TECHNICAL SUPPORT DOCUMENT FOR

SECTION 194.23: REVIEW OF CHANGES TO THE WIPP

PERFORMANCE ASSESSMENT

PARAMETERS SINCE THE DATABASE MIGRATION

CRA Parameter Review

U. S. ENVIRONMENTAL PROTECTION AGENCY
Office of Radiation and Indoor Air
Center for the Waste Isolation Pilot Plant
1310 L St., N.W.
Washington, DC 20005

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Note: This document is part of a series of PA parameter reviews done since the original CCA. This particular review was completed in December 2004 and is reported as part of our CRA decision. Issues noted in this report are finalized in the PABC Parameter Review, Docket A-98-49 Item II-B1-6 and in the EPA PABC Review TSD, Docket A-98-49 Item II-B1-16.

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EXECUTIVE SUMMARY

The ability of the U.S. Department of Energy's (DOE's)Waste Isolation Pilot Plant (WIPP) facility to continue to meet the certification requirements of the U.S. Environmental Protection Agency (the Agency or EPA) is demonstrated in part through the use of a series of performance assessment (PA) computer codes that are documented in the Department's Compliance Recertification Application (CRA). Since the original Compliance Certification Application (CCA), the Department's WIPP science advisor, Sandia National Laboratories (SNL), migrated data used to support performance assessment codes to new database software, added new operating systems, and added new hardware processors. In addition, values of some model parameters were changed since the original CCA PA was performed and supporting documentation for these data were moved from Albuquerque to a new WIPP Records Center in Carlsbad, New Mexico. EPA's initial review and approval of this Technical Baseline Migration (TBM) was conducted and documented in April, 2003 (EPA, 2003,EPA Docket II-B3-51). This CRA Technical Support Document (TSD) describes the Agency's review of parameter traceability, adequacy of parameter documentation, and changes to the performance assessment parameters used including the parameter database (PAPDB) to support the CRA since the TBM. Results of this review document the Agency's evaluation of DOE's compliance with the requirements of 40 CFR 194.23(c)(4) for the recertification.

There were 128 new parameters and 203 changes to parameter values in the PAPDB since the Technical Baseline Migration was conducted in 2002 and 2003 that support DOE's Compliance Recertification Application. Accuracy of the data entry process was checked and found to be satisfactory. There were no transcription errors between the parameter entry forms and the entry of data into the computer database. Our review of the parameter entry forms found them to be adequate although the practice of permitting data entry staff to make changes to the data entry forms may result in data entry errors or data values not intended by the data originator. Although current procedures do not explicitly prohibit this practice, procedures should be modified to prohibit this practice. All parameter values in the PAPDB as of July 2004 appear correct and traceable to documentation justifying their values.

Two tests of the database-to-code interface were conducted to evaluate accuracy of performance assessment codes in accessing PAPDB data. All values accessed by the performance assessment codes were correct (i.e., they matched the values in the PAPDB or were within the range of acceptable sampled values) with the exception of one parameter. The one non-matching parameter was due to an override of the PAPDB value by the analyst using the ALGEBRA code. Acceptable documentation justifying this override was provided by SNL. Because this one exception was an intentional override by the analysts and the justification for the override was adequately documented, the PAPDB database to PA code interface was found to be satisfactory.

However, while resolving the issue of parameter overrides for the AP-106 calculations we discovered that additional parameters were changed for the CRA PA analysis. In addition, we discovered during our PAPDB review and database-to-code interface testing that there were parameters used in some analyses (e.g., DRSPALL, MODFLOW) that were not recorded in the PAPDB. Discovery of parameters being used in CRA PA calculations that were not in the

PAPDB resulted in a detailed review of PA computer code input files in the VAX VMS Code Management System (CMS) and Linux Concurrent Versions System (CVS) file management systems. This review identified over 70 parameters that were not in the PAPDB when the CRA PA was performed. We then reviewed code user's manuals, analysis plans, and analysis packages for the CRA PA. We also reviewed various references from these documents and had extensive discussions with SNL analysts responsible for the CRA PA. These reviews and discussions resulted in adequate documentation being identified for these parameters. A list of these parameters and references to supporting documentation is provided in Table 7 of this report. Traceability for these parameters was not always easy, often requiring discussion with analysts to define parameters and find documentation for their values. We recommended that these parameters be added to the PAPDB or a more transparent parameter referencing system be developed to facilitate and enhance review of PA parameters.

This CRA PA parameter review addressed parameter identification, PA code access of database parameters, and documented traceability for parameters used in the WIPP CRA PA. The SNL practice of not including all appropriate parameters used in the CRA PA in the PAPDB makes it difficult to identify all parameters used in the CRA PA and to trace to documentation justifying the values for all the parameters used in the CRA PA. Placing all parameters used in the PA calculations in the PAPDB, or central parameter database, with complete documentation references, would provide a more efficient means of identifying parameters used in particular PA analysis and of tracing changes to those parameters and the supporting documentation for those parameters.

Even though the EPA found the review of parameters used in the CRA PA calculation difficult at times, we believe that we have been able to verify adequate documentation is available for our more thorough technical review. In particular, the Agency's technical review will address the following parameter related technical issues:

- F Basis for the inventory updates (traceability/accuracy to source data and future inventory estimates),

- F Accuracy of decay calculations,

- F Basis for thermodynamic database changes and associated solubility changes,

- F Basis for parameter values overrides/code stability issue in BRAGFLO analyses, and

- F Basis for non-PAPDB parameter values supporting the changed transmissivity fields (MODFLOW analyses data in Linux-based CVS file system).

1.0   INTRODUCTION

The ability of the U.S. Department of Energy's (DOE's) Waste Isolation Pilot Plant (WIPP) facility to continue to meet the certification requirements of the U.S. Environmental Protection Agency (the Agency or EPA) is demonstrated in part through the use of a series of performance assessment computer codes that are documented in the Department's Compliance Recertification Application (CRA). Since the original Compliance Certification Application (CCA), the Department's WIPP science advisor, Sandia National Laboratories (SNL), migrated data used to support performance assessment codes to new database software, a new operating system, and new hardware processor. In addition, values of some model parameters were changed during the data migration and supporting documentation for these data were moved from Albuquerque to a new WIPP Records Center in Carlsbad, New Mexico. EPA's initial review of this Technical Baseline Migration (TBM) was conducted and documented in April, 2003 (EPA, 2003, EPA Docket II-B3-51). This Technical Support Document describes the Agency's review of parameter traceability, adequacy of parameter documentation, and changes to the performance assessment parameters used, including the parameter database (PAPDB), to support the CRA since the TBM. Results of this review document the Agency's evaluation of DOE's compliance with requirements of 40 CFR 194.23(c)(4).

2.0   APPROACH

The EPA's review was conducted by Agency and contractor personnel. The scope of this review included:

- Ϝ Verification and documentation of all changes to the PAPDB since the technical baseline migration (TBM),

- Ϝ Reviewing procedural documentation supporting database changes,

- Ϝ Reviewing and evaluating supporting metadata for new and changed parameter values,

- Ϝ Checking the ability of performance assessment codes to accurately access input parameters from the new database, and

- Ϝ Review of CRA performance assessment code input files on the CMS/VMS and the Linux-based CVS file systems to identify parameters not in the PAPDB.

The primary objective of the Agency's review was to assess documentation and traceability of changes to the parameter values and metadata that have occurred since the TBM in the PAPDB. A secondary objective was to determine if all parameters used in the CRA PA calculations were in the PAPDB. Final technical review of the PAPDB data values will be conducted separately as part of the Agency's review and evaluation of the CRA.

Review of the PAPDB changes was initiated in November 2003 with preparatory activities and an initial on-site review of the PAPDB. The parameter database is maintained in Carlsbad by the

Department's WIPP science advisor, Sandia National Laboratories (SNL). The Agency's review was implemented in several steps, recognizing that changes in approach might be needed as the review progressed. Preparatory activities were conducted prior to the onsite reviews as follows:

- F Obtained a list of all parameters changed or added to the database since the CCA
- F Sorted the list into two parts: parameters changed or added after the TBM and parameters changed or added since the CCA, during the TBM. The focus of the on-site review was on parameters changed or added after the TBM activities, and
- F Prepared a checklist for reviewing the adequacy of parameter traceability documentation for the changed and new parameters in the PAPDB.

The first subset of the PAPDB consisted of 128 new parameters and 203 changes in parameters since the TBM activities. The second subset of the PAPDB consisted of 95 parameter value changes made since the CCA, during the TBM activities. It does not include parameters whose units, references, etc. were changed since the CCA.

Activities were conducted during the team's first visit to Carlsbad as follows:

- F Confirmed the completeness of the changed and new parameter list by visually inspecting the on-line PAPDB and comparing all parameters in the PAPDB with the database reviewed during the TBM review during 2002 and 2003.
- F Reviewed accuracy of parameter data entry by comparing the on-line PAPDB values with the values on the Parameter Data Entry Forms (PDEs). Parameter units, distribution type, statistics, names, and references also were reviewed.
- F Checked PDEs for completeness, signatures and references to supporting justification documentation.
- F Compiled a list of supporting documentation to be reviewed to confirm accuracy of the parameter values on the PDEs and to evaluate the traceability of the parameter changes, and
- F Reviewed the ability of the current performance assessment codes to accurately access input parameters from the database.

Other activities were conducted by email and telephone. SNL provided copies of documentation for parameters changed since the TBM. These documents were reviewed to assess the appropriateness of the parameter changes by the Agency review team. SNL also provided additional supporting documentation as requested to address issues that developed as the review of the database changes continued.

In July 2004 we made a second visit to Carlsbad to review changes to the PAPDB resulting from the team's initial assessment of the database. We conducted a more comprehensive test of the ability of the CRA PA codes to accurately retrieve parameters from the PAPDB and to talk with program analysts. We also obtained data files and documents necessary to determine if all parameters used in the CRA PA were present in the PAPDB. The results of the PAPDB parameter review and database access assessment are documented in Sections 3.0 and 4.0 of this report.

Remote access to the CMS/VMS file system was established after the July 2004 visit to Carlsbad to facilitate the parameter review of PA code input/output files residing on the CMS file system

in Carlsbad. Remote access was not feasible for the Linux-based CVS file system. A visit to the SNL facilities in Albuquerque was made in October 2004 to review the CVS system input and output files associated with the transmissivity field derivation and groundwater flow analyses supporting the CRA. We also talked with the responsible analysts. The results of the CMS and VMS and CVS file system parameter review are documented in Section 5.8 of this report.

3.0 REVIEW OF CHANGED PARAMETER VALUES AND NEW PARAMETERS IN THE PAPDB

There are 128 new parameters and 203 changes to existing parameters out of the approximately 1700 parameters currently in the PAPDB. These parameters are identified in Table 1. Because of the large amount of information for each parameter, Table 1 is separated into three sections. Table 1 presents current values for each changed parameter (Table 1, Section 1) and the previous value for comparison purposes (Table 1, Section 2). When more than one current value is presented for a parameter, the one associated with the most recent date is the current value listed in the CRA. Each change from the TBM database for a parameter is listed separately in the database and in Table 1.

Also listed in Table 1, Section 3 are references to supporting documentation for changed/new parameters, and a column documenting Parameter Data Entry form check (PDE Check, Section 3). A "1" in this column indicates that the parameter values on the PDE form agreed with those in the PAPDB and that the form was completely and correctly filled out. A "2" in the PDE Check column indicates the presence of handwritten changes on the form that have not been corrected by a Problem Parameter Report or other documentation. A "3" in the PDE Check column indicates minor handwritten corrections on the PDE that are not associated with parameter values (e.g., corrections to references). Minor comments with respect to the PDEs are provided in the comment column. Descriptions of the parameter names/properties listed in Table 1 are provided in Appendix A.

Table 2 provides an assessment of the adequacy of supporting documentation for parameter changes and has a column labeled, "Doc. OK?," indicating whether parameter values in the PAPDB match values present in the supporting documentation and whether the values are supported by the referenced documentation. "1" in this column indicates the values matched and were traceable to values present in referenced supporting documentation listed in the PAPDB. "2" in this column indicates that values were traceable through the referenced documentation listed in the PAPDB; that is, documents referenced in the listed documentation in the PAPDB provided the necessary traceability. Table 2 lists only the median value for each parameter. See Table 1 for complete parameter values.

3.1 Parameter Value Review

3.1.1 Inventory Changes

One reason for the large number of changes to the PAPDB is that the radionuclide inventories

used in PA computer codes PANEL and NUTS were updated in August 2003 after their initial update for the CRA in May 2003. Examination of documentation listed in the PDEs (Leigh, 2003c; Leigh, 2003e; Leigh, 2003h; Leigh, 2003i) did not explain why the values were revised after the initial update. However, additional review of documents referenced in the supporting documents justifies updating the initial inventory and subsequent revisions. The initial inventory change (May 2003) was the result of a request by SNL (dated April 2002) to Los Alamos National Laboratory (LANL) to update the generator site Transuranic Waste Inventory Report (per Downs and Guerin, 2003) to address revisions in inventory estimates that were made since the CCA, to account for currently emplaced waste and waste to be emplaced, and that addresses heterogeneous waste emplacement. It also addresses corrections to ^{238}U and ^{151}Sm concentrations for tank waste stream RP-W03. SNL also requested inventory information for additional radionuclides (~14) to support performance assessment (PA) of direct brine release and subsurface transport for the CRA calculations. This inventory update is based on the Transuranic Waste Baseline Inventory Database (TWBID) Rev. 2.1, Version 3.11.

In August 2003 a second inventory revision occurred to address continued updates to the waste inventory database by LANL. This database update occurred after Idaho National Environmental and Engineering Laboratory (INEEL) reported waste volumes they had originally reported were not the actual shipped volumes that would be received at WIPP (Leigh, 2003f). Additional volume associated with packing 55-gallon drums into ten drum overpacks was not included. This change impacted waste material densities, container material densities, and the radionuclide concentrations reported. The resulting revision to the PAPDB was based on TWBID Rev. 2.1, Version 3.12, Data Version D.4.08 and was documented in SNL (2003l). SNL also requested that scaled volume and activities data for selected radionuclides be separated into tables for CH and RH waste streams for this updated inventory.

In September 2003 a third revision to the radionuclide inventories in the PAPDB was made (SNL, 2003o). This revision was required because radionuclide data for eight waste streams from LANL were incorrectly set to zero, affecting 60 radionuclides. There was a significant inventory change only for the ^{244}Cm inventory. Computer code PANEL had not yet been run, and ^{244}Cm was not used in the NUTS calculations. Therefore, there was no significant impact on performance assessment calculations for the CRA as a result of these changes.

Comparison of the inventory values in the PAPDB with the values in the supporting documentation indicate that all values in the database were correctly entered (see Table 2). Supporting parameter documentation indicated that adequate documentation exists (either in the primary reference present in the PAPDB or in additional referenced documentation) to establish how the data was derived, and that quality procedures were followed. Our review did not attempt to verify the actual inventory data or to review the decay calculations used to decay inventory data to 2033 because the inventory data collection and calculation methods had not changed from the CCA and were conducted under a quality control program. Final technical review of the inventory data will be performed as part of the Agency's technical review of the CRA.

3.1.2 New Parameters

New parameters can be classified into five groups.

Group 1 consists of parameters that were included as data statements in the Fortran source code in BRAGFLO Version 4.10.01, but were removed in BRAGFLO Version 5.00 and placed into the PAPDB. These parameters are now gotten by BRAGFLO from the PAPDB. There are two types of parameters: molecular weights of compounds and chemical parameters required by the Redlich-Kwong-Soave equation of state. These parameters are designated by a "B" after the analysis name in the "Analysis column" (first column) in Tables 1 and 2. Review of data statements in the source code for BRAGFLO Version 5.00 shows original data commented out. Comparison of the source code with the PAPDB data entries (SNL, 2003d) indicates that all values entered in the PAPDB are entered correctly. Three values present in BRAGFLO Version 4.10.01 were not entered into the PAPDB, because they were already in the PAPDB (Parameter ID # 2858, 2864, 2865; SNL, 2004n). These were molecular weight values for H_2, H_2O and Fe. Parameter values in the PAPDB were the same as those used in the CCA. Documentation of these new parameters is sufficient.

Group 2 consists of parameters added to the PAPDB to support the new spallings model (DRSPALL). These parameters are identified in Tables 1 and 2 by Material ID: SPALLMOD. Detailed discussion of these parameters, including justification and derivation is documented in "Parameter Justification Report for DRSPALL," (Hansen, et al., 2003). All SPALLMOD parameter values listed in Appendix A of this TSD match values in the PAPDB with the following exceptions: DDZPERM, DRILRATE, DRZPERM, MUDPRATE, MUDSOLVE, POISRAT, and SHAPEFAC (see Table 2). In the original report these parameters were not constants but sampled values. DRSPALL sensitivity analyses, documented in Lord and Rudeen (2003), "Sensitivity Analysis Report - Part II DRSPALL Version 1.00," provided support for converting these parameters to constant values. These sensitivity analysis studies indicated that variations in their values did not significantly influence results.

In addition, the value for the SPALLMOD:REFPRS parameter did not match the Parameter Justification Report Appendix A table, but it did match the value derived in the text of the document. Thus, there appeared to be a typographical error in the Appendix A table. The value in the PAPDB was correct. SNL corrected the error in the Appendix A table (documented in SNL, 2004d). There were also two values used in DRSPALL not supported by documentation, the mean values for SPALLMOD:REPIPERM and SPALLMOD:TENSLSTR. The values in the PAPDB were correct based on formulas for computing them from the max-min values and distribution types provided, but the Appendix A table did not list the mean values. However, for consistency and completeness, supporting documentation should provide all values included in the PAPDB for each parameter along with the calculations and formulas used to generate those values. SNL provided documentation (SNL, 2003v and SNL, 2003w) that showed how the values were calculated and added a reference in the PAPDB to ensure adequate traceability of values in the PAPDB for these two parameters.

Group 3 consisted of parameters added to the PAPDB to support the Modified Shaft Analysis. These parameters were designated by their analysis name: AP106. New parameters were

required because the simplified shaft model reduced 11 separate material types present in the conceptual models of shaft seal components to two equivalent layers and reduced the six time intervals to two time intervals (James and Stein, 2003; Scott and Stein, 2002). The result was a set of parameters for three materials: SHFTU, SHFTL_T1, and SHFTL_T2. Values used are weighted averages of parameter values assigned to the original 11 layers or they had constant or sampled values identical to CCA material SALT_T1. Comparison of PAPDB values in the EXCEL spreadsheet from the Appendix to "Analysis Report for: Development of a Simplified Shaft Seal Model for the WIPP PA, Rev. 1." (James and Stein, 2003) indicated that all values in the PAPDB were entered correctly (see Table 2). Documentation identified in the PAPDB is complete and sufficient.

Group 4 consists of eight parameters, three associated with the Advanced Mixed Waste Impact Assessment calculations and designated by their analysis name: AMW, three GLOBAL parameters: ONEPLG, TWOPLG and THREEPLG, and two reference (REFCON) values. The GLOBAL parameters represent probabilities of having plug patterns 1, 2 or 3, respectively for borehole plugs modeled in the CRA analyses. The REFCON parameters were REFCON:FVRW and REFCON:LHSBLANK. REFCON:FVRW represent the fraction of solid material removed as cuttings and cavings by drilling intrusion into the RH waste regions of the WIPP. The LHSBLANK was a placeholder parameter used to facilitate a more descriptive output of the LHS code. PAPDB values for the GLOBAL parameters and the REFCON values were entered correctly and the documentation is complete (see Table 2).

Two parameters, WAS_AMW:CLOSMOD1 and WAS_AMW:CLOSMOD2, are discrete random variables used to select a porosity surface for the representative waste panel in BRAGFLO. Initially documentation for these parameters provided probabilities but no further information to support the distribution, maximum, minimum, mean, and median values recorded in the PAPDB. There was information to support development of these values, but no calculations or data tables were documented. This issue was subsequently addressed through the development and issuance of a "Memo to Records", (SNL, 2004a), dated 22 March 2004. This memo provided a detailed explanation of the derivation and justification of the two WAS_AMW:CLOSMOD parameters in the PAPDB. A reference to this memo was added to the PAPDB. Documentation is now complete and sufficient for these parameters.

WAS_AMW:FRACAMW was an uncertain sampled parameter representing the fraction of representative panel's volume filled with waste from the AMWTF. There was no information in referenced documents supporting values in the PAPDB at the time of out initial review. This issue was subsequently addressed through development and issuance of a "Memo to Records", (SNL, 2004b), dated 22 March 2004. This memo provided a detailed explanation of the derivation and justification for values in the PAPDB for this parameter. A reference to this memo was added to the PAPDB. Comparison of data in the new supporting documentation with the PAPDB values indicates that all values were entered correctly. The current supporting documentation for the parameters used in the AMWTF analyses is accurate and sufficient. (See Table 2).

Group 5 consists of 16 parameters associated with revised solubilities for actinides (SOLMOD3, SOLMOD 4, SOLMOD 5, and SOLMOD6) and two parameters for solubility multipliers

(SOLTH4 and SOLU4) used in the CRA PA. They incorporated effects of organic ligands and microbes on actinide solubilities and reflect new calculations using the same methodologies used in the CCA, but used revised brine compositions, four organic ligands, and the brucite-hydromagnesite carbonation reaction buffer specified by the Agency for the PAVT. Calculation of these solubilities was documented in "*Calculation of Actinide Solubilities for the WIPP CRA*", (Brush and Xiong, 2003). Solubility parameters calculated in the CCA reflected inorganic ligand influences and did not include the impact of organic ligands.   Solubility multiplier parameters were values developed for the CCA but never entered into the parameter database. All data entries are correct for these parameters and the supporting documentation is complete and sufficient (see Table 2). PA calculations appear sensitive to radionuclide solubilities, therefore the derivation of these new solubilities will be reviewed in detailed technical review during the Agency's review of the CRA.

3.1.3   Other Changed Parameters

There were a number of other parameters in the PAPDB that were changed since the TBM. These parameter changes were associated with value revisions due to new information or value corrections. Nineteen parameters associated with the property COMP_RCK (rock bulk compressibility) were found to be incorrect; values in the old database were pore compressibility rather than bulk compressibility. Correct values were used in the certification PAVT, AP-106, and subsequent PA analyses by using ALGEBRA to multiply the pore compressibility by porosity. These values were changed in the PAPDB to reflect the correct values for bulk compressibility. Comparison of the data in the supporting documentation with the PAPDB values indicate that all values were entered correctly. The supporting documentation is accurate and sufficient (See Table 2).

Four parameters for the material, CULEBRA, and one for MAGENTA were also updated to reflect new information on water levels and transmissivity fields for the WIPP. In addition, parameter REFCON:VREPOS was changed to address an incorrect repository volume calculation. Comparison of PAPDB values with values in the supporting documentation show that the values have been entered correctly. Supporting documentation is sufficient and complete for these parameters (see Table 2).

Three parameters were changed as a result of requests from the Agency. These were AM+3:MKD_AM, PU+3:MKD_PU, and SOLMOD3:SOLCIM. Two revisions were made to each of these parameters with the second revision correcting ranges and values incorrectly entered the first time. Rationale and calculations supporting the first revision are fully documented in SNL (1996c), "Revised Ranges and Probability Distribution of Kds for Dissolved Pu, Am, U, Th, and Np in the Culebra for the PA Calculations to Support the WIPP CCA", Hansen and Leigh (2002), and Hansen (2002), "A Reconciliation of the CCA and PAVT Parameter Baselines, Rev. 1/Rev 2."   There were changes in the distribution type at the Agency's request for the certification PAVT and changes in the parameter value range due to errors in the procedure used to calculate the Kds. The original change to SOLMOD3:SOLCIM was made at the request of the Agency to correct errors in the database used to calculate the value (Hansen and Leigh, 2002; Hansen, 2002). An SNL Memo to Records (SNL, 2002i) states that the value in Hansen and Leigh (2002) for this parameter was incorrectly entered and

provides a corrected value. Current values for these parameters in the PAPDB are correctly entered, and documentation for the SOLMOD3 parameter is complete and sufficient. However, original documentation referenced in the PDE forms and record in the PAPDB for the KD parameters was incomplete. Calculations of mean, median and standard deviation values were recently added to the documentation (SNL, 2004h and SNL, 2004g) at the Agency Review Team's request to provide sufficient justifiction for the values in the PAPDB. The AM+3 and PU+3 MKD parameters are now considered correctly entered and the supporting documentation sufficient.

Table 3 list parameters whose values have changed since the CCA and reviewed by the Agency's Review Team as part of the TBM activities in 2002. Because of the large amount of data for each parameter the table is divided into two sections. These parameters are not reviewed further in this report.

3.2   Parameter Data Entry Process Review

Parameter data entry process and control were evaluated by reviewing the Parameter Data Entry (PDEs) forms used as the basis for data entry into the PAPDB in accordance with SNL Procedure NP 9-2, Parameters, Rev. 0. Each form for the 331 new or changed parameters was inspected for completeness (i.e., all appropriate blanks filled in and necessary signatures). Accuracy of the data entry process was checked by visually comparing the information on the form with the information shown in the on-line PAPDB. In no cases were errors found in the entered parameter values when compared to the forms.

We noted several PDE forms were changed by the data entry person or the QA Manager. These changes were documented by line-throughs and then initialed. We also reviewed appropriateness of those changes and the process by which they were made. Four parameters had some type of change present on the PDE form (i.e., a handwritten change to the typed form), shown in BOLD letters below.   We could not confirm that the data value originator approved these manual changes. Subsequent review of the supporting documentation for these parameters indicated that the changed values were correct and matched the values in the PAPDB. Other parameters listed below are either minor typographical corrections or have a Parameter Problem Report to document the change.

BLOWOUT THCK_CAS (Param ID 3473)   Parameter type changed, change is correct
CM244 INVCHD (Param ID 112)   Parameter correction documented by
Parameter Problem Report (SNL, 2003x).
SHFTL_T1 RELP MOD (Param ID 3570) Value changed by data entry person; value is correct per James and Stein (2003).
SPALLMOD TENSLSTR (Param ID 3676)   Numerous changes in parameter values by data entry person; max and min values agree with reference Hansen et al., (2003), but no mean or median values given in reference for comparison; distribution in reference is log-uniform, not uniform as present in PDE and PAPDB. A memo to the Record Center, dated 2 Feb 04, corrects the text of Hansen et al., (2003) to agree with the Appendix A Table. The correct distribution is uniform. Median value give in Table A of Hansen et al. (2003).
SPALLMOD REPIPERM (Param ID 3666)   Mean and Std. Dev. Values provided by data

entry staff (handwritten), not data requestor. Values are correct per Hansen, et al., (2003).
SPALLMOD PARTDIAM (Param ID 3667)   Mean and Std. Dev. Values provided by data entry staff (handwritten), not data requestor. Values are correct per Hansen et al., (2003).
WAS_AREA DCELLCHW (Param ID 2041)   Corrections to references by QA Manager, corrections OK.
WAS_AREA DCELLRHW (Param ID 2274)   Data version and references corrected by QA Manager, corrections OK.

Review of Data Entry Procedure, NP 9-2, indicated that there was no explicit procedure for making corrections to a Data Entry Form by staff members prior to entry of data into the PAPDB. Section 2.3 of NP 9-2 suggest that a new Data Entry Form be generated. Parameter Problem Reporting (Section 2.4 of Procedure NP 9-2) only addresses making corrections in parameter values after data was entered into the PAPDB. Discussions with data entry staff indicated that it was acceptable for them to make changes because the form was reviewed and approved after each change was made (with everyone's knowledge) by the QA Manager, per Procedure NP 9-2. Everyone with signature authority is permitted to make changes to the form prior to actual data entry into the PAPDB.   We believe this practice may result in errors in the database and problems with parameter value justification and traceability. Any changes or additions to parameter values on the PDE form after submission for data entry should require the signature acknowledgment of the original data requestor or the PA Manager.

4.0   REVIEW OF PAPDB DATABASE-TO-CODE INTERFACE

Performance assessment computer codes that execute on the VAX computer platform transfer access the parameter database directly, therefore accurate access by the WIPP PA codes of PAPDB parameter values was evaluated by comparing code input files with PAPDB database values and are discussed in this section. Four checks were conducted of the PAPDB interface with WIPP PA codes: BRAGFLO, PANEL, DRSPALL and CUTTINGS. These checks were conducted by Bart Buell at the SNL WIPP Carlsbad Facility and observed by the Agency Review Team. The results are shown in Table 4. A computer code named GROPECDB was used to interrogate PA CAMDAT (CDB) binary format files so that parameter values used in calculations can be examined. For example, the command GROPECDB LHS3_DRS_CRA1_A1_R001.CDB, interrogates the LHS3 output file of the DRSPALL code for the CRA1 analysis, for replicate A1[1] and vector R001[1]. Generally, the results are queried from the ALGEBRA, LHS or CCGF code files.

As can be seen in Table 4, all values returned exactly matched non-sampled values (constant values) or fell within the range of sampled values except for one. ALGEBRA returned a value of 0.0 for the SHFTL_T1:PCT_A parameter when the value in the PAPDB is 0.56. In this case, the analyst had instructed the ALGEBRA code to alter the PAPDB value. Review of the "Analysis Report for the Development of a Simplified Shaft Seal Model for the WIPP Performance Assessment,"(James and Stein, 2003) did not provide any justification of this change. Discussions with SNL staff resulted in the issuance of a memo addressing this concern: "Parameter Values Used for the Simplified Shaft Model in the CRA1 and AMWTP BRAGFLO Analyses," (SNL, 2003u).

Override of the SHFTL_T1:PCT_A parameter was caused by numerical instabilities in the PA code BRAGFLO when certain shaft seal parameters were assigned the values in the PAPDB. The instabilities arose when the initial brine saturations within the shaft were near residual brine saturation. This then resulted in high capillary pressures and nonequilibrium in the gas phase at the start of the simulation step. To avoid this problem, zero capillary pressure was assigned for all materials and the initial brine saturation was set very high. Thus the value for SHFTL_T1:PCT_A was reset to 0.0 for the analyses. A similar situation during the CCA was resolved in the same manner. Technical basis for this parameter change will be evaluated further by the Agency during its technical review of the CRA.

Because of issues discussed below concerning changing of PAPDB parameter values during analysis and the existence of parameters used in the CRA PA that were not in the PAPDB, a more complete evaluation of the accuracy of the CRA PA code retrieval of parameter values from the PAPDB was conducted during the team's second visit to Carlsbad. Results of that evaluation are documented in Table 5. All retrieved parameter values matched those values in the PAPDB.   In conclusion, the code to database interface testing results were satisfactory.

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1   Both A# and R# are used to designate replicate # in the CRA PA codes, with R# being more common. Both R*xxx* and V*xxx* are used to designate vectors in the CRA PA codes, with V*xxx* being more common (Long, 2004).

SNL also provided a list of 20 parameters used in the AP-106 analyses that were changed using ALGEBRA, listed in Table 6. The changes in parameters for the shaft materials (SHFTL_T1, SHFTL_T2 and SHFTU) are explained in a Memo to Record (SNL, 2003u). Parameter DRZ_PCS:RELP_MOD was reassigned in the ALGEBRA code to the values for DRZ_1:RELP_MOD for all properties except permeability before BRAGFLO was run. A problem was identified with the mean and median values and a Parameter Problem Report was issued by SNL to correct the values (SNL, 2004f). The PAPDB was modified to correct DRZ_1:RELP_MOD values currently used by BRAGFLO and are listed in the table below, therefore it is no longer necessary to modify the values for this parameter in the ALGEBRA code. The REPOSIT parameters were set equal in ALGEBRA to the WAS_AREA values for each property because BRAGFLO requires two waste materials in the grid. The technical basis for these parameter changes will be evaluated during the Agency's review of the CRA.

SNL also provided a list of 10 additional parameters used in DRSPALL that were not in the PAPDB. These values were not in the PAPDB because they were considered by SNL to be primarily code control parameters, not material properties. The use and description of each of these parameters, taken from an undated SNL memo from D. Lord to Record, "Description of DRSPALL Parameters Called Out in CRA Table PAR-2," (SNL, 2004c), is provided below.

SPALLMOD:CHARLEN (characteristic length for tensile failure) – This parameter is implemented in DRSPALL to mitigate zone-size dependence in tensile failure. The characteristic length is defined as the distance from the cavity wall into the solid over which the mean effective stress is evaluated. This distance must capture at least 5 computational zones. It was determined using zone size convergence studies and set at 2 cm for the CRA. As this parameter serves more as a numerical control parameter rather than a property, it was not considered appropriate for the PAPDB by SNL. However, it also could be considered a property suitable for inclusion in the PAPDB with reference to documentation justifying the selection of the values by SNL.

SPALLMOD:DRZTCK (DRZ thickness) – The disturbed rock zone thickness in the spallings model is a constant designating the distance above the repository at which gas flow between the repository and the well bore is precluded due to effectively zero permeability. The value was set at 0.85m and the initial bit height above the repository (INITBAR-see next entry) was set at 0.15m. SNL did not include this "material property" because operationally it has no impact on DRSPALL results when INITBAR = 0.15 as set for the CRA. However, this does not appear to be a run control parameter. It can be considered a property and should be part of the PAPDB with reference to documentation justifying the selection of the values by SNL.

SPALLMOD:INITBAR (initial height above the repository) – This parameter sets the initial height of the drill bit above the top of the waste room at the start of the DRSPALL simulation. Since the rotational drilling rate is constant, this parameter sets the time from drilling start to repository penetration. It must allow enough time for startup transients in fluid pressure and velocity to settle down before the bit penetrates the repository. Its value was established through observations of numerous test runs during code development. SNL considers this parameter to be a run control parameter, although it could also be considered a property suitable for inclusion in the PAPDB.

SPALLMOD:EXITPLEN (exit pipe length) and EXITPDIA (exit pipe diameter) – These parameters describe the length and diameter of the pipe that connects the well head at the top of the borehole annulus to the mud pit. The value for EXITPLEN is conservatively set to 0.00 for CRA calculations because any non-zero pipe length used would provide some resistance to mud flow and raise well bottom pressure slightly which in turn would reduce spallings. By setting EXITPLEN to 0.00, the exit pipe functionality is not used in CRA calculations. SNL considers these parameters to be run control parameters, although they also could be considered properties suitable for inclusion in the PAPDB.

SPALLMOD:FRCHBETA (Frochheimer Beta) – This parameter is a constant in an empirical formula for gas flow not specific to the WIPP waste form and therefore SNL does not consider it suitable for inclusion in the PAPDB. However, it is a constant and could easily be included in the PAPDB along with the other constants in the database.

SPALLMOD:MAXPPRES (maximum allowed mud pump pressure) – This parameter sets the maximum allowed pressure for the mud pump. A value of 27.5 Mpa was selected from literature from oilfield mud pump manufacturers. However, this parameter was not used in the CRA by the DRSPALL code because the drill pipe portion of the domain was shut off, and a constant mud flow rate condition was imposed at the bit nozzles. Thus, SNL did not include it in the PAPDB. However, it also can be considered a property suitable for inclusion in the PAPDB.

SPALLMOD:REPOSTCK (repository thickness) – This parameter permits the user to override the calculated repository height with an arbitrary value. It was set to 0.00 for all CRA runs, and DRSPALL calculates the height resulting from the sampled porosity (SPALLMOD:REPIPOR). Thus, SNL did not include it in the PAPDB, and considers it a run control parameter, although it also could be considered a property and included in the PAPDB.

SPALLMOD:REPOTRAD (repository domain outer radius) – This parameter defines the distance from the origin to the outer boundary of the repository domain. The default value is 19.2 m which is conservatively large for the spallings analyses. SNL considers this a run control parameter, although it is a physical property and could be included in the PAPDB.

SPALLMOD:STPDTIME (stop drilling time) – This parameter stops the drilling at a specified time. Its default value is 1000 seconds. This value far exceeds the time necessary for the bit to pass through the repository height and thus has no effect on CRA calculations. SNL also considers this a run control parameter, and thus has not included it in the PAPDB. However, it could also be considered a property suitable for inclusion in the PAPDB.

We were concerned that not including the these parameters in the PAPDB means that some parameters may not be adequately documented. These parameters were not discussed in the DRSPALL Parameter Justification Report (Hansen, et al., 2003) and we could not find where they were documented. Our review of these parameters suggests that they may be considered material properties and that they should be recorded in the PAPDB.

As a result, we asked SNL to enter all these parameters into the PAPDB. In DOE's response

dated July 22, 2004 (SNL, 2004e) four of the ten parameters were entered into the PAPDB: SPALLMOD: DRZTCK, FRCHBETA, REPOSTCK and REPOTRAD (SNL, 2004i; SNL, 2004j; SNL, 2004k; SNL, 2004l). SNL considers the remaining six parameters to be numerical control parameters not suitable for entry into the PAPDB. They were documented by the modeling results and documentation was found in the "*.DRS files located in CMS library, LIBCRA1_DRS. DOE's response (SNL, 2004e) and the references provides adequate justification for the values selected for all ten parameters. DOE's response document of August 13, 2004 (SNL, 2004m) further identifies which of these references support which parameter, thus addressing parameter justification and documentation. The parameter documentation provided in this DOE response was found to be sufficient. Although the Agency finds that documentation is sufficient for all 10 of these DRSPALL parameters, EPA continues to disagree with DOE's position on the nature of the six parameters not included in the PAPDB. The Agency will complete its technical evaluation of these parameters during its final technical review of the CRA.

5.0   CRA PA CODE INPUT FILE REVIEW

Not all parameters used in the CRA PA calculations were included in the PAPDB. Therefore, a review of parameter data in CRA PA code input files was conducted to determine the nature and type of input data used by each code. EPA reviewed the adequacy of documentation for parameters used that are not presently included in the PAPDB.

Models and codes used in the CRA PA were identified in Analysis Plan-105, *"Analysis Plan for CRA Performance Assessment Calculations"* (SNL, 2003a). PA codes requiring data values directly from the PAPDB (i.e, not derived from other PA codes) are:

- F   BRAGFLO—two-phase brine and gas flow in and around the repository (Salado brine and gas flow),
- F   CUTTINGS_S—Cuttings and cavings releases by borehole penetration,
- F   DRSPALL—Spallings release,

- F   MODFLOW and PEST—Culebra groundwater flow,
- F   PANEL—Radionuclide transport to Culebra (Salado transport),
- F   NUTS—Radionuclide transport to Culebra (Salado transport),
- F   SECOTP2D—Radionuclide transport in the Culebra,
- F   CCDFGF—Total release calculations, and
- F   FMT—Actinide solubility calculations.

Two other codes were used to support the CRA PA calculations: SANTOS and SUMMARIZE. Discussions with SNL staff indicated that no new SANTOS calculations were conducted for the CRA. Therefore, SANTOS results from the CCA were used in the CRA. Thus it was not considered necessary to review parameter input to SANTOS. Input files for SUMMARIZE consist of output files from other PA codes listed above and therefore do not require original parameters. Thus, it also is not reviewed.

Specific input files related to the above CRA performance codes, except the MODFLOW and PEST codes, were documented in *"Execution of Performance Assessment for the CRA (CRA1)"*

(Long, 2004). Input files for MODFLOW and PEST are documented in *"PA Run Control Summary for Culebra Transmissivity Field Calculations and Mining Scenarios"* (McKenna et al., 2004). Generic input files for each of the codes are identified in each codes user's manuals. Input files for each code were reviewed first to determine if they were "independent" input files, i.e., that they represented initial input of data into the code and were not representing data files derived from previous PA code calculations. Second, to determine if there were any parameters used in the code that were not present in the current PAPDB. The results of these reviews are presented in the following sections.

5.1   BRAGFLO Assessment

The *"Analysis Plans for Calculations of Salado Flow and Transport: CRA"* (Stein, 2003c) and for *"Calculations of Direct Brine Releases: CRA"* (Stein, 2003d) states that BRAGFLO was used to simulate Salado brine and gas flow and direct brine releases from future drilling penetrations into the repository. These documents identify changes in the analyses, such as new or changed parameters since the original certification CCA PA. All BRAGFLO input parameters specifically identified in these documents are in the PAPDB.

BRAGFLO input files reviewed for the Salado flow and transport assessment are:
- F GM_BF_CRA1.INP   (GENMESH input file)
- F MS_BF_CRA1.INP   (MATSET input file)
- F LHS1_CRA1_A1.INP   (LHS input file)
- F IC_BF_CRA1.INP   (ICSET input file)
- F ALG1_BF_CRA1.INP   (ALGEBRA input file)
- F BF1_CRA1_Sxxx.INP   (PREBRAG input file for xxx = 1,2,3,4,5,6 for Scenarios 1, 2, 3, 4, 5, & 6)

These files are reproduced in Appendix B.

GENMESH input file, GM_BF_CRA1.INP, defines the computational grid framework for the BRAGFLO analyses. Its input data are not in the PAPDB, but the grid is defined and documented in the analysis plan (Stein, 2003c; Stein and Zelinski, 2003a), the analysis package (Stein and Zelinski, 2003b), and in Caporuscio et al. (2003). Comparison of the X-Y coordinates in the input file with coordinates in these documents showed no discrepancies. This documentation is sufficient.

MATSET input file, MS_BF_CRA1.INP, contains only one material that was not in the PAPDB, DRF_PCS. The material DRF_PCS represents the empty drift and explosion wall portion of the panel closure. This parameter was considered by SNL to be a "derived material" and was set equal to the WAS_AREA material which is in the PAPDB. This material and its associated properties were defined using the ALGEBRA code and a rationale for the values assigned to it was provided in Caporuscio et al. (2003), Hadgu (2003), Hadgu et al. (2003) and Stein and Zelinski (2003b). The Agency found the documentation for this parameter sufficient for the CRA, but believes it does represent a different material and should be added to the PAPDB.

LHS input file, LHS1_CRA1.A1.INP, contains only parameters present in the PAPDB.   ICSET

input file, IC_BF_CRA1.INP, sets initial conditions and contains parameter names that are not in the PAPDB. However, these parameters are defined either in this file or in the ALGEBRA file from manipulation of parameters that are in the PAPDB. Therefore, they do not constitute "new" or independent parameters.

ALGEBRA input file, ALG1_BF_CRA1.INP, also contains several parameter names that were not in the PAPDB, but these parameters were also defined from manipulation of parameters that were in the PAPDB with the exception of the following:

- F DIP1 (=1.0) and DIP2 (=0.0) (the angle of dip in degrees of the Salado Formation),

- F SB_MIN (minimum brine saturation), and

- F CAP_MOD (capillary pressure model number) for SHFTU, SHFTL_T1 and SHFTL_T2.

Rationale for the DIP parameter and its assigned values was found in Caporuscio et al. (2003). SB_MIN was not used in the CRA1 BRAGFLO calculations because CAP_MOD was set to 1 for all materials. SB_MIN was only used when CAP_MOD was set to 3 (Stein, 2003a; 2003b). CAP_MOD for SHFTU, SHFTL_T1 and SHFTL_T2 was set using ALGEBRA to equal 1.0, the same value as for other materials (CONC_PCS, CONC_MON, etc.) in the file. In addition, PAPDB values for PCT_A and PCT_EXP for DEWYLAKE, CENTARES, CONC_PCS, CONC_MON, SHFTU, SHFTL_T1, and SHFTL_T2 are reset in ALGEBRA to a value of 0.0 to eliminate capillary effects in those materials. Justification for this override was documented in a SNL memo (SNL, 2003u). EPA finds that the documentation for these parameters is sufficient for the CRA, but recommends that they be added to the PAPDB to facilitate review.

PREBRAG input files, BF1_CRA1_Sxxx.INP, where x = Scenarios 1-6 contain only parameters present in the PAPDB. BRAGFLO input files reviewed for the direct brine release (DBR) assessment were:

- F GM_DBR_CRA1_DIR_REL.INP   (GENMESH input file)
- F MS_ DBR_CRA1_DIR_REL.INP   (MATSET input file)
- F IC_DBR_CRA1_DIR_REL_S1.INP   (ICSET input file)
- F ALG_ DBR_CRA1_PRE_DIR_REL_Sxxx.INP (ALGEBRA input file)
- F REL_DBR_CUSP_CRA1_DIR_REL.INP   (RELATE input file)
- F DBR_BFL_CRA1_DIR_REL_Sxxx_U.INP   (BRAGFLO input file)

where xxx = 1,2,3,4,5 for Scenarios 1-5. These files are reproduced in Appendix B.

GENMESH input file, GM_DBR_CRA1_DIR_REL.INP, defined the computational grid for the BRAGFLO DBR analyses. Its input data were not in the PAPDB, but the grid was defined and documented in the analysis plan (Stein, 2003d) and the analysis package (Stein, 2003e). Comparison of the X-Y coordinates in the input file with coordinates in these documents showed no discrepancies and the documentation is sufficient.

MATSET input file, MS_DBR_CRA1_DIR_REL.INP, includes parameters from the PAPDB and several parameters and properties that were not in the PAPDB. These parameters and properties are listed below:

WAS_AREA: HEIGHT, PRESPAN1, GPRSPAN1, BSATPAN1, GSATPAN1, PRESPAN2, GPRESPAN2, GSATPAN2, PRESPAN3, GPRSPAN3, BSATPAN3 and GSATPAN3

These are heights, brine and gas pressures and saturations for panels 1-3; although they are not defined in the PREBRAG and BRAGFLO users manuals (Stein, 2003a; Stein, 2003b) or in the analysis plan (Stein, 2003d). Initial values for these parameters were set in the MATSET file. The HEIGHT is set to 1.5, and the remaining parameters were set to zero. Discussions with the analyst (J. Stein, SNL) and review of the analysis package for DBR CRA calculations (Stein, 2003e-Section 4.2-4.3) resulted in a determination that these values were derived values. The analysis package states: "ALGEBRACDB reads a CAMDAT output file produced by CUTTINGS_S and outputs a CAMDAT file with information about pressure, saturation, porosity and crushed panel height, which is used as initial conditions for the DBR calculations. This was how BRAGFLO results were transferred to DBR." CUTTINGS_S provided the following intruded waste disposal area information at the time of intrusion: compacted height for the area, permeability of the area, brine saturation and pressure averaged over the volume of the intruded waste area, and the skin factor used in the calculation of the well productivity index (PI) (Hadgu, et al., 2003). Thus, the values for these parameters were provided by the 10,000 year BRAGFLO calculations [S1] via the CUTTINGS_S and BRAGFLO codes for repository panels as well as for the other materials in the analysis, and for designated intrusion times and locations (Hadgu, et al., 2003). DBR material heights are also adjusted to conserve total brine volume or brine saturation between the grid used for BRAGFLO calculations and the grid used for the DBR calculations. Other parameters also were adjusted to account for the differences in the grids used for the BRAGFLO and CUTTINGS_S calculations and the DBR calculations (Stein, 2003d). Calculations were documented in the the MATSET file and the ALGEBRA file: ALG_DBR_CRA1_PRE_DIR_REL_Sxxx.INP. Traceability to output parameters was verified by using the GROPE utility code to inspect parameters in the output files from the BRAGFLO and CUTTINGS_S codes for intrusion times specified in the DBR analysis plan (Stein, 2003d). PRESPAN was brine pressure, GPRSPAN was gas pressure, BSATPAN was the brine saturation, GSATPAN was the gas saturation and HEIGHT was material height, converted from BRAGFLO grid to DBR grid. Although the documentation for these parameters was found to be sufficient for the CRA, parameter definition and traceability to documentation was difficult without access to the analyst. We recommend that explanatory notes be added to the MATSET input file clarifying the source and definitions for these parameters.

