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
448!

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9 SOLID, MAT=OPS_AREA,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8!
9 SOLID, MAT=EXP_AREA,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8!
9 SOLID, MAT=CLAY_RUS,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8!
9 SOLID, MAT=CL_L_TI,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8!
9 SOLID, MAT=CL_L_T4,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8!
9 SOLID, MAT=SALT_TI,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&

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505 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
506 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
507 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
508!
509 SOLID, MAT=SALT_T4,&
510 PRM_X = PERM_X, PRM_Y = PERM_Y,&
511 PRM_Z = PERM_Z, POROSITY = POROSITY,&
512 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
513 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
514 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
515 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
516 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
517 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
518!
519 SOLID, MAT=SALT_T5,&
520 PRM_X = PERM_X, PRM_Y = PERM_Y,&
521 PRM_Z = PERM_Z, POROSITY = POROSITY,&
522 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
523 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
524 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
525 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
526 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
527 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
528!
529 SOLID, MAT=SALT_T6,&
530 PRM_X = PERM_X, PRM_Y = PERM_Y,&
531 PRM_Z = PERM_Z, POROSITY = POROSITY,&
532 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
533 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
534 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
535 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
536 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
537 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
538!
539 SOLID, MAT=PAN_SEAL,&
540 PRM_X = PERM_X, PRM_Y = PERM_Y,&
541 PRM_Z = PERM_Z, POROSITY = POROSITY,&
542 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
543 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
544 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
545 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
546 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
547 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
548!
549 SOLID, MAT=BII_SUR_A,&
550 PRM_X = PERM_X, PRM_Y = PERM_Y,&
551 PRM_Z = PERM_Z, POROSITY = POROSITY,&
552 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
553 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
554 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
555 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
556 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
557 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
558!
559 SOLID, MAT=BII_SLT_A,&
560 PRM_X = PERM_X, PRM_Y = PERM_Y,&

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01 PRM_Z = PERM_Z, POROSITY = POROSITY,&
02 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
03 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
04 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
05 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
06 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
07 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
08
09 SOLID, MAT=BH_LOW_A,&
10 PRM_X = PERM_X, PRM_Y = PERM_Y,&
11 PRM_Z = PERM_Z, POROSITY = POROSITY,&
12 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
13 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
14 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
15 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
16 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
17 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
18
19 SOLID, MAT=BH_SLT_L,&
20 PRM_X = PERM_X, PRM_Y = PERM_Y,&
21 PRM_Z = PERM_Z, POROSITY = POROSITY,&
22 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
23 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
24 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
25 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
26 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
27 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
28
29 SOLID, MAT=BH_LOW_L,&
30 PRM_X = PERM_X, PRM_Y = PERM_Y,&
31 PRM_Z = PERM_Z, POROSITY = POROSITY,&
32 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
33 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
34 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
35 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
36 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
37 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
38
39 SOLID, MAT=CONC_PLG,&
40 PRM_X = PERM_X, PRM_Y = PERM_Y,&
41 PRM_Z = PERM_Z, POROSITY = POROSITY,&
42 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
43 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
44 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
45 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
46 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
47 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
48
49 SOLID, MAT=BII_OPEN,&
50 PRM_X = PERM_X, PRM_Y = PERM_Y,&
51 PRM_Z = PERM_Z, POROSITY = POROSITY,&
52 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
53 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
54 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
55 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
56 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
57 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
58

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617 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
618!
619 SOLID, MAT=BH_SAND,&
620 PRM_X = PERM_X, PRM_Y = PERM_Y,&
621 PRM_Z = PERM_Z, POROSITY = POROSITY,&
622 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
623 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
624 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
625 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
626 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
627 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
628!
629 SOLID, MAT=BII_CREEP,&
630 PRM_X = PERM_X, PRM_Y = PERM_Y,&
631 PRM_Z = PERM_Z, POROSITY = POROSITY,&
632 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
633 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
634 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
635 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
636 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
637 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
638!
639! GET FRACTURE PROPERTIES
640 FRACTURE, MAT=S_MBI39, FRAC_PI = PI_DELTA, FRAC_PF = PF_DELTA,&
641 FRAC_PHI = PHIMAX, FRAC_EXP = PERM_EXP,&
642 FRAC_PMX = IFRX, FRAC_PMY = IFRY,&
643 FRAC_PMZ = IFRZ
644!
645 FRACTURE, MAT=S_MBI38, FRAC_PI = PI_DELTA, FRAC_PF = PF_DELTA,&
646 FRAC_PHI = PHIMAX, FRAC_EXP = PERM_EXP,&
647 FRAC_PMX = IFRX, FRAC_PMY = IFRY,&
648 FRAC_PMZ = IFRZ
649!
650! GET FLUID (brine and gas) properties from CAMDAT file
651 FLUID, MAT=BRINESAL, SALINITY=WTF, DEN_BR=DNSFLUID,&
652 COMPR_BR=COMP, REF_TEMP=REF_TEMP,&
653 REF_PRES=REF_PRES, TABLE=INTERP, VIS_BR=VISCO
654 FLUID, MAT=H2, VIS_GAS=VISCO,DGAS=OFF,&
655 H2_MOLE=1.0, CO2_MOLE=0.0, CH4_MOLE=0.0,&
656 N2_MOLE=0.0, H2S_MOLE=0.0, O2_MOLE=0.0
657 FLUID, MAT=S_MBI39, KLINK=ON, B_KLINK=BKLINK, EXP_KLINK=EXPKLINK
658!
659 SOLID, MAT=MORRO_P1,&
660 PRM_X = PERM_X, PRM_Y = PERM_Y,&
661 PRM_Z = PERM_Z, POROSITY = POROSITY,&
662 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
663 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
664 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
665 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
666 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
667 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
668!
669 SOLID, MAT=MORRO_P2,&
670 PRM_X = PERM_X, PRM_Y = PERM_Y,&
671 PRM_Z = PERM_Z, POROSITY = POROSITY,&
672 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&

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5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8
9 SOLID, MAT=BONES_P2,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8
9 SOLID, MAT=BONES_P3,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8
9 SOLID, MAT=BONES_NP,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8
9 SOLID, MAT=LBRSH_P1,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8
9 SOLID, MAT=LBRSH_P2,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&
1 PRM_Z = PERM_Z, POROSITY = POROSITY,&
2 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
3 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
4 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
5 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
6 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
7 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
8
9 SOLID, MAT=LBRSH_P3,&
0 PRM_X = PERM_X, PRM_Y = PERM_Y,&

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841 PRM_Z = PERM_Z, POROSITY = POROSITY,&
842 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
843 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
844 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
845 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
846 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
847 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
848!
849 SOLID, MAT=UBRSH_NP,&
850 PRM_X = PERM_X, PRM_Y = PERM_Y,&
851 PRM_Z = PERM_Z, POROSITY = POROSITY,&
852 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
853 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
854 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
855 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
856 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
857 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
858!
859 SOLID, MAT=UBRSH_P1,&
860 PRM_X = PERM_X, PRM_Y = PERM_Y,&
861 PRM_Z = PERM_Z, POROSITY = POROSITY,&
862 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
863 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
864 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
865 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
866 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
867 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
868!
869 SOLID, MAT=UBRSH_P2,&
870 PRM_X = PERM_X, PRM_Y = PERM_Y,&
871 PRM_Z = PERM_Z, POROSITY = POROSITY,&
872 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
873 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
874 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
875 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
876 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
877 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
878!
879 SOLID, MAT=UBRSH_P3,&
880 PRM_X = PERM_X, PRM_Y = PERM_Y,&
881 PRM_Z = PERM_Z, POROSITY = POROSITY,&
882 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
883 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
884 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
885 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
886 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
887 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
888!
889 SOLID, MAT=LBELL_NP,&
890 PRM_X = PERM_X, PRM_Y = PERM_Y,&
891 PRM_Z = PERM_Z, POROSITY = POROSITY,&
892 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
893 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
894 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
895 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
896 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix L -- PREB_WATFLD_BASE01.INP (Prebrag) File Listing

PCT_EXP = PCT_EXP, PCT_FLAG = KPT

SOLID, MAT=UBELL_P1,&

PRM_X = PERM_X, PRM_Y = PERM_Y,&
 PRM_Z = PERM_Z, POROSITY = POROSITY,&
 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
 PCT_EXP = PCT_EXP, PCT_FLAG = KPT

SOLID, MAT=UBELL_P2,&

PRM_X = PERM_X, PRM_Y = PERM_Y,&
 PRM_Z = PERM_Z, POROSITY = POROSITY,&
 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
 PCT_EXP = PCT_EXP, PCT_FLAG = KPT

SOLID, MAT=UBELL_P3,&

PRM_X = PERM_X, PRM_Y = PERM_Y,&
 PRM_Z = PERM_Z, POROSITY = POROSITY,&
 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
 PCT_EXP = PCT_EXP, PCT_FLAG = KPT

1 DIRICHLET CONDITIONS HERE!!!!

1 *DIRICHLET
 2 DIRICHLET, PRESSURE=5.23152E07, SAT=1.0, IRANGE=1,1, JRANGE= 2, 2, KRANGE=1,1
 3 DIRICHLET, PRESSURE=5.10678E07, SAT=1.0, IRANGE=1,1, JRANGE= 3, 3, KRANGE=1,1
 4 DIRICHLET, PRESSURE=4.99205E07, SAT=1.0, IRANGE=1,1, JRANGE= 5, 5, KRANGE=1,1
 5 DIRICHLET, PRESSURE=4.87533E07, SAT=1.0, IRANGE=1,1, JRANGE= 6, 6, KRANGE=1,1
 6 DIRICHLET, PRESSURE=4.75817E07, SAT=1.0, IRANGE=1,1, JRANGE= 8, 8, KRANGE=1,1
 7 DIRICHLET, PRESSURE=4.20503E07, SAT=1.0, IRANGE=1,1, JRANGE= 9, 9, KRANGE=1,1
 8 DIRICHLET, PRESSURE=3.63427E07, SAT=1.0, IRANGE=1,1, JRANGE=10,10, KRANGE=1,1
 9 DIRICHLET, PRESSURE=3.49942E07, SAT=1.0, IRANGE=1,1, JRANGE=12,12, KRANGE=1,1
 10 DIRICHLET, PRESSURE=3.22003E07, SAT=1.0, IRANGE=1,1, JRANGE=13,13, KRANGE=1,1
 11 DIRICHLET, PRESSURE=2.96514E07, SAT=1.0, IRANGE=1,1, JRANGE=14,14, KRANGE=1,1
 12 DIRICHLET, PRESSURE=2.88419E07, SAT=1.0, IRANGE=1,1, JRANGE=16,16, KRANGE=1,1
 13 DIRICHLET, PRESSURE=2.59925E07, SAT=1.0, IRANGE=1,1, JRANGE=17,17, KRANGE=1,1
 14 DIRICHLET, PRESSURE=2.32357E07, SAT=1.0, IRANGE=1,1, JRANGE=18,18, KRANGE=1,1
 15 DIRICHLET, PRESSURE=2.26297E07, SAT=1.0, IRANGE=1,1, JRANGE=20,20, KRANGE=1,1
 16 DIRICHLET, PRESSURE=2.07943E07, SAT=1.0, IRANGE=1,1, JRANGE=21,21, KRANGE=1,1
 17 DIRICHLET, PRESSURE=1.77753E07, SAT=1.0, IRANGE=1,1, JRANGE=22,22, KRANGE=1,1
 18 DIRICHLET, PRESSURE=1.78803E07, SAT=1.0, IRANGE=1,1, JRANGE=24,24, KRANGE=1,1
 19 DIRICHLET, PRESSURE=8.22000E05, SAT=1.0, IRANGE=1,1, JRANGE=34,34, KRANGE=1,1
 20
 21 DIRICHLET, PRESSURE=5.23152E07, SAT=1.0, IRANGE=96,96, JRANGE= 2, 2, KRANGE=1,1
 22 DIRICHLET, PRESSURE=5.10678E07, SAT=1.0, IRANGE=96,96, JRANGE= 3, 3, KRANGE=1,1

953 DIRICHLET, PRESSURE=4.99205E07, SAT=1.0, IRANGE=96,96, JRANGE= 5, 5, KRANGE=1,1
 954 DIRICHLET, PRESSURE=4.87533E07, SAT=1.0, IRANGE=96,96, JRANGE= 6, 6, KRANGE=1,1
 955 DIRICHLET, PRESSURE=4.75817E07, SAT=1.0, IRANGE=96,96, JRANGE= 8, 8, KRANGE=1,1
 956 DIRICHLET, PRESSURE=4.20503E07, SAT=1.0, IRANGE=96,96, JRANGE= 9, 9, KRANGE=1,1
 957 DIRICHLET, PRESSURE=3.63427E07, SAT=1.0, IRANGE=96,96, JRANGE=10,10, KRANGE=1,1
 958 DIRICHLET, PRESSURE=3.49942E07, SAT=1.0, IRANGE=96,96, JRANGE=12,12, KRANGE=1,1
 959 DIRICHLET, PRESSURE=3.22003E07, SAT=1.0, IRANGE=96,96, JRANGE=13,13, KRANGE=1,1
 960 DIRICHLET, PRESSURE=2.96514E07, SAT=1.0, IRANGE=96,96, JRANGE=14,14, KRANGE=1,1
 961 DIRICHLET, PRESSURE=2.88419E07, SAT=1.0, IRANGE=96,96, JRANGE=16,16, KRANGE=1,1
 962 DIRICHLET, PRESSURE=2.59925E07, SAT=1.0, IRANGE=96,96, JRANGE=17,17, KRANGE=1,1
 963 DIRICHLET, PRESSURE=2.32357E07, SAT=1.0, IRANGE=96,96, JRANGE=18,18, KRANGE=1,1
 964 DIRICHLET, PRESSURE=2.26297E07, SAT=1.0, IRANGE=96,96, JRANGE=20,20, KRANGE=1,1
 965 DIRICHLET, PRESSURE=2.07943E07, SAT=1.0, IRANGE=96,96, JRANGE=21,21, KRANGE=1,1
 966 DIRICHLET, PRESSURE=1.77753E07, SAT=1.0, IRANGE=96,96, JRANGE=22,22, KRANGE=1,1
 967 DIRICHLET, PRESSURE=1.64025E07, SAT=1.0, IRANGE=96,96, JRANGE=24,24, KRANGE=1,1
 968 DIRICHLET, PRESSURE=8.22000E05, SAT=1.0, IRANGE=96,96, JRANGE=34,34, KRANGE=1,1
 969!
 970!
 971! WELL DATA GOES HERE!
 972 *WELL DATA
 973 TIME_CONTROL, TIME_ID=1, WELTIME=0.0
 974 TIME_CONTROL, TIME_ID=2, WELTIME=1.577846E9
 975!
 976!
 977!
 978 WELL_CONTROL, TIME_ID=1, NUM=1, TYPE=INJP, ILOC= 8, JLOC=23, KLOC=1, &
 979 QO=0.0, QG=0.0, PIWELL=7.3816E-11 &
 980 PRWELL= 22.8E6
 981!
 982 WELL_CONTROL, TIME_ID=1, NUM=1, TYPE=INJP, ILOC=89, JLOC=23, KLOC=1, &
 983 QO=0.0, QG=0.0, PIWELL=7.3816E-11 &
 984 PRWELL= 22.8E6
 985!
 986!
 987!
 988 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=27, KLOC=1, &
 989 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11, &
 990 PRWELL= 1.31521E07,1.31521E07
 991!
 992 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=30, KLOC=1, &
 993 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11, &
 994 PRWELL= 1.31124E07,1.31124E07
 995!
 996! COMMENTED OUT 3/12/96: REPLACED W DIRICHLET B.C.
 997! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=34, KLOC=1, &
 998! QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11, &
 999! PRWELL= 8.52000E05,8.52000E05
 1000!
 1001!
 1002 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC=96, JLOC=27, KLOC=1, &
 1003 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11, &
 1004 PRWELL= 1.16762E07,1.16762E07
 1005!
 1006 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC=96, JLOC=30, KLOC=1, &
 1007 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11, &
 1008 PRWELL= 1.16366E07,1.16366E07

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix L -- PREB_WATFLD_BASE01.INP (Prebrag) File Listing

```
009!  
010! COMMENTED OUT 3/12/96: REPLACED W DIRICHLET B.C.  
011! WELL_CONTROL, TIME_ID=2,NUM=2,TYPE=PROD,INJP,ILOC=96,JLOC=34,KLOC=1,&  
012!   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11,&  
013!   PRWELL= 8.52000E05,8.52000E05  
014!  
015!  
016 WELL_CONTROL, TIME_ID=2,NUM=2,TYPE=PROD,INJP,ILOC= 8,JLOC=34,KLOC=1,&  
017   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-12,1.0E-12,&  
018   PRWELL= 2.03740E06,2.03740E06  
019!  
020!  
021 WELL_CONTROL, TIME_ID=2,NUM=2,TYPE=PROD,INJP,ILOC= 89,JLOC=34,KLOC=1,&  
022   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-12,1.0E-12,&
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1023   PRWELL= 2.03740E06,2.03740E06  
1024!  
1025!  
1026 WELL_CONTROL, TIME_ID=2,NUM=2,TYPE=PROD,INJP,ILOC= 1,JLOC=23,KLOC=1,&  
1027   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-15,1.0E-15,&  
1028   PRWELL= 1.564E07,1.564E07  
1029!  
1030!  
1031 WELL_CONTROL, TIME_ID=2,NUM=2,TYPE=PROD,INJP,ILOC=96,JLOC=23,KLOC=1,&  
1032   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-15,1.0E-15,&  
1033   PRWELL= 1.564E07,1.564E07  
1034!  
1035 *END  
1036!=====
```

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1=====
2
3! TITLE: PREBRAG INPUT FOR 1995 2D OIL & GAS SCENARIO (WATERFLOOD) MODEL
4!   SIDEBAR CALCULATIONS
5! ANALYST: DANIEL M. STOELZEL
6! DATE: AUGUST 19, 1995
7! SCENARIO: DISTURBED WITH 2 WELLS AT 2400m, 2 WELLS PENETRATING WASTE, ONE
8!   WELL OFFSET TO WASTE AREA (5 TOTAL)
9!   : SINGLE CLOSURE SURFACE
10!  : A) CREEP CLOSURE IN WASTE AREAS
11!  : FRACTURE IN MARKER BEDS
12!  : LOWER GEOLOGICAL UNITS INCLUDED (BELL C. TO MORROW)
13!  : ONE DEGREE DIP FOR SALADO AND DEEPER, SHAFT UP-DIP
14
15!   MODIFIED: 3/5/96
16!   BY: D.M. STOELZEL
17!   CHANGES TO REFLECT NEW DATABASE, AND NEW MESH THAT FOLLOWS 40CFR194
18!   REGULATIONS:
19!     : NO ACTIVE PHASE FOR FUTURE WELLS BOTH IN AND AROUND LWB
20!     : ONLY ACTIVE PHASE TO REFLECT CURRENT OIL & GAS ACTIVITY
21!     : TWO WELLS AT 2400 METERS WILL BE RADIIALLY FLARED FOR 1/2 FLOW
22!     : NO TIME-DEPENDENT SHAFT SEAL PERMS (SIMPLIFIED FOR THIS MODEL)
23
24!   6/14/96
25!   CHANGES TO REFLECT CCA BOREHOLE ABANDONING
26!     : CASING LEAK IN SALT ONLY FOR 50 YEAR ACTIVE PHASE
27!     : 200 YEARS OF CEMENT PLUG IN RUSTLER AND BELL CANYON, WITH
28!       OPEN PIPE BETWEEN
29!     : SAND FILLED BOREHOLE FOR THE NEXT 1,000 YEARS
30!     : CREEP CLOSED IN LOWER PART OF SALT TO 10,000 YEARS
31=====
32! HEADING
33! TITLE2 = 1996 FEPS: Present day effects of oil and gas development
34=====
35! CLOSURE INFORMATION
36! *CLOSURE
37! CONTROL, TYPE = PRESSURE, AVE = CELL
38! SURFACE, MODEL = JAN_96, PRES_LITHO = 50.0E6, TIME_OFF = 3.155693E12, &
39!   PERM_FACTOR = WAS_AREA:PERM_X, PERM_EXP = 0.0
40! REGION, MAT = WAS_AREA, MODEL = JAN_96
41=====
42! *RESET
43! RESET REGIONS ARE GIVEN THE INITIAL PRESSURE AND SATURATION SPECIFIED IN
44! THE INITIAL CONDITIONS AT THE RESET TIME
45! REGION, MAT = CAVITY_2
46! REGION, MAT = CAVITY_3
47! REGION, MAT = CAVITY_4
48! TIME = 0.0
49! WASTE, MAT_OLD = CAVITY_2, MAT_NEW = WAS_AREA, &
50!   PRES_BRINE = 101325.0, SAT_BRINE = 0.0
51=====
52! *INITIAL CONDITIONS
53! BEGIN SIMULATION AT -5 YEARS
54! BEGIN, TIME = -1.577846E8
55! SATBR, ID, BRINE = SATBREL
56! PRESSURE, ID, PRES = PRESEL

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57! CONFE, ID, CONFE = FECONC
58! CONCELL, ID, CONCEL = CI12OCONC
59! ELEVAT, ID, ELEV = ELEVE
60=====
61! *STEP_CONTROL
62! TIME STEP IS REDUCED
63! 1. AT 0 YEARS: WASTE IS INTRODUCED,
64!   TIME, BEGIN = 0.0, DT = 864.0
65! 2. AT 50 YEARS: MATERIAL CHANGE
66!   TIME, BEGIN = 1.577846E9, DT = 864.0
67! 3. AT 100 YEARS: MATERIAL CHANGE
68!   TIME, BEGIN = 3.155693E9, DT = 864.0
69! 4. AT 200 YEARS: MATERIAL CHANGE
70!   TIME, BEGIN = 6.311385E9, DT = 864.0
71! 5. AT 250 YEARS: MATERIAL CHANGE
72!   TIME, BEGIN = 7.889225E9, DT = 864.0
73! 6. AT 1250 YEARS: MATERIAL CHANGE
74!   TIME, BEGIN = 3.944613E10, DT = 864.0
75=====
76! *MODIFY_MAP
77! ID=1 => 0 YEARS : WASTE INTRODUCED, SHAFT SEALS AND FILL INTRODUCED
78!   ACTIVE PHASE OF WELLS AT 2,400 METERS
79!   CASING LEAK THRU SALT
80! <<<<<<< TIME PERIODS 2 (10 YRS) & 3 (25 YRS) EXCLUDED FOR SIMPLICITY >>>>>>>
81! ID=2 => 50 YEARS : MIDDLE AND LOWER CLAY AND COMPACTED SALT (TIME PERIOD 4)
82!   WELLS TURNED OFF
83!   CMT PLUGS IN RUSTLER AND BELL C. OPEN BH BETWEEN
84! ID=3 => 100 YEARS : MIDDLE CLAY AND COMPACTED SALT (TIME PERIOD 5)
85! ID=4 => 200 YEARS : COMPACTED SALT (TIME PERIOD 6)
86!
87! ID=5 => 250 YEARS : ENTIRE BOREHOLE(S) TO SAND FILLED
88! ID=6 => 1250 YEARS : LOWER SALT SECTION OF BH TO CREEP CLOSED
89! <<<<<<< 400 YEARS : CONCRETE (TIME PERIOD 2) NOT INCLUDED >>>>>>>>>
90! TIME, TIME_ID=1, BEGIN = 0.0
91! TIME, TIME_ID=2, BEGIN = 1.577846E9
92! TIME, TIME_ID=3, BEGIN = 3.155693E9
93! TIME, TIME_ID=4, BEGIN = 6.311385E9
94! TIME, TIME_ID=5, BEGIN = 7.889225E9
95! TIME, TIME_ID=6, BEGIN = 3.944613E10
96! *****
97! 0 YEARS
98! *****
99! INTRODUCE FINAL DRZ MATERIAL
100! MODIFY, MAT=DRZ_1, TIME_ID=1, IRANGE=36,59, JRANGE=26,26, KRANGE=1,1
101! INTRODUCE WASTE INTO REST OF REPOSITORY
102! MODIFY, MAT=WAS_AREA, TIME_ID=1, IRANGE=36,42, JRANGE=27,30, KRANGE=1,1
103! MODIFY, MAT=WAS_AREA, TIME_ID=1, IRANGE=44,50, JRANGE=27,30, KRANGE=1,1
104! INTRODUCE PANEL SEAL MATERIAL
105! MODIFY, MAT=PAN_SEAL, TIME_ID=1, IRANGE=43,43, JRANGE=27,30, KRANGE=1,1
106! MODIFY, MAT=PAN_SEAL, TIME_ID=1, IRANGE=51,51, JRANGE=27,30, KRANGE=1,1
107! INTRODUCE OPERATIONS REGION MATERIAL
108! MODIFY, MAT=OPS_AREA, TIME_ID=1, IRANGE=52,55, JRANGE=28,29, KRANGE=1,1
109! INTRODUCE EXPERIMENTAL REGION MATERIAL
110! MODIFY, MAT=EXP_AREA, TIME_ID=1, IRANGE=57,59, JRANGE=28,29, KRANGE=1,1
111! INTRODUCE TRUE CULEBRA REGION TO ALLOW BRINE INFLOW TO SHAFT
112! MODIFY, MAT=CULEBRA, TIME_ID=1, IRANGE=1,55, JRANGE=34,34, KRANGE=1,1

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix M -- PREB_WATFLD_YATES01.INP (Prebrag) File Listing

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13 MODIFY, MAT=CULEBRA, TIME_ID=1, IRANGE=57,96, JRANGE=34,34, KRANGE=1,1
14 !INTRODUCE UPPER CLAY FILL (RUSTLER)
15 MODIFY, MAT=CLAY_RUS, TIME_ID=1, IRANGE=56,56, JRANGE=33,34, KRANGE=1,1
16 !INTRODUCE CRUSHED SALT
17 MODIFY, MAT=SALT_T1, TIME_ID=1, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
18 !INTRODUCE LOWER CLAY
19 MODIFY, MAT=CL_L_T1, TIME_ID=1, IRANGE=56,56, JRANGE=29,31, KRANGE=1,1
20 !INTRODUCE LOWER SHAFT: SAME AS OPS_AREA, NO CONCRETE MONOLITH
21 MODIFY, MAT=OPS_AREA, TIME_ID=1, IRANGE=56,56, JRANGE=27,28, KRANGE=1,1
22 !TURN ON TWO WELLS OUTSIDE THE LWA
23 !DISPOSAL WELLS INTO UPPER BELL CANYON. LEAKING CASING THROUGH SALADO
24 !WELL NO. 1
25 MODIFY, MAT=BH_LOW_L, TIME_ID=1, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
26 MODIFY, MAT=BH_SLT_L, TIME_ID=1, IRANGE= 8, 8, JRANGE=24,32, KRANGE=1,1
27 !WELL NO. 2
28 MODIFY, MAT=BH_LOW_L, TIME_ID=1, IRANGE=89, 89, JRANGE=23,23, KRANGE=1,1
29 MODIFY, MAT=BH_SLT_L, TIME_ID=1, IRANGE=89, 89, JRANGE=24,32, KRANGE=1,1
30 !*****
31 !      END OF TIME PERIOD 1 MATERIAL RESETS
32 !*****
33 !*****
34 ! 50 YEARS
35 !*****
36 !INTRODUCE CRUSHED SALT
37 MODIFY, MAT=SALT_T4, TIME_ID=2, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
38 !INTRODUCE LOWER CLAY
39 MODIFY, MAT=CL_L_T4, TIME_ID=2, IRANGE=56,56, JRANGE=29,31, KRANGE=1,1
40 !TURN OFF TWO WELLS OUTSIDE THE LWA
41 !DISPOSAL WELLS INTO UPPER BELL CANYON GO TO PLUGGED STATE AT BELL C & RUSTLER
42 !WELL NO. 1
43 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
44 MODIFY, MAT=BH_OPEN, TIME_ID=2, IRANGE= 8, 8, JRANGE=24,32, KRANGE=1,1
45 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE= 8, 8, JRANGE=33,34, KRANGE=1,1
46 !WELL NO. 2
47 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE=89, 89, JRANGE=23,23, KRANGE=1,1
48 MODIFY, MAT=BH_OPEN, TIME_ID=2, IRANGE=89, 89, JRANGE=24,32, KRANGE=1,1
49 MODIFY, MAT=CONC_PLG, TIME_ID=2, IRANGE=89, 89, JRANGE=33,34, KRANGE=1,1
50 !*****
51 !      END OF TIME PERIOD 2 MATERIAL RESETS
52 !*****
53 !*****
54 ! 100 YEARS
55 !*****
56 !INTRODUCE CRUSHED SALT
57 MODIFY, MAT=SALT_T5, TIME_ID=3, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
58 !*****
59 !      END OF TIME PERIOD 3 MATERIAL RESETS
60 !*****
61 !*****
62 ! 200 YEARS
63 !*****
64 !INTRODUCE CRUSHED SALT
65 MODIFY, MAT=SALT_T6, TIME_ID=4, IRANGE=56,56, JRANGE=32,32, KRANGE=1,1
66 !*****
67 !      END OF TIME PERIOD 4 MATERIAL RESETS
68 !*****

