# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT
# DESIGN CALCULATION OR ANALYSIS COVER SHEET

1. QA: QA
2. Page 1

| 3. System: | 4. Document Identifier: | 5. Verified: |
|---|---|---|
| Waste Isolation System | CAL-WIS-TH-000013 REV A | ☐ Yes ☑ No |

6. Title:
Thermal Calculation of the In-Drift Configuration Options

MOL.20020613.0482

7. Group:
Analyses and Component Design - Specialty Analyses and Waste Package Design

8. Document Status Designation:
☑ Preliminary ☐ Final ☐ Superseded ☐ Cancelled

9. Notes/Comments:

| Attachments | Total Number of Pages |
|---|---|
| I: Compact disk (CD) (1 of 1) containing ANSYS and Excel files | N/A |
| II: File listing for Attachment I | 4 |
| | |
| | |

## RECORD OF REVISIONS

| 10. No. | 11. Reason for Revision | 12. Total No. of Pages | 13. Last Page No. | 14. Originator (Print/Sign) | 15. Checker (Print/Sign) | 16. Quality Engineering Representative (Print/Sign) | 17. Approved/ Accepted (Print/Sign) | 18. Date |
|---|---|---|---|---|---|---|---|---|
| A | Initial Issue | 69 | II-4 | HONGYAN MAR | Matthew Hinds | Daniel J Tinney 5/30/2002 | M.J. ANDERSON N/A | 5/31/02 |

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## 1. PURPOSE

The objective of this calculation is to evaluate the impact of the in-drift configuration on the waste package thermal performance. The scope of this calculation is limited to thermal calculation of the alternative in-drift configuration options and comparison against the Site Recommendation (SR) baseline in-drift configuration. This calculation is performed to support the Design Alternatives Study for Licensing Application (LA). The procedure, AP-3.12Q, *Design Calculations and Analyses* (Ref. 1) and *Technical Work Plan for: Waste Package Design Description for LA* (Ref. 2), work package *P3212234FC – WP Design Concept Re-Evaluation LA* are used to develop this document. The Activity Evaluation (Addendum A, Ref. 2) determined that the preparation of this document is subject to the Quality Assurance Requirement Description Requirements (Ref. 21). The information provided in References 19 and 23 is that of the potential design of the type of waste package and drip shield considered in this calculation, and all obtained results are valid for these designs only.

## 2. METHOD

Finite element solution is performed using the commercially available ANSYS Version (V) 5.4 finite element code (Ref. 7) and ANSYS V5.6.2 finite element code (Ref. 13). Two-dimensional (2-D) finite element representations of the waste package emplacement are developed and analyzed parametrically using the steady-state ANSYS solvers.

The control of the electronic management of information was evaluated in accordance with the planned method specified in the technical work plan (Ref. 2). This evaluation determined that current work processes and procedures are adequate for the control of the electronic management of information for this activity.

## 3. ASSUMPTIONS

3.1 The waste package emplaced in the drift is simulated as a homogeneous inner cylinder with inner and outer shells. The rationale for this assumption is that since the waste package internal temperatures are not of interest for this calculation, smeared material properties for the homogeneous cylinder are applied in the ANSYS representations (see Section 5.3). This assumption is used in Sections 5.1 and 5.3.

3.2 The ballast material used in the invert and conduit ground support is assumed to have a thermal conductivity of 0.2 W/m·K. The rationale for selecting this value is that based on the experimental measurements on possible ballast materials (i.e., crushed tuff, overton sand, silica sand, and white marble), the measured values range from 0.13 to 0.35 W/m·K (Ref. 10). Therefore, 0.2 W/m·K is selected for this calculation. This assumption is used in Section 5.3.

3.3 The waste package supports are not included in the ANSYS representations. The rationale for this assumption is that the waste package supports have point contact with the waste package in only a few places. Therefore, conduction through the support

structure will be limited and can be conservatively neglected. This assumption is used in Section 5.1.

3.4 The natural convection in the drift is ignored for the calculation. The rationale for this assumption is that since the emplacement drifts are not actively ventilated in the post-closure period, natural convection in the drift is conservatively ignored. Therefore, radiation is the dominant heat transfer mechanism for this calculation. This assumption is used in Section 5.1.

3.5 The thermal conductivity of the repository rock (Tptpll) is taken from Ref. 8 (DTN: SN0003T0571897.013). The rationale for this assumption is that although Ref. 8 is superseded by Ref. 22 (DTN: SN0011T0571897.014), the thermal conductivity provided in Ref. 22 is based on lithophysal porosity of zero which is not reasonable for this calculation. Therefore, Ref. 8 is used as the best available source for the thermal conductivity values. This assumption is used in Section 5.3.