DRZ_CONC: PERM_X, PERM_Y, PERM_Z, POROSITY, PORE_DIS, SAT_RGAS, SAT_RBRN, COMP_RCK, CAP_MOD, RELP_MOD, PC_MAX, PO_MIN, PCT_A, PCT_EXP, KPT, HEIGHT, PERMBRX, and POR_INTR.

This material, DRZ_CONC, represents the DRZ next to the panel closure, and was treated as an equivalent DRZ with the majority of its properties set equal to the values for the DRZ_1 properties [this is not explicitly stated in Hadgu (2002), but was noted in

the MATSET input file]. The values for PERM_X, PERM_Y, PERM_Z and POROSITY were set as a combination of the property values derived for materials DRZ_1 and CONC_PCS in the ALGEBRA file: ALG_DBR_CRA1_PRECUSP_ DIR_REL.INP. Values for initial HEIGHT and POR_INTR were set to 9.06 and 0, respectively, in the MATSET file. The HEIGHT and POR_INTR parameters were derived from the CUTTINGS_S output file (see discussion for WAS_AREA above). POR_INTR was the porosity at the defined intrusion time in the 10,000 year BRAGFLO (S1) calculations. The values for the remaining properties for this material were set in the ALGEBRA file as equal to the property values established for material DRZ_1 which was in the PAPDB. The documentation for these parameters were found to be sufficient; however because this appears to represents a new material, it should be explicitly defined in the analysis plan for the DBR calculations. Future DBR analysis plans for calculations using this material should provide a definition of these parameters or they should be added to the PAPDB.

PAN_SL2: PRMX_LOG, PRMY_LOG, PRMZ_LOG, POROSITY, PORE_DIS, SAT_RGAS, SAT_RBRN, COMP_RCK, CAP_MOD, RELP_MOD, PC_MAX, PO_MIN, PCT_A, PCT_EXP, KPT, SAT_IBRN, PERMBRX, POR_INTR and HEIGHT

These are properties for a new material, PAN_SL2, which define a middle panel closure that was setup to permit different equivalent permeabilities to be assigned because this panel closure has a different orientation from the other panel closures (incorporation of Option D panel closure concept, Stein 2003d). Its permeability range was the reverse of the permeabilities for the other panel closures. (Hadgu, et al., 2003; Hadgu, 2002). SNL also considered this material to be a "derived material" (Hadgu, 2002) because its properties were defined in terms of other materials already present in the PAPDB. Values for HEIGHT and POR_INTR are set to 7.96 and 0, respectively, in the MATSET input file. The HEIGHT and POR_INTR parameters are derived from the CUTTINGS_S output file (see previous discussion for WAS_AREA). POR_INTR was the porosity at the defined intrusion time in the 10,000 year BRAGFLO (S1) calculations. The values for the remaining properties for this material were set in the ALGEBRA file, ALG_DBR_CRA1_PRE_ DIR_REL.INP, equal to the values for CONC_PCS which, in turn, was set equal to WAS_AREA both of which are in the PAPDB. The documentation for these parameters was found to be sufficient. We recommend that this material be added to the PAPDB.

WELLBORE: INTR_TIME, BITSIZE, SKIN, WELLPI, DRAIN_RAD, PRM_OPEN, PRM_SAND, PRM_CREP, PRM_CAST, AREA_TOT, VOLU_TOT, CAST_RE, CAST_WB AND WELL_PAN.

These were wellbore properties for the intrusion boreholes assumed in the DBR analyses and their values were assigned in the MATSET input file. All were set to 0.0 using MATSET except for CAST_RE, CAST_WB, PRM_CAST and WELL_PAN which are given specific initial values. All of these parameters had their values changed in the ALGEBRA input file. The material, WELLBORE, was not explicitly defined in the analysis plan (Stein, 2003d) or the analysis package (Stein, 2003e) for BRAGFLO Direct Brine Releases, although some of the associated properties were defined in these documents. We determined during our interview with J.Stein that DRAIN_RAD was

the external drainage radius and was calculated in ALGEBRA based on the grid cell dimensions of the lower well cell (10.2m) (Stein, 2003e). The same value was used for all boreholes in the DBR analyses. Therefore, it was a derived value based on the grid established in the GENMESH input file for the CRA PA calculations. The AREA_TOT was fixed at a constant value defined by a maximum spall volume of 4.0 m^3 (which was the VOLU_TOT parameter) divided by the initial height (3.96m) and was equal to 1.01. SKIN was the skin factor and WELLPI was the well productivity index, both of which were defined in the analysis package (Stein, 2003e). The skin factor was calculated in the ALGEBRA files. BITSIZE, CAST_WB, CAST_RE and WELL_PAN were assigned values in the ALGEBRA file, ALG_DBR_CRA1_PRE_DIR_REL.INP, from the CUTTINGS_S output files and were considered calculated values.

PRM_CAST was set equal to CASTILER:PERM_X. PRM_OPEN, PRM_SAND, and PRM_CREP were set equal to PERM_Y values for this material in the REL_DBR_CUSP_CRA1_DIR_REL.INP RELATE input file. Discussions with J. Stein showed that INTR_TIME was the intrusion time which was defined in the analysis plan and analysis package (Stein, 2003d; 2003e).

The documentation for these parameters was found to be sufficient for the CRA. They should be explicitly defined DBR analysis to facilitate review.

DRZ_1: PERMBRX, POR_INTR and HEIGHT
> HEIGHT is set to 43.6, and PERMBRX and POR_INTR was set to zero using the ALGEBRA input file. The HEIGHT and POR_INTR parameters were derived from the CUTTINGS_S output file (see discussion for WAS_AREA previously). POR_INTR was the porosity at the defined intrusion time 10,000 year BRAGFLO calculations. PERMBRX was defined in the ALGEBRA input file in term of parameters in the PAPDB. The documentation for these parameters was found to be sufficient for the CRA. They should be defined in DBR analysis to facilitate review.

S_HALITE: HEIGHT
> The HEIGHT was set to 8.98, the same value used in the certification CCA PA (Stein,2003e). The documentation was found to be sufficient for the CRA.

REFCON:DIP_DEG (accounts for dip in Salado)
> The value was set to 1.0 in the ALGEBRA input file an was discussed in the analysis plan and package (Stein 2003d; 2003e). This was the same value used in the certification CCA PA (Stein, 2003e). Documentation was found to be sufficient for the CRA. We recommended that this parameter be added to the PAPDB.

ICSET input file, IC_DBR_CRA1_DIR_REL_S1.INP, contains parameters that were not in the PAPDB. However, these parameters were derive from values in the MATSET and ALGEBRA input files.

ALGEBRA input file, ALG_ DBR_CRA1_PRE_DIR_REL_S1.INP, was used to manipulate parameters in MATSET to setup new parameters and also contained new parameters that were

not in the PAPDB. The new parameters were: D1, D2, DE, FBHP. The first three were not documented in the input files, the analysis plan, or the analysis package, but their descripion was obtained from discussions with the analyst (J. Stein). They were parameters used to calculate effective permeability of the various components of the panel closure and FBHP was the flowing bottom hole pressure. Documented in Hadgu et al., (2003), D1 was the thickness of the DRZ (represented by DRF_PCS was used in the TBM DBR calculations for the Option D Panel Closure concept in Hadgu, et al, 2003) and was set to 32.1m. D2 was the thickness of the CONC_PCS and was set to 7.9 m. DE was the total thickness (40m). The FBHP was calculated using the ALGEBRA code, and supporting documentation for the equations used for the calculations were in SNL (1999) and in Hadgu et al (2003). SNL (1999) provided the coefficients used in calculating the FBHP based on curve fits for various types of brine/gas flow. Waste panel pressures required for the analysis were provided from the 10,000 year BRAGFLO calculations. Thus, the FBHP was a derived parameter. Documentation for these parameters was found to be sufficient for the CRA.   We recommend that D1, D2 and DE be included in the PAPDB.

RELATE input file, REL_DBR_CUSP_CRA1_DIR_REL.INP, contained no new parameters. The parameters in this file were also used in the MATSET input file.

BRAGFLO input file, DBR_BF1_CRA1_DIR_REL_S1_U.INP, contained numerical and run control data which were described in the users manual for PREBRAG. It also contained parameters identified in the MATSET file and new parameters not in the PAPDB. The new parameters were: H2_MOLE, CO2_MOLE, CH4_MOLE, N2_MOLE, H2S_MOLE and O2_MOLE. These parameters were defined in the PREBRAG User's Manual (Stein, 2003b) and the documentation was considered sufficient for the CRA. However, they should be included in the PAPDB.

The parameters, materials and properties identified above were used in BRAGFLO for the CRA PA and not included in the PAPDB were found to be sufficiently documented for the CRA. However these parameters should be added to the PAPDB or an alternative method for more transparent parameter review should be developed.

5.2   DRSPALL Assessment

DRSPALL calculated the volume of WIPP solid waste subjected to material failure and transported to the surface as a result of inadvertent drilling intrusion. Input parameters for DRSPALL were defined in the *"DRSPALL User's Manual"* (Lord, 2003a). The DRSPALL input files reviewed were:

- F GM_DRS_CRA1_R1.INP   (GENMESH input file)
- F MS_DRS_CRA1_R1.INP   (MATSET input file)
- F LHS1_DRS_CRA1_A1.INP   (LHS input file)
- F DRS_CRA1_R1_S1.DRS   (Scenario 1 DRSPALL input file)

Review of these files indicated that DRSPALL parameters were not in the PAPDB. Parameters not in the PAPDB were identified and discussed are in Section 4.0 of this report. Adequate documentation was provided for all the "new" parameters (Hansen, et al., 2003; Lord, 2002;

Lord et al. 2003; Rudeen et al., 2003; SNL, 2003q; SNL, 2004e).

DRSPALL input files are reproduced in Appendix C.

5.3 CUTTINGS_S Assessment

CUTTINGS_S code was used to estimate the volume of waste brought to the surface as a result of an inadvertent borehole drilled directly into the WIPP repository penetrating waste containers. The input files reviewed were:

        F GM_CUSP_CRA1.INP   (GENMESH input file)
        F MS_CUSP_CRA1.INP   (MATSET input file)
        F LHS1_CRA1_A1.INP   (LHS input file)
        F CUSP_CRA1_S1_U_T100.INP (CUTTINGS_S input file)
        F CUSP_CRA1.SDB   (CUTTINGS_S input file)

CUTTINGS_S input files are reproduced in Appendix D.

Review of all of the input files indicated that all parameters used by CUTTINGS_S were in the PAPDB or were hard-wired, set in the source code, and have not been modified since the original certification CCA PA.

5.4 PANEL Assessment

According to the Analysis Plan AP-99, "*Analysis Plan for Calculations of Salado Flow and Transport: CRA*" (Stein, 2003c), PANEL was used to calculate radionuclide transport through the Salado for Scenario S6. Input files reviewed were:

GM_PANEL_CRA1.INP   (GENMESH input file)
MS_PANEL_CRA1.INP   (MATSET input file)
LHS1_PANEL_CRA1_A1.INP   (LHS input file)
ALG_PANEL_CRA1.INP   (ALGEBRA input file)

Review of all of these input files and the analysis package for PANEL (Garner, 2003a; Garner, 2003b) indicated that all parameters used by PANEL were in the PAPDB or were derived from modification of parameters in the PAPDB.

PANEL input files are reproduced in Appendix E.

5.5 NUTS Assessment

According to the Analysis Plan AP-99, "*Analysis Plan for Calculations of Salado Flow and Transport: CRA*" (Stein, 2003c), NUTS was used to calculate radionuclide transport through the Salado for CRA scenarios S1-S5. It used the same grid used in the BRAGFLO PA calculations. NUTS also required input files from PANEL (WIPP PA, 1997). Input files reviewed were:
        F NUT_CRA1_SCN_R1_S1.INP   (NUTS input file)

F ALG_NUT_CR1_SCN_R1_S1.INP   (ALGEBRA input file)
F NUT_CRA1_ISO_R1_S1.INP   (NUTS input file)

NUTS input files are reproduced in Appendix F.

Review of these input files and the analysis package for the Salado Transport Calculations (Lowry, 2003a) indicated that these files contain parameter names that were not in the PAPDB. However, these files were essentially run control files or parameter manipulation files and the parameter names were adequately defined in the NUTS user manual. In addition, these input files utilize output from other codes (i.e., BRAGFLO and/or PANEL) as described in the NUTS user manual.

5.6   SECOTP2D Assessment

Analysis Plan 100, *"Analysis Plan for Calculations of Culebra Flow and Transport: CRA"*, (Leigh, et al., 2003), stated that SECOTP2D was used to calculate radionuclide transport in the Culebra. This analysis plan also identified the PAPDB input parameters used by the code. Input parameters were documented in the SECOTP2D (Ramsey, 1997b) and PRESECOTP2D (Ramsey, 1997a) user's manuals. Source term information for the radionuclides was gotten from PANEL output files. Input files reviewed were:
F GM_ST2D_CRA1.INP   (GENMESH input file)
F MS_ST2D_CRA1.INP   (MATSET input file)
F LHS1_ST2D_CRA1_A1.INP   (LHS input file)
F ALG_ST2D_CRA1.INP   (ALGEBRA input file)
F ST2D1_CRA1.INP   (SECOTP2D input file)

These SECOTP2D related input files are reproduced in Appendix G.

GENMESH input file, GM_ST2D_CRA1.INP, defines the computational grid for the SECOTP2D analyses. Its input data was not in the PAPDB, but the grid was defined and documented in the analysis plan (Leigh, et al., 2003) and in Lowry (2003b). Comparison of data in the documents with the input file data resulted in no discrepancies and the documentation was sufficient.

All parameters in the files MS_ST2D_CRA1.INP and LHS_ST2D_CRA1.INP were present in the PAPDB.

ALGEBRA input file, ALG_ST2D_CRA1.INP, contained several parameter names not in the PAPDB, but these parameters are derived from parameters that were in the PAPDB with the exception of ACTCONST. ACTCONST was a constant, not defined in the SECOTP2D user manual and assigned a value of 1.128E+13. It was used to convert input source term mass to curies and vice versa. Documentation for its derivation was in SNL (1992) and was the same value used in the certification CCA PA calculations. There was a data entry form SNL (1996e), dated March 1,1996, stating that it was entered into the CCA database as REFCON:ACTCONST (parameter ID 3113). Old spreadsheets of the CCA database showed this parameter, but it did

not show up current PAPDB, indicating that it was not migrated into the new database. Documentation was sufficient for this parameter for the CRA. We believe it should be added to the PAPDB.

SECOTP2D input file, ST2D1_CRA1.INP, contained run control input and input parameters. All input parameters were traceable directly to or through the ALGEBRA file to the PAPDB.

5.7   MODFLOW/PEST Assessment

Analysis Plan AP-105, *"Analysis Plan for CRA Performance Assessment Calculations",* (Leigh, 2003a), stated that the code MODFLOW was used to calculate flow fields in the Culebra Dolomite Member in the Rustler formation. Culebra flow field results were used by SECOTP2D to calculate radionuclide transport in the Culebra. Recalculation of flow fields (T-fields) for the CRA were documented in Analysis Plan AP-088, *"Analysis Plan for Evaluation of the Effects of Head Changes on Calibration of the Culebra Transmissivity Field"* (Beauheim, 2002b).

The following input parameters were identified in this document:
- Transmissivity values at wells
- Well Locations
- Ground Surface Elevation at wells
- Stratigraphic information (Culebra top and bottoms elevations)
- Equilibrated heads at defined times
- Culebra fluid density at wells
- Transient Pressure Data
- Transient Flow-Rate Data
- Boundaries of potential mining areas

These data were not included in the PAPDB. However, there was documentation of the data used in the CRA PA, data manipulations or calculations performed, and references to data sources. Spatial data (stratigraphic data) used to develop input files for the analysis of Culebra T-fields were digitized from geologic maps documented in *"Analysis Report for Task 1 of AP-088, Construction of Geologic Contour Maps"* (Powers, 2002). This report identified the general sources of the geological data (previous WIPP reports, WIPP drill holes, commercial non-proprietary oil and gas geophysical logs, potash drill hole information from the Bureau of Land Management in New Mexico) used to develop the maps. It did not explicitly tie each borehole with a specific report, well log, or other data source. We determined that this was sufficient for the CRA because the data was traceable, with some effort, to original sources using the borehole designation. Surface elevations were obtained from the USGS National Elevation Dataset (NED) (http://edcnts12.cr.usgs.gov/ned/). Mining information (geographic) was obtained from an updated BLM map obtained from the Washington Regulatory Environmental Services and was documented in Lowry (2003b).

Other data used to develop input files was presented in Appendix A, "*Analysis Report for Task 2 of AP-088, Estimating Base Transmissivity Fields"* (Holt and Yarbrough, 2002 and 2003-- file newdat4_7_02m2.prn). This file included identifiers, coordinates, well elevations, elevations to the middle of the Culebra, log transmissivities, the amount of Salado dissolution, and the Culebra

depth for each well used in the development of base transmissivity fields. There were data for 46 wells. Sources for the data presented in this file were referenced in the Analysis Report for Task 2 (Holt and Yarbrough, 2002 and 2003). Residual results, between measured and base transmissivities, were located in the file Residuals.dat located in Appendix A of Holt and Yarbrough (2002 and 2003). Resultant base transmissivity fields were located in 10 files: newb01r.zip through newb10r.zip located in Appendix O of Holt and Yarbrough (2002 and 2003). The residuals and base transmissivity files were used as input in the conditioning of the base transmissivity fields.

Head data used in conditioning base transmissivity fields to steady state heads were documented in Beauheim (2002a) as the file, TfieldHeads.xls. This file included well identifiers, center of Culebra elevation, measured water levels, fluid densities, and calculated freshwater head data for up to 47 wells for 1980, 1990, and 2000. Also included were head values used in the certification CCA PA. Supporting documentation for the data in this file were either provided in the document or were adequately referenced. The Culebra thickness was set to 7.75 m and the value for this parameter was recorded in the PAPDB even though the value was not retrieved from the PAPDB for the MODFLOW calculations.

The head and draw-down data used for conditioning to transient heads were documented in Beauheim (2003). 1,332 data points were used in the transient head calibration analysis, and these were selected based on the scientific judgement of the analysts from the data in Beauheim (2003) (McKenna and Hart, 2003a and 2003b). McKenna and Hart (2003b) also document the well name and location, the stress periods, start and stop times, well draw-down, and pump rates for the wells used in the transient modeling as well as model domain, gridding, boundary conditions and pilot point locations. The effects of potash mining on flow and transport in the Culebra were documented in Lowry (2003b) and SNL (2002b). Generation of mining-influenced transmissivity fields and flow budget files by MODFLOW for input to SECOTP2D was described in Lowry (2003b).

Review of the data input files of a representative transmissivity field of the MODFLOW and PEST analyses for the CRA flow fields was conducted at the SNL facilities in Albuquerque in October, 2004. The purpose of this review was to verify data that documented in the reports listed above was properly entered into the parameter input files and that there were no new parameters in the input files (i.e., input parameters not identified in the analysis plans or associated analysis reports). The guide for this review was the "*PA Run Control Summary for the Culebra Transmissivity Field Calibrations and Mining Scenarios,*" (McKenna et al., 2004) which identified the names and locations of all input and output files used by the MODFLOW and PEST codes in the transmissivity field and Culebra flow analyses for the CRA. These files were listed in Table 2 of McKenna et al (2004) and the generic file listing were reproduced in part in Appendix H. The main input files for a representative T-field realization, designated d01r07, were also reproduced in Appendix H along with parameter input data identified in the analysis reports discussed earlier in this section. There were no new parameters identified in this review and the documentation for the parameters used in the MODFLOW and PEST analyses was considered sufficient for the CRA. We recommend that a more transparent database and parameter documentation system be developed to enhance and facilitate review.

5.8   CCDFGF Assessment

According to the *"Analysis Plan for CRA PA Calculations"* (Leigh, 2003a), CCDFGF was used to assemble calculated release data from various PA codes into complementary cumulative distribution functions (CCDF) for comparison with regulatory release limits. The calculations required four separate code runs: EPAUNI, PRECCDFGF, CCDFGF and CCDFSUM. Based on Long (2004) and WIPP PA (2003). Input files for these code runs were:

EPU_CRA1_RH.INP	(EPAUNI input file)
EPU_CRA1_RH_MISC.INP	(EPAUNI input file)
EPU_CRA1_CH.INP	(EPAUNI input file)
EPU_CRA1_CH_MISC.INP	(EPAUNI input file)
CCGF_CRA1_MS.CDB	(MATSET output file, CCDFGF input file)
CCGF_CRA1_CONTROL.INP	(CCDFGF input file)
CCGFSUM_CRA1_R1.INP	(CCDFSUM input file)
CCGFSUM_CRA1_ALL.INP	(CCDFSUM input file)

Review of these input files indicated that the first five input files contain parameters and the last three input files contain run control data.   These input files were described in each codes user's manual. The EPU_xxx input files contained parameters related to individual waste stream profiles or inventories expected in the repository. These parameters were not included in the PAPDB.   Waste inventory data in these files was documented in SNL (2003l) and SNL (2003o). Comparison of the input files with inventory data in these files indicated that the values were entered correctly and the documentation was sufficient for the CRA. We believe they should be entered into the PAPDB because they appear to be material parameters. Parameters values in the CCDF_CRA1_MS.CBD file were in the PAPDB.

5.9   FMT Assessment

Analysis Plan AP-105, *"Analysis Plan for CRA Performance Assessment Calculations",* (Leigh, 2003a) stated that actinide solubilities for the CRA were recalculated with updated thermodynamic data using the FMT code. Thermodynamic database used in the FMT code were not recorded in the PAPDB. The basis for the update of the certification CCA thermodynamic database and for the recalculation of actinide solubilities for the CRA was found in the following documents:

- SNL (2003b): Release of FMT Database FMT_021120.CHEMDAT
- SNL (2002c): Recommended Parameter Values for Modeling Organic Ligands in WIPP Brine
- SNL (2002g): Recommended $\mu°/RT$ Values for Modeling the Solubility of Oxalate Solids in WIPP Brines
- Snider(2003): Verification of the Definition of Generic Weep Brine and the Development of a Recipe for this Brine
- SNL (2002f): Recommended Parameter Values for Modeling An(V) Solubility in WIPP Brines
- SNL (2002e): Recommended Parameter Values for Modeling An(IV) Solubility in WIPP Brines

F SNL (2002d): Recommended Parameter Values for Modeling An(III) Solubility in WIPP Brines

F Brush (2003): Calculation of Actinide Solubilities for the WIPP CRA, Analysis Plan AP-098, Rev. 1. (Section 5.3.3 of this document contains a synopsis of the changes to the FMT Database)

The FMT database used in the CRA was in file: FMT_021120.CHEMDAT. This file is listed in Appendix I of this TSD. The documentation supporting the new database was considered sufficient for the CRA. The review and evaluation of technical adequacy of data in the database and the actinide solubility calculations will be conducted independently during our CRA technical review.

6.0   SUMMARY

We reviewed changes to the U.S. Department of Energy's WIPP facility performance assessment database in preparation for a detailed technical review for the first CRA. There were 128 new parameters and 203 changes to parameter values in the performance assessment database (PAPDB) since the Technical Baseline Migration conducted in 2002 and 2003 that supported the DOE's Compliance Recertification Application. The accuracy of the data entry process was checked and found to be satisfactory. There were no transcription errors between the parameter entry forms and the entry of data into the computer database. Our review of the parameter entry forms found them to be adequate.

However, four PDE forms had parameter values changed by the data entry staff prior to entering the data into the computerized parameter database. Subsequent review of supporting documentation indicated that the values in the PAPDB were correct, although in some cases, the referenced documentation did not provide full information to support all data entries. Generally, median, maximum, minimum, and distribution type were recored, but not mean or standard deviation. There were formulas for generating these values from the data presented in the supporting documents, but there was no evidence of the calculations being performed. Calculations, when required, should be included in the supporting documentation for all values entered in the PAPDB. SNL subsequently provided the missing calculations to verify that all values in the PAPDB matched values in the supporting documentation. Only three (3) parameter values, all associated with the AMWTF analyses initially had insufficient documentation to support the values present in the PAPDB. Upon notification by the Agency, SNL provided additional documentation for these parameters verifying that values on the PDE forms and in the PAPDB were correct. All values reviewed in the PAPDB as of July 2004 appear correct and traceable to documentation justifying their values. The adequacy of the technical bases for the parameter values in the PAPDB will be evaluated during our final technical review of the CRA.

Two tests of the database to code interface were conducted to evaluate the accuracy of the performance assessment codes in accessing data from the PAPDB. All values accessed by the performance assessment codes were correct (i.e., matched the values in the PAPDB or were within the range of acceptable sampled values), except for one parameter. The one exception was an analyst override of a PAPDB value in the ALGEBRA input file. Acceptable

documentation justifying this override was provided by SNL.   Because this one exception was an intentional override by the analysts and the justification for the override was adequately documented, the PAPDB database to PA code interface was found to be satisfactory.

However, while resolving the issue of the parameter override for the AP-106 analyses we found that additional parameters were changed for this analysis. In addition, SNL indicated that there were parameters used in some analyses (e.g., DRSPALL) that were not in the PAPDB. These parameters were considered by SNL to be run control parameters, not material properties. Therefore, SNL did not consider them to be suitable for inclusion in the PAPDB. We believe that these parameters should be included in the PAPDB or a master database. At this time, DOE has included four of the 10 parameters identified for DRSPALL in the PAPDB. They have provided sufficient documentation justifying the values for all ten parameters for the CRA. We recommend that the remaining six parameters be added to the PAPDB.

Discovery of parameters used in CRA PA calculations that were not in the PAPDB resulted in a more detailed review of PA code input files. This review resulted in the identification of over 70 parameters that were not in the PAPDB used in the CRA PA.   This number did not include the data used to setup computational grids, the thermodynamic database used by the FMT code, and the individual waste stream inventories used by the CCDFGF code but were adequately documented elsewhere. The August 13, 2004 response from DOE to the Agency's request that DOE identify all parameters used in the PA stated that the PA code user's manuals and the CRA analysis packages for each code identified all parameters used in the CRA PA (SNL, 2004m).

A review of the user's manuals, CRA analysis plans, and CRA analysis packages for the PA codes indicated that these documents either provide the necessary information or cite references where such information may be found except for the BRAGFLO code (Stein, 2003d; Stein, 2003e). The BRAGFLO user's manual provided generic input files and did not address specific parameter development or values. CRA analysis packages for BRAGFLO did not identify all parameters used in the analyses, discuss parameter value overrides, or contain all the input files used in an analysis or identify the specific library where the PA run files may be located. However, with the assistance of the analysts involved in the BRAGFLO analyses, the sources of all parameters in the BRAGFLO input files not in the PAPDB were identified and traced to adequate documentation.

Table 7 of this technical support document list parameters identified as input parameters for the CRA PA codes that were not in the PAPDB. Adequate documentation was found for all parameters listed in Table 7. The parameters marked in Table 7 for inclusion in the PAPDB should be added to the PAPDB along with references to facilitate review or an alternative method of documenting parameters used in performance assessments should be developed.

This CRA PA parameter review addressed parameter identification, PA code parameter access, and traceability of parameters used in the WIPP CRA PA. The SNL practice of omitting some parameters used in the CRA PA from the PAPDB makes it difficult to identify all parameters used in the CRA PA and to trace the parameter information documentation that justifies the values for all the parameters used in the CRA PA. Placing all parameters used in the PA calculations in the PAPDB or a centralized WIPP database would provide a more efficient means

of identifying and reviewing parameters. Alternative systems may be acceptable for some analyses if they can provide an equivalent level of parameter identification and supporting documentation as that present for the existing PAPDB. In addition, the practice of permitting data entry staff to make changes to the data entry forms may result in data entry errors or data values not intended by the data originator also complicated our review. Although current procedures do not explicitly prohibit this practice, the practice should be modified to ensure parameters are adequately documented and controlled.

Evaluation of the technical adequacy of the parameter values used in the CRA PA is beyond the scope of this review. Technical adequacy of changes in parameter values from those used in the CCA for parameters in the PAPDB, of value overrides of PAPDB parameters during the CRA PA and of parameters used in the CRA PA that are not in the PAPDB will be completed as part of the Agency's technical review of the CRA. In particular, the Agency's technical review will address the following parameter related technical issues:

- F Basis for the inventory updates (traceability/accuracy back to original waste stream inputs and future inventory estimates),

- F Accuracy of decay calculations,

- F Basis for thermodynamic database changes and associated solubility changes, and

- F Basis for parameter values overrides/code stability issue in BRAGFLO analyses.

Table 1 Section 1

Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

Analysis	Paramet er ID No.	Material ID	Property ID	Distribution Type	CURRENT VALUE			
					Mean	Median	Minimum	Maximum
CRA1	4	AM241	INVCHD	Constant	4.7800E+05	4.7800E+05	4.7800E+05	4.7800E+05
CRA1	4	AM241	INVCHD	Constant	4.4200E+05	4.4200E+05	4.4200E+05	4.4200E+05
CRA1	5	AM241	INVRHD	Constant	3.9600E+04	3.9600E+04	3.9600E+04	3.9600E+04
CRA1	5	AM241	INVRHD	Constant	1.5800E+04	1.5800E+04	1.5800E+04	1.5800E+04
CRA1	3504	AM241L	INVCHD	Constant	4.9500E+05	4.9500E+05	4.9500E+05	4.9500E+05
CRA1	3504	AM241L	INVCHD	Constant	4.5900E+05	4.5900E+05	4.5900E+05	4.5900E+05
CRA1	3509	AM241L	INVRHD	Constant	4.4600E+04	4.4600E+04	4.4600E+04	4.4600E+04
CRA1	3509	AM241L	INVRHD	Constant	1.6600E+04	1.6600E+04	1.6600E+04	1.6600E+04
CRA1	3415	AM243	INVCHD	Constant	3.3400E+01	3.3400E+01	3.3400E+01	3.3400E+01
CRA1	3415	AM243	INVCHD	Constant	2.1000E+01	2.1000E+01	2.1000E+01	2.1000E+01
CRA1	3416	AM243	INVRHD	Constant	7.9800E-01	7.9800E-01	7.9800E-01	7.9800E-01
CRA1	3416	AM243	INVRHD	Constant	7.4200E-01	7.4200E-01	7.4200E-01	7.4200E-01
CRA1	2277	ASPHALT	COMP_RCK	Constant	3.0000E-10	3.0000E-10	3.0000E-10	3.0000E-10
CRA1	3473	BLOWOUT	THCK_CAS	Constant	1.2583E+02	1.2583E+02	1.2583E+02	1.2583E+02
CRA1	3414	BOREHOLE	WUF	Constant	2.9600E+00	2.9600E+00	2.9600E+00	2.9600E+00
CRA1	3414	BOREHOLE	WUF	Constant	2.4800E+00	2.4800E+00	2.4800E+00	2.4800E+00
CRA1	108	CF252	INVCHD	Constant	6.4000E-05	6.4000E-05	6.4000E-05	6.4000E-05
CRA1	108	CF252	INVCHD	Constant	4.6400E-05	4.6400E-05	4.6400E-05	4.6400E-05
CRA1	109	CF252	INVRHD	Constant	5.6000E-06	5.6000E-06	5.6000E-06	5.6000E-06
CRA1	109	CF252	INVRHD	Constant	3.9500E-06	3.9500E-06	3.9500E-06	3.9500E-06
CRA1	2328	CL_L_T1	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10
CRA1	2345	CL_L_T2	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10
CRA1	2362	CL_L_T3	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10
CRA1	3071	CL_L_T4	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10
CRA1	2379	CL_M_T1	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10
CRA1	2396	CL_M_T2	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10
CRA1	2413	CL_M_T3	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10
CRA1	2430	CL_M_T4	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10
CRA1	2447	CL_M_T5	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10
CRA1	2311	CLAY_BOT	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10
CRA1	3001	CLAY_RUS	COMP_RCK	Constant	4.7000E-10	4.7000E-10	4.7000E-10	4.7000E-10
CRA1	3410	CM243	INVCHD	Constant	1.8200E-01	1.8200E-01	1.8200E-01	1.8200E-01
CRA1	3410	CM243	INVCHD	Constant	1.8200E-01	1.8200E-01	1.8200E-01	1.8200E-01
CRA1	3411	CM243	INVRHD	Constant	2.3100E-01	2.3100E-01	2.3100E-01	2.3100E-01
CRA1	3411	CM243	INVRHD	Constant	2.2500E-01	2.2500E-01	2.2500E-01	2.2500E-01
CRA1	112	CM244	INVCHD	Constant	4.8200E+03	4.8200E+03	4.8200E+03	4.8200E+03
CRA1	112	CM244	INVCHD	Constant	2.4300E+03	2.4300E+03	2.4300E+03	2.4300E+03

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Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

CRA1	112	CM244	INVCHD	Constant	3.3900E+03	3.3900E+03	3.3900E+03	3.3900E+03
CRA1	113	CM244	INVRHD	Constant	1.0500E+02	1.0500E+02	1.0500E+02	1.0500E+02
CRA1	113	CM244	INVRHD	Constant	7.9400E+01	7.9400E+01	7.9400E+01	7.9400E+01
CRA1	3412	CM245	INVCHD	Constant	1.3900E-02	1.3900E-02	1.3900E-02	1.3900E-02
CRA1	3412	CM245	INVCHD	Constant	8.5900E-03	8.5900E-03	8.5900E-03	8.5900E-03
CRA1	3413	CM245	INVRHD	Constant	1.0900E-02	1.0900E-02	1.0900E-02	1.0900E-02
CRA1	3413	CM245	INVRHD	Constant	1.0600E-02	1.0600E-02	1.0600E-02	1.0600E-02
CRA1	2265	CM248	INVCHD	Constant	1.4900E-01	1.4900E-01	1.4900E-01	1.4900E-01
CRA1	2265	CM248	INVCHD	Constant	9.1400E-02	9.1400E-02	9.1400E-02	9.1400E-02
CRA1	2266	CM248	INVRHD	Constant	2.5900E-03	2.5900E-03	2.5900E-03	2.5900E-03
CRA1	2266	CM248	INVRHD	Constant	1.8300E-03	1.8300E-03	1.8300E-03	1.8300E-03
CRA1	3052	CONC_MON	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	6.0000E-11
CRA1	3515	CONC_PCS	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	6.0000E-11
CRA1	3148	CONC_PLG	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10
CRA1	2464	CONC_T1	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	6.0000E-11
CRA1	2481	CONC_T2	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	6.0000E-11
CRA1	2037	CS137	INVCHD	Constant	6.9300E+03	6.9300E+03	6.9300E+03	6.9300E+03
CRA1	2037	CS137	INVCHD	Constant	4.6100E+03	4.6100E+03	4.6100E+03	4.6100E+03
CRA1	118	CS137	INVRHD	Constant	1.7700E+05	1.7700E+05	1.7700E+05	1.7700E+05
CRA1	118	CS137	INVRHD	Constant	1.7400E+05	1.7400E+05	1.7400E+05	1.7400E+05
CRA1	142	CULEBRA	PRESSURE	Constant	9.1410E+05	9.1410E+05	9.1410E+05	9.1410E+05
CRA1	143	CULEBRA	PRMX_LOG	Constant	-1.3112E+01	-1.3112E+01	-1.3112E+01	-1.3112E+01
CRA1	144	CULEBRA	PRMY_LOG	Constant	-1.3112E+01	-1.3112E+01	-1.3112E+01	-1.3112E+01
CRA1	145	CULEBRA	PRMZ_LOG	Constant	-1.3112E+01	-1.3112E+01	-1.3112E+01	-1.3112E+01
CRA1	2497	EARTH	COMP_RCK	Constant	9.9000E-09	9.9000E-09	9.9000E-09	9.9000E-09
CRA1	3494	GLOBAL	LAMBDAD	Constant	5.2500E-03	5.2500E-03	5.2500E-03	5.2500E-03
CRA1	3644	GLOBAL	ONEPLG	Constant	1.5000E-02	1.5000E-02	1.5000E-02	1.5000E-02
CRA1	3646	GLOBAL	THREEPLG	Constant	2.8900E-01	2.8900E-01	2.8900E-01	2.8900E-01
CRA1	3645	GLOBAL	TWOPLG	Constant	6.9600E-01	6.9600E-01	6.9600E-01	6.9600E-01
CRA1	2101	MAGENTA	PRESSURE	Constant	9.4650E+05	9.4650E+05	9.4650E+05	9.4650E+05
CRA1	248	NP237	INVCHD	Constant	1.1300E+01	1.1300E+01	1.1300E+01	1.1300E+01
CRA1	248	NP237	INVCHD	Constant	9.2500E+00	9.2500E+00	9.2500E+00	9.2500E+00
CRA1	249	NP237	INVRHD	Constant	1.0100E+00	1.0100E+00	1.0100E+00	1.0100E+00
CRA1	249	NP237	INVRHD	Constant	8.2200E-01	8.2200E-01	8.2200E-01	8.2200E-01
CRA1	2267	PA231	INVCHD	Constant	1.9700E+00	1.9700E+00	1.9700E+00	1.9700E+00
CRA1	2267	PA231	INVCHD	Constant	1.2100E+00	1.2100E+00	1.2100E+00	1.2100E+00
CRA1	2268	PA231	INVRHD	Constant	6.8600E-04	6.8600E-04	6.8600E-04	6.8600E-04
CRA1	2268	PA231	INVRHD	Constant	6.5500E-04	6.5500E-04	6.5500E-04	6.5500E-04
CRA1	253	PAN_SEAL	COMP_RCK	Constant	2.0000E-10	2.0000E-10	2.0000E-10	2.0000E-10

Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

CRA1	285	PB210	INVCHD	Constant	7.9000E+00	7.9000E+00	7.9000E+00	7.9000E+00
CRA1	285	PB210	INVCHD	Constant	4.9400E+00	4.9400E+00	4.9400E+00	4.9400E+00
CRA1	286	PB210	INVRHD	Constant	1.6200E-05	1.6200E-05	1.6200E-05	1.6200E-05
CRA1	286	PB210	INVRHD	Constant	1.4200E-05	1.4200E-05	1.4200E-05	1.4200E-05
CRA1	2038	PM147	INVCHD	Constant	4.1300E-04	4.1300E-04	4.1300E-04	4.1300E-04
CRA1	2038	PM147	INVCHD	Constant	3.8600E-04	3.8600E-04	3.8600E-04	3.8600E-04
CRA1	289	PM147	INVRHD	Constant	8.0500E-02	8.0500E-02	8.0500E-02	8.0500E-02
CRA1	289	PM147	INVRHD	Constant	7.4700E-02	7.4700E-02	7.4700E-02	7.4700E-02
CRA1	293	PU238	INVCHD	Constant	1.5300E+06	1.5300E+06	1.5300E+06	1.5300E+06
CRA1	293	PU238	INVCHD	Constant	1.2500E+06	1.2500E+06	1.2500E+06	1.2500E+06
CRA1	294	PU238	INVRHD	Constant	3.4800E+03	3.4800E+03	3.4800E+03	3.4800E+03
CRA1	294	PU238	INVRHD	Constant	2.8000E+03	2.8000E+03	2.8000E+03	2.8000E+03
CRA1	3506	PU238L	INVCHD	Constant	1.5300E+06	1.5300E+06	1.5300E+06	1.5300E+06
CRA1	3506	PU238L	INVCHD	Constant	1.2500E+06	1.2500E+06	1.2500E+06	1.2500E+06
CRA1	3511	PU238L	INVRHD	Constant	3.4800E+03	3.4800E+03	3.4800E+03	3.4800E+03
CRA1	3511	PU238L	INVRHD	Constant	2.8000E+03	2.8000E+03	2.8000E+03	2.8000E+03
CRA1	297	PU239	INVCHD	Constant	7.7700E+05	7.7700E+05	7.7700E+05	7.7700E+05
CRA1	297	PU239	INVCHD	Constant	6.5900E+05	6.5900E+05	6.5900E+05	6.5900E+05
CRA1	298	PU239	INVRHD	Constant	5.6400E+03	5.6400E+03	5.6400E+03	5.6400E+03
CRA1	298	PU239	INVRHD	Constant	5.3700E+03	5.3700E+03	5.3700E+03	5.3700E+03
CRA1	3505	PU239L	INVCHD	Constant	9.1000E+05	9.1000E+05	9.1000E+05	9.1000E+05
CRA1	3505	PU239L	INVCHD	Constant	7.6600E+05	7.6600E+05	7.6600E+05	7.6600E+05
CRA1	3510	PU239L	INVRHD	Constant	7.4700E+03	7.4700E+03	7.4700E+03	7.4700E+03
CRA1	3510	PU239L	INVRHD	Constant	7.0500E+03	7.0500E+03	7.0500E+03	7.0500E+03
CRA1	301	PU240	INVCHD	Constant	1.3200E+05	1.3200E+05	1.3200E+05	1.3200E+05
CRA1	301	PU240	INVCHD	Constant	1.0700E+05	1.0700E+05	1.0700E+05	1.0700E+05
CRA1	302	PU240	INVRHD	Constant	1.8200E+03	1.8200E+03	1.8200E+03	1.8200E+03
CRA1	302	PU240	INVRHD	Constant	1.6700E+03	1.6700E+03	1.6700E+03	1.6700E+03
CRA1	305	PU241	INVCHD	Constant	5.1700E+05	5.1700E+05	5.1700E+05	5.1700E+05
CRA1	305	PU241	INVCHD	Constant	5.1400E+05	5.1400E+05	5.1400E+05	5.1400E+05
CRA1	306	PU241	INVRHD	Constant	1.4900E+05	1.4900E+05	1.4900E+05	1.4900E+05
CRA1	306	PU241	INVRHD	Constant	2.3900E+04	2.3900E+04	2.3900E+04	2.3900E+04
CRA1	309	PU242	INVCHD	Constant	3.2700E+01	3.2700E+01	3.2700E+01	3.2700E+01
CRA1	309	PU242	INVCHD	Constant	2.6600E+01	2.6600E+01	2.6600E+01	2.6600E+01
CRA1	310	PU242	INVRHD	Constant	5.0200E-01	5.0200E-01	5.0200E-01	5.0200E-01
CRA1	310	PU242	INVRHD	Constant	4.7400E-01	4.7400E-01	4.7400E-01	4.7400E-01
CRA1	2269	PU244	INVCHD	Constant	1.4500E-06	1.4500E-06	1.4500E-06	1.4500E-06
CRA1	2269	PU244	INVCHD	Constant	1.3200E-06	1.3200E-06	1.3200E-06	1.3200E-06
CRA1	2270	PU244	INVRHD	Constant	1.5600E-03	1.5600E-03	1.5600E-03	1.5600E-03

Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

CRA1	2270	PU244	INVRHD	Constant	1.1000E-03	1.1000E-03	1.1000E-03	1.1000E-03
CRA1	316	RA226	INVCHD	Constant	1.0000E+01	1.0000E+01	1.0000E+01	1.0000E+01
CRA1	316	RA226	INVCHD	Constant	6.2800E+00	6.2800E+00	6.2800E+00	6.2800E+00
CRA1	317	RA226	INVRHD	Constant	5.5500E-05	5.5500E-05	5.5500E-05	5.5500E-05
CRA1	317	RA226	INVRHD	Constant	4.9900E-05	4.9900E-05	4.9900E-05	4.9900E-05
CRA1	2271	RA228	INVCHD	Constant	7.6500E+00	7.6500E+00	7.6500E+00	7.6500E+00
CRA1	2271	RA228	INVCHD	Constant	7.6300E+00	7.6300E+00	7.6300E+00	7.6300E+00
CRA1	2272	RA228	INVRHD	Constant	3.3600E-01	3.3600E-01	3.3600E-01	3.3600E-01
CRA1	2272	RA228	INVRHD	Constant	2.5100E-01	2.5100E-01	2.5100E-01	2.5100E-01
CRA1-B	3590	REFCON	BIP_11	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3591	REFCON	BIP_12	Constant	-3.4260E-01	-3.4260E-01	-3.4260E-01	-3.4260E-01
CRA1-B	3592	REFCON	BIP_13	Constant	-2.2200E-02	-2.2200E-02	-2.2200E-02	-2.2200E-02
CRA1-B	3593	REFCON	BIP_14	Constant	9.7800E-02	9.7800E-02	9.7800E-02	9.7800E-02
CRA1-B	3594	REFCON	BIP_15	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3595	REFCON	BIP_16	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3596	REFCON	BIP_21	Constant	-3.4260E-01	-3.4260E-01	-3.4260E-01	-3.4260E-01
CRA1-B	3597	REFCON	BIP_22	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3598	REFCON	BIP_23	Constant	9.3300E-02	9.3300E-02	9.3300E-02	9.3300E-02
CRA1-B	3599	REFCON	BIP_24	Constant	-3.1500E-02	-3.1500E-02	-3.1500E-02	-3.1500E-02
CRA1-B	3600	REFCON	BIP_25	Constant	9.8900E-02	9.8900E-02	9.8900E-02	9.8900E-02
CRA1-B	3601	REFCON	BIP_26	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3602	REFCON	BIP_31	Constant	-2.2200E-02	-2.2200E-02	-2.2200E-02	-2.2200E-02
CRA1-B	3603	REFCON	BIP_32	Constant	9.3300E-02	9.3300E-02	9.3300E-02	9.3300E-02
CRA1-B	3604	REFCON	BIP_33	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3605	REFCON	BIP_34	Constant	2.7800E-02	2.7800E-02	2.7800E-02	2.7800E-02
CRA1-B	3606	REFCON	BIP_35	Constant	8.5000E-02	8.5000E-02	8.5000E-02	8.5000E-02
CRA1-B	3607	REFCON	BIP_36	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3608	REFCON	BIP_41	Constant	9.7800E-02	9.7800E-02	9.7800E-02	9.7800E-02
CRA1-B	3609	REFCON	BIP_42	Constant	-3.1500E-02	-3.1500E-02	-3.1500E-02	-3.1500E-02
CRA1-B	3610	REFCON	BIP_43	Constant	2.7800E-02	2.7800E-02	2.7800E-02	2.7800E-02
CRA1-B	3611	REFCON	BIP_44	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3612	REFCON	BIP_45	Constant	1.6960E-01	1.6960E-01	1.6960E-01	1.6960E-01
CRA1-B	3613	REFCON	BIP_46	Constant	-7.8000E-03	-7.8000E-03	-7.8000E-03	-7.8000E-03
CRA1-B	3614	REFCON	BIP_51	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3615	REFCON	BIP_52	Constant	9.8900E-02	9.8900E-02	9.8900E-02	9.8900E-02
CRA1-B	3616	REFCON	BIP_53	Constant	8.5000E-02	8.5000E-02	8.5000E-02	8.5000E-02
CRA1-B	3617	REFCON	BIP_54	Constant	1.6960E-01	1.6960E-01	1.6960E-01	1.6960E-01
CRA1-B	3618	REFCON	BIP_55	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3619	REFCON	BIP_56	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00

Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

CRA1-B	3620	REFCON	BIP_61	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3621	REFCON	BIP_62	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3622	REFCON	BIP_63	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3623	REFCON	BIP_64	Constant	-7.8000E-03	-7.8000E-03	-7.8000E-03	-7.8000E-03
CRA1-B	3624	REFCON	BIP_65	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3625	REFCON	BIP_66	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1-B	3647	REFCON	FVRW	Constant	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
CRA1-B	3582	REFCON	LHSBLANK	Uniform	5.0000E-01	5.0000E-01	0.0000E+00	1.0000E+00
CRA1-B	3589	REFCON	MW_CELL	Constant	2.7023E-02	2.7023E-02	2.7023E-02	2.7023E-02
CRA1-B	3585	REFCON	MW_CH4	Constant	1.6043E-02	1.6043E-02	1.6043E-02	1.6043E-02
CRA1-B	3584	REFCON	MW_CO2	Constant	4.4010E-02	4.4010E-02	4.4010E-02	4.4010E-02
CRA1-B	3587	REFCON	MW_H2S	Constant	3.4082E-02	3.4082E-02	3.4082E-02	3.4082E-02
CRA1-B	3586	REFCON	MW_N2	Constant	2.8013E-02	2.8013E-02	2.8013E-02	2.8013E-02
CRA1-B	3583	REFCON	MW_NACL	Constant	5.8442E-02	5.8442E-02	5.8442E-02	5.8442E-02
CRA1-B	3588	REFCON	MW_O2	Constant	3.1999E-02	3.1999E-02	3.1999E-02	3.1999E-02
CRA1	3108	REFCON	VREPOS	Constant	4.3841E+05	4.3841E+05	4.3841E+05	4.3841E+05
CRA1	2514	SALT_T1	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11
CRA1	2531	SALT_T2	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11
CRA1	2548	SALT_T3	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11
CRA1	2565	SALT_T4	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11
CRA1	2582	SALT_T5	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11
CRA1	2984	SALT_T6	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11
AP106	3550	SHFTU	COMP_POR	Constant	2.0500E-08	2.0500E-08	2.0500E-08	2.0500E-08
AP106	3562	SHFTL_T1	COMP_POR	Constant	4.2800E-09	4.2800E-09	4.2800E-09	4.2800E-09
AP106	3563	SHFTL_T1	KPT	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
AP106	3564	SHFTL_T1	PC_MAX	Constant	1.0000E+08	1.0000E+08	1.0000E+08	1.0000E+08
AP106	3565	SHFTL_T1	PCT_A	Constant	5.6000E-01	5.6000E-01	5.6000E-01	5.6000E-01
AP106	3566	SHFTL_T1	PCT_EXP	Constant	-3.4600E-01	-3.4600E-01	-3.4600E-01	-3.4600E-01
AP106	3567	SHFTL_T1	PO_MIN	Constant	1.0100E+05	1.0100E+05	1.0100E+05	1.0100E+05
AP106	3568	SHFTL_T1	POROSITY	Constant	1.1300E-01	1.1300E-01	1.1300E-01	1.1300E-01
AP106	3569	SHFTL_T1	PRMX_LOG	Cumulative	-1.8000E+01	-1.8200E+01	-2.0000E+01	-1.6500E+01
AP106	3570	SHFTL_T1	RELP_MOD	Constant	4.0000E+00	4.0000E+00	4.0000E+00	4.0000E+00
AP106	3571	SHFTL_T1	SAT_IBRN	Constant	5.3400E-01	5.3400E-01	5.3400E-01	5.3400E-01
AP106	3572	SHFTL_T2	COMP_POR	Constant	4.2800E-09	4.2800E-09	4.2800E-09	4.2800E-09
AP106	3573	SHFTL_T2	KPT	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
AP106	3574	SHFTL_T2	PC_MAX	Constant	1.0000E+08	1.0000E+08	1.0000E+08	1.0000E+08
AP106	3575	SHFTL_T2	PCT_A	Constant	5.6000E-01	5.6000E-01	5.6000E-01	5.6000E-01
AP106	3576	SHFTL_T2	PCT_EXP	Constant	-3.4600E-01	-3.4600E-01	-3.4600E-01	-3.4600E-01
AP106	3577	SHFTL_T2	PO_MIN	Constant	1.0100E+05	1.0100E+05	1.0100E+05	1.0100E+05

Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

AP106	3578	SHFTL_T2	POROSITY	Constant	1.1300E-01	1.1300E-01	1.1300E-01	1.1300E-01
AP106	3579	SHFTL_T2	PRMX_LOG	Cumulative	-1.9800E+01	-2.0100E+01	-2.2500E+01	-1.8000E+01
AP106	3580	SHFTL_T2	RELP_MOD	Constant	4.0000E+00	4.0000E+00	4.0000E+00	4.0000E+00
AP106	3581	SHFTL_T2	SAT_IBRN	Constant	5.3400E-01	5.3400E-01	5.3400E-01	5.3400E-01
AP106	3551	SHFTU	KPT	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
AP106	3552	SHFTU	PC_MAX	Constant	1.0000E+08	1.0000E+08	1.0000E+08	1.0000E+08
AP106	3553	SHFTU	PCT_A	Constant	5.6000E-01	5.6000E-01	5.6000E-01	5.6000E-01
AP106	3554	SHFTU	PCT_EXP	Constant	-3.4600E-01	-3.4600E-01	-3.4600E-01	-3.4600E-01
AP106	3555	SHFTU	PO_MIN	Constant	1.0100E+05	1.0100E+05	1.0100E+05	1.0100E+05
AP106	3556	SHFTU	POROSITY	Constant	2.9100E-01	2.9100E-01	2.9100E-01	2.9100E-01
AP106	3557	SHFTU	PRMX_LOG	Cumulative	-1.8200E+01	-1.8300E+01	-2.0500E+01	-1.6500E+01
AP106	3558	SHFTU	RELP_MOD	Constant	4.0000E+00	4.0000E+00	4.0000E+00	4.0000E+00
AP106	3559	SHFTU	SAT_IBRN	Constant	7.9600E-01	7.9600E-01	7.9600E-01	7.9600E-01
AP106	3560	SHFTU	SAT_RBRN	Cumulative	2.5000E-01	2.0000E-01	0.0000E+00	6.0000E-01
AP106	3561	SHFTU	SAT_RGAS	Uniform	2.0000E-01	2.0000E-01	0.0000E+00	4.0000E-01
CRA1	3628	SOLMOD3	SOLCOC	Constant	1.7700E-07	1.7700E-07	1.7700E-07	1.7700E-07
CRA1	3629	SOLMOD3	SOLCOH	Constant	1.6900E-07	1.6900E-07	1.6900E-07	1.6900E-07
CRA1	3630	SOLMOD3	SOLSOC	Constant	3.0700E-07	3.0700E-07	3.0700E-07	3.0700E-07
CRA1	3631	SOLMOD3	SOLSOH	Constant	3.0700E-07	3.0700E-07	3.0700E-07	3.0700E-07
CRA1	3632	SOLMOD4	SOLCOC	Constant	5.8400E-09	5.8400E-09	5.8400E-09	5.8400E-09
CRA1	3633	SOLMOD4	SOLCOH	Constant	2.4700E-08	2.4700E-08	2.4700E-08	2.4700E-08
CRA1	3634	SOLMOD4	SOLSOC	Constant	1.2400E-08	1.2400E-08	1.2400E-08	1.2400E-08
CRA1	3635	SOLMOD4	SOLSOH	Constant	1.1900E-08	1.1900E-08	1.1900E-08	1.1900E-08
CRA1	3636	SOLMOD5	SOLCOC	Constant	2.1300E-05	2.1300E-05	2.1300E-05	2.1300E-05
CRA1	3637	SOLMOD5	SOLCOH	Constant	5.0800E-06	5.0800E-06	5.0800E-06	5.0800E-06
CRA1	3638	SOLMOD5	SOLSOC	Constant	9.7200E-07	9.7200E-07	9.7200E-07	9.7200E-07
CRA1	3639	SOLMOD5	SOLSOH	Constant	1.0200E-06	1.0200E-06	1.0200E-06	1.0200E-06
CRA1	3640	SOLMOD6	SOLCOC	Constant	8.8000E-06	8.8000E-06	8.8000E-06	8.8000E-06
CRA1	3641	SOLMOD6	SOLCOH	Constant	8.8000E-06	8.8000E-06	8.8000E-06	8.8000E-06
CRA1	3642	SOLMOD6	SOLSOC	Constant	8.7000E-06	8.7000E-06	8.7000E-06	8.7000E-06
CRA1	3643	SOLMOD6	SOLSOH	Constant	8.7000E-06	8.7000E-06	8.7000E-06	8.7000E-06
CRA1	3627	SOLTH4	SOLCIM	Cumulative	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00
CRA1	3626	SOLU4	SOLCIM	Cumulative	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00
CRA1	3675	SPALLMOD	ANNUROUG	Constant	5.0000E-05	5.0000E-05	5.0000E-05	5.0000E-05
CRA1	3662	SPALLMOD	BIOTBETA	Constant	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00
CRA1	3665	SPALLMOD	BITNZDIA	Constant	1.1113E-02	1.1113E-02	1.1113E-02	1.1113E-02
CRA1	3653	SPALLMOD	BITNZNO	Constant	3.0000E+00	3.0000E+00	3.0000E+00	3.0000E+00
CRA1	3652	SPALLMOD	COHESION	Constant	1.4000E+05	1.4000E+05	1.4000E+05	1.4000E+05

CRA1	3677	SPALLMOD	DDZPERM	Constant	1.0000E-14	1.0000E-14	1.0000E-14	1.0000E-14
CRA1	3659	SPALLMOD	DDZTHICK	Constant	1.6000E-01	1.6000E-01	1.6000E-01	1.6000E-01
CRA1	3674	SPALLMOD	DRILRATE	Constant	4.4450E-03	4.4450E-03	4.4450E-03	4.4450E-03
CRA1	3668	SPALLMOD	DRZPERM	Constant	1.0000E-15	1.0000E-15	1.0000E-15	1.0000E-15
CRA1	3654	SPALLMOD	FFSTRESS	Constant	1.4900E+07	1.4900E+07	1.4900E+07	1.4900E+07
CRA1	3657	SPALLMOD	FRICTANG	Constant	4.5800E+01	4.5800E+01	4.5800E+01	4.5800E+01
CRA1	3671	SPALLMOD	MUDPRATE	Constant	2.0181E-02	2.0181E-02	2.0181E-02	2.0181E-02
CRA1	3673	SPALLMOD	MUDSOLMX	Constant	6.1500E-01	6.1500E-01	6.1500E-01	6.1500E-01
CRA1	3670	SPALLMOD	MUDSOLVE	Constant	-1.5000E+00	-1.5000E+00	-1.5000E+00	-1.5000E+00
CRA1	3667	SPALLMOD	PARTDIAM	Loguniform	2.1500E-02	1.0000E-02	1.0000E-03	1.0000E-01
CRA1	3660	SPALLMOD	PIPEID	Constant	9.7180E-02	9.7180E-02	9.7180E-02	9.7180E-02
CRA1	3663	SPALLMOD	PIPEROUG	Constant	5.0000E-05	5.0000E-05	5.0000E-05	5.0000E-05
CRA1	3672	SPALLMOD	POISRAT	Constant	3.8000E-01	3.8000E-01	3.8000E-01	3.8000E-01
CRA1	3651	SPALLMOD	REFPRS	Constant	1.0177E+05	1.0177E+05	1.0177E+05	1.0177E+05
CRA1	3666	SPALLMOD	REPIPERM	Loguniform	5.1600E-13	2.4000E-13	2.4000E-14	2.4000E-12
CRA1	3655	SPALLMOD	REPOSTOP	Constant	3.8470E+02	3.8470E+02	3.8470E+02	3.8470E+02
CRA1	3664	SPALLMOD	SALTDENS	Constant	2.1800E+03	2.1800E+03	2.1800E+03	2.1800E+03
CRA1	3669	SPALLMOD	SHAPEFAC	Constant	1.0000E-01	1.0000E-01	1.0000E-01	1.0000E-01
CRA1	3661	SPALLMOD	STPDVOLR	Constant	1.0000E+03	1.0000E+03	1.0000E+03	1.0000E+03
CRA1	3656	SPALLMOD	STPPVOLR	Constant	1.0000E+03	1.0000E+03	1.0000E+03	1.0000E+03
CRA1	3658	SPALLMOD	SURFELEV	Constant	1.0373E+03	1.0373E+03	1.0373E+03	1.0373E+03
CRA1	3676	SPALLMOD	TENSLSTR	Uniform	1.4500E+05	1.4500E+05	1.2000E+05	1.7000E+05
CRA1	2039	SR90	INVCHD	Constant	2.8200E+04	2.8200E+04	2.8200E+04	2.8200E+04
CRA1	2039	SR90	INVCHD	Constant	2.6800E+04	2.6800E+04	2.6800E+04	2.6800E+04
CRA1	518	SR90	INVRHD	Constant	1.1800E+05	1.1800E+05	1.1800E+05	1.1800E+05
CRA1	518	SR90	INVRHD	Constant	1.1500E+05	1.1500E+05	1.1500E+05	1.1500E+05
CRA1	605	TH229	INVCHD	Constant	6.1200E+00	6.1200E+00	6.1200E+00	6.1200E+00
CRA1	605	TH229	INVCHD	Constant	5.2500E+00	5.2500E+00	5.2500E+00	5.2500E+00
CRA1	606	TH229	INVRHD	Constant	1.8300E-01	1.8300E-01	1.8300E-01	1.8300E-01
CRA1	606	TH229	INVRHD	Constant	1.3900E-01	1.3900E-01	1.3900E-01	1.3900E-01
CRA1	609	TH230	INVCHD	Constant	2.2600E-01	2.2600E-01	2.2600E-01	2.2600E-01
CRA1	609	TH230	INVCHD	Constant	1.6900E-01	1.6900E-01	1.6900E-01	1.6900E-01
CRA1	610	TH230	INVRHD	Constant	7.2400E-03	7.2400E-03	7.2400E-03	7.2400E-03
CRA1	610	TH230	INVRHD	Constant	6.6700E-03	6.6700E-03	6.6700E-03	6.6700E-03
CRA1	3508	TH230L	INVCHD	Constant	6.3500E+00	6.3500E+00	6.3500E+00	6.3500E+00
CRA1	3508	TH230L	INVCHD	Constant	5.4200E+00	5.4200E+00	5.4200E+00	5.4200E+00
CRA1	3513	TH230L	INVRHD	Constant	1.9000E-01	1.9000E-01	1.9000E-01	1.9000E-01
CRA1	3513	TH230L	INVRHD	Constant	1.4600E-01	1.4600E-01	1.4600E-01	1.4600E-01

CRA1	613	TH232	INVCHD	Constant	6.6300E+00	6.6300E+00	6.6300E+00	6.6300E+00
CRA1	613	TH232	INVCHD	Constant	6.6100E+00	6.6100E+00	6.6100E+00	6.6100E+00
CRA1	614	TH232	INVRHD	Constant	2.9100E-01	2.9100E-01	2.9100E-01	2.9100E-01
CRA1	614	TH232	INVRHD	Constant	2.1800E-01	2.1800E-01	2.1800E-01	2.1800E-01
CRA1	634	U233	INVCHD	Constant	1.4300E+03	1.4300E+03	1.4300E+03	1.4300E+03
CRA1	634	U233	INVCHD	Constant	1.2400E+03	1.2400E+03	1.2400E+03	1.2400E+03
CRA1	635	U233	INVRHD	Constant	4.3800E+01	4.3800E+01	4.3800E+01	4.3800E+01
CRA1	635	U233	INVRHD	Constant	3.4100E+01	3.4100E+01	3.4100E+01	3.4100E+01
CRA1	638	U234	INVCHD	Constant	3.6400E+02	3.6400E+02	3.6400E+02	3.6400E+02
CRA1	638	U234	INVCHD	Constant	2.9700E+02	2.9700E+02	2.9700E+02	2.9700E+02
CRA1	639	U234	INVRHD	Constant	2.3500E+01	2.3500E+01	2.3500E+01	2.3500E+01
CRA1	639	U234	INVRHD	Constant	2.2000E+01	2.2000E+01	2.2000E+01	2.2000E+01
CRA1	3507	U234L	INVCHD	Constant	1.7900E+03	1.7900E+03	1.7900E+03	1.7900E+03
CRA1	3507	U234L	INVCHD	Constant	1.5400E+03	1.5400E+03	1.5400E+03	1.5400E+03
CRA1	3512	U234L	INVRHD	Constant	6.7300E+01	6.7300E+01	6.7300E+01	6.7300E+01
CRA1	3512	U234L	INVRHD	Constant	5.6100E+01	5.6100E+01	5.6100E+01	5.6100E+01
CRA1	642	U235	INVCHD	Constant	1.3800E+00	1.3800E+00	1.3800E+00	1.3800E+00
CRA1	642	U235	INVCHD	Constant	1.3400E+00	1.3400E+00	1.3400E+00	1.3400E+00
CRA1	643	U235	INVRHD	Constant	9.7900E-01	9.7900E-01	9.7900E-01	9.7900E-01
CRA1	643	U235	INVRHD	Constant	9.4200E-01	9.4200E-01	9.4200E-01	9.4200E-01
CRA1	2216	U236	INVCHD	Constant	2.6000E-01	2.6000E-01	2.6000E-01	2.6000E-01
CRA1	2216	U236	INVCHD	Constant	2.3100E-01	2.3100E-01	2.3100E-01	2.3100E-01
CRA1	646	U236	INVRHD	Constant	1.4800E+00	1.4800E+00	1.4800E+00	1.4800E+00
CRA1	646	U236	INVRHD	Constant	1.4200E+00	1.4200E+00	1.4200E+00	1.4200E+00
CRA1	649	U238	INVCHD	Constant	2.4600E+01	2.4600E+01	2.4600E+01	2.4600E+01
CRA1	649	U238	INVCHD	Constant	2.4400E+01	2.4400E+01	2.4400E+01	2.4400E+01
CRA1	650	U238	INVRHD	Constant	1.3100E+02	1.3100E+02	1.3100E+02	1.3100E+02
CRA1	650	U238	INVRHD	Constant	1.3000E+02	1.3000E+02	1.3000E+02	1.3000E+02
AMW	3649	WAS_AMW	CLOSMOD1	Delta	2.0000E+00	2.0000E+00	1.0000E+00	4.0000E+00
AMW	3650	WAS_AMW	CLOSMOD2	Delta	1.0000E+00	1.0000E+00	1.0000E+00	2.0000E+00
AMW	3648	WAS_AMW	FRACAMW	Uniform	6.0000E-01	6.0000E-01	2.0000E-01	1.0000E+00
CRA1	2041	WAS_AREA	DCELLCHW	Constant	7.5000E+01	7.5000E+01	7.5000E+01	7.5000E+01
CRA1	2041	WAS_AREA	DCELLCHW	Constant	5.8000E+01	5.8000E+01	5.8000E+01	5.8000E+01
CRA1	2274	WAS_AREA	DCELLRHW	Constant	6.1000E+00	6.1000E+00	6.1000E+00	6.1000E+00
CRA1	2274	WAS_AREA	DCELLRHW	Constant	4.5000E+00	4.5000E+00	4.5000E+00	4.5000E+00
CRA1	1992	WAS_AREA	DIRNCCHW	Constant	2.3000E+02	2.3000E+02	2.3000E+02	2.3000E+02
CRA1	1992	WAS_AREA	DIRNCCHW	Constant	1.7000E+02	1.7000E+02	1.7000E+02	1.7000E+02
CRA1	1993	WAS_AREA	DIRNCRHW	Constant	3.9000E+02	3.9000E+02	3.9000E+02	3.9000E+02
CRA1	1993	WAS_AREA	DIRNCRHW	Constant	4.8000E+02	4.8000E+02	4.8000E+02	4.8000E+02

Table 1. Section 1. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

CRA1	2040	WAS_AREA	DIRONCHW	Constant	1.4000E+02	1.4000E+02	1.4000E+02	1.4000E+02
CRA1	2040	WAS_AREA	DIRONCHW	Constant	1.1000E+02	1.1000E+02	1.1000E+02	1.1000E+02
CRA1	2044	WAS_AREA	DIRONRHW	Constant	1.2000E+02	1.2000E+02	1.2000E+02	1.2000E+02
CRA1	2044	WAS_AREA	DIRONRHW	Constant	1.1000E+02	1.1000E+02	1.1000E+02	1.1000E+02
CRA1	2043	WAS_AREA	DPLASCHW	Constant	5.5000E+01	5.5000E+01	5.5000E+01	5.5000E+01
CRA1	2043	WAS_AREA	DPLASCHW	Constant	4.2000E+01	4.2000E+01	4.2000E+01	4.2000E+01
CRA1	2275	WAS_AREA	DPLASRHW	Constant	7.0000E+00	7.0000E+00	7.0000E+00	7.0000E+00
CRA1	2275	WAS_AREA	DPLASRHW	Constant	4.9000E+00	4.9000E+00	4.9000E+00	4.9000E+00
CRA1	1995	WAS_AREA	DPLSCCHW	Constant	2.1000E+01	2.1000E+01	2.1000E+01	2.1000E+01
CRA1	1995	WAS_AREA	DPLSCCHW	Constant	1.6000E+01	1.6000E+01	1.6000E+01	1.6000E+01
CRA1	2228	WAS_AREA	DPLSCRHW	Constant	1.2000E+00	1.2000E+00	1.2000E+00	1.2000E+00
CRA1	2228	WAS_AREA	DPLSCRHW	Constant	1.4000E+00	1.4000E+00	1.4000E+00	1.4000E+00
CRA1	2042	WAS_AREA	DRUBBCHW	Constant	1.9000E+01	1.9000E+01	1.9000E+01	1.9000E+01
CRA1	2042	WAS_AREA	DRUBBCHW	Constant	1.4000E+01	1.4000E+01	1.4000E+01	1.4000E+01
CRA1	2046	WAS_AREA	DRUBBRHW	Constant	3.6000E+00	3.6000E+00	3.6000E+00	3.6000E+00
CRA1	2046	WAS_AREA	DRUBBRHW	Constant	3.1000E+00	3.1000E+00	3.1000E+00	3.1000E+00
CRA1	3682	SPALLMOD	DRZTCK	Constant	8.5000E-01	8.5000E-01	8.5000E-01	8.5000E-01
CRA1	3681	SPALLMOD	FRCHBETA	Constant	1.1500E-06	1.1500E-06	1.1500E-06	1.1500E-06
CRA1	3680	SPALLMOD	REPOSTCK	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00
CRA1	3679	SPALLMOD	REPOTRAD	Constant	3.8500E+02	3.8500E+02	3.8500E+02	3.8500E+02
TBM	3482	AM+3	MKD_AM	Loguniform	1.3000E-01	9.0000E-02	2.0000E-02	4.0000E-01
TBM	3482	AM+3	MKD_AM	Loguniform	1.0000E-01	6.0000E-02	9.0000E-03	4.0000E-01
TBM	3480	PU+3	MKD_PU	Loguniform	1.0000E-01	6.0000E-02	9.0000E-03	4.0000E-01
TBM	3480	PU+3	MKD_PU	Loguniform	1.3000E-01	9.0000E-02	2.0000E-02	4.0000E-01
TBM	3402	SOLMOD3	SOLCIM	Constant	1.3800E-08	1.3800E-08	1.3800E-08	1.3800E-08
TBM	3402	SOLMOD3	SOLCIM	Constant	1.3000E-08	1.3000E-08	1.3000E-08	1.3000E-08

Table 1 Section 2

Table 1. Section 2. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

Analy-sis	Param. ID No.	Material ID	Property ID	Param. Record No.	Date	Replaces Param. Record	Replaced by Param. Record	Previous Value				Date	Prev. Analy-sis
								Mean	Median	Minimum	Maximum		
CRA1	4	AM241	INVCHD	1685	2003-05-09		1806	4.7800E+05	4.7800E+05	4.7800E+05	4.7800E+05	1996-10-29	CCA
CRA1	4	AM241	INVCHD	1806	2003-08-29	1685		4.7800E+05	4.7800E+05	4.7800E+05	4.7800E+05	2003-05-09	CRA1
CRA1	5	AM241	INVRHD	1686	2003-05-09	1542	1807	9.4300E+03	9.4300E+03	9.4300E+03	9.4300E+03	2002-06-12	TBM
CRA1	5	AM241	INVRHD	1807	2003-08-29	1686		3.9600E+04	3.9600E+04	3.9600E+04	3.9600E+04	2003-05-09	CRA1
CRA1	3504	AM241L	INVCHD	1760	2003-05-12	1553	1796	4.9000E+05	4.9000E+05	4.9000E+05	4.9000E+05	2002-06-18	TBM
CRA1	3504	AM241L	INVCHD	1796	2003-08-29	1760		4.9500E+05	4.9500E+05	4.9500E+05	4.9500E+05	2003-05-12	CRA1
CRA1	3509	AM241L	INVRHD	1761	2003-05-12	1554	1797	1.0200E+04	1.0200E+04	1.0200E+04	1.0200E+04	2002-06-18	TBM
CRA1	3509	AM241L	INVRHD	1797	2003-08-29	1761		4.4600E+04	4.4600E+04	4.4600E+04	4.4600E+04	2003-05-12	CRA1
CRA1	3415	AM243	INVCHD	1687	2003-05-09		1808	3.2500E+01	3.2500E+01	3.2500E+01	3.2500E+01	1996-05-24	CCA
CRA1	3415	AM243	INVCHD	1808	2003-08-29	1687		3.3400E+01	3.3400E+01	3.3400E+01	3.3400E+01	2003-05-09	CRA1
CRA1	3416	AM243	INVRHD	1688	2003-05-09		1809	2.2700E-04	2.2700E-04	2.2700E-04	2.2700E-04	1996-05-24	CCA
CRA1	3416	AM243	INVRHD	1809	2003-08-29	1688		7.9800E-01	7.9800E-01	7.9800E-01	7.9800E-01	2003-05-09	CRA1
CRA1	2277	ASPHALT	COMP_RCK	1605	2003-03-31			2.9700E-08	2.9700E-08	2.9700E-08	2.9700E-08	1996-02-13	CCA
CRA1	3473	BLOWOUT	THICK_CAS	1774	2003-08-01			1.2340E+01	1.2340E+01	1.2340E+01	1.2340E+01	1996-06-06	CCA
CRA1	3414	BOREHOLE	WUF	1759	2003-05-12	1018	1795	3.5900E+00	3.5900E+00	3.5900E+00	3.5900E+00	2002-02-14	TBM
CRA1	3414	BOREHOLE	WUF	1795	2003-08-29	1759		2.9600E+00	2.9600E+00	2.9600E+00	2.9600E+00	2003-05-12	CRA1
CRA1	108	CF252	INVCHD	1689	2003-05-09		1810	1.1200E-04	1.1200E-04	1.1200E-04	1.1200E-04	1996-10-29	CCA
CRA1	108	CF252	INVCHD	1810	2003-08-29	1689		6.4000E-05	6.4000E-05	6.4000E-05	6.4000E-05	2003-05-09	CRA1
CRA1	109	CF252	INVRHD	1690	2003-05-09	1543	1811	5.9500E-05	5.9500E-05	5.9500E-05	5.9500E-05	2002-06-12	TBM
CRA1	109	CF252	INVRHD	1811	2003-08-29	1690		5.6000E-06	5.6000E-06	5.6000E-06	5.6000E-06	2003-05-09	CRA1
CRA1	2328	CL_L_T1	COMP_RCK	1613	2003-03-31			1.5900E-09	1.5900E-09	1.5900E-09	1.5900E-09	1996-02-13	CCA
CRA1	2345	CL_L_T2	COMP_RCK	1614	2003-03-31			1.5900E-09	1.5900E-09	1.5900E-09	1.5900E-09	1996-02-14	CCA
CRA1	2362	CL_L_T3	COMP_RCK	1615	2003-03-31			1.5900E-09	1.5900E-09	1.5900E-09	1.5900E-09	1996-02-14	CCA
CRA1	3071	CL_L_T4	COMP_RCK	1616	2003-03-31			1.5900E-09	1.5900E-09	1.5900E-09	1.5900E-09	1996-02-15	CCA
CRA1	2379	CL_M_T1	COMP_RCK	1608	2003-03-31			1.8100E-09	1.8100E-09	1.8100E-09	1.8100E-09	1996-02-15	CCA

Table 1. Section 2. Parameters That Have Changed Since the Technical Baseline Migration (TBM).

CRA1	2396	CL_M_T2	COMP_RCK	1609	2003-03-31		1.8100E-09	1.8100E-09	1.8100E-09	1.8100E-09	1996-02-15	CCA
CRA1	2413	CL_M_T3	COMP_RCK	1610	2003-03-31		1.8100E-09	1.8100E-09	1.8100E-09	1.8100E-09	1996-02-15	CCA
CRA1	2430	CL_M_T4	COMP_RCK	1611	2003-03-31		1.8100E-09	1.8100E-09	1.8100E-09	1.8100E-09	1996-02-13	CCA
CRA1	2447	CL_M_T5	COMP_RCK	1612	2003-03-31		1.8100E-09	1.8100E-09	1.8100E-09	1.8100E-09	1996-02-13	CCA
CRA1	2311	CLAY_BOT	COMP_RCK	1623	2003-03-31		1.5900E-09	1.5900E-09	1.5900E-09	1.5900E-09	1996-02-21	CCA
CRA1	3001	CLAY_RUS	COMP_RCK	1604	2003-03-31		1.9600E-09	1.9600E-09	1.9600E-09	1.9600E-09	1996-02-13	CCA
CRA1	3410	CM243	INVCHD	1691	2003-05-09		1.0800E+00	1.0800E+00	1.0800E+00	1.0800E+00	1996-05-24	CCA
CRA1	3410	CM243	INVCHD		2003-08-29							
CRA1	3411	CM243	INVRHD	1692	2003-05-09	1812	1.9700E+01	1.9700E+01	1.9700E+01	1.9700E+01	1996-05-24	CCA
CRA1	3411	CM243	INVRHD	1812	2003-08-29	1692	2.3100E-01	2.3100E-01	2.3100E-01	2.3100E-01	2003-05-09	CRA1
CRA1	112	CM244	INVCHD	1693	2003-05-09	1813	7.3600E+03	7.3600E+03	7.3600E+03	7.3600E+03	1996-10-29	CCA
CRA1	112	CM244	INVCHD	1813	2003-08-29	1863	4.8200E+03	4.8200E+03	4.8200E+03	4.8200E+03	2003-05-09	CRA1
CRA1	112	CM244	INVCHD	1863	2003-09-03	1813	2.4300E+03	2.4300E+03	2.4300E+03	2.4300E+03	2003-08-29	CRA1
CRA1	113	CM244	INVRHD	1694	2003-05-09		7.3600E+01	7.3600E+01	7.3600E+01	7.3600E+01	1996-10-29	CCA
CRA1	113	CM244	INVRHD	1814	2003-08-29	1694	1.0500E+02	1.0500E+02	1.0500E+02	1.0500E+02	2003-05-09	CRA1
CRA1	3412	CM245	INVCHD	1695	2003-05-09	1544	1.1500E-02	1.1500E-02	1.1500E-02	1.1500E-02	2002-06-12	TBM
CRA1	3412	CM245	INVCHD	1815	2003-08-29	1695	1.3900E-02	1.3900E-02	1.3900E-02	1.3900E-02	2003-05-09	CRA1
CRA1	3413	CM245	INVRHD	1696	2003-05-09		1.4800E-05	1.4800E-05	1.4800E-05	1.4800E-05	1996-05-24	CCA
CRA1	3413	CM245	INVRHD	1816	2003-08-29	1696	1.0900E-02	1.0900E-02	1.0900E-02	1.0900E-02	2003-05-09	CRA1
CRA1	2265	CM248	INVCHD	1697	2003-05-09		3.6900E-02	3.6900E-02	3.6900E-02	3.6900E-02	1996-10-29	CCA
CRA1	2265	CM248	INVCHD	1817	2003-08-29	1697	1.4900E-01	1.4900E-01	1.4900E-01	1.4900E-01	2003-05-09	CRA1
CRA1	2266	CM248	INVRHD	1698	2003-05-09		2.1500E-04	2.1500E-04	2.1500E-04	2.1500E-04	1996-10-29	CCA
CRA1	2266	CM248	INVRHD	1818	2003-08-29	1698	2.5900E-03	2.5900E-03	2.5900E-03	2.5900E-03	2003-05-09	CRA1
CRA1	3052	CONC_MON	COMP_RCK	1624	2003-03-31		1.2000E-09	1.2000E-09	1.2000E-09	1.2000E-09	1996-05-02	CCA
CRA1	3515	CONC_PCS	COMP_RCK	1626	2003-03-31	982	1.2000E-09	1.2000E-09	1.2000E-09	1.2000E-09	2002-02-14	TBM
CRA1	3148	CONC_PLG	COMP_RCK	1625	2003-03-31		1.2000E-09	1.2000E-09	1.2000E-09	1.2000E-09	1996-05-02	CCA
CRA1	2464	CONC_T1	COMP_RCK	1606	2003-03-31		1.2000E-09	1.2000E-09	1.2000E-09	1.2000E-09	1996-05-02	CCA

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CRA1	2481	CONC_T2	COMP_RCK	1607	2003-03-31		1.2000E-09	1.2000E-09	1.2000E-09	1.2000E-09	1996-05-02	CCA
CRA1	2037	CS137	INVCHD	1699	2003-05-09	1819	3.3500E+03	3.3500E+03	3.3500E+03	3.3500E+03	1996-10-29	CCA
CRA1	2037	CS137	INVCHD	1819	2003-08-29	1699	6.9300E+03	6.9300E+03	6.9300E+03	6.9300E+03	2003-05-09	CRA1
CRA1	118	CS137	INVRHD	1700	2003-05-09	1820	8.9800E+04	8.9800E+04	8.9800E+04	8.9800E+04	1996-10-29	CCA
CRA1	118	CS137	INVRHD	1820	2003-08-29	1700	1.7700E+05	1.7700E+05	1.7700E+05	1.7700E+05	2003-05-09	CRA1
CRA1	142	CULEBRA	PRESSURE	1787	2003-08-20		8.2200E+05	8.2200E+05	8.2200E+05	8.2200E+05	1996-02-08	CCA
CRA1	143	CULEBRA	PRMX_LOG	1789	2003-08-20		-1.3678E+01	-1.3678E+01	-1.3678E+01	-1.3678E+01	1996-02-13	CCA
CRA1	144	CULEBRA	PRMY_LOG	1790	2003-08-20		-1.3678E+01	-1.3678E+01	-1.3678E+01	-1.3678E+01	1996-02-13	CCA
CRA1	145	CULEBRA	PRMZ_LOG	1791	2003-08-20		-1.3678E+01	-1.3678E+01	-1.3678E+01	-1.3678E+01	1996-02-13	CCA
CRA1	2497	EARTH	COMP_RCK	1603	2003-03-31		3.1000E-08	3.1000E-08	3.1000E-08	3.1000E-08	1996-02-14	CCA
CRA1	3494	GLOBAL	LAMBDAD	1864	2003-09-08		4.6800E-03	4.6800E-03	4.6800E-03	4.6800E-03	1996-06-26	CCA
CRA1	3644	GLOBAL	ONEPLG	1770	2003-09-08				new			
CRA1	3646	GLOBAL	THREEPLG	1772	2003-09-08			new				
CRA1	3645	GLOBAL	TWOPLG	1771	2003-09-08			new				
CRA1	2101	MAGENTA	PRESSURE	1788	2003-08-20		9.1700E+05	9.1700E+05	9.1700E+05	9.1700E+05	1996-02-08	CCA
CRA1	248	NP237	INVCHD	1701	2003-05-09	1821	6.1900E+01	6.1900E+01	6.1900E+01	6.1900E+01	1996-10-29	CCA
CRA1	248	NP237	INVCHD	1821	2003-08-29	1701	1.1300E+01	1.1300E+01	1.1300E+01	1.1300E+01	2003-05-09	CRA1
CRA1	249	NP237	INVRHD	1702	2003-05-09	1822	2.9500E+00	2.9500E+00	2.9500E+00	2.9500E+00	1996-10-29	CCA
CRA1	249	NP237	INVRHD	1822	2003-08-29	1702	1.0100E+00	1.0100E+00	1.0100E+00	1.0100E+00	2003-05-09	CRA1
CRA1	2267	PA231	INVCHD	1703	2003-05-09	1823	4.6200E-01	4.6200E-01	4.6200E-01	4.6200E-01	1996-10-29	CCA
CRA1	2267	PA231	INVCHD	1823	2003-08-29	1703	1.9700E+00	1.9700E+00	1.9700E+00	1.9700E+00	2003-05-09	CRA1
CRA1	2268	PA231	INVRHD	1704	2003-05-09	1824	5.6300E-03	5.6300E-03	5.6300E-03	5.6300E-03	1996-10-29	CCA
CRA1	2268	PA231	INVRHD	1824	2003-08-29	1704	6.8600E-04	6.8600E-04	6.8600E-04	6.8600E-04	2003-05-09	CRA1
CRA1	253	PAN_SEAL	COMP_RCK	1627	2003-03-31		2.6400E-09	2.6400E-09	2.6400E-09	2.6400E-09	1996-02-20	CCA
CRA1	285	PB210	INVCHD	1705	2003-05-09	1825	8.7500E+00	8.7500E+00	8.7500E+00	8.7500E+00	1996-10-29	CCA
CRA1	285	PB210	INVCHD	1825	2003-08-29	1705	7.9000E+00	7.9000E+00	7.9000E+00	7.9000E+00	2003-05-09	CRA1
CRA1	286	PB210	INVRHD	1706	2003-05-09	1826	1.1400E-04	1.1400E-04	1.1400E-04	1.1400E-04	1996-10-29	CCA
CRA1	286	PB210	INVRHD	1826	2003-08-29	1706	1.6200E-05	1.6200E-05	1.6200E-05	1.6200E-05	2003-05-09	CRA1

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CRA1	2038	PM147	INVCHD	1707	2003-05-09	1827	3.4300E-04	3.4300E-04	3.4300E-04	1996-10-29	CCA
CRA1	2038	PM147	INVCHD	1827	2003-08-29		4.1300E-04	4.1300E-04	4.1300E-04	2003-05-09	CRA1
CRA1	289	PM147	INVRHD	1708	2003-05-09	1828	4.6700E-04	4.6700E-04	4.6700E-04	1996-10-29	CCA
CRA1	289	PM147	INVRHD	1828	2003-08-29		8.0500E-02	8.0500E-02	8.0500E-02	2003-05-09	CRA1
CRA1	293	PU238	INVCHD	1709	2003-05-09	1829	2.0900E+06	2.0900E+06	2.0900E+06	2002-06-12	TBM
CRA1	293	PU238	INVCHD	1829	2003-08-29		1.5300E+06	1.5300E+06	1.5300E+06	2003-05-09	CRA1
CRA1	294	PU238	INVRHD	1710	2003-05-09	1830	1.0800E+03	1.0800E+03	1.0800E+03	1996-10-29	CCA
CRA1	294	PU238	INVRHD	1830	2003-08-29		3.4800E+03	3.4800E+03	3.4800E+03	2003-05-09	CRA1
CRA1	3506	PU238L	INVCHD	1762	2003-05-12	1798	2.0900E+06	2.0900E+06	2.0900E+06	2002-06-18	TBM
CRA1	3506	PU238L	INVCHD	1798	2003-08-29		1.5300E+06	1.5300E+06	1.5300E+06	2003-05-12	CRA1
CRA1	3511	PU238L	INVRHD	1763	2003-05-12	1799	1.0800E+03	1.0800E+03	1.0800E+03	2002-06-18	TBM
CRA1	3511	PU238L	INVRHD	1799	2003-08-29		3.4800E+03	3.4800E+03	3.4800E+03	2003-05-12	CRA1
CRA1	297	PU239	INVCHD	1711	2003-05-09	1831	7.8500E+05	7.8500E+05	7.8500E+05	1996-04-25	CCA
CRA1	297	PU239	INVCHD	1831	2003-08-29		7.7700E+05	7.7700E+05	7.7700E+05	2003-05-09	CRA1
CRA1	298	PU239	INVRHD	1712	2003-05-09	1832	1.0300E+04	1.0300E+04	1.0300E+04	1996-04-25	CCA
CRA1	298	PU239	INVRHD	1832	2003-08-29		5.6400E+03	5.6400E+03	5.6400E+03	2003-05-09	CRA1
CRA1	3505	PU239L	INVCHD	1764	2003-05-12	1800	1.0100E+06	1.0100E+06	1.0100E+06	2002-06-18	TBM
CRA1	3505	PU239L	INVCHD	1800	2003-08-29		9.1000E+05	9.1000E+05	9.1000E+05	2003-05-12	CRA1
CRA1	3510	PU239L	INVRHD	1765	2003-05-12	1801	1.5400E+04	1.5400E+04	1.5400E+04	2002-06-18	TBM
CRA1	3510	PU239L	INVRHD	1801	2003-08-29		7.4700E+03	7.4700E+03	7.4700E+03	2003-05-12	CRA1
CRA1	301	PU240	INVCHD	1713	2003-05-09	1833	2.0900E+05	2.0900E+05	2.0900E+05	1996-10-29	CCA
CRA1	301	PU240	INVCHD	1833	2003-08-29		1.3200E+05	1.3200E+05	1.3200E+05	2003-05-09	CRA1
CRA1	302	PU240	INVRHD	1714	2003-05-09	1834	5.0500E+03	5.0500E+03	5.0500E+03	1996-10-29	CCA
CRA1	302	PU240	INVRHD	1834	2003-08-29		1.8200E+03	1.8200E+03	1.8200E+03	2003-05-09	CRA1
CRA1	305	PU241	INVCHD	1715	2003-05-09	1835	3.7100E+05	3.7100E+05	3.7100E+05	1996-10-29	CCA
CRA1	305	PU241	INVCHD	1835	2003-08-29		5.1700E+05	5.1700E+05	5.1700E+05	2003-05-09	CRA1
CRA1	306	PU241	INVRHD	1716	2003-05-09	1836	2.2800E+04	2.2800E+04	2.2800E+04	1996-10-29	CCA
CRA1	306	PU241	INVRHD	1836	2003-08-29		1.4900E+05	1.4900E+05	1.4900E+05	2003-05-09	CRA1

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CRA1	309	PU242	INVCHD	1717	2003-05-09	1717	1.1700E+03	1.1700E+03	1.1700E+03	1.1700E+03	1996-04-25	CCA
CRA1	309	PU242	INVCHD	1837	2003-08-29	1837	3.2700E+01	3.2700E+01	3.2700E+01	3.2700E+01	2003-05-09	CRA1
CRA1	310	PU242	INVRHD	1718	2003-05-09	1718	1.5000E-01	1.5000E-01	1.5000E-01	1.5000E-01	1996-04-25	CCA
CRA1	310	PU242	INVRHD	1838	2003-08-29	1838	5.0200E-01	5.0200E-01	5.0200E-01	5.0200E-01	2003-05-09	CRA1
CRA1	2269	PU244	INVCHD	1719	2003-05-09	1719	1.5100E-06	1.5100E-06	1.5100E-06	1.5100E-06	1996-10-29	CCA
CRA1	2269	PU244	INVCHD	1839	2003-08-29	1839	1.4500E-06	1.4500E-06	1.4500E-06	1.4500E-06	2003-05-09	CRA1
CRA1	2270	PU244	INVRHD	1720	2003-05-09	1720	8.5000E-11	8.5000E-11	8.5000E-11	8.5000E-11	1996-10-29	CCA
CRA1	2270	PU244	INVRHD	1840	2003-08-29	1840	1.5600E-03	1.5600E-03	1.5600E-03	1.5600E-03	2003-05-09	CRA1
CRA1	316	RA226	INVCHD	1721	2003-05-09	1721	1.1400E+01	1.1400E+01	1.1400E+01	1.1400E+01	1996-10-29	CCA
CRA1	316	RA226	INVCHD	1841	2003-08-29	1841	1.0000E+01	1.0000E+01	1.0000E+01	1.0000E+01	2003-05-09	CRA1
CRA1	317	RA226	INVRHD	1722	2003-05-09	1722	2.7900E-04	2.7900E-04	2.7900E-04	2.7900E-04	1996-10-29	CCA
CRA1	317	RA226	INVRHD	1842	2003-08-29	1842	5.5500E-05	5.5500E-05	5.5500E-05	5.5500E-05	2003-05-09	CRA1
CRA1	2271	RA228	INVCHD	1723	2003-05-09	1723	9.1000E-01	9.1000E-01	9.1000E-01	9.1000E-01	1996-10-29	CCA
CRA1	2271	RA228	INVCHD	1843	2003-08-29	1843	7.6500E+00	7.6500E+00	7.6500E+00	7.6500E+00	2003-05-09	CRA1
CRA1	2272	RA228	INVRHD	1724	2003-05-09	1724	9.2300E-02	9.2300E-02	9.2300E-02	9.2300E-02	1996-10-29	CCA
CRA1	2272	RA228	INVRHD	1844	2003-08-29	1844	3.3600E-01	3.3600E-01	3.3600E-01	3.3600E-01	2003-05-09	CRA1
CRA1-B	3590	REFCON	BIP_11	1635	2003-04-01				new			
CRA1-B	3591	REFCON	BIP_12	1636	2003-04-01				new			
CRA1-B	3592	REFCON	BIP_13	1637	2003-04-01				new			
CRA1-B	3593	REFCON	BIP_14	1638	2003-04-01				new			
CRA1-B	3594	REFCON	BIP_15	1639	2003-04-01				new			
CRA1-B	3595	REFCON	BIP_16	1640	2003-04-01				new			
CRA1-B	3596	REFCON	BIP_21	1641	2003-04-01				new			

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CRA1-B	3597	REFCON	BIP_22	1642	2003-04-01		new
CRA1-B	3598	REFCON	BIP_23	1643	2003-04-01		new
CRA1-B	3599	REFCON	BIP_24	1644	2003-04-01		new
CRA1-B	3600	REFCON	BIP_25	1645	2003-04-01		new
CRA1-B	3601	REFCON	BIP_26	1646	2003-04-01		new
CRA1-B	3602	REFCON	BIP_31	1647	2003-04-01		new
CRA1-B	3603	REFCON	BIP_32	1648	2003-04-01		new
CRA1-B	3604	REFCON	BIP_33	1649	2003-04-01		new
CRA1-B	3605	REFCON	BIP_34	1650	2003-04-01		new
CRA1-B	3606	REFCON	BIP_35	1651	2003-04-01		new
CRA1-B	3607	REFCON	BIP_36	1652	2003-04-01		new
CRA1-B	3608	REFCON	BIP_41	1653	2003-04-01		new
CRA1-B	3609	REFCON	BIP_42	1654	2003-04-01		new
CRA1-B	3610	REFCON	BIP_43	1655	2003-04-01		new
CRA1-B	3611	REFCON	BIP_44	1656	2003-04-01		new
CRA1-B	3612	REFCON	BIP_45	1657	2003-04-01		new
CRA1-B	3613	REFCON	BIP_46	1658	2003-04-01		new