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169 !*****
170 ! 250 YEARS
171 !*****
172 !DISPOSAL WELLS INTO UPPER BELL CANYON GO TO ABANDONED STATE (SAND-FILLED)
173 !WELL NO. 1
174 MODIFY, MAT=BH_LOW_A, TIME_ID=5, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
175 MODIFY, MAT=BH_SLT_A, TIME_ID=5, IRANGE= 8, 8, JRANGE=24,32, KRANGE=1,1
176 MODIFY, MAT=BH_SUR_A, TIME_ID=5, IRANGE= 8, 8, JRANGE=33,34, KRANGE=1,1
177 !WELL NO. 2
178 MODIFY, MAT=BH_LOW_A, TIME_ID=5, IRANGE=89, 89, JRANGE=23,23, KRANGE=1,1
179 MODIFY, MAT=BH_SLT_A, TIME_ID=5, IRANGE=89, 89, JRANGE=24,32, KRANGE=1,1
180 MODIFY, MAT=BH_SUR_A, TIME_ID=5, IRANGE=89, 89, JRANGE=33,34, KRANGE=1,1
181 !*****
182 !      END OF TIME PERIOD 5 MATERIAL RESETS
183 !*****
184 !*****
185 ! 1250 YEARS
186 !*****
187 ! LOWER SALT GOES TO CREEP CLOSED PERM
188 !WELL NO. 1
189 MODIFY, MAT=BH_CREEP, TIME_ID=6, IRANGE= 8, 8, JRANGE=25,26, KRANGE=1,1
190 !WELL NO. 2
191 MODIFY, MAT=BH_CREEP, TIME_ID=6, IRANGE=89, 89, JRANGE=25,26, KRANGE=1,1
192 !*****
193 !      END OF TIME PERIOD 6 MATERIAL RESETS
194 !*****
195 !*****
196 !-----
197 *GEOMETRY
198 COORD= CARTESIAN
199 !-----
200 *SIMULATION CONTROL
201 INTEGRATION, TMAX=3.155693E11, DT_INIT=8.64,DT_MIN= 8.64E-4, DT_MAX=3.1557E8,&
202 DT_INCR=1.25, DT_REDU= 0.25, AUTODT=YES, TSWITCH=1.0,&
203 MAXSTEPS=10000
204 !
205 ITERATION, DSATLIM= 2.E-1, DPRESLIM = -1.E8 , SATLIM= 1.E-3,&
206 SATNORM= 0.30, PRESNORM = 5.0E5,&
207 ITMAX= 8, IRESETMAX= 40, IJACINT= 1,&
208 IACSWITCH=41, IJACMIN= 1, IACRESET= 5,&
209 IUPRFLAG=9, IUPMFLAG=9, IUPRPOOSE= 9,&
210 IUPMFLOOSE=9
211 !
212 ITERATION, DHSAT_REL= 1.0E-8, DHPRES_REL=1.0E-8,&
213 DHSAT_MIN= 1.0E-10, DHPRES_MIN=1.0E-2
214 !
215 ITERATION, EPS_SAT = 3.0E+0, EPS_PRES = 1.E-2,&
216 R_EPS_SAT= 3.0E+0, R_EPS_PRES = 1.E-2,&
217 FTOL_SAT = 1.0E-2, FTOL_PRES = 1.0E-2,&
218 R_FTOL_SAT=1.0E-2, R_FTOL_PRES = 1.0E-2, CONV_TEST = AND
219 !
220 NUMERICS,SOLVER=LU
221 NUMERICS,JACSCALE= 1.0e7,VSWITCH=NO
222 NUMERICS,ITRAVE= HARMONIC, IMFRAVE=UPSTREAM
223 !
224 !-----

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25 *OUTPUT_CONTROL
26
27 UNITS= SI
28 MONITOR, ILOC = 47, JLOC = 23, KLOC = 1
29 MONITOR, ILOC = 9, JLOC = 27, KLOC = 1
30 MONITOR, ILOC = 46, JLOC = 28, KLOC = 1
31 MONITOR, ILOC = 57, JLOC = 30, KLOC = 1
32!
33 STEPS, FILE= BINARY, NSTEP=40
34 TIMES, FILE= ASCII, VALUES= 0.0, 3.1557E11
35 TIMES, FILE= RESTART, VALUES= 0.0, 3.1557E09, 3.1557E10
36!
37 PRIBIN,&
38 PRESBRIN, PRES GAS, POROS, DENGAS, PERMBRX, PERMGASX,&
39 SATGAS, FLOWGASX, FLOWBRX, FLOWBRY,&
40 FECONC, CELLCONC, BRINRATE
41!
42 PRIASC,&
43 PRESBRIN, PRES GAS, POROS, SATGAS, FECONC, CELLCONC
44!
45! HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (MARKER BEDS)
46 HISTORY, NAMES= FLOWBRX, IRANGE= 9,9, JRANGE=27,27, KRANGE=1,1
47 HISTORY, NAMES= FLOWBRX, IRANGE= 9,9, JRANGE=30,30, KRANGE=1,1
48! HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (CULEBRA)
49 HISTORY, NAMES= FLOWBRX, IRANGE= 9,9, JRANGE=34,34, KRANGE=1,1
50! HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (MARKER BEDS)
51 HISTORY, NAMES= FLOWBRX, IRANGE=89,89, JRANGE=27,27, KRANGE=1,1
52 HISTORY, NAMES= FLOWBRX, IRANGE=89,89, JRANGE=30,30, KRANGE=1,1
53! HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (CULEBRA)
54 HISTORY, NAMES= FLOWBRX, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
55! HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (MARKER BEDS)
56 HISTORY, NAMES= FLOWGASX, IRANGE= 9,9, JRANGE=27,27, KRANGE=1,1
57 HISTORY, NAMES= FLOWGASX, IRANGE= 9,9, JRANGE=30,30, KRANGE=1,1
58! HORIZONTAL BRINE FLOW ACROSS 2.4K SOUTH BOUNDARY (CULEBRA)
59 HISTORY, NAMES= FLOWGASX, IRANGE= 9,9, JRANGE=34,34, KRANGE=1,1
60! HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (MARKER BEDS)
61 HISTORY, NAMES= FLOWGASX, IRANGE=89,89, JRANGE=27,27, KRANGE=1,1
62 HISTORY, NAMES= FLOWGASX, IRANGE=89,89, JRANGE=30,30, KRANGE=1,1
63! HORIZONTAL BRINE FLOW ACROSS 2.4K NORTH BOUNDARY (CULEBRA)
64 HISTORY, NAMES= FLOWGASX, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
65! BRINE FLOW ACROSS MARKER BEDS BOUNDARY SOUTH (FROM REPOSITORY)
66 HISTORY, NAMES= FLOWBRX, IRANGE=36,36, JRANGE=27,27, KRANGE=1,1
67 HISTORY, NAMES= FLOWBRX, IRANGE=36,36, JRANGE=30,30, KRANGE=1,1
68! BRINE FLOW ACROSS MARKER BEDS BOUNDARY NORTH (FROM REPOSITORY)
69 HISTORY, NAMES= FLOWBRX, IRANGE=60,60, JRANGE=27,27, KRANGE=1,1
70 HISTORY, NAMES= FLOWBRX, IRANGE=60,60, JRANGE=30,30, KRANGE=1,1
71! GAS FLOW ACROSS MARKER BEDS BOUNDARY SOUTH (FROM REPOSITORY)
72 HISTORY, NAMES= FLOWGASX, IRANGE=36,36, JRANGE=27,27, KRANGE=1,1
73 HISTORY, NAMES= FLOWGASX, IRANGE=36,36, JRANGE=30,30, KRANGE=1,1
74! GAS FLOW ACROSS MARKER BEDS BOUNDARY NORTH (FROM REPOSITORY)
75 HISTORY, NAMES= FLOWGASX, IRANGE=60,60, JRANGE=27,27, KRANGE=1,1
76 HISTORY, NAMES= FLOWGASX, IRANGE=60,60, JRANGE=30,30, KRANGE=1,1
77!
78! VERTICAL BRINE FLOW UP SHAFT AT CULEBRA
79 HISTORY, NAMES= FLOWBRY, IRANGE=56,56, JRANGE=34,34, KRANGE=1,1
80! VERTICAL GAS FLOW UP SHAFT AT CULEBRA

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281 HISTORY, NAMES= FLOWGASX, IRANGE=56,56, JRANGE=34,34, KRANGE=1,1
282!
283! VERTICAL BRINE FLOW UP SHAFT AT REPOSITORY
284 HISTORY, NAMES= FLOWBRY, IRANGE=56,56, JRANGE=31,31, KRANGE=1,1
285! VERTICAL GAS FLOW UP SHAFT AT REPOSITORY
286 HISTORY, NAMES= FLOWGASX, IRANGE=56,56, JRANGE=31,31, KRANGE=1,1
287!
288! FLOW RATE OF INJECTED BRINE FOR TWO DISPOSAL WELLS
289 HISTORY, NAMES= WELLBRINE, IRANGE= 8, 8, JRANGE=23,23, KRANGE=1,1
290 HISTORY, NAMES= WELLBRINE, IRANGE=89,89, JRANGE=23,23, KRANGE=1,1
291! WATER TABLE WELLS' BRINE AND GAS INFLOW OR OUTFLOW TO SURFACE
292 HISTORY, NAMES= WELLBRINE, IRANGE= 8, 8, JRANGE=34,34, KRANGE=1,1
293 HISTORY, NAMES= WELLBRINE, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
294 HISTORY, NAMES= WELLGAS, IRANGE= 8, 8, JRANGE=34,34, KRANGE=1,1
295 HISTORY, NAMES= WELLGAS, IRANGE=89,89, JRANGE=34,34, KRANGE=1,1
296! *****
297! END OF HISTORY VARIABLES
298! *****
299!
300 *REACTION_CHEMISTRY
301!
302 WICKING, MAT= WAS_AREA, VALUE= SAT_WICK
303 NUMERICS, SMOOTH=ON, ALPHARXN=1000.0
304 RATES, MAT= WAS_AREA, COR_IN= GRATCORI, COR_HUM= GRATCORH,&
305 MIC_IN= GRATMICI, MIC_HUM= GRATMICH,&
306 SCOR_GAS= STOICOR, SMIC_GAS= STOIMIC
307!
308 VOLUME, MAT= WAS_AREA, VOL_CHW = VOLCHW, VOL_RHW = VOLRHW
309!
310 DENSITY, MAT= WAS_AREA, METAL_RH= DRH_METL, BIO_RH= DRH_BIO,&
311 METAL_CH= DCH_METL, BIO_CH= DCH_BIO
312!
313 SATURATION, MAT= WAS_AREA, VALUE= SAT_IBRN
314! =====
315! =====
316 *PROPERTIES
317! GET SOLID properties from CAMDAT file
318! Salado Halite
319 SOLID, MAT= S_HALITE,&
320 PRM_X = PERM_X, PRM_Y = PERM_Y,&
321 PRM_Z = PERM_Z, POROSITY = POROSITY,&
322 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
323 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
324 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
325 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
326 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
327 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
328!
329 SOLID, MAT= DRZ_0,&
330 PRM_X = PERM_X, PRM_Y = PERM_Y,&
331 PRM_Z = PERM_Z, POROSITY = POROSITY,&
332 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
333 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
334 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
335 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
336 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&

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337 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
338
339 SOLID, MAT=DRZ_1,&
340 PRM_X = PERM_X, PRM_Y = PERM_Y,&
341 PRM_Z = PERM_Z, POROSITY = POROSITY,&
342 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
343 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
344 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
345 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
346 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
347 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
348
349 SOLID, MAT=S_MBI39,&
350 PRM_X = PERM_X, PRM_Y = PERM_Y,&
351 PRM_Z = PERM_Z, POROSITY = POROSITY,&
352 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
353 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
354 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
355 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
356 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
357 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
358
359 SOLID, MAT=S_MBI38,&
360 PRM_X = PERM_X, PRM_Y = PERM_Y,&
361 PRM_Z = PERM_Z, POROSITY = POROSITY,&
362 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
363 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
364 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
365 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
366 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
367 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
368
369 SOLID, MAT=CAVITY_2,&
370 PRM_X = PERM_X, PRM_Y = PERM_Y,&
371 PRM_Z = PERM_Z, POROSITY = POROSITY,&
372 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
373 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
374 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
375 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
376 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
377 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
378
379 SOLID, MAT=CAVITY_3,&
380 PRM_X = PERM_X, PRM_Y = PERM_Y,&
381 PRM_Z = PERM_Z, POROSITY = POROSITY,&
382 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
383 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
384 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
385 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
386 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
387 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
388
389 SOLID, MAT=CAVITY_4,&
390 PRM_X = PERM_X, PRM_Y = PERM_Y,&
391 PRM_Z = PERM_Z, POROSITY = POROSITY,&
392 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&

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393 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
394 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
395 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
396 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
397 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
398
399 SOLID, MAT=IMPERM_Z,&
400 PRM_X = PERM_X, PRM_Y = PERM_Y,&
401 PRM_Z = PERM_Z, POROSITY = POROSITY,&
402 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
403 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
404 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
405 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
406 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
407 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
408
409 SOLID, MAT=CASTILER,&
410 PRM_X = PERM_X, PRM_Y = PERM_Y,&
411 PRM_Z = PERM_Z, POROSITY = POROSITY,&
412 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
413 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
414 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
415 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
416 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
417 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
418
419 SOLID, MAT=WAS_AREA,&
420 PRM_X = PERM_X, PRM_Y = PERM_Y,&
421 PRM_Z = PERM_Z, POROSITY = POROSITY,&
422 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
423 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
424 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
425 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
426 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
427 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
428
429 SOLID, MAT=UNNAMED,&
430 PRM_X = PERM_X, PRM_Y = PERM_Y,&
431 PRM_Z = PERM_Z, POROSITY = POROSITY,&
432 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
433 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
434 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
435 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
436 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
437 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
438
439 SOLID, MAT=CULEBRA,&
440 PRM_X = PERM_X, PRM_Y = PERM_Y,&
441 PRM_Z = PERM_Z, POROSITY = POROSITY,&
442 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
443 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
444 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
445 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
446 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
447 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
448

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix M -- PREB_WATFLD_YATES01.INP (Prebrag) File Listing

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49 SOLID, MAT=OPS_AREA,&
50   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
51   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
52   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
53   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
54   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
55   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
56   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
57   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
58
59 SOLID, MAT=EXP_AREA,&
60   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
61   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
62   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
63   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
64   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
65   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
66   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
67   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
68
69 SOLID, MAT=CLAY_RUS,&
70   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
71   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
72   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
73   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
74   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
75   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
76   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
77   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
78
79 SOLID, MAT=CL_L_T1,&
80   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
81   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
82   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
83   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
84   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
85   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
86   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
87   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
88
89 SOLID, MAT=CL_L_T4,&
90   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
91   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
92   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
93   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
94   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
95   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
96   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
97   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
98
99 SOLID, MAT=SALT_T1,&
00   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
01   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
02   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
03   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
04   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&

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505   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
506   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
507   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
508
509 SOLID, MAT=SALT_T4,&
510   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
511   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
512   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
513   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
514   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
515   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
516   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
517   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
518
519 SOLID, MAT=SALT_T5,&
520   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
521   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
522   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
523   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
524   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
525   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
526   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
527   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
528
529 SOLID, MAT=SALT_T6,&
530   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
531   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
532   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
533   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
534   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
535   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
536   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
537   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
538
539 SOLID, MAT=PAN_SEAL,&
540   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
541   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
542   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
543   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
544   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
545   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
546   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
547   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
548
549 SOLID, MAT=BH_SUR_A,&
550   PRM_X = PERM_X,   PRM_Y = PERM_Y,&
551   PRM_Z = PERM_Z,   POROSITY = POROSITY,&
552   BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
553   BCLAM = PORE_DIS, COMPRES = POR_COMP,&
554   SB_MIN = SB_MIN,  PB_MIN = PO_MIN,&
555   PC_MAX = PC_MAX,  CAP_MOD = CAP_MOD,&
556   RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
557   PCT_EXP = PCT_EXP,  PCT_FLAG = KPT
558
559 SOLID, MAT=BH_SLT_A,&
560   PRM_X = PERM_X,   PRM_Y = PERM_Y,&

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix M -- PREB_WATFLD_YATES01.INP (Prebrag) File Listing

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561 PRM_Z = PERM_Z, POROSITY = POROSITY,&
562 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
563 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
564 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
565 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
566 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
567 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
568!
569 SOLID, MAT=BH_LOW_A,&
570 PRM_X = PERM_X, PRM_Y = PERM_Y,&
571 PRM_Z = PERM_Z, POROSITY = POROSITY,&
572 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
573 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
574 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
575 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
576 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
577 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
578!
579 SOLID, MAT=BH_SLT_L,&
580 PRM_X = PERM_X, PRM_Y = PERM_Y,&
581 PRM_Z = PERM_Z, POROSITY = POROSITY,&
582 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
583 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
584 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
585 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
586 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
587 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
588!
589 SOLID, MAT=BH_LOW_L,&
590 PRM_X = PERM_X, PRM_Y = PERM_Y,&
591 PRM_Z = PERM_Z, POROSITY = POROSITY,&
592 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
593 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
594 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
595 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
596 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
597 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
598!
599 SOLID, MAT=CONC_PLG,&
600 PRM_X = PERM_X, PRM_Y = PERM_Y,&
601 PRM_Z = PERM_Z, POROSITY = POROSITY,&
602 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
603 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
604 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
605 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
606 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
607 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
608!
609 SOLID, MAT=BH_OPEN,&
610 PRM_X = PERM_X, PRM_Y = PERM_Y,&
611 PRM_Z = PERM_Z, POROSITY = POROSITY,&
612 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
613 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
614 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
615 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
616 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&

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617 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
618!
619 SOLID, MAT=BH_SAND,&
620 PRM_X = PERM_X, PRM_Y = PERM_Y,&
621 PRM_Z = PERM_Z, POROSITY = POROSITY,&
622 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
623 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
624 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
625 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
626 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
627 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
628!
629 SOLID, MAT=BH_CREEP,&
630 PRM_X = PERM_X, PRM_Y = PERM_Y,&
631 PRM_Z = PERM_Z, POROSITY = POROSITY,&
632 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
633 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
634 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
635 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
636 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
637 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
638!
639! GET FRACTURE PROPERTIES
640 FRACTURE, MAT=S_MB139, FRAC_PI = PI_DELTA, FRAC_PF = PF_DELTA,&
641 FRAC_PHI = PHIMAX, FRAC_EXP = PERM_EXP,&
642 FRAC_PMX = IFRX, FRAC_PMY = IFRY,&
643 FRAC_PMZ = IFRZ
644!
645 FRACTURE, MAT=S_MB138, FRAC_PI = PI_DELTA, FRAC_PF = PF_DELTA,&
646 FRAC_PHI = PHIMAX, FRAC_EXP = PERM_EXP,&
647 FRAC_PMX = IFRX, FRAC_PMY = IFRY,&
648 FRAC_PMZ = IFRZ
649!
650! GET FLUID (brine and gas) properties from CAMDAT file
651 FLUID, MAT=BRINESAL, SALINITY=WTF, DEN_BR=DNSFLUID,&
652 COMPR_BR=COMP, REF_TEMP=REF_TEMP,&
653 REF_PRES=REF_PRES, TABLE=INTERP, VIS_BR=VISCO
654 FLUID, MAT=H2, VIS_GAS=VISCO,DGAS=OFF,&
655 H2_MOLE=1.0, CO2_MOLE=0.0, CH4_MOLE=0.0,&
656 N2_MOLE=0.0, H2S_MOLE=0.0, O2_MOLE=0.0
657 FLUID, MAT=S_MB139, KLINK=ON, B_KLINK=BKLINK, EXP_KLINK=EXPKLINK
658!
659 SOLID, MAT=MORRO_P1,&
660 PRM_X = PERM_X, PRM_Y = PERM_Y,&
661 PRM_Z = PERM_Z, POROSITY = POROSITY,&
662 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
663 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
664 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
665 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
666 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
667 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
668!
669 SOLID, MAT=MORRO_P2,&
670 PRM_X = PERM_X, PRM_Y = PERM_Y,&
671 PRM_Z = PERM_Z, POROSITY = POROSITY,&
672 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix M -- PREB_WATFLD_YATES01.INP (Prebrag) File Listing

573 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
574 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
575 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
576 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
577 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
578!
579 SOLID, MAT=MORRO_P3,&
580 PRM_X = PERM_X, PRM_Y = PERM_Y,&
581 PRM_Z = PERM_Z, POROSITY = POROSITY,&
582 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
583 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
584 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
585 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
586 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
587 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
588!
589 SOLID, MAT=MORRO_NP,&
590 PRM_X = PERM_X, PRM_Y = PERM_Y,&
591 PRM_Z = PERM_Z, POROSITY = POROSITY,&
592 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
593 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
594 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
595 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
596 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
597 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
598!
599 SOLID, MAT=ATOKA_P1,&
700 PRM_X = PERM_X, PRM_Y = PERM_Y,&
701 PRM_Z = PERM_Z, POROSITY = POROSITY,&
702 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
703 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
704 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
705 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
706 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
707 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
708!
709 SOLID, MAT=ATOKA_P2,&
710 PRM_X = PERM_X, PRM_Y = PERM_Y,&
711 PRM_Z = PERM_Z, POROSITY = POROSITY,&
712 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
713 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
714 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
715 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
716 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
717 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
718!
719 SOLID, MAT=ATOKA_P3,&
720 PRM_X = PERM_X, PRM_Y = PERM_Y,&
721 PRM_Z = PERM_Z, POROSITY = POROSITY,&
722 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
723 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
724 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
725 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
726 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
727 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
728!

729 SOLID, MAT=ATOKA_NP,&
730 PRM_X = PERM_X, PRM_Y = PERM_Y,&
731 PRM_Z = PERM_Z, POROSITY = POROSITY,&
732 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
733 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
734 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
735 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
736 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
737 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
738!
739 SOLID, MAT=STRWN_P1,&
740 PRM_X = PERM_X, PRM_Y = PERM_Y,&
741 PRM_Z = PERM_Z, POROSITY = POROSITY,&
742 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
743 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
744 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
745 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
746 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
747 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
748!
749 SOLID, MAT=STRWN_P2,&
750 PRM_X = PERM_X, PRM_Y = PERM_Y,&
751 PRM_Z = PERM_Z, POROSITY = POROSITY,&
752 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
753 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
754 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
755 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
756 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
757 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
758!
759 SOLID, MAT=STRWN_P3,&
760 PRM_X = PERM_X, PRM_Y = PERM_Y,&
761 PRM_Z = PERM_Z, POROSITY = POROSITY,&
762 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
763 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
764 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
765 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
766 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
767 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
768!
769 SOLID, MAT=STRWN_NP,&
770 PRM_X = PERM_X, PRM_Y = PERM_Y,&
771 PRM_Z = PERM_Z, POROSITY = POROSITY,&
772 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
773 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
774 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
775 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
776 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
777 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
778!
779 SOLID, MAT=BONES_P1,&
780 PRM_X = PERM_X, PRM_Y = PERM_Y,&
781 PRM_Z = PERM_Z, POROSITY = POROSITY,&
782 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
783 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
784 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&

```

85 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
86 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
87 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
88!
89 SOLID, MAT=BONES_P2,&
90 PRM_X = PERM_X, PRM_Y = PERM_Y,&
91 PRM_Z = PERM_Z, POROSITY = POROSITY,&
92 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
93 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
94 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
95 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
96 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
97 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
98!
99 SOLID, MAT=BONES_P3,&
00 PRM_X = PERM_X, PRM_Y = PERM_Y,&
01 PRM_Z = PERM_Z, POROSITY = POROSITY,&
02 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
03 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
04 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
05 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
06 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
07 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
08!
09 SOLID, MAT=BONES_NP,&
10 PRM_X = PERM_X, PRM_Y = PERM_Y,&
11 PRM_Z = PERM_Z, POROSITY = POROSITY,&
12 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
13 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
14 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
15 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
16 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
17 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
18!
19 SOLID, MAT=LBRSH_P1,&
20 PRM_X = PERM_X, PRM_Y = PERM_Y,&
21 PRM_Z = PERM_Z, POROSITY = POROSITY,&
22 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
23 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
24 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
25 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
26 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
27 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
28!
29 SOLID, MAT=LBRSH_P2,&
30 PRM_X = PERM_X, PRM_Y = PERM_Y,&
31 PRM_Z = PERM_Z, POROSITY = POROSITY,&
32 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
33 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
34 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
35 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
36 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
37 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
38!
39 SOLID, MAT=LBRSH_P3,&
40 PRM_X = PERM_X, PRM_Y = PERM_Y,&

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841 PRM_Z = PERM_Z, POROSITY = POROSITY,&
842 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
843 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
844 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
845 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
846 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
847 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
848!
849 SOLID, MAT=UBRSH_NP,&
850 PRM_X = PERM_X, PRM_Y = PERM_Y,&
851 PRM_Z = PERM_Z, POROSITY = POROSITY,&
852 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
853 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
854 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
855 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
856 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
857 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
858!
859 SOLID, MAT=UBRSH_PI,&
860 PRM_X = PERM_X, PRM_Y = PERM_Y,&
861 PRM_Z = PERM_Z, POROSITY = POROSITY,&
862 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
863 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
864 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
865 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
866 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
867 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
868!
869 SOLID, MAT=UBRSH_P2,&
870 PRM_X = PERM_X, PRM_Y = PERM_Y,&
871 PRM_Z = PERM_Z, POROSITY = POROSITY,&
872 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
873 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
874 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
875 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
876 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
877 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
878!
879 SOLID, MAT=UBRSH_P3,&
880 PRM_X = PERM_X, PRM_Y = PERM_Y,&
881 PRM_Z = PERM_Z, POROSITY = POROSITY,&
882 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
883 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
884 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
885 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
886 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
887 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
888!
889 SOLID, MAT=LBELL_NP,&
890 PRM_X = PERM_X, PRM_Y = PERM_Y,&
891 PRM_Z = PERM_Z, POROSITY = POROSITY,&
892 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
893 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
894 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
895 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
896 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix M -- PREB_WATFLD_YATES01.INP (Prebrag) File Listing

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397 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
398
399 SOLID, MAT=UBELL_P1,&
400 PRM_X = PERM_X, PRM_Y = PERM_Y,&
401 PRM_Z = PERM_Z, POROSITY = POROSITY,&
402 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
403 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
404 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
405 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
406 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
407 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
408
409 SOLID, MAT=UBELL_P2,&
410 PRM_X = PERM_X, PRM_Y = PERM_Y,&
411 PRM_Z = PERM_Z, POROSITY = POROSITY,&
412 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
413 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
414 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
415 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
416 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
417 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
418
419 SOLID, MAT=UBELL_P3,&
420 PRM_X = PERM_X, PRM_Y = PERM_Y,&
421 PRM_Z = PERM_Z, POROSITY = POROSITY,&
422 BCSOR = SAT_RBRN, BCSGR = SAT_RGAS,&
423 BCLAM = PORE_DIS, COMPRES = POR_COMP,&
424 SB_MIN = SB_MIN, PB_MIN = PO_MIN,&
425 PC_MAX = PC_MAX, CAP_MOD = CAP_MOD,&
426 RELP_MODEL = RELP_MOD, PCT_A = PCT_A,&
427 PCT_EXP = PCT_EXP, PCT_FLAG = KPT
428
429
=====
430 DIRICHLET CONDITIONS HERE!!!!
431 *DIRICHLET
432 DIRICHLET, PRESSURE=5.48919E07, SAT=1.0, IRANGE=1,1, JRANGE= 2, 2, KRANGE=1,1
433 DIRICHLET, PRESSURE=5.10678E07, SAT=1.0, IRANGE=1,1, JRANGE= 3, 3, KRANGE=1,1
434 DIRICHLET, PRESSURE=4.99205E07, SAT=1.0, IRANGE=1,1, JRANGE= 5, 5, KRANGE=1,1
435 DIRICHLET, PRESSURE=4.87533E07, SAT=1.0, IRANGE=1,1, JRANGE= 6, 6, KRANGE=1,1
436 DIRICHLET, PRESSURE=4.75817E07, SAT=1.0, IRANGE=1,1, JRANGE= 8, 8, KRANGE=1,1
437 DIRICHLET, PRESSURE=4.20503E07, SAT=1.0, IRANGE=1,1, JRANGE= 9, 9, KRANGE=1,1
438 DIRICHLET, PRESSURE=3.63427E07, SAT=1.0, IRANGE=1,1, JRANGE=10,10, KRANGE=1,1
439 DIRICHLET, PRESSURE=3.49942E07, SAT=1.0, IRANGE=1,1, JRANGE=12,12, KRANGE=1,1
440 DIRICHLET, PRESSURE=3.22003E07, SAT=1.0, IRANGE=1,1, JRANGE=13,13, KRANGE=1,1
441 DIRICHLET, PRESSURE=2.96514E07, SAT=1.0, IRANGE=1,1, JRANGE=14,14, KRANGE=1,1
442 DIRICHLET, PRESSURE=2.88419E07, SAT=1.0, IRANGE=1,1, JRANGE=16,16, KRANGE=1,1
443 DIRICHLET, PRESSURE=2.59925E07, SAT=1.0, IRANGE=1,1, JRANGE=17,17, KRANGE=1,1
444 DIRICHLET, PRESSURE=2.32357E07, SAT=1.0, IRANGE=1,1, JRANGE=18,18, KRANGE=1,1
445 DIRICHLET, PRESSURE=2.26297E07, SAT=1.0, IRANGE=1,1, JRANGE=20,20, KRANGE=1,1
446 DIRICHLET, PRESSURE=2.07943E07, SAT=1.0, IRANGE=1,1, JRANGE=21,21, KRANGE=1,1
447 DIRICHLET, PRESSURE=1.77753E07, SAT=1.0, IRANGE=1,1, JRANGE=22,22, KRANGE=1,1
448 DIRICHLET, PRESSURE=1.48508E07, SAT=1.0, IRANGE=1,1, JRANGE=24,24, KRANGE=1,1
449 DIRICHLET, PRESSURE=8.22000E05, SAT=1.0, IRANGE=1,1, JRANGE=34,34, KRANGE=1,1
450
451 DIRICHLET, PRESSURE=5.48919E07, SAT=1.0, IRANGE=96,96, JRANGE= 2, 2, KRANGE=1,1
452 DIRICHLET, PRESSURE=5.10678E07, SAT=1.0, IRANGE=96,96, JRANGE= 3, 3, KRANGE=1,1

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953 DIRICHLET, PRESSURE=4.99205E07, SAT=1.0, IRANGE=96,96, JRANGE= 5, 5, KRANGE=1,1
954 DIRICHLET, PRESSURE=4.87533E07, SAT=1.0, IRANGE=96,96, JRANGE= 6, 6, KRANGE=1,1
955 DIRICHLET, PRESSURE=4.75817E07, SAT=1.0, IRANGE=96,96, JRANGE= 8, 8, KRANGE=1,1
956 DIRICHLET, PRESSURE=4.20503E07, SAT=1.0, IRANGE=96,96, JRANGE= 9, 9, KRANGE=1,1
957 DIRICHLET, PRESSURE=3.63427E07, SAT=1.0, IRANGE=96,96, JRANGE=10,10, KRANGE=1,1
958 DIRICHLET, PRESSURE=3.49942E07, SAT=1.0, IRANGE=96,96, JRANGE=12,12, KRANGE=1,1
959 DIRICHLET, PRESSURE=3.22003E07, SAT=1.0, IRANGE=96,96, JRANGE=13,13, KRANGE=1,1
960 DIRICHLET, PRESSURE=2.96514E07, SAT=1.0, IRANGE=96,96, JRANGE=14,14, KRANGE=1,1
961 DIRICHLET, PRESSURE=2.88419E07, SAT=1.0, IRANGE=96,96, JRANGE=16,16, KRANGE=1,1
962 DIRICHLET, PRESSURE=2.59925E07, SAT=1.0, IRANGE=96,96, JRANGE=17,17, KRANGE=1,1
963 DIRICHLET, PRESSURE=2.32357E07, SAT=1.0, IRANGE=96,96, JRANGE=18,18, KRANGE=1,1
964 DIRICHLET, PRESSURE=2.26297E07, SAT=1.0, IRANGE=96,96, JRANGE=20,20, KRANGE=1,1
965 DIRICHLET, PRESSURE=2.07943E07, SAT=1.0, IRANGE=96,96, JRANGE=21,21, KRANGE=1,1
966 DIRICHLET, PRESSURE=1.77753E07, SAT=1.0, IRANGE=96,96, JRANGE=22,22, KRANGE=1,1
967 DIRICHLET, PRESSURE=1.48508E07, SAT=1.0, IRANGE=96,96, JRANGE=24,24, KRANGE=1,1
968 DIRICHLET, PRESSURE=8.22000E05, SAT=1.0, IRANGE=96,96, JRANGE=34,34, KRANGE=1,1
969
970
=====
971 WELL DATA GOES HERE!
972 *WELL DATA
973 TIME_CONTROL, TIME_ID=1, WELTIME=0.0
974 TIME_CONTROL, TIME_ID=2, WELTIME=1.577846E9
975
=====
976
977
978 WELL_CONTROL, TIME_ID=1, NUM=1, TYPE=INJP, ILOC= 8, JLOC=23, KLOC=1,&
979 QO=0.0, QG=0.0, PIWELL=7.3816E-11&
980 PRWELL= 22.8E6
981
982 WELL_CONTROL, TIME_ID=1, NUM=1, TYPE=INJP, ILOC=89, JLOC=23, KLOC=1,&
983 QO=0.0, QG=0.0, PIWELL=7.3816E-11&
984 PRWELL= 22.8E6
985
986
=====
987
988 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=27, KLOC=1,&
989 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11,&
990 PRWELL= 1.31521E07,1.31521E07
991
992 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=30, KLOC=1,&
993 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11,&
994 PRWELL= 1.31124E07,1.31124E07
995
996! COMMENTED OUT 3/12/96: REPLACED W DIRICHLET B.C.
997! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=34, KLOC=1,&
998! QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11,&
999! PRWELL= 8.52000E05,8.52000E05
1000!
1001!
1002 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC=96, JLOC=27, KLOC=1,&
1003 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11,&
1004 PRWELL= 1.16762E07,1.16762E07
1005!
1006 WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC=96, JLOC=30, KLOC=1,&
1007 QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11,1.0E-11,&
1008 PRWELL= 1.16366E07,1.16366E07