## 4. USE OF COMPUTER SOFTWARE

The finite element computer code used for this calculation is ANSYS V5.4 (Ref. 7), which is identified by the Computer System Configuration Item (CSCI) identifier 30040 V5.4. ANSYS V5.4 is a qualified commercially available finite element code and is appropriate for the thermal analysis of the waste package as performed in this calculation. Calculations using the ANSYS V5.4 software were executed on a Hewlett-Packard (HP) 9000 Series, operation system HP.UX10.20 (Central Processing Unit Name: "Bloom" and Civilian Radioactive Waste Management System - Management and Operating Contractor [CRWMS-M&O] Tag Number: 700887). The ANSYS V5.4 evaluations performed in this calculation are fully within the range of the validation performed for ANSYS V5.4. Access to, and use of, the code for this calculation was granted by Software Configuration in accordance with the appropriate procedures. Inputs to ANSYS V5.4 and output files are included as attachments and are described in Section 5 of this document.

The finite element computer code also used for this calculation is ANSYS V5.6.2 (Ref. 13), which is identified by the Software Tracking number 10364-5.6.2-00. ANSYS V5.6.2 is a qualified commercially available finite element code and is appropriate for the thermal analysis of the waste package as performed in this calculation. Calculations using the ANSYS V5.6.2 software were executed on a Hewlett-Packard (HP) 9000 Series, operation system HP.UX10.20 (Central Processing Unit Name: "Bloom" and Civilian Radioactive Waste Management System - Management and Operating Contractor [CRWMS-M&O] Tag Number: 700887). The ANSYS V5.6.2 evaluations performed in this calculation are fully within the range of the validation performed for ANSYS V5.6.2. Access to, and use of, the code for this calculation was granted by Software Configuration in accordance with the appropriate procedures. Inputs to ANSYS V5.6.2 and output files are included as attachments and are described in Section 5 of this document.

Commercially available software Excel 97, which is exempt from requirements of AP-SI.1Q (Ref. 6), is used for the curve fit and waste package diameter effect calculations in Section 5 and used for plotting results in Section 6. The calculation results can be reproduced and checked by hand.

# 5. CALCULATION

## 5.1 ALTERNATIVE IN-DRIFT CONFIGURATION EVALUATION

### 5.1.1 Alternative In-Drift Configuration Cases

Among all the alternative configurations considered in Reference 5, Attachment I, six representative geometries are selected for the thermal calculation. The SR baseline design (see Ref. 5, Attachment I) is also included for comparison purposes. The following lists the brief description of the SR base case, and changes made for the alternative in-drift configurations. Note that all the dimensions shown in Figures 5-1 through 5-6 are in mm or otherwise noted.

SR Baseline Case (see Figure 5-1, taken from p. I-4, Ref. 5):
The drift diameter is 5.5 m. Invert is constructed with steel beams / ballast material on the top layer and ballast material on the bottom layer. The material of the drip shield is titanium.

Cases (1) and (2) (see Figure 5-2):
This design alternative is not described in detail in Ref. 5 (The general concept can be found on p. 50, Ref. 5.). Figure 5-2 is used to illustrate the concept of the design. For the thermal calculation performed in this document, the ground control conduit is titanium and filled with ballast material. The thickness of the conduit is 150 mm. The trench is ballast material and lined with Alloy 22. Drift invert height of 308.4 mm instead of 465 mm is used in the calculation. The drift diameter for Case 1 is 4.5 m and 5.5 m for Case 2 (ignore 4.6 m drift diameter and 4.3 m diameter of ground support envelope in Figure 5-2). No drip shield is used.

Case (3) (see Figure 5-3, taken from p. I-6, Ref. 5):
The materials and geometry used in this representation are the same as in the SR baseline case, except that the drift diameter is increased from 5.5 m to 6.0 m due to the change in emplacement method.

Case (4) (see Figure 5-4, taken from p. I-8, Ref. 5):
The trench is ballast material with Alloy 22 liner. The height of the trench is 1041 mm instead of 1000 mm. The drift diameter is 6.0 m.

Case (5) (see Figure 5-5):
The width of the mailbox-shaped drift is 5.0 m.

Case (6) (see Figure 5-6):
The width of the mailbox-shaped drift is 4.0 m. The waste package is positioned higher due to different support design. No drip shield is used.