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CRA1-B	3614	REFCON	BIP_51	1659	2003-04-01	new
CRA1-B	3615	REFCON	BIP_52	1660	2003-04-01	new
CRA1-B	3616	REFCON	BIP_53	1661	2003-04-01	new
CRA1-B	3617	REFCON	BIP_54	1662	2003-04-01	new
CRA1-B	3618	REFCON	BIP_55	1663	2003-04-01	new
CRA1-B	3619	REFCON	BIP_56	1664	2003-04-01	new
CRA1-B	3620	REFCON	BIP_61	1670	2003-04-01	new
CRA1-B	3621	REFCON	BIP_62	1665	2003-04-01	new
CRA1-B	3622	REFCON	BIP_63	1666	2003-04-01	new
CRA1-B	3623	REFCON	BIP_64	1667	2003-04-01	new
CRA1-B	3624	REFCON	BIP_65	1668	2003-04-01	new
CRA1-B	3625	REFCON	BIP_66	1669	2003-04-01	new
CRA1-B	3647	REFCON	FVRW	1773	2003-06-26	new
CRA1-B	3582	REFCON	LHSBLANK	1602	2003-03-27	new
CRA1-B	3589	REFCON	MW_CELL	1634	2003-04-01	new
CRA1-B	3585	REFCON	MW_CH4	1630	2003-04-01	new
CRA1-B	3584	REFCON	MW_CO2	1629	2003-04-01	new

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Group	ID	Material	Parameter	ID	Date	Value		Value	Date	
CRA1-B	3587	REFCON	MW_H2S	1632	2003-04-01		new			
CRA1-B	3586	REFCON	MW_N2	1631	2003-04-01		new			
CRA1-B	3583	REFCON	MW_NACL	1628	2003-04-01		new			
CRA1-B	3588	REFCON	MW_O2	1633	2003-04-01		new			
CRA1	3108	REFCON	VREPOS	1601	2003-03-27	4.3602E+05	4.3602E+05	4.3602E+05	1996-02-17	CCA
CRA1	2514	SALT_T1	COMP_RCK	1617	2003-03-31	1.6000E-09	1.6000E-09	1.6000E-09	1996-02-13	CCA
CRA1	2531	SALT_T2	COMP_RCK	1618	2003-03-31	1.6000E-09	1.6000E-09	1.6000E-09	1996-02-14	CCA
CRA1	2548	SALT_T3	COMP_RCK	1619	2003-03-31	1.6000E-09	1.6000E-09	1.6000E-09	1996-02-14	CCA
CRA1	2565	SALT_T4	COMP_RCK	1620	2003-03-31	1.6000E-09	1.6000E-09	1.6000E-09	1996-02-14	CCA
CRA1	2582	SALT_T5	COMP_RCK	1621	2003-03-31	1.6000E-09	1.6000E-09	1.6000E-09	1996-02-14	CCA
CRA1	2984	SALT_T6	COMP_RCK	1622	2003-03-31	1.6000E-09	1.6000E-09	1.6000E-09	1996-02-13	CCA
AP106	3550	SHFTU	COMP_POR	1567	2003-01-27		new			
AP106	3562	SHFTL_T1	COMP_POR	1579	2003-01-27		new			
AP106	3563	SHFTL_T1	KPT	1580	2003-01-27		new			
AP106	3564	SHFTL_T1	PC_MAX	1581	2003-01-27		new			
AP106	3565	SHFTL_T1	PCT_A	1582	2003-01-27		new			
AP106	3566	SHFTL_T1	PCT_EXP	1583	2003-01-27		new			
AP106	3567	SHFTL_T1	PO_MIN	1584	2003-01-27		new			
AP106	3568	SHFTL_T1	POROSITY	1585	2003-01-27		new			
AP106	3569	SHFTL_T1	PRMX_LOG	1586	2003-01-27		new			
AP106	3570	SHFTL_T1	RELP_MOD	1587	2003-01-27		new			
AP106	3571	SHFTL_T1	SAT_IBRN	1588	2003-01-27		new			
AP106	3572	SHFTL_T2	COMP_POR	1589	2003-01-27		new			
AP106	3573	SHFTL_T2	KPT	1590	2003-01-27		new			
AP106	3574	SHFTL_T2	PC_MAX	1591	2003-01-27		new			

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AP106	3575	SHFTL_T2	PCT_A	1592	2003-01-27		new	
AP106	3576	SHFTL_T2	PCT_EXP	1593	2003-01-27		new	
AP106	3577	SHFTL_T2	PO_MIN	1594	2003-01-27		new	
AP106	3578	SHFTL_T2	POROSITY	1595	2003-01-27		new	
AP106	3579	SHFTL_T2	PRMX_LOG	1596	2003-01-27		new	
AP106	3580	SHFTL_T2	RELP_MOD	1597	2003-01-27		new	
AP106	3581	SHFTL_T2	SAT_IBRN	1598	2003-01-27		new	
AP106	3551	SHFTU	KPT	1568	2003-01-27		new	
AP106	3552	SHFTU	PC_MAX	1569	2003-01-27		new	
AP106	3553	SHFTU	PCT_A	1570	2003-01-27		new	
AP106	3554	SHFTU	PCT_EXP	1571	2003-01-27		new	
AP106	3555	SHFTU	PO_MIN	1572	2003-01-27		new	
AP106	3556	SHFTU	POROSITY	1573	2003-01-27		new	
AP106	3557	SHFTU	PRMX_LOG	1574	2003-01-27		new	
AP106	3558	SHFTU	RELP_MOD	1575	2003-01-27		new	
AP106	3559	SHFTU	SAT_IBRN	1576	2003-01-27		new	
AP106	3560	SHFTU	SAT_RBRN	1577	2003-01-27		new	
AP106	3561	SHFTU	SAT_RGAS	1578	2003-01-27		new	
CRA1	3628	SOLMOD3	SOLCOC	1743	2003-05-12		new	
CRA1	3629	SOLMOD3	SOLCOH	1744	2003-05-12		new	
CRA1	3630	SOLMOD3	SOLSOC	1745	2003-05-12		new	
CRA1	3631	SOLMOD3	SOLSOH	1746	2003-05-12		new	
CRA1	3632	SOLMOD4	SOLCOC	1747	2003-05-12		new	
CRA1	3633	SOLMOD4	SOLCOH	1748	2003-05-12		new	
CRA1	3634	SOLMOD4	SOLSOC	1749	2003-05-12		new	
CRA1	3635	SOLMOD4	SOLSOH	1750	2003-05-12		new	
CRA1	3636	SOLMOD5	SOLCOC	1751	2003-05-12		new	
CRA1	3637	SOLMOD5	SOLCOH	1752	2003-05-12		new	
CRA1	3638	SOLMOD5	SOLSOC	1753	2003-05-12		new	

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CRA1	3639	SOLMOD5	SOLSOH	1754	2003-05-12	new
CRA1	3640	SOLMOD6	SOLCOC	1755	2003-05-12	new
CRA1	3641	SOLMOD6	SOLCOH	1756	2003-05-12	new
CRA1	3642	SOLMOD6	SOLSOC	1757	2003-05-12	new
CRA1	3643	SOLMOD6	SOLSOH	1758	2003-05-12	new
CRA1	3627	SOLTH4	SOLCIM	1684	2003-05-09	new
CRA1	3626	SOLU4	SOLCIM	1683	2003-05-09	new
CRA1	3675	SPALLMO	ANNUROUG	1889	2003-09-30	new
CRA1	3662	SPALLMO	BIOTBETA	1876	2003-09-18	new
CRA1	3665	SPALLMO	BITNZDIA	1879	2003-09-18	new
CRA1	3653	SPALLMO	BITNZNO	1867	2003-09-17	new
CRA1	3652	SPALLMO	COHESION	1866	2003-09-17	new
CRA1	3677	SPALLMO	DDZPERM	1891	2003-10-06	new
CRA1	3659	SPALLMO	DDZTHICK	1873	2003-09-17	new
CRA1	3674	SPALLMO	DRILRATE	1888	2003-09-30	new
CRA1	3668	SPALLMO	DRZPERM	1880	2003-09-18	new
CRA1	3654	SPALLMO	FFSTRESS	1868	2003-09-17	new
CRA1	3657	SPALLMO	FRICTANG	1871	2003-09-17	new
CRA1	3671	SPALLMO	MUDPRATE	1885	2003-09-30	new
CRA1	3673	SPALLMO	MUDSOLMX	1887	2003-09-30	new
CRA1	3670	SPALLMO	MUDSOLVE	1884	2003-09-30	new
CRA1	3667	SPALLMO	PARTDIAM	1882	2003-09-22	new
CRA1	3660	SPALLMO	PIPEID	1874	2003-09-17	new
CRA1	3663	SPALLMO	PIPEROUG	1877	2003-09-18	new
CRA1	3672	SPALLMO	POISRAT	1886	2003-09-30	new
CRA1	3651	SPALLMO	REFPRS	1865	2003-09-17	new
CRA1	3666	SPALLMO	REPIPERM	1883	2003-09-22	new
CRA1	3655	SPALLMO	REPOSTOP	1869	2003-09-17	new
CRA1	3664	SPALLMO	SALTDENS	1878	2003-09-18	new

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CRA1	3669	SPALLMO	SHAPEFAC	1881	2003-09-18			new			
CRA1	3661	SPALLMO	STPDVOLR	1875	2003-09-17			new			
CRA1	3656	SPALLMO	STPPVOLR	1870	2003-09-17			new			
CRA1	3658	SPALLMO	SURFELEV	1872	2003-09-17			new			
CRA1	3676	SPALLMO	TENSLSTR	1890	2003-09-30			new			
CRA1	2039	SR90	INVCHD	1725	2003-05-09	1845	2.7700E+03	2.7700E+03	2.7700E+03	1996-10-29	CCA
CRA1	2039	SR90	INVCHD	1845	2003-08-29		2.8200E+04	2.8200E+04	2.8200E+04	2003-05-09	CRA1
CRA1	518	SR90	INVRHD	1726	2003-05-09	1846	8.4500E+04	8.4500E+04	8.4500E+04	1996-10-29	CCA
CRA1	518	SR90	INVRHD	1846	2003-08-29		1.1800E+05	1.1800E+05	1.1800E+05	2003-05-09	CRA1
CRA1	605	TH229	INVCHD	1727	2003-05-09	1847	9.2900E+00	9.2900E+00	9.2900E+00	1996-10-29	CCA
CRA1	605	TH229	INVCHD	1847	2003-08-29		6.1200E+00	6.1200E+00	6.1200E+00	2003-05-09	CRA1
CRA1	606	TH229	INVRHD	1728	2003-05-09	1848	6.8300E-01	6.8300E-01	6.8300E-01	1996-10-29	CCA
CRA1	606	TH229	INVRHD	1848	2003-08-29		1.8300E-01	1.8300E-01	1.8300E-01	2003-05-09	CRA1
CRA1	609	TH230	INVCHD	1729	2003-05-09	1849	2.9000E-01	2.9000E-01	2.9000E-01	2002-06-12	TBM
CRA1	609	TH230	INVCHD	1849	2003-08-29		2.2600E-01	2.2600E-01	2.2600E-01	2003-05-09	CRA1
CRA1	610	TH230	INVRHD	1730	2003-05-09	1850	2.2200E-02	2.2200E-02	2.2200E-02	1996-10-29	CCA
CRA1	610	TH230	INVRHD	1850	2003-08-29		7.2400E-03	7.2400E-03	7.2400E-03	2003-05-09	CRA1
CRA1	3508	TH230L	INVCHD	1558	2003-05-12	1766	9.5800E+00	9.5800E+00	9.5800E+00	2002-06-18	TBM
CRA1	3508	TH230L	INVCHD	1802	2003-08-29		6.3500E+00	6.3500E+00	6.3500E+00	2003-05-12	CRA1
CRA1	3513	TH230L	INVRHD	1560	2003-05-12	1767	7.0500E-01	7.0500E-01	7.0500E-01	2002-06-18	TBM
CRA1	3513	TH230L	INVRHD	1803	2003-08-29		1.9000E-01	1.9000E-01	1.9000E-01	2003-05-12	CRA1
CRA1	613	TH232	INVCHD	1731	2003-05-09	1851	9.1400E-01	9.1400E-01	9.1400E-01	1996-10-29	CCA
CRA1	613	TH232	INVCHD	1851	2003-08-29		6.6300E+00	6.6300E+00	6.6300E+00	2003-05-09	CRA1
CRA1	614	TH232	INVRHD	1732	2003-05-09	1852	9.2600E-02	9.2600E-02	9.2600E-02	1996-10-29	CCA
CRA1	614	TH232	INVRHD	1852	2003-08-29		2.9100E-01	2.9100E-01	2.9100E-01	2003-05-09	CRA1
CRA1	634	U233	INVCHD	1733	2003-05-09	1853	1.7900E+03	1.7900E+03	1.7900E+03	1996-04-26	CCA
CRA1	634	U233	INVCHD	1853	2003-08-29		1.4300E+03	1.4300E+03	1.4300E+03	2003-05-09	CRA1
CRA1	635	U233	INVRHD	1734	2003-05-09	1854	1.5800E+02	1.5800E+02	1.5800E+02	1996-04-26	CCA
CRA1	635	U233	INVRHD	1854	2003-08-29		4.3800E+01	4.3800E+01	4.3800E+01	2003-05-09	CRA1

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CRA1	638	U234	INVCHD	1735	2003-05-09	1545	7.2700E+02	7.2700E+02	7.2700E+02	2002-06-12	TBM
CRA1	638	U234	INVCHD	1855	2003-08-29	1735	3.6400E+02	3.6400E+02	3.6400E+02	2003-05-09	CRA1
CRA1	639	U234	INVRHD	1736	2003-05-09	1736	4.2900E+01	4.2900E+01	4.2900E+01	1996-10-29	CCA
CRA1	639	U234	INVRHD	1856	2003-08-29	1561	2.3500E+01	2.3500E+01	2.3500E+01	2003-05-09	CRA1
CRA1	3507	U234L	INVCHD	1768	2003-05-12	1768	2.5200E+03	2.5200E+03	2.5200E+03	2002-06-18	TBM
CRA1	3507	U234L	INVCHD	1804	2003-08-29	1562	1.7900E+03	1.7900E+03	1.7900E+03	2003-05-12	CRA1
CRA1	3512	U234L	INVRHD	1769	2003-05-12	1769	2.0100E+02	2.0100E+02	2.0100E+02	2002-06-18	TBM
CRA1	3512	U234L	INVRHD	1805	2003-08-29	1805	6.7300E+01	6.7300E+01	6.7300E+01	2003-05-12	CRA1
CRA1	642	U235	INVCHD	1737	2003-05-09	1737	1.2800E+01	1.2800E+01	1.2800E+01	1996-04-26	CCA
CRA1	642	U235	INVCHD	1857	2003-08-29	1857	1.3800E+00	1.3800E+00	1.3800E+00	2003-05-09	CRA1
CRA1	643	U235	INVRHD	1738	2003-05-09	1738	4.6300E+00	4.6300E+00	4.6300E+00	1996-04-26	CCA
CRA1	643	U235	INVRHD	1858	2003-08-29	1858	9.7900E-01	9.7900E-01	9.7900E-01	2003-05-09	CRA1
CRA1	2216	U236	INVCHD	1739	2003-05-09	1739	5.6900E-01	5.6900E-01	5.6900E-01	1996-10-29	CCA
CRA1	2216	U236	INVCHD	1859	2003-08-29	1859	2.6000E-01	2.6000E-01	2.6000E-01	2003-05-09	CRA1
CRA1	646	U236	INVRHD	1740	2003-05-09	1740	1.0300E-01	1.0300E-01	1.0300E-01	1996-10-29	CCA
CRA1	646	U236	INVRHD	1860	2003-08-29	1860	1.4800E+00	1.4800E+00	1.4800E+00	2003-05-09	CRA1
CRA1	649	U238	INVCHD	1741	2003-05-09	1741	3.9600E+01	3.9600E+01	3.9600E+01	1996-04-26	CCA
CRA1	649	U238	INVCHD	1861	2003-08-29	1861	2.4600E+01	2.4600E+01	2.4600E+01	2003-05-09	CRA1
CRA1	650	U238	INVRHD	1742	2003-05-09	1742	1.0500E+01	1.0500E+01	1.0500E+01	1996-04-25	CCA
CRA1	650	U238	INVRHD	1862	2003-08-29	1862	1.3100E+02	1.3100E+02	1.3100E+02	2003-05-09	CRA1
AMW	3649	WAS_AMW	CLOSMOD1	1793	2003-08-28		new				
AMW	3650	WAS_AMW	CLOSMOD2	1794	2003-08-28		new				
AMW	3648	WAS_AMW	FRACAMW	1792	2003-08-28		new				
CRA1	2041	WAS_ARE	DCELLCHW	1682	2003-04-08	1682	5.4000E+01	5.4000E+01	5.4000E+01	1996-02-13	CCA
CRA1	2041	WAS_ARE	DCELLCHW	1779	2003-08-19	1779	7.5000E+01	7.5000E+01	7.5000E+01	2003-04-08	CRA1
CRA1	2274	WAS_ARE	DCELLRHW	1681	2003-04-08	1681	1.7000E+01	1.7000E+01	1.7000E+01	1996-02-13	CCA
CRA1	2274	WAS_ARE	DCELLRHW	1780	2003-08-19	1780	6.1000E+00	6.1000E+00	6.1000E+00	2003-04-08	CRA1
CRA1	1992	WAS_ARE	DIRNCCHW	1680	2003-04-08	1680	1.3900E+02	1.3900E+02	1.3900E+02	1996-02-13	CCA
CRA1	1992	WAS_ARE	DIRNCCHW	1775	2003-08-19	1775	2.3000E+02	2.3000E+02	2.3000E+02	2003-04-08	CRA1

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CRA1	1993	WAS_ARE	DIRNCRHW	1679	2003-04-08	1679	2.5910E+03	2.5910E+03	2.5910E+03	2.5910E+03	1996-02-13	CCA
CRA1	1993	WAS_ARE	DIRNCRHW	1776	2003-08-19		3.9000E+02	3.9000E+02	3.9000E+02	3.9000E+02	2003-04-08	CRA1
CRA1	2040	WAS_ARE	DIRONCHW	1678	2003-04-08	1678	1.7000E+02	1.7000E+02	1.7000E+02	1.7000E+02	1996-02-13	CCA
CRA1	2040	WAS_ARE	DIRONCHW	1781	2003-08-19		1.4000E+02	1.4000E+02	1.4000E+02	1.4000E+02	2003-04-08	CRA1
CRA1	2044	WAS_ARE	DIRONRHW	1677	2003-04-08	1677	1.0000E+02	1.0000E+02	1.0000E+02	1.0000E+02	1996-02-13	CCA
CRA1	2044	WAS_ARE	DIRONRHW	1782	2003-08-19		1.2000E+02	1.2000E+02	1.2000E+02	1.2000E+02	2003-04-08	CRA1
CRA1	2043	WAS_ARE	DPLASCHW	1676	2003-04-08	1676	3.4000E+01	3.4000E+01	3.4000E+01	3.4000E+01	1996-02-13	CCA
CRA1	2043	WAS_ARE	DPLASCHW	1783	2003-08-19		5.5000E+01	5.5000E+01	5.5000E+01	5.5000E+01	2003-04-08	CRA1
CRA1	2275	WAS_ARE	DPLASRHW	1675	2003-04-08	1675	1.5000E+01	1.5000E+01	1.5000E+01	1.5000E+01	1996-02-13	CCA
CRA1	2275	WAS_ARE	DPLASRHW	1784	2003-08-19		7.0000E+00	7.0000E+00	7.0000E+00	7.0000E+00	2003-04-08	CRA1
CRA1	1995	WAS_ARE	DPLSCCHW	1674	2003-04-08	1674	2.6000E+01	2.6000E+01	2.6000E+01	2.6000E+01	1996-02-13	CCA
CRA1	1995	WAS_ARE	DPLSCCHW	1777	2003-08-19		2.1000E+01	2.1000E+01	2.1000E+01	2.1000E+01	2003-04-08	CRA1
CRA1	2228	WAS_ARE	DPLSCRHW	1673	2003-04-08	1673	3.1000E+00	3.1000E+00	3.1000E+00	3.1000E+00	1996-02-13	CCA
CRA1	2228	WAS_ARE	DPLSCRHW	1778	2003-08-19		1.2000E+00	1.2000E+00	1.2000E+00	1.2000E+00	2003-04-08	CRA1
CRA1	2042	WAS_ARE	DRUBBCHW	1672	2003-04-08	1672	1.0000E+01	1.0000E+01	1.0000E+01	1.0000E+01	1996-02-13	CCA
CRA1	2042	WAS_ARE	DRUBBCHW	1785	2003-08-19		1.9000E+01	1.9000E+01	1.9000E+01	1.9000E+01	2003-04-08	CRA1
CRA1	2046	WAS_ARE	DRUBBRHW	1671	2003-04-08	1671	3.3000E+00	3.3000E+00	3.3000E+00	3.3000E+00	1996-02-13	CCA
CRA1	2046	WAS_ARE	DRUBBRHW	1786	2003-08-19		3.6000E+00	3.6000E+00	3.6000E+00	3.6000E+00	2003-04-08	CRA1
CRA1	3682	SPALLMO	DRZTCK	1898	2004/03/26							CRA1
CRA1	3681	SPALLMO	FRCHBETA	1897	2004/03/26							CRA1
CRA1	3680	SPALLMO	REPOSTCK	1896	2004/03/26							CRA1
CRA1	3679	SPALLMO	REPOTRAD	1895	2004/03/26							CRA1
TBM	3482	AM+3	MKD_AM	1600	2003-02-05	1015	1.0000E-01	6.0000E-02	9.0000E-03	4.0000E-01	2002-02-14	TBM
TBM	3482	AM+3	MKD_AM	1015	2002-02-14		2.6000E-01	2.6000E-01	2.0000E-02	5.0000E-01	1996-06-12	CCA
TBM	3480	PU+3	MKD_PU	1027	2002-02-14		2.6000E-01	2.6000E-01	2.0000E-02	5.0000E-01	1996-06-12	CCA
TBM	3480	PU+3	MKD_PU	1599	2003-02-05	1027	1.0000E-01	6.0000E-02	9.0000E-03	4.0000E-01	2002-02-14	TBM
TBM	3402	SOLMOD3	SOLCIM	1029	2002-02-14		6.5200E-08	6.5200E-08	6.5200E-08	6.5200E-08	1996-05-24	CCA
TBM	3402	SOLMOD3	SOLCIM	1566	2002-12-24		1.3800E-08	1.3800E-08	1.3800E-08	1.3800E-08	2002-02-14	TBM

Table 1 Section 3

Table 1. Section 3. Parameters That Have Changed Since the Technical Baseline Migration (TBM)

Analysis	Param. ID No.	Material ID	Property ID	Support ERMS #	Date	PDE Check	PDE ERMS#	Date	Comments
CRA1	4	AM241	INVCHD	529130	8-May-03	1	529449	9-May-03	
CRA1	4	AM241	INVCHD	531103	28-Aug-03	1	531234	29-Aug-03	
CRA1	5	AM241	INVRHD	529130	8-May-03	1	529450	9-May-03	
CRA1	5	AM241	INVRHD	531103	28-Aug-03	1	531235	29-Aug-03	
CRA1	3504	AM241L	INVCHD	529289	12-May-03	1	529420	12-May-03	
CRA1	3504	AM241L	INVCHD	531090	28-Aug-03	1	531306	29-Aug-03	
CRA1	3509	AM241L	INVRHD	529289	12-May-03	1	529421	12-May-03	
CRA1	3509	AM241L	INVRHD	531090	28-Aug-03	1	531307	29-Aug-03	
CRA1	3415	AM243	INVCHD	529130	8-May-03	1	529451	9-May-03	
CRA1	3415	AM243	INVCHD	531103	28-Aug-03	1	531236	29-Aug-03	
CRA1	3416	AM243	INVRHD	529130	8-May-03	1	529452	9-May-03	
CRA1	3416	AM243	INVRHD	531103	28-Aug-03	1	531237	29-Aug-03	
CRA1	2277	ASPHALT	COMP_RCK	526661	29-Mar-03	1	527574	31-Mar-03	
	3473	BLOWOUT	THICK_CAS	530503	1-Aug-03	3	530605	1-Aug-03	PDE param type changed by data entry person, not PDE requester; checked support ERMS document, and change is correct
CRA1	3414	BOREHOLE	WUF	529148	9-May-03	1	529446	12-May-03	
CRA1	3414	BOREHOLE	WUF	531099	28-Aug-03	1	531318	29-Aug-03	
CRA1	108	CF252	INVCHD	529130	8-May-03	1	529453	9-May-03	
CRA1	108	CF252	INVCHD	531103	28-Aug-03	1	531238	29-Aug-03	
CRA1	109	CF252	INVRHD	529130	8-May-03	1	529454	9-May-03	
CRA1	109	CF252	INVRHD	531103	28-Aug-03	1	531239	29-Aug-03	
CRA1	2328	CL_L_T1	COMP_RCK	526661	19-Mar-03	1	527583	31-Mar-03	
CRA1	2345	CL_L_T2	COMP_RCK	526661	19-Mar-03	1	527584	31-Mar-03	
CRA1	2362	CL_L_T3	COMP_RCK	526661	19-Mar-03	1	527585	31-Mar-03	
CRA1	3071	CL_L_T4	COMP_RCK	526661	19-Mar-03	1	527586	31-Mar-03	
CRA1	2379	CL_M_T1	COMP_RCK	526661	19-Mar-03	1	527577	31-Mar-03	

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CRA1	2396	CL_M_T2	COMP_RCK	526661	19-Mar-03	1	527578	31-Mar-03	
CRA1	2413	CL_M_T3	COMP_RCK	526661	19-Mar-03	1	527579	31-Mar-03	
CRA1	2430	CL_M_T4	COMP_RCK	526661	19-Mar-03	1	527580	31-Mar-03	
CRA1	2447	CL_M_T5	COMP_RCK	526661	19-Mar-03	1	527581	31-Mar-03	
CRA1	2311	CLAY_BOT	COMP_RCK	526661	19-Mar-03	1	527594	31-Mar-03	
CRA1	3001	CLAY_RUS	COMP_RCK	526661	19-Mar-03	1	527573	31-Mar-03	
CRA1	3410	CM243	INVCHD	529130	8-May-03	1	520455	9-May-03	
CRA1	3410	CM243	INVCHD	531103	28-Aug-03	1	531241	29-Aug-03	No change from May values
CRA1	3411	CM243	INVRHD	529130	8-May-03	1	529456	9-May-03	
CRA1	3411	CM243	INVRHD	531103	28-Aug-03	1	531242	29-Aug-03	
CRA1	112	CM244	INVCHD	529130	8-May-03	1	529457	9-May-03	
CRA1	112	CM244	INVCHD	531103	28-Aug-03	1	531244	29-Aug-03	
CRA1	112	CM244	INVCHD	531187	3-Sep-03	1	531232	3-Sep-03	PPR ERMS # 531232, correcting value from 0 to 3.39E3
CRA1	113	CM244	INVRHD	529130	8-May-03	1	529458	9-May-03	
CRA1	113	CM244	INVRHD	531103	28-Aug-03	1	531245	29-Aug-03	
CRA1	3412	CM245	INVCHD	529130	08 MAY 03	1	529459	9-May-03	
CRA1	3412	CM245	INVCHD	531103	28-Aug-03	1	531247	29-Aug-03	
CRA1	3413	CM245	INVRHD	529130	8-May-03	1	529460	9-May-03	
CRA1	3413	CM245	INVRHD	531103	28-Aug-03	1	531248	29-Aug-03	
CRA1	2265	CM248	INVCHD	529130	8-May-03	1	529461	9-May-03	
CRA1	2265	CM248	INVCHD	531103	28-Aug-03	1	531250	29-Aug-03	
CRA1	2266	CM248	INVRHD	529130	8-May-03	1	529462	9-May-03	
CRA1	2266	CM248	INVRHD	531103	28-Aug-03	1	531251	29-Aug-03	
CRA1	3052	CONC_MON	COMP_RCK	526661	19-Mar-03	1	527596	31-Mar-03	
CRA1	3515	CONC_PCS	COMP_RCK	526661	19-Mar-03	1	527598	31-Mar-03	
CRA1	3148	CONC_PLG	COMP_RCK	526661	19-Mar-03	1	527597	31-Mar-03	
CRA1	2464	CONC_T1	COMP_RCK	526661	19-Mar-03	1	527575	31-Mar-03	
CRA1	2481	CONC_T2	COMP_RCK	526661	19-Mar-03	1	527576	31-Mar-03	

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CRA1	2037	CS137	INVCHD	529130	8-May-03	1	529463	9-May-03
CRA1	2037	CS137	INVCHD	531103	28-Aug-03	1	531253	29-Aug-03
CRA1	118	CS137	INVRHD	529130	8-May-03	1	529464	9-May-03
CRA1	118	CS137	INVRHD	531103	28-Aug-03	1	531254	29-Aug-03
CRA1	142	CULEBRA	PRESSURE	530903	19-Aug-03	1	530956	20-Aug-03
CRA1	143	CULEBRA	PRMX_LOG	530899	19-Aug-03	1	530953	20-Aug-03
CRA1	144	CULEBRA	PRMY_LOG	530899	19-Aug-03	1	530955	20-Aug-03
CRA1	145	CULEBRA	PRMZ_LOG	530899	19-Aug-03	1	530954	20-Aug-03
CRA1	2497	EARTH	COMP_RCK	526661	19-Aug-03	1	527571	31-Mar-03
CRA1	3494	GLOBAL	LAMBDAD	527192	26-Nov-02	1	531502	8-Sep-03
CRA1	3644	GLOBAL	ONEPLG	531352	5-Sep-03	1	531501	8-Sep-03
CRA1	3646	GLOBAL	THREEPLG	531352	5-Sep-03	1	531499	8-Sep-03
CRA1	3645	GLOBAL	TWOPLG	531352	5-Sep-03	1	531500	8-Sep-03
CRA1	2101	MAGENTA	PRESSURE	530903	19-Aug-03	1	530957	20-Aug-03
CRA1	248	NP237	INVCHD	529130	8-May-03	1	529465	9-May-03
CRA1	248	NP237	INVCHD	531103	28-Aug-03	1	531257	29-Aug-03
CRA1	249	NP237	INVRHD	529130	8-May-03	1	529466	9-May-03
CRA1	249	NP237	INVRHD	531103	28-Aug-03	1	531258	29-Aug-03
CRA1	2267	PA231	INVCHD	529130	8-May-03	1	529467	9-May-03
CRA1	2267	PA231	INVCHD	531103	28-Aug-03	1	531259	29-Aug-03
CRA1	2268	PA231	INVRHD	529130	8-May-03	1	529468	9-May-03
CRA1	2268	PA231	INVRHD	531103	28-Aug-03	1	531260	29-Aug-03
CRA1	253	PAN_SEAL	COMP_RCK	526661	19-Mar-03	1	527599	31-Mar-03
CRA1	285	PB210	INVCHD	529130	8-May-03	1	529469	9-May-03
CRA1	285	PB210	INVCHD	531103	28-Aug-03	1	531261	29-Aug-03
CRA1	286	PB210	INVRHD	529130	8-May-03	1	529470	9-May-03
CRA1	286	PB210	INVRHD	531103	28-Aug-03	1	531262	29-Aug-03
CRA1	2038	PM147	INVCHD	529130	8-May-03	1	529471	9-May-03

Table 1. Section 3. Parameters That Have Changed Since the Technical Baseline Migration (TBM)

CRA1	2038	PM147	INVCHD	531103	28-Aug-03	1	531263	29-Aug-03
CRA1	289	PM147	INVRHD	529130	8-May-03	1	529472	9-May-03
CRA1	289	PM147	INVRHD	531103	28-Aug-03	1	531264	29-Aug-03
CRA1	293	PU238	INVCHD	529130	8-May-03	1	529473	9-May-03
CRA1	293	PU238	INVCHD	531103	28-Aug-03	1	531265	29-Aug-03
CRA1	294	PU238	INVRHD	529130	8-May-03	1	529474	9-May-03
CRA1	294	PU238	INVRHD	531103	28-Aug-03	1	531267	29-Aug-03
CRA1	3506	PU238L	INVCHD	529130	8-May-03	1	529422	12-May-03
CRA1	3506	PU238L	INVCHD	531103	28-Aug-03	1	531308	29-Aug-03
CRA1	3511	PU238L	INVRHD	529130	8-May-03	1	529423	12-May-03
CRA1	3511	PU238L	INVRHD	531103	28-Aug-03	1	531309	29-Aug-03
CRA1	297	PU239	INVCHD	529130	8-May-03	1	529475	9-May-03
CRA1	297	PU239	INVCHD	531103	28-Aug-03	1	531268	29-Aug-03
CRA1	298	PU239	INVRHD	529130	8-May-03	1	529476	9-May-03
CRA1	298	PU239	INVRHD	531103	28-Aug-03	1	531270	29-Aug-03
CRA1	3505	PU239L	INVCHD	529130	8-May-03	1	529424	12-May-03
CRA1	3505	PU239L	INVCHD	531103	28-Aug-03	1	531310	29-Aug-03
CRA1	3510	PU239L	INVRHD	529130	8-May-03	1	529425	12-May-03
CRA1	3510	PU239L	INVRHD	531103	28-Aug-03	1	531312	29-Aug-03
CRA1	301	PU240	INVCHD	529130	8-May-03	1	529477	9-May-03
CRA1	301	PU240	INVCHD	531103	28-Aug-03	1	531271	29-Aug-03
CRA1	302	PU240	INVRHD	529130	8-May-03	1	529478	9-May-03
CRA1	302	PU240	INVRHD	531103	28-Aug-03	1	531272	29-Aug-03
CRA1	305	PU241	INVCHD	529130	8-May-03	1	529479	9-May-03
CRA1	305	PU241	INVCHD	531103	28-Aug-03	1	531273	29-Aug-03
CRA1	306	PU241	INVRHD	529130	8-May-03	1	529480	9-May-03
CRA1	306	PU241	INVRHD	531103	28-Aug-03	1	531274	29-Aug-03
CRA1	309	PU242	INVCHD	529130	8-May-03	1	529481	9-May-03

Table 1. Section 3. Parameters That Have Changed Since the Technical Baseline Migration (TBM)

CRA1	309	PU242	INVCHD	531103	28-Aug-03	1	531279	29-Aug-03
CRA1	310	PU242	INVRHD	529130	8-May-03	1	529482	9-May-03
CRA1	310	PU242	INVRHD	531103	28-Aug-03	1	531280	29-Aug-03
CRA1	2269	PU244	INVCHD	529130	8-May-03	1	529483	9-May-03
CRA1	2269	PU244	INVCHD	531103	28-Aug-03	1	531281	29-Aug-03
CRA1	2270	PU244	INVRHD	529130	8-May-03	1	529484	9-May-03
CRA1	2270	PU244	INVRHD	531103	28-Aug-03	1	531282	29-Aug-03
CRA1	316	RA226	INVCHD	529130	8-May-03	1	529485	9-May-03
CRA1	316	RA226	INVCHD	531103	28-Aug-03	1	531283	29-Aug-03
CRA1	317	RA226	INVRHD	529130	8-May-03	1	529486	9-May-03
CRA1	317	RA228	INVRHD	531103	28-Aug-03	1	531284	29-Aug-03
CRA1	2271	RA228	INVCHD	529130	8-May-03	1	529487	9-May-03
CRA1	2271	RA228	INVCHD	531103	28-Aug-03	1	531285	29-Aug-03
CRA1	2272	RA228	INVRHD	529130	8-May-03	1	529488	9-May-03
CRA1	2272	RA228	INVRHD	531103	28-Aug-03	1	531286	29-Aug-03
CRA1-B	3590	REFCON	BIP_11	526858	24-Mar-03	1	527628	1-Apr-03
CRA1-B	3591	REFCON	BIP_12	526858	24-Mar-03	1	527630	1-Apr-03
CRA1-B	3592	REFCON	BIP_13	526858	24-Mar-03	1	527631	1-Apr-03
CRA1-B	3593	REFCON	BIP_14	526858	24-Mar-03	1	527632	1-Apr-03
CRA1-B	3594	REFCON	BIP_15	526858	24-Mar-03	1	527633	1-Apr-03
CRA1-B	3595	REFCON	BIP_16	526858	24-Mar-03	1	527634	1-Apr-03
CRA1-B	3596	REFCON	BIP_21	526858	24-Mar-03	1	527635	1-Apr-03
CRA1-B	3597	REFCON	BIP_22	526858	24-Mar-03	1	527636	1-Apr-03

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CRA1-B	3598	REFCON	BIP_23	526858	24-Mar-03	1	527637	1-Apr-03
CRA1-B	3599	REFCON	BIP_24	526858	24-Mar-03	1	527638	1-Apr-03
CRA1-B	3600	REFCON	BIP_25	526858	24-Mar-03	1	527639	1-Apr-03
CRA1-B	3601	REFCON	BIP_26	526858	24-Mar-03	1	527640	1-Apr-03
CRA1-B	3602	REFCON	BIP_31	526858	24-Mar-03	1	527641	1-Apr-03
CRA1-B	3603	REFCON	BIP_32	526858	24-Mar-03	1	527642	1-Apr-03
CRA1-B	3604	REFCON	BIP_33	526858	24-Mar-03	1	527643	1-Apr-03
CRA1-B	3605	REFCON	BIP_34	526858	24-Mar-03	1	527644	1-Apr-03
CRA1-B	3606	REFCON	BIP_35	526858	24-Mar-03	1	527645	1-Apr-03
CRA1-B	3607	REFCON	BIP_36	526858	24-Mar-03	1	527646	1-Apr-03
CRA1-B	3608	REFCON	BIP_41	526858	24-Mar-03	1	527649	1-Apr-03
CRA1-B	3609	REFCON	BIP_42	526858	24-Mar-03	1	527600	1-Apr-03
CRA1-B	3610	REFCON	BIP_43	526858	24-Mar-03	1	527602	1-Apr-03
CRA1-B	3611	REFCON	BIP_44	526858	24-Mar-03	1	527603	1-Apr-03
CRA1-B	3612	REFCON	BIP_45	526858	24-Mar-03	1	527604	1-Apr-03
CRA1-B	3613	REFCON	BIP_46	526858	24-Mar-03	1	527605	1-Apr-03
CRA1-B	3614	REFCON	BIP_51	526858	24-Mar-03	1	527606	1-Apr-03

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CRA1-B	3615	REFCON	BIP_52	526858	24-Mar-03	1	527608	1-Apr-03
CRA1-B	3616	REFCON	BIP_53	526858	24-Mar-03	1	527609	1-Apr-03
CRA1-B	3617	REFCON	BIP_54	526858	24-Mar-03	1	527610	1-Apr-03
CRA1-B	3618	REFCON	BIP_55	526858	24-Mar-03	1	527611	1-Apr-03
CRA1-B	3619	REFCON	BIP_56	526858	24-Mar-03	1	527612	1-Apr-03
CRA1-B	3620	REFCON	BIP_61	526858	24-Mar-03	1	527614	1-Apr-03
CRA1-B	3621	REFCON	BIP_62	526858	24-Mar-03	1	527615	1-Apr-03
CRA1-B	3622	REFCON	BIP_63	526858	24-Mar-03	1	527616	1-Apr-03
CRA1-B	3623	REFCON	BIP_64	526858	24-Mar-03	1	527617	1-Apr-03
CRA1-B	3624	REFCON	BIP_65	526858	24-Mar-03	1	527618	1-Apr-03
CRA1-B	3625	REFCON	BIP_66	526858	24-Mar-03	1	527619	1-Apr-03
CRA1-B	3647	REFCON	FVRW	529865	17-Jun-03	1	530276	26-Jun-03
CRA1-B	3582	REFCON	LHSBLANK	525047	6-Jan-03	1	527692	27-Mar-03
CRA1-B	3589	REFCON	MW_CELL	526858	24-Mar-03	1	527627	1-Apr-03
CRA1-B	3585	REFCON	MW_CH4	526858	24-Mar-03	1	527623	1-Apr-03
CRA1-B	3584	REFCON	MW_CO2	526858	24-Mar-03	1	527622	1-Apr-03
CRA1-B	3587	REFCON	MW_H2S	526858	24-Mar-03	1	527625	1-Apr-03

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CRA1-B	3586	REFCON	MW_N2	526858	24-Mar-03	1	527624	1-Apr-03	
CRA1-B	3583	REFCON	MW_NACL	526858	24-Mar-03	1	527620	1-Apr-03	
CRA1-B	3588	REFCON	MW_O2	526858	24-Mar-03	1	527626	1-Apr-03	
CRA1	3108	REFCON	VREPOS	523760	17-Sep-02	3	527693	27-Mar-03	No contemporaneous document reference to support March entry (change in value), checked references--value correct and references sufficient.
CRA1	2514	SALT_T1	COMP_RCK	526661	19-Mar-03	1	527587	31-Mar-03	
CRA1	2531	SALT_T2	COMP_RCK	526661	19-Mar-03	1	527589	31-Mar-03	
CRA1	2548	SALT_T3	COMP_RCK	526661	19-Mar-03	1	527590	31-Mar-03	
CRA1	2565	SALT_T4	COMP_RCK	526661	19-Mar-03	1	527591	31-Mar-03	
CRA1	2582	SALT_T5	COMP_RCK	526661	19-Mar-03	1	527592	31-Mar-03	
CRA1	2984	SALT_T6	COMP_RCK	526661	19-Mar-03	1	527593	31-Mar-03	
AP106	3550	SHFTU	COMP_POR	525203	23-Jan-03	1	527657	27-Jan-03	
AP106	3562	SHFTL_T1	COMP_POR	525203	23-Jan-03	1	527673	27-Jan-03	
AP106	3563	SHFTL_T1	KPT	525203	23-Jan-03	1	527674	27-Jan-03	
AP106	3564	SHFTL_T1	PC_MAX	525203	23-Jan-03	1	527675	27-Jan-03	
AP106	3565	SHFTL_T1	PCT_A	525203	23-Jan-03	1	527676	27-Jan-03	
AP106	3566	SHFTL_T1	PCT_EXP	525203	23-Jan-03	1	527677	27-Jan-03	
AP106	3567	SHFTL_T1	PO_MIN	525203	23-Jan-03	1	527678	27-Jan-03	
AP106	3568	SHFTL_T1	POROSITY	525203	23-Jan-03	1	527679	27-Jan-03	
AP106	3569	SHFTL_T1	PRMX_LOG	525203	23-Jan-03	1	527672	27-Jan-03	
AP106	3570	SHFTL_T1	RELP_MOD	525203	23-Jan-03	2	527680	27-Jan-03	Value is struck out, initialed by data entry person; value changed from 40 to 4.0, no reference to a check with data requestor; supporting documentation references Excel spreadsheets in CMS, check of spreadsheets indicates value is correct.
AP106	3571	SHFTL_T1	SAT_IBRN	525203	23-Jan-03	1	527681	27-Jan-03	
AP106	3572	SHFTL_T2	COMP_POR	525203	23-Jan-03	1	527683	27-Jan-03	

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AP106	3573	SHFTL_T2	KPT	525203	23-Jan-03	1	527684	27-Jan-03
AP106	3574	SHFTL_T2	PC_MAX	525203	23-Jan-03	1	527685	27-Jan-03
AP106	3575	SHFTL_T2	PCT_A	525203	23-Jan-03	1	527686	27-Jan-03
AP106	3576	SHFTL_T2	PCT_EXP	525203	23-Jan-03	1	527687	27-Jan-03
AP106	3577	SHFTL_T2	PO_MIN	525203	23-Jan-03	1	527688	27-Jan-03
AP106	3578	SHFTL_T2	POROSITY	525203	23-Jan-03	1	527689	27-Jan-03
AP106	3579	SHFTL_T2	PRMX_LOG	525203	23-Jan-03	1	572682	27-Jan-03
AP106	3580	SHFTL_T2	RELP_MOD	525203	23-Jan-03	1	527690	27-Jan-03
AP106	3581	SHFTL_T2	SAT_IBRN	525203	23-Jan-03	1	527691	27-Jan-03
AP106	3551	SHFTU	KPT	525203	23-Jan-03	1	527659	27-Jan-03
AP106	3552	SHFTU	PC_MAX	525203	23-Jan-03	1	527660	27-Jan-03
AP106	3553	SHFTU	PCT_A	525203	23-Jan-03	1	527661	27-Jan-03
AP106	3554	SHFTU	PCT_EXP	525203	23-Jan-03	1	527663	27-Jan-03
AP106	3555	SHFTU	PO_MIN	525203	23-Jan-03	1	527664	27-Jan-03
AP106	3556	SHFTU	POROSITY	525203	23-Jan-03	1	527666	27-Jan-03
AP106	3557	SHFTU	PRMX_LOG	525203	23-Jan-03	1	527656	27-Jan-03
AP106	3558	SHFTU	RELP_MOD	525203	23-Jan-03	1	527667	27-Jan-03
AP106	3559	SHFTU	SAT_IBRN	525203	23-Jan-03	1	527669	27-Jan-03
AP106	3560	SHFTU	SAT_RBRN	525203	23-Jan-03	1	527670	27-Jan-03
AP106	3561	SHFTU	SAT_RGAS	525203	23-Jan-03	1	527671	27-Jan-03
CRA1	3628	SOLMOD3	SOLCOC	529131	8-May-03	1	529430	12-May-03
CRA1	3629	SOLMOD3	SOLCOH	529131	8-May-03	1	529431	12-May-03
CRA1	3630	SOLMOD3	SOLSOC	529131	8-May-03	1	529432	12-May-03
CRA1	3631	SOLMOD3	SOLSOH	529131	8-May-03	1	529433	12-May-03
CRA1	3632	SOLMOD4	SOLCOC	529131	8-May-03	1	529435	12-May-03
CRA1	3633	SOLMOD4	SOLCOH	529131	8-May-03	1	529434	12-May-03
CRA1	3634	SOLMOD4	SOLSOC	529131	8-May-03	1	529436	12-May-03
CRA1	3635	SOLMOD4	SOLSOH	529131	8-May-03	1	529437	12-May-03