```

```
109!  
110! COMMENTED OUT 3/12/96: REPLACED W DIRICHLET B.C.  
111! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC=96, JLOC=34, KLOC=1, &  
112!   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-11, 1.0E-11, &  
113!   PRWELL= 8.52000E05, 8.52000E05  
114!  
115!  
116! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 8, JLOC=34, KLOC=1, &  
117!   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-12, 1.0E-12, &  
118!   PRWELL= 2.03740E06, 2.03740E06  
119!  
120!  
121! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 89, JLOC=34, KLOC=1, &  
122!   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-12, 1.0E-12, &
```

```
1023   PRWELL= 2.03740E06, 2.03740E06  
1024!  
1025!  
1026! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC= 1, JLOC=23, KLOC=1, &  
1027!   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-15, 1.0E-15, &  
1028!   PRWELL= 1.564E07, 1.564E07  
1029!  
1030!  
1031! WELL_CONTROL, TIME_ID=2, NUM=2, TYPE=PROD, INJP, ILOC=96, JLOC=23, KLOC=1, &  
1032!   QO=0.0,0.0, QG=0.0,0.0, PIWELL=1.0E-15, 1.0E-15, &  
1033!   PRWELL= 1.564E07, 1.564E07  
1034!  
1035! *END  
1036! =====
```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix N --Differences between PREB_WATFLD_YATES01.INP & PREB_WATFLD_YATES02.INP (Prebrag) File Listings

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.PREBRAG]PREB_WATFLD_YATES01.INP;2
3 980 PRWELL= 22.8E6
4 981
5 *****
6 File N1:[NOBACK2.DMS_WATERFLOOD.PREBRAG]PREB_WATFLD_YATES02.INP;1
7 980 PRWELL= 18.53E6
8 981
9 *****
10 *****
11 File N1:[NOBACK2.DMS_WATERFLOOD.PREBRAG]PREB_WATFLD_YATES01.INP;2
12 984 PRWELL= 22.8E6
13 985
14 *****

15 File N1:[NOBACK2.DMS_WATERFLOOD.PREBRAG]PREB_WATFLD_YATES02.INP;1
16 984 PRWELL= 18.53E6
17 985
18 *****
19
20 Number of difference sections found: 2
21 Number of difference records found: 2
22
23 DIFFERENCES
24 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[NOBAC
25 K2.DMS_WATERFLOOD.PREBRAG]PRE_Y1_2.DIFF;1-
26 N1:[NOBACK2.DMS_WATERFLOOD.PREBRAG]PREB_WATFLD_YATES01.INP;2-
27 N1:[NOBACK2.DMS_WATERFLOOD.PREBRAG]PREB_WATFLD_YATES02.INP;1

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

```

1 **QA** = PREBRAG QA RECORDS
2 PREBRAG_ = PROGRAM NAME
3 6.00 = PROGRAM VERSION
4 02/06/96 = PROGRAM REVISION DATE
5 06/17/96 = PROGRAM RUN DATE
6 16:19:04 = PROGRAM RUN TIME
7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
8 FILE FLAGS...ASCII, BINARY, SUMMARY, RESTART OUT, RESTART INPUT
9 T T T T F
10 MODEL TYPE AND NUMBER OF GRID BLOCKS IN X, Y, AND Z
11 2 96 34 1
12 TSTART, TMAX, MAXSTEPS
13 -1.5778E+08 3.1557E+11 10000
14 DT_INIT, DT_MIN, DT_MAX, DT_INCR, IAUTODT, TSWITCH
15 8.6400E+00 8.6400E-04 3.1557E+08 1.2500E+00 1 1.0000E+00
16 TIME-STEP CHANGES: NUMBER OF CHANGES, TIME OF CHANGE, DELT USED
17 6
18 0.0000E+00 8.6400E+02
19 1.5778E+09 8.6400E+02
20 3.1557E+09 8.6400E+02
21 6.3114E+09 8.6400E+02
22 7.8892E+09 8.6400E+02
23 3.9446E+10 8.6400E+02
24 IPRTYPEASC IPRTYPEBIN IPRTYPERST UNITSI UNITSO
25 2 0 2 'SI' 'SI'
26 ASCII PRINTOUT CONTROLLED BY USER SPECIFIED TIMES
27 2
28 USER REQUESTED PRINTOUT TIMES
29 0.0000E+00 3.1557E+11
30 BINARY PRINTOUT CONTROLLED BY STEP INTERVAL, IPRTBIN
31 40
32 RESTART PRINTOUT CONTROLLED BY USER SPECIFIED TIMES
33 3
34 USER REQUESTED RESTART TIMES
35 0.0000E+00 3.1557E+09 3.1557E+10
36 ASCII PRINT FLAGS
37 11000 10000 00000 00100 00000
38 00000 00000 00000 00000 01100
39 00000 00000 00000 00000 00000
40 00000 00000 00000 00000
41 000
42 0
43 0
44 0
45 BINARY PRINT FLAGS
46 11000 10001 10010 00100 00000
47 00000 11011 00000 00010 01100
48 00000 00000 00000 00000 00000
49 00000 00000 00000 00000
50 000
51 0
52 0
53 0
54 HISTORY VARIABLE OUTPUT
55 6
56 21 4 NAME=TIME-AVERAGE WELL BRINE FLOW RATE
    
```

```

57 8 23 1 89 23 1 8 34 1 89 34 1
58 22 2 NAME=TIME-AVERAGE WELL GAS FLOW RATE
59 8 34 1 89 34 1
60 31 10 NAME=TIME-AVERAGE INTERBLOCK BRINE FLOW, X-DIRECTION
61 9 27 1 9 30 1 9 34 1 89 27 1 89 30 1 89 34 1
62 36 27 1 36 30 1 60 27 1 60 30 1
63 32 2 NAME=TIME-AVERAGE INTERBLOCK BRINE FLOW, Y-DIRECTION
64 56 34 1 56 31 1
65 34 10 NAME=TIME-AVERAGE INTERBLOCK GAS FLOW, X-DIRECTION
66 9 27 1 9 30 1 9 34 1 89 27 1 89 30 1 89 34 1
67 36 27 1 36 30 1 60 27 1 60 30 1
68 35 2 NAME=TIME-AVERAGE INTERBLOCK GAS FLOW, Y-DIRECTION
69 56 34 1 56 31 1
70 MONITOR PARAMETER VALUES AT GRIDBLOCK(S)
71 T
72 NUMBER OF MONITOR BLOCKS
73 4
74 MONITOR BLOCKS (I,J,K)
75 47 23 1
76 9 27 1
77 46 28 1
78 57 30 1
79 GRID DATA FLAGS: IDXFLAG, IDYFLAG, IDZFLAG, IDEPTHFLAG
80 1 2 1 7
81 GRID DATA CARDS: GRID BLOCK DX'S
82 2.011700E+02 1.310600E+02 5.486400E+01 1.097300E+01 2.743200E+00 9.144000E-01
83 4.540300E-01 3.111700E-01 4.540300E-01 9.144000E-01 2.743200E+00 1.097300E+01
84 5.486400E+01 1.310600E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
85 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
86 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
87 1.341100E+02 6.096000E+01 4.876800E+01 1.828800E+01 6.096000E+00 6.096000E+00 6.096000E+00
88 1.219200E+01 2.438400E+01 5.486400E+01 2.438400E+01 1.219200E+01 4.479000E+00
89 2.038100E+00 4.479000E+00 1.219200E+01 2.438400E+01 4.876800E+01 3.048000E+01
90 1.219200E+01 6.096000E+00 4.076200E+00 1.000000E+01 3.828300E+01 5.000000E+00
91 9.999900E-01 2.160100E-01 9.999900E-01 8.000000E+00 4.471100E+01 1.117500E+02
92 1.117500E+02 1.973300E+02 1.973300E+02 1.973300E+02 1.341100E+02 1.341100E+02
93 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
94 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
95 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.310600E+02 5.486400E+01
96 1.097300E+01 2.743200E+00 9.144000E-01 4.540300E-01 3.111700E-01 4.540300E-01
97 9.144000E-01 2.743200E+00 1.097300E+01 5.486400E+01 1.310600E+02 2.011700E+02
98 GRID DATA CARDS: GRID BLOCK DY'S
99 8.138200E+00 1.137800E+02 9.144000E+01 5.943600E+00 8.549600E+01 1.066800E+02
100 7.193300E+00 7.193300E+01 8.406100E+02 1.013500E+02 1.013500E+01 1.013500E+02
101 3.609600E+02 6.096000E+01 6.096000E+00 6.096000E+01 4.114800E+02 4.572000E+01
102 4.572000E+00 4.572000E+01 2.590800E+02 2.426200E+02 1.124700E+02 3.810000E+02
103 1.972700E+02 5.117600E+00 8.500000E-01 1.331000E+00 1.331000E+00 4.500000E-01
104 1.452500E+02 2.500000E+02 3.600000E+01 7.700000E+00
105 GRID DATA CARDS: GRID BLOCK DZ'S
106 4.023360E+02 2.130553E+02 6.702860E+01 1.532080E+01 4.548500E+00 1.675700E+00
107 6.010000E-01 2.444000E-01 6.010000E-01 1.675700E+00 4.548500E+00 1.532080E+01
108 6.702860E+01 2.130553E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
109 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
110 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
111 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
112 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
    
```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

13 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
14 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
15 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
16 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
17 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
18 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
19 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 2.130553E+02 6.702860E+01
20 1.532080E+01 4.548500E+00 1.675700E+00 6.010000E-01 2.444000E-01 6.010000E-01
21 1.675700E+00 4.548500E+00 1.532080E+01 6.702860E+01 2.130553E+02 4.023360E+02
22 GRID BLOCK ELEVATIONS
23 96*-3.353511E+03
24 96*-3.292552E+03
25 96*-3.189942E+03
26 96*-3.141250E+03
27 96*-3.095530E+03
28 96*-2.999442E+03
29 96*-2.942506E+03
30 96*-2.902942E+03
31 96*-2.446671E+03
32 96*-1.975691E+03
33 96*-1.919948E+03
34 96*-1.864206E+03
35 96*-1.633051E+03
36 96*-1.422091E+03
37 96*-1.388563E+03
38 96*-1.355035E+03
39 96*-1.118815E+03
40 96*-8.902151E+02
41 96*-8.650693E+02
42 96*-8.399232E+02
43 96*-6.875233E+02
44 96*-4.366732E+02
45 96*-2.591282E+02
46 1*-6.913361E+01 1*-6.623450E+01 1*-6.461209E+01 1*-6.403757E+01
47 1*-6.391788E+01 1*-6.388599E+01 1*-6.387402E+01 1*-6.386737E+01
48 1*-6.386069E+01 1*-6.384872E+01 1*-6.381680E+01 1*-6.369711E+01
49 1*-6.312259E+01 1*-6.150018E+01 1*-5.918628E+01 1*-5.684573E+01
50 1*-5.450519E+01 1*-5.216464E+01 1*-4.982410E+01 1*-4.748355E+01
51 1*-4.514301E+01 1*-4.280249E+01 1*-4.046194E+01 1*-3.812140E+01
52 1*-3.578085E+01 1*-3.344031E+01 1*-3.109976E+01 1*-2.875922E+01
53 1*-2.641864E+01 1*-2.407813E+01 1*-2.173758E+01 1*-2.003534E+01
54 1*-1.907785E+01 1*-1.849274E+01 1*-1.827994E+01 1*-1.817352E+01
55 1*-1.801395E+01 1*-1.769476E+01 1*-1.700323E+01 1*-1.631171E+01
56 1*-1.599252E+01 1*-1.584708E+01 1*-1.579022E+01 1*-1.573334E+01
57 1*-1.558786E+01 1*-1.526871E+01 1*-1.463037E+01 1*-1.393881E+01
58 1*-1.356644E+01 1*-1.340686E+01 1*-1.331812E+01 1*-1.319525E+01
59 1*-1.277393E+01 1*-1.239627E+01 1*-1.234387E+01 1*-1.23328E+01
60 1*-1.232263E+01 1*-1.224414E+01 1*-1.178418E+01 1*-1.041885E+01
61 1*-8.468506E+00 1*-5.771454E+00 1*-2.327576E+00 1*1.116302E+00
62 1*4.008514E+00 1*6.349060E+00 1*8.689606E+00 1*1.103015E+01
63 1*1.337070E+01 1*1.571124E+01 1*1.805176E+01 1*2.039227E+01
64 1*2.273282E+01 1*2.507336E+01 1*2.741394E+01 1*2.975449E+01
65 1*3.209503E+01 1*3.443555E+01 1*3.677606E+01 1*3.911661E+01
66 1*4.145715E+01 1*4.379773E+01 1*4.611166E+01 1*4.773407E+01
67 1*4.830853E+01 1*4.842822E+01 1*4.846011E+01 1*4.847208E+01
68 1*4.847876E+01 1*4.848544E+01 1*4.849738E+01 1*4.852930E+01

169 1*4.864899E+01 1*4.922348E+01 1*5.084589E+01 1*5.374503E+01
170 1*2.199574E+02 1*2.228565E+02 1*2.244789E+02 1*2.250534E+02
171 1*2.251731E+02 1*2.252050E+02 1*2.252170E+02 1*2.252236E+02
172 1*2.252303E+02 1*2.252423E+02 1*2.252742E+02 1*2.253939E+02
173 1*2.259684E+02 1*2.275908E+02 1*2.299047E+02 1*2.322453E+02
174 1*2.345858E+02 1*2.369263E+02 1*2.392669E+02 1*2.416074E+02
175 1*2.439480E+02 1*2.462885E+02 1*2.486291E+02 1*2.509696E+02
176 1*2.533102E+02 1*2.556507E+02 1*2.579912E+02 1*2.603318E+02
177 1*2.626723E+02 1*2.650129E+02 1*2.673534E+02 1*2.690556E+02
178 1*2.700132E+02 1*2.705983E+02 1*2.708111E+02 1*2.709174E+02
179 1*2.710770E+02 1*2.713962E+02 1*2.720877E+02 1*2.727793E+02
180 1*2.730984E+02 1*2.732439E+02 1*2.733008E+02 1*2.733577E+02
181 1*2.735031E+02 1*2.738223E+02 1*2.744606E+02 1*2.751522E+02
182 1*2.755245E+02 1*2.756841E+02 1*2.757729E+02 1*2.758957E+02
183 1*2.763170E+02 1*2.766948E+02 1*2.767471E+02 1*2.767577E+02
184 1*2.767683E+02 1*2.768469E+02 1*2.773068E+02 1*2.786721E+02
185 1*2.806224E+02 1*2.833195E+02 1*2.867634E+02 1*2.902073E+02
186 1*2.930995E+02 1*2.954401E+02 1*2.977806E+02 1*3.001211E+02
187 1*3.024617E+02 1*3.048022E+02 1*3.071428E+02 1*3.094833E+02
188 1*3.118238E+02 1*3.141644E+02 1*3.165049E+02 1*3.188455E+02
189 1*3.211860E+02 1*3.235265E+02 1*3.258671E+02 1*3.282076E+02
190 1*3.305482E+02 1*3.328887E+02 1*3.352026E+02 1*3.368250E+02
191 1*3.373995E+02 1*3.375192E+02 1*3.375511E+02 1*3.375631E+02
192 1*3.375698E+02 1*3.375764E+02 1*3.375884E+02 1*3.376203E+02
193 1*3.377400E+02 1*3.383145E+02 1*3.399369E+02 1*3.428360E+02
194 1*3.211358E+02 1*3.240349E+02 1*3.256573E+02 1*3.262318E+02
195 1*3.263515E+02 1*3.263835E+02 1*3.263954E+02 1*3.264021E+02
196 1*3.264088E+02 1*3.264207E+02 1*3.264526E+02 1*3.265723E+02
197 1*3.271468E+02 1*3.287692E+02 1*3.310831E+02 1*3.334237E+02
198 1*3.357642E+02 1*3.381048E+02 1*3.404453E+02 1*3.427858E+02
199 1*3.451264E+02 1*3.474669E+02 1*3.498075E+02 1*3.521480E+02
200 1*3.544886E+02 1*3.568291E+02 1*3.591696E+02 1*3.615102E+02
201 1*3.638507E+02 1*3.661913E+02 1*3.685318E+02 1*3.702340E+02
202 1*3.711916E+02 1*3.717767E+02 1*3.719895E+02 1*3.720959E+02
203 1*3.722555E+02 1*3.725746E+02 1*3.732661E+02 1*3.739577E+02
204 1*3.742769E+02 1*3.744223E+02 1*3.744792E+02 1*3.745361E+02
205 1*3.746815E+02 1*3.750007E+02 1*3.756390E+02 1*3.763306E+02
206 1*3.767029E+02 1*3.768625E+02 1*3.769513E+02 1*3.770741E+02
207 1*3.774955E+02 1*3.778731E+02 1*3.779255E+02 1*3.779361E+02
208 1*3.779467E+02 1*3.780253E+02 1*3.784852E+02 1*3.798506E+02
209 1*3.818008E+02 1*3.844980E+02 1*3.879418E+02 1*3.913857E+02
210 1*3.942779E+02 1*3.966185E+02 1*3.989590E+02 1*4.012996E+02
211 1*4.036401E+02 1*4.059806E+02 1*4.083212E+02 1*4.106617E+02
212 1*4.130023E+02 1*4.153428E+02 1*4.176833E+02 1*4.200239E+02
213 1*4.223644E+02 1*4.247050E+02 1*4.270455E+02 1*4.293860E+02
214 1*4.317266E+02 1*4.340671E+02 1*4.363810E+02 1*4.380034E+02
215 1*4.385779E+02 1*4.386976E+02 1*4.387296E+02 1*4.387415E+02
216 1*4.387482E+02 1*4.387549E+02 1*4.387668E+02 1*4.387987E+02
217 1*4.389184E+02 1*4.394929E+02 1*4.411153E+02 1*4.440144E+02
218 1*3.241192E+02 1*3.270183E+02 1*3.286407E+02 1*3.292152E+02
219 1*3.293349E+02 1*3.293668E+02 1*3.293788E+02 1*3.293854E+02
220 1*3.293921E+02 1*3.294040E+02 1*3.294359E+02 1*3.295556E+02
221 1*3.301302E+02 1*3.317526E+02 1*3.340665E+02 1*3.364070E+02
222 1*3.387476E+02 1*3.410881E+02 1*3.434286E+02 1*3.457692E+02
223 1*3.481097E+02 1*3.504503E+02 1*3.527908E+02 1*3.551314E+02
224 1*3.574719E+02 1*3.598125E+02 1*3.621530E+02 1*3.644935E+02

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

25	1* 3.668341E+02	1* 3.691746E+02	1* 3.715152E+02	1* 3.732174E+02	281	1* 3.872053E+02	1* 3.899024E+02	1* 3.933463E+02	1* 3.967902E+02
26	1* 3.741749E+02	1* 3.747600E+02	1* 3.749728E+02	1* 3.750792E+02	282	1* 3.996824E+02	1* 4.020229E+02	1* 4.043635E+02	1* 4.067040E+02
27	1* 3.752388E+02	1* 3.755580E+02	1* 3.762495E+02	1* 3.769410E+02	283	1* 4.090446E+02	1* 4.113851E+02	1* 4.137256E+02	1* 4.160662E+02
28	1* 3.772602E+02	1* 3.774057E+02	1* 3.774626E+02	1* 3.775194E+02	284	1* 4.184067E+02	1* 4.207473E+02	1* 4.230878E+02	1* 4.254283E+02
29	1* 3.776649E+02	1* 3.779841E+02	1* 3.786224E+02	1* 3.793139E+02	285	1* 4.277689E+02	1* 4.301094E+02	1* 4.324500E+02	1* 4.347905E+02
30	1* 3.796863E+02	1* 3.798459E+02	1* 3.799347E+02	1* 3.800575E+02	286	1* 4.371310E+02	1* 4.394716E+02	1* 4.417855E+02	1* 4.434079E+02
31	1* 3.804788E+02	1* 3.808565E+02	1* 3.809089E+02	1* 3.809195E+02	287	1* 4.439824E+02	1* 4.441021E+02	1* 4.441340E+02	1* 4.441460E+02
32	1* 3.809301E+02	1* 3.810086E+02	1* 3.814686E+02	1* 3.828339E+02	288	1* 4.441526E+02	1* 4.441593E+02	1* 4.441713E+02	1* 4.442032E+02
33	1* 3.847842E+02	1* 3.874813E+02	1* 3.909252E+02	1* 3.943691E+02	289	1* 4.443229E+02	1* 4.448974E+02	1* 4.465198E+02	1* 4.494189E+02
34	1* 3.972613E+02	1* 3.996018E+02	1* 4.019424E+02	1* 4.042829E+02	290	1* 3.274307E+02	1* 3.303298E+02	1* 3.319522E+02	1* 3.325267E+02
35	1* 4.066234E+02	1* 4.089640E+02	1* 4.113045E+02	1* 4.136451E+02	291	1* 3.326464E+02	1* 3.326783E+02	1* 3.326902E+02	1* 3.326969E+02
36	1* 4.159856E+02	1* 4.183261E+02	1* 4.206667E+02	1* 4.230071E+02	292	1* 3.327036E+02	1* 3.327155E+02	1* 3.327474E+02	1* 3.328671E+02
37	1* 4.253477E+02	1* 4.276883E+02	1* 4.300288E+02	1* 4.323694E+02	293	1* 3.334417E+02	1* 3.350641E+02	1* 3.373780E+02	1* 3.397185E+02
38	1* 4.347099E+02	1* 4.370505E+02	1* 4.393644E+02	1* 4.409868E+02	294	1* 3.420591E+02	1* 3.443996E+02	1* 3.467401E+02	1* 3.490807E+02
39	1* 4.415613E+02	1* 4.416810E+02	1* 4.417129E+02	1* 4.417249E+02	295	1* 3.514212E+02	1* 3.537618E+02	1* 3.561023E+02	1* 3.584429E+02
40	1* 4.417315E+02	1* 4.417382E+02	1* 4.417502E+02	1* 4.417821E+02	296	1* 3.607834E+02	1* 3.631240E+02	1* 3.654645E+02	1* 3.678050E+02
41	1* 4.419018E+02	1* 4.424763E+02	1* 4.440987E+02	1* 4.469978E+02	297	1* 3.701456E+02	1* 3.724861E+02	1* 3.748267E+02	1* 3.765289E+02
42	1* 3.252095E+02	1* 3.281086E+02	1* 3.297310E+02	1* 3.303055E+02	298	1* 3.774864E+02	1* 3.780715E+02	1* 3.782843E+02	1* 3.783907E+02
43	1* 3.304252E+02	1* 3.304571E+02	1* 3.304691E+02	1* 3.304757E+02	299	1* 3.785503E+02	1* 3.788695E+02	1* 3.795610E+02	1* 3.802525E+02
44	1* 3.304824E+02	1* 3.304944E+02	1* 3.305263E+02	1* 3.306460E+02	300	1* 3.805717E+02	1* 3.807172E+02	1* 3.807740E+02	1* 3.808309E+02
45	1* 3.312205E+02	1* 3.328429E+02	1* 3.351568E+02	1* 3.374974E+02	301	1* 3.809764E+02	1* 3.812956E+02	1* 3.819339E+02	1* 3.826254E+02
46	1* 3.398379E+02	1* 3.421784E+02	1* 3.445190E+02	1* 3.468595E+02	302	1* 3.829978E+02	1* 3.831574E+02	1* 3.832462E+02	1* 3.833690E+02
47	1* 3.492001E+02	1* 3.515406E+02	1* 3.538812E+02	1* 3.562217E+02	303	1* 3.837903E+02	1* 3.841680E+02	1* 3.842204E+02	1* 3.842310E+02
48	1* 3.585623E+02	1* 3.609028E+02	1* 3.632433E+02	1* 3.655839E+02	304	1* 3.842416E+02	1* 3.843201E+02	1* 3.847801E+02	1* 3.861454E+02
49	1* 3.679244E+02	1* 3.702650E+02	1* 3.726055E+02	1* 3.743077E+02	305	1* 3.880957E+02	1* 3.907928E+02	1* 3.942367E+02	1* 3.976806E+02
50	1* 3.752652E+02	1* 3.758504E+02	1* 3.760632E+02	1* 3.761696E+02	306	1* 4.005728E+02	1* 4.029133E+02	1* 4.052538E+02	1* 4.075944E+02
51	1* 3.763291E+02	1* 3.766483E+02	1* 3.773398E+02	1* 3.780314E+02	307	1* 4.099349E+02	1* 4.122755E+02	1* 4.146160E+02	1* 4.169565E+02
52	1* 3.785506E+02	1* 3.784960E+02	1* 3.785529E+02	1* 3.786098E+02	308	1* 4.192971E+02	1* 4.216376E+02	1* 4.239782E+02	1* 4.263187E+02
53	1* 3.787552E+02	1* 3.790744E+02	1* 3.797127E+02	1* 3.804043E+02	309	1* 4.286593E+02	1* 4.309998E+02	1* 4.333403E+02	1* 4.356809E+02
54	1* 3.807766E+02	1* 3.809362E+02	1* 3.810250E+02	1* 3.811478E+02	310	1* 4.380214E+02	1* 4.403620E+02	1* 4.426759E+02	1* 4.442983E+02
55	1* 3.815692E+02	1* 3.819468E+02	1* 3.819992E+02	1* 3.820098E+02	311	1* 4.448728E+02	1* 4.449925E+02	1* 4.450244E+02	1* 4.450363E+02
56	1* 3.820204E+02	1* 3.820990E+02	1* 3.825589E+02	1* 3.839242E+02	312	1* 4.450430E+02	1* 4.450497E+02	1* 4.450616E+02	1* 4.450936E+02
57	1* 3.858745E+02	1* 3.885716E+02	1* 3.920155E+02	1* 3.954594E+02	313	1* 4.452133E+02	1* 4.457878E+02	1* 4.474102E+02	1* 4.503093E+02
58	1* 3.983516E+02	1* 4.006922E+02	1* 4.030327E+02	1* 4.053732E+02	314	1* 4.002696E+02	1* 4.031687E+02	1* 4.047911E+02	1* 4.053656E+02
59	1* 4.077138E+02	1* 4.100543E+02	1* 4.123949E+02	1* 4.147354E+02	315	1* 4.054853E+02	1* 4.055172E+02	1* 4.055291E+02	1* 4.055358E+02
60	1* 4.170759E+02	1* 4.194165E+02	1* 4.217570E+02	1* 4.240976E+02	316	1* 4.055425E+02	1* 4.055544E+02	1* 4.055864E+02	1* 4.057061E+02
61	1* 4.264381E+02	1* 4.287786E+02	1* 4.311192E+02	1* 4.334597E+02	317	1* 4.062805E+02	1* 4.079030E+02	1* 4.102169E+02	1* 4.125574E+02
62	1* 4.358003E+02	1* 4.381408E+02	1* 4.404547E+02	1* 4.420771E+02	318	1* 4.148980E+02	1* 4.172385E+02	1* 4.195791E+02	1* 4.219196E+02
63	1* 4.426516E+02	1* 4.427713E+02	1* 4.428033E+02	1* 4.428152E+02	319	1* 4.242602E+02	1* 4.266007E+02	1* 4.289412E+02	1* 4.312818E+02
64	1* 4.428219E+02	1* 4.428286E+02	1* 4.428405E+02	1* 4.428724E+02	320	1* 4.336223E+02	1* 4.359629E+02	1* 4.383034E+02	1* 4.406440E+02
65	1* 4.429921E+02	1* 4.435666E+02	1* 4.451890E+02	1* 4.480881E+02	321	1* 4.429845E+02	1* 4.453250E+02	1* 4.476656E+02	1* 4.493678E+02
66	1* 3.265403E+02	1* 3.294394E+02	1* 3.310618E+02	1* 3.316363E+02	322	1* 4.503253E+02	1* 4.509105E+02	1* 4.511232E+02	1* 4.512296E+02
67	1* 3.317560E+02	1* 3.317879E+02	1* 3.317999E+02	1* 3.318065E+02	323	1* 4.513892E+02	1* 4.517084E+02	1* 4.523999E+02	1* 4.530915E+02
68	1* 3.318132E+02	1* 3.318252E+02	1* 3.318571E+02	1* 3.319768E+02	324	1* 4.534106E+02	1* 4.535561E+02	1* 4.536130E+02	1* 4.536698E+02
69	1* 3.325513E+02	1* 3.341737E+02	1* 3.364876E+02	1* 3.388282E+02	325	1* 4.538153E+02	1* 4.541345E+02	1* 4.547728E+02	1* 4.554644E+02
70	1* 3.411687E+02	1* 3.435092E+02	1* 3.458498E+02	1* 3.481903E+02	326	1* 4.558367E+02	1* 4.559963E+02	1* 4.560851E+02	1* 4.562079E+02
71	1* 3.505309E+02	1* 3.528714E+02	1* 3.552119E+02	1* 3.575525E+02	327	1* 4.566292E+02	1* 4.570069E+02	1* 4.570593E+02	1* 4.570699E+02
72	1* 3.598930E+02	1* 3.622336E+02	1* 3.645741E+02	1* 3.669147E+02	328	1* 4.570805E+02	1* 4.571590E+02	1* 4.576190E+02	1* 4.589843E+02
73	1* 3.692552E+02	1* 3.715958E+02	1* 3.739363E+02	1* 3.756385E+02	329	1* 4.609346E+02	1* 4.636317E+02	1* 4.670756E+02	1* 4.705195E+02
74	1* 3.765960E+02	1* 3.771812E+02	1* 3.773940E+02	1* 3.775003E+02	330	1* 4.734117E+02	1* 4.757522E+02	1* 4.780928E+02	1* 4.804333E+02
75	1* 3.776599E+02	1* 3.779791E+02	1* 3.786706E+02	1* 3.793622E+02	331	1* 4.827739E+02	1* 4.851144E+02	1* 4.874549E+02	1* 4.897955E+02
76	1* 3.796813E+02	1* 3.798268E+02	1* 3.798837E+02	1* 3.799406E+02	332	1* 4.921360E+02	1* 4.944766E+02	1* 4.968171E+02	1* 4.991576E+02
77	1* 3.800860E+02	1* 3.804052E+02	1* 3.810435E+02	1* 3.817351E+02	333	1* 5.014982E+02	1* 5.038387E+02	1* 5.061793E+02	1* 5.085198E+02
78	1* 3.821074E+02	1* 3.822670E+02	1* 3.823558E+02	1* 3.824786E+02	334	1* 5.108603E+02	1* 5.132009E+02	1* 5.155148E+02	1* 5.171372E+02
79	1* 3.828999E+02	1* 3.832776E+02	1* 3.833300E+02	1* 3.833406E+02	335	1* 5.177117E+02	1* 5.178314E+02	1* 5.178633E+02	1* 5.178752E+02
80	1* 3.833512E+02	1* 3.834297E+02	1* 3.838897E+02	1* 3.852550E+02	336	1* 5.178820E+02	1* 5.178886E+02	1* 5.179006E+02	1* 5.179325E+02