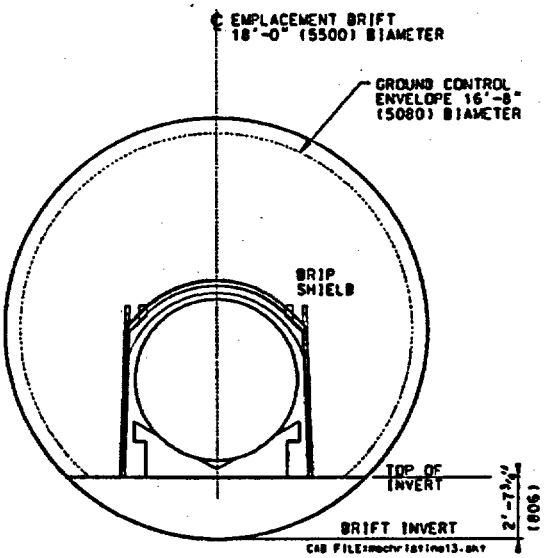


Figure 5-1. Configuration for SR Base Design

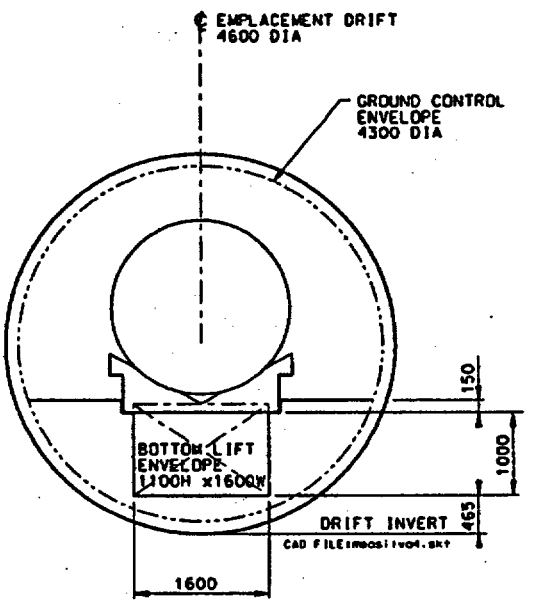


Figure 5-2. Configuration for Cases (1) and (2)

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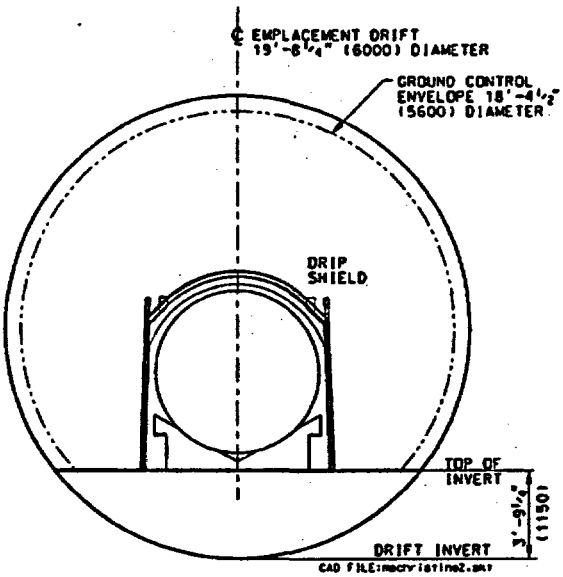


Figure 5-3. Configuration for Case (3)

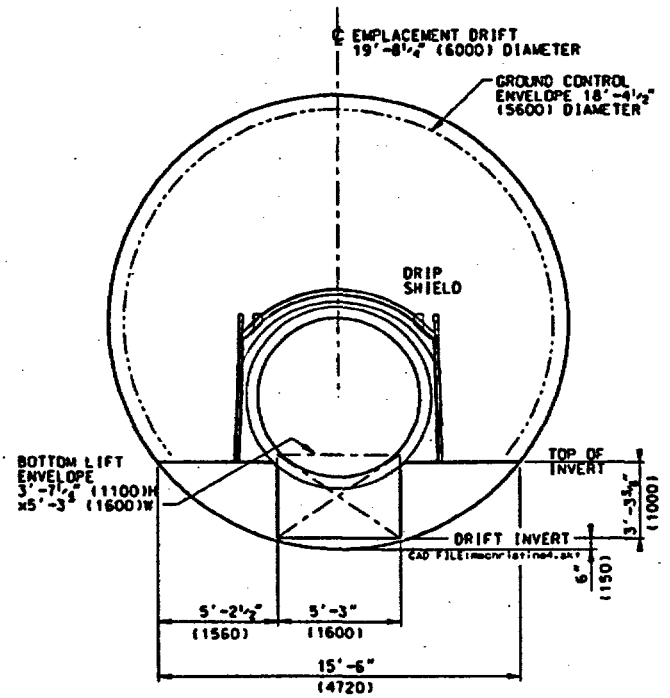


Figure 5-4. Configuration for Case (4)