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CRA1	3636	SOLMOD5	SOLCOC	529131	8-May-03	1	520438	12-May-03	
CRA1	3637	SOLMOD5	SOLCOH	529131	8-May-03	1	529439	12-May-03	
CRA1	3638	SOLMOD5	SOLSOC	529131	8-May-03	1	529440	12-May-03	
CRA1	3639	SOLMOD5	SOLSOH	529131	8-May-03	1	529441	12-May-03	
CRA1	3640	SOLMOD6	SOLCOC	529131	8-May-03	1	529442	12-May-03	
CRA1	3641	SOLMOD6	SOLCOH	529131	8-May-03	1	529443	12-May-03	
CRA1	3642	SOLMOD6	SOLSOC	529131	8-May-03	1	529444	12-May-03	
CRA1	3643	SOLMOD6	SOLSOH	529131	8-May-03	1	529445	12-May-03	
CRA1	3627	SOLTH4	SOLCIM	237791	23-May-96	3	529448	9-May-03	Date on support documentation is 23 May 1996; entry date 9 May 03; checked support documentation, value and supporting reference is correct.
CRA1	3626	SOLU4	SOLCIM	237791	23-May-96	3	529447	9-May-03	Date on support documentation is 23 May 1996; entry date 9 May 03; checked support documentation, value and supporting reference is correct.
CRA1	3675	SPALLMOD	ANNUROUG	531914, 531057	1 Sep 03, 11 Aug 03	1	531363	30-Sep-03	
CRA1	3662	SPALLMOD	BIOTBETA	531057	11-Aug-03	1	531923	18-Sep-03	
CRA1	3665	SPALLMOD	BITNZDIA	531057	11-Aug-03	1	531926	18-Sep-03	
CRA1	3653	SPALLMOD	BITNZNO	531057	11-Aug-03	1	531572	17-Sep-03	
CRA1	3652	SPALLMOD	COHESION	531057	11-Aug-03	1	531571	17-Sep-03	
CRA1	3677	SPALLMOD	DDZPERM	532259, 531914, 531057	30 Sep 03, 1 Sep 03, 11 Aug 03	1	531928	18-Sep-03	
CRA1	3659	SPALLMOD	DDZTHICK	531057	11-Aug-03	1	531578	17-Sep-03	
CRA1	3674	SPALLMOD	DRILRATE	531914, 531057	1 Sep 03, 11 Aug 03	1	532362	30-Sep-03	
CRA1	3668	SPALLMOD	DRZPERM	531481	11-Sep-03	1	532357	10-Oct-03	
CRA1	3654	SPALLMOD	FFSTRESS	531057	11-Aug-03	1	531573	17-Sep-03	
CRA1	3657	SPALLMOD	FRICTANG	531057	11-Aug-03	1	531576	17-Sep-03	

Table 1. Section 3.   Parameters That Have Changed Since the Technical Baseline Migration (TBM)

CRA1	3671	SPALLMOD	MUDPRATE	531914, 531057	1 Sep 03, 11 Aug 03	1	532359	30-Sep-03	
CRA1	3673	SPALLMOD	MUDSOLMX	531914, 531057	1 Sep 03, 11 Aug 03	1	532361	30-Sep-03	Mean and Std. Dev. Values provided by data entry staff, not data requestor. Values checked and are correct.
CRA1	3670	SPALLMOD	MUDSOLVE	531914, 531057	1 Sep 03, 11 Aug 03	1	532358	30-Sep-03	
CRA1	3667	SPALLMOD	PARTDIAM	531057	11-Aug-03	2	531932	22-Sep-03	
CRA1	3660	SPALLMOD	PIPEID	531057	11-Aug-03	1	531580	17-Sep-03	
CRA1	3663	SPALLMOD	PIPEROUG	531057	11-Aug-03	1	531924	18-Sep-03	
CRA1	3672	SPALLMOD	POISRAT	531914, 531057	1 Sep 03, 11 Aug 03	1	532360	30-Sep-03	
CRA1	3651	SPALLMOD	REFPRS	531057	11-Aug-03	1	531570	17-Sep-03	
CRA1	3666	SPALLMOD	REPIPERM	531057	11-Aug-03	2	531931	22-Sep-03	Mean and Std. Deviation values calculated by data entry staff, not data requestor, handwritten values. Values checked and are correct.
CRA1	3655	SPALLMOD	REPOSTOP	531057	11-Aug-03	1	531574	17-Sep-03	
CRA1	3664	SPALLMOD	SALTDENS	531057	11-Aug-03	1	531925	18-Sep-03	
CRA1	3669	SPALLMOD	SHAPEFAC	531477, 530157	10 Sep 03, 11 Aug 03	1	531929	18-Sep-03	
CRA1	3661	SPALLMOD	STPDVOLR	531057	11-Aug-03	1	531579	17-Sep-03	
CRA1	3656	SPALLMOD	STPPVOLR	531057	11-Aug-03	1	531575	17-Sep-03	
CRA1	3658	SPALLMOD	SURFELEV	531057	11-Aug-03	1	531577	17-Sep-03	
CRA1	3676	SPALLMOD	TENSLSTR	531057	11-Aug-03	2	532364	30-Sep-03	The PDE had numerous changes to the original data entry values calculated by the data entry person with no reference to consultation with data requestor; max and min values agree with values in supporting ERMS # 531057, but distribution is listed as loguniform, not uniform. See Table 2 for this parameter for subsequent

Table 1. Section 3. Parameters That Have Changed Since the Technical Baseline Migration (TBM)

									resolution.
CRA1	2039	SR90	INVCHD	529130	8-May-03	1	529489	9-May-03	
CRA1	2039	SR90	INVCHD	531103	28-Aug-03	1	531287	29-Aug-03	
CRA1	518	SR90	INVRHD	529130	8-May-03	1	529490	9-May-03	
CRA1	518	SR90	INVRHD	531103	28-Aug-03	1	531288	29-Aug-03	
CRA1	605	TH229	INVCHD	529130	8-May-03	1	529491	9-May-03	
CRA1	605	TH229	INVCHD	531103	28-Aug-03	1	531289	29-Aug-03	
CRA1	606	TH229	INVRHD	529130	8-May-03	1	529482	9-May-03	
CRA1	606	TH229	INVRHD	531103	28-Aug-03	1	531290	29-Aug-03	
CRA1	609	TH230	INVCHD	529130	8-May-03	1	529493	9-May-03	
CRA1	609	TH230	INVCHD	531103	28-Aug-03	1	531291	29-Aug-03	
CRA1	610	TH230	INVRHD	529130	8-May-03	1	529494	9-May-03	
CRA1	610	TH230	INVRHD	531103	28-Aug-03	1	531292	29-Aug-03	
CRA1	3508	TH230L	INVCHD	529289	12-May-03	1	529426	12-May-03	
CRA1	3508	TH230L	INVCHD	531090	28-Aug-03	1	531314	29-Aug-03	
CRA1	3513	TH230L	INVRHD	529289	12-May-03	1	529427	12-May-03	
CRA1	3513	TH230L	INVRHD	529130	8-May-03	1	531315	29-Aug-03	
CRA1	613	TH232	INVCHD	529130	8-May-03	1	529495	9-May-03	
CRA1	613	TH232	INVCHD	531103	28-Aug-03	1	531293	29-Aug-03	
CRA1	614	TH232	INVRHD	529130	8-May-03	1	529496	9-May-03	
CRA1	614	TH232	INVRHD	531103	28-Aug-03	1	531294	29-Aug-03	
CRA1	634	U233	INVCHD	529130	8-May-03	1	529497	9-May-03	
CRA1	634	U233	INVCHD	531103	28-Aug-03	1	531295	29-Aug-03	
CRA1	635	U233	INVRHD	529130	8-May-03	1	529498	9-May-03	
CRA1	635	U233	INVRHD	531103	28-Aug-03	1	531296	29-Aug-03	
CRA1	638	U234	INVCHD	529130	8-May-03	1	529499	9-May-03	
CRA1	638	U234	INVCHD	531103	28-Aug-03	1	531297	29-Aug-03	
CRA1	639	U234	INVRHD	529130	8-May-03	1	529500	9-May-03	

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CRA1	639	U234	INVRHD	531103	28-Aug-03	1	531298	29-Aug-03	
CRA1	3507	U234L	INVCHD	529130	8-May-03	1	529428	12-May-03	
CRA1	3507	U234L	INVCHD	531103	28-Aug-03	1	531316	29-Aug-03	
CRA1	3512	U234L	INVRHD	529130	8-May-03	1	529429	12-May-03	
CRA1	3512	U234L	INVRHD	531103	28-Aug-03	1	531317	29-Aug-03	
CRA1	642	U235	INVCHD	529130	8-May-03	1	529501	9-May-03	
CRA1	642	U235	INVCHD	531103	28-Aug-03	1	531299	29-Aug-03	
CRA1	643	U235	INVRHD	529130	8-May-03	1	529502	9-May-03	
CRA1	643	U235	INVRHD	531103	28-Aug-03	1	531300	29-Aug-03	
CRA1	2216	U236	INVCHD	529130	8-May-03	1	529503	9-May-03	
CRA1	2216	U236	INVCHD	531103	28-Aug-03	1	531302	29-Aug-03	
CRA1	646	U236	INVRHD	529130	8-May-03	1	529504	9-May-03	
CRA1	646	U236	INVRHD	531103	28-Aug-03	1	531303	29-Aug-03	
CRA1	649	U238	INVCHD	529130	8-May-03	1	529505	9-May-03	
CRA1	649	U238	INVCHD	531103	28-Aug-03	1	531304	29-Aug-03	
CRA1	650	U238	INVRHD	529130	8-May-03	1	529506	9-May-03	
CRA1	650	U238	INVRHD	531103	28-Aug-03	1	531305	29-Aug-03	
AMW	3649	WAS_AMW	CLOSMOD1	531077	27-Aug-03	1	531122	28-Aug-03	
AMW	3650	WAS_AMW	CLOSMOD2	531077	27-Aug-03	1	531123	28-Aug-03	
AMW	3648	WAS_AMW	FRACAMW	531073	27-Aug-03	1	531121	28-Aug-03	
CRA1	2041	WAS_AREA	DCELLCHW	527270	2-Apr-03	1	527668	8-Apr-03	
CRA1	2041	WAS_AREA	DCELLCHW	530767	18-Aug-03	3	530966	19-Aug-03	Handwritten corrections by QA Manager on Reference: ver 3.12 instead of D.4.08--check of reference indicates that change is correct.
CRA1	2274	WAS_AREA	DCELLRHW	527270	2-Apr-03	1	527665	8-Apr-03	
CRA1	2274	WAS_AREA	DCELLRHW	530767	18-Aug-03	3	530967	19-Aug-03	QA Manager corrected data version to 3.13 and reference corrected to 530767 from 525270--check of references indicate change is correct.
CRA1	1992	WAS_AREA	DIRNCCHW	527270	2-Apr-03	1	527662	8-Apr-03	

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CRA1	1992	WAS_AREA	DIRNCCHW	530767	18-Aug-03	1	530958	19-Aug-03	
CRA1	1993	WAS_AREA	DIRNCRHW	527270	2-Apr-03	1	527659	8-Apr-03	
CRA1	1993	WAS_AREA	DIRNCRHW	530767	18-Aug-03	1	530963	19-Aug-03	
CRA1	2040	WAS_AREA	DIRONCHW	527270	2-Apr-03	1	527655	8-Apr-03	
CRA1	2040	WAS_AREA	DIRONCHW	530767	18-Aug-03	1	530968	19-Aug-03	
CRA1	2044	WAS_AREA	DIRONRHW	527270	2-Apr-03	1	527654	8-Apr-03	
CRA1	2044	WAS_AREA	DIRONRHW	530767	18-Aug-03	1	530969	19-Aug-03	
CRA1	2043	WAS_AREA	DPLASCHW	527270	2-Apr-03	1	527653	8-Apr-03	
CRA1	2043	WAS_AREA	DPLASCHW	530767	18-Aug-03	1	530970	19-Aug-03	
CRA1	2275	WAS_AREA	DPLASRHW	527270	2-Apr-03	1	527652	8-Apr-03	
CRA1	2275	WAS_AREA	DPLASRHW	530767	18-Aug-03	1	530971	19-Aug-03	
CRA1	1995	WAS_AREA	DPLSCCHW	527270	2-Apr-03	1	527651	8-Apr-03	
CRA1	1995	WAS_AREA	DPLSCCHW	530767	18-Aug-03	1	530964	19-Aug-03	
CRA1	2228	WAS_AREA	DPLSCRHW	527270	2-Apr-03	1	527650	8-Apr-03	
CRA1	2228	WAS_AREA	DPLSCRHW	530767	18-Aug-03	1	530965	19-Aug-03	
CRA1	2042	WAS_AREA	DRUBBCHW	527270	2-Apr-03	1	527648	8-Apr-03	
CRA1	2042	WAS_AREA	DRUBBCHW	530767	18-Aug-03	1	530972	19-Aug-03	
CRA1	2046	WAS_AREA	DRUBBRHW	527270	2-Apr-03	1	527647	8-Apr-03	
CRA1	2046	WAS_AREA	DRUBBRHW	530767	18-Aug-03	1	530973	19-Aug-03	
CRA1	3682	SPALLMOD	DRZTCK	536134	26-Mar-04	1	534364	26-Mar-04	
CRA1	3681	SPALLMOD	FRCHBETA	534287	26-Mar-04	1	534365	26-Mar-04	
CRA1	3680	SPALLMOD	REPOSTCK	534287	26-Mar-04	1	534363	26-Mar-04	
CRA1	3679	SPALLMOD	REPOTRAD	534287	26-Mar-04	1	354362	26-Mar-04	
TBM	3482	AM+3	MKD_AM	514688, 241561	3 Nov 00, 24 Jul 96	1	527706	5-Feb-03	PPR ERMS#527703 documents correction of Max & Min values entered incorrectly in TBM (ERMS # 519513)
TBM	3482	AM+3	MKD_AM	238801	10-Jun-96	1	238351	11 Jun 96	
TBM	3480	PU+3	MKD_PU	238801	10-Jun-96	1	238353	11 Jun 96	

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TBM	3480	PU+3	MKD_PU	241561	24 Jul 96	1	257707	5-Feb-03	PPR ERMS#527703 documents correction of Max & Min values entered incorrectly in TBM (ERMS # 519513)
TBM	3402	SOLMOD3	SOLCIM	237791	23-May-96	1			
TBM	3402	SOLMOD3	SOLCIM	524971, 524694, 514688	20 Dec 0 2, 15 Nov 02, 3 Nov 00	1	524998	24-Dec-02	

Table 2

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

Analysis	Param. ID No.	Material ID	Property ID	Distribution Type	Current Value				Support ERMS#	Doc. OK?	Date	Supporting Document Comments
					Mean	Median	Minimum	Maximum				
CRA1	4	AM241	INVCHD	Constant	4.7800E+05	4.7800E+05	4.7800E+05	4.7800E+05	529130	2	8-May-03	Justification for inventory change not provided in ERMS# 529130, justification information is in AP-092, Rev. 2, 2/2003, Analysis Plan for Transuranic Waste Inventory Update Report, 2003, letter dated 22 April 2002, E Giambalvo to J. Harvill: Sandia's WIPP Inventory Data Needs for Performance Assessment (ERMS# 521948) which requests updated inventory data for the CRA to address revisions to inventory estimates since CCA, accounts for currently emplaced waste and to be emplaced waste, and addresses heterogeneous waste emplacement. ERMS# 528679 states that these inventory numbers are based on TWBID, Rev. 2.1, Ver. 3.11. ERMS# 528748, Table 2 provides Inventory Numbers decayed to 12/31/2033, entered into PAPDB as does referenced ERMS # 529130.
CRA1	4	AM241	INVCHD	Constant	4.4200E+05	4.4200E+05	4.4200E+05	4.4200E+05	531103	2	28-Aug-03	Justification for inventory change provided in AP-092,Rev. 2, 2/2003, Analysis Plan for Transuranic Waste Inventory Update Report, 2003, and ERMS# 530918 which provides updated inventory data from TWBID Rev. 2.1, Ver. 3.12, Data Ver D.4.08.-update requested by Sandia to reflect most recent changes to LANL database (ERMS# 530688). ERMS# 530992, Table 2 provides Inventory numbers decayed to 12/31/2033, entered into PAPDB as does referenced ERMS # 531103.
CRA1	5	AM241	INVRHD	Constant	3.9600E+04	3.9600E+04	3.9600E+04	3.9600E+04	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	5	AM241	INVRHD	Constant	1.5800E+04	1.5800E+04	1.5800E+04	1.5800E+04	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3504	AM241L	INVCHD	Constant	4.9500E+05	4.9500E+05	4.9500E+05	4.9500E+05	529289	1	12-May-03	Represents combined activities of

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

(Continuation of justification text from previous page:) AM241 + PU241, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.

											Comment
CRA1	3504	AM241L	INVCHD	Constant	4.5900E+05	4.5900E+05	4.5900E+05	531090	1	28-Aug-03	Represents updated combined activities of AM241 + PU241, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.
CRA1	3509	AM241L	INVRHD	Constant	4.4600E+04	4.4600E+04	4.4600E+04	529289	1	12-May-03	Represents combined activities of AM241 + PU241, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3509	AM241L	INVRHD	Constant	1.6600E+04	1.6600E+04	1.6600E+04	531090	1	28-Aug-03	Represents updated combined activities of AM241 + PU241, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.
CRA1	3415	AM243	INVCHD	Constant	3.3400E+01	3.3400E+01	3.3400E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	3415	AM243	INVCHD	Constant	2.1000E+01	2.1000E+01	2.1000E+01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

CRA1	3416	AM243	INVRHD	Constant	7.9800E-01	7.9800E-01	7.9800E-01	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	3416	AM243	INVRHD	Constant	7.4200E-01	7.4200E-01	7.4200E-01	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2277	ASPHALT	COMP_RCK	Constant	3.0000E-10	3.0000E-10	3.0000E-10	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	3473	BLOWOUT	THCK_CAS	Constant	1.2583E+02	1.2583E+02	1.2583E+02	1	1-Aug-03	Value of 12.34m was used for CCA for undisturbed scenario by BRAGFLO, and 125.83m used for the disturbed scenario. For all analyses since CCA, brine pocket thickness has been held constant at 125.83m, thus change required to PAPDB.
CRA1	3414	BOREHOLE	WUF	Constant	2.9600E+00	2.9600E+00	2.9600E+00	1	9-May-03	Waste Unit Factor (WUF) value updated to reflect inventory update (ERMS# 528679, 528748, 522348) TWBID Rev. 2.1, Ver 3.11. It is the number of millions of curies of alpha emitting TRU with half lives > 20 years decayed to 2033.
CRA1	3414	BOREHOLE	WUF	Constant	2.4800E+00	2.4800E+00	2.4800E+00	1	28-Aug-03	Waste Unit Factor (WUF) value updated to reflect inventory update (ERMS# 528679, 528748) TWBID Rev. 2.1, Ver 3.12. It is the number of millions of curies of alpha emitting TRU with half lives > 20 years decayed to 2033.
CRA1	108	CF252	INVCHD	Constant	6.4000E-05	6.4000E-05	6.4000E-05	1	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	108	CF252	INVCHD	Constant	4.6400E-05	4.6400E-05	4.6400E-05	1	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03

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CRA1	109	CF252	INVRHD	Constant	5.6000E-06	5.6000E-06	5.6000E-06	5.6000E-06	529130	1	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	109	CF252	INVRHD	Constant	3.9500E-06	3.9500E-06	3.9500E-06	3.9500E-06	531103	1	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2328	CL_L_T1	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2345	CL_L_T2	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2362	CL_L_T3	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.

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CRA1	3071	CL_L_T4	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2379	CL_M_T1	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2396	CL_M_T2	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2413	CL_M_T3	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.

CRA1	2430	CL_M_T4	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2447	CL_M_T5	COMP_RCK	Constant	4.3000E-10	4.3000E-10	4.3000E-10	4.3000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2311	CLAY_BOT	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	3.8000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were

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erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.

CRA1	3001	CLAY_RUS	COMP_RCK	Constant	4.7000E-10	4.7000E-10	4.7000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	3410	CM243	INVCHD	Constant	1.8200E-01	1.8200E-01	1.8200E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	3410	CM243	INVCHD	Constant	1.8200E-01	1.8200E-01	1.8200E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3411	CM243	INVRHD	Constant	2.3100E-01	2.3100E-01	2.3100E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	3411	CM243	INVRHD	Constant	2.2500E-01	2.2500E-01	2.2500E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	112	CM244	INVCHD	Constant	4.8200E+03	4.8200E+03	4.8200E+03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	112	CM244	INVCHD	Constant	2.4300E+03	2.4300E+03	2.4300E+03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	112	CM244	INVCHD	Constant	3.3900E+03	3.3900E+03	3.3900E+03	531187	1	3-Sep-03	Value changed due to error in TWBID Rev. 2 V. 3.12 Data Version D4.08-- waste stream data set to zero incorrectly, CM244 only radionuclide significantly affected
CRA1	113	CM244	INVRHD	Constant	1.0500E+02	1.0500E+02	1.0500E+02	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	113	CM244	INVRHD	Constant	7.9400E+01	7.9400E+01	7.9400E+01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03

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CRA1	3412	CM245	INVCHD	Constant	1.3900E-02	1.3900E-02	1.3900E-02	529130	2	08 MAY 03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	3412	CM245	INVCHD	Constant	8.5900E-03	8.5900E-03	8.5900E-03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3413	CM245	INVRHD	Constant	1.0900E-02	1.0900E-02	1.0900E-02	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	3413	CM245	INVRHD	Constant	1.0600E-02	1.0600E-02	1.0600E-02	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2265	CM248	INVCHD	Constant	1.4900E-01	1.4900E-01	1.4900E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2265	CM248	INVCHD	Constant	9.1400E-02	9.1400E-02	9.1400E-02	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2266	CM248	INVRHD	Constant	2.5900E-03	2.5900E-03	2.5900E-03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2266	CM248	INVRHD	Constant	1.8300E-03	1.8300E-03	1.8300E-03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3052	CONC_MON	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	3515	CONC_PCS	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within

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CRA1	3148	CONC_PLG	COMP_RCK	Constant	3.8000E-10	3.8000E-10	3.8000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2464	CONC_T1	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2481	CONC_T2	COMP_RCK	Constant	6.0000E-11	6.0000E-11	6.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2037	CS137	INVCHD	Constant	6.9300E+03	6.9300E+03	6.9300E+03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03

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CRA1	2037	CS137	INVCHD	Constant	4.6100E+03	4.6100E+03	4.6100E+03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	118	CS137	INVRHD	Constant	1.7700E+05	1.7700E+05	1.7700E+05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	118	CS137	INVRHD	Constant	1.7400E+05	1.7400E+05	1.7400E+05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	142	CULEBRA	PRESSURE	Constant	9.1410E+05	9.1410E+05	9.1410E+05	530903	1	19-Aug-03	Values are based on calculations from updated Culebra water levels (December 2002) in ERMS# 530887
CRA1	143	CULEBRA	PRMX_LOG	Constant	-1.3112E+01	-1.3112E+01	-1.3112E+01	530899	1	19-Aug-03	Permeability values updated to reflect newly developed T-fields-calculations provided in referenced ERMS with only transmissivity value changing from CCA.
CRA1	144	CULEBRA	PRMY_LOG	Constant	-1.3112E+01	-1.3112E+01	-1.3112E+01	530899	1	19-Aug-03	Permeability values updated to reflect newly developed T-fields-calculations provided in referenced ERMS with only transmissivity value changing from CCA.
CRA1	145	CULEBRA	PRMZ_LOG	Constant	-1.3112E+01	-1.3112E+01	-1.3112E+01	530899	1	19-Aug-03	Permeability values updated to reflect newly developed T-fields-calculations provided in referenced ERMS with only transmissivity value changing from CCA.
CRA1	2497	EARTH	COMP_RCK	Constant	9.9000E-09	9.9000E-09	9.9000E-09	526661	1	19-Aug-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	3494	GLOBAL	LAMBDAD	Constant	5.2500E-03	5.2500E-03	5.2500E-03	527192	1	26-Nov-02	Value calculated as number deep (>2150 ft) holes X 10000 yrs/Delaware Basin Area/100yrs. Value is 52.5 boreholes/km2 over 10000 years.

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CRA1	3644	GLOBAL	ONEPLG	Constant	1.5000E-02	1.5000E-02	1.5000E-02	531352	1	5-Sep-03	Calculations used same method/plug configurations as CCA, updated to reflect most recent plugging data from Delaware Basin Monitoring Program (ERMS # 530845).
CRA1	3646	GLOBAL	THREEPLG	Constant	2.8900E-01	2.8900E-01	2.8900E-01	531352	1	5-Sep-03	Calculations used same method/plug configurations as CCA, updated to reflect most recent plugging data from Delaware Basin Monitoring Program (ERMS # 530845).
CRA1	3645	GLOBAL	TWOPLG	Constant	6.9600E-01	6.9600E-01	6.9600E-01	531352	1	5-Sep-03	Calculations used same method/plug configurations as CCA, updated to reflect most recent plugging data from Delaware Basin Monitoring Program (ERMS # 530845).
CRA1	2101	MAGENTA	PRESSURE	Constant	9.4650E+05	9.4650E+05	9.4650E+05	530903	1	19-Aug-03	Values are based on calculations from updated Magenta water levels (December 2002) in C2737 (ERMS# 530887)
CRA1	248	NP237	INVCHD	Constant	1.1300E+01	1.1300E+01	1.1300E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	248	NP237	INVCHD	Constant	9.2500E+00	9.2500E+00	9.2500E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	249	NP237	INVRHD	Constant	1.0100E+00	1.0100E+00	1.0100E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	249	NP237	INVRHD	Constant	8.2200E-01	8.2200E-01	8.2200E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2267	PA231	INVCHD	Constant	1.9700E+00	1.9700E+00	1.9700E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2267	PA231	INVCHD	Constant	1.2100E+00	1.2100E+00	1.2100E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2268	PA231	INVRHD	Constant	6.8600E-04	6.8600E-04	6.8600E-04	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2268	PA231	INVRHD	Constant	6.5500E-04	6.5500E-04	6.5500E-04	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	253	PAN_SEAL	COMP_RCK	Constant	2.0000E-10	2.0000E-10	2.0000E-10	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by

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					Value	Value	Value	Parameter ID		Date	Comment
CRA1	285	PB210	INVCHD	Constant	7.9000E+00	7.9000E+00	7.9000E+00	529130	2	8-May-03	ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs. Same comment as for Parameter ID 4 for 8 May 03
CRA1	285	PB210	INVCHD	Constant	4.9400E+00	4.9400E+00	4.9400E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	286	PB210	INVRHD	Constant	1.6200E-05	1.6200E-05	1.6200E-05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	286	PB210	INVRHD	Constant	1.4200E-05	1.4200E-05	1.4200E-05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2038	PM147	INVCHD	Constant	4.1300E-04	4.1300E-04	4.1300E-04	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2038	PM147	INVCHD	Constant	3.8600E-04	3.8600E-04	3.8600E-04	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	289	PM147	INVRHD	Constant	8.0500E-02	8.0500E-02	8.0500E-02	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	289	PM147	INVRHD	Constant	7.4700E-02	7.4700E-02	7.4700E-02	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	293	PU238	INVCHD	Constant	1.5300E+06	1.5300E+06	1.5300E+06	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	293	PU238	INVCHD	Constant	1.2500E+06	1.2500E+06	1.2500E+06	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	294	PU238	INVRHD	Constant	3.4800E+03	3.4800E+03	3.4800E+03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	294	PU238	INVRHD	Constant	2.8000E+03	2.8000E+03	2.8000E+03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3506	PU238L	INVCHD	Constant	1.5300E+06	1.5300E+06	1.5300E+06	529130	1	8-May-03	Value is same as for PU238--no combination required for NUTS.
CRA1	3506	PU238L	INVCHD	Constant	1.2500E+06	1.2500E+06	1.2500E+06	531103	1	28-Aug-03	Value is same as for PU238--no combination required for NUTS.
CRA1	3511	PU238L	INVRHD	Constant	3.4800E+03	3.4800E+03	3.4800E+03	529130	1	8-May-03	Value is same as for PU238--no combination required for NUTS.

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CRA1	3511	PU238L	INVRHD	Constant	2.8000E+03	2.8000E+03	2.8000E+03	531103	1	28-Aug-03	Value is same as for PU238--no combination required for NUTS.
CRA1	297	PU239	INVCHD	Constant	7.7700E+05	7.7700E+05	7.7700E+05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	297	PU239	INVCHD	Constant	6.5900E+05	6.5900E+05	6.5900E+05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	298	PU239	INVRHD	Constant	5.6400E+03	5.6400E+03	5.6400E+03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	298	PU239	INVRHD	Constant	5.3700E+03	5.3700E+03	5.3700E+03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3505	PU239L	INVCHD	Constant	9.1000E+05	9.1000E+05	9.1000E+05	529130	1	8-May-03	Represents combined activities of PU239, PU240, and PU 242, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3505	PU239L	INVCHD	Constant	7.6600E+05	7.6600E+05	7.6600E+05	531103	1	28-Aug-03	Represents updated combined activities of PU239, PU240 and PU242, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.
CRA1	3510	PU239L	INVRHD	Constant	7.4700E+03	7.4700E+03	7.4700E+03	529130	1	8-May-03	Represents combined activities of PU239, PU240, and PU 242, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3510	PU239L	INVRHD	Constant	7.0500E+03	7.0500E+03	7.0500E+03	531103	1	28-Aug-03	Represents updated combined activities of PU239, PU240 and

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CRA1	301	PU240	INVCHD	Constant	1.3200E+05	1.3200E+05	1.3200E+05	529130	2	8-May-03	PU242, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.
CRA1	301	PU240	INVCHD	Constant	1.0700E+05	1.0700E+05	1.0700E+05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	302	PU240	INVRHD	Constant	1.8200E+03	1.8200E+03	1.8200E+03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	302	PU240	INVRHD	Constant	1.6700E+03	1.6700E+03	1.6700E+03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	305	PU241	INVCHD	Constant	5.1700E+05	5.1700E+05	5.1700E+05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	305	PU241	INVCHD	Constant	5.1400E+05	5.1400E+05	5.1400E+05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	306	PU241	INVRHD	Constant	1.4900E+05	1.4900E+05	1.4900E+05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	306	PU241	INVRHD	Constant	2.3900E+04	2.3900E+04	2.3900E+04	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	309	PU242	INVCHD	Constant	3.2700E+01	3.2700E+01	3.2700E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	309	PU242	INVCHD	Constant	2.6600E+01	2.6600E+01	2.6600E+01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	310	PU242	INVRHD	Constant	5.0200E-01	5.0200E-01	5.0200E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	310	PU242	INVRHD	Constant	4.7400E-01	4.7400E-01	4.7400E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2269	PU244	INVCHD	Constant	1.4500E-06	1.4500E-06	1.4500E-06	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2269	PU244	INVCHD	Constant	1.3200E-06	1.3200E-06	1.3200E-06	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2270	PU244	INVRHD	Constant	1.5600E-03	1.5600E-03	1.5600E-03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03

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CRA1	2270	PU244	INVRHD	Constant	1.1000E-03	1.1000E-03	1.1000E-03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	316	RA226	INVCHD	Constant	1.0000E+01	1.0000E+01	1.0000E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	316	RA226	INVCHD	Constant	6.2800E+00	6.2800E+00	6.2800E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	317	RA226	INVRHD	Constant	5.5500E-05	5.5500E-05	5.5500E-05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	317	RA226	INVRHD	Constant	4.9900E-05	4.9900E-05	4.9900E-05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2271	RA228	INVCHD	Constant	7.6500E+00	7.6500E+00	7.6500E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2271	RA228	INVCHD	Constant	7.6300E+00	7.6300E+00	7.6300E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2272	RA228	INVRHD	Constant	3.3600E-01	3.3600E-01	3.3600E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2272	RA228	INVRHD	Constant	2.5100E-01	2.5100E-01	2.5100E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1-B	3590	REFCON	BIP_11	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Parameter added to PAPDB for CRA. In CCA, parameter was included as a data statement in BRAGFLO Ver. 4.10.1 independent of CCA PA database. It is not in BRAGFLO Ver. 5.0. Values are compared to data statements in BRAGFLO 4.10.1 to verify. Values for H2, H2O and Fe not transferred to PAPDB.
CRA1-B	3591	REFCON	BIP_12	Constant	-3.4260E-01	-3.4260E-01	-3.4260E-01	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3592	REFCON	BIP_13	Constant	-2.2200E-02	-2.2200E-02	-2.2200E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3593	REFCON	BIP_14	Constant	9.7800E-02	9.7800E-02	9.7800E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3594	REFCON	BIP_15	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3595	REFCON	BIP_16	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3596	REFCON	BIP_21	Constant	-3.4260E-01	-3.4260E-01	-3.4260E-01	526858	1	24-Mar-03	Same as above statement for Param ID 3590.

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CRAI-B	3597	REFCON	BIP_22	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3598	REFCON	BIP_23	Constant	9.3300E-02	9.3300E-02	9.3300E-02	9.3300E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3599	REFCON	BIP_24	Constant	-3.1500E-02	-3.1500E-02	-3.1500E-02	-3.1500E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3600	REFCON	BIP_25	Constant	9.8900E-02	9.8900E-02	9.8900E-02	9.8900E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3601	REFCON	BIP_26	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3602	REFCON	BIP_31	Constant	-2.2200E-02	-2.2200E-02	-2.2200E-02	-2.2200E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3603	REFCON	BIP_32	Constant	9.3300E-02	9.3300E-02	9.3300E-02	9.3300E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3604	REFCON	BIP_33	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3605	REFCON	BIP_34	Constant	2.7800E-02	2.7800E-02	2.7800E-02	2.7800E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3606	REFCON	BIP_35	Constant	8.5000E-02	8.5000E-02	8.5000E-02	8.5000E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3607	REFCON	BIP_36	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3608	REFCON	BIP_41	Constant	9.7800E-02	9.7800E-02	9.7800E-02	9.7800E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3609	REFCON	BIP_42	Constant	-3.1500E-02	-3.1500E-02	-3.1500E-02	-3.1500E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3610	REFCON	BIP_43	Constant	2.7800E-02	2.7800E-02	2.7800E-02	2.7800E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3611											
CRAI-B	3612	REFCON	BIP_45	Constant	1.6960E-01	1.6960E-01	1.6960E-01	1.6960E-01	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3613	REFCON	BIP_46	Constant	-7.8000E-03	-7.8000E-03	-7.8000E-03	-7.8000E-03	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRAI-B	3614	REFCON	BIP_51	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.00000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.

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CRA1-B	3615	REFCON	BIP_52	Constant	9.8900E-02	9.8900E-02	9.8900E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3616	REFCON	BIP_53	Constant	8.5000E-02	8.5000E-02	8.5000E-02	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3617	REFCON	BIP_54	Constant	1.6960E-01	1.6960E-01	1.6960E-01	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3618	REFCON	BIP_55	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3619	REFCON	BIP_56	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3620	REFCON	BIP_61	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3621	REFCON	BIP_62	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3622	REFCON	BIP_63	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3623	REFCON	BIP_64	Constant	-7.8000E-03	-7.8000E-03	-7.8000E-03	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3624	REFCON	BIP_65	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3625	REFCON	BIP_66	Constant	0.0000E+00	0.0000E+00	0.0000E+00	526858	1	24-Mar-03	Same as above statement for Param ID 3590.
CRA1-B	3647	REFCON	FVRW	Constant	1.0000E+00	1.0000E+00	1.0000E+00	529865	1	17-Jun-03	New parameter similar to REFCON FVW which is for CH-TRU waste. This is the fraction of solid material removed as cuttings and cavings by a drilling intrusion into the RH waste regions that is actually RH-TRU waste. This value was used implicitly in all previous PA calculations, but no parameter was established in the CCA database.
CRA1-B	3582	REFCON	LHSBLANK	Uniform	5.0000E-01	0.0000E+00	1.0000E+00	525047	1	6-Jan-03	New parameter established to act as a placeholder parameter to be used with LHS. Previously GLOBAL-TRANSIDX was used when a placeholder was needed to operate LHS--but resulted in output ambiguities. This corrects the problem.

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

	Param ID	Material	Parameter	Distribution	Value	Value	Value	Value			Date	Accuracy/Justification
CRA1-B	3589	REFCON	MW_CELL	Constant	2.7023E-02	2.7023E-02	2.7023E-02	2.7023E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3585	REFCON	MW_CH4	Constant	1.6043E-02	1.6043E-02	1.6043E-02	1.6043E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3584	REFCON	MW_CO2	Constant	4.4010E-02	4.4010E-02	4.4010E-02	4.4010E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3587	REFCON	MW_H2S	Constant	3.4082E-02	3.4082E-02	3.4082E-02	3.4082E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3586	REFCON	MW_N2	Constant	2.8013E-02	2.8013E-02	2.8013E-02	2.8013E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3583	REFCON	MW_NACL	Constant	5.8442E-02	5.8442E-02	5.8442E-02	5.8442E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3588	REFCON	MW_O2	Constant	3.1999E-02	3.1999E-02	3.1999E-02	3.1999E-02	526858	1	24-Mar-03	Same as statement for Param ID 3590.
CRA1-B	3108	REFCON	VREPOS	Constant	4.3841E+05	4.3841E+05	4.3841E+05	4.3841E+05	523760 527694	1	17-Sep-02	The waste storage volume used by BRAGFLO in CCA and PAVT did not include volumes from three exhaust and three intake drifts. The volumes for these drifts were inadvertently left out of the summation of volumes. The corrected volume increase is ~0.5% of waste filled regions resulting in minor impact on CCA/PAVT PA results as it is used in ALGEBRA to convert mass of Fe and biodegradable materials to density units required by BRAGFLO. The new values includes these 6 drift volumes.
CRA1	2514	SALT_T1	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2531	SALT_T2	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

CRA1	2548	SALT_T3	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2565	SALT_T4	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
CRA1	2582	SALT_T5	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	8.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the

(continued from previous row) discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.

CRA1	2984	SALT_T6	COMP_RCK	Constant	8.0000E-11	8.0000E-11	8.0000E-11	526661	1	19-Mar-03	Values for COMP-RCK were discovered to be pore compressibility rather than bulk compressibility, values were corrected by multiplying pore compressibility by porosity in the analyses. Correct values were used by ALGEBRA in PAVT, AP106 and subsequent analyses. There were erroneous values for POR_COMP used for some materials in the TBM analyses. This entry corrects values to bulk compressibility values eliminating need for correction within analysis runs.
AP106	3550	SHFTU	COMP_POR	Constant	2.0500E-08	2.0500E-08	2.0500E-08	525203, 530631	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP106	3562	SHFTL_T1	COMP_POR	Constant	4.2800E-09	4.2800E-09	4.2800E-09	525203, 530631	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP106	3563	SHFTL_T1	KPT	Constant	0.0000E+00	0.0000E+00	0.0000E+00	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

	ID	Material	Parameter	Type	Value	Value	Value	Value	Ref		Date	Accuracy/Justification
AP106	3564	SHFTL_T1	PC_MAX	Constant	1.0000E+08	1.0000E+08	1.0000E+08	1.0000E+08	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3565	SHFTL_T1	PCT_A	Constant	5.6000E-01	5.6000E-01	5.6000E-01	5.6000E-01	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3566	SHFTL_T1	PCT_EXP	Constant	-3.4600E-01	-3.4600E-01	-3.4600E-01	-3.4600E-01	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3567	SHFTL_T1	PO_MIN	Constant	1.0100E+05	1.0100E+05	1.0100E+05	1.0100E+05	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3568	SHFTL_T1	POROSITY	Constant	1.1300E-01	1.1300E-01	1.1300E-01	1.1300E-01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP106	3569	SHFTL_T1	PRMX_LOG	Cumulative	-1.8000E+01	-1.8200E+01	-2.0000E+01	-1.6500E+01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Permeabilities are derived from the weighted harmonic mean of the permeabilities of each layer comprising the new composite layer.
AP106	3570	SHFTL_T1	RELP_MOD	Constant	4.0000E+00	4.0000E+00	4.0000E+00	4.0000E+00	525203 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3571	SHFTL_T1	SAT_IBRN	Constant	5.3400E-01	5.3400E-01	5.3400E-01	5.3400E-01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

											Date	Justification
												of the values of each original shaft's components.
AP106	3572	SHFTL_T2	COMP_POR	Constant	4.2800E-09	4.2800E-09	4.2800E-09	4.2800E-09	525203, 530631	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP106	3573	SHFTL_T2	KPT	Constant	0.0000E+00	0.0000E+00	0.0000E+00	0.0000E+00	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3574	SHFTL_T2	PC_MAX	Constant	1.0000E+08	1.0000E+08	1.0000E+08	1.0000E+08	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3575	SHFTL_T2	PCT_A	Constant	5.6000E-01	5.6000E-01	5.6000E-01	5.6000E-01	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3576	SHFTL_T2	PCT_EXP	Constant	-3.4600E-01	-3.4600E-01	-3.4600E-01	-3.4600E-01	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3577	SHFTL_T2	PO_MIN	Constant	1.0100E+05	1.0100E+05	1.0100E+05	1.0100E+05	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3578	SHFTL_T2	POROSITY	Constant	1.1300E-01	1.1300E-01	1.1300E-01	1.1300E-01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP106	3579	SHFTL_T2	PRMX_LOG	Cumulative	-1.9800E+01	-2.0100E+01	-2.2500E+01	-1.8000E+01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

AP10 6	3580	SHFTL_T2	RELP_MOD	Constant	4.0000E+00	4.0000E+00	4.0000E+00	525203, 533428	1	23-Jan-03	10000 years). Permeabilities are derived from the weighted harmonic mean of the permeabilities of each layer comprising the new composite layer. Values for simplified model are constant and uniform for all shaft seal materials.
AP10 6	3581	SHFTL_T2	SAT_IBRN	Constant	5.3400E-01	5.3400E-01	5.3400E-01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP10 6	3551	SHFTU	KPT	Constant	0.0000E+00	0.0000E+00	0.0000E+00	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP10 6	3552	SHFTU	PC_MAX	Constant	1.0000E+08	1.0000E+08	1.0000E+08	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP10 6	3553	SHFTU	PCT_A	Constant	5.6000E-01	5.6000E-01	5.6000E-01	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP10 6	3554	SHFTU	PCT_EXP	Constant	-3.4600E-01	-3.4600E-01	-3.4600E-01	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP10 6	3555	SHFTU	PO_MIN	Constant	1.0100E+05	1.0100E+05	1.0100E+05	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP10 6	3556	SHFTU	POROSITY	Constant	2.9100E-01	2.9100E-01	2.9100E-01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

	ID	Code	Parameter	Distribution	Value 1	Value 2	Value 3	Value 4	Material	Count	Date	Accuracy/Justification
AP106	3557	SHFTU	PRMX_LOG	Cumulative	-1.8200E+01	-1.8300E+01	-2.0500E+01	-1.6500E+01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Permabilities are derived from the weighted harmonic mean of the permeabilities of each layer comprising the new composite layer.
AP106	3558	SHFTU	RELP_MOD	Constant	4.0000E+00	4.0000E+00	4.0000E+00	4.0000E+00	525203, 533428	1	23-Jan-03	Values for simplified model are constant and uniform for all shaft seal materials.
AP106	3559	SHFTU	SAT_IBRN	Constant	7.9600E-01	7.9600E-01	7.9600E-01	7.9600E-01	525203	1	23-Jan-03	Values are for Simplified Shaft Seal Model--11 separate material layers are reduced to two equivalent layers((Salado and non-Salado) and 6 time intervals reduced to 2 time intervals (first 200 years and 200-10000 years). Simplified values are the volume-weighted arithmetic mean of the values of each original shaft's components.
AP106	3560	SHFTU	SAT_RBRN	Cumulative	2.5000E-01	2.0000E-01	0.0000E+00	6.0000E-01	525203, 533428	1	23-Jan-03	Similar methodology to establish values to that used in CCA/PAVT. Distribution values are identical to CCA Material SALT_T1.
AP106	3561	SHFTU	SAT_RGAS	Uniform	2.0000E-01	2.0000E-01	0.0000E+00	4.0000E-01	525203, 533428	1	23-Jan-03	Similar methodology to establish values to that used in CCA/PAVT. Distribution values are identical to CCA Material SALT_T1.
CRA1	3628	SOLMOD3	SOLCOC	Constant	1.7700E-07	1.7700E-07	1.7700E-07	1.7700E-07	529131	1	8-May-03	Solubilities revised from those used in PAVT (SOLSIM and SOLCIM) and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code-used in CCA/PAVT) for two brines: GWB (generic weep brine-new) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate,

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

citrate, oxalate and EDTA organic ligands. Solubilities are for +III Oxidation state actinides with non-microbial vectors for ERDA-6 brine. Values calculated for AM+3 and Pu+3. Non-microbial realizations use brucite-calcite carbonation reaction buffer.

CRA1	3629	SOLMOD3	SOLCOH	Constant	1.6900E-07	1.6900E-07	1.6900E-07	1.6900E-07	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +III Oxidation state actinides with microbial vectors for ERDA-6 brine. Values calculated for AM+3 and Pu+3. Microbial vector represented by EPA mandated brucite-hydromagnesite carbonation reaction buffer.
CRA1	3630	SOLMOD3	SOLSOC	Constant	3.0700E-07	3.0700E-07	3.0700E-07	3.0700E-07	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +III Oxidation state actinides with non-microbial vectors for GWB brine. Values calculated for AM+3 and Pu+3. Non-microbial realizations use brucite-calcite carbonation reaction buffer.

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CRA1	3631	SOLMOD3	SOLSOH	Constant	3.0700E-07	3.0700E-07	3.0700E-07	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +III Oxidation state actinides with microbial vectors for GWB brine. Values calculated for AM+3 and used for Am+3 and Pu+3. Microbial vector represented by EPA mandated brucite-hydromagnesite carbonation reaction buffer.
CRA1	3632	SOLMOD4	SOLCOC	Constant	5.8400E-09	5.8400E-09	5.8400E-09	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with non-microbial vectors for ERDA-6 brine. Values calculated for TH +4 and used for TH+4, U+4, NP+4, and PU+4.
CRA1	3633	SOLMOD4	SOLCOH	Constant	2.4700E-08	2.4700E-08	2.4700E-08	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

											Description
											reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with microbial vectors for ERDA-6 brine. Values calculated for TH +4 and used for TH+4, U+4, NP+4, and PU+4. Microbial vector represented by EPA mandated brucite-hydromagnesite carbonation reaction buffer.
CRA1	3634	SOLMOD4	SOLSOC	Constant	1.2400E-08	1.2400E-08	1.2400E-08	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with non-microbial vectors for GWB brine. Values calculated for TH +4 and used for TH+4, U+4, NP+4, and PU+4. Non-microbial realizations use brucite-calcite carbonation reaction buffer.
CRA1	3635	SOLMOD4	SOLSOH	Constant	1.1900E-08	1.1900E-08	1.1900E-08	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with microbial vectors for GWB brine. Values calculated for TH +4 and used for TH+4, U+4, NP+4, and PU+4.