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

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7 1* 5.180522E+02 1* 5.186267E+02 1* 5.202491E+02 1* 5.231482E+02
8 1* 5.978645E+02 1* 6.007636E+02 1* 6.023860E+02 1* 6.029605E+02
9 1* 6.030802E+02 1* 6.031121E+02 1* 6.031240E+02 1* 6.031307E+02
0 1* 6.031375E+02 1* 6.031494E+02 1* 6.031813E+02 1* 6.033010E+02
1 1* 6.038755E+02 1* 6.054979E+02 1* 6.078118E+02 1* 6.101523E+02
2 1* 6.124929E+02 1* 6.148334E+02 1* 6.171740E+02 1* 6.195145E+02
3 1* 6.218550E+02 1* 6.241956E+02 1* 6.265361E+02 1* 6.288767E+02
4 1* 6.312172E+02 1* 6.335578E+02 1* 6.358983E+02 1* 6.382389E+02
5 1* 6.405794E+02 1* 6.429200E+02 1* 6.452605E+02 1* 6.469627E+02
6 1* 6.479202E+02 1* 6.485054E+02 1* 6.487181E+02 1* 6.488245E+02
7 1* 6.489841E+02 1* 6.493033E+02 1* 6.499948E+02 1* 6.506864E+02
8 1* 6.510056E+02 1* 6.511510E+02 1* 6.512079E+02 1* 6.512648E+02
9 1* 6.514102E+02 1* 6.517294E+02 1* 6.523677E+02 1* 6.530593E+02
0 1* 6.534316E+02 1* 6.535912E+02 1* 6.536800E+02 1* 6.538028E+02
1 1* 6.542242E+02 1* 6.546019E+02 1* 6.546542E+02 1* 6.546648E+02
2 1* 6.546754E+02 1* 6.547540E+02 1* 6.552139E+02 1* 6.565792E+02
3 1* 6.585295E+02 1* 6.612266E+02 1* 6.646705E+02 1* 6.681144E+02
4 1* 6.710066E+02 1* 6.733472E+02 1* 6.756877E+02 1* 6.780282E+02
5 1* 6.803688E+02 1* 6.827093E+02 1* 6.850499E+02 1* 6.873904E+02
6 1* 6.897310E+02 1* 6.920715E+02 1* 6.944120E+02 1* 6.967526E+02
7 1* 6.990931E+02 1* 7.014336E+02 1* 7.037742E+02 1* 7.061147E+02
8 1* 7.084553E+02 1* 7.107958E+02 1* 7.131097E+02 1* 7.147322E+02
9 1* 7.153066E+02 1* 7.154263E+02 1* 7.154583E+02 1* 7.154702E+02
0 1* 7.154769E+02 1* 7.154835E+02 1* 7.154955E+02 1* 7.155274E+02
1 1* 7.156471E+02 1* 7.162216E+02 1* 7.178440E+02 1* 7.207431E+02
2 96* 7.977065E+02
3 96* 8.195566E+02
4 WELL DATA
5 2
6 0.0000E+00 2
7 8 23 1 1
8 INJP
9 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
0 89 23 1 1
1 INJP
2 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
3 -1.5778E+09 8
4 1 27 1 2
5 PROD
6 0.000000E+00 0.000000E+00 1.000000E-11 1.315210E+07
7 INJP
8 0.000000E+00 0.000000E+00 1.000000E-11 1.315210E+07
9 1 30 1 2
0 PROD
1 0.000000E+00 0.000000E+00 1.000000E-11 1.311240E+07
2 INJP
3 0.000000E+00 0.000000E+00 1.000000E-11 1.311240E+07
4 96 27 1 2
5 PROD
6 0.000000E+00 0.000000E+00 1.000000E-11 1.167620E+07
7 INJP
8 0.000000E+00 0.000000E+00 1.000000E-11 1.167620E+07
9 96 30 1 2
0 PROD
1 0.000000E+00 0.000000E+00 1.000000E-11 1.163660E+07
2 INJP

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393 0.000000E+00 0.000000E+00 1.000000E-11 1.163660E+07
394 8 34 1 2
395 PROD
396 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
397 INJP
398 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
399 89 34 1 2
400 PROD
401 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
402 INJP
403 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
404 1 23 1 2
405 PROD
406 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
407 INJP
408 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
409 96 23 1 2
410 PROD
411 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
412 INJP
413 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
414 DIRICHLET CONDITIONS
415 T 36
416 1 2 1 T F 5.231520E+07 0.000000E+00
417 96 2 1 T F 5.231520E+07 0.000000E+00
418 1 3 1 T F 5.106780E+07 0.000000E+00
419 96 3 1 T F 5.106780E+07 0.000000E+00
420 1 5 1 T F 4.992050E+07 0.000000E+00
421 96 5 1 T F 4.992050E+07 0.000000E+00
422 1 6 1 T F 4.875330E+07 0.000000E+00
423 96 6 1 T F 4.875330E+07 0.000000E+00
424 1 8 1 T F 4.758170E+07 0.000000E+00
425 96 8 1 T F 4.758170E+07 0.000000E+00
426 1 9 1 T F 4.205030E+07 0.000000E+00
427 96 9 1 T F 4.205030E+07 0.000000E+00
428 1 10 1 T F 3.634270E+07 0.000000E+00
429 96 10 1 T F 3.634270E+07 0.000000E+00
430 1 12 1 T F 3.499420E+07 0.000000E+00
431 96 12 1 T F 3.499420E+07 0.000000E+00
432 1 13 1 T F 3.220030E+07 0.000000E+00
433 96 13 1 T F 3.220030E+07 0.000000E+00
434 1 14 1 T F 2.965140E+07 0.000000E+00
435 96 14 1 T F 2.965140E+07 0.000000E+00
436 1 16 1 T F 2.884190E+07 0.000000E+00
437 96 16 1 T F 2.884190E+07 0.000000E+00
438 1 17 1 T F 2.599250E+07 0.000000E+00
439 96 17 1 T F 2.599250E+07 0.000000E+00
440 1 18 1 T F 2.323570E+07 0.000000E+00
441 96 18 1 T F 2.323570E+07 0.000000E+00
442 1 20 1 T F 2.262970E+07 0.000000E+00
443 96 20 1 T F 2.262970E+07 0.000000E+00
444 1 21 1 T F 2.079430E+07 0.000000E+00
445 96 21 1 T F 2.079430E+07 0.000000E+00
446 1 22 1 T F 1.777530E+07 0.000000E+00
447 96 22 1 T F 1.777530E+07 0.000000E+00
448 1 24 1 T F 1.788030E+07 0.000000E+00

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49	96	24	I	T	F	1.640250E+07	0.000000E+00	1.397498E+07	1.394683E+07	1.391869E+07	1.389055E+07
50	1	34	I	T	F	8.220000E+05	0.000000E+00	1.386240E+07	1.383426E+07	1.381387E+07	1.380248E+07
51	96	34	I	T	F	8.220000E+05	0.000000E+00	1.379539E+07	1.379281E+07	1.379156E+07	1.378955E+07
52	GRID BLOCK BRINE PRESSURE INITIAL CONDITIONS										
53	96*	3	30	56	39E+07			1.378752E+07	1.377759E+07	1.376926E+07	1.376524E+07
54	96*	5	23	15	17E+07			1.375662E+07	1.374896E+07	1.374054E+07	1.373614E+07
55	96*	5	106	78	5E+07			1.373216E+07	1.372149E+07	1.372139E+07	1.372130E+07
56	96*	4	99	20	54E+07			1.372034E+07	1.371469E+07	1.369823E+07	1.367496E+07
57	96*	4	99	20	54E+07			1.364260E+07	1.360106E+07	1.355970E+07	1.352495E+07
58	96*	4	87	53	30E+07			1.349680E+07	1.346884E+07	1.344070E+07	1.341245E+07
59	96*	4	80	62	00E+07			1.338440E+07	1.335644E+07	1.332839E+07	1.330024E+07
60	96*	4	75	81	72E+07			1.332720E+07	1.332447E+07	1.332156E+07	1.331875E+07
61	96*	4	20	50	32E+07			1.315950E+07	1.313135E+07	1.310320E+07	1.307505E+07
62	96*	3	63	42	66E+07			1.304699E+07	1.301932E+07	1.299988E+07	1.299299E+07
63	96*	3	56	68	47E+07			1.299145E+07	1.299098E+07	1.299088E+07	1.299078E+07
64	96*	3	49	94	20E+07			1.299069E+07	1.299030E+07	1.298877E+07	1.298197E+07
65	96*	3	22	00	30E+07			1.296244E+07	1.292749E+07	1.292749E+07	1.292749E+07
66	96*	2	96	51	35E+07			1.318806E+07	1.315301E+07	1.313358E+07	1.312668E+07
67	96*	2	92	46	68E+07			1.312534E+07	1.312486E+07	3* 1.312457E+07	1.312448E+07
68	96*	2	88	41	92E+07			1.312410E+07	1.312266E+07	1.311576E+07	1.309623E+07
69	96*	2	59	92	46E+07			1.306837E+07	1.304031E+07	1.301226E+07	1.298411E+07
70	96*	2	32	35	71E+07			1.295605E+07	1.292790E+07	1.289965E+07	1.287159E+07
71	96*	2	29	32	75E+07			1.284363E+07	1.28158E+07	1.278752E+07	1.275946E+07
72	96*	2	26	29	74E+07			1.273131E+07	1.270315E+07	1.267490E+07	1.264675E+07
73	96*	2	07	94	35E+07			1.257723E+07	1.257598E+07	1.257397E+07	1.257014E+07
74	96*	1	77	75	26E+07			1.256181E+07	1.25348E+07	1.254964E+07	1.254783E+07
75	96*	1	56	40	00E+07			1.254725E+07	1.254668E+07	1.254486E+07	1.254093E+07
76	1	78	80	33E+07		1.782612E+07	1.781923E+07	1.253327E+07	1.252494E+07	1.252053E+07	1.251862E+07
77	1	78	17	70E+07		1.781713E+07	1.781694E+07	1.25115E+07	1.25115E+07	1.25059E+07	1.250645E+07
78	1	78	16	84E+07		1.781503E+07	1.780814E+07	1.249918E+07	1.248280E+07	1.245934E+07	1.242697E+07
79	1	77	88	54E+07		1.773251E+07	1.770450E+07	1.238559E+07	1.234422E+07	1.230945E+07	1.228130E+07
80	1	76	67	39E+07		1.762007E+07	1.759196E+07	1.225333E+07	1.222527E+07	1.219711E+07	1.216895E+07
81	1	75	63	75E+07		1.753555E+07	1.750734E+07	1.214089E+07	1.212127E+07	1.208457E+07	1.205660E+07
82	1	74	51	02E+07		1.742291E+07	1.741913E+07	1.212844E+07	1.212252E+07	1.208457E+07	1.205660E+07
83	1	73	38	47E+07		1.733036E+07	1.728989E+07	1.210839E+07	1.208457E+07	1.208457E+07	1.205660E+07
84	1	72	12	25E+07		1.726876E+07	1.726541E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
85	1	72	61	59E+07		1.726159E+07	1.726159E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
86	1	72	39	50E+07		1.723873E+07	1.723797E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
87	1	72	32	42E+07		1.722477E+07	1.721636E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
88	1	72	09	95E+07		1.720899E+07	1.720756E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
89	1	71	97	90E+07		1.719714E+07	1.719704E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
90	1	71	90	35E+07		1.717399E+07	1.715075E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
91	1	70	67	47E+07		1.703542E+07	1.697240E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
92	1	69	44	19E+07		1.688795E+07	1.685984E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
93	1	68	31	72E+07		1.680370E+07	1.67758E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
94	1	67	19	15E+07		1.669094E+07	1.666272E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
95	1	66	64	48E+07		1.657826E+07	1.655024E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
96	1	64	66	17E+07		1.646617E+07	1.646578E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
97	2	1	64	66	17E+07	2	1.646578E+07	1.646578E+07	1.208457E+07	1.208457E+07	1.205660E+07
98	1	64	37	77E+07		1.643728E+07	1.640246E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
99	1	44	03	89E+07		1.434969E+07	1.434273E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
100	1	43	14	29E+07		1.434072E+07	1.434052E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
101	2	1	43	40	33E+07	1.433995E+07	1.433033E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
102	1	43	12	00E+07		1.428415E+07	1.428280E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
103	1	42	00	11E+07		1.417197E+07	1.414383E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
104	1	42	00	11E+07		1.417197E+07	1.414383E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07
105	1	40	87	45E+07		1.405931E+07	1.403126E+07	1.208457E+07	1.208457E+07	1.208457E+07	1.205660E+07

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

85 46* 0.000000E+00
 86 35* 0.000000E+00 7* 6.516987E+01 1* 0.000000E+00 7* 6.516987E+01
 87 46* 0.000000E+00
 88 96* 0.000000E+00
 89 96* 0.000000E+00
 90 96* 0.000000E+00
 91 96* 0.000000E+00
 92 DSATLIM, DPRESLIM, SATLIMIT
 93 2.0000E-01 -1.0000E+08 1.0000E-03
 94 SATNORM, PRESNORM: NOMINAL CHANGE DEPENDENT VARIABLE
 95 3.0000E-01 5.0000E+05
 96 MAXIMUM ALLOWABLE VARIABLE CHANGES: DSAT_MAX DPRES_MAX
 97 1.0000E+00 1.0000E+07
 98 CONVERGENCE TEST FLAG: 0=OR/I=AND
 99 1
 00 EPS_SAT, EPS_PRES: NORMAL CONVERGENCE CRITERIA
 01 3.0000E+00 1.0000E-02
 02 EPS_SAT, EPS_PRES: RELAXED CONVERGENCE CRITERIA
 03 3.0000E+00 1.0000E-02
 04 FTOL_SAT FTOL_PRES: NORMAL RESIDUAL TOLERANCE
 05 1.0000E-02 1.0000E-02
 06 FTOL_SAT FTOL_PRES: RELAXED RESIDUAL TOLERANCE
 07 1.0000E-02 1.0000E-02
 08 GAS TRANSPORT TOLERANCES
 09 1.0000E-05 1.0000E-05 1.0000E-05 1.0000E-05
 10 LINEAR EQUATION SOLVER TYPE
 11 LU
 12 ITMAX, IRESETMAX, IJACINT, LSCALE, P_SCALE, LVARSWITCH
 13 8 40 1 T 1.0000E+07 F
 14 IUPRPFLAG, IUPMFLAG, DT_REDU, ITRAVE, IMFRAVE
 15 9 9 2.5000E-01 1 0
 16 IJACSWITCH, IJACMIN, IJACRESET, IUPRPLOOSE, IUPMFLOOSE
 17 41 1 5 9 9
 18 DHSAT_REL, DHPRES_REL: REL. CHANGE FOR JACOBIAN ELEMENT CALCS
 19 1.0000E-08 1.0000E-08
 20 DHSAT_MIN, DHPRES_MIN: MIN. CHANGE ALLOWED FOR JACOBIAN CALCS
 21 1.0000E-10 1.0000E-02
 22 NUMBER OF TIMES FOR SPECIFYING MATERIAL MAP
 23 7
 24 START TIME FOR MAP 1
 25 -1.5778E+08
 26 MATERIAL TYPE GRID MAP
 27 26* 1 44* 2 26* 3
 28 96* 4
 29 96* 4
 30 26* 5 44* 6 26* 7
 31 96* 8
 32 96* 8
 33 26* 9 44* 10 26* 11
 34 96* 12
 35 96* 12
 36 96* 12
 37 26* 13 44* 14 26* 15
 38 96* 16
 39 96* 16
 40 96* 16

841 26* 17 44* 18 26* 19
 842 96* 20
 843 96* 20
 844 96* 20
 845 26* 21 44* 22 26* 23
 846 96* 24
 847 96* 24
 848 96* 24
 849 26* 25 44* 26 26* 27
 850 96* 28
 851 96* 29
 852 35* 29 24* 37 37* 29
 853 35* 30 7* 34 1* 36 7* 34 1* 36 4* 30 1* 36 40* 30
 854 35* 29 7* 34 1* 36 7* 34 1* 36 4* 35 1* 36 3* 35 37* 29
 855 35* 29 7* 34 1* 36 7* 34 1* 36 4* 35 1* 36 3* 35 37* 29
 856 35* 31 7* 34 1* 36 7* 34 1* 36 4* 31 1* 36 40* 31
 857 55* 29 1* 36 40* 29
 858 55* 29 1* 36 40* 29
 859 55* 32 1* 36 40* 32
 860 55* 33 1* 36 40* 33
 861 START TIME FOR MAP 2
 862 0.0000E+00
 863 MATERIAL TYPE GRID MAP
 864 26* 1 44* 2 26* 3
 865 96* 4
 866 96* 4
 867 26* 5 44* 6 26* 7
 868 96* 8
 869 96* 8
 870 26* 9 44* 10 26* 11
 871 96* 12
 872 96* 12
 873 96* 12
 874 26* 13 44* 14 26* 15
 875 96* 16
 876 96* 16
 877 96* 16
 878 26* 17 44* 18 26* 19
 879 96* 20
 880 96* 20
 881 96* 20
 882 26* 21 44* 22 26* 23
 883 96* 24
 884 96* 24
 885 96* 24
 886 7* 25 1* 55 18* 25 44* 26 18* 27 1* 55 7* 27
 887 7* 28 1* 53 80* 28 1* 53 7* 28
 888 7* 29 1* 53 80* 29 1* 53 7* 29
 889 7* 29 1* 53 27* 29 24* 38 29* 29 1* 53 7* 29
 890 7* 30 1* 53 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 53 7* 30
 891 7* 29 1* 53 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 53 7* 29
 892 7* 29 1* 53 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 45 3* 42 29* 29 1* 53 7* 29
 893 7* 31 1* 53 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 45 32* 31 1* 53 7* 31
 894 7* 29 1* 53 47* 29 1* 45 32* 29 1* 53 7* 29
 895 7* 29 1* 53 47* 29 1* 47 32* 29 1* 53 7* 29
 896 55* 32 1* 44 40* 32

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

97 55* 39 1* 44 40* 39
98 START TIME FOR MAP 3
99 1.5778E+09
00 MATERIAL TYPE GRID MAP
01 26* 1 44* 2 26* 3
02 96* 4
03 96* 4
04 26* 5 44* 6 26* 7
05 96* 8
06 96* 8
07 26* 9 44* 10 26* 11
08 96* 12
09 96* 12
10 96* 12
11 26* 13 44* 14 26* 15
12 96* 16
13 96* 16
14 96* 16
15 26* 17 44* 18 26* 19
16 96* 20
17 96* 20
18 96* 20
19 26* 21 44* 22 26* 23
20 96* 24
21 96* 24
22 96* 24
23 7* 25 1* 56 18* 25 44* 26 18* 27 1* 56 7* 27
24 7* 28 1* 57 80* 28 1* 57 7* 28
25 7* 29 1* 57 80* 29 1* 57 7* 29
26 7* 29 1* 57 27* 29 24* 38 29* 29 1* 57 7* 29
27 7* 30 1* 57 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 57 7* 30
28 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 57 7* 29
29 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 57 7* 29
30 7* 31 1* 57 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 57 7* 31
31 7* 29 1* 57 47* 29 1* 46 32* 29 1* 57 7* 29
32 7* 29 1* 57 47* 29 1* 48 32* 29 1* 57 7* 29
33 7* 32 1* 56 47* 32 1* 44 32* 32 1* 56 7* 32
34 7* 39 1* 56 47* 39 1* 44 32* 39 1* 56 7* 39
35 START TIME FOR MAP 4
36 3.1557E+09
37 MATERIAL TYPE GRID MAP
38 26* 1 44* 2 26* 3
39 96* 4
40 96* 4
41 26* 5 44* 6 26* 7
42 96* 8
43 96* 8
44 26* 9 44* 10 26* 11
45 96* 12
46 96* 12
47 96* 12
48 26* 13 44* 14 26* 15
49 96* 16
50 96* 16
51 96* 16
52 26* 17 44* 18 26* 19

953 96* 20
954 96* 20
955 96* 20
956 26* 21 44* 22 26* 23
957 96* 24
958 96* 24
959 96* 24
960 7* 25 1* 56 18* 25 44* 26 18* 27 1* 56 7* 27
961 7* 28 1* 57 80* 28 1* 57 7* 28
962 7* 29 1* 57 80* 29 1* 57 7* 29
963 7* 29 1* 57 27* 29 24* 38 29* 29 1* 57 7* 29
964 7* 30 1* 57 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 57 7* 30
965 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 57 7* 29
966 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 57 7* 29
967 7* 31 1* 57 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 57 7* 31
968 7* 29 1* 57 47* 29 1* 46 32* 29 1* 57 7* 29
969 7* 29 1* 57 47* 29 1* 49 32* 29 1* 57 7* 29
970 7* 32 1* 56 47* 32 1* 44 32* 32 1* 56 7* 32
971 7* 39 1* 56 47* 39 1* 44 32* 39 1* 56 7* 39
972 START TIME FOR MAP 5
973 6.3114E+09
974 MATERIAL TYPE GRID MAP
975 26* 1 44* 2 26* 3
976 96* 4
977 96* 4
978 26* 5 44* 6 26* 7
979 96* 8
980 96* 8
981 26* 9 44* 10 26* 11
982 96* 12
983 96* 12
984 96* 12
985 26* 13 44* 14 26* 15
986 96* 16
987 96* 16
988 96* 16
989 26* 17 44* 18 26* 19
990 96* 20
991 96* 20
992 96* 20
993 26* 21 44* 22 26* 23
994 96* 24
995 96* 24
996 96* 24
997 7* 25 1* 56 18* 25 44* 26 18* 27 1* 56 7* 27
998 7* 28 1* 57 80* 28 1* 57 7* 28
999 7* 29 1* 57 80* 29 1* 57 7* 29
1000 7* 29 1* 57 27* 29 24* 38 29* 29 1* 57 7* 29
1001 7* 30 1* 57 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 57 7* 30
1002 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 57 7* 29
1003 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 57 7* 29
1004 7* 31 1* 57 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 57 7* 31
1005 7* 29 1* 57 47* 29 1* 46 32* 29 1* 57 7* 29
1006 7* 29 1* 57 47* 29 1* 50 32* 29 1* 57 7* 29
1007 7* 32 1* 56 47* 32 1* 44 32* 32 1* 56 7* 32
1008 7* 39 1* 56 47* 39 1* 44 32* 39 1* 56 7* 39

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09 START TIME FOR MAP 6
10 7.8892E+09
11 MATERIAL TYPE GRID MAP
12 26* 1 44* 2 26* 3
13 96* 4
14 96* 4
15 26* 5 44* 6 26* 7
16 96* 8
17 96* 8
18 26* 9 44* 10 26* 11
19 96* 12
20 96* 12
21 96* 12
22 26* 13 44* 14 26* 15
23 96* 16
24 96* 16
25 96* 16
26 26* 17 44* 18 26* 19
27 96* 20
28 96* 20
29 96* 20
30 26* 21 44* 22 26* 23
31 96* 24
32 96* 24
33 96* 24
34 7* 25 1* 54 18* 25 44* 26 18* 27 1* 54 7* 27
35 7* 28 1* 52 80* 28 1* 52 7* 28
36 7* 29 1* 52 80* 29 1* 52 7* 29
37 7* 29 1* 52 27* 29 24* 38 29* 29 1* 52 7* 29
38 7* 30 1* 52 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 52 7* 30
39 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 52 7* 29
40 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 52 7* 29
41 7* 31 1* 52 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 52 7* 31
42 7* 29 1* 52 47* 29 1* 46 32* 29 1* 52 7* 29
43 7* 29 1* 52 47* 29 1* 50 32* 29 1* 52 7* 29
44 7* 32 1* 51 47* 32 1* 44 32* 32 1* 51 7* 32
45 7* 39 1* 51 47* 39 1* 44 32* 39 1* 51 7* 39
46 START TIME FOR MAP 7
47 3.9446E+10
48 MATERIAL TYPE GRID MAP
49 26* 1 44* 2 26* 3
50 96* 4
51 96* 4
52 26* 5 44* 6 26* 7
53 96* 8
54 96* 8
55 26* 9 44* 10 26* 11
56 96* 12
57 96* 12
58 96* 12
59 26* 13 44* 14 26* 15
60 96* 16
61 96* 16
62 96* 16
63 26* 17 44* 18 26* 19
64 96* 20
    
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1065 96* 20
1066 96* 20
1067 26* 21 44* 22 26* 23
1068 96* 24
1069 96* 24
1070 96* 24
1071 7* 25 1* 54 18* 25 44* 26 18* 27 1* 54 7* 27
1072 7* 28 1* 52 80* 28 1* 52 7* 28
1073 7* 29 1* 58 80* 29 1* 58 7* 29
1074 7* 29 1* 58 27* 29 24* 38 29* 29 1* 58 7* 29
1075 7* 30 1* 52 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 52 7* 30
1076 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 52 7* 29
1077 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 52 7* 29
1078 7* 31 1* 52 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 52 7* 31
1079 7* 29 1* 52 47* 29 1* 46 32* 29 1* 52 7* 29
1080 7* 29 1* 52 47* 29 1* 50 32* 29 1* 52 7* 29
1081 7* 32 1* 51 47* 32 1* 44 32* 32 1* 51 7* 32
1082 7* 39 1* 51 47* 39 1* 44 32* 39 1* 51 7* 39
1083 # NAME
1084 1 MORRO_P1
1085 2 MORRO_P2
1086 3 MORRO_P3
1087 4 MORRO_NP
1088 5 ATOKA_P1
1089 6 ATOKA_P2
1090 7 ATOKA_P3
1091 8 ATOKA_NP
1092 9 STRWN_P1
1093 10 STRWN_P2
1094 11 STRWN_P3
1095 12 STRWN_NP
1096 13 BONES_P1
1097 14 BONES_P2
1098 15 BONES_P3
1099 16 BONES_NP
1100 17 LBRSH_P1
1101 18 LBRSH_P2
1102 19 LBRSH_P3
1103 20 UBRSH_NP
1104 21 UBRSH_P1
1105 22 UBRSH_P2
1106 23 UBRSH_P3
1107 24 LBELL_NP
1108 25 UBELL_P1
1109 26 UBELL_P2
1110 27 UBELL_P3
1111 28 CASTLER
1112 29 S_HALITE
1113 30 S_MB139
1114 31 S_MB138
1115 32 UNNAMED
1116 33 IMPERM_Z
1117 34 CAVITY_2
1118 35 CAVITY_3
1119 36 CAVITY_4
1120 37 DRZ_0
    