Table 2. Accuracy/Justification Check for Parameters That Have Changed Since the Technical Baseline Migration (TBM)

CRA1	3636	SOLMOD5	SOLCOC	Constant	2.1300E-05	2.1300E-05	2.1300E-05	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with non-microbial vectors for ERDA-6 brine. Values calculated for NP +V and used only for NP +5. Non-microbial realizations use brucite-calcite carbonation reaction buffer.
CRA1	3637	SOLMOD5	SOLCOH	Constant	5.0800E-06	5.0800E-06	5.0800E-06	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with microbial vectors for ERDA-6 brine. Values calculated for NP +V and used only for NP +5. Microbial vector represented by EPA mandated brucite-hydromagnesite carbonation reaction buffer.
CRA1	3638	SOLMOD5	SOLSOC	Constant	9.7200E-07	9.7200E-07	9.7200E-07	529131	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic

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											Description
CRA1											weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with non-microbial vectors for GWB brine. Values calculated for NP +V and used only for NP +5. Non-microbial realizations use brucite-calcite carbonation reaction buffer.
CRA1	3639	SOLMOD5	SOLSOH	Constant	1.0200E-06	1.0200E-06	1.0200E-06	1.0200E-06	1	8-May-03	Solubilities revised from those used in PAVT and entered into PAPDB as new parameters as they incorporate the impact of organic ligands and microbes on solubilities. Solubilities are calculated using FMT code (geochemical speciation & solubility code) for two brines: GWB (generic weep brine) and ERDA-6 (synthetic brine representative of Castile brine reservoirs) and considering acetate, citrate, oxalate and EDTA organic ligands. Solubilities are for +IV Oxidation state actinides with microbial vectors for GWB brine. Values calculated for NP +V and used only for NP +5. Microbial vector represented by EPA mandated brucite-hydromagnesite carbonation reaction buffer.
CRA1	3640	SOLMOD6	SOLCOC	Constant	8.8000E-06	8.8000E-06	8.8000E-06	8.8000E-06	1	8-May-03	Estimates of solubilities of U(VI) were taken from Hobart and Moore (1996) and USDOE 1996 (CCA, Appendix SOTERM, SOTERM-27-SOTERM-28). Values is the same as that used in PAVT for ERDA-6 brine. Solubility used only for U+6.
CRA1	3641	SOLMOD6	SOLCOH	Constant	8.8000E-06	8.8000E-06	8.8000E-06	8.8000E-06	1	8-May-03	Estimates of solubilities of U(VI) were taken from Hobart and Moore (1996) and USDOE 1996 (CCA, Appendix SOTERM, SOTERM-27-SOTERM-28). Values is the same as that used in PAVT for ERDA-6 brine. Solubility used only for U+6.
CRA1	3642	SOLMOD6	SOLSOC	Constant	8.7000E-06	8.7000E-06	8.7000E-06	8.7000E-06	1	8-May-03	Estimates of solubilities of U(VI) were

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taken from Hobart and Moore (1996) and USDOE 1996 (CCA, Appendix SOTERM-27-SOTERM-28). Values is the same as that used in PAVT for a different brine--Brine A and applied to GWB brine. Solubility used only for U+6.

CRA1	3643	SOLMOD6	SOLSOH	Constant	8.7000E-06	8.7000E-06	8.7000E-06	8.7000E-06	529131	1	8-May-03	Estimates of solubilities of U(VI) were taken from Hobart and Moore (1996) and USDOE 1996 (CCA, Appendix SOTERM-27-SOTERM-28). Values is the same as that used in PAVT for a different brine--Brine A and applied to GWB brine. Solubility used only for U+6.
CRA1	3627	SOLTH4	SOLCIM	Cumulative	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	237791	1	23-May-96	Solubility multiplier added for TH+4 for use in NUTS calculations. Values are the same as those used in CCA/PAVT for Pu, Np and Am.
CRA1	3626	SOLU4	SOLCIM	Cumulative	1.8000E-01	-9.0000E-02	-2.0000E+00	1.4000E+00	237791	1	23-May-96	Solubility multiplier added for TH+4 for use in NUTS calculations. Values are the same as those used in CCA/PAVT for Pu, Np and Am.
CRA1	3675	SPALLMOD	ANNUROUG	Constant	5.0000E-05	5.0000E-05	5.0000E-05	5.0000E-05	531914, 533995	1	1 Sep 03, 11 Aug 03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3662	SPALLMOD	BIOTBETA	Constant	1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3665	SPALLMOD	BITNZDIA	Constant	1.1113E-02	1.1113E-02	1.1113E-02	1.1113E-02	533995 531057	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3653	SPALLMOD	BITNZNO	Constant	3.0000E+00	3.0000E+00	3.0000E+00	3.0000E+00	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to

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											material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3652	SPALLMOD	COHESION	Constant	1.4000E+05	1.4000E+05	1.4000E+05	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3677	SPALLMOD	DDZPERM	Constant	1.0000E-14	1.0000E-14	1.0000E-14	532259, 531914, 531057, 533995	1	30 Sep 03, 1 Sep 03, 11 Aug 03	Value established as a constant as sensitivity analyses indicated no conspicuous influence on spall output (ERMS# 532259).
CRA1	3659	SPALLMOD	DDZTHICK	Constant	1.6000E-01	1.6000E-01	1.6000E-01	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3674	SPALLMOD	DRILRATE	Constant	4.4450E-03	4.4450E-03	4.4450E-03	531914, 531057, 533995	1	1 Sep 03, 11 Aug 03	Value in DRSPALL Parameter Justification Report is Uniform distribution with same median, and min of 2.9633 E-3 and max of 5.9267E-3. Value used in Sensitivity Analysis Report (ERMS # 531914) is 04.45e-3 and constant, value in PAPDB–sensitivity analysis report states that this parameter is not a "driver" for tensile failure or spall releases and constant values are sufficient.
CRA1	3668	SPALLMOD	DRZPERM	Constant	1.0000E-15	1.0000E-15	1.0000E-15	531481, 533995, 531914	1	11-Sep-03	Values in DRSPALL Parameter Justification Report is Log Uniform distribution with Median of 1.122E-16, min of 3.9811E-20 and max of 3.1623E-13. However, DRSPALL gas flow does not "see" the DRZ permeability in its default configuration for WIPP, thus no impact on PA, but code requires input value, so constant value assigned.
CRA1	3654	SPALLMOD	FFSTRESS	Constant	1.4900E+07	1.4900E+07	1.4900E+07	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to

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	ID	Model	Parameter	Distribution	Value 1	Value 2	Value 3	Value 4	ERMS#	Count	Date	Justification
												material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3657	SPALLMOD	FRICTANG	Constant	4.5800E+01	4.5800E+01	4.5800E+01	4.5800E+01	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3671	SPALLMOD	MUDPRATE	Constant	2.0181E-02	2.0181E-02	2.0181E-02	2.0181E-02	531914, 531057, 533995	1	1 Sep 03, 11 Aug 03	Value in DRSPALL Parameter Justification Report is Uniform distribution with same median, and min of 1.6145E-2 and max of 2.4218E-2. Value used in Sensitivity Analysis Report (ERMS # 531914) is a constant 2.02E-2, value in PAPDB-sensitivity analysis report states that this parameter is not a "driver" for tensile failure or spall releases and constant values are sufficient.
CRA1	3673	SPALLMOD	MUDSOLMX	Constant	6.1500E-01	6.1500E-01	6.1500E-01	6.1500E-01	531914, 531057, 533995	1	1 Sep 03, 11 Aug 03	Value in DRSPALL Parameter Justification Report is Uniform distribution with same median, and min of 5.9E-1 and max of 6.4E-1. Value used in Sensitivity Analysis Report (ERMS # 531914) is a constant 0.615, value in PAPDB -sensitivity analysis report states that this parameter is not a "driver" for tensile failure or spall releases and constant values are sufficient.
CRA1	3670	SPALLMOD	MUDSOLVE	Constant	-1.5000E+00	-1.5000E+00	-1.5000E+00	-1.5000E+00	531914, 531057, 533995	1	1 Sep 03, 11 Aug 03	Value in DRSPALL Parameter Justification Report is Uniform distribution with same median, and min of -1.8E0 and max of -1.2E0. Value used in Sensitivity Analysis Report (ERMS # 531914) is a constant -1.5, value in PAPDB -sensitivity analysis report states that this parameter is not a "driver" for tensile failure or spall releases and constant values are sufficient.
CRA1	3667	SPALLMOD	PARTDIAM	Loguniform	2.1500E-02	1.0000E-02	1.0000E-03	1.0000E-01	531057, 533995	2	11-Aug-03	Note: ERMS# 531477 states mean value is 1.00E-2; mean value not reported in DRSPALL Parameter

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	ID	Material	Parameter	Distribution					References	Count	Date	Justification
CRA1	3660	SPALLMOD	PIPEID	Constant	9.7180E-02	9.7180E-02	9.7180E-02	9.7180E-02	531057, 533995	1	11-Aug-03	Justification Report. Value in PAPDB is correct based on max, min and distribution. New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3663	SPALLMOD	PIPEROUG	Constant	5.0000E-05	5.0000E-05	5.0000E-05	5.0000E-05	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3672	SPALLMOD	POISRAT	Constant	3.8000E-01	3.8000E-01	3.8000E-01	3.8000E-01	531914, 531057, 533995	1	1 Sep 03, 11 Aug 03	Value in DRSPALL Parameter Justification Report is Uniform distribution with median of 3.9E-1, min of 3.5E-1 and max of 4.3E-1. However text (p. 17) states it is equally valid to assign a constant value of 0.38--the value in the PAPDB. Also supported in Sensitivity Study report (ERMS 531914).
CRA1	3651	SPALLMOD	REFPRS	Constant	1.0177E+05	1.0177E+05	1.0177E+05	1.0177E+05	531057, 534342, 533995	1	8/11/2003 30 Mar 04	Value in DRSPALL Parameter Justification Report Appendix A is 1.0177E+4 Pa, value in text, p. 42 is 1.0177E+5 Pa. Value in PAPDB is correct. SNL issued documentation to correct referenced document 3/30/04.
CRA1	3666	SPALLMOD	REPIPERM	Loguniform	5.1600E-13	2.4000E-13	2.4000E-14	2.4000E-12	531057, 531931, 533995	1	8/11/2003 3/30/04	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion. Mean value not provided in supporting documentation. Values in PAPDB are correct. SNL issued documentation to correct referenced documents in March 2004.
CRA1	3655	SPALLMOD	REPOSTOP	Constant	3.8470E+02	3.8470E+02	3.8470E+02	3.8470E+02	531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to

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												Accuracy/Justification
												surface as a result of inadvertent drilling intrusion.
CRA1	3664	SPALLMOD	SALTDENS	Constant	2.1800E+03	2.1800E+03	2.1800E+03		531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3669	SPALLMOD	SHAPEFAC	Constant	1.0000E-01	1.0000E-01	1.0000E-01		531477, 530157, 531914, 533995	1	10 Sep 03, 11 Aug 03	Constrained to be constant. Appears in DRSPALL as product of shape factor and particle diameter. Particle diameter varied, and product is same range as that in the peer review analysis.
CRA1	3661	SPALLMOD	STPDVOLR	Constant	1.0000E+03	1.0000E+03	1.0000E+03		531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3656	SPALLMOD	STPPVOLR	Constant	1.0000E+03	1.0000E+03	1.0000E+03		531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3658	SPALLMOD	SURFELEV	Constant	1.0373E+03	1.0373E+03	1.0373E+03		531057, 533995	1	11-Aug-03	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion.
CRA1	3676	SPALLMOD	TENSLSTR	Uniform	1.45000E+05	1.4500E+05	1.2000E+05	1.7000E+05	531057 532364	1	8/11/2003 3/30/04	New parameters developed to support DRSPALL model to evaluate volume of WIPP solid waste subject to material failure and transport to surface as a result of inadvertent drilling intrusion. Mean value not provided in supporting documentation. Values in PAPDB are correct. SNL issued documentation to correct referenced documents 3/30/04.
CRA1	2039	SR90	INVCHD	Constant	2.8200E+04	2.8200E+04	2.8200E+04		529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03

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CRA1	2039	SR90	INVCHD	Constant	2.6800E+04	2.6800E+04	2.6800E+04	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	518	SR90	INVRHD	Constant	1.1800E+05	1.1800E+05	1.1800E+05	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	518	SR90	INVRHD	Constant	1.1500E+05	1.1500E+05	1.1500E+05	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	605	TH229	INVCHD	Constant	6.1200E+00	6.1200E+00	6.1200E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	605	TH229	INVCHD	Constant	5.2500E+00	5.2500E+00	5.2500E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	606	TH229	INVRHD	Constant	1.8300E-01	1.8300E-01	1.8300E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	606	TH229	INVRHD	Constant	1.3900E-01	1.3900E-01	1.3900E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	609	TH230	INVCHD	Constant	2.2600E-01	2.2600E-01	2.2600E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	609	TH230	INVCHD	Constant	1.6900E-01	1.6900E-01	1.6900E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	610	TH230	INVRHD	Constant	7.2400E-03	7.2400E-03	7.2400E-03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	610	TH230	INVRHD	Constant	6.6700E-03	6.6700E-03	6.6700E-03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3508	TH230L	INVCHD	Constant	6.3500E+00	6.3500E+00	6.3500E+00	529289	1	12-May-03	Represents combined activities of TH230 + TH229, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3508	TH230L	INVCHD	Constant	5.4200E+00	5.4200E+00	5.4200E+00	531090	1	28-Aug-03	Represents updated combined activities of TH230 + TH229, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on

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TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.

	ID	Material	Property	Distribution	Value	Value	Value	Value	ERMS#		Date	Comment
CRA1	3513	TH230L	INVRHD	Constant	1.9000E-01	1.9000E-01	1.9000E-01	1.9000E-01	529289	1	12-May-03	Represents combined activities of TH230 + TH229, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3513	TH230L	INVRHD	Constant	1.4600E-01	1.4600E-01	1.4600E-01	1.4600E-01	529130	1	28-Aug-03	Represents updated combined activities of TH230 + TH229, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.
CRA1	613	TH232	INVCHD	Constant	6.6300E+00	6.6300E+00	6.6300E+00	6.6300E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	613	TH232	INVCHD	Constant	6.6100E+00	6.6100E+00	6.6100E+00	6.6100E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	614	TH232	INVRHD	Constant	2.9100E-01	2.9100E-01	2.9100E-01	2.9100E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	614	TH232	INVRHD	Constant	2.1800E-01	2.1800E-01	2.1800E-01	2.1800E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	634	U233	INVCHD	Constant	1.4300E+03	1.4300E+03	1.4300E+03	1.4300E+03	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	634	U233	INVCHD	Constant	1.2400E+03	1.2400E+03	1.2400E+03	1.2400E+03	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	635	U233	INVRHD	Constant	4.3800E+01	4.3800E+01	4.3800E+01	4.3800E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	635	U233	INVRHD	Constant	3.4100E+01	3.4100E+01	3.4100E+01	3.4100E+01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	638	U234	INVCHD	Constant	3.6400E+02	3.6400E+02	3.6400E+02	3.6400E+02	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03

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CRA1	638	U234	INVCHD	Constant	2.9700E+02	2.9700E+02	2.9700E+02	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	639	U234	INVRHD	Constant	2.3500E+01	2.3500E+01	2.3500E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	639	U234	INVRHD	Constant	2.2000E+01	2.2000E+01	2.2000E+01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	3507	U234L	INVCHD	Constant	1.7900E+03	1.7900E+03	1.7900E+03	529130	1	8-May-03	Represents combined activities of U234 + U233, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3507	U234L	INVCHD	Constant	1.5400E+03	1.5400E+03	1.5400E+03	531103	1	28-Aug-03	Represents updated combined activities of U234 + U233, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.
CRA1	3512	U234L	INVRHD	Constant	6.7300E+01	6.7300E+01	6.7300E+01	529130	1	8-May-03	Represents combined activities of U234 + U233, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.11.
CRA1	3512	U234L	INVRHD	Constant	5.6100E+01	5.6100E+01	5.6100E+01	531103	1	28-Aug-03	Represents updated combined activities of U234 + U233, per AP-097, Rev. 0, Analysis Plan for Deriving Radionuclide Inventory Information for PA Calculations: CRA, 1/2003. NUTS is computationally intensive and

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minimizing number of radionuclides is required (ERMS# 529289)--based on TWBID Rev. 2.1, Ver. 3.12--ERMS # 530918.

CRA1	642	U235	INVCHD	Constant	1.3800E+00	1.3800E+00	1.3800E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	642	U235	INVCHD	Constant	1.3400E+00	1.3400E+00	1.3400E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	643	U235	INVRHD	Constant	9.7900E-01	9.7900E-01	9.7900E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	643	U235	INVRHD	Constant	9.4200E-01	9.4200E-01	9.4200E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	2216	U236	INVCHD	Constant	2.6000E-01	2.6000E-01	2.6000E-01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	2216	U236	INVCHD	Constant	2.3100E-01	2.3100E-01	2.3100E-01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	646	U236	INVRHD	Constant	1.4800E+00	1.4800E+00	1.4800E+00	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	646	U236	INVRHD	Constant	1.4200E+00	1.4200E+00	1.4200E+00	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	649	U238	INVCHD	Constant	2.4600E+01	2.4600E+01	2.4600E+01	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	649	U238	INVCHD	Constant	2.4400E+01	2.4400E+01	2.4400E+01	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
CRA1	650	U238	INVRHD	Constant	1.3100E+02	1.3100E+02	1.3100E+02	529130	2	8-May-03	Same comment as for Parameter ID 4 for 8 May 03
CRA1	650	U238	INVRHD	Constant	1.3000E+02	1.3000E+02	1.3000E+02	531103	2	28-Aug-03	Same comment as for Parameter ID 4 for 28 Aug 03
AMW	3649	WAS_AMW	CLOSMOD1	Delta	2.0000E+00	2.0000E+00	4.0000E+00	531077, 534212	1	27-Aug-03	Supporting documentation justifies adding these new parameters to support evaluation of the effect of waste from the AMWTF, but does not provide any specific values (i.e. values on PDE forms), just probabilities. Subsequent documentation (ERMS # 534212, dtd 22 March 2004) provided by SNL confirms accuracy of values in PAPDB.
AMW	3650	WAS_AMW	CLOSMOD2	Delta	1.0000E+00	1.0000E+00	2.0000E+00	531077, 534212	1	27-Aug-03	Supporting documentation justifies adding these new parameters to

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												Justification
												support evaluation of the effect of waste from the AMWTF, but does not provide any specific values (i.e. values on PDE forms), just probabilities. Subsequent documentation (ERMS # 534212, dtd 22 March 2004) provided by SNL confirms accuracy of values in PAPDB.
AMW	3648	WAS_AMW	FRACAMW	Uniform	6.0000E-01	6.0000E-01	2.0000E-01	1.0000E+00	531077, 534214	1	27-Aug-03	Supporting documentation justifies adding these new parameters to support evaluation of the effect of waste from the AMWTF, but does not provide any specific values (i.e. values on PDE forms), just probabilities. Subsequent documentation (ERMS # 534214, dtd 22 March 2004) provided by SNL confirms accuracy of values in PAPDB.
CRA1	2041	WAS_AREA	DCELLCHW	Constant	7.5000E+01	7.5000E+01	7.5000E+01	7.5000E+01	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2041	WAS_AREA	DCELLCHW	Constant	5.8000E+01	5.8000E+01	5.8000E+01	5.8000E+01	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2274	WAS_AREA	DCELLRHW	Constant	6.1000E+00	6.1000E+00	6.1000E+00	6.1000E+00	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2274	WAS_AREA	DCELLRHW	Constant	4.5000E+00	4.5000E+00	4.5000E+00	4.5000E+00	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	1992	WAS_AREA	DIRNCCHW	Constant	2.3000E+02	2.3000E+02	2.3000E+02	2.3000E+02	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	1992	WAS_AREA	DIRNCCHW	Constant	1.7000E+02	1.7000E+02	1.7000E+02	1.7000E+02	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	1993	WAS_AREA	DIRNCRHW	Constant	3.9000E+02	3.9000E+02	3.9000E+02	3.9000E+02	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	1993	WAS_AREA	DIRNCRHW	Constant	4.8000E+02	4.8000E+02	4.8000E+02	4.8000E+02	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).

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CRA1	2040	WAS_AREA	DIRONCHW	Constant	1.4000E+02	1.4000E+02	1.4000E+02	1.4000E+02	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2040	WAS_AREA	DIRONCHW	Constant	1.1000E+02	1.1000E+02	1.1000E+02	1.1000E+02	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2044	WAS_AREA	DIRONRHW	Constant	1.2000E+02	1.2000E+02	1.2000E+02	1.2000E+02	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2044	WAS_AREA	DIRONRHW	Constant	1.1000E+02	1.1000E+02	1.1000E+02	1.1000E+02	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2043	WAS_AREA	DPLASCHW	Constant	5.5000E+01	5.5000E+01	5.5000E+01	5.5000E+01	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2043	WAS_AREA	DPLASCHW	Constant	4.2000E+01	4.2000E+01	4.2000E+01	4.2000E+01	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2275	WAS_AREA	DPLASRHW	Constant	7.0000E+00	7.0000E+00	7.0000E+00	7.0000E+00	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2275	WAS_AREA	DPLASRHW	Constant	4.9000E+00	4.9000E+00	4.9000E+00	4.9000E+00	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	1995	WAS_AREA	DPLSCCHW	Constant	2.1000E+01	2.1000E+01	2.1000E+01	2.1000E+01	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	1995	WAS_AREA	DPLSCCHW	Constant	1.6000E+01	1.6000E+01	1.6000E+01	1.6000E+01	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2228	WAS_AREA	DPLSCRHW	Constant	1.2000E+00	1.2000E+00	1.2000E+00	1.2000E+00	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2228	WAS_AREA	DPLSCRHW	Constant	1.4000E+00	1.4000E+00	1.4000E+00	1.4000E+00	530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2042	WAS_AREA	DRUBBCHW	Constant	1.9000E+01	1.9000E+01	1.9000E+01	1.9000E+01	527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2042	WAS_AREA	DRUBBCHW	Constant	1.4000E+01	1.4000E+01	1.4000E+01	1.4000E+01	530767	1	18-Aug-03	Revision to values resulting from

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											updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1	2046	WAS_AREA	DRUBBRHW	Constant	3.6000E+00	3.6000E+00	3.6000E+00		527270	1	2-Apr-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.11).
CRA1	2046	WAS_AREA	DRUBBRHW	Constant	3.1000E+00	3.1000E+00	3.1000E+00		530767	1	18-Aug-03	Revision to values resulting from updates to waste inventory updates (TWBID Rev. 2.1, Ver. 3.12).
CRA1		SPALLMOD	DRZTCK	Constant	8.5000E-01	8.5000E-01	8.5000E-01		534287, 533995	1	26-Mar-04	Parameter added to PAPDB at EPA request.
CRA1		SPALLMOD	FRCHBETA	Constant	1.1500E-06	1.1500E-06	1.1500E-06		534287 535944, 533995	1	26-Mar-04	Parameter added to PAPDB at EPA request.
CRA1		SPALLMOD	REPOSTCK	Constant	0.0000E+00	0.0000E+00	0.0000E+00		534287 534575, 533995	1	26-Mar-04	Parameter added to PAPDB at EPA request.
CRA1		SPALLMOD	REPOTRAD	Constant	3.8500E+02	3.8500E+02	3.8500E+02		534287 536134, 533995	1	26-Mar-04	Parameter added to PAPDB at EPA request.
TBM	3482	AM+3	MKD_AM	Loguniform	1.3000E-01	9.0000E-02	2.00000E-02	4.0000E-01	514688, 241561, 527703	1	28 Jan 03, 3 Nov 00, 24 Jul 96	Change made at request of EPA. Subsequent spreadsheet provided by B Buell, shows calculations of mean and median values missing in referenced documentation. ERMS 235268 provides formulas for calculations. Correction to 10 Jun 96 entry, wrong range input, per Parameter Problem Report PPR-2003-01 (ERMS 527703)
TBM	3482	AM+3	MKD_AM	Loguniform	1.0000E-01	6.0000E-02	9.0000E-03	4.0000E-01	238801	1	10-Jun-96	Change made at request of EPA. Subsequent spreadsheet provided by B Buell, shows calculations of mean and median values missing in referenced documentation. ERMS 235268 provides formulas for calculations.
TBM	3480	PU+3	MKD_PU	Loguniform	1.0000E-01	6.0000E-02	9.0000E-03	4.0000E-01	238801	1	10-Jun-96	Change made at request of EPA. Subsequent spreadsheet provided by B Buell, shows calculations of mean and median values missing in referenced documentation. ERMS 235268 provides formulas for calculations.

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TBM	3480	PU+3	MKD_PU	Loguniform	1.3000E-01	9.0000E-02	2.0000E-02	4.0000E-01	241561 514688 527703	1	24 Jul 96	Change made at request of EPA. Subsequent spreadsheet provided by B Buell, shows calculations of mean and median values missing in referenced documentation. ERMS 235268 provides formulas for calculations. Correction to 10 Jun 96 entry, wrong range input, per Parameter Problem Report PPR-2003-01.
TBM	3402	SOLMOD3	SOLCIM	Constant	1.3800E-08	1.3800E-08	1.3800E-08	1.3800E-08	524971, 524694, 522337	1	23-May-96	Change made at request of EPA.
TBM	3402	SOLMOD3	SOLCIM	Constant	1.3000E-08	1.3000E-08	1.3000E-08	1.3000E-08	524971, 524694, 514688	1	20 Dec 0 2, 15 Nov 02, 3 Nov 00	Change requested to correct incorrect value in original documentation for change (ERMS # 522337).

Table 3 Section 1

Table 3. Section 1. Technical Baseline Migration (TBM) Parameter Changes

Analysis	Parameter ID No.	Material ID	Property ID	Distribution Type	CURRENT VALUE			
					Mean	Median	Minimum	Maximum
TBM	5	AM241	INVRHD	Constant	9.430000E+03	9.430000E+03	9.430000E+03	9.430000E+03
TBM	3504	AM241L	INVCHD	Constant	4.900000E+05	4.900000E+05	4.900000E+05	4.900000E+05
TBM	3509	AM241L	INVRHD	Constant	1.020000E+04	1.020000E+04	1.020000E+04	1.020000E+04
TBM	3184	BH_SAND	PRMX_LOG	Uniform	-1.365000E+01	-1.365000E+01	-1.365000E+01	-1.100000E+01
TBM	3190	BH_SAND	PRMY_LOG	Uniform	-1.365000E+01	-1.365000E+01	-1.365000E+01	-1.100000E+01
TBM	3191	BH_SAND	PRMZ_LOG	Uniform	-1.365000E+01	-1.365000E+01	-1.365000E+01	-1.100000E+01
TBM	3259	BLOWOUT	APORO	Constant	2.400000E-13	2.400000E-13	2.400000E-13	2.400000E-13
TBM	3256	BLOWOUT	FGE	Uniform	9.550000E+00	9.550000E+00	1.000000E+00	1.810000E+01
TBM	2254	BOREHOLE	TAUFAIL	Loguniform	1.050000E+01	1.960000E+00	5.000000E-02	7.700000E+00
TBM	3414	BOREHOLE	WUF	Constant	3.590000E+00	3.590000E+00	3.590000E+00	3.590000E+00
TBM	61	CASTILER	COMP_RCK	Triangular	5.300000E-11	4.000000E-11	2.000000E-11	1.000000E-10
TBM	109	CF252	INVRHD	Constant	5.950000E-05	5.950000E-05	5.950000E-05	5.950000E-05
TBM	3412	CM245	INVCHD	Constant	1.150000E-02	1.150000E-02	1.150000E-02	1.150000E-02
TBM	3514	CONC_PCS	CAP_MOD	Constant	2.000000E+00	2.000000E+00	2.000000E+00	2.000000E+00
TBM	3515	CONC_PCS	COMP_RCK	Constant	1.200000E-09	1.200000E-09	1.200000E-09	1.200000E-09
TBM	3516	CONC_PCS	COMPRES	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
TBM	3517	CONC_PCS	KPT	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
TBM	3518	CONC_PCS	PC_MAX	Constant	1.000000E+08	1.000000E+08	1.000000E+08	1.000000E+08
TBM	3519	CONC_PCS	PCT_A	Constant	5.600000E-01	5.600000E-01	5.600000E-01	5.600000E-01
TBM	3520	CONC_PCS	PCT_EXP	Constant	-3.460000E-01	-3.460000E-01	-3.460000E-01	-3.460000E-01
TBM	3521	CONC_PCS	PO_MIN	Constant	1.013250E+05	1.013250E+05	1.013250E+05	1.013250E+05
TBM	3522	CONC_PCS	PORE_DIS	Cumulative	2.520000E+00	9.400000E-01	1.100000E-01	8.100000E+00
TBM	3523	CONC_PCS	POROSITY	Constant	5.000000E-02	5.000000E-02	5.000000E-02	5.000000E-02
TBM	3524	CONC_PCS	PRESSURE	Constant	1.013250E+05	1.013250E+05	1.013250E+05	1.013250E+05
TBM	3525	CONC_PCS	PRMX_LOG	Triangular	-1.881600E+01	-1.874960E+01	-2.069900E+01	-1.700000E+01

Table 3. Section 1. Technical Baseline Migration (TBM) Parameter Changes

TBM	3526	CONC_PCS	PRMY_LOG	Triangular	-1.881600E+01	-1.874960E+01	-1.874960E+01	-2.069900E+01	-1.700000E+01
TBM	3527	CONC_PCS	PRMZ_LOG	Triangular	-1.881600E+01	-1.874960E+01	-1.874960E+01	-2.069900E+01	-1.700000E+01
TBM	3528	CONC_PCS	REF_PRES	Constant	1.010000E+05	1.010000E+05	1.010000E+05	1.010000E+05	1.010000E+05
TBM	3529	CONC_PCS	RELP_MOD	Constant	4.000000E+00	4.000000E+00	4.000000E+00	4.000000E+00	4.000000E+00
TBM	3530	CONC_PCS	SAT_IBRN	Constant	9.999999E-01	9.999999E-01	9.999999E-01	9.999999E-01	9.999999E-01
TBM	3531	CONC_PCS	SAT_RBRN	Cumulative	2.500000E-01	2.000000E-01	0.000000E+00	0.000000E+00	6.000000E-01
TBM	3532	CONC_PCS	SAT_RGAS	Uniform	2.000000E-01	2.000000E-01	0.000000E+00	0.000000E+00	4.000000E-01
TBM	3185	CONC_PLG	PRMX_LOG	Uniform	-1.800000E+01	-1.800000E+01	-1.900000E+01	-1.900000E+01	-1.700000E+01
TBM	3192	CONC_PLG	PRMY_LOG	Uniform	-1.800000E+01	-1.800000E+01	-1.900000E+01	-1.900000E+01	-1.700000E+01
TBM	3193	CONC_PLG	PRMZ_LOG	Uniform	-1.800000E+01	-1.800000E+01	-1.900000E+01	-1.900000E+01	-1.700000E+01
TBM	198	DRZ_1	PRMX_LOG	Uniform	-1.600000E+01	-1.600000E+01	-1.940000E+01	-1.940000E+01	-1.250000E+01
TBM	199	DRZ_1	PRMY_LOG	Uniform	-1.600000E+01	-1.600000E+01	-1.940000E+01	-1.940000E+01	-1.250000E+01
TBM	200	DRZ_1	PRMZ_LOG	Uniform	-1.600000E+01	-1.600000E+01	-1.940000E+01	-1.940000E+01	-1.250000E+01
TBM	3533	DRZ_PCS	CAP_MOD	Constant	1.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00
TBM	3534	DRZ_PCS	COMP_RCK	Constant	7.410000E-10	7.410000E-10	7.410000E-10	7.410000E-10	7.410000E-10
TBM	3535	DRZ_PCS	KPT	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
TBM	3536	DRZ_PCS	PC_MAX	Constant	1.000000E+08	1.000000E+08	1.000000E+08	1.000000E+08	1.000000E+08
TBM	3537	DRZ_PCS	PCT_A	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
TBM	3538	DRZ_PCS	PCT_EXP	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
TBM	3539	DRZ_PCS	PO_MIN	Constant	1.013250E+05	1.013250E+05	1.013250E+05	1.013250E+05	1.013250E+05
TBM	3540	DRZ_PCS	PORE_DIS	Constant	7.000000E-01	7.000000E-01	7.000000E-01	7.000000E-01	7.000000E-01
TBM	3541	DRZ_PCS	POROSITY	Cumulative	1.565000E-02	1.290000E-02	3.900000E-03	3.900000E-03	3.290000E-02
TBM	3542	DRZ_PCS	PRMX_LOG	Triangular	-1.874960E+01	-1.874960E+01	-2.069900E+01	-2.069900E+01	-1.700000E+01
TBM	3543	DRZ_PCS	PRMY_LOG	Triangular	-1.874960E+01	-1.874960E+01	-2.069900E+01	-2.069900E+01	-1.700000E+01
TBM	3544	DRZ_PCS	PRMZ_LOG	Triangular	-1.874960E+01	-1.874960E+01	-2.069900E+01	-2.069900E+01	-1.700000E+01
TBM	3545	DRZ_PCS	RELP_MOD	Delta	0.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00	4.000000E+00
TBM	3546	DRZ_PCS	SAT_RBRN	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00

Table 3. Section 1. Technical Baseline Migration (TBM) Parameter Changes

TBM	3547	DRZ_PCS	SAT_RGAS	Constant	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00	0.000000E+00
TBM	3501	GLOBAL	FPICD	Constant	1.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00
TBM	3500	GLOBAL	FPICM	Constant	1.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00	1.000000E+00
TBM	3493	GLOBAL	PBRINE	Uniform	3.050000E-01	3.050000E-01	3.050000E-01	1.000000E-02	6.000000E-01
TBM	3477	NP+4	MKD_NP	Loguniform	3.500000E+00	3.500000E+00	2.600000E+00	7.000000E-01	1.000000E+01
TBM	3476	NP+5	MKD_NP	Loguniform	3.800000E-02	3.800000E-02	1.400000E-02	1.000000E-03	2.000000E-01
TBM	3481	PU+4	MKD_PU	Loguniform	3.500000E+00	3.500000E+00	2.600000E+00	7.000000E-01	1.000000E+01
TBM	293	PU238	INVCHD	Constant	2.090000E+06	2.090000E+06	2.090000E+06	2.090000E+06	2.090000E+06
TBM	3506	PU238L	INVCHD	Constant	2.090000E+06	2.090000E+06	2.090000E+06	2.090000E+06	2.090000E+06
TBM	3511	PU238L	INVRHD	Constant	1.080000E+03	1.080000E+03	1.080000E+03	1.080000E+03	1.080000E+03
TBM	3505	PU239L	INVCHD	Constant	1.010000E+06	1.010000E+06	1.010000E+06	1.010000E+06	1.010000E+06
TBM	3510	PU239L	INVRHD	Constant	1.540000E+04	1.540000E+04	1.540000E+04	1.540000E+04	1.540000E+04
TBM	2131	REPOSIT	PRMX_LOG	Constant	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01
TBM	2132	REPOSIT	PRMY_LOG	Constant	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01
TBM	2133	REPOSIT	PRMZ_LOG	Constant	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01
TBM	3402	SOLMOD3	SOLCIM	Constant	1.380000E-08	1.380000E-08	1.380000E-08	1.380000E-08	1.380000E-08
TBM	3402	SOLMOD3	SOLCIM	Constant	1.300000E-08	1.300000E-08	1.300000E-08	1.300000E-08	1.300000E-08
TBM	3406	SOLMOD3	SOLSIM	Constant	1.200000E-07	1.200000E-07	1.200000E-07	1.200000E-07	1.200000E-07
TBM	3403	SOLMOD4	SOLCIM	Constant	4.100000E-08	4.100000E-08	4.100000E-08	4.100000E-08	4.100000E-08
TBM	3407	SOLMOD4	SOLSIM	Constant	1.300000E-08	1.300000E-08	1.300000E-08	1.300000E-08	1.300000E-08
TBM	3404	SOLMOD5	SOLCIM	Constant	4.800000E-07	4.800000E-07	4.800000E-07	4.800000E-07	4.800000E-07
TBM	3408	SOLMOD5	SOLSIM	Constant	2.400000E-07	2.400000E-07	2.400000E-07	2.400000E-07	2.400000E-07
TBM	2907	STEEL	CORRMCO2	Uniform	1.585000E-14	1.585000E-14	1.585000E-14	0.000000E+00	3.170000E-14
TBM	3478	TH+4	MKD_TH	Loguniform	3.500000E+00	3.500000E+00	2.600000E+00	7.000000E-01	1.000000E+01
TBM	609	TH230	INVCHD	Constant	2.900000E-01	2.900000E-01	2.900000E-01	2.900000E-01	2.900000E-01
TBM	3508	TH230L	INVCHD	Constant	9.580000E+00	9.580000E+00	9.580000E+00	9.580000E+00	9.580000E+00
TBM	3513	TH230L	INVRHD	Constant	7.050000E-01	7.050000E-01	7.050000E-01	7.050000E-01	7.050000E-01

Table 3. Section 1. Technical Baseline Migration (TBM) Parameter Changes

TBM	3479	U+4	MKD_U	Loguniform	3.500000E+00	2.600000E+00	7.000000E-01	1.000000E+01
TBM	3475	U+6	MKD_U	Loguniform	3.100000E-03	7.700000E-04	3.000000E-05	2.000000E-02
TBM	638	U234	INVCHD	Constant	7.270000E+02	7.270000E+02	7.270000E+02	7.270000E+02
TBM	3507	U234L	INVCHD	Constant	2.520000E+03	2.520000E+03	2.520000E+03	2.520000E+03
TBM	3512	U234L	INVRHD	Constant	2.010000E+02	2.010000E+02	2.010000E+02	2.010000E+02
TBM	663	WAS_AREA	PRMX_LOG	Constant	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01
TBM	664	WAS_AREA	PRMY_LOG	Constant	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01
TBM	665	WAS_AREA	PRMZ_LOG	Constant	-1.261980E+01	-1.261980E+01	-1.261980E+01	-1.261980E+01
TBM	3549	WAS_AREA	PTHRESH	Constant	8.000000E+06	8.000000E+06	8.000000E+06	8.000000E+06
TBM	3548	WAS_AREA	VOLSPALL	Uniform	2.250000E+00	2.250000E+00	5.000000E-01	4.000000E+00
PAD	2734	PAN_SEAL	SAT_IBRN	Constant	2.100000E-01	2.100000E-01	2.100000E-01	2.100000E-01
PAD	259	PAN_SEAL	PRMX_LOG	Constant	-1.804530E+01	-1.804530E+01	-1.804530E+01	-1.804530E+01
PAD	260	PAN_SEAL	PRMY_LOG	Constant	-1.271400E+01	-1.271400E+01	-1.271400E+01	-1.271400E+01
PAD	261	PAN_SEAL	PRMZ_LOG	Constant	-1.271400E+01	-1.271400E+01	-1.271400E+01	-1.271400E+01
PAD	256	PAN_SEAL	POROSITY	Constant	1.500000E-01	1.500000E-01	1.500000E-01	1.500000E-01

Table 3 Section 2

Table 3. Section 2. Technical Baseline Migration (TBM) Parameter Changes

Anal-ysis	Param. ID No.	Material ID	Property ID	Param. Record No.	Date	Replaces Param. Record	Replaced by Param. Record	PREVIOUS VALUES				Date	Prev. Anal-ysis
								Mean	Median	Minimum	Maximum		
TBM	5	AM241	INVRHD	1542	2002-06-12		1686	9.4400E+03	9.4400E+03	9.4400E+03	9.4400E+03	1996-10-29	CCA
TBM	3504	AM241L	INVCHD	1553	2002-06-18		1760	4.9036E+05	4.9036E+05	4.9036E+05	4.9036E+05	1998-02-16	CCA
TBM	3509	AM241L	INVRHD	1554	2002-06-18		1761	1.0200E+04	1.0200E+04	1.0200E+04	1.0200E+04	1998-02-16	CCA
TBM	3184	BH_SAND	PRMX_LOG	1016	2002-02-14			-1.2500E+01	-1.2500E+01	-1.4000E+01	-1.1000E+01	1996-03-14	CCA
TBM	3190	BH_SAND	PRMY_LOG	1042	2002-03-13			-1.2500E+01	-1.2500E+01	-1.4000E+01	-1.1000E+01	1996-03-14	CCA
TBM	3191	BH_SAND	PRMZ_LOG	1043	2002-03-13			-1.2500E+01	-1.2500E+01	-1.4000E+01	-1.1000E+01	1996-03-14	CCA
TBM	3259	BLOWOUT	APORO	1050	2002-04-25			1.7000E-13	1.7000E-13	1.7000E-13	1.7000E-13	1996-04-25	CCA
TBM	3256	BLOWOUT	FGE	1051	2002-04-25			1.8100E+01	1.8100E+01	1.8100E+01	1.8100E+01	1996-04-25	CCA
TBM	2254	BOREHOLE	TAUFAIL	1017	2002-02-14			5.0300E+00	5.0300E+00	5.0000E-02	1.0000E+01	1996-04-25	CCA
TBM	3414	BOREHOLE	WUF	1018	2002-02-14		1759	3.4400E+00	3.4400E+00	3.4400E+00	3.4400E+00	1996-11-21	CCA
TBM	61	CASTILER	COMP_RCK	1019	2002-02-14			-9.8000E+00	-1.0000E+01	-1.1300E+01	-8.0000E+00	1996-04-11	CCA
TBM	109	CF252	INVRHD	1543	2002-06-12		1690	5.9600E-05	5.9600E-05	5.9600E-05	5.9600E-05	1996-10-29	CCA
TBM	3412	CM245	INVCHD	1544	2002-06-12		1695	1.1500E+02	1.1500E+02	1.1500E+02	1.1500E+02	1996-04-26	CCA
TBM	3514	CONC_PCS	CAP_MOD	981	2002-02-14				new				
TBM	3515	CONC_PCS	COMP_RCK	982	2002-02-14		1626		new				
TBM	3516	CONC_PCS	COMPRES	983	2002-02-14				new				
TBM	3517	CONC_PCS	KPT	984	2002-02-14				new				
TBM	3518	CONC_PCS	PC_MAX	985	2002-02-14				new				
TBM	3519	CONC_PCS	PCT_A	986	2002-02-14				new				
TBM	3520	CONC_PCS	PCT_EXP	987	2002-02-14				new				
TBM	3521	CONC_PCS	PO_MIN	988	2002-02-14				new				
TBM	3522	CONC_PCS	PORE_DIS	989	2002-02-14				new				
TBM	3523	CONC_PCS	POROSITY	990	2002-02-14				new				

Table 3. Section 2. Technical Baseline Migration (TBM) Parameter Changes

TBM	3524	CONC_PCS	PRESSURE	991	2002-02-14	new			
TBM	3525	CONC_PCS	PRMX_LOG	992	2002-02-14	new			
TBM	3526	CONC_PCS	PRMY_LOG	993	2002-02-14	new			
TBM	3527	CONC_PCS	PRMZ_LOG	994	2002-02-14	new			
TBM	3528	CONC_PCS	REF_PRES	995	2002-02-14	new			
TBM	3529	CONC_PCS	RELP_MOD	996	2002-02-14	new			
TBM	3530	CONC_PCS	SAT_IBRN	997	2002-02-14	new			
TBM	3531	CONC_PCS	SAT_RBRN	998	2002-02-14	new			
TBM	3532	CONC_PCS	SAT_RGAS	999	2002-02-14	new			
TBM	3185	CONC_PLG	PRMX_LOG	1020	2002-02-14		-1.6301E+01	-1.6301E+01	1996-03-14	CCA
TBM	3192	CONC_PLG	PRMY_LOG	1044	2002-03-13	-1.6301E+01	-1.6301E+01	1996-03-14	CCA
TBM	3193	CONC_PLG	PRMZ_LOG	1045	2002-03-13	-1.6301E+01	-1.6301E+01	1996-03-14	CCA
TBM	198	DRZ_1	PRMX_LOG	1021	2002-02-14	-1.5000E+01	-1.5000E+01	1995-11-01	CCA
TBM	199	DRZ_1	PRMY_LOG	1046	2002-03-13	-1.5000E+01	-1.5000E+01	1995-11-01	CCA
TBM	200	DRZ_1	PRMZ_LOG	1047	2002-03-13	-1.5000E+01	-1.5000E+01	1995-11-01	CCA
TBM	3533	DRZ_PCS	CAP_MOD	1000	2002-02-14	new			
TBM	3534	DRZ_PCS	COMP_RCK	1001	2002-02-14	new			
TBM	3535	DRZ_PCS	KPT	1002	2002-02-14	new			
TBM	3536	DRZ_PCS	PC_MAX	1003	2002-02-14	new			
TBM	3537	DRZ_PCS	PCT_A	1004	2002-02-14	new			
TBM	3538	DRZ_PCS	PCT_EXP	1005	2002-02-14	new			
TBM	3539	DRZ_PCS	PO_MIN	1006	2002-02-14	new			
TBM	3540	DRZ_PCS	PORE_DIS	1007	2002-02-14	new			
TBM	3541	DRZ_PCS	POROSITY	1008	2002-02-14	new			
TBM	3542	DRZ_PCS	PRMX_LOG	1009	2002-02-14	new			
TBM	3543	DRZ_PCS	PRMY_LOG	1010	2002-02-14	new			
TBM	3544	DRZ_PCS	PRMZ_LOG	1011	2002-02-14	new			

Table 3. Section 2. Technical Baseline Migration (TBM) Parameter Changes

		DRZ_PCS	RELP_MOD									
TBM	3545	DRZ_PCS	SAT_RBRN	1012	2002-02-25			new				
TBM	3546	DRZ_PCS	SAT_RGAS	1013	2002-02-14			new				
TBM	3547	DRZ_PCS		1014	2002-02-14			new				
TBM	3501	GLOBAL	FPICD	1022	2002-02-14			1.0000E-02	1.0000E-02	1.0000E-02	1996-06-27	CCA
TBM	3500	GLOBAL	FPICM	1023	2002-02-14			1.0000E-02	1.0000E-02	1.0000E-02	1996-06-27	CCA
TBM	3493	GLOBAL	PBRINE	1024	2002-02-14			8.0000E-02	8.0000E-02	8.0000E-02	1996-06-26	CCA
TBM	3477	NP+4	MKD_NP	1025	2002-02-14		1.0000E+01	9.0000E-01	1.0000E+01	2.0000E+01	1996-06-12	CCA
TBM	3476	NP+5	MKD_NP	1026	2002-02-14		1.0000E-01	1.0000E-03	1.0000E-01	2.0000E-01	1996-06-12	CCA
TBM	3481	PU+4	MKD_PU	1028	2002-02-14		1.0000E+01	9.0000E-11	1.0000E+01	2.0000E+01	1996-06-12	CCA
TBM	293	PU238	INVCHD	1547	2002-06-12	1709	1.9300E+06	1.9300E+06	1.9300E+06	1.9300E+06	1996-10-29	CCA
TBM	3506	PU238L	INVCHD	1555	2002-06-18	1762	1.9300E+06	1.9300E+06	1.9300E+06	1.9300E+06	1998-02-16	CCA
TBM	3511	PU238L	INVRHD	1556	2002-06-18	1763	1.0800E+03	1.0800E+03	1.0800E+03	1.0800E+03	1998-02-16	CCA
TBM	3505	PU239L	INVCHD	1557	2002-06-18	1764	1.0128E+06	1.0128E+06	1.0128E+06	1.0128E+06	1998-02-16	CCA
TBM	3510	PU239L	INVRHD	1559	2002-06-18	1765	1.5352E+04	1.5352E+04	1.5352E+04	1.5352E+04	1998-02-16	CCA
TBM	2131	REPOSIT	PRMX_LOG	1563	2002-06-21		-1.2769E+01	-1.2769E+01	-1.2769E+01	-1.2769E+01	1996-02-08	CCA
TBM	2132	REPOSIT	PRMY_LOG	1564	2002-06-21		-1.2769E+01	-1.2769E+01	-1.2769E+01	-1.2769E+01	1996-02-08	CCA
TBM	2133	REPOSIT	PRMZ_LOG	1565	2002-06-21		-1.2769E+01	-1.2769E+01	-1.2769E+01	-1.2769E+01	1996-02-08	CCA
TBM	3402	SOLMOD3	SOLCIM	1029	2002-02-14	1566	6.5200E-08	6.5200E-08	6.5200E-08	6.5200E-08	1996-05-24	CCA
TBM	3402	SOLMOD3	SOLCIM	1566	2002-12-24	1029			1.3800E-08	1.3800E-08	2002-02-14	TBM
TBM	3406	SOLMOD3	SOLSIM	1030	2002-02-14			5.8200E-07	5.8200E-07	5.8200E-07	1996-05-24	CCA
TBM	3403	SOLMOD4	SOLCIM	1031	2002-02-14			6.0000E-09	6.0000E-09	6.0000E-09	1996-04-24	CCA
TBM	3407	SOLMOD4	SOLSIM	1032	2002-02-14			4.4000E-06	4.4000E-06	4.4000E-06	1996-04-24	CCA
TBM	3404	SOLMOD5	SOLCIM	1033	2002-02-14			2.2000E-06	2.2000E-06	2.2000E-06	1996-04-24	CCA
TBM	3408	SOLMOD5	SOLSIM	1034	2002-02-14			2.3000E-06	2.3000E-06	2.3000E-06	1996-04-24	CCA
TBM	2907	STEEL	CORRMCO2	1035	2002-02-14		7.9370E-15	0.0000E+00	7.9370E-15	1.5870E-14	1996-02-08	CCA
TBM	3478	TH+4	MKD_TH	1036	2002-02-14		1.0000E+01	9.0000E-01	1.0000E+01	2.0000E+01	1996-06-12	CCA
TBM	609	TH230	INVCHD	1546	2002-06-12	1729	2.8300E-01	2.8300E-01	2.8300E-01	2.8300E-01	1996-10-29	CCA

Table 3. Section 2. Technical Baseline Migration (TBM) Parameter Changes

TBM	3508	TH230L	INVCHD	1558	2002-06-18	1766	9.5730E+00	9.5730E+00	9.5730E+00	9.5730E+00	1998-02-16	CCA
TBM	3513	TH230L	INVRHD	1560	2002-06-18	1767	7.0520E-01	7.0520E-01	7.0520E-01	7.0520E-01	1998-02-16	CCA
TBM	3479	U+4	MKD_U	1037	2002-02-14		1.0000E+01	1.0000E+01	9.0000E-01	2.0000E+01	1996-06-12	CCA
TBM	3475	U+6	MKD_U	1038	2002-02-14		1.5000E-02	1.5000E-02	3.0000E-05	3.0000E-02	1996-06-12	CCA
TBM	638	U234	INVCHD	1545	2002-06-12	1735	7.0800E+02	7.0800E+02	7.0800E+02	7.0800E+02	1996-10-29	CCA
TBM	3507	U234L	INVCHD	1561	2002-06-18	1768	2.4980E+03	2.4980E+03	2.4980E+03	2.4980E+03	1998-02-16	CCA
TBM	3512	U234L	INVRHD	1562	2002-06-18	1769	2.0090E+02	2.0090E+02	2.0090E+02	2.0090E+02	1998-02-16	CCA
TBM	663	WAS_AREA	PRMX_LOG	1039	2002-03-13		-1.2769E+01	-1.2769E+01	-1.2769E+01	-1.2769E+01	1996-02-08	CCA
TBM	664	WAS_AREA	PRMY_LOG	1040	2002-03-13		-1.2769E+01	-1.2769E+01	-1.2769E+01	-1.2769E+01	1996-02-08	CCA
TBM	665	WAS_AREA	PRMZ_LOG	1041	2002-03-13		-1.2769E+01	-1.2769E+01	-1.2769E+01	-1.2769E+01	1996-02-08	CCA
TBM	3549	WAS_AREA	PTHRESH	1049	2002-04-25			new				
TBM	3548	WAS_AREA	VOLSPALL	1048	2002-04-24			new				
PAD	2734	PAN_SEAL	SAT_IBRN	1548	2002-06-17		1.0000E+00	1.0000E+00	1.0000E+00	1.0000E+00	1996-02-28	CCA
PAD	259	PAN_SEAL	PRMX_LOG	1549	2002-06-17		-1.5000E+01	-1.5000E+01	-1.5000E+01	-1.5000E+01	1996-02-20	CCA
PAD	260	PAN_SEAL	PRMY_LOG	1550	2002-06-17		-1.5000E+01	-1.5000E+01	-1.5000E+01	-1.5000E+01	1996-02-20	CCA
PAD	261	PAN_SEAL	PRMZ_LOG	1551	2002-06-17		-1.5000E+01	-1.5000E+01	-1.5000E+01	-1.5000E+01	1996-02-20	CCA
PAD	256	PAN_SEAL	POROSITY	1552	2002-06-17		7.5000E-02	7.5000E-02	7.5000E-02	7.5000E-02	1995-11-02	CCA

Table 4

Table 4. Data-Base Code Interface Test 1 Results

Analysis	Code	Filename	Material	Property	Value Returned	PAPDB Value
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	SPALLMOD	COHESION	1.400000E+05	1.400000E+05
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	SPALLMOD	FFSTRESS	1.490000E+07	1.490000E+07
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	SPALLMOD	MUDSOLVE	-1.500000E+00	-1.500000E+00
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	SPALLMOD	PIPEROUG	5.000000E-05	5.000000E-05
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	SPALLMOD	REPIPERM	3.966000E-13	2.4E-12 TO 2.4E-14
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	SPALLMOD	TENSLSTR	1.376000E+05	1.2E5 TO 1.7E5
CRA	DRSPALL	LHS3_DRS_CRA1_A1_R001.CDB	DRILLMUD	DNSFLUID	1.210000E+03	1.14E3 TO 1.38E3
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	AM241L	INVCHD	4.590000E+05	4.590000E+05
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	AM243	INVRHD	7.420000E-01	7.420000E+01
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	BOREHOLE	WUF	2.480000E+00	2.480000E+00
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	CM243	INVCHD	1.820000E-01	1.820000E-01
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	NP237	INVCHD	9.250000E+00	9.250000E+00
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	PU238L	INVRHD	2.800000E+03	2.800000E+03
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	PU239	INVRHD	5.370000E+03	5.370000E+03
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	RA226	INVRHD	4.990000E-05	4.990000E-05
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	SOLMOD3	SOLSOH	3.070000E-07	3.070000E-07
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	SOLMOD4	SOLSOC	1.240000E-08	1.240000E-08
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	SOLMOD6	SOLCOC	8.800000E-06	8.800000E-06
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	TH230L	INVCHD	5.420000E+00	5.420000E+00
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	U238	INVCHD	2.440000E+01	2.440000E+01
CRA	PANEL	ALG_PANEL_CRA1_R1_V031.CDB	GLOBAL	OXSTAT	9.244000E-01	0.0E0 TO 1.0E0
CRA	SECO	LHS2_ST2D_CRA1_TRN_A3.OUT (VECTOR 28)	AM+3	MKD_AM	1.006000E-01	2.0E-2 TO 4.0E-1
CRA	SECO	LHS2_ST2D_CRA1_TRN_A3.OUT (VECTOR 28)	PU+3	MKD_PU	4.318000E-02	2.0E-2 TO 4.0E-1
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	BH_OPEN	PC_MAX	1.000000E+08	1.000000E+08
CRA	BRAGFLO	MS_DBR_CRA1_DIR_REL.CDB	BLOWOUT	THCK_CAS	1.258300E+02	1.258300E+02

Table 4. Data-Base Code Interface Test 1 Results

CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	CONC_MON	COMP_RCK	6.000000E-11	6.000000E-11
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	CONC_PCS	COMP_RCK	6.000000E-11	6.000000E-11
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	CULEBRA	PRESSURE	9.141000E+05	9.141000E+05
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	CULEBRA	PRYMY_LOG	-1.311200E+01	-1.311200E+01
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	MAGENTA	PRESSURE	9.465000E+05	9.465000E+05
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	REFCON	BIP_15	0.000000E+00	0.000000E+00
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	REFCON	BIP_34	2.780000E-02	2.780000E-02
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	REFCON	BIP_66	0.000000E+00	0.000000E+00
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	REFCON	VREPOS	4.384060E+05	4.384100E+05
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	**SHFTL-TI**	**PCT_A**	**0.000000E+00**	**5.600000E-01**
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	SHFTL_T1	RELP_MOD	4.000000E+00	4.000000E+00
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	SHFTL_T2	KPT	0.000000E+00	0.000000E+00
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	SHFTU	POROSITY	2.910000E-01	2.910000E-01
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	SHFTU	PRMX_LOG	-2.033000E+01	-2.05E1 TO -1.65E1
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	SHFTU	SAT_RGAS	3.979000E-01	0.0 TO 4.0E-1
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	WAS_AREA	DIRNCCHW	1.700000E+02	1.700000E+02
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	WAS_AREA	DPLASRHW	4.900000E+00	4.900000E+00
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	WAS_AREA	DRUBBCHW	1.400000E+01	1.400000E+01
CRA	BRAGFLO	ALG1_BF_CRA1_R1_V013.CDB	DRZ-PCS	PORE-DIS	7.000000E-01	7.000000E-01
CRA	CCDFGF	CCGF_CRA1_MS.CDB	GLOBAL	LAMBDAD	5.250000E-03	5.250000E-03
CRA	CCDFGF	CCGF_CRA1_MS.CDB	GLOBAL	THREEPLG	2.890000E-01	2.890000E-01
AMW	CUTTINGS	LHS3_CUSP_AMW_A1_R076.CDB	BOREHOLE	DOMEGA	7.599000E+00	4.2E0 TO 2.3E1
AMW	CUTTINGS	LHS3_CUSP_AMW_A1_R076.CDB	BOREHOLE	TAUFAIL	3.326000E+01	5.0E-2 TO 7.7E1
AMW	CUTTINGS	LHS3_CUSP_AMW_A1_R076.CDB	WAS_AREA	PTHRESH	8.000000E+06	8.000000E+06
AMW	CUTTINGS	LHS3_CUSP_AMW_A1_R076.CDB	WAS_AREA	VOLSPALL	9.492000E-01	5.0E-1 TO 4.0E0
AMW	CCDFGF	CCGF_AMW_MS.CDB	BOREHOLE	WUF	2.480000E+00	2.480000E+00
AMW	CCDFGF	CCGF_AMW_MS.CDB	GLOBAL	ONEPLG	1.500000E-02	1.500000E-02

Table 4. Data-Base Code Interface Test 1 Results

AMW	CCDFGF	CCGF_AMW_MS.CDB	REFCON	FVRW	1.000000E+00	1.000000E+00
AMW	SECO	LHS3_STSD_AMW_A1_R047.CDB	PU+3	MKD_PU	3.764000E-02	2.0E-2 TO 4.0E-1
AMW	SECO	LHS3_STSD_AMW_A1_R047.CDB	PU+4	MKD_PU	1.263000E+00	7.0E-1 TO 1.0E1

Table 5

Table 5. Data-Base Code Interface Test 2 Results

Anal-ysis	Code	Library	Filename	Material	Property	Value	PAPDB Values		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	BH_CREEP	PCT_A	0.00000E+00	0.00000E+00		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	BH_OPEN	PO_MIN	1.01325E+05	1.01325E+05		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	BH_SAND	PC_MAX	1.00000E+08	1.00000E+08		
CRA1	BRAGFLO	LIBCRA1_MS	MS_DBR_CRA1_DIR_REL.INP	BLOWOUT	RE_CAST	1.14000E+02	1.14000E+02		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	CASTILER	COMP_RCK	6.26400E-11	2.00000E-11	to	1.00000E-10
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	CAVITY_3	PRESSURE	1.01325E+05	1.01325E+05		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	CELLULS	FBETA	8.96800E-01	0.00000E+00	to	1.00000E+00
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	CULEBRA	RELP_MOD	4.00000E+00	4.00000E+00		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	DRZ_PCS	COMP_RCK	7.41000E-10	7.41000E-10		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	IMPERM_Z	CAP_MOD	1.00000E+00	1.00000E+00		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	OPS_AREA	PORE_DIS	7.00000E-01	7.00000E-01		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	REFCON	ACF_N2	4.50000E-02	4.50000E-02		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	REFCON	BIP_36	0.00000E+00	0.00000E+00		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	REFCON	MW_FE	5.58470E-02	5.58470E-02		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	REFCON	PC_H2S	9.00700E+06	9.00700E+06		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	REFCON	TC_CO2	3.04150E+02	3.04150E+02		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	S_MB139	EXPKLINK	-3.41000E-01	-3.41000E-01		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	S_MB139	PF_DELTA	3.80000E+06	3.80000E+06		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	WAS_AREA	DPLASRHW	4.90000E+00	4.90000E+00		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	WAS_AREA	DPLSCRHW	1.40000E+00	1.40000E+00		
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	WAS_AREA	GRATMICI	4.77141E-10	0.00000E+00	to	1.26840E-09
CRA1	BRAGFLO	LIBCRA1_ALG	ALG1_BF_CRA1_R1_V047.CDB	WAS_AREA	SAT_RBRN	5.10500E-01	0.00000E+00	to	5.52000E-01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	AM241	INVCHD	4.42000E+05	4.42000E+05		
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	AM241	INVRHD	1.58000E+04	1.58000E+04		
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	AM241L	INVCHD	4.59000E+05	4.59000E+05		
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	AM241L	INVRHD	1.66000E+04	1.66000E+04		
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	AM243	INVCHD	2.10000E+01	2.10000E+01		

Table 5. Data-Base Code Interface Test 2 Results

CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	BOREHOLE	WUF	2.48000E+00	2.48000E+00
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CF252	INVCHD	4.64000E-05	4.64000E-05
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CF252	INVRHD	3.95000E-06	3.95000E-06
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM243	INVCHD	1.82000E-01	1.82000E-01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM243	INVRHD	2.25000E-01	2.25000E-01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM244	INVCHD	3.39000E+03	3.39000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM244	INVRHD	7.94000E+01	7.94000E+01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM245	INVCHD	8.59000E-03	8.59000E-03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM245	INVRHD	1.06000E-02	1.06000E-02
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM248	INVCHD	9.14000E-02	9.14000E-02
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CM248	INVRHD	1.83000E-03	1.83000E-03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CS137	INVCHD	4.61000E+03	4.61000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	CS137	INVRHD	1.74000E+05	1.74000E+05
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	NP237	INVRHD	8.22000E-01	8.22000E-01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PA231	INVCHD	1.21000E+00	1.21000E+00
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PA231	INVRHD	6.55000E-04	6.55000E-04
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PB210	INVCHD	4.94000E+00	4.94000E+00
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PB210	INVRHD	1.42000E-05	1.42000E-05
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PM147	INVCHD	3.86000E-04	3.86000E-04
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PM147	INVRHD	7.47000E-02	7.47000E-02
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU238	INVCHD	1.25000E+06	1.25000E+06
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU238	INVRHD	2.80000E+03	2.80000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU238L	INVCHD	1.25000E+06	1.25000E+06
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU239	INVCHD	6.59000E+05	6.59000E+05
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU239L	INVCHD	7.66000E+05	7.66000E+05
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU239L	INVRHD	7.05000E+03	7.05000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU240	INVCHD	1.07000E+05	1.07000E+05
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU240	INVRHD	1.67000E+03	1.67000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU241	INVCHD	5.14000E+05	5.14000E+05

Table 5. Data-Base Code Interface Test 2 Results

CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU241	INVRHD	2.39000E-04	2.39000E+04
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU242	INVCHD	2.66000E-01	2.66000E+01
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU242	INVRHD	4.74000E-01	4.74000E-01
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU244	INVCHD	1.32000E-06	1.32000E-06
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	PU244	INVRHD	1.10000E-03	1.10000E-03
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	RA226	INVCHD	6.28000E+00	6.28000E+00
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	RA228	INVCHD	7.63000E+00	7.63000E+00
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	RA228	INVRHD	2.51000E-01	2.51000E-01
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD3	SOLCOC	1.77000E-07	1.77000E-07
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD3	SOLSOC	3.07000E-07	3.07000E-07
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD3	SOLSOH	3.07000E-07	3.07000E-07
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD4	SOLCOC	5.84000E-09	5.84000E-09
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD4	SOLCOH	2.47000E-08	2.47000E-08
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD4	SOLSOH	1.19000E-08	1.19000E-08
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD5	SOLCOC	2.13000E-05	2.13000E-05
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD5	SOLCOH	5.08000E-06	5.08000E-06
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD5	SOLSOC	9.72000E-07	9.72000E-07
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD5	SOLSOH	1.02000E-06	1.02000E-06
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD6	SOLCOH	8.80000E-06	8.80000E-06
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD6	SOLSOC	8.70000E-06	8.70000E-06
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SOLMOD6	SOLSOH	8.70000E-06	8.70000E-06
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SR90	INVCHD	2.68000E+04	2.68000E+04
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	SR90	INVRHD	1.15000E+05	1.15000E+05
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	TH229	INVCHD	5.25000E+00	5.25000E+00
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	TH229	INVRHD	1.39000E-01	1.39000E-01
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	TH230	INVCHD	1.69000E-01	1.69000E-01
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	TH230	INVRHD	6.67000E-03	6.67000E-03
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	TH232	INVCHD	6.61000E+00	6.61000E+00
CRAI	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	TH232	INVRHD	2.18000E-01	2.18000E-01

Table 5. Data-Base Code Interface Test 2 Results

CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U233	INVCHD	1.24000E+03			1.24000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U233	INVRHD	3.41000E+01			3.41000E+01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U234	INVCHD	2.97000E+02			2.97000E+02
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U234	INVRHD	2.20000E+01			2.20000E+01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U234L	INVCHD	1.54000E+03			1.54000E+03
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U234L	INVRHD	5.61000E+01			5.61000E+01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U235	INVCHD	1.34000E+00			1.34000E+00
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U235	INVRHD	9.42000E-01			9.42000E-01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U236	INVCHD	2.31000E-01			2.31000E-01
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U236	INVRHD	1.42000E+00			1.42000E+00
CRA1	PANEL	LIBCRA1_ALG	ALG_PANEL_CRA1_R1_V008.CDB	U238	INVRHD	1.30000E+02			1.30000E+02
CRA1	CCDFGF	LIBCRA1_MS	CCGF_CRA1_MS.CDB	BRINESAL	DNSFLUID	1.22000E+03			1.22000E+03
CRA1	CCDFGF	LIBCRA1_MS	CCGF_CRA1_MS.CDB	GLOBAL	FPICM	1.00000E+00			1.00000E+00
CRA1	CCDFGF	LIBCRA1_MS	CCGF_CRA1_MS.CDB	GLOBAL	LAMBDAD	5.25000E-03			5.25000E-03
CRA1	CCDFGF	LIBCRA1_MS	CCGF_CRA1_MS.CDB	GLOBAL	TWOPLG	6.96000E-01			6.96000E-01
CRA1	SECOTP2D	LIBCRA1_LHS	LHS2_ST2D_CRA1_TRN_A2.OUT (vector 16)	AM+3	MKD_AM	1.455E-01	2.00000E-02	to	4.00000E-01
CRA1	SECOTP2D	LIBCRA1_LHS	LHS2_ST2D_CRA1_TRN_A2.OUT (vector 16)	CULEBRA	APOROS	9.075E-04	1.00000E-04	to	1.00000E-02
CRA1	SECOTP2D	LIBCRA1_REL	REL_ST2D_CRA1_R2_V016.CDB	CULEBRA	FTORT	1.00000E+00			1.00000E+00
CRA1	SECOTP2D	LIBCRA1_LHS	LHS2_ST2D_CRA1_TRN_A2.OUT (vector 16)	PU+3	MKD_PU	8.985E-02	2.00000E-02	to	4.00000E-01
CRA1	SECOTP2D	LIBCRA1_LHS	LHS2_ST2D_CRA1_TRN_A2.OUT (vector 16)	U+6	MKD_U	3.909E-04	7.00000E-01	to	1.00000E+01
CRA1	CUTTINGS	LIBCRA1_LHS	LHS3_CRA1_CUSP_A3_R063.CDB	BOREHOLE	DIAMMOD	3.11150E-01			3.11150E-01
CRA1	CUTTINGS	LIBCRA1_LHS	LHS3_CRA1_CUSP_A3_R063.CDB	DRILLMUD	VISCO	9.17000E-03	5.00000E-03	to	3.00000E-02
CRA1	CUTTINGS	LIBCRA1_LHS	LHS3_CRA1_CUSP_A3_R063.CDB	WAS_AREA	PTHRESH	8.00000E+06			8.00000E+06
CRA1		LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	AM+3	MKD_AM	3.05200E-02	2.00000E-02	to	4.00000E-01
CRA1	LHS	LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	BOREHOLE	TAUFAIL	6.69300E-01	5.00000E-02	to	7.70000E+01
CRA1	LHS	LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	CONC_PLG	PRMX_LOG	-1.88000E+01	-1.90000E+01	to	-1.70000E+01
CRA1	LHS	LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	S_MB139	COMP_RCK	1.00000E-10	1.09000E-11	to	2.75000E-10

Table 5. Data-Base Code Interface Test 2 Results

CRA1	LHS	LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	SOLTH4	SOLCIM	-2.37600E-01	-2.00000E+00	to	1.40000E+00
CRA1	LHS	LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	SOLU4	SOLSIM	-5.45600E-02	-2.00000E+00	to	1.40000E+00
CRA1	LHS	LIBCRA1_LHS	LHS2_CRA1_TRN_A2.OUT (vector 72)	SOLU6	SOLSIM	-6.54600E-01	-2.00000E+00	to	1.40000E+00
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	BLOWOUT	RGAS	4.11600E+03	4.11600E+03		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	CHARLEN	2.00000E-02			
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	COHESION	1.40000E+05	1.40000E+05		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	DDZPERM	1.00000E-14	1.00000E-14		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	DRZTCK	8.50000E-01	8.50000E-01		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	EXITPDIA	2.03200E-01			
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	EXITPLEN	0.00000E+00			
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	FFSTRESS	1.49000E+07	1.49000E+07		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	FRCHBETA	1.15000E-06	1.15000E-06		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	INITBAR	1.50000E-01			
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	MAXPPRES	2.75000E+07			
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	MUDPRATE	2.01810E-02	2.01810E-02		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	PIPEID	9.71800E-02	9.71800E-02		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	POISRAT	3.80000E-01	3.80000E-01		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	REFPRS	1.01770E+05	1.01770E+05		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	REPIPERM	2.40000E-13	2.40000E-14	to	2.40000E-12
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	REPOSTCK	0.00000E+00	0.00000E+00		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	REPOTRAD	1.92000E+01	1.92000E+01		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	SALTDENS	2.18000E+03	2.18000E+03		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	SHAPEFAC	1.00000E-01	1.00000E-01		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	STPDTIME	1.00000E+03			
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	SURFELEV	1.03730E+03	1.03730E+03		
CRA1	DRSPALL	LIBCRA1_DRS	MS_DRS_CRA1_R1.CDB	SPALLMOD	TENSLSTR	1.45000E+05	1.20000E+05	to	1.70000E+05
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	AM+3	MKD_AM	3.88600E-02	2.00000E-02	to	4.00000E-01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	BH_SAND	POROSITY	3.20000E-01	3.20000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	CASTILER	PCT_A	5.60000E-01	5.60000E-01		

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Table 5. Data-Base Code Interface Test 2 Results

AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	CAVITY_4	PRMX_LOG	-1.00000E+01	-1.00000E+01	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	CONC_PLG	COMP_RCK	3.80000E-10	3.80000E-10	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	CULEBRA	PRMX_LOG	-1.31120E+01	-1.31120E+01	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	CULEBRA	PRMZ_LOG	-1.31120E+01	-1.31120E+01	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	DEWYLAKE	CAP_MOD	2.00000E+00	2.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	DRZ_1	COMP_RCK	7.41000E-10	7.41000E-10	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	MAGENTA	PORE_DIS	6.43600E-01	6.43600E-01	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	OPS_AREA	PO_MIN	1.01325E+05	1.01325E+05	
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	PU+3	MKD_PU	2.65600E-02	2.00000E-02 to	4.00000E-01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_11	0.00000E+00	0.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_12	-3.42600E-01	-3.42600E-01	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_13	-2.22000E-02	-2.22000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_14	9.78000E-02	9.78000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_16	0.00000E+00	0.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_21	-3.42600E-01	-3.42600E-01	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_22	0.00000E+00	0.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_23	9.33000E-02	9.33000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_24	-3.15000E-02	-3.15000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_25	9.89000E-02	9.89000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_26	0.00000E+00	0.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_31	-2.22000E-02	-2.22000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_32	9.33000E-02	9.33000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_33	0.00000E+00	0.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_35	8.50000E-02	8.50000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_36	0.00000E+00	0.00000E+00	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_41	9.78000E-02	9.78000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_42	-3.15000E-02	-3.15000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_43	2.78000E-02	2.78000E-02	
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_44	0.00000E+00	0.00000E+00	

Table 5. Data-Base Code Interface Test 2 Results

AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB				
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_45	1.69600E-01	1.69600E-01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_46	-7.80000E-03	-7.80000E-03
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_51	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_52	9.89000E-02	9.89000E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_53	8.50000E-02	8.50000E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_54	1.69600E-01	1.69600E-01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_55	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_56	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_61	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_62	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_63	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_64	-7.80000E-03	-7.80000E-03
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	BIP_65	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_CELL	2.70230E-02	2.70230E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_CH4	1.60428E-02	1.60428E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_CO2	4.40098E-02	4.40098E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_FE	5.58470E-02	5.58470E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_H2	2.01588E-03	2.01588E-03
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_H2O	1.80153E-02	1.80153E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_H2S	3.40819E-02	3.40819E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_N2	2.80135E-02	2.80135E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_NACL	5.84425E-02	5.84425E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	REFCON	MW_O2	3.19988E-02	3.19988E-02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	S_MB138	PC_MAX	1.00000E+08	1.00000E+08
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	COMP_POR	4.28000E-09	4.28000E-09
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	KPT	0.00000E+00	0.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	PC_MAX	1.00000E+08	1.00000E+08
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	PCT_EXP	-3.46000E-01	-3.46000E-01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	PO_MIN	1.01000E+05	1.01000E+05

Table 5. Data-Base Code Interface Test 2 Results

AMW	LHS								
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	POROSITY	1.13000E-01	1.13000E-01		
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	SHFTL_T1	PRMX_LOG	-1.79200E+01	-2.25000E+01	to	-1.80000E+01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T1	SAT_IBRN	5.34000E-01	5.34000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	COMP_POR	4.28000E-09	4.28000E-09		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	PC_MAX	1.00000E+08	1.00000E+08		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	PCT_A	5.60000E-01	5.60000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	PCT_EXP	-3.46000E-01	-3.46000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	PO_MIN	1.01000E+05	1.01000E+05		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	POROSITY	1.13000E-01	1.13000E-01		
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	SHFTL_T2	PRMX_LOG	-2.08000E+01	-2.25000E+01	to	-1.80000E+01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	RELP_MOD	4.00000E+00	4.00000E+00		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTL_T2	SAT_IBRN	5.34000E-01	5.34000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	COMP_POR	2.05000E-08	2.05000E-08		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	KPT	0.00000E+00	0.00000E+00		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	PC_MAX	1.00000E+08	1.00000E+08		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	PCT_A	5.60000E-01	5.60000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	PCT_EXP	-3.46000E-01	-3.46000E-01		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	PO_MIN	1.01000E+05	1.01000E+05		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	RELP_MOD	4.00000E+00	4.00000E+00		
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SHFTU	SAT_IBRN	7.96000E-01	7.96000E-01		
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	SHFTU	SAT_RBRN	3.85800E-01	0.00000E+00	to	6.00000E-01
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	SOLTH4	SOLCIM	5.78200E-01	-2.00000E+00	to	1.40000E+00
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	SOLU4	SOLSIM	-3.65000E-01	-2.00000E+00	to	1.40000E+00
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	SOLU6	SOLSIM	2.02000E-01	-2.00000E+00	to	1.40000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	SULFATE	QINIT	6.59000E+06	6.59000E+06		
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	WAS_AMW	CLOSMOD1	3.00000E+00	1.00000E+00	to	4.00000E+00
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	WAS_AMW	CLOSMOD2	2.00000E+00	1.00000E+00	to	2.00000E+00
AMW	LHS	LIBAMW_LHS	LHS2_AMW_TRN_A1.OUT (vector 1)	WAS_AMW	FRACAMW	3.43500E-01	2.00000E-01	to	1.00000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DCELLCHW	5.80000E+01	5.80000E+01		

Table 5. Data-Base Code Interface Test 2 Results

						Value 1	Value 2
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DCELLRHW	4.50000E+00	4.50000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DIRNCRHW	4.80000E+02	4.80000E+02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DIRONCHW	1.10000E+02	1.10000E+02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DIRONRHW	1.10000E+02	1.10000E+02
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DPLASCHW	4.20000E+01	4.20000E+01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DPLSCCHW	1.60000E+01	1.60000E+01
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DPLSCRHW	1.40000E+00	1.40000E+00
AMW	LHS	LIBAMWV_MS	MS_BF_AMWV_POR.CDB	WAS_AREA	DRUBBRHW	3.10000E+00	3.10000E+00
AMW	CUTTINGS	LIBAMW_LHS	LHS3_CUSP_AMW_A1_R001.CDB	BLOWOUT	PARTDIA	2.80000E-03	4.00000E-05 to 2.00000E-01
AMW	CUTTINGS	LIBAMW_LHS	LHS3_CUSP_AMW_A1_R001.CDB	DRILLMUD	YLDSTRSS	4.40000E+00	2.40000E+00 to 1.92000E+01
AMW	CUTTINGS	LIBAMW_LHS	LHS3_CUSP_AMW_A1_R001.CDB	WAS_AREA	VOLSPALL	8.50500E-01	5.00000E-01 to 4.00000E+00
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	BOREHOLE	WUF	2.48000E+00	2.48000E+00
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	GLOBAL	LAMBDAD	5.25000E-03	5.25000E-03
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	GLOBAL	ONEPLG	1.50000E-02	1.50000E-02
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	GLOBAL	TPICM	6.00000E+02	6.00000E+02
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	REFCON	FVRW	1.00000E+00	1.00000E+00
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	REFCON	GRAVACC	9.80665E+00	9.80665E+00
AMW	CCDFGF	LIBAMW_MS	CCGF_AMW_MS.CDB	U234	HALFLIFE	7.71600E+12	7.71600E+12
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	DRZ_PCS	KPT	0.00000E+00	0.00000E+00
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	BH_CREEP	PRMX_LOG	-1.35000E+01	-1.50000E+01 to -1.20000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	REFCON	VREPOS	4.36023E+05	4.38406E+05 to 4.36023E+05
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	COMP_POR	COMP_POR	4.28000E-09	4.28000E-09
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T1	KPT	0.00000E+00	0.00000E+00
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T1	PC_MAX	1.00000E+08	1.00000E+08
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T1	PCT_A	5.60000E-01	5.60000E-01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T1	PCT_EXP	-3.46000E-01	-3.46000E-01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T1	PRMX_LOG	-1.82000E+01	-2.25000E+01 to -1.80000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T2	KPT	0.00000E+00	0.00000E+00
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T2	PC_MAX	1.00000E+08	1.00000E+08

Table 5. Data-Base Code Interface Test 2 Results

AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T2	POROSITY	1.13000E-01	1.13000E-01	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T2	RELP_MOD	4.00000E+00	4.00000E+00	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTL_T2	SAT_IBRN	5.34000E-01	5.34000E-01	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTU	COMP_POR	2.05000E-08	2.05000E-08	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTU	PRMX_LOG	-1.83000E+01	-2.05000E+01	to -1.65000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTU	SAT_IBRN	7.96000E-01	7.96000E-01	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTU	SAT_RGAS	2.00000E-01	0.00000E+00	to 4.00000E-01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTU	PO_MIN	1.01000E+05	1.01000E+05	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	SHFTU	PCT_A	5.60000E-01	5.60000E-01	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	DRZ_PCS	SAT_RBRN	0.00000E+00	0.00000E+00	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_PCS	PCT_EXP	-3.46000E-01	-3.46000E-01	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_MON	COMP_RCK	1.20000E-09	6.00000E-11	to 1.20000E-09
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_PCS	COMP_RCK	1.20000E-09	6.00000E-11	to 1.20000E-09
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_PLG	COMP_RCK	1.20000E-09	3.80000E-10	to 1.20000E-09
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CULEBRA	PRESSURE	8.22000E+05	9.14100E+05	to 8.22000E+05
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CULEBRA	PRMX_LOG	-1.36780E+01	-1.31120E+01	to -1.36780E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CULEBRA	PRMY_LOG	-1.36780E+01	-1.31120E+01	to -1.36780E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CULEBRA	PRMZ_LOG	-1.36780E+01	-1.31120E+01	to -1.36780E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	MAGENTA	PRESSURE	9.17000E+05	9.46500E+05	to 9.17000E+05
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	WAS_AREA	DCELLCHW	5.40000E+01	5.80000E+01	to 5.40000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	WAS_AREA	DIRNCCHW	1.39000E+02	1.70000E+02	to 1.39000E+02
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	WAS_AREA	DIRONRHW	1.00000E+02	1.10000E+02	to 1.00000E+02
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	WAS_AREA	DPLASRHW	1.50000E+01	4.90000E+00	to 1.50000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	WAS_AREA	DPLSCCHW	2.60000E+01	2.10000E+01	to 2.60000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	WAS_AREA	DRUBBCHW	1.00000E+01	1.40000E+01	to 1.00000E+01
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	STEEL	CORRMCO2	1.58500E-14	0.00000E+00	to 3.17000E-14
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_PCS	PC_MAX	1.00000E+08	1.00000E+08	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_PCS	POROSITY	5.00000E-02	5.00000E-02	
AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	CONC_PLG	PRMZ_LOG	-1.80000E+01	-1.90000E+01	to -1.70000E+01

Table 5. Data-Base Code Interface Test 2 Results

AP106	BRAGFLO	LIB_AP106_P1_S0	AP106_P1_S0_BF_MS.CDB	DRZ_PCS	PRMY_LOG	-1.87496E+01	-2.06990E+01	to	-1.70000E+01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	SHFTL_T1	PRMX_LOG	-1.80400E+01	-2.25000E+01	to	-1.80000E+01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	SHFTL_T2	PRMX_LOG	-1.86000E+01	-2.25000E+01	to	-1.80000E+01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	SHFTU	PRMX_LOG	-1.86600E+01	-2.05000E+01	to	-1.65000E+01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	SHFTU	SAT_RBRN	1.88900E-02	0.00000E+00	to	6.00000E-01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	SHFTU	SAT_RGAS	9.05400E-02	0.00000E+00	to	4.00000E-01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	DRZ_PCS	PRMX_LOG	-1.92700E+01	-2.06990E+01	to	-1.70000E+01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	AM+3	MKD_AM	5.06500E-02	2.00000E-02	to	4.00000E-01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	PU+3	MKD_PU	2.20000E-01	2.00000E-02	to	4.00000E-01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	CASTILER	COMP_RCK	5.67000E-11	2.00000E-11	to	1.00000E-10
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	BOREHOLE	TAUFAIL	4.29000E+01	5.00000E-02	to	7.70000E+01
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	CONC_PCS	PORE_DIS	6.93400E+00	1.10000E-01	to	8.10000E+00
AP106	LHS	LIB_AP106_LHS	AP106_P1_S0_LHS_LHS2.OUT (VECTOR 8)	CONC_PCS	SAT_RGAS	3.30400E-01	0.00000E+00	to	4.00000E-01

* Value not retrieved from PAPDB
** 1st value used in CRA1, 2nd value used in AP 106.

Table 6

Table 6. Parameters Used in BRAGFLO That Differ from the PAPDB

Material	Property	BRAG-FLO Value	PAPDB Value	Reference/ Comment
DRZ_PCS	RELP_MOD	4.00E+00	0.00E+00	Assigned value for DRZ_1: RELP_MOD, (SNL, 2004t)
REPOSIT	DCELLCHW	5.80E+01	5.40E+01	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DCELLRHW	4.50E+00	1.70E+01	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DIRNCCHW	1.70E+02	1.39E+02	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DIRNCRHW	4.8E+02	2.59E+03	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DIRONCHW	1.10E+02	1.70E+02	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DIRONRHW	1.10E+02	1.70E+02	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DPLASCHW	4.20E+02	3.4E+01	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DPLASCCHW	1.60E+01	2.6E+01	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DRUBBCHW	1.40E+01	1.00+01	Reassigned in Algebra to equal values for WAS_AREA
REPOSIT	DRUBBRHW	3.10E+00	3.30E+00	Reassigned in Algebra to equal values for WAS_AREA
SHFTL_T1	PCT_A	0.00+00	5.60E-01	Reassigned in Algebra per SNL 2003u
SHFTL_T1	PCT_EXP	0.00E+00	-3.46E-01	Reassigned in Algebra per SNL 2003u
SHFTL_T1	SAT_IBRN	9.99E-01	5.34E-01	Reassigned in Algebra per SNL 2003u
SHFTL_T2	PCT_A	0.00E+00	5.60E-01	Reassigned in Algebra per SNL 2003u
SHFTL_T2	PCT_EXP	0.00E+00	-3.46E-01	Reassigned in Algebra per SNL 2003u

SHFTL_T2	SAT_IBRN	9.99E-01	5.34E-01	Reassigned in Algebra per SNL 2003u
SHFTU	PCT_A	0.00E+00	5.60E-01	Reassigned in Algebra per SNL 2003u
SHFTU	PCT_EXP	0.00E+00	-3.46E-01	Reassigned in Algebra per SNL 2003u
SHFTU	SAT_IBRN	9.99E-01	7.90E-01	Reassigned in Algebra per SNL 2003u

Table 7

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

Code	Material/Parameter Name	Property	Doc OK?	Add to PAPDB	Comments
MODFLOW/PEST	WELL ID	Coordinates	YES	if feasible	OR develop alternative database system to provide parameter identification and documenation traceability; defined in analysis plans (Leigh et al., 2003 and Beauheim, 2002b) and the associated task reports
		Elevation	YES	if feasible	same as above
		Transmissivity	YES	if feasible	same as above
		Salado Dissolution	YES	if feasible	same as above
		Culebra Depth	YES	if feasible	same as above
		Depth to Middle of Culebra	YES	if feasible	same as above
		Water Level	YES	if feasible	same as above
		Fluid Density	YES	if feasible	same as above
		Freshwater Head	YES	if feasible	same as above
DRSPALL	GRID	Coordinates	YES	NO	Defined in analysis plans (Leigh et al, 2003; Beauheim, 2002b) and the associated task reports
	SPALLMOD	CHARLEN	YES	YES	
		INITBAR	YES	YES	
		EXITPLEN	YES	YES	
		EXITDIAM	YES	YES	
		MAXPRESS	YES	YES	
		STPDTIME	YES	YES	
BRAGFLO	GRID	Coordinates	YES	NO	Defined in Stein (2003c); Stein and Zelinkski (2003a, 2003b); Caporuscio et al. (2003)
	DRF_PCS	PRMX_LOG	YES	YES	set = WAS_AREA in PAPDB; Hadgu, (2002); Hadgu et al. (2003); Stein and Zelinksi (2003b). Material should be added to database for future PAs

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

	PRMY_LOG	YES	YES	Same as above
	PRMZ_LOG	YES	YES	Same as above
	POROSITY	YES	YES	Same as above
	PORE_DIS	YES	YES	Same as above
	SAT_RGAS	YES	YES	Same as above
	SAT_RBRN	YES	YES	Same as above
	COMP_RCK	YES	YES	Same as above
	CAP_MOD	YES	YES	Same as above
	RELP_MOD	YES	YES	Same as above
	PC_MAX	YES	YES	Same as above
	PO_MIN	YES	YES	Same as above
	PCT_A	YES	YES	Same as above
	PCT_EXP	YES	YES	Same as above
	KPT	YES	YES	Same as above
SHFTU	CAP_MOD	YES	YES	Flag is set in Algebra to 1; to be consistent with other parameters, should be added to database for future performance assessments
SHFTL_T1	CAP_MOD	YES	YES	Same as above
SHFTL_T2	CAP_MOD	YES	YES	Same as above
SALADO	DIP1	YES	YES	In Caporuscio et al (2003)
	DIP2	YES	YES	In Caporuscio et al (2003)
GRID DBR	Coordinates	YES	NO	In DBR Analysis Plan (Stein, 2003d) and Analysis Package (Stein, 2003e)
WAS-AREA	HEIGHT	YES	NO	DBR analysis, derived from 10,000 year BRAGFLO and CUTTINGS-S output (Stein, 2003e; Hadgu et al, 2003; Stein, 2003d)
	PRESPAN1	YES	NO	Same as above

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

	GPRSPAN1	YES	NO	Same as above
	BSATPAN1	YES	NO	Same as above
	GSATPAN1	YES	NO	Same as above
	PRESPAN2	YES	NO	Same as above
	GPRESPAN2	YES	NO	Same as above
	GSATPAN2	YES	NO	Same as above
	PRESPAN3	YES	NO	same as above
	GPRESPAN3	YES	NO	same as above
	BSATPAN3	YES	NO	same as above
	GSATPAN3	YES	NO	same as above
DRZ_CONC	PERM_X	YES	NO	DBR Analysis, Set = to combination of DRZ_1 and CONC_PCS (DBR Analysis) (Stein 2003e; Hedgu, 2002; Hedgu et al, 2003) Material should be added to database for future performance assessments, this parameter is calculated value from input from CUTTINGS_S/10,000 year BRAGFLO analyses..
	PERM_Y	YES	NO	Same as above
	PERM_Z	YES	NO	Same as above
	POROSITY	YES	NO	Same as above
	PORE_DIS	YES	YES	DBR Analysis, Set = to combination of DRZ_1 and CONC_PCS (DBR Analysis) (Stein 2003e; Hedgu, 2002; Hedgu et al, 2003) Material should be added to database for future performance assessments
	SAT_RGAS	YES	YES	Same as above
	SAT_RBRN	YES	YES	Same as above
	COMP_RCK	YES	YES	Same as above
	CAP_MOD	YES	YES	Same as above
	RELP_MOD	YES	YES	Same as above

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

	Parameter			Description
	PC_MAX	YES	YES	Same as above
	PO_MIN	YES	YES	Same as above
	PCT_A	YES	YES	Same as above
	PCT_EXP	YES	YES	Same as above
	KPT	YES	YES	Same as above
	HEIGHT	YES	NO	DBR Analysis, Set = to combination of DRZ_1 and CONC_PCS (DBR Analysis) (Stein 2003e; Hedgu, 2002; Hedgu et al, 2003) Material should be added to database for future performance assessments, this parameter is calculated value from input from CUTTINGS_S/10,000 year BRAGFLO analyses..
	PERMBRX	YES	NO	Same as above
	PRO_INTR	YES	NO	Same as above
PAN_SL2	PRMX_LOG	YES	NO	DBR Analysis; Set = to CONC_PCS (in PAPDB); Material should be added to database for future performance assessments, this parameter is calculated value from input from CUTTINGS_S/10,000 year BRAGFLO analyses..
	PRMY_LOG	YES	NO	Same as above
	PRMZ_LOG	YES	NO	Same as above
	POROSITY	YES	NO	Same as above
	PORE_DIS	YES	YES	DBR Analysis; Set = to CONC_PCS (in PAPDB); Material should be added to database for future performance assessments Same as above
	SAT_RGAS	YES	YES	Same as above
	SAT_RBRN	YES	YES	Same as above
	COMP_RCK	YES	YES	Same as above
	CAP_MOD	YES	YES	Same as above
	RELP_MOD	YES	YES	Same as above

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

	Parameter			Description
	PC_MAX	YES	YES	Same as above
	PO_MIN	YES	YES	Same as above
	PCT_A	YES	YES	Same as above
	PCT_EXP	YES	YES	Same as above
	KPT	YES	YES	Same as above
	HEIGHT	YES	NO	DBR Analysis; Set = to CONC_PCS (in PAPDB); Material should be added to database for future performance assessments, this parameter is calculated value from input from CUTTINGS_S/10,000 year BRAGFLO analyses.
	SAT_IBRN	YES	YES	DBR Analysis; Set = to CONC_PCS (in PAPDB); Material should be added to database for future performance assessments Same as above
	PERMBRX	YES	NO	DBR Analysis; Set = to CONC_PCS (in PAPDB); Material should be added to database for future performance assessments, this parameter is calculated value from input from CUTTINGS_S/10,000 year BRAGFLO analyses.
	POR_INTR	YES	NO	Same as above
WELLBORE	INTR_TIME	YES	NO	DBR analysis, Stein (2003d; 2003e); values either from CUTTINGS_S output or derived in analysis package. Material and properties should be explicitly defined in future DBR analysis plans.
	BITSIZE	YES	NO	Assigned values in ALGEBRA files from CUTTINGS_S output files.
	SKIN	YES	NO	Defined in DBR analysis package (Stein, 2003e) and calculated in ALGEBRA files.
	WELLPI	YES	NO	Same as above.
	DRAINRAD	YES	NO	Same as above.
	PRM_OPEN	YES	NO	Assigned values in ALGEBRA files = BH_OPEN which is in PAPDB.

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

Group	Parameter			Description
	PRM_SAND	YES	NO	Assigned values in ALGEBRA files = BH_SAND which is in PAPDB.
	PRM_CREP	YES	NO	Assigned values in ALGEBRA files = BH_CREEP which is in PAPDB
	AREA_TOT	YES	NO	Defined in analysis package, Stein (2003e); calculated from other parameters
	VOLU_TOT	YES	NO	Defined in analysis package, Stein (2003e); value set by output from CUTTINGS_S or output from DRSPALL; Analysis package sets value max at 4 m^3
	CAST_RE	YES	NO	DBR analysis, derived from 10,000 year BRAGFLO and CUTTINGS-S output in ALGEBRA files.
	CAST_WB	YES	NO	Same as above
	WELL_PAN	YES	NO	Same as above
DRZ_1	PERMBRX	YES	NO	Same as above
	POR_INTR	YES	NO	Same as above
	HEIGHT	YES	NO	Same as above
S_HALITE	HEIGHT	YES	NO	Same as above
	REFCON	YES	YES	DBR Analysis, defined in ALGEBRA file; same as that used in CCA. Should be added to PAPDB for future performance assessments.
MATL NAME	FBHP	YES	NO	DBR Analysis, defined/calculated in Algebra file; SNL, (1999); Hadgu et al. (2003)
MATL NAME	D1	YES	YES	DBR Analysis, defined in Hadgu et al (2003) and used in calculating permeabilities; should be added to PAPDB for future performance assessments.
MATL NAME	D2	YES	YES	Same as above
MATL NAME	DE	YES	YES	Same as above
HYDROGEN	H2_MOLE	YES	YES	Values/parameter defined in PREBRAG User's Manual (Stein, 2003b), should be included in PAPDB for future performance assessments.