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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

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21 38 DRZ_I
22 39 CULEBRA
23 40 WAS_AREA
24 41 OPS_AREA
25 42 EXP_AREA
26 43 PAN_SEAL
27 44 CLAY_RUS
28 45 CL_L_T1
29 46 CL_L_T4
30 47 SALT_T1
31 48 SALT_T4
32 49 SALT_T5
33 50 SALT_T6
34 51 BH_SUR_A
35 52 BH_SLT_A
36 53 BH_SLT_L
37 54 BH_LOW_A
38 55 BH_LOW_L
39 56 CONC_PLG
40 57 BH_OPEN
41 58 BH_CREEP
42 NWST
43 1
44 MAT_WASTE| MAT_WASTE
45 34
46 40
47 NDRZ
48 0
49 NMATRESET
50 3
51 MATRESET
52 34 35 36
53 BORE HOLE MATERIAL NUMBER
54 0
55 RESET TIME, ICWASTE
56 0.0000E+00 1
57 POWASTEIC
58 1.013250E+05
59 SOWASTEIC
60 0.000000E+00
61 PRESDRZ
62
63 # LAMBDA SOR SGR
64 1 7.000000E-01 2.000000E-01 1.000000E-02
65 2 7.000000E-01 2.000000E-01 1.000000E-02
66 3 7.000000E-01 2.000000E-01 1.000000E-02
67 4 7.000000E-01 2.000000E-01 1.000000E-02
68 5 7.000000E-01 2.000000E-01 1.000000E-02
69 6 7.000000E-01 2.000000E-01 1.000000E-02
70 7 7.000000E-01 2.000000E-01 1.000000E-02
71 8 7.000000E-01 2.000000E-01 1.000000E-02
72 9 7.000000E-01 2.000000E-01 1.000000E-02
73 10 7.000000E-01 2.000000E-01 1.000000E-02
74 11 7.000000E-01 2.000000E-01 1.000000E-02
75 12 7.000000E-01 2.000000E-01 1.000000E-02
76 13 7.000000E-01 2.000000E-01 1.000000E-02
    
```

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1177 14 7.000000E-01 2.000000E-01 1.000000E-02
1178 15 7.000000E-01 2.000000E-01 1.000000E-02
1179 16 7.000000E-01 2.000000E-01 1.000000E-02
1180 17 7.000000E-01 2.000000E-01 1.000000E-02
1181 18 7.000000E-01 2.000000E-01 1.000000E-02
1182 19 7.000000E-01 2.000000E-01 1.000000E-02
1183 20 7.000000E-01 2.000000E-01 1.000000E-02
1184 21 7.000000E-01 2.000000E-01 1.000000E-02
1185 22 7.000000E-01 2.000000E-01 1.000000E-02
1186 23 7.000000E-01 2.000000E-01 1.000000E-02
1187 24 7.000000E-01 2.000000E-01 1.000000E-02
1188 25 7.000000E-01 2.000000E-01 1.000000E-02
1189 26 7.000000E-01 2.000000E-01 1.000000E-02
1190 27 7.000000E-01 2.000000E-01 1.000000E-02
1191 28 7.000000E-01 2.000000E-01 2.000000E-01
1192 29 7.000000E-01 3.000000E-01 2.000000E-01
1193 30 6.436000E-01 8.363000E-02 7.711000E-02
1194 31 6.436000E-01 8.363000E-02 7.711000E-02
1195 32 7.000000E-01 2.000000E-01 2.000000E-01
1196 33 7.000000E-01 0.000000E+00 0.000000E+00
1197 34 7.000000E-01 0.000000E+00 0.000000E+00
1198 35 7.000000E-01 0.000000E+00 0.000000E+00
1199 36 7.000000E-01 0.000000E+00 0.000000E+00
1200 37 7.000000E-01 0.000000E+00 0.000000E+00
1201 38 7.000000E-01 0.000000E+00 0.000000E+00
1202 39 6.436000E-01 8.363000E-02 7.711000E-02
1203 40 2.890000E+00 2.760000E-01 7.500000E-02
1204 41 7.000000E-01 0.000000E+00 0.000000E+00
1205 42 7.000000E-01 0.000000E+00 0.000000E+00
1206 43 9.400000E-01 2.000000E-01 2.000000E-01
1207 44 9.400000E-01 2.000000E-01 2.000000E-01
1208 45 9.400000E-01 2.000000E-01 2.000000E-01
1209 46 9.400000E-01 2.000000E-01 2.000000E-01
1210 47 9.400000E-01 2.000000E-01 2.000000E-01
1211 48 9.400000E-01 2.000000E-01 2.000000E-01
1212 49 9.400000E-01 2.000000E-01 2.000000E-01
1213 50 9.400000E-01 2.000000E-01 2.000000E-01
1214 51 9.400000E-01 0.000000E+00 0.000000E+00
1215 52 9.400000E-01 0.000000E+00 0.000000E+00
1216 53 9.400000E-01 0.000000E+00 0.000000E+00
1217 54 9.400000E-01 0.000000E+00 0.000000E+00
1218 55 9.400000E-01 0.000000E+00 0.000000E+00
1219 56 9.400000E-01 0.000000E+00 0.000000E+00
1220 57 7.000000E-01 0.000000E+00 0.000000E+00
1221 58 9.400000E-01 0.000000E+00 0.000000E+00
1222 # SBMIN PBMIN PCMAX PCT_A PCT_EXP KRP KPC KTP
1223 1 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1224 2 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1225 3 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1226 4 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1227 5 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1228 6 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1229 7 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1230 8 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1231 9 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1232 10 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
    
```

```

33 11 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
34 12 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
35 13 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
36 14 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
37 15 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
38 16 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
39 17 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
40 18 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
41 19 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
42 20 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
43 21 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
44 22 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
45 23 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
46 24 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
47 25 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
48 26 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
49 27 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
50 28 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
51 29 3.150000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
52 30 8.781150E-02 1.013250E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
53 31 8.781150E-02 1.013250E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
54 32 2.100000E-01 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
55 33 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
56 34 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
57 35 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
58 36 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
59 37 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
60 38 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
61 39 8.781150E-02 1.013250E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
62 40 2.898000E-01 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
63 41 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
64 42 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
65 43 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
66 44 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
67 45 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
68 46 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
69 47 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
70 48 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
71 49 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
72 50 2.100000E-01 1.013250E+05 1.000000E+08 5.600000E-01 -3.460000E-01 4 2 0
73 51 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
74 52 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
75 53 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
76 54 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
77 55 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
78 56 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
79 57 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 5 1 0
80 58 0.000000E+00 1.013250E+05 1.000000E+08 0.000000E+00 0.000000E+00 4 1 0
81 # PERMX PERMY PERMZ POROSITY COMPRES
82 1 2.060631E-14 2.060626E-20 2.060631E-14 1.100000E-01 3.015400E-10
83 2 2.060631E-14 2.060626E-20 2.060631E-14 1.100000E-01 3.015400E-10
84 3 2.060631E-14 2.060626E-20 2.060631E-14 1.100000E-01 3.015400E-10
85 4 1.778279E-16 1.778279E-20 1.778279E-16 4.000000E-02 3.081300E-10
86 5 2.060631E-14 2.060626E-20 2.060631E-14 9.000000E-02 3.149400E-10
87 6 2.060631E-14 2.060626E-20 2.060631E-14 9.000000E-02 3.149400E-10
88 7 2.060631E-14 2.060626E-20 2.060631E-14 9.000000E-02 3.149400E-10
    
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1289 8 1.778279E-16 1.778279E-20 1.778279E-16 1.000000E-02 3.216200E-10
1290 9 2.060631E-14 2.060626E-20 2.060631E-14 1.000000E-01 3.286300E-10
1291 10 2.060631E-14 2.060626E-20 2.060631E-14 1.000000E-01 3.286300E-10
1292 11 2.060631E-14 2.060626E-20 2.060631E-14 1.000000E-01 3.286300E-10
1293 12 1.778279E-16 1.778279E-20 1.778279E-16 2.000000E-02 3.699000E-10
1294 13 2.060631E-14 2.060626E-20 2.060631E-14 1.150000E-01 4.232100E-10
1295 14 2.060631E-14 2.060626E-20 2.060631E-14 1.150000E-01 4.232100E-10
1296 15 2.060631E-14 2.060626E-20 2.060631E-14 1.150000E-01 4.232100E-10
1297 16 1.778279E-16 1.778279E-20 1.778279E-16 1.400000E-01 4.575600E-10
1298 17 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 4.976500E-10
1299 18 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 4.976500E-10
1300 19 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 4.976500E-10
1301 20 9.862783E-17 9.862783E-20 9.862783E-17 1.400000E-01 5.449300E-10
1302 21 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 6.019500E-10
1303 22 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 6.019500E-10
1304 23 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 6.019500E-10
1305 24 9.862783E-17 9.862783E-20 9.862783E-17 1.400000E-01 6.767300E-10
1306 25 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 7.947600E-10
1307 26 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 7.947600E-10
1308 27 1.267651E-13 1.267654E-20 1.267651E-13 2.900000E-01 7.947600E-10
1309 28 9.999999E-19 1.000000E-19 9.999999E-19 8.700000E-03 1.149425E-08
1310 29 3.162278E-23 3.162278E-23 3.162278E-23 1.000000E-02 9.750000E-09
1311 30 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
1312 31 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
1314 33 9.999999E-36 9.999999E-36 9.999999E-36 5.000000E-03 0.000000E+00
1315 34 1.000000E-10 1.000000E-10 1.000000E-10 1.000000E+00 0.000000E+00
1316 35 1.000000E-10 1.000000E-10 1.000000E-10 1.000000E+00 0.000000E+00
1317 36 1.000000E-10 1.000000E-10 1.000000E-10 1.000000E+00 0.000000E+00
1318 37 9.999999E-18 9.999999E-18 9.999999E-18 1.290000E-02 5.744186E-08
1319 38 1.000000E-15 1.000000E-15 1.000000E-15 1.290000E-02 5.744186E-08
1320 39 2.098938E-14 2.098938E-14 2.098938E-14 1.510000E-01 6.622517E-10
1321 40 1.702158E-13 1.702158E-13 1.702158E-13 8.480000E-01 0.000000E+00
1322 41 1.000000E-11 1.000000E-11 1.000000E-11 1.800000E-01 0.000000E+00
1323 42 1.000000E-11 1.000000E-11 1.000000E-11 1.800000E-01 0.000000E+00
1324 43 1.000000E-15 1.000000E-15 1.000000E-15 7.500000E-02 2.640000E-09
1325 44 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.960000E-09
1326 45 5.966457E-19 5.966457E-19 5.966457E-19 2.400000E-01 1.590000E-09
1327 46 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.590000E-09
1328 47 1.808153E-15 1.808153E-15 1.808153E-15 5.000000E-02 1.600000E-09
1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
1330 49 5.269869E-20 5.269869E-20 5.269869E-20 5.000000E-02 1.600000E-09
1331 50 5.350560E-21 5.350560E-21 5.350560E-21 5.000000E-02 1.600000E-09
1332 51 3.162278E-13 6.454208E-13 3.162278E-13 3.200000E-01 0.000000E+00
1333 52 3.162278E-13 3.162278E-13 3.162278E-13 3.200000E-01 0.000000E+00
1334 53 3.162278E-13 1.210204E-13 3.162278E-13 3.200000E-01 0.000000E+00
1335 54 3.162278E-13 7.586304E-14 3.162278E-13 3.200000E-01 0.000000E+00
1336 55 3.162278E-13 3.320391E-14 3.162278E-13 3.200000E-01 0.000000E+00
1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
1339 58 3.162278E-14 3.162278E-14 3.162278E-14 3.200000E-01 0.000000E+00
1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
1341 T
1342 NFRAC
1343 2
1344 # DELTA_PI DELTA_PF FRAC_PHI FRAC_EXP IFRX IFRY IFRZ
    
```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix O -- BRAGFLO_WATFLD_BASE01_R001.INP (BRAGFLO) File Listing

```

5 30 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
6 31 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
7 KLINKENBERG EFFECT TO BE USED? True or False
8 T
9 BKLINK EXPKLINK
10 2.71000E-01 -3.41000E-01
11 REFERENCE TEMPERATURE AND PRESSURE FOR DENSITY CALCULATIONS
12 3.00150E+02 1.01325E+05
13 SALT(WT.%) DEN_BR KGSAT IDGAS COMPR_BR
14 3.2400E+01 1.2200E+03 1 0 3.1000E-10
15 VISC_BR VISC_GAS
16 2.10000E-03 8.93389E-06
17 GAS DENSITY DATA: =0 COMPUTE; =1 INTERPOLATE
18 1
19 GAS MOLE FRACTIONS FOR H2, CO2, CH4, N2, H2S, AND O2
20 1.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 1 1
21 IGASVAR (2= REACTION PATH, 1= USING AVG. STOICH., 0= USING WELLS)
22 1
23 RATE CONSTANTS: CORROSION (RKCOR) AND BIODEGRADATION (RKBIO)
24 1.6297E-07 3.2031E-07
25 HUMIDITY FACTORS: HUMFAC_COR, HUMFAC_BIO
26 0.0000E+00 1.2903E-01
27 SCOR_H2=a,SCOR_H2O=b,SCOR_FE=c: where b*H2O + c*FE=> a*H2 + inert solids
28 1.0000E+00 2.0000E+00 1.0000E+00

```

```

1369 SBIO_GAS=a,SBIO_H2O=b,SBIO_CH2O=c: where b*H2O + c*CH2O=> a*GAS + inerts
1370 7.5465E-01 0.0000E+00 1.0000E+00
1371 WICKING SATURATION, HUMID RATE SMOOTHING ALPHARXN
1372 5.0000E-01 T 1.0000E+03
1373 CREEP CLOSURE?
1374 T
1375 NKLOS, KLOSINT (0=MOLES,1=PRESSURE) KLOSAVE (1=REGION AVE,2=CELL)
1376 1 1 2
1377 CLOSURE PARAMETERS: PRES_LITHO, TIME_OFF PERM_FACTOR, PERM_EXP
1378 4 5.0000E+07 3.1557E+12 1.7022E-13 0.0000E+00
1379 NUMBER OF MATERIAL REGIONS FOR CLOSURE
1380 1
1381 # MAT NO. MODEL 1= WASTE-NOBACKFILL, 2=DRIFT-NOBACKFILL, 3=WASTE-BACKFILL
1382 4=JAN_96:WASTE-NOBACKFILL
1383 1 40 4
1384 WILL RADIONUCLIDE DECAY BE CALCULATED? T or F
1385 F
1386 WILL TRANSPORT BE CALCULATED? T or F
1387 F
1388 WILL RADIOLYSIS BE CALCULATED? T or F
1389 F
1390 BRAGFLO GAS COMPONENT TRANSPORT MODEL
1391 F

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix P -- BRAGFLO_WATFLD_YATES01_R002.INP (BRAGFLO) File Listing

```

1 **QA** = PREBRAG QA RECORDS
2 PREBRAG_ = PROGRAM NAME
3 6.00 = PROGRAM VERSION
4 02/06/96 = PROGRAM REVISION DATE
5 06/18/96 = PROGRAM RUN DATE
6 15:20:35 = PROGRAM RUN TIME
7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
8 FILE FLAGS...ASCII, BINARY, SUMMARY, RESTART OUT, RESTART INPUT
9 T T T T F
0 MODEL TYPE AND NUMBER OF GRID BLOCKS IN X, Y, AND Z
1 2 96 34 1
2 TSTART, TMAX, MAXSTEPS
3 -1.5778E+08 3.1557E+11 10000
4 DT_INIT, DT_MIN, DT_MAX, DT_INCR, IAUTODT, TSWITCH
5 8.6400E+00 8.6400E-04 3.1557E+08 1.2500E+00 1 1.0000E+00
6 TIME-STEP CHANGES: NUMBER OF CHANGES, TIME OF CHANGE, DELT USED
7 6
8 0.0000E+00 8.6400E+02
9 1.5778E+09 8.6400E+02
10 3.1557E+09 8.6400E+02
11 6.3114E+09 8.6400E+02
12 7.8892E+09 8.6400E+02
13 3.9446E+10 8.6400E+02
14 IPRTYPEASC IPRTYPEBIN IPRTYPERST UNITSI UNITSO
15 2 0 2 'SI' 'SI'
16 ASCII PRINTOUT CONTROLLED BY USER SPECIFIED TIMES
17 2
18 USER REQUESTED PRINTOUT TIMES
19 0.0000E+00 3.1557E+11
20 BINARY PRINTOUT CONTROLLED BY STEP INTERVAL, IPRNTBIN
21 40
22 RESTART PRINTOUT CONTROLLED BY USER SPECIFIED TIMES
23 3
24 USER REQUESTED RESTART TIMES
25 0.0000E+00 3.1557E+09 3.1557E+10
26 ASCII PRINT FLAGS
27 11000 10000 00000 00100 00000
28 00000 00000 00000 00000 01100
29 00000 00000 00000 00000 00000
30 00000 00000 00000 00000
31 000
32 0
33 0
34 0
35 BINARY PRINT FLAGS
36 11000 10001 10010 00100 00000
37 00000 11011 00000 00010 01100
38 00000 00000 00000 00000 00000
39 00000 00000 00000 00000
40 000
41 0
42 0
43 0
44 HISTORY VARIABLE OUTPUT
45 6
46 21 4 NAME=TIME-AVERAGE WELL BRINE FLOW RATE
    
```

```

57 8 23 1 89 23 1 8 34 1 89 34 1
58 22 2 NAME=TIME-AVERAGE WELL GAS FLOW RATE
59 8 34 1 89 34 1
60 31 10 NAME=TIME-AVERAGE INTERBLOCK BRINE FLOW, X-DIRECTION
61 9 27 1 9 30 1 9 34 1 89 27 1 89 30 1 89 34 1
62 36 27 1 36 30 1 60 27 1 60 30 1
63 32 2 NAME=TIME-AVERAGE INTERBLOCK BRINE FLOW, Y-DIRECTION
64 56 34 1 56 31 1
65 34 10 NAME=TIME-AVERAGE INTERBLOCK GAS FLOW, X-DIRECTION
66 9 27 1 9 30 1 9 34 1 89 27 1 89 30 1 89 34 1
67 36 27 1 36 30 1 60 27 1 60 30 1
68 35 2 NAME=TIME-AVERAGE INTERBLOCK GAS FLOW, Y-DIRECTION
69 56 34 1 56 31 1
70 MONITOR PARAMETER VALUES AT GRIDBLOCK(S)
71 T
72 NUMBER OF MONITOR BLOCKS
73 4
74 MONITOR BLOCKS (I,J,K)
75 47 23 1
76 9 27 1
77 46 28 1
78 57 30 1
79 GRID DATA FLAGS: IDXFLAG, IDYFLAG, IDZFLAG, IDEPTHFLAG
80 1 2 1 7
81 GRID DATA CARDS: GRID BLOCK DX'S
82 2.011700E+02 1.310600E+02 5.486400E+01 1.097300E+01 2.743200E+00 9.144000E-01
83 4.540300E-01 3.111700E-01 4.540300E-01 9.144000E-01 2.743200E+00 1.097300E+01
84 5.486400E+01 1.310600E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
85 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
86 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
87 1.341100E+02 6.096000E+01 4.876800E+01 1.828800E+01 6.096000E+00 6.096000E+00
88 1.219200E+01 2.438400E+01 5.486400E+01 2.438400E+01 1.219200E+01 4.479000E+00
89 2.038100E+00 4.479000E+00 1.219200E+01 2.438400E+01 4.876800E+01 3.048000E+01
90 1.219200E+01 6.096000E+00 4.076200E+00 1.000000E+01 3.828300E+01 5.000000E+00
91 9.999900E-01 2.160100E-01 9.999900E-01 8.000000E+00 4.471100E+01 1.117500E+02
92 1.117500E+02 1.973300E+02 1.973300E+02 1.973300E+02 1.341100E+02 1.341100E+02
93 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
94 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02
95 1.341100E+02 1.341100E+02 1.341100E+02 1.341100E+02 1.310600E+02 5.486400E+01
96 1.097300E+01 2.743200E+00 9.144000E-01 4.540300E-01 3.111700E-01 4.540300E-01
97 9.144000E-01 2.743200E+00 1.097300E+01 5.486400E+01 1.310600E+02 2.011700E+02
98 GRID DATA CARDS: GRID BLOCK DY'S
99 8.138200E+00 5.371540E+02 9.144000E+01 5.943600E+00 8.549600E+01 1.066800E+02
100 7.193300E+00 7.193300E+01 8.406100E+02 1.013500E+02 1.013500E+01 1.013500E+02
101 3.609600E+02 6.096000E+01 6.096000E+00 6.096000E+01 4.114800E+02 4.572000E+01
102 4.572000E+00 4.572000E+01 2.590800E+02 2.426200E+02 1.124700E+02 3.810000E+01
103 1.168000E+02 5.117600E+00 8.500000E-01 1.331000E+00 1.331000E+00 4.500000E-01
104 1.452500E+02 2.500000E+02 3.600000E+01 7.700000E+00
105 GRID DATA CARDS: GRID BLOCK DZ'S
106 4.023360E+02 2.130553E+02 6.702860E+01 1.532080E+01 4.548500E+00 1.675700E+00
107 6.010000E-01 2.444000E-01 6.010000E-01 1.675700E+00 4.548500E+00 1.532080E+01
108 6.702860E+01 2.130553E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
109 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
110 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
111 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
112 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
    
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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix P -- BRAGFLO_WATFLD_YATES01_R002.INP (BRAGFLO) File Listing

3 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
4 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
5 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
6 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
7 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
8 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02
9 4.023360E+02 4.023360E+02 4.023360E+02 4.023360E+02 2.130553E+02 6.702860E+01
10 1.532080E+01 4.548500E+00 1.675700E+00 6.010000E-01 2.444000E-01 6.010000E-01
11 1.675700E+00 4.548500E+00 1.532080E+01 6.702860E+01 2.130553E+02 4.023360E+02
22 GRID BLOCK ELEVATIONS
23 96*-3.353511E+03
24 96*-3.080865E+03
25 96*-2.766568E+03
26 96*-2.717876E+03
27 96*-2.672156E+03
28 96*-2.576068E+03
29 96*-2.519132E+03
30 96*-2.479568E+03
31 96*-2.023297E+03
32 96*-1.552317E+03
33 96*-1.496574E+03
34 96*-1.440832E+03
35 96*-1.209677E+03
36 96*-9.987171E+02
37 96*-9.651889E+02
38 96*-9.316609E+02
39 96*-6.954409E+02
40 96*-4.668409E+02
41 96*-4.416949E+02
42 96*-4.165489E+02
43 96*-2.641489E+02
44 96*-1.329886E+01
45 96* 1.642461E+02
46 1* 1.827523E+02 1* 1.856515E+02 1* 1.872739E+02 1* 1.878484E+02
47 1* 1.879681E+02 1* 1.880000E+02 1* 1.880119E+02 1* 1.880186E+02
48 1* 1.880253E+02 1* 1.880372E+02 1* 1.880691E+02 1* 1.881888E+02
49 1* 1.887633E+02 1* 1.903857E+02 1* 1.926997E+02 1* 1.950402E+02
50 1* 1.973808E+02 1* 1.997213E+02 1* 2.020618E+02 1* 2.044024E+02
51 1* 2.067429E+02 1* 2.090835E+02 1* 2.114240E+02 1* 2.137645E+02
52 1* 2.161051E+02 1* 2.184456E+02 1* 2.207862E+02 1* 2.231267E+02
53 1* 2.254673E+02 1* 2.278078E+02 1* 2.301484E+02 1* 2.318506E+02
54 1* 2.328081E+02 1* 2.333932E+02 1* 2.336060E+02 1* 2.337124E+02
55 1* 2.338720E+02 1* 2.341912E+02 1* 2.348827E+02 1* 2.355742E+02
56 1* 2.358934E+02 1* 2.360389E+02 1* 2.360957E+02 1* 2.361526E+02
57 1* 2.362981E+02 1* 2.366173E+02 1* 2.372556E+02 1* 2.379471E+02
58 1* 2.383195E+02 1* 2.384791E+02 1* 2.385678E+02 1* 2.386907E+02
59 1* 2.391120E+02 1* 2.394897E+02 1* 2.395421E+02 1* 2.395527E+02
60 1* 2.395633E+02 1* 2.396418E+02 1* 2.401018E+02 1* 2.414671E+02
61 1* 2.434174E+02 1* 2.461145E+02 1* 2.495584E+02 1* 2.530023E+02
62 1* 2.558945E+02 1* 2.582350E+02 1* 2.605756E+02 1* 2.629161E+02
63 1* 2.652566E+02 1* 2.675972E+02 1* 2.699377E+02 1* 2.722783E+02
64 1* 2.746188E+02 1* 2.769593E+02 1* 2.792999E+02 1* 2.816404E+02
65 1* 2.839810E+02 1* 2.863215E+02 1* 2.886620E+02 1* 2.910026E+02
66 1* 2.933431E+02 1* 2.956837E+02 1* 2.979976E+02 1* 2.996200E+02
67 1* 3.001945E+02 1* 3.003142E+02 1* 3.003461E+02 1* 3.003581E+02
68 1* 3.003647E+02 1* 3.003714E+02 1* 3.003833E+02 1* 3.004153E+02

169 1* 3.005349E+02 1* 3.011095E+02 1* 3.027319E+02 1* 3.056310E+02
170 1* 2.601906E+02 1* 2.630897E+02 1* 2.647121E+02 1* 2.652866E+02
171 1* 2.654063E+02 1* 2.654382E+02 1* 2.654502E+02 1* 2.654568E+02
172 1* 2.654635E+02 1* 2.654755E+02 1* 2.655074E+02 1* 2.656270E+02
173 1* 2.662016E+02 1* 2.678240E+02 1* 2.701379E+02 1* 2.724785E+02
174 1* 2.748190E+02 1* 2.771595E+02 1* 2.795001E+02 1* 2.818406E+02
175 1* 2.841812E+02 1* 2.865217E+02 1* 2.888622E+02 1* 2.912028E+02
176 1* 2.935433E+02 1* 2.958839E+02 1* 2.982244E+02 1* 3.005650E+02
177 1* 3.029055E+02 1* 3.052460E+02 1* 3.075866E+02 1* 3.092888E+02
178 1* 3.102463E+02 1* 3.108315E+02 1* 3.110443E+02 1* 3.111506E+02
179 1* 3.113102E+02 1* 3.116294E+02 1* 3.123209E+02 1* 3.130125E+02
180 1* 3.133316E+02 1* 3.134771E+02 1* 3.135340E+02 1* 3.135909E+02
181 1* 3.137363E+02 1* 3.140555E+02 1* 3.146938E+02 1* 3.153853E+02
182 1* 3.157577E+02 1* 3.159173E+02 1* 3.160061E+02 1* 3.161289E+02
183 1* 3.165502E+02 1* 3.169279E+02 1* 3.169803E+02 1* 3.169909E+02
184 1* 3.170015E+02 1* 3.170800E+02 1* 3.175400E+02 1* 3.189053E+02
185 1* 3.208556E+02 1* 3.235527E+02 1* 3.269966E+02 1* 3.304405E+02
186 1* 3.333327E+02 1* 3.356732E+02 1* 3.380138E+02 1* 3.403543E+02
187 1* 3.426949E+02 1* 3.450354E+02 1* 3.473759E+02 1* 3.497165E+02
188 1* 3.520570E+02 1* 3.543976E+02 1* 3.567381E+02 1* 3.590786E+02
189 1* 3.614192E+02 1* 3.637597E+02 1* 3.661003E+02 1* 3.684408E+02
190 1* 3.707813E+02 1* 3.731219E+02 1* 3.754358E+02 1* 3.770582E+02
191 1* 3.776327E+02 1* 3.77524E+02 1* 3.777843E+02 1* 3.777963E+02
192 1* 3.778029E+02 1* 3.778096E+02 1* 3.778216E+02 1* 3.778535E+02
193 1* 3.779732E+02 1* 3.785477E+02 1* 3.801701E+02 1* 3.830692E+02
194 1* 3.211401E+02 1* 3.240392E+02 1* 3.256616E+02 1* 3.262361E+02
195 1* 3.263558E+02 1* 3.263878E+02 1* 3.263997E+02 1* 3.264064E+02
196 1* 3.264131E+02 1* 3.264250E+02 1* 3.264569E+02 1* 3.265766E+02
197 1* 3.271511E+02 1* 3.287735E+02 1* 3.310874E+02 1* 3.334280E+02
198 1* 3.357685E+02 1* 3.381091E+02 1* 3.404496E+02 1* 3.427901E+02
199 1* 3.451307E+02 1* 3.474712E+02 1* 3.498118E+02 1* 3.521523E+02
200 1* 3.544929E+02 1* 3.568334E+02 1* 3.591740E+02 1* 3.615145E+02
201 1* 3.638550E+02 1* 3.661956E+02 1* 3.685361E+02 1* 3.702383E+02
202 1* 3.711959E+02 1* 3.717810E+02 1* 3.719938E+02 1* 3.721002E+02
203 1* 3.722598E+02 1* 3.725789E+02 1* 3.732704E+02 1* 3.739620E+02
204 1* 3.742812E+02 1* 3.744266E+02 1* 3.744835E+02 1* 3.745404E+02
205 1* 3.746859E+02 1* 3.750050E+02 1* 3.756433E+02 1* 3.763349E+02
206 1* 3.767072E+02 1* 3.768669E+02 1* 3.769556E+02 1* 3.770784E+02
207 1* 3.774998E+02 1* 3.778774E+02 1* 3.779298E+02 1* 3.779404E+02
208 1* 3.779510E+02 1* 3.780296E+02 1* 3.784895E+02 1* 3.798549E+02
209 1* 3.818051E+02 1* 3.845023E+02 1* 3.879461E+02 1* 3.913900E+02
210 1* 3.942822E+02 1* 3.966228E+02 1* 3.989633E+02 1* 4.013039E+02
211 1* 4.036444E+02 1* 4.059849E+02 1* 4.083255E+02 1* 4.106660E+02
212 1* 4.130066E+02 1* 4.153471E+02 1* 4.176876E+02 1* 4.200282E+02
213 1* 4.223687E+02 1* 4.247093E+02 1* 4.270498E+02 1* 4.293903E+02
214 1* 4.317309E+02 1* 4.340714E+02 1* 4.363853E+02 1* 4.380078E+02
215 1* 4.385822E+02 1* 4.387019E+02 1* 4.387339E+02 1* 4.387458E+02
216 1* 4.387525E+02 1* 4.387592E+02 1* 4.387711E+02 1* 4.388030E+02
217 1* 4.389227E+02 1* 4.394972E+02 1* 4.411196E+02 1* 4.440187E+02
218 1* 3.241235E+02 1* 3.270226E+02 1* 3.286450E+02 1* 3.292195E+02
219 1* 3.293392E+02 1* 3.293711E+02 1* 3.293831E+02 1* 3.293897E+02
220 1* 3.293964E+02 1* 3.294083E+02 1* 3.294402E+02 1* 3.295599E+02
221 1* 3.301345E+02 1* 3.317569E+02 1* 3.340708E+02 1* 3.364113E+02
222 1* 3.387519E+02 1* 3.410924E+02 1* 3.434330E+02 1* 3.457735E+02
223 1* 3.481140E+02 1* 3.504546E+02 1* 3.527951E+02 1* 3.551357E+02
224 1* 3.574762E+02 1* 3.598168E+02 1* 3.621573E+02 1* 3.644978E+02