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

	CARBON DIOXIDE	CO2_MOLE	YES	YES	Same as above
	NITROGEN	N2_MOLE	YES	YES	Same as above
	HYDROGEN SULFIDE	H2S_MOLE	YES	YES	Same as above
	OXYGEN	O2_MOLE	YES	YES	Same as above
	METHANE	CH4_MOLE	YES	YES	Same as above
SECOTP2D	REFCON	ACTCONST	YES	YES	Documented in SNL (1992; 1996e), should be added to PAPDB for future performance assessments.
CCDFGF	AM241	WS-aCH_INV	YES	YES	Documented in SNL (2003l; 2003o), should be added to PAPDB for future performance assessments.
		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	AM241	WSRH_INV	YES	YES	Same as above
	CM244	WS-aCH_INV	YES	YES	Same as above
		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	CM244	WSRH_INV	YES	YES	Same as above
	PU238	WS-aCH_INV	YES	YES	Same as above
		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	PU238	WSRH_INV	YES	YES	Same as above
	PU239	WS-aCH_INV	YES	YES	Same as above
		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	PU239	WSRH_INV	YES	YES	Same as above
	PU240	WS-aCH_INV	YES	YES	Same as above

Table 7. Parameters in CRA PA Input Files that are not in the PAPDB

		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	PU240	WSRH_INV	YES	YES	Same as above
	PU241	WS-aCH_INV	YES	YES	Same as above
		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	PU241	WSRH_INV	YES	YES	Same as above
	U234	WS-aCH_INV	YES	YES	Same as above
		WS-bCH_INV	YES	YES	Same as above
		etc for all Waste Streams	YES	YES	Same as above
	U234	WSRH_INV	YES	YES	Same as above
	CS137	WSRH_INV	YES	YES	Same as above
	SR90	WSRH_INV	YES	YES	Same as above
	U233	WSRH_INV	YES	YES	Same as above
	CH	VOL	YES	YES	Same as above
	RH	VOL	YES	YES	Same as above
FMT	Thermodynamic Data		YES	NO	Documented in SNL (2003b).

7.0 REFERENCES

Beauheim, R., 2002a: *Routine Calculations Report in Support of Task 3 of AP-088, Calculation of Culebra Freshwater Heads in 1980, 1990, and 2000 for Use in T-Field Calibration.* ERMS# 522580, Sandia National Lab, Carlsbad, NM.

Beauheim, R., 2002b: *SNL WIPP Analysis Plan for the Evaluation of the Effects of Head Changes on Calibration of Culebra Transmissivity Fields, AP-088, Rev. 1.* ERMS# 524785, Sandia National Lab, Carlsbad, NM..

Beauheim, R., 2003: *Records Package for AP-088 Task 4, Conditioning of Base T Fields to Transient Heads: Compilation and Reduction of Transient Head Data.* ERMS# 527572, Sandia National Lab, Carlsbad, NM..

Brush, L., 2003: *Calculation of Actinide Solubilities for the WIPP Compliance Recertification Application, Analysis Plan AP-098, Rev. 1.* ERMS# 527714, Sandia National Lab, Carlsbad, NM..

Brush, L., and Y Xiong, 2003: *Calculation of Actinide Solubilities for the WIPP CRA, BOE 1.3.5.1.2.* ERMS# 529131, Sandia National Lab, Carlsbad, NM..

Caporuscio, F., Gibbons, J., and E. Oswald, 2003: *SNL WIPP Salado Flow Conceptual Models Final Peer Review Report.* ERMS# 526879, Sandia National Lab, Carlsbad, NM..

CRA Monitoring Data, Vol 1. ERMS# 527192, Sandia National Lab, Carlsbad, NM..

Downs, P.S., and C. D. Leigh, 2003: *Analysis Plan (AP-097) for Deriving Radionuclide Inventory Information for PA Calculations: CRA, Task 1.3.5.1.2.1, Rev. 0,* http://www.nwmp.sandia.gov/onlinedocuments/wipp/ap/apo97.pdf , Sandia National Lab, Carlsbad, NM.

EPA, 2003: *Review of WIPP Performance Assessment Parameter Database Migration, Final Report, April, 2003.* EPA Docket II-B3-51. USA EPA, Washington, DC.

Downs, P.S., and D. Guerin, 2003: *Analysis Plan (AP-092) for Transuranic Waste Inventory Update Report, Rev. 2, 2003, Task No. 1.3.5.1.3.1,* http://www.nwmp.sandia.gov/onlinedocuments/wipp/ap/apo92.pdf

Fox, B., 2003: *Calculation of Decayed Radionuclide Inventories for the CRA, Supercedes ERMS# 528748.* ERMS# 530992, Sandia

National Lab, Carlsbad, NM..

Garner, J., 2003a: *WIPP PA User's Manual for PANEL, Version 4.02.* ERMS# 526652, Sandia National Lab, Carlsbad, NM.

Garner, J., 2003b: *SNL WIPP Analysis Package for PANEL: Compliance Recertification Application.* ERMS# 530165, Sandia National Lab, Carlsbad, NM.

Hadgu, T. 2002: *Analysis Plan for the Analysis of Direct Releases Part of TBM, AP-085,* ERMS # 522634, Sandia National Lab., Carlsbad, NM.

Hadgu, T., B.Y. Park and P. Vaughn. 2003. *Analysis of DBR Calculations for the TBM.* ERMS # 528770, Sandia National Lab., Carlsbad, NM.

Hansen, C., 2002: *A Reconciliation of the CCA and PAVT Parameter Baselines, Rev. 2.* ERMS# 524694, Sandia National Lab, Carlsbad, NM.

Hansen, C., 2003: *WIPP PA User's Manual for CUTTINGS_S, Version 5.10.* ERMS# 532340, Sandia National Lab, Carlsbad, NM.

Hansen, C., and C. Leigh, 2002: *A Reconciliation of the CCA and PAVT Parameter Baselines, Rev. 1.* ERMS# 522337, Sandia National Lab, Carlsbad, NM.

Hansen, F., T. Pfeifle, and D. Lord, 2003: *Parameter Justification Report for DRSPALL, SAND2003-2930.* ERMS# 531057, Sandia National Lab, Carlsbad, NM.

Hobart, D. E. And R.C. Moore. 1996. *Analysis of Uranium (VI) Solubility Data for WIPP Performance Assessment* (unpub. rpt), ERMS # 239856. Sandia National Lab., Carlsbad, NM.

Holt, R., and L. Yarbrough, 2002: *Analysis Report Task 2 of AP-088, Estimating Base Transmissivity Fields.* ERMS# 523889, Sandia National Lab, Carlsbad, NM..

Holt, R., and L. Yarbrough, 2003: *Addendum 2 to Analysis Report Task 2 of AP-088, Estimating Base Transmissivity Fields.* ERMS# 529416, Sandia National Lab, Carlsbad, NM.

James, S., and J. Stein, 2003: *Analysis Report for Development of a Simplified Shaft Seal Model for WIPP PA.* ERMS# 525203,

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Sandia National Lab, Carlsbad, NM.

Kessel, D.S. 2004. *Response to 031604 ParamRevActions Needed by DOE*, email dtd 3/16/04, Memo to Tom Peak and Chuck Byrum (EPA), ERMS# 534575. Sandia National Lab., Carlsbad, NM.

Leigh, C., 2003a: *SNL WIPP Analysis Plan for Compliance Assessment Recertification Application Performance Assessment Calculations, AP-105, Rev. 0.* ERMS# 525252, Sandia National Lab, Carlsbad, NM..

Leigh, C., 2003b: *Calculation of Decayed Radionuclide Inventories for the CRA.* ERMS# 528748, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003c: *Calculation of Radionuclide Inventories for Use in PANEL in the CRA.* ERMS# 529130, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003d: *Calculation of the Waste Unit Factor in the CRA.* ERMS# 529148, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003e: *Calculation of Radionuclide Inventories for Use in NUTS in the CRA.* ERMS# 529289, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003f: *Calculation of Waste Stream Volumes, Waste and Container Material Densities, and Radionuclide Concentrations for Non-Debris AMWTF Waste Streams at INEEL for the CRA Rev. 0.* ERMS# 530688, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003g: *Calculation of the Waste Unit Factor in the CRA, Supercedes ERMS# 529148.* ERMS# 531099, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003h: *Calculation of Radionuclide Inventories for Use in PANEL in the CRA, Supercedes ERMS #529130.* ERMS# 531103, Sandia National Lab, Carlsbad, NM.

Leigh, C., 2003i: *Calculation of Radionuclide Inventories for use in NUTS in the CRA, Supercedes ERMS 529289.* ERMS# 531090, Sandia National Lab, Carlsbad, NM.

Leigh, C., Beauheim, R., and J. Kanney, 2003: *SNL WIPP Analysis Plan for Calculations of Culebra Flow and Transport: Compliance Recertification Application, AP-100, Rev. 0.* ERMS# 530172, Sandia National Lab, Carlsbad, NM.

Li, D., R. Svec, T. Engler, and R. Grigg, March 2001: *Modeling and Simulation of the Wafer Non-Darcy Flow Experiments*, ERMS # 535944, SPE Paper 68822, presented at the Society of Petroleum Engineers Western Regional Meeting in Bakersfield, CA.

Long, J., 2004: *WIPP Execution of Performance Assessment for the Compliance Recertification Application, Rev. 0.* ERMS# 530170, Sandia National Lab, Carlsbad, NM.

Lord, D., 2003a: *WIPP PA User's Manual for DRSPALL Version 1.00.* ERMS# 524780, Sandia National Lab, Carlsbad, NM.

Lord, D., 2002b: *SNL WIPP Analysis Plan for Completion of the Spallings Model for WIPP Recertification, AP-096, Rev. 0.* ERMS# 524993, Sandia National Lab, Carlsbad, NM..

Lord, D.L. 2004. *Description of DRSPALL Parameters Called Out in the CRA, Table PAR-2.* Memo to Record, 25 Feb 2004. ERMS # 533995. Sandia National Lab., Carlsbad, NM.

Lord, D., and D. Rudeen, 2003: *Sensitivity Analysis Report, Part II, DRSPALL V. 1.00, Report for Conceptual Model Peer Review Convening July 7-11, 2003.* ERMS# 531914, Sandia National Lab, Carlsbad, NM.

Lord, D., Rudeen, D., and C. Hansen, 2003: *SNL WIPP Analysis Package for DRSPALL: Compliance Recertification Application, Part I–Calculations of Spall Volumes.* ERMS# 532766, Sandia National Lab, Carlsbad, NM.

Lowry, T. S., 2003a: *Analysis Package for Salado Transport Calculations: Compliance Recertification Application*, ERMS # 530164, Sandia National Lab., Carlsbad, NM.

Lowry, T. S., 2003b: *Analysis Report: Task 5 of AP-088, Evaluation of Mining Scenarios*, ERMS # 531138, Sandia National Lab., Carlsbad, NM..

Lowry, T. S. 2003c: *Analysis Report for Tasks 2 & 3 of AP-100, Grid Size Conversion and Generation of SECOTP2D Input, Analysis Package for the Calculation of Culebra Flow and Transport*, ERMS # 531137, Sandia National Lab., Carlsbad, NM.

McKenna, S., and D. Hart, 2003a: *Analysis Report Task 3 of AP-088, Conditioning of Base T Fields to Steady-State Heads.* ERMS# 529645, Sandia National Lab, Carlsbad, NM..

McKenna, S., and D. Hart, 2003b: *Analysis Report Task 4 of AP-088, Conditioning of Base T Fields to Transient Heads.* ERMS# 531124, Sandia National Lab, Carlsbad, NM.

McKenna, S., D. Hart and T. Lowry, 2004: *PA Run Control Summary for Culebra Transmissivity Field Calibration and Mining Scenarios.* ERMS# 537200, Sandia National Lab., Carlsbad, NM.

Powers, D., 2002: *Analysis Report for Task 1 of AP-088, Construction of Geologic Contour Maps.* ERMS# 522086, Sandia National Lab, Carlsbad, NM..

Ramsey, J., 1997a: *WIPP PA User's Manual for PRESECOTP2D, Version 1.22.* ERMS# 245963, Sandia National Lab, Carlsbad, NM..

Ramsey, J., 1997b: *WIPP PA User's Manual for SECOTP2D 1.41A, Version 1.02.* ERMS# 245734, Sandia National Lab, Carlsbad, NM..

Rudeen, D., Lord, D., Goss, M., and B. Thompson, 2003: *Zone Size Sensitivity DRSPALL Version 1.00, Report in Response to Conceptual Model Peer Review, July 2003.* ERMS# 531397, Sandia National Lab, Carlsbad, NM.

Scott, J., and J. Stein, 2002, *Analysis Plan for the Development of a Simplified Shaft Seal Model for the WIPP Performance Assessment, AP-094, Rev. 0.* ERMS# 524968, Sandia National Lab, Carlsbad, NM.

Snider, A., 2003: *Verification of the Definition of Generic Weep Brine and the Development of a Recipe for this Brine.* ERMS# 527505, Sandia National Lab, Carlsbad, NM..

SNL, 1996a. *Memo to Distribution from M. Tierney, dated 21 March 1996: Distributions.* ERMS# 235268, Sandia National Lab, Carlsbad, NM.

SNL, 1996b. *Memo, R. Bynum to M. Tierney and C. Stockman, dated 23 May 1996: Revised Update of Uncertainty Range and Distribution for Actinide Solubility to be used in CCA NUTS calculations.* ERMS# 237791, Sandia National Lab, Carlsbad, NM.

SNL, 1996c. *Memo, Brush, L. to M. Tierney, dated 10 June 1996: Ranges and Probability Distributions of Kds for Dissolved Pu, Am, U, Th and Np in the Culebra for the PA Calculations to Support the WIPP CCA.* ERMS# 238801, Sandia National Lab, Carlsbad, NM.

SNL, 1996d. *Memo, L. H. Brush and L. J. Storz, to M. S. Tierney, dated 24 July 1996 : Revised Ranges and Probability Distributions of Kds for Dissolved Pu, Am, U, Th, and Np in the Culebra for the PA Calculations to Support the WIPP CCA.* ERMS#

241561, Sandia National Lab, Carlsbad, NM.

SNL, 1999. *Memo, T. Hadgu, P. Vaughn, J. Bean, D. Johnson, J. Johnson, K. Aragon and J. Helton to M. Marietta, dated 2 Nov 1999. Modifications to the 96 CCA Direct Brine Release Calculations.* ERMS# 511276. Sandia National Lab, Carlsbad, NM.

SNL, 2000. *Memo to File, S. Tisinger, dated 3 November 2000: Documentation for and Classification of PAVT Parameter Changes Effected by the EPA.* ERMS# 514688, Sandia National Lab, Carlsbad, NM.

SNL, 2002a. *Letter, dated 4 June 2002, L Sanchez to E. Giambalvo: Updated (2033 yr) WIPP-Scale Radionuclides for use in WIPP PA Calculations (Memo 4044 Rev. C).* ERMS# 522348. Sandia National Lab, Carlsbad, NM.

SNL, 2003b. *Memo, C. Hansen to R. Beauheim, dated 26 June 2003: Mining Modification Factors for CRA-1 T-Fields.* ERMS# 530177, Sandia National Lab, Carlsbad, NM..

SNL, 2002c. *Memo, E. Giambalvo to L. Brush, dated 25 July 2002: Recommended Parameter Values for Modeling Organic Ligands in WIPP Brines.* ERMS# 522981, Sandia National Lab, Carlsbad, NM.

SNL, 2002d. *Memo, E. Giambalvo to L Brush, dated 25 July 2002: Recommended Parameter Values for Modeling An(III) Solubility in WIPP Brines.* ERMS# 522982, Sandia National Lab, Carlsbad, NM.

SNL, 2002e. *Memo, E. Giambalvo to L. Brush, dated 26 July 2002: Recommended Parameter Values for Modeling An(IV) Solubility in WIPP Brines.* ERMS# 522986, Sandia National Lab, Carlsbad, NM.

SNL, 2002f. *Memo, E. Giambalvo to L. Brush, dated 26 July 2002: Recommended Parameter Values for Modeling An(V) Solubility in WIPP Brines.* ERMS# 522990, Sandia National Lab, Carlsbad, NM.

SNL, 2002g. *Memo, E. Giambalvo to L. Brush, dated 31 July 2002: Recommended l l °/RT Values for Modeling the Solubility of Oxalate Solids in WIPP Brines.* ERMS# 523057, Sandia National Lab, Carlsbad, NM.

SNL, 2002h. *Memo, J. Stein to K. Knowles, dated 17 Sep 2002: Errors Identified in Waste Storage Volume Parameters Used to Construct BRAGFLO Grid.* ERMS# 523760, Sandia National Lab, Carlsbad, NM.

SNL, 2002i. *Memo to Records from S. Dunagan, dated 20 Dec 2002: Correction to A Reconciliation of the CCA and PAVT Parameter Baselines, Rev. 2 (ERMS # 524694).* ERMS# 524971, Sandia National Lab, Carlsbad, NM.

SNL, 2002j: Letter, dated 22 April 2002, Giambalvo to J. Harvill: *Sandia's WIPP Inventory Data Needs for Performance Assessment*. ERMS # 521948, Sandia National Lab, Carlsbad, NM.

SNL, 2003a. *Memo to Record from S. Tisinger, dated 6 Jan 2003: Creation of a Placeholder Parameter for LHS*. ERMS# 525047, Sandia National Lab, Carlsbad, NM.

SNL, 2003b. *Memo, E. Giambalvo to L. Brush, dated 10 March 2003: Release of FMT Database FMT_021120.CHEMDAT*. ERMS# 526372, Sandia National Lab, Carlsbad, NM.

SNL, 2003c. *Memo, J. Stein to D Kessel, dated 19 Mar 2003: Pore Compressibility Parameters Mistakenly Named as Rock Compressibility (COMP_RCK) Parameters*. ERMS# 526661, Sandia National Lab, Carlsbad, NM.

SNL, 2003d. *Letter, dated 24 March 2003, J. Stein to J. Long: BRAGFLO Version 5.00 Parameters to be Added to the Parameter Database*. ERMS# 526858, Sandia National Lab, Carlsbad, NM.

SNL, 2003e. *Letter, dated 2 April 2003, B. Crawford to C Leigh: Waste Material Parameters Deliverable in Support of WIPP CRA*. ERMS# 527270, Sandia National Lab, Carlsbad, NM.

SNL, 2003f. *Letter, dated 1 May 2003, B. Crawford to C. Leigh: Rev. 2 Updated Estimate of Radionuclide Activities in TRU Waste Streams*. ERMS# 528679, Sandia National Lab, Carlsbad, NM.

SNL, 2003g. *Memo dated 17 June 2003: C. Hansen to D. Kessel: Request for New Parameter REFCON FVRW*. ERMS# 529865, Sandia National Lab, Carlsbad, NM.

SNL, 2003h. *Memo, J. Stein to M Chavez, dated 12 August 2003 Page Changes for ERMS# 525203*. ERMS# 530631, Sandia National Lab, Carlsbad, NM.

SNL, 2003i. *Letter dated 15 August 2003, S. Lott to C. Leigh: Response to the Request for Waste Material and Container Material Densities from TWBID Rev. 2.1 Ver. 3.12, Data Ver. D.4.08*. ERMS# 530767, Sandia National Lab, Carlsbad, NM.

SNL, 2003j. *Memo, T. Lowry to J.Stein, dated 19 August 2003: Culebra Permeability Value to be Used by BRAGFLO for the 2003 CRA PA*. ERMS# 530899, Sandia National Lab, Carlsbad, NM.

SNL, 2003k. *Memo, R. Beauheim to D. Kessel, dated 19 August 2003: Culebra and Magenta Pressures to Use in CRA BRAGFLO*

Runs. ERMS# 530903, Sandia National Lab, Carlsbad, NM.

SNL, 2003l. *Letter, dated 20 August 2003, S. Lott to C. Leigh: Response to the Request for Radionuclide Activities in TRU Waste Streams from TWBID Rev. 2.1, Ver. 3.12, Data Ver. D.4.08.* ERMS# 530918, Sandia National Lab, Carlsbad, NM.

SNL, 2003m. *Memo to Record from C. Hansen, dated 27 Aug 2003: Waste Parameters for AP-107 Analysis.* ERMS# 531073, Sandia National Lab, Carlsbad, NM.

SNL, 2003n. *Memo to Record from C. Hansen, dated 27 Aug 2003: Porosity Surfaces for AP-107 Analysis.* ERMS# 531077, Sandia National Lab, Carlsbad, NM.

SNL, 2003o. *Memo to Records, dated 3 Sept 2003, from C. Leigh: Radionuclides for LANL Waste Streams: LA-TA-21-40, LA-TA-21-41, La-TA-21-42, LA-TA-21-43, LA-TA-21-44, LA-TA-48-01, LA-TA-49-01, LA-TA-50-11.* ERMS# 531187, Sandia National Lab, Carlsbad, NM.

SNL, 2003p. *Memo, R. Kirkes to C. Hansen, dated 5 Sep 2003: Borehole Plugging Probabilities to be Used in CRA Calculations.* ERMS# 531352, Sandia National Lab, Carlsbad, NM.

SNL, 2003q. *Memo, D. Lord to D. Kessel, dated 10 September 2003: Justification for Waste Permeability Range Used in DRSPALL.* ERMS# 531473. Sandia National Lab, Carlsbad, NM.

SNL, 2003r. *Memo, D. Lord to D. Kessel, dated 10 September 2003: Justification for Particle Diameter and Shape Factor Used in DRSPALL.* ERMS# 531477, Sandia National Lab, Carlsbad, NM.

SNL, 2003s. *Memo, D, Lord to D. Kessel, dated 11 Sep 2003: Justification for DRZ Permeability Value used in DRSPALL.* ERMS# 531481, Sandia National Lab, Carlsbad, NM..

SNL, 2003t. *Memo, D. Lord to D. Kessel, dated 30 September 2003: Justification for Drilling Damaged Zone Constant Permeability Used in DRSPALL.* ERMS# 532259, Sandia National Lab, Carlsbad, NM.

SNL, 2003u. *Memo, J. Stein to D. Kessel, dated 17 Dec 2003: Parameter Values Used for the Simplified Shaft Model in the CRA1 and AMWTP BRAGFLO Analysis.* ERMS# 533428, Sandia National Lab, Carlsbad, NM.

SNL, 2003v. *Parameter Data Entry Form (PDE) for SPALLMOD:TENSLSTR, Sep 2003.* ERMS# 532364, Sandia National Lab,

Carlsbad, NM.

SNL, 2003w. *Parameter Data Entry Form (PDE) for SPALLMOD: REPIPERM, Sep, 2003.* ERMS# 531931, Sandia National Lab, Carlsbad, NM.

SNL, 2003x. *Parameter Problem Report, PPR-2003-4, CM244-INVCHD.* ERMS# 531232, Sandia National Lab, Carlsbad, NM.

SNL, 2003y. *Parameter Problem Report, PPR 2003-1, for MKD_AM and MKD_PU.* ERMS# 527703, Sandia National Lab, Carlsbad, NM.

SNL, 2003z. *Parameter Problem Report, PPR-2003-02, REFCON-VREPOS.* ERMS# 527694, Sandia National Lab, Carlsbad, NM.

SNL, 2003aa. *Parameter Problem Report, for BLOWOUT THCK_CAS.* ERMS# 530503, Sandia National Lab, Carlsbad, NM.

SNL, 2004a. *Memo to Record from Cliff Hansen, dated 22 March 2004: Porosity Surfaces for AP 107 Analysis (Revision 1).* ERMS# 534212, Sandia National Lab, Carlsbad, NM.

SNL, 2004b. *Memo to Record from Cliff Hansen, dated 22 March 2004: Waste Parameters for AP-107 Analysis (Revision 3).* ERMS# 534214, Sandia National Lab, Carlsbad, NM.

SNL, 2004c. *Memo to Record: D. Lord, dated 25 March 2004: Description of DRSPALL Parameters Called out in CRA Table PAR-2, Rev. 1.* ERMS# 534287, Sandia National Lab, Carlsbad, NM.

SNL 2004d. *Memo, M. Chavez to Records, 31 March 2004: Record Correction to ERMS 531057, Parameter Justification Report for DRSPALL.* ERMS# 534342, Sandia National Lab, Carlsbad, NM.

SNL 2004e. *Memo to Record, D. Lord and D Rudeen, dated 22 July 2004: SNL/DOE Response to EPA's 2004 WIPP CRA Review Item G-6.* ERMS# 536134, Sandia National Lab, Carlsbad, NM.

SNL, 2004f. *Parameter Problem Report, dtd 2 Feb 2004, RELP_MOD, for TBM, CRA1, AMW* ERMS#unknown, Sandia National Lab, Carlsbad, NM.

SNL, 2004g. *Parameter Data Entry Form (PDE) for MKD_AM, 5 Feb 2004.* ERMS# 527706, Sandia National Lab, Carlsbad, NM.

SNL, 2004h. *Parameter Data Entry Form (PDE) for MKD_PU, 5 Feb 2004.* ERMS# 527707, Sandia National Lab, Carlsbad, NM.

SNL, 2004i. *Parameter Data Entry Form (PDE) for SPALLMOD: DRZTCK,* ERMS# 534364, Sandia National Lab, Carlsbad, NM.

SNL, 2004j. *Parameter Data Entry Form (PDE) for SPALLMOD: FRCHBETA,* ERMS# 534365, Sandia National Lab, Carlsbad, NM.

SNL, 2004k. *Parameter Data Entry Form (PDE) for SPALLMOD: REPOSTCK,* ERMS# 534363, Sandia National Lab, Carlsbad, NM.

SNL, 2004l. *Parameter Data Entry Form (PDE) for SPALLMOD: REPOTRAD,* ERMS# 534362, Sandia National Lab, Carlsbad, NM.

SNL, 2004m: Letter, dated 13 July 2004, DOE/SNL to EPA, : *DOE Response to EPA's Second Completeness Letter.* Sandia National Lab, Carlsbad, NM.

SNL, 2004n. *Memo dated 13 Oct 2004, B Buell to Records: Correction to ERMS# 526858.* Sandia National Lab, Carlsbad, NM.

Stein, J. 2002: *Parameter Values for the New Materials, CONC_PCS and DRZ_PCS.* ERMS # 520524, Sandia National Lab., Carlsbad, NM.

Stein, J., 2003a: *WIPP PA User's Manual for BRAGFLO, Version 5.0.* ERMS# 525702, Sandia National Lab, Carlsbad, NM..

Stein, J., 2003b: *WIPP PA User's Manual for PREBRAG, Version 7.0.* ERMS# 526643, Sandia National Lab, Carlsbad, NM..

Stein, J., 2003c: *SNL WIPP Analysis Plan for Calculations of Salado Flow and Transport: Compliance Recertification Application, AP-099, Rev. 0.* ERMS# 526891, Sandia National Lab, Carlsbad, NM..

Stein, J., 2003d: *Analysis Plan for Calculations of Direct Brine Releases: Compliance Recertification Application, AP-104, Rev. 0.* ERMS# 528743, Sandia National Lab, Carlsbad, NM..

Stein, J, 2003e: *Analysis Package for Direct Brine Releases: Compliance Recertification Application,* ERMS # 532344, Sandia National Lab, Carlsbad, NM.

Stein, J., and W. Zelinski, 2003a: *Analysis Plan for the Testing of a Proposed BRAGFLO Grid to be used for the Compliance Recertification Application Performance Assessment Calculations, AP-106, Rev. 0.* ERMS# 525236, Sandia National Lab, Carlsbad, NM..

Stein, J., and W. Zelinski, 2003b: *Analysis Package for BRAGFLO: Compliance Recertification Application,* ERMS # 530163, Sandia National Lab, Carlsbad, NM.

U.S. Department of Energy (DOE). 1996. *Title 40 CFR 191, Compliance Certification Application for the Waste Isolation Pilot Plant.* DOE/CAO-1996-2184, US DOE WIPP, Carlsbad, NM.

WIPP PA, 1997: *User's Manual for NUTS, Version 2.05A.* ERMS# 246002. Sandia National Lab, Carlsbad, NM.

WIPP PA, 2003: *Design Document and User's Manual for CCDFGF Version 5.00,* ERMS# 530471, Sandia National Lab, Carlsbad, NM.

NOTE: ERMS References to all PDE Forms reviewed are listed in Table 1 of this report and are not reproduced here.

APPENDIX A: PAPDB Parameter Names and Properties

Table A-1. PAPDB Parameter Names and Properties

Name	Property Description	New? (since CCA)	Comments
ABERM	Area of Berm Placed Over Waste Panel		
ABSROUGH	Absolute roughness of material		
ACF_CH4	Acentric Factors - CH4		
ACF_CO2	Acentric Factors - CO2		
ACF_H2	Acentric Factors - H2		
ACF_H2S	Acentric Factors - H2S		
ACF_N2	Acentric Factors - N2		
ACF_O2	Acentric Factors - O2		
AL2	Log2		
ANNUROUG	Absolute wall roughness of wellbore annulus	Y	
APORO	Waste permeability in CUTTINGS model		
APOROS	Culebra Advective Porosity		
AREA_CH	Area For CH Waste Disposal in CCDFGF Model		
AREA_RH	Area for RH waste disposal in CCDFGF model		
AREA_ZRO	Area in Waste Panels Not Used For Disposal (CCDFGF Model)		
ASDRUM	Surface area of corrodible metal per drum		
ATMPA	Conversion from std. atmosphere to Pa		
ATWEIGHT	Atomic Weight in kg/mole		MAT ID: SPALLMOD

Table A-1. PAPDB Parameter Names and Properties

AVOGADRO	Avogadro's number		
BBLG	Conversion from barrel to gallon	Y	MAT ID: SPALLMOD
BIOTBETA	Biot's beta for waste	Y	MAT ID: REFCON
BIP_11	H2:H2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_12	H2:CO2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_13	H2:CH4 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_14	H2:N2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_15	H2:H2S - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_16	H2:O2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_21	CO2:H2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_22	CO2:CO2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_23	CO2:CH4 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_24	CO2:N2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_25	CO2:H2S - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_26	CO2:O2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_31	CH4:H2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_32	CH4:CO2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_33	CH4:CH4 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_34	CH4:N2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_35	CH4:H2S - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_36	CH4:O2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_41	N2:H2 - Binary Interaction Parameter	Y	MAT ID: REFCON

Table A-1. PAPDB Parameter Names and Properties

BIP_42	N2:CO2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_43	N2:CH4 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_44	N2:N2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_45	N2:H2S - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_46	N2:O2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_51	H2S:H2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_52	H2S:CO2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_53	H2S:CH4 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_54	H2S:N2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_55	H2S:H2S - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_56	H2S:O2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_61	O2:H2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_62	O2:CO2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_63	O2:CH4 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_64	O2:N2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_65	O2:H2S - Binary Interaction Parameter	Y	MAT ID: REFCON
BIP_66	O2:O2 - Binary Interaction Parameter	Y	MAT ID: REFCON
BITNZDIA	Diameter of nozzles in a tricone drill bit	Y	MAT ID: SPALLMOD
BITNZNO	Number of nozzles in a tricone drill bit	Y	MAT ID: SPALLMOD
BKLINK	Klinkenberg B Correction Parameters for H2 gas		
CAP_MOD	Model number, capillary pressure model		

Table A-1. PAPDB Parameter Names and Properties

Parameter	Description		
CAPHUM	Maximum Concentration of Actinide with Mobile Humic Colloids		
CAPMIC	Maximum Concentration of Actinide on Microbe Colloids		
CEMENT	Waste Cementation Strength		
CITOBQ	Curie to Becquerel Conversion		
CLIMTIDX	Climate Index		
CLOSMOD	Closure Surface Model		
CLOSMOD1	Closure model for representative panel	Y	MAT ID: WAS AMW
CLOSMOD2	Closure model for rest of repository	Y	MAT ID: WAS AMW
COHESION	Cohesion of waste	Y	MAT ID: SPALLMOD
COLDIA	Drill collar diameter in CUTTINGS model		
COMP_POR	Pore volume compressibility	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
COMP_RCK	Bulk Compressibility		
COMPRES	Brine Compressibility		
CONCINT	Actinide Concentration with Mobile Actinide Intrinsic Colloids		
CONCMIN	Actinide Concentration with Mobile Mineral Fragment Colloids		
CORRMCO2	Inundated corrosion rate for steel without CO2 present		
CORRWCO2	Inundated corrosion rate for steel with CO2 present		
CUMPROB	Cumulative Probability		

Table A-1. PAPDB Parameter Names and Properties

Parameter	Description		
DARM2	Conversion from darcy to m^2		
DAYSEC	Conversion from days to seconds		
DCELLCHW	Average density of cellulosics in CH waste		
DCELLRHW	Average density of cellulosics in RH waste		
DDZPERM	Permeability of drilling-damaged zone (DDZ)	Y	MAT ID: SPALLMOD
DDZTHICK	Thickness of drilling-damaged zone (DDZ)	Y	MAT ID: SPALLMOD
DIAMMOD	Modern or current diameter		
DIRNCCHW	Bulk density of iron containers, CH waste		
DIRNCRHW	Bulk density of iron containers, RH waste		
DIRONCHW	Average density of iron-based material in CH waste		
DIRONRHW	Average density of iron-based material in RH waste		
DISP_L	Longitudinal dispersivity		
DISPT_L	Transverse dispersivity		
DNSFLUID	Brine Density		
DNSGRAIN	Material Grain Density		
DOMEGA	Drill string angular velocity (0)		
DPHIMAX	Incremental increase in porosity relative to intact conditions		
DPLASCHW	Average density of plastics in CH waste		
DPLASRHW	Average density of plastics in RH waste		
DPLSCCHW	Bulk density of plastic liners, CH waste		
DPLSCRHW	Bulk density of plastic liners, RH waste		

Table A-1. PAPDB Parameter Names and Properties

DPOROS	Diffusive Porosity for Culebra Dolomite		
DRILRATE	Drill penetration rate through Salado	Y	MAT ID: SPALLMOD
DRROOM	Number of drums, per room, in ideal packing		
DRUBBCHW	Average density of rubber in CH waste		
DRUBBRHW	Average density of rubber in RH waste		
DRZPERM	DRZ Permeability for DRSPALL	Y	MAT ID: SPALLMOD
DTORT	Diffusive Tortuosity		
EPAREL	EPA Release Limit		
ETHICK	Effective Thickness		
EXPKLINK	Klinkenberg b correction parameters for H2 gas		
F3M3	Conversion from ft^3 to m^3		
FBETA	Factor beta for microbial reaction rates		
FCE	Cementation Scaling Factor		
FFSTRESS	Isotropic in-situ stress in waste area	Y	MAT ID: SPALLMOD
FGE	Gravity effectiveness factor in CUTTINGS model		
FPICD	PIC multiplicative factor for human intrusion by drilling		
FPICM	PIC multiplicative factor for human intrusion by mining		
FRACAMW	Fraction of panel volume filled with AMWTF waste	Y	MAT ID: WAS AMW
FRICTANG	Friction angle of waste	Y	MAT ID: SPALLMOD
FSE	Stress effectiveness factor in CUTTINGS model		
FTM	Conversion from feet to meter		
FTORT	Fracture Tortuosity		

Table A-1. PAPDB Parameter Names and Properties

		Y	MAT ID: REFCON
FVRW	Fraction of Emplaced RH Volume Occupied by RH Waste in CCDFGF Model		
FVW	Fraction of Repository Volume Occupied By Waste In CCDFGF Model		
GAS_MIN	Gas rate cut-off		
GRATMICH	Humid biodegradation rate for cellulose		
GRATMICI	Inundated biodegradation rate for cellulose		
GRAVACC	Standard gravitational acceleration		
GRIDFLO	Index for Selecting a Brine Pocket		
GTI3	Conversion from gallon to in^3		
HALFLIFE	Half life		
HMBLKLT	Culebra Half Matrix-Block Length		
HREPO	Height of repository at burial time in CUTTINGS model		
HRH	Emplaced Height of Remote Handled Waste in CCDFGF Model		
HUMCORR	Humid corrosion rate for steel		
IFRX	Index for fracture perm. enhancement in X-direction		
IFRY	Index for fracture perm. enhancement in Y-direction		
IFRZ	Index for fracture perm. enhancement in Z-direction		
INPORO	Default value for initial repository porosity in CUTTINGS model		
INV_AR	The area of the repository in the CUTTINGS model		

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Table A-1. PAPDB Parameter Names and Properties

Name	Description		Notes
INVCHD	Inventory of Contact Handled Design		
INVRHD	Inventory of Remote Handled Design		
KGAS	Ratio of specific heats for Hydrogen in CUTTINGS model		
KGLB	Conversion from kg to lb		
KMAXLOG	Log of Maximum Permeability in Altered Anhydrite Flow Model Anhydrites		
KPT	Flag for Permeability Determined Threshold	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
L1	Drill collar length in CUTTINGS model		
L2	Drill pipe length when repository penetrated, CUTTINGS model		
LAMBDAD	Drilling Rate Per Unit Area		
LBKG	Conversion from lb to kg		
LHSBLANK	Blank placeholder parameter for LHS	Y	
LOGSOLM	Log of the Radionuclide Solubility		
MAXFLOW	Maximum blowout flow		
MD0	Molecular diffusion in pure fluid		
MEA_STOR	Measured Storativity		
MINERT	Mining rate from 40 CFR 194		
MINFLOW	Minimum blowout flow		
MINP_FAC	Mining Transmissivity Multiplier		
MKD_AM	Matrix Partition Coefficient for Americium		

Table A-1. PAPDB Parameter Names and Properties

MKD_NP	Matrix Partition Coefficient for Neptunium		
MKD_PU	Matrix Partition Coefficient for Plutonium		
MKD_TH	Matrix Partition Coefficient for Thorium		
MKD_U	Matrix Partition Coefficient for Uranium		
MUDPRATE	Typical volumetric mud pumping rate for drilling in Salado	Y	MAT ID: SPALLMOD
MUDSOLMX	Solids volume fraction in drill mud that causes choking of flow	Y	MAT ID: SPALLMOD
MUDSOLVE	Exponent on mud slurry viscosity power law	Y	MAT ID: SPALLMOD
MW_CELL	Carbon Normalized Molecular Weight of Cellulose	Y	
MW_CH2O	Molecular Weight - CH2O		
MW_CH4	Molecular Weight of CH4	Y	
MW_CO2	Molecular Weight of CO2	Y	
MW_FE	Molecular Weight - FE		
MW_H2	Molecular Weight - H2		
MW_H2O	Molecular Weight - H2O		
MW_H2S	Molecular Weight of H2S	Y	
MW_N2	Molecular Weight of N2	Y	
MW_NACL	Molecular Weight of NaCl	Y	
MW_O2	Molecular Weight of O2	Y	
OMEGAA	Constants for RKS EOS		
OMEGAB	Constants for RDS EOS		
ONEPLG	Probability of having Plug Pattern 1	Y	MAT ID: GLOBAL

Table A-1. PAPDB Parameter Names and Properties

Parameter	Description		
OXSTAT	Index for the Oxidation State		
PARTDIA	Waste Particle Diameter in CUTTINGS Model		
PARTDIAM	Particle diameter of disaggregated waste	Y	MAT ID: SPALLMOD
PASCP	Conversion from Pa*s to cP		
PBRINE	Prob. that Drilling Intrusion In Excavated Area Encounters Pressurized Brine		
PC_CH4	Critical Pressure of CH4		
PC_CO2	Critical Pressure of CO2		
PC_H2	Critical Pressure of H2		
PC_H2S	Critical Pressure of H2S		
PC_MAX	Maximum allowable capillary pressure	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
PC_N2	Critical Pressure of N2		
PC_O2	Critical Pressure of O2		
PCT_A	Threshold Pressure Linear Parameter	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
PCT_EXP	Threshold pressure exponential parameter	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
PF_DELTA	Incremental pressure for full fracture development		
PHUMCIM	Proportionality Const.,Humic Colloids, Castile Brine, MgO controls pH		
PHUMSIM	Proportionality Const. of Actinides in Salado Brine w/Humic Colloids, Inorganic		
PI	Mathematical constant: PI		

Table A-1. PAPDB Parameter Names and Properties

Parameter	Description		
PI_DELTA	Fracture initiation pressure increment		
PIPED	Drill pipe diameter in CUTTINGS model		
PIPEID	Inner diameter of drill pipe (where OD = 0.1143 m)	Y	MAT ID: SPALLMOD
PIPEROUG	Absolute wall roughness of drill pipe	Y	MAT ID: SPALLMOD
PLGPAT	Index for Plugging Pattern After Drilling Intrusion		
PMLT_HI	Log triangular distribution high value for permeability		
PMLT_LO	Log triangular distribution low value for permeability		
PMLT_MD	Log triangular distribution mode for permeability		
PO_MIN	Minimum brine pressure for capillary model KPC=3		
POISRAT	Poisson's ratio for waste	Y	MAT ID: SPALLMOD
PORE_DIS	Brooks-Corey pore distribution parameter		
POROSITY	Effective porosity	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
PRESSURE	Brine far-field pore pressure		
PRMX_LOG	Log of intrinsic permeability, X-direction	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
PRMY_LOG	Log of intrinsic permeability, Y-direction		
PRMZ_LOG	Log of intrinsic permeability, Z-direction		
PROBDEG	Probability of plastics and rubber biodegradation in event of microbial gas generation		
PROPMIC	Moles of Actinide Mobilized on Microbe Colloids per Moles Dissolved		
PSIPA	Conversion from psi to pascal		

Table A-1. PAPDB Parameter Names and Properties

Parameter	Description		
PSUF	Surface atmospheric pressure at elevation 1039m in CUTTINS model		
PTHRESH	Capillary threshold displacement pressure		
QINIT	Initial quantity of material in waste		
R	Gas constant R		
RADN_DRZ	DRZ outer radius at each shaft		
RE_CAST	External drainage radius for the Castile formation		
REF_PRES	Reference pressure for porosity		
REF_TEMP	Reference Temperature		
REFPRS	Atmospheric pressure at sea level	Y	MAT ID: SPALLMOD
RELP_MOD	Model number, relative permeability model	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
REPIPERM	Waste permeability to gas local to intrusion borehole	Y	MAT ID: SPALLMOD
REPOSTOP	Elevation of roof in excavated area	Y	MAT ID: SPALLMOD
RGAS	Gas Constant for Hydrogen		
RHOS	Waste Particle Density in CUTTINGS_S Model		
RHW_AR	The total area of the remote-handled waste in the CUTTINGS model		
ROOM	Equivalent radius of one room in CUTTINGS model		
ROUGHP	Friction factor for very rough pipe in CUTTINGS model		
RPANEL	Equivalent radius of one panel in CUTTINGS model		
RSH_AIR	Air-supply shaft radius (3.09 m)		

Table A-1. PAPDB Parameter Names and Properties

Parameter	Description		MAT ID
RSH_EXH	Air-exhaust shaft radius (2.3 m)		
RSH_SAL	Salt-handling shaft radius (1.8 m)		
RSH_WAS	Waste-handling shaft radius (3.5 m)		
RTK	Conversion from Rankine to K		
SAL_USAT	Average saturation, unsaturated zones		
SALTDENS	Density of solid cuttings from the Salado	Y	MAT ID: SPALLMOD
SAT_IBRN	Initial Brine Saturation	Y	MAT ID: SHFTU, SHFTL T1, SHFTL T2
SAT_RBRN	Residual Brine Saturation	Y	MAT ID: SHAFTU
SAT_RGAS	Residual Gas Saturation	Y	MAT ID: SHAFTU
SAT_WICK	Index for computing wicking		
SECYR	Seconds to years Conversion		
SHAPEFAC	Shape factor for disaggregated waste particles	Y	MAT ID: SPALLMOD
SKIN_RES	Skin Resistance		
SOLCIM	Solubility Mult. in Castile Brine, Inorganic Chem Controlled by Mg(OH)2-MgCO3	Y	MAT ID: SOLTH4, SOLU4
SOLCOC	Solubility in Castile Brine with Organics included Controlled by Mg(OH)2/CaCO3	Y	MAT ID: SOLMOD3,SOLMOD4, SOLMOD5, SOLMOD6
SOLCOH	Solubility in Castile Brine with Organics included Controlled by Mg(OH)2/Hydromagnisite buffer(5424)	Y	MAT ID: SOLMOD3,SOLMOD4, SOLMOD5, SOLMOD6
SOLSIM	Solubility Mult. in Salado Brine, Inorganic Chem Controlled by Mg(OH)2-MgCO3		

Table A-1. PAPDB Parameter Names and Properties

SOLSOC	Solubiltiy in Salado Brine with Organics included Controlled by Mg(OH)2/CaCO3	Y	MAT ID: SOLMOD3,SOLMOD4, SOLMOD5, SOLMOD6
SOLSOH	Solubiltiy in Salado Brine with Organics included Controlled by Mg(OH)2/Hydromagnisite buffer(5424)	Y	MAT ID: SOLMOD3,SOLMOD4, SOLMOD5, SOLMOD6
STOIFX	Stoichiometric factor - X	Y	MAT ID: SPALLMOD
STPDVOLR	Mud ejection rate that turns off drilling	Y	MAT ID: SPALLMOD
STPPVOLR	Mud ejection rate that turns off mud pump	Y	MAT ID: SPALLMOD
SUFTEN	Surface tension of brine in CUTTINGS model		
SURFELEV	Elevation of land surface at WIPP site	Y	MAT ID: SPALLMOD
TA	Time Active Institutional Controls at WIPP Site Are Effective		
TAUFAIL	Effective shear strength for erosion (rfail)		
TC_CH4	Critical temperature: Methane (CH4)		
TC_CO2	Critical temperature: Carbon Dioxide (CO2)		
TC_H2	Critical temperature: Hydrogen (H2)		
TC_H2S	Critical temperature: Hydrogen Sulfide (H2S)		
TC_N2	Critical temperature: Nitrogen (N2)		
TC_O2	Critical temperature: Oxygen (O2)		
TENSLSTR	Tensile strength of waste	Y	MAT ID: SPALLMOD
THCK_CAS	Thickness of the Castile Brine Reservoir		
THICK	Thickness of feature or layer		
THREEPLG	Probability of having Plug Pattern 3	Y	MAT ID: GLOBAL

Table A-1. PAPDB Parameter Names and Properties

			MAT ID: GLOBAL
TPICD	Time over which passive institutional controls reduce rate of drilling		
TPICM	Time over which passive institutional controls reduce rate of mining		
TRANSIDX	Index for selecting realizations of the Transmissivity Field		
TREPO	Temperature of repository in CUTTINGS model		
TWOPLG	Probability of having Plug Pattern 2	Y	
VISC	Hydrogen Viscosity in CUTTINGS Model		
VISCO	Viscosity		
VOLCHW	BIR total volume of CH waste		
VOLRHW	BIR total volume of RH waste		
VOLSPALL	Volume of material released by spallings		
VOLUME	Total Reservoir Volume		
VOLWP	Uncompacted Volume of Waste Panels In CCDFGF Model		
VPANLEX	Excavated volume of one panel		
VREPOS	Excavated storage volume of repository		
VROOM	Volume of one room in repository		
WTF	Mass fraction of salt in brine		
WUF	Unit of Waste		
YLDSTRSS	Yield Stress Point		
YRSEC	Conversion from mean solar or tropical year to seconds		

Table A-1. PAPDB Parameter Names and Properties

ZCINK	Zero Celsius in Kelvin		