25	1* 3.668384E+02	1* 3.691789E+02	1* 3.715195E+02	1* 3.732217E+02	1* 3.872096E+02	1* 3.899067E+02	1* 3.933306E+02	1* 3.967945E+02	1* 3.967945E+02
26	1* 3.741792E+02	1* 3.747643E+02	1* 3.749771E+02	1* 3.750835E+02	1* 3.996867E+02	1* 4.020273E+02	1* 4.043678E+02	1* 4.067083E+02	1* 4.067083E+02
27	1* 3.752431E+02	1* 3.755623E+02	1* 3.762531E+02	1* 3.762531E+02	1* 4.090489E+02	1* 4.113894E+02	1* 4.137299E+02	1* 4.160705E+02	1* 4.160705E+02
28	1* 3.772645E+02	1* 3.774100E+02	1* 3.774699E+02	1* 3.775237E+02	1* 4.184110E+02	1* 4.207516E+02	1* 4.230921E+02	1* 4.254326E+02	1* 4.254326E+02
29	1* 3.776926E+02	1* 3.779884E+02	1* 3.786267E+02	1* 3.793182E+02	1* 4.277732E+02	1* 4.301137E+02	1* 4.324543E+02	1* 4.347948E+02	1* 4.347948E+02
30	1* 3.796906E+02	1* 3.798502E+02	1* 3.799390E+02	1* 3.800618E+02	1* 4.371353E+02	1* 4.417898E+02	1* 4.441431E+02	1* 4.464836E+02	1* 4.464836E+02
31	1* 3.804831E+02	1* 3.808608E+02	1* 3.809132E+02	1* 3.809238E+02	1* 4.439867E+02	1* 4.441064E+02	1* 4.441383E+02	1* 4.441503E+02	1* 4.441503E+02
32	1* 3.847885E+02	1* 3.874856E+02	1* 3.878529E+02	1* 3.882382E+02	1* 4.441570E+02	1* 4.441636E+02	1* 4.441756E+02	1* 4.442075E+02	1* 4.442075E+02
33	1* 3.879256E+02	1* 3.996607E+02	1* 4.019467E+02	1* 4.042872E+02	1* 4.443272E+02	1* 4.449017E+02	1* 4.465241E+02	1* 4.494232E+02	1* 4.494232E+02
34	1* 4.066277E+02	1* 4.089683E+02	1* 4.113088E+02	1* 4.136494E+02	1* 3.327435E+02	1* 3.303341E+02	1* 3.319565E+02	1* 3.325310E+02	1* 3.325310E+02
35	1* 4.159899E+02	1* 4.183304E+02	1* 4.206710E+02	1* 4.230115E+02	1* 3.326507E+02	1* 3.326826E+02	1* 3.326945E+02	1* 3.327012E+02	1* 3.327012E+02
36	1* 4.255213E+02	1* 4.276926E+02	1* 4.300331E+02	1* 4.323737E+02	1* 3.327099E+02	1* 3.327198E+02	1* 3.327517E+02	1* 3.328714E+02	1* 3.328714E+02
37	1* 4.347142E+02	1* 4.370548E+02	1* 4.393687E+02	1* 4.409911E+02	1* 3.334460E+02	1* 3.350684E+02	1* 3.373823E+02	1* 3.397228E+02	1* 3.397228E+02
38	1* 4.415656E+02	1* 4.416853E+02	1* 4.417172E+02	1* 4.417292E+02	1* 3.420634E+02	1* 3.444039E+02	1* 3.467444E+02	1* 3.490850E+02	1* 3.490850E+02
39	1* 4.417358E+02	1* 4.417425E+02	1* 4.417545E+02	1* 4.417864E+02	1* 3.514255E+02	1* 3.537661E+02	1* 3.561066E+02	1* 3.584472E+02	1* 3.584472E+02
40	1* 4.419061E+02	1* 4.424806E+02	1* 4.441030E+02	1* 4.470021E+02	1* 3.607877E+02	1* 3.631283E+02	1* 3.654688E+02	1* 3.678093E+02	1* 3.678093E+02
41	1* 3.252138E+02	1* 3.281129E+02	1* 3.297353E+02	1* 3.303098E+02	1* 3.701499E+02	1* 3.724904E+02	1* 3.748310E+02	1* 3.765332E+02	1* 3.765332E+02
42	1* 3.304295E+02	1* 3.304614E+02	1* 3.304734E+02	1* 3.304800E+02	1* 3.785546E+02	1* 3.788738E+02	1* 3.795653E+02	1* 3.783950E+02	1* 3.783950E+02
43	1* 3.304867E+02	1* 3.304987E+02	1* 3.305306E+02	1* 3.306503E+02	1* 3.805760E+02	1* 3.807215E+02	1* 3.807784E+02	1* 3.808352E+02	1* 3.808352E+02
44	1* 3.312248E+02	1* 3.328472E+02	1* 3.351611E+02	1* 3.375017E+02	1* 3.809807E+02	1* 3.812999E+02	1* 3.819382E+02	1* 3.826297E+02	1* 3.826297E+02
45	1* 3.398422E+02	1* 3.421827E+02	1* 3.448233E+02	1* 3.468638E+02	1* 3.830002E+02	1* 3.831617E+02	1* 3.832505E+02	1* 3.833733E+02	1* 3.833733E+02
46	1* 3.492044E+02	1* 3.515499E+02	1* 3.538855E+02	1* 3.562260E+02	1* 3.837946E+02	1* 3.843244E+02	1* 3.842247E+02	1* 3.842353E+02	1* 3.842353E+02
47	1* 3.585666E+02	1* 3.609071E+02	1* 3.632477E+02	1* 3.655882E+02	1* 3.881000E+02	1* 3.907971E+02	1* 3.942410E+02	1* 3.976849E+02	1* 3.976849E+02
48	1* 3.679287E+02	1* 3.702693E+02	1* 3.726098E+02	1* 3.743120E+02	1* 4.005771E+02	1* 4.029176E+02	1* 4.052581E+02	1* 4.075987E+02	1* 4.075987E+02
49	1* 3.752695E+02	1* 3.769547E+02	1* 3.785572E+02	1* 3.786141E+02	1* 4.099392E+02	1* 4.122798E+02	1* 4.146203E+02	1* 4.169608E+02	1* 4.169608E+02
50	1* 3.787595E+02	1* 3.790787E+02	1* 3.797170E+02	1* 3.804086E+02	1* 4.193014E+02	1* 4.216419E+02	1* 4.239825E+02	1* 4.263230E+02	1* 4.263230E+02
51	1* 3.807809E+02	1* 3.809405E+02	1* 3.810293E+02	1* 3.811521E+02	1* 4.286636E+02	1* 4.310041E+02	1* 4.334446E+02	1* 4.356852E+02	1* 4.356852E+02
52	1* 3.815735E+02	1* 3.819511E+02	1* 3.820033E+02	1* 3.820414E+02	1* 4.380257E+02	1* 4.403663E+02	1* 4.426802E+02	1* 4.443026E+02	1* 4.443026E+02
53	1* 3.820247E+02	1* 3.821033E+02	1* 3.823632E+02	1* 3.823285E+02	1* 4.448771E+02	1* 4.449968E+02	1* 4.450287E+02	1* 4.450406E+02	1* 4.450406E+02
54	1* 3.858788E+02	1* 3.885759E+02	1* 3.920198E+02	1* 3.954637E+02	1* 4.450473E+02	1* 4.450540E+02	1* 4.450659E+02	1* 4.450979E+02	1* 4.450979E+02
55	1* 3.983559E+02	1* 4.006963E+02	1* 4.030370E+02	1* 4.053775E+02	1* 4.452176E+02	1* 4.457921E+02	1* 4.474145E+02	1* 4.503136E+02	1* 4.503136E+02
56	1* 4.170802E+02	1* 4.194208E+02	1* 4.217613E+02	1* 4.241019E+02	1* 4.054896E+02	1* 4.055215E+02	1* 4.055335E+02	1* 4.055401E+02	1* 4.055401E+02
57	1* 4.264424E+02	1* 4.287829E+02	1* 4.311235E+02	1* 4.334640E+02	1* 4.062849E+02	1* 4.079073E+02	1* 4.102212E+02	1* 4.125618E+02	1* 4.125618E+02
58	1* 4.358046E+02	1* 4.381451E+02	1* 4.404590E+02	1* 4.420815E+02	1* 4.149023E+02	1* 4.172428E+02	1* 4.195834E+02	1* 4.219239E+02	1* 4.219239E+02
59	1* 4.426559E+02	1* 4.427756E+02	1* 4.428076E+02	1* 4.428195E+02	1* 4.242645E+02	1* 4.266050E+02	1* 4.289456E+02	1* 4.312861E+02	1* 4.312861E+02
60	1* 4.429964E+02	1* 4.435709E+02	1* 4.445193E+02	1* 4.480924E+02	1* 4.336266E+02	1* 4.359672E+02	1* 4.383077E+02	1* 4.406483E+02	1* 4.406483E+02
61	1* 3.265446E+02	1* 3.294437E+02	1* 3.310661E+02	1* 3.316406E+02	1* 4.429888E+02	1* 4.453294E+02	1* 4.476699E+02	1* 4.493721E+02	1* 4.493721E+02
62	1* 3.317603E+02	1* 3.317922E+02	1* 3.318042E+02	1* 3.318109E+02	1* 4.503296E+02	1* 4.509148E+02	1* 4.511276E+02	1* 4.512339E+02	1* 4.512339E+02
63	1* 3.318175E+02	1* 3.318295E+02	1* 3.318614E+02	1* 3.319811E+02	1* 4.513935E+02	1* 4.517127E+02	1* 4.524042E+02	1* 4.530958E+02	1* 4.530958E+02
64	1* 3.325556E+02	1* 3.341780E+02	1* 3.364919E+02	1* 3.388325E+02	1* 4.534149E+02	1* 4.535604E+02	1* 4.536173E+02	1* 4.536742E+02	1* 4.536742E+02
65	1* 3.411730E+02	1* 3.435135E+02	1* 3.458541E+02	1* 3.481946E+02	1* 4.538196E+02	1* 4.541388E+02	1* 4.547771E+02	1* 4.554687E+02	1* 4.554687E+02
66	1* 3.505352E+02	1* 3.528757E+02	1* 3.552162E+02	1* 3.575568E+02	1* 4.558410E+02	1* 4.560006E+02	1* 4.560894E+02	1* 4.562122E+02	1* 4.562122E+02
67	1* 3.598973E+02	1* 3.622379E+02	1* 3.645784E+02	1* 3.669190E+02	1* 4.566335E+02	1* 4.570112E+02	1* 4.570636E+02	1* 4.570742E+02	1* 4.570742E+02
68	1* 3.692595E+02	1* 3.716001E+02	1* 3.739406E+02	1* 3.756428E+02	1* 4.570848E+02	1* 4.571634E+02	1* 4.576233E+02	1* 4.589886E+02	1* 4.589886E+02
69	1* 3.766003E+02	1* 3.771855E+02	1* 3.773983E+02	1* 3.775046E+02	1* 4.609389E+02	1* 4.636360E+02	1* 4.670799E+02	1* 4.705238E+02	1* 4.705238E+02
70	1* 3.776642E+02	1* 3.779834E+02	1* 3.786749E+02	1* 3.793665E+02	1* 4.734160E+02	1* 4.757566E+02	1* 4.780971E+02	1* 4.804376E+02	1* 4.804376E+02
71	1* 3.796856E+02	1* 3.798311E+02	1* 3.798880E+02	1* 3.799449E+02	1* 4.827782E+02	1* 4.851187E+02	1* 4.874593E+02	1* 4.897998E+02	1* 4.897998E+02
72	1* 3.800903E+02	1* 3.804095E+02	1* 3.810478E+02	1* 3.817394E+02	1* 4.921403E+02	1* 4.944809E+02	1* 4.968214E+02	1* 4.991620E+02	1* 4.991620E+02
73	1* 3.821117E+02	1* 3.822713E+02	1* 3.823601E+02	1* 3.824829E+02	1* 5.086471E+02	1* 5.038430E+02	1* 5.061836E+02	1* 5.085241E+02	1* 5.085241E+02
74	1* 3.829042E+02	1* 3.832819E+02	1* 3.833343E+02	1* 3.833449E+02	1* 5.177611E+02	1* 5.132052E+02	1* 5.155191E+02	1* 5.178796E+02	1* 5.178796E+02
75	1* 3.833355E+02	1* 3.834341E+02	1* 3.838940E+02	1* 3.852593E+02	1* 5.178863E+02	1* 5.178929E+02	1* 5.179049E+02	1* 5.179368E+02	1* 5.179368E+02

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix P -- BRAGFLO_WATFLD_YATES01_R002.INP (BRAGFLO) File Listing

37 1* 5.180565E+02 1* 5.186310E+02 1* 5.202534E+02 1* 5.231525E+02
 38 1* 5.978688E+02 1* 6.007679E+02 1* 6.023903E+02 1* 6.029648E+02
 39 1* 6.030845E+02 1* 6.031165E+02 1* 6.031284E+02 1* 6.031351E+02
 40 1* 6.031417E+02 1* 6.031537E+02 1* 6.031856E+02 1* 6.033053E+02
 41 1* 6.038798E+02 1* 6.055022E+02 1* 6.078162E+02 1* 6.101567E+02
 42 1* 6.124973E+02 1* 6.148378E+02 1* 6.171783E+02 1* 6.195189E+02
 43 1* 6.218594E+02 1* 6.242000E+02 1* 6.265405E+02 1* 6.288810E+02
 44 1* 6.312216E+02 1* 6.335621E+02 1* 6.359026E+02 1* 6.382432E+02
 45 1* 6.405837E+02 1* 6.429243E+02 1* 6.452648E+02 1* 6.469670E+02
 46 1* 6.479246E+02 1* 6.485097E+02 1* 6.487225E+02 1* 6.488289E+02
 47 1* 6.489885E+02 1* 6.493076E+02 1* 6.499991E+02 1* 6.506907E+02
 48 1* 6.510099E+02 1* 6.511553E+02 1* 6.512122E+02 1* 6.512691E+02
 49 1* 6.514146E+02 1* 6.517337E+02 1* 6.523721E+02 1* 6.530636E+02
 50 1* 6.534360E+02 1* 6.535956E+02 1* 6.536843E+02 1* 6.538071E+02
 51 1* 6.542285E+02 1* 6.546061E+02 1* 6.546585E+02 1* 6.546691E+02
 52 1* 6.546797E+02 1* 6.547583E+02 1* 6.552183E+02 1* 6.565836E+02
 53 1* 6.585339E+02 1* 6.612310E+02 1* 6.646749E+02 1* 6.681187E+02
 54 1* 6.710110E+02 1* 6.733515E+02 1* 6.756920E+02 1* 6.780326E+02
 55 1* 6.803731E+02 1* 6.827136E+02 1* 6.850542E+02 1* 6.873948E+02
 56 1* 6.897353E+02 1* 6.920758E+02 1* 6.944164E+02 1* 6.967569E+02
 57 1* 6.990974E+02 1* 7.014380E+02 1* 7.037785E+02 1* 7.061190E+02
 58 1* 7.084596E+02 1* 7.108001E+02 1* 7.131141E+02 1* 7.147365E+02
 59 1* 7.153110E+02 1* 7.154307E+02 1* 7.154626E+02 1* 7.154745E+02
 50 1* 7.154812E+02 1* 7.154879E+02 1* 7.154998E+02 1* 7.155317E+02
 51 1* 7.156514E+02 1* 7.162260E+02 1* 7.178484E+02 1* 7.207474E+02
 52 96* 7.977109E+02
 53 96* 8.195609E+02
 54 WELL DATA
 55 2
 56 0.0000E+00 2
 57 8 23 1 1
 58 INJP
 59 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
 70 89 23 1 1
 71 INJP
 72 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
 73 1.5778E+09 8
 74 1 27 1 2
 75 PROD
 76 0.000000E+00 0.000000E+00 1.000000E-11 1.315210E+07
 77 INJP
 78 0.000000E+00 0.000000E+00 1.000000E-11 1.315210E+07
 79 1 30 1 2
 80 PROD
 81 0.000000E+00 0.000000E+00 1.000000E-11 1.311240E+07
 82 INJP
 83 0.000000E+00 0.000000E+00 1.000000E-11 1.311240E+07
 84 96 27 1 2
 85 PROD
 86 0.000000E+00 0.000000E+00 1.000000E-11 1.167620E+07
 87 INJP
 88 0.000000E+00 0.000000E+00 1.000000E-11 1.167620E+07
 89 96 30 1 2
 90 PROD
 91 0.000000E+00 0.000000E+00 1.000000E-11 1.163660E+07
 92 INJP

393 0.000000E+00 0.000000E+00 1.000000E-11 1.163660E+07
 394 8 34 1 2
 395 PROD
 396 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
 397 INJP
 398 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
 399 89 34 1 2
 400 PROD
 401 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
 402 INJP
 403 0.000000E+00 0.000000E+00 1.000000E-12 2.037400E+06
 404 1 23 1 2
 405 PROD
 406 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
 407 INJP
 408 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
 409 96 23 1 2
 410 PROD
 411 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
 412 INJP
 413 0.000000E+00 0.000000E+00 1.000000E-15 1.564000E+07
 414 DIRICHLET CONDITIONS
 415 T 36
 416 1 2 1 T F 5.489190E+07 0.000000E+00
 417 96 2 1 T F 5.489190E+07 0.000000E+00
 418 1 3 1 T F 5.106780E+07 0.000000E+00
 419 96 3 1 T F 5.106780E+07 0.000000E+00
 420 1 5 1 T F 4.992050E+07 0.000000E+00
 421 96 5 1 T F 4.992050E+07 0.000000E+00
 422 1 6 1 T F 4.875330E+07 0.000000E+00
 423 96 6 1 T F 4.875330E+07 0.000000E+00
 424 1 8 1 T F 4.758170E+07 0.000000E+00
 425 96 8 1 T F 4.758170E+07 0.000000E+00
 426 1 9 1 T F 4.205030E+07 0.000000E+00
 427 96 9 1 T F 4.205030E+07 0.000000E+00
 428 1 10 1 T F 3.634270E+07 0.000000E+00
 429 96 10 1 T F 3.634270E+07 0.000000E+00
 430 1 12 1 T F 3.499420E+07 0.000000E+00
 431 96 12 1 T F 3.499420E+07 0.000000E+00
 432 1 13 1 T F 3.220030E+07 0.000000E+00
 433 96 13 1 T F 3.220030E+07 0.000000E+00
 434 1 14 1 T F 2.965140E+07 0.000000E+00
 435 96 14 1 T F 2.965140E+07 0.000000E+00
 436 1 16 1 T F 2.884190E+07 0.000000E+00
 437 96 16 1 T F 2.884190E+07 0.000000E+00
 438 1 17 1 T F 2.599250E+07 0.000000E+00
 439 96 17 1 T F 2.599250E+07 0.000000E+00
 440 1 18 1 T F 2.323570E+07 0.000000E+00
 441 96 18 1 T F 2.323570E+07 0.000000E+00
 442 1 20 1 T F 2.262970E+07 0.000000E+00
 443 96 20 1 T F 2.262970E+07 0.000000E+00
 444 1 21 1 T F 2.079430E+07 0.000000E+00
 445 96 21 1 T F 2.079430E+07 0.000000E+00
 446 1 22 1 T F 1.777530E+07 0.000000E+00
 447 96 22 1 T F 1.777530E+07 0.000000E+00
 448 1 24 1 T F 1.485080E+07 0.000000E+00

99	96	24	I	T	F	1.337430E+07	0.000000E+00	1.346353E+07	1.343538E+07	1.340714E+07	1.337899E+07
00	1	34	I	T	F	8.220000E+05	0.000000E+00	1.335074E+07	1.333016E+07	1.331886E+07	1.331197E+07
01	96	34	I	T	F	8.220000E+05	0.000000E+00	1.330929E+07	1.330804E+07	1.330622E+07	1.330240E+07
02	GRID	BLOCK	BRINE	PRESSURE	INITIAL	CONDITIONS		1.328574E+07	1.328181E+07	1.327702E+07	1.327319E+07
03	96	5	821	000E+07				1.327961E+07	1.327884E+07	1.327702E+07	1.327319E+07
04	96	5	489	192E+07				1.326553E+07	1.325280E+07	1.325280E+07	1.325088E+07
05	96	5	1067	85E+07				1.324954E+07	1.32440E+07	1.324342E+07	1.323853E+07
06	96	5	0478	622E+07				1.323786E+07	1.323777E+07	1.323691E+07	1.323135E+07
07	96	4	992	054E+07				1.321488E+07	1.319152E+07	1.315916E+07	1.311770E+07
08	96	4	875	330E+07				1.307633E+07	1.304158E+07	1.301333E+07	1.298547E+07
09	96	4	806	200E+07				1.295751E+07	1.292926E+07	1.290111E+07	1.287305E+07
10	96	4	758	172E+07				1.284490E+07	1.281665E+07	1.278850E+07	1.276025E+07
11	96	4	205	032E+07				1.273219E+07	1.270432E+07	1.267626E+07	1.264811E+07
12	96	3	634	266E+07				1.261643E+07	1.259954E+07	1.250810E+07	1.250762E+07
13	96	3	566	847E+07				1.250743E+07	1.250734E+07	1.250724E+07	1.250686E+07
14	96	3	499	420E+07				1.250532E+07	1.249862E+07	1.247918E+07	1.244422E+07
15	96	3	220	030E+07				1.318806E+07	1.315301E+07	1.313358E+07	1.312668E+07
16	96	2	965	135E+07				1.312410E+07	1.312486E+07	3.1312457E+07	1.312448E+07
17	96	2	924	668E+07				1.306837E+07	1.304031E+07	1.301226E+07	1.298411E+07
18	96	2	884	192E+07				1.295605E+07	1.292790E+07	1.289965E+07	1.287159E+07
19	96	2	599	246E+07				1.284363E+07	1.281558E+07	1.278752E+07	1.276467E+07
20	96	2	233	571E+07				1.273131E+07	1.270315E+07	1.267490E+07	1.264675E+07
21	96	2	293	275E+07				1.261859E+07	1.259801E+07	1.258661E+07	1.257971E+07
22	96	2	262	2974E+07				1.256181E+07	1.255348E+07	1.254964E+07	1.254783E+07
23	96	2	079	435E+07				1.254735E+07	1.254668E+07	1.254486E+07	1.254093E+07
24	96	1	777	526E+07				1.253333E+07	1.252494E+07	1.252053E+07	1.251862E+07
25	1	481	592E+07					1.251747E+07	1.251622E+07	1.251115E+07	1.250645E+07
26	1	478	82E+07					1.250588E+07	1.250578E+07	1.250559E+07	1.250463E+07
27	1	478	673E+07					1.249918E+07	1.248280E+07	1.245934E+07	1.242697E+07
28	1	473	151E+07					1.238559E+07	1.234422E+07	1.230945E+07	1.228130E+07
29	1	461	877E+07					1.233737E+07	1.232527E+07	1.219711E+07	1.216895E+07
30	1	456	622E+07					1.22844E+07	1.22737E+07	1.217748E+07	1.217206E+07
31	1	439	395E+07					1.220844E+07	1.200019E+07	1.197222E+07	1.194425E+07
32	1	428	110E+07					1.214089E+07	1.21273E+07	1.208457E+07	1.205660E+07
33	1	423	966E+07					1.202844E+07	1.188793E+07	1.185967E+07	1.183151E+07
34	1	420	989E+07					1.180392E+07	1.178448E+07	1.17748E+07	1.177605E+07
35	1	419	592E+07					1.17757E+07	1.17538E+07	1.17528E+07	1.17490E+07
36	1	417	993E+07					1.17346E+07	1.17666E+07	1.174712E+07	1.171206E+07
37	1	416	806E+07					1.315215E+07	1.311720E+07	1.309767E+07	1.309078E+07
38	1	412	183E+07					1.308819E+07	1.30885E+07	1.308896E+07	1.308867E+07
39	3	1	385	953E+07				1.303265E+07	1.308915E+07	1.307995E+07	1.306052E+07
40	1	397	183E+07					1.300450E+07	1.297645E+07	1.297645E+07	1.294820E+07
41	1	385	953E+07					1.292005E+07	1.289190E+07	1.286365E+07	1.283569E+07
42	1	374	68E+07					1.280782E+07	1.277976E+07	1.275170E+07	1.272374E+07
43	1	363	449E+07					1.26959E+07	1.266734E+07	1.263909E+07	1.261093E+07
44	1	352	200E+07					1.258278E+07	1.256219E+07	1.255070E+07	1.254380E+07
45	1	343	957E+07					1.254141E+07	1.248041E+07	1.248041E+07	1.247533E+07
46	1	343	823E+07					1.247054E+07	1.246987E+07	1.013250E+05	1.246968E+07
47	1	342	85E+07					1.246882E+07	1.246336E+07	1.244698E+07	1.242342E+07
48	1	339	206E+07					1.239105E+07	1.234997E+07	1.230850E+07	1.227354E+07
49	1	385	776E+07					1.231915E+07	1.224997E+07	1.221741E+07	1.218935E+07
50	1	385	632E+07					1.224548E+07	1.221741E+07	1.218935E+07	1.216129E+07
51	1	380	089E+07					1.213131E+07	1.210507E+07	1.207691E+07	1.204875E+07
52	1	368	841E+07					1.202078E+07	1.199262E+07	1.196446E+07	1.193649E+07
53	1	357	573E+07					1.190843E+07	1.188036E+07	1.185210E+07	1.182385E+07
54	1	357	573E+07					1.188036E+07	1.185210E+07	1.182385E+07	1.179562E+07

1 1* 1.179568E+07 1* 1.176810E+07 1* 1.174865E+07 1* 1.174156E+07
2 1* 1.174022E+07 1* 1.173984E+07 2* 1.173955E+07 1* 1.173946E+07
3 1* 1.173926E+07 1* 1.173898E+07 1* 1.173764E+07 1* 1.173074E+07
4 1* 1.171120E+07 1* 1.167623E+07
5 1* 1.1313903E+07 1* 1.310418E+07 1* 1.308465E+07 1* 1.307775E+07
6 1* 1.307651E+07 1* 1.307622E+07 1* 1.307593E+07 2* 1.307574E+07
7 1* 1.307545E+07 1* 1.307498E+07 1* 1.307373E+07 1* 1.306684E+07
8 1* 1.304740E+07 1* 1.301963E+07 1* 1.299148E+07 1* 1.296333E+07
9 1* 1.293498E+07 1* 1.290683E+07 1* 1.287878E+07 1* 1.285072E+07
0 1* 1.282266E+07 1* 1.279461E+07 1* 1.276664E+07 1* 1.273868E+07
1 1* 1.271062E+07 1* 1.268238E+07 1* 1.265412E+07 1* 1.262587E+07
2 1* 1.259781E+07 1* 1.256975E+07 1* 1.254917E+07 1* 1.253758E+07
3 1* 1.253059E+07 1* 1.252819E+07 24* 1.013250E+05 1* 1.243386E+07
4 1* 1.241030E+07 1* 1.237784E+07 1* 1.233685E+07 1* 1.229538E+07
5 1* 1.226042E+07 1* 1.223236E+07 1* 1.220429E+07 1* 1.217633E+07
6 1* 1.214817E+07 1* 1.212001E+07 1* 1.209204E+07 1* 1.206398E+07
7 1* 1.203582E+07 1* 1.200766E+07 1* 1.197950E+07 1* 1.195143E+07
8 1* 1.192346E+07 1* 1.189530E+07 1* 1.186705E+07 1* 1.183889E+07
9 1* 1.181063E+07 1* 1.178256E+07 1* 1.175497E+07 1* 1.173553E+07
0 1* 1.172863E+07 1* 1.172729E+07 1* 1.172691E+07 1* 1.172553E+07
1 1* 1.172633E+07 1* 1.172624E+07 1* 1.172605E+07 1* 1.172585E+07
2 1* 1.172461E+07 1* 1.171762E+07 1* 1.169798E+07 1* 1.166321E+07
3 1* 1.312304E+07 1* 1.308829E+07 1* 1.306875E+07 1* 1.306186E+07
4 1* 1.306061E+07 1* 1.306023E+07 1* 1.305985E+07 1* 1.305965E+07
5 1* 1.305956E+07 1* 1.305937E+07 1* 1.305899E+07 1* 1.305774E+07
6 1* 1.305094E+07 1* 1.303131E+07 1* 1.300345E+07 1* 1.297539E+07
7 1* 1.294734E+07 1* 1.291909E+07 1* 1.289094E+07 1* 1.286288E+07
8 1* 1.283482E+07 1* 1.280677E+07 1* 1.277861E+07 1* 1.275056E+07
9 1* 1.272259E+07 1* 1.269454E+07 1* 1.266629E+07 1* 1.263813E+07
0 1* 1.261007E+07 1* 1.258201E+07 1* 1.255386E+07 1* 1.253317E+07
1 1* 1.252159E+07 1* 1.251459E+07 1* 1.251210E+07 24* 1.013250E+05
2 1* 1.241796E+07 1* 1.239450E+07 1* 1.236203E+07 1* 1.232076E+07
3 1* 1.227929E+07 1* 1.224442E+07 1* 1.221627E+07 1* 1.218820E+07
4 1* 1.216024E+07 1* 1.213217E+07 1* 1.210411E+07 1* 1.207605E+07
5 1* 1.204798E+07 1* 1.201982E+07 1* 1.199166E+07 1* 1.196360E+07
6 1* 1.193544E+07 1* 1.190737E+07 1* 1.187931E+07 1* 1.185105E+07
7 1* 1.182289E+07 1* 1.179482E+07 1* 1.176676E+07 1* 1.173907E+07
8 1* 1.171953E+07 1* 1.171273E+07 1* 1.171129E+07 1* 1.171081E+07
9 1* 1.171062E+07 1* 1.171043E+07 1* 1.171034E+07 1* 1.171014E+07
0 1* 1.170995E+07 1* 1.170871E+07 1* 1.170162E+07 1* 1.168189E+07
1 1* 1.164721E+07
2 1* 1.311241E+07 1* 1.307756E+07 1* 1.305793E+07 1* 1.305113E+07
3 1* 1.304989E+07 1* 1.304951E+07 1* 1.304922E+07 1* 1.304912E+07
4 1* 1.304903E+07 1* 1.304883E+07 1* 1.304836E+07 1* 1.304692E+07
5 1* 1.304012E+07 1* 1.302059E+07 1* 1.299273E+07 1* 1.296467E+07
6 1* 1.293661E+07 1* 1.290846E+07 1* 1.288040E+07 1* 1.285235E+07
7 1* 1.282420E+07 1* 1.279614E+07 1* 1.276798E+07 1* 1.273973E+07
8 1* 1.271168E+07 1* 1.268362E+07 1* 1.265546E+07 1* 1.262741E+07
9 1* 1.259944E+07 1* 1.257138E+07 1* 1.254323E+07 1* 1.252264E+07
0 1* 1.251105E+07 1* 1.250406E+07 1* 1.250147E+07 16* 1.013250E+05
1 1* 1.244047E+07 1* 1.243539E+07 1* 1.243099E+07 1* 1.243041E+07
2 1* 1.013250E+05 1* 1.243013E+07 1* 1.242907E+07 1* 1.242361E+07
3 1* 1.240724E+07 1* 1.238377E+07 1* 1.235150E+07 1* 1.231003E+07
4 1* 1.226846E+07 1* 1.223370E+07 1* 1.220563E+07 1* 1.217757E+07
5 1* 1.214951E+07 1* 1.212145E+07 1* 1.209329E+07 1* 1.206513E+07
6 1* 1.203716E+07 1* 1.200910E+07 1* 1.198094E+07 1* 1.195278E+07

617 1* 1.192461E+07 1* 1.189664E+07 1* 1.186858E+07 1* 1.184042E+07
618 1* 1.181235E+07 1* 1.178429E+07 1* 1.175612E+07 1* 1.172834E+07
619 1* 1.170890E+07 1* 1.170200E+07 1* 1.170047E+07 1* 1.170009E+07
620 1* 1.169999E+07 1* 1.169990E+07 1* 1.169980E+07 1* 1.169951E+07
621 1* 1.169923E+07 1* 1.169798E+07 1* 1.169089E+07 1* 1.167125E+07
622 1* 1.163658E+07
623 1* 1.223770E+07 1* 1.220274E+07 1* 1.218320E+07 1* 1.217640E+07
624 1* 1.217506E+07 1* 1.217477E+07 1* 1.217458E+07 2* 1.217448E+07
625 1* 1.217420E+07 1* 1.217362E+07 1* 1.217228E+07 1* 1.216539E+07
626 1* 1.214594E+07 1* 1.211826E+07 1* 1.209010E+07 1* 1.206194E+07
627 1* 1.203378E+07 1* 1.200562E+07 1* 1.197756E+07 1* 1.194940E+07
628 1* 1.192124E+07 1* 1.189327E+07 1* 1.186521E+07 1* 1.183704E+07
629 1* 1.180888E+07 1* 1.178081E+07 1* 1.175275E+07 1* 1.172468E+07
630 1* 1.169661E+07 1* 1.166855E+07 1* 1.164805E+07 1* 1.163646E+07
631 1* 1.162946E+07 1* 1.162707E+07 1* 1.162573E+07 1* 1.162372E+07
632 1* 1.161998E+07 1* 1.161155E+07 1* 1.160322E+07 1* 1.159967E+07
633 1* 1.159785E+07 1* 1.159690E+07 1* 1.159632E+07 1* 1.159469E+07
634 1* 1.159086E+07 1* 1.158320E+07 1* 1.157496E+07 1* 1.157036E+07
635 1* 1.156844E+07 1* 1.156749E+07 1* 1.156586E+07 1* 1.156078E+07
636 1* 1.155637E+07 1* 1.155580E+07 1* 1.013250E+05 1* 1.155551E+07
637 1* 1.155446E+07 1* 1.154909E+07 1* 1.153262E+07 1* 1.150905E+07
638 1* 1.147686E+07 1* 1.143557E+07 1* 1.139409E+07 1* 1.135941E+07
639 1* 1.133144E+07 1* 1.130327E+07 1* 1.127510E+07 1* 1.124694E+07
640 1* 1.121877E+07 1* 1.119061E+07 1* 1.116263E+07 1* 1.113456E+07
641 1* 1.110639E+07 1* 1.107832E+07 1* 1.105025E+07 1* 1.102217E+07
642 1* 1.099400E+07 1* 1.096584E+07 1* 1.093776E+07 1* 1.090969E+07
643 1* 1.088161E+07 1* 1.085383E+07 1* 1.083447E+07 1* 1.082757E+07
644 1* 1.082604E+07 1* 1.082575E+07 1* 1.082556E+07 2* 1.082547E+07
645 1* 1.082527E+07 1* 1.082489E+07 1* 1.082355E+07 1* 1.081665E+07
646 1* 1.079720E+07 1* 1.076242E+07
647 1* 9.865862E+06 1* 9.830879E+06 1* 9.811422E+06 1* 9.804616E+06
648 1* 9.803178E+06 1* 9.802795E+06 3* 9.802700E+06 1* 9.802412E+06
649 1* 9.801837E+06 1* 9.800590E+06 1* 9.793786E+06 1* 9.774232E+06
650 1* 9.746532E+06 1* 9.718449E+06 1* 9.690364E+06 1* 9.662183E+06
651 1* 9.633906E+06 1* 9.605918E+06 1* 9.577833E+06 1* 9.549651E+06
652 1* 9.521758E+06 1* 9.493768E+06 1* 9.465585E+06 1* 9.437499E+06
653 1* 9.409507E+06 1* 9.381421E+06 1* 9.353238E+06 1* 9.325150E+06
654 1* 9.297159E+06 1* 9.276644E+06 1* 9.265044E+06 1* 9.258046E+06
655 1* 9.255746E+06 1* 9.254404E+06 1* 9.252294E+06 1* 9.248651E+06
656 1* 9.240216E+06 1* 9.231779E+06 1* 9.228232E+06 1* 9.226411E+06
657 1* 9.225548E+06 1* 9.224974E+06 1* 9.223248E+06 1* 9.219509E+06
658 1* 9.211840E+06 1* 9.203499E+06 1* 9.198898E+06 1* 9.197076E+06
659 1* 9.196213E+06 1* 9.194487E+06 1* 9.189311E+06 1* 9.184997E+06
660 1* 9.184422E+06 1* 1.013250E+05 1* 9.184038E+06 1* 9.183080E+06
661 1* 9.177711E+06 1* 9.161222E+06 1* 9.137735E+06 1* 9.105523E+06
662 1* 9.064299E+06 1* 9.022979E+06 1* 8.988370E+06 1* 8.960375E+06
663 1* 8.932188E+06 1* 8.904001E+06 1* 8.875910E+06 1* 8.847818E+06
664 1* 8.819631E+06 1* 8.791538E+06 1* 8.763542E+06 1* 8.735450E+06
665 1* 8.707356E+06 1* 8.679360E+06 1* 8.651266E+06 1* 8.623173E+06
666 1* 8.594983E+06 1* 8.566793E+06 1* 8.538698E+06 1* 8.510796E+06
667 1* 8.483085E+06 1* 8.463619E+06 1* 8.456812E+06 1* 8.455277E+06
668 1* 8.454894E+06 1* 8.454702E+06 2* 8.454606E+06 1* 8.454510E+06
669 1* 8.454127E+06 1* 8.452688E+06 1* 8.445784E+06 1* 8.426415E+06
670 1* 8.391607E+06
671 55* 8.220000E+05 1* 1.013250E+05 40* 8.220000E+05
672 55* 8.220000E+05 1* 1.013250E+05 40* 8.220000E+05

85 35* 0.000000E+00 7* 6.516987E+01 1* 0.000000E+00 7* 6.516987E+01
 86 46* 0.000000E+00
 87 96* 0.000000E+00
 88 96* 0.000000E+00
 89 96* 0.000000E+00
 90 96* 0.000000E+00
 91 DSATLIM, DPRESLIM, SATLIMIT
 92 2.0000E-01 -1.0000E+08 1.0000E-03
 93 SATNORM, PRESNORM: NOMINAL CHANGE DEPENDENT VARIABLE
 94 3.0000E-01 5.0000E+05
 95 MAXIMUM ALLOWABLE VARIABLE CHANGES: DSAT_MAX DPRES_MAX
 96 1.0000E+00 1.0000E+07
 97 CONVERGENCE TEST FLAG: 0=OR/1=AND
 98 1
 99 EPS_SAT, EPS_PRES: NORMAL CONVERGENCE CRITERIA
 100 3.0000E+00 1.0000E-02
 101 EPS_SAT, EPS_PRES: RELAXED CONVERGENCE CRITERIA
 102 3.0000E+00 1.0000E-02
 103 FTOL_SAT FTOL_PRES: NORMAL RESIDUAL TOLERANCE
 104 1.0000E-02 1.0000E-02
 105 FTOL_SAT FTOL_PRES: RELAXED RESIDUAL TOLERANCE
 106 1.0000E-02 1.0000E-02
 107 GAS TRANSPORT TOLERANCES
 108 1.0000E-05 1.0000E-05 1.0000E-05 1.0000E-05
 109 LINEAR EQUATION SOLVER TYPE
 110 LU
 111 ITMAX, IRESETMAX, IJACINT, LSCALE, P_SCALE, LVARSWITCH
 112 8 40 1 T 1.0000E+07 F
 113 IUPRPFLAG, IUPMFLAG, DT_REDU, ITRAVE, IMFRAVE
 114 9 9 2.5000E-01 1 0
 115 IJACSWITCH, IJACMIN, IJACRESET, IUPRPLOOSE, IUPMFLOOSE
 116 41 1 5 9 9
 117 DHSAT_REL, DHPRES_REL: REL. CHANGE FOR JACOBIAN ELEMENT CALCS
 118 1.0000E-08 1.0000E-08
 119 DHSAT_MIN, DHPRES_MIN: MIN. CHANGE ALLOWED FOR JACOBIAN CALCS
 120 1.0000E-10 1.0000E-02
 121 NUMBER OF TIMES FOR SPECIFYING MATERIAL MAP
 122 7
 123 START TIME FOR MAP 1
 124 -1.5778E+08
 125 MATERIAL TYPE GRID MAP
 126 26* 1.44* 2 26* 3
 127 96* 4
 128 96* 4
 129 26* 5 44* 6 26* 7
 130 96* 8
 131 96* 8
 132 26* 9 44* 10 26* 11
 133 96* 12
 134 96* 12
 135 96* 12
 136 26* 13 44* 14 26* 15
 137 96* 16
 138 96* 16
 139 96* 16
 140 26* 17 44* 18 26* 19

841 96* 20
 842 96* 20
 843 96* 20
 844 26* 21 44* 22 26* 23
 845 96* 24
 846 96* 24
 847 96* 24
 848 26* 25 44* 26 26* 27
 849 96* 28
 850 96* 29
 851 35* 29 24* 37 37* 29
 852 35* 30 7* 34 1* 36 7* 34 1* 36 4* 30 1* 36 40* 30
 853 35* 29 7* 34 1* 36 7* 34 1* 36 4* 35 1* 36 3* 35 37* 29
 854 35* 29 7* 34 1* 36 7* 34 1* 36 4* 35 1* 36 3* 35 37* 29
 855 35* 31 7* 34 1* 36 7* 34 1* 36 4* 31 1* 36 40* 31
 856 55* 29 1* 36 40* 29
 857 55* 29 1* 36 40* 29
 858 55* 32 1* 36 40* 32
 859 55* 33 1* 36 40* 33
 860 START TIME FOR MAP 2
 861 0.0000E+00
 862 MATERIAL TYPE GRID MAP
 863 26* 1 44* 2 26* 3
 864 96* 4
 865 96* 4
 866 26* 5 44* 6 26* 7
 867 96* 8
 868 96* 8
 869 26* 9 44* 10 26* 11
 870 96* 12
 871 96* 12
 872 96* 12
 873 26* 13 44* 14 26* 15
 874 96* 16
 875 96* 16
 876 96* 16
 877 26* 17 44* 18 26* 19
 878 96* 20
 879 96* 20
 880 96* 20
 881 26* 21 44* 22 26* 23
 882 96* 24
 883 96* 24
 884 96* 24
 885 7* 25 1* 55 18* 25 44* 26 18* 27 1* 55 7* 27
 886 7* 28 1* 53 80* 28 1* 53 7* 28
 887 7* 29 1* 53 80* 29 1* 53 7* 29
 888 7* 29 1* 53 27* 29 24* 38 29* 29 1* 53 7* 29
 889 7* 30 1* 53 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 53 7* 30
 890 7* 29 1* 53 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 53 7* 29
 891 7* 29 1* 53 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 45 3* 42 29* 29 1* 53 7* 29
 892 7* 31 1* 53 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 45 32* 31 1* 53 7* 31
 893 7* 29 1* 53 47* 29 1* 45 32* 29 1* 53 7* 29
 894 7* 29 1* 53 47* 29 1* 47 32* 29 1* 53 7* 29
 895 55* 32 1* 44 40* 32
 896 55* 39 1* 44 40* 39

START TIME FOR MAP 3
 1.5778E+09
 MATERIAL TYPE GRID MAP
 26* 1 44* 2 26* 3
 96* 4
 96* 4
 26* 5 44* 6 26* 7
 96* 8
 96* 8
 26* 9 44* 10 26* 11
 96* 12
 96* 12
 96* 12
 26* 13 44* 14 26* 15
 96* 16
 96* 16
 96* 16
 26* 17 44* 18 26* 19
 96* 20
 96* 20
 96* 20
 26* 21 44* 22 26* 23
 96* 24
 96* 24
 96* 24
 7* 25 1* 56 18* 25 44* 26 18* 27 1* 56 7* 27
 7* 28 1* 57 80* 28 1* 57 7* 28
 7* 29 1* 57 80* 29 1* 57 7* 29
 7* 29 1* 57 27* 29 24* 38 29* 29 1* 57 7* 29
 7* 30 1* 57 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 57 7* 30
 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 57 7* 29
 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 57 7* 29
 7* 31 1* 57 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 57 7* 31
 7* 29 1* 57 47* 29 1* 46 32* 29 1* 57 7* 29
 7* 29 1* 57 47* 29 1* 48 32* 29 1* 57 7* 29
 7* 32 1* 56 47* 32 1* 44 32* 32 1* 56 7* 32
 7* 39 1* 56 47* 39 1* 44 32* 39 1* 56 7* 39
 START TIME FOR MAP 4
 3.1557E+09
 MATERIAL TYPE GRID MAP
 26* 1 44* 2 26* 3
 96* 4
 96* 4
 26* 5 44* 6 26* 7
 96* 8
 96* 8
 26* 9 44* 10 26* 11
 96* 12
 96* 12
 96* 12
 26* 13 44* 14 26* 15
 96* 16
 96* 16
 96* 16
 26* 17 44* 18 26* 19
 96* 20

953 96* 20
 954 96* 20
 955 26* 21 44* 22 26* 23
 956 96* 24
 957 96* 24
 958 96* 24
 959 7* 25 1* 56 18* 25 44* 26 18* 27 1* 56 7* 27
 960 7* 28 1* 57 80* 28 1* 57 7* 28
 961 7* 29 1* 57 80* 29 1* 57 7* 29
 962 7* 29 1* 57 27* 29 24* 38 29* 29 1* 57 7* 29
 963 7* 30 1* 57 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 57 7* 30
 964 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 57 7* 29
 965 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 57 7* 29
 966 7* 31 1* 57 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 57 7* 31
 967 7* 29 1* 57 47* 29 1* 46 32* 29 1* 57 7* 29
 968 7* 29 1* 57 47* 29 1* 49 32* 29 1* 57 7* 29
 969 7* 32 1* 56 47* 32 1* 44 32* 32 1* 56 7* 32
 970 7* 39 1* 56 47* 39 1* 44 32* 39 1* 56 7* 39
 971 START TIME FOR MAP 5
 972 6.3114E+09
 973 MATERIAL TYPE GRID MAP
 974 26* 1 44* 2 26* 3
 975 96* 4
 976 96* 4
 977 26* 5 44* 6 26* 7
 978 96* 8
 979 96* 8
 980 26* 9 44* 10 26* 11
 981 96* 12
 982 96* 12
 983 96* 12
 984 26* 13 44* 14 26* 15
 985 96* 16
 986 96* 16
 987 96* 16
 988 26* 17 44* 18 26* 19
 989 96* 20
 990 96* 20
 991 96* 20
 992 26* 21 44* 22 26* 23
 993 96* 24
 994 96* 24
 995 96* 24
 996 7* 25 1* 56 18* 25 44* 26 18* 27 1* 56 7* 27
 997 7* 28 1* 57 80* 28 1* 57 7* 28
 998 7* 29 1* 57 80* 29 1* 57 7* 29
 999 7* 29 1* 57 27* 29 24* 38 29* 29 1* 57 7* 29
 1000 7* 30 1* 57 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 57 7* 30
 1001 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 57 7* 29
 1002 7* 29 1* 57 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 57 7* 29
 1003 7* 31 1* 57 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 57 7* 31
 1004 7* 29 1* 57 47* 29 1* 46 32* 29 1* 57 7* 29
 1005 7* 29 1* 57 47* 29 1* 50 32* 29 1* 57 7* 29
 1006 7* 32 1* 56 47* 32 1* 44 32* 32 1* 56 7* 32
 1007 7* 39 1* 56 47* 39 1* 44 32* 39 1* 56 7* 39
 1008 START TIME FOR MAP 6

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix P -- BRAGFLO_WATFLD_YATES01_R002.INP (BRAGFLO) File Listing

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09 7.8892E+09
10 MATERIAL TYPE GRID MAP
11 26* 1 44* 2 26* 3
12 96* 4
13 96* 4
14 26* 5 44* 6 26* 7
15 96* 8
16 96* 8
17 26* 9 44* 10 26* 11
18 96* 12
19 96* 12
20 96* 12
21 26* 13 44* 14 26* 15
22 96* 16
23 96* 16
24 96* 16
25 26* 17 44* 18 26* 19
26 96* 20
27 96* 20
28 96* 20
29 26* 21 44* 22 26* 23
30 96* 24
31 96* 24
32 96* 24
33 7* 25 1* 54 18* 25 44* 26 18* 27 1* 54 7* 27
34 7* 28 1* 52 80* 28 1* 52 7* 28
35 7* 29 1* 52 80* 29 1* 52 7* 29
36 7* 29 1* 52 27* 29 24* 38 29* 29 1* 52 7* 29
37 7* 30 1* 52 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 52 7* 30
38 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 52 7* 29
39 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 52 7* 29
40 7* 31 1* 52 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 52 7* 31
41 7* 29 1* 52 47* 29 1* 46 32* 29 1* 52 7* 29
42 7* 29 1* 52 47* 29 1* 50 32* 29 1* 52 7* 29
43 7* 32 1* 51 47* 32 1* 44 32* 32 1* 51 7* 32
44 7* 39 1* 51 47* 39 1* 44 32* 39 1* 51 7* 39
45 START TIME FOR MAP 7
46 3.9446E+10
47 MATERIAL TYPE GRID MAP
48 26* 1 44* 2 26* 3
49 96* 4
50 96* 4
51 26* 5 44* 6 26* 7
52 96* 8
53 96* 8
54 26* 9 44* 10 26* 11
55 96* 12
56 96* 12
57 96* 12
58 26* 13 44* 14 26* 15
59 96* 16
60 96* 16
61 96* 16
62 26* 17 44* 18 26* 19
63 96* 20
64 96* 20

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1065 96* 20
1066 26* 21 44* 22 26* 23
1067 96* 24
1068 96* 24
1069 96* 24
1070 7* 25 1* 54 18* 25 44* 26 18* 27 1* 54 7* 27
1071 7* 28 1* 52 80* 28 1* 52 7* 28
1072 7* 29 1* 58 80* 29 1* 58 7* 29
1073 7* 29 1* 58 27* 29 24* 38 29* 29 1* 58 7* 29
1074 7* 30 1* 52 27* 30 7* 40 1* 43 7* 40 1* 43 4* 30 1* 41 32* 30 1* 52 7* 30
1075 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 5* 41 3* 42 29* 29 1* 52 7* 29
1076 7* 29 1* 52 27* 29 7* 40 1* 43 7* 40 1* 43 4* 41 1* 46 3* 42 29* 29 1* 52 7* 29
1077 7* 31 1* 52 27* 31 7* 40 1* 43 7* 40 1* 43 4* 31 1* 46 32* 31 1* 52 7* 31
1078 7* 29 1* 52 47* 29 1* 46 32* 29 1* 52 7* 29
1079 7* 29 1* 52 47* 29 1* 50 32* 29 1* 52 7* 29
1080 7* 32 1* 51 47* 32 1* 44 32* 32 1* 51 7* 32
1081 7* 39 1* 51 47* 39 1* 44 32* 39 1* 51 7* 39
1082 # NAME
1083 1 MORRO_P1
1084 2 MORRO_P2
1085 3 MORRO_P3
1086 4 MORRO_NP
1087 5 ATOKA_P1
1088 6 ATOKA_P2
1089 7 ATOKA_P3
1090 8 ATOKA_NP
1091 9 STRWN_P1
1092 10 STRWN_P2
1093 11 STRWN_P3
1094 12 STRWN_NP
1095 13 BONES_P1
1096 14 BONES_P2
1097 15 BONES_P3
1098 16 BONES_NP
1099 17 LBRSH_P1
1100 18 LBRSH_P2
1101 19 LBRSH_P3
1102 20 UBRSH_NP
1103 21 UBRSH_P1
1104 22 UBRSH_P2
1105 23 UBRSH_P3
1106 24 LBELL_NP
1107 25 UBELL_P1
1108 26 UBELL_P2
1109 27 UBELL_P3
1110 28 CASTILER
1111 29 S_HALITE
1112 30 S_MB139
1113 31 S_MB138
1114 32 UNNAMED
1115 33 IMPERM_Z
1116 34 CAVITY_2
1117 35 CAVITY_3
1118 36 CAVITY_4
1119 37 DRZ_0
1120 38 DRZ_1

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21 39 CULEBRA
22 40 WAS_AREA
23 41 OPS_AREA
24 42 EXP_AREA
25 43 PAN_SEAL
26 44 CLAY_RUS
27 45 CL_L_T1
28 46 CL_L_T4
29 47 SALT_T1
30 48 SALT_T4
31 49 SALT_T5
32 50 SALT_T6
33 51 BH_SUR_A
34 52 BH_SLT_A
35 53 BH_SLT_L
36 54 BH_LOW_A
37 55 BH_LOW_L
38 56 CONC_PLG
39 57 BH_OPEN
40 58 BH_CREEP
41 NWST
42 1
43 MAT_WASTE1 MAT_WASTE
44 34
45 40
46 NDRZ
47 0
48 NMATRESET
49 3
50 MATRESET
51 34 35 36
52 BORE HOLE MATERIAL NUMBER
53 0
54 RESET TIME, ICWASTE
55 0.0000E+00 1
56 POWASTEIC
57 1.013250E+05
58 SOWASTEIC
59 0.000000E+00
60 PRESDRZ
61
62 # LAMBDA SOR SGR
63 1 7.000000E-01 2.000000E-01 1.000000E-02
64 2 7.000000E-01 2.000000E-01 1.000000E-02
65 3 7.000000E-01 2.000000E-01 1.000000E-02
66 4 7.000000E-01 2.000000E-01 1.000000E-02
67 5 7.000000E-01 2.000000E-01 1.000000E-02
68 6 7.000000E-01 2.000000E-01 1.000000E-02
69 7 7.000000E-01 2.000000E-01 1.000000E-02
70 8 7.000000E-01 2.000000E-01 1.000000E-02
71 9 7.000000E-01 2.000000E-01 1.000000E-02
72 10 7.000000E-01 2.000000E-01 1.000000E-02
73 11 7.000000E-01 2.000000E-01 1.000000E-02
74 12 7.000000E-01 2.000000E-01 1.000000E-02
75 13 7.000000E-01 2.000000E-01 1.000000E-02
76 14 7.000000E-01 2.000000E-01 1.000000E-02
    
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1177 15 7.000000E-01 2.000000E-01 1.000000E-02
1178 16 7.000000E-01 2.000000E-01 1.000000E-02
1179 17 7.000000E-01 2.000000E-01 1.000000E-02
1180 18 7.000000E-01 2.000000E-01 1.000000E-02
1181 19 7.000000E-01 2.000000E-01 1.000000E-02
1182 20 7.000000E-01 2.000000E-01 1.000000E-02
1183 21 7.000000E-01 2.000000E-01 1.000000E-02
1184 22 7.000000E-01 2.000000E-01 1.000000E-02
1185 23 7.000000E-01 2.000000E-01 1.000000E-02
1186 24 7.000000E-01 2.000000E-01 1.000000E-02
1187 25 7.000000E-01 2.000000E-01 1.000000E-02
1188 26 7.000000E-01 2.000000E-01 1.000000E-02
1189 27 7.000000E-01 2.000000E-01 1.000000E-02
1190 28 7.000000E-01 2.000000E-01 2.000000E-01
1191 29 7.000000E-01 3.000000E-01 2.000000E-01
1192 30 6.436000E-01 8.363000E-02 7.711000E-02
1193 31 6.436000E-01 8.363000E-02 7.711000E-02
1194 32 7.000000E-01 2.000000E-01 2.000000E-01
1195 33 7.000000E-01 0.000000E+00 0.000000E+00
1196 34 7.000000E-01 0.000000E+00 0.000000E+00
1197 35 7.000000E-01 0.000000E+00 0.000000E+00
1198 36 7.000000E-01 0.000000E+00 0.000000E+00
1199 37 7.000000E-01 0.000000E+00 0.000000E+00
1200 38 7.000000E-01 0.000000E+00 0.000000E+00
1201 39 6.436000E-01 8.363000E-02 7.711000E-02
1202 40 2.890000E+00 2.760000E-01 7.500000E-02
1203 41 7.000000E-01 0.000000E+00 0.000000E+00
1204 42 7.000000E-01 0.000000E+00 0.000000E+00
1205 43 9.400000E-01 2.000000E-01 2.000000E-01
1206 44 9.400000E-01 2.000000E-01 2.000000E-01
1207 45 9.400000E-01 2.000000E-01 2.000000E-01
1208 46 9.400000E-01 2.000000E-01 2.000000E-01
1209 47 9.400000E-01 2.000000E-01 2.000000E-01
1210 48 9.400000E-01 2.000000E-01 2.000000E-01
1211 49 9.400000E-01 2.000000E-01 2.000000E-01
1212 50 9.400000E-01 2.000000E-01 2.000000E-01
1213 51 9.400000E-01 0.000000E+00 0.000000E+00
1214 52 9.400000E-01 0.000000E+00 0.000000E+00
1215 53 9.400000E-01 0.000000E+00 0.000000E+00
1216 54 9.400000E-01 0.000000E+00 0.000000E+00
1217 55 9.400000E-01 0.000000E+00 0.000000E+00
1218 56 9.400000E-01 0.000000E+00 0.000000E+00
1219 57 7.000000E-01 0.000000E+00 0.000000E+00
1220 58 9.400000E-01 0.000000E+00 0.000000E+00
1221 # SBMIN PBMIN PCMAX PCT_A PCT_EXP KRP KPC KTP
1222 1 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1223 2 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1224 3 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1225 4 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1226 5 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1227 6 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1228 7 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1229 8 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1230 9 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1231 10 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
1232 11 2.100000E-01 1.013200E+05 1.000000E+08 2.600000E-01 -3.480000E-01 4 2 0
    
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1289	9.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1290	10.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1291	11.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1292	12.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1293	13.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1294	14.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1295	15.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1296	16.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1297	17.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1298	18.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1299	19.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1300	20.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1301	21.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1302	22.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1303	23.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1304	24.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1305	25.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1306	26.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1307	27.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1308	28.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1309	29.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1310	30.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1311	31.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1312	32.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1313	33.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1314	34.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1315	35.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1316	36.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1317	37.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1318	38.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1319	39.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1320	40.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1321	41.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1322	42.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1323	43.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1324	44.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1325	45.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1326	46.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1327	47.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1328	48.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1329	49.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1330	50.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1331	51.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1332	52.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1333	53.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1334	54.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1335	55.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1336	56.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1337	57.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1338	58.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1339	59.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1340	60.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1341	61.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1342	62.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1343	63.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10
1344	64.2060631E-14	2.060626E-20	2.060631E-14	1.000000E-01	3.286300E-10

FRACURE MODEL DATA TO FOLLOW: T OR F

1340 T
1341 NFRAC
1342 #
1343 # DELTA PI DELTA PF FRAC PIII FRAC EXP IFRX IFRY IFRZ
1344 30.200000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix P -- BRAGFLO_WATFLD_YATES01_R002.INP (BRAGFLO) File Listing

```

45 31 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
46 KLINKENBERG EFFECT TO BE USED? True or False
47 T
48 BKLINK EXPKLINK
49 2.71000E-01 -3.41000E-01
50 REFERENCE TEMPERATURE AND PRESSURE FOR DENSITY CALCULATIONS
51 3.00150E+02 1.01325E+05
52 SALT(WT.%) DEN_BR KGSAT IDGAS COMPR_BR
53 3.2400E+01 1.2200E+03 1.0 3.1000E-10
54 VISC_BR VISC_GAS
55 2.10000E-03 8.93389E-06
56 GAS DENSITY DATA: =0 COMPUTE; =1 INTERPOLATE
57 1
58 GAS MOLE FRACTIONS FOR H2, CO2, CH4, N2, H2S, AND O2
59 1.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 0.0000E+00 1 1
60 IGASVAR (2= REACTION PATH, 1= USING AVG. STOICH., 0= USING WELLS)
61 1
62 RATE CONSTANTS: CORROSION (RKCOR) AND BIODEGRADATION (RKBIO)
63 1.6297E-07 3.2031E-07
64 HUMIDITY FACTORS: HUMFAC_COR, HUMFAC_BIO
65 0.0000E+00 1.2903E-01
66 SCOR_H2=a,SCOR_H2O=b,SCOR_FE=c: where b*H2O + c*FE=> a*H2 + inert solids
67 1.0000E+00 2.0000E+00 1.0000E+00
    
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1368 SBIO_GAS=a,SBIO_H2O=b,SBIO_CH2O=c: where b*H2O + c*CH2O=> a*GAS + inerts
1369 7.5465E-01 0.0000E+00 1.0000E+00
1370 WICKING SATURATION, HUMID RATE SMOOTHING ALPHARXN
1371 5.0000E-01 T 1.0000E+03
1372 CREEP CLOSURE?
1373 T
1374 NKLOS, KLOSINT (0=MOLES,1=PRESSURE) KLOSAVE (1=REGION AVE,2=CELL)
1375 1 1 2
1376 CLOSURE PARAMETERS: PRES_LITHO, TIME_OFF PERM_FACTOR, PERM_EXP
1377 4 5.0000E+07 3.1557E+12 1.7022E-13 0.0000E+00
1378 NUMBER OF MATERIAL REGIONS FOR CLOSURE
1379 1
1380 # MAT NO. MODEL 1= WASTE-NOBACKFILL, 2=DRIFT-NOBACKFILL, 3=WASTE-BACKFILL
1381 4=JAN_96:WASTE-NOBACKFILL
1382 1 40 4
1383 WILL RADIONUCLIDE DECAY BE CALCULATED? T or F
1384 F
1385 WILL TRANSPORT BE CALCULATED? T or F
1386 F
1387 WILL RADIOLYSIS BE CALCULATED? T or F
1388 F
1389 BRAGFLO GAS COMPONENT TRANSPORT MODEL
1390 F
    
```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix Q --Differences between BRAGFLO_WATFLD_BASE01_R001.INP & BRAGFLO_WATFLD_BASE01_R002.INP (BRAGFLO) File Listings

```

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
3 6 16:19:04 = PROGRAM RUN TIME
4 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
5 *****
6 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R002.INP;1
7 6 17:53:41 = PROGRAM RUN TIME
8 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
9 *****
10 *****
11 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
12 1310 29 3.162278E-23 3.162278E-23 3.162278E-23 1.000000E-02 9.750000E-09
13 1311 30 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
14 1312 31 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
15 1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
16 *****
17 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R002.INP;1
18 1310 29 1.778279E-25 1.778279E-25 1.778279E-25 1.000000E-02 9.750000E-09
19 1311 30 7.943276E-18 7.943276E-18 7.943276E-18 1.100000E-02 7.511818E-09
20 1312 31 7.943276E-18 7.943276E-18 7.943276E-18 1.100000E-02 7.511818E-09
21 1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
22 *****
23 *****
24 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
25 1325 44 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.960000E-09
26 1326 45 5.966457E-19 5.966457E-19 5.966457E-19 2.400000E-01 1.590000E-09
27 1327 46 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.590000E-09
28 1328 47 1.808153E-15 1.808153E-15 1.808153E-15 5.000000E-02 1.600000E-09
29 1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
30 *****
31 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R002.INP;1
32 1325 44 5.000000E-18 5.000000E-18 5.000000E-18 2.400000E-01 1.960000E-09
33 1326 45 5.525260E-18 5.525260E-18 5.525260E-18 2.400000E-01 1.590000E-09
34 1327 46 5.000000E-18 5.000000E-18 5.000000E-18 2.400000E-01 1.590000E-09
35 1328 47 1.771256E-15 1.771256E-15 1.771256E-15 5.000000E-02 1.600000E-09
36 1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
37 *****
38 *****
39 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
40 1332 51 3.162278E-13 6.454208E-13 3.162278E-13 3.200000E-01 0.000000E+00

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41 1333 52 3.162278E-13 3.162278E-13 3.162278E-13 3.200000E-01 0.000000E+00
42 1334 53 3.162278E-13 1.210204E-13 3.162278E-13 3.200000E-01 0.000000E+00
43 1335 54 3.162278E-13 7.586304E-14 3.162278E-13 3.200000E-01 0.000000E+00
44 1336 55 3.162278E-13 3.320391E-14 3.162278E-13 3.200000E-01 0.000000E+00
45 1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
46 1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
47 1339 58 3.162278E-14 3.162278E-14 3.162278E-14 3.200000E-01 0.000000E+00
48 1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
49 *****
50 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R002.INP;1
51 1332 51 1.000000E-11 2.041000E-11 1.000000E-11 3.200000E-01 0.000000E+00
52 1333 52 1.000000E-11 1.000000E-11 1.000000E-11 3.200000E-01 0.000000E+00
53 1334 53 1.000000E-11 3.827000E-12 1.000000E-11 3.200000E-01 0.000000E+00
54 1335 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
55 1336 55 1.000000E-11 1.050000E-12 1.000000E-11 3.200000E-01 0.000000E+00
56 1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
57 1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
58 1339 58 1.000000E-12 1.000000E-12 1.000000E-12 3.200000E-01 0.000000E+00
59 1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
60 *****
61 *****
62 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
63 1345 30 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
64 1346 31 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
65 1347 KLINKENBERG EFFECT TO BE USED? True or False
66 *****
67 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R002.INP;1
68 1345 30 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
69 1346 31 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
70 1347 KLINKENBERG EFFECT TO BE USED? True or False
71 *****
72
73 Number of difference sections found: 5
74 Number of difference records found: 18
75
76 DIFFERENCES
77 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[NOBACK
78 K2.DMS_WATERFLOOD.BRAGFLO]BRA_B1_2.DIFF;1-
79 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1-
80 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R002.INP;1

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix R --Differences between BRAGFLO_WATFLD_BASE01_R001.INP & BRAGFLO_WATFLD_BASE01_R004.INP (BRAGFLO) File Listings

```

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;I
3 5 06/17/96 = PROGRAM RUN DATE
4 6 16:19:04 = PROGRAM RUN TIME
5 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
6 *****
7 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R004.INP;I
8 5 09/09/96 = PROGRAM RUN DATE
9 6 12:05:00 = PROGRAM RUN TIME
0 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
1 *****
2 *****
3 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;I
4 1310 29 3.162278E-23 3.162278E-23 3.162278E-23 1.000000E-02 9.750000E-09
5 1311 30 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
6 1312 31 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
7 1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
8 *****
9 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R004.INP;I
0 1310 29 1.778279E-25 1.778279E-25 1.778279E-25 1.000000E-02 9.750000E-09
1 1311 30 7.943276E-18 7.943276E-18 7.943276E-18 1.100000E-02 7.511818E-09
2 1312 31 7.943276E-18 7.943276E-18 7.943276E-18 1.100000E-02 7.511818E-09
3 1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
4 *****
5 *****
6 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;I
7 1325 44 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.960000E-09
8 1326 45 5.966457E-19 5.966457E-19 5.966457E-19 2.400000E-01 1.590000E-09
9 1327 46 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.590000E-09
0 1328 47 1.808153E-15 1.808153E-15 1.808153E-15 5.000000E-02 1.600000E-09
1 1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
2 *****
3 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R004.INP;I
4 1325 44 5.000000E-18 5.000000E-18 5.000000E-18 2.400000E-01 1.960000E-09
5 1326 45 5.525260E-18 5.525260E-18 5.525260E-18 2.400000E-01 1.590000E-09
6 1327 46 5.000000E-18 5.000000E-18 5.000000E-18 2.400000E-01 1.590000E-09
7 1328 47 1.771256E-15 1.771256E-15 1.771256E-15 5.000000E-02 1.600000E-09
8 1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
9 *****
0 *****
1 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;I

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```

42 1332 51 3.162278E-13 6.454208E-13 3.162278E-13 3.200000E-01 0.000000E+00
43 1333 52 3.162278E-13 3.162278E-13 3.162278E-13 3.200000E-01 0.000000E+00
44 1334 53 3.162278E-13 1.210204E-13 3.162278E-13 3.200000E-01 0.000000E+00
45 1335 54 3.162278E-13 7.586304E-14 3.162278E-13 3.200000E-01 0.000000E+00
46 1336 55 3.162278E-13 3.320391E-14 3.162278E-13 3.200000E-01 0.000000E+00
47 1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
48 1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
49 1339 58 3.162278E-14 3.162278E-14 3.162278E-14 3.200000E-01 0.000000E+00
50 1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
51 *****
52 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R004.INP;I
53 1332 51 1.000000E-11 2.041000E-11 1.000000E-11 3.200000E-01 0.000000E+00
54 1333 52 1.000000E-11 1.000000E-11 1.000000E-11 3.200000E-01 0.000000E+00
55 1334 53 1.000000E-03 3.827000E-04 1.000000E-03 3.200000E-01 0.000000E+00
56 1335 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
57 1336 55 1.000000E-03 1.050000E-04 1.000000E-03 3.200000E-01 0.000000E+00
58 1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
59 1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
60 1339 58 1.000000E-12 1.000000E-12 1.000000E-12 3.200000E-01 0.000000E+00
61 1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
62 *****
63 *****
64 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;I
65 1345 30 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
66 1346 31 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
67 1347 KLINKENBERG EFFECT TO BE USED? True or False
68 *****
69 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R004.INP;I
70 1345 30 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
71 1346 31 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
72 1347 KLINKENBERG EFFECT TO BE USED? True or False
73 *****
74 *****
75 Number of difference sections found: 5
76 Number of difference records found: 19
77 *****
78 DIFFERENCES
79 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[NOBAC
80 K2.DMS_WATERFLOOD.BRAGFLO]BRA_BI_4.DIFF;I-
81 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;I-
82 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R004.INP;I

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix S --Differences between BRAGFLO_WATFLD_BASE01_R001.INP & BRAGFLO_WATFLD_BASE01_R005.INP (BRAGFLO) File Listings

```

1 *****
2 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
3 5 06/17/96 = PROGRAM RUN DATE
4 6 16:19:04 = PROGRAM RUN TIME
5 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
6 *****
7 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R005.INP;1
8 5 09/12/96 = PROGRAM RUN DATE
9 6 09:36:39 = PROGRAM RUN TIME
0 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
1 *****
2 *****
3 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
4 1310 29 3.162278E-23 3.162278E-23 3.162278E-23 1.000000E-02 9.750000E-09
5 1311 30 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
6 1312 31 1.288251E-19 1.288251E-19 1.288251E-19 1.100000E-02 7.511818E-09
7 1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
8 *****
9 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R005.INP;1
0 1310 29 1.778279E-25 1.778279E-25 1.778279E-25 1.000000E-02 9.750000E-09
1 1311 30 7.943276E-18 7.943276E-18 7.943276E-18 1.100000E-02 7.511818E-09
2 1312 31 7.943276E-18 7.943276E-18 7.943276E-18 1.100000E-02 7.511818E-09
3 1313 32 9.999999E-36 9.999999E-36 9.999999E-36 1.810000E-01 0.000000E+00
4 *****
5 *****
6 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
7 1325 44 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.960000E-09
8 1326 45 5.966457E-19 5.966457E-19 5.966457E-19 2.400000E-01 1.590000E-09
9 1327 46 5.000338E-19 5.000338E-19 5.000338E-19 2.400000E-01 1.590000E-09
0 1328 47 1.808153E-15 1.808153E-15 1.808153E-15 5.000000E-02 1.600000E-09
1 1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
2 *****
3 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R005.INP;1
4 1325 44 5.000000E-18 5.000000E-18 5.000000E-18 2.400000E-01 1.960000E-09
5 1326 45 5.525260E-18 5.525260E-18 5.525260E-18 2.400000E-01 1.590000E-09
6 1327 46 5.000000E-18 5.000000E-18 5.000000E-18 2.400000E-01 1.590000E-09
7 1328 47 1.771256E-15 1.771256E-15 1.771256E-15 5.000000E-02 1.600000E-09
8 1329 48 6.829677E-18 6.829677E-18 6.829677E-18 5.000000E-02 1.600000E-09
9 *****
0 *****
1 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1

```

```

42 1332 51 3.162278E-13 6.454208E-13 3.162278E-13 3.200000E-01 0.000000E+00
43 1333 52 3.162278E-13 3.162278E-13 3.162278E-13 3.200000E-01 0.000000E+00
44 1334 53 3.162278E-13 1.210204E-13 3.162278E-13 3.200000E-01 0.000000E+00
45 1335 54 3.162278E-13 7.586304E-14 3.162278E-13 3.200000E-01 0.000000E+00
46 1336 55 3.162278E-13 3.320391E-14 3.162278E-13 3.200000E-01 0.000000E+00
47 1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
48 1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
49 1339 58 3.162278E-14 3.162278E-14 3.162278E-14 3.200000E-01 0.000000E+00
50 1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
51 *****
52 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R005.INP;1
53 1332 51 1.000000E-11 2.041000E-11 1.000000E-11 3.200000E-01 0.000000E+00
54 1333 52 1.000000E-11 1.000000E-11 1.000000E-11 3.200000E-01 0.000000E+00
55 1334 53 1.000000E-03 3.827000E-04 1.000000E-03 3.200000E-01 0.000000E+00
56 1335 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
57 1336 55 1.000000E-03 1.050000E-04 1.000000E-03 3.200000E-01 0.000000E+00
58 1337 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
59 1338 57 1.000000E-09 1.000000E-09 1.000000E-09 3.200000E-01 0.000000E+00
60 1339 58 1.000000E-12 1.000000E-12 1.000000E-12 3.200000E-01 0.000000E+00
61 1340 FRACTURE MODEL DATA TO FOLLOW :T OR F
62 *****
63 *****
64 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1
65 1345 30 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
66 1346 31 2.000000E+05 3.800000E+06 5.000000E-02 1.505499E+01 1 1 0
67 1347 KLINKENBERG EFFECT TO BE USED? True or False
68 *****
69 File NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R005.INP;1
70 1345 30 2.000000E+05 3.800000E+06 5.000000E-02 2.146364E+01 1 1 0
71 1346 31 2.000000E+05 3.800000E+06 5.000000E-02 2.146364E+01 1 1 0
72 1347 KLINKENBERG EFFECT TO BE USED? True or False
73 *****
74
75 Number of difference sections found: 5
76 Number of difference records found: 19
77
78 DIFFERENCES
79 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=I/OUTPUT=NI:[NOBAC
80 K2.DMS_WATERFLOOD.BRAGFLO]BRA_B1_5.DIFF;1-
81 NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R001.INP;1-
82 NI:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_BASE01_R005.INP;1

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix T --Differences between BRAGFLO_WATFLD_YATES01_R002.INP & BRAGFLO_WATFLD_YATES01_R003.INP (BRAGFLO) File Listings

```

1*****
2File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
3 5 06/18/96 = PROGRAM RUN DATE
4 6 15:20:35 = PROGRAM RUN TIME
5 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
6*****
7File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R003.INP;2
8 5 06/19/96 = PROGRAM RUN DATE
9 6 11:44:21 = PROGRAM RUN TIME
10 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
11*****
12*****
13File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
14 369 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
15 370 89 23 1 1
16 371 INJP
17 372 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
18 373 1.5778E+09 8
19*****
20File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R003.INP;2
21 369 0.000000E+00 0.000000E+00 7.381600E-11 1.853000E+07
22 370 89 23 1 1
23 371 INJP
24 372 0.000000E+00 0.000000E+00 7.381600E-11 1.853000E+07

```

```

25 373 1.5778E+09 8
26*****
27*****
28File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
29 1333 53 1.000000E-11 3.827000E-12 1.000000E-11 3.200000E-01 0.000000E+00
30 1334 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
31 1335 55 1.000000E-11 1.050000E-12 1.000000E-11 3.200000E-01 0.000000E+00
32 1336 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
33*****
34File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R003.INP;2
35 1333 53 1.000000E-09 3.827000E-10 1.000000E-09 3.200000E-01 0.000000E+00
36 1334 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
37 1335 55 1.000000E-09 1.050000E-10 1.000000E-09 3.200000E-01 0.000000E+00
38 1336 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
39*****
40
41 Number of difference sections found: 3
42 Number of difference records found: 9
43
44 DIFFERENCES
45 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[NOBAC
46 K2.DMS_WATERFLOOD.BRAGFLO]BRA_Y2_3.DIFF;1-
47 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2-
48 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R003.INP;2

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The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix U --Differences between BRAGFLO_WATFLD_YATES01_R002.INP & BRAGFLO_WATFLD_YATES01_R004.INP (BRAGFLO) File Listings

```

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
3 5 06/18/96 = PROGRAM RUN DATE
4 6 15:20:35 = PROGRAM RUN TIME
5 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
6 *****
7 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R004.INP;1
8 5 09/09/96 = PROGRAM RUN DATE
9 6 12:05:31 = PROGRAM RUN TIME
10 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
11 *****
12 *****
13 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
14 369 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
15 370 89 23 1 1
16 371 INJP
17 372 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
18 373 1.5778E+09 8
19 *****
20 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R004.INP;1
21 369 0.000000E+00 0.000000E+00 7.381600E-11 1.853000E+07
22 370 89 23 1 1
23 371 INJP
24 372 0.000000E+00 0.000000E+00 7.381600E-11 1.853000E+07

```

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25 373 1.5778E+09 8
26 *****
27 *****
28 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
29 1333 53 1.000000E-11 3.827000E-12 1.000000E-11 3.200000E-01 0.000000E+00
30 1334 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
31 1335 55 1.000000E-11 1.050000E-12 1.000000E-11 3.200000E-01 0.000000E+00
32 1336 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
33 *****
34 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R004.INP;1
35 1333 53 1.000000E-03 3.827000E-04 1.000000E-03 3.200000E-01 0.000000E+00
36 1334 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
37 1335 55 1.000000E-03 1.050000E-04 1.000000E-03 3.200000E-01 0.000000E+00
38 1336 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
39 *****
40
41 Number of difference sections found: 3
42 Number of difference records found: 9
43
44 DIFFERENCES
45 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[NOBAC
46 K2.DMS_WATERFLOOD.BRAGFLO]BRA_Y2_4.DIFF;1-
47 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2-
48 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R004.INP;1

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix V --Differences between BRAGFLO_WATFLD_YATES01_R002.INP & BRAGFLO_WATFLD_YATES01_R005.INP (BRAGFLO) File Listings

```

1 *****
2 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
3 5 06/18/96 = PROGRAM RUN DATE
4 6 15:20:35 = PROGRAM RUN TIME
5 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
6 *****
7 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R005.INP;1
8 5 09/12/96 = PROGRAM RUN DATE
9 6 09:37:09 = PROGRAM RUN TIME
10 7 1996 FEPS: PRESENT DAY EFFECTS OF OIL AND GAS DEVELOPMENT
11 *****
12 *****
13 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
14 369 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
15 370 89 23 1 1
16 371 INJP
17 372 0.000000E+00 0.000000E+00 7.381600E-11 2.280000E+07
18 373 1.5778E+09 8
19 *****
20 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R005.INP;1
21 369 0.000000E+00 0.000000E+00 7.381600E-11 1.853000E+07
22 370 89 23 1 1
23 371 INJP
24 372 0.000000E+00 0.000000E+00 7.381600E-11 1.853000E+07
25 373 1.5778E+09 8
26 *****
27 *****
28 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
29 1333 53 1.000000E-11 3.827000E-12 1.000000E-11 3.200000E-01 0.000000E+00
30 1334 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00

```

```

31 1335 55 1.000000E-11 1.050000E-12 1.000000E-11 3.200000E-01 0.000000E+00
32 1336 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
33 *****
34 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R005.INP;1
35 1333 53 1.000000E-03 3.827000E-04 1.000000E-03 3.200000E-01 0.000000E+00
36 1334 54 1.000000E-11 2.399000E-12 1.000000E-11 3.200000E-01 0.000000E+00
37 1335 55 1.000000E-03 1.050000E-04 1.000000E-03 3.200000E-01 0.000000E+00
38 1336 56 5.000339E-17 5.000339E-17 5.000339E-17 3.200000E-01 1.200000E-09
39 *****
40 *****
41 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2
42 1344 30 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
43 1345 31 2.000000E+05 3.800000E+06 5.000000E-02 1.233018E+01 1 1 0
44 1346 KLINKENBERG EFFECT TO BE USED? True or False
45 *****
46 File N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R005.INP;1
47 1344 30 2.000000E+05 3.800000E+06 5.000000E-02 2.146364E+01 1 1 0
48 1345 31 2.000000E+05 3.800000E+06 5.000000E-02 2.146364E+01 1 1 0
49 1346 KLINKENBERG EFFECT TO BE USED? True or False
50 *****
51
52 Number of difference sections found: 4
53 Number of difference records found: 11
54
55 DIFFERENCES
56 /IGNORE=(COMMENTS)/COMMENT_DELIMITERS=(EXCLAMATION)/MERGED=1/OUTPUT=N1:[NOBAC
57 K2.DMS_WATERFLOOD.BRAGFLO]BRA_Y2_5.DIFF;1-
58 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R002.INP;2-
59 N1:[NOBACK2.DMS_WATERFLOOD.BRAGFLO]BRAGFLO_WATFLD_YATES01_R005.INP;1

```


The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix W -- POSTALG_WF2.INP (Algebra) File Listing

```

1|*****
2| algebra file to post-process waterflood model results
3|
4|       by: D.M. Stoelzel
5|       created: 6/19/96
6|       modified: 9/19/96
7|       Created additional variables to track which formations the inj
8|       fluid is entering.
9|
10|      modified 9/23/96
11|      changed to cum NET flows (both directions included in integral)
12|      new file name: POSTALG_WF2.INP
13|*****
14| delete all
15| inj1 = intright(h0210001)
16| inj2 = intright(h0210002)
17| TOT_INJ = INJ1 + INJ2
18|
19| t1 = flowbrx[e:2121]
20| bell1_r = intright(t1)
21| delete t1
22|
23| t2 = -1.0 * flowbrx[e:2120]
24| bell1_l = intright(t2)
25| delete t2
26|
27| t3 = flowbrx[e:2202]
28| bell2_r = intright(t3)
29| delete t3
30|
31| t4 = -1.0 * flowbrx[e:2201]
32| bell2_l = intright(t4)
33| delete t4
34|
35| bell_tot = bell1_r + bell1_l + bell2_r + bell2_l
36|
37| brn1 = flowbry[e:2216]
38| flow_up1 = intright(brn1)
39| delete brn1
40|
41| brn2 = flowbry[e:2297]
42| flow_up2 = intright(brn2)
43| delete brn2
44|
45| TOT_FLUP = flow_up1 + flow_up2
46|
47| brn3 = h0310001
48| mb139we1 = intright(brn3)
49| delete brn3
50|
51| t5 = -1.0 * flowbrx[e:2814]
52| mb139_l1 = intright(t5)
53| delete t5
54|
55| brn4 = h0310002
56| mb138we1 = intright(brn4)

```

```

57| delete brn4
58|
59| t6 = -1.0 * flowbrx[e:2893]
60| mb138_l1 = intright(t6)
61| delete t6
62|
63| brn5 = -1.0*h0310004
64| mb139we2 = intright(brn5)
65| delete brn5
66|
67| t7 = flowbrx[e:2879]
68| mb139_r2 = intright(t7)
69| delete t7
70|
71| brn6 = -1.0*h0310005
72| mb138we2 = intright(brn6)
73| delete brn6
74|
75| t8 = flowbrx[e:2958]
76| mb138_r2 = intright(t8)
77| delete t8
78|
79| TOT_WELL = mb139we1 + mb138we1 + mb139we2 + mb138we2
80|
81| mb_away = mb139_l1 + mb138_l1 + mb139_r2 + mb138_r2
82|
83| brn7 = h0310007
84| mb139re1 = intright(brn7)
85| delete brn7
86|
87| brn8 = h0310008
88| mb138re1 = intright(brn8)
89| delete brn8
90|
91| brn9 = -1.0*h0310009
92| mb139re2 = intright(brn9)
93| delete brn9
94|
95| brn10 = -1.0*h0310010
96| mb138re2 = intright(brn10)
97| delete brn10
98|
99| TOT_REPO = mb139re1 + mb138re1 + mb139re2 + mb138re2
100|
101| brna = -1.0*h0310007
102| mb139ou1 = intright(brna)
103| delete brna
104|
105| brnb = -1.0*h0310008
106| mb138ou1 = intright(brnb)
107| delete brnb
108|
109| brnc = h0310009
110| mb139ou2 = intright(brnc)
111| delete brnc
112|

```

```

113 bmd = h0310010
114 mbf38ou2 = intright(bmd)
115 delete bmd
116
117 TOT_OUT = mb139ou1 + mb138ou1 + mb139ou2 + mb138ou2
118
119 c1 = flowbry(e:3067)
120 cul_wel1 = intright(c1)
121 delete c1
122
123 e2 = flowbry(e:3147)
124 cul_wel2 = intright(c2)
125 delete c2
126
127 tot_cul = cul_wel1 + cul_wel2
128
129
130 limit block 34

131 tot_voll = sum(del_x*del_y*thick)
132 avg_pres = sum(presbrin*(del_x*del_y*thick)/tot_voll)
133 avg_bsat = sum((1-satgas)*(del_x*del_y*thick)/tot_voll)
134 delete tot_voll
135
136 limit block 37
137 tot_vol2 = sum(del_x*del_y*thick)
138 pres_drz = sum(presbrin*(del_x*del_y*thick)/tot_vol2)
139 bsat_drz = sum((1-satgas)*(del_x*del_y*thick)/tot_vol2)
140 delete tot_vol2
141
142 limit block 30
143 tot_vol3 = sum(del_x*del_y*thick)
144 pres_139 = sum(presbrin*(del_x*del_y*thick)/tot_vol3)
145 bsat_139 = sum((1-satgas)*(del_x*del_y*thick)/tot_vol3)
146 delete tot_vol3
147
148 exit

```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix X -- BASE01.INP (Summarize) File Listing

```
1=====
2!
3! ANALYST: D. M. STOELZEL
4! DATE: 6/20/96
5! WATERFLOOD ANALYSIS
6=====
7!
8*INPUT FILE
9 TEMPLATE = &
10 NI:[NOBACK2.DMS_WATERFLOOD.POSTALG]POSTALG_WATFLD_BASE01_R###.CDB
11!
12*VECTORS
13 ID="#"
14 VECTORS=1, 2, 4, 5
15!
16*TIMES
17 READ=SECONDS
18 INPUT=YEARS
19 OUTPUT=YEARS
20 INTERPOLATE= 0 TO 10 BY 2, 10 TO 50 BY 5, 50 TO 1250 BY 50,&
21 1250 TO 10000 BY 250
```

```
22 ORDER=FIRST
23!
24*ITEMS
25 TYPE=HISTORY
26!
27 NAMES= TOT_INJ,TOT_WELL,TOT_REPO,TOT_OUT
28!
29 TYPE= GLOBAL
30!
31 NAMES= BELL_TOT,TOT_FLUP,MB_AWAY,TOT_CUL,AVG_PRES,AVG_BSAT,PRES_DRZ,&
32 BSAT_DRZ,PRES_139,BSAT_139
33!
34*OUTPUT FILE
35 DRIVER=EXCEL
36 WRITE=TIME VS ITEM
37 MULTIPLE FILES
38 NAME=BAS01%%%.EXT
39 ID="#"
40 EXTENSION=TXT
41!
42*END
```

The Effects of Salt Water Disposal on WIPP (FEP Screening Issue NS-7a): Appendix Y -- YATES01.INP (Summarize) File Listing

```
1!-----
2!
3! ANALYST: D. M. STOELZEL
4! DATE: 6/20/96
5! WATERFLOOD ANALYSIS
6!-----
7!
8*INPUT FILE
9 TEMPLATE = &
10 NI:[NOBACK2.DMS_WATERFLOOD.POSTALG]POSTALG_WATFLD_YATES01_R###.CDB
11!
12*VECTORS
13 ID="#"
14 VECTORS=2 TO 5
15!
16*TIMES
17 READ=SECONDS
18 INPUT=YEARS
19 OUTPUT=YEARS
20 INTERPOLATE= 0 TO 10 BY 2, 10 TO 50 BY 5, 50 TO 1250 BY 50,&
21 1250 TO 10000 BY 250
```

```
22 ORDER=FIRST
23!
24*ITEMS
25 TYPE=HISTORY
26!
27 NAMES= TOT_INJ,TOT_WELL,TOT_REPO,TOT_OUT
28!
29 TYPE= GLOBAL
30!
31 NAMES= BELL_TOT,TOT_FLUP,MB_AWAY,TOT_CUL,AVG_PRES,AVG_BSAT,PRES_DRZ,&
32 BSAT_DRZ,PRES_139,BSAT_139
33!
34*OUTPUT FILE
35 DRIVER=EXCEL
36 WRITE=TIME VS ITEM
37 MULTIPLE FILES
38 NAME=YAT01%%.EXT
39 ID="#"
40 EXTENSION=TXT
41!
42*END
```