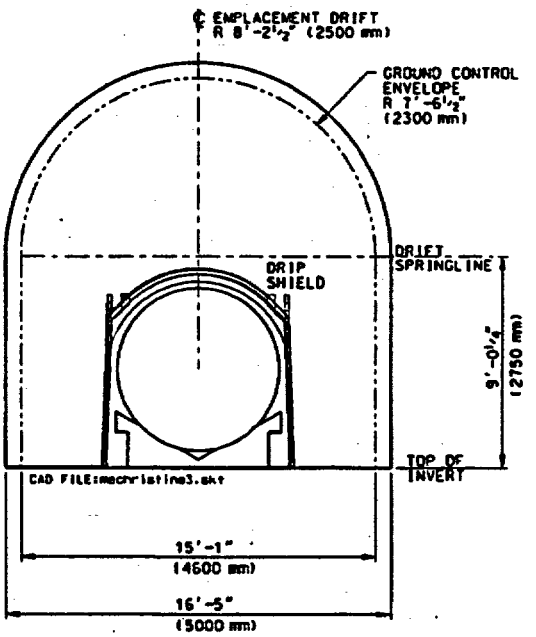


Figure 5-5. Configuration for Case (5)

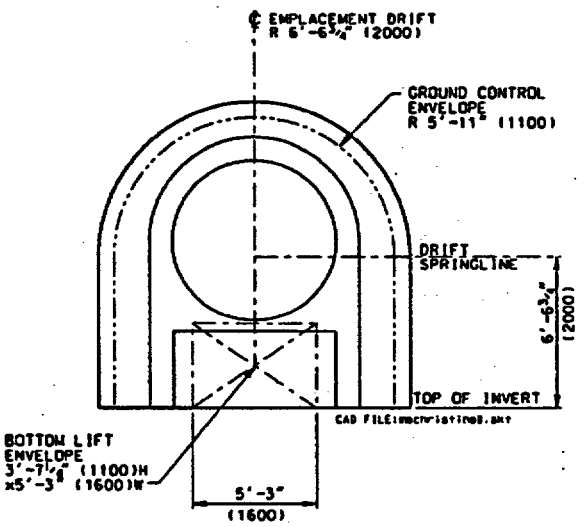


Figure 5-6. Configuration for Case (6)

### 5.1.2 ANSYS Thermal Representations

To evaluate the impact of in-drift configuration on the waste package thermal performance, a 2-D section includes a waste package, a drip shield (for most in-drift configurations), and a rock layer with outer diameter of 15.5 m (which is equivalent to 5 m into the rock from the drift wall for the SR base design; hereinafter referred to as 5m-into-rock). Since the temperature response at 5m-into-rock should remain the same for the same waste package heat generation rate regardless of the in-drift configuration, the same temperature boundary conditions at 5m-into-rock and same heat generation are used to compare the waste package and drift wall responses. The waste package supports are not represented in the drift, so that the conduction paths through the waste package supports are neglected (see Assumption 3.3). Only radiation and conduction heat transfer mechanisms are considered for the calculation (see Assumption 3.4).

The boundary condition for each of the cases is a constant temperature at the 5m-into-rock, the range of which includes 5°C, and 20 °C to 90°C in increments of 10°C (Only the SR Baseline cases with and without drip shield includes the 5°C rock boundary condition. Other cases range from 20°C to 90°C for the 5m-into-rock temperature.). Constant heat generation rates ranging from 0.01 kW/m to 1.44 kW/m from the waste package are also applied. A number of runs have been performed to account for various heat generation rates and temperature boundary conditions. For all the cases analyzed, the waste package is represented as a homogeneous cylinder with waste package shells (see Assumption 3.1). The temperature results from different cases will be compared with the SR baseline case. Table 5-1 lists the cases performed in this calculation.

In addition, the in-drift thermal resistance for the SR Baseline Case (Note: with and without drip shield cases are both included) and Case 2 (5.5 m ground control conduit) will be calculated. These correlations for thermal resistance can be later used for quick waste package surface temperature calculation if the drift wall temperature and thermal output are known. The thermal resistance is defined as

$$R = \frac{T_{wp} - T_{df}}{q} \qquad \text{(Equation 5-1)}$$

where:

R = thermal resistance between waste package surface and drift wall (°C·m/kW)
$T_{wp}$ = waste package surface temperature (°C)
$T_{df}$ = drift wall temperature (°C)
q = waste package heat generation (kW/m)

The thermal resistance R is curve-fit using a third-order polynomial correlation with respect to median temperature $T_m = (T_{wp} + T_{df})/2$. The correlation can then be expressed as

$$R = a + bT_m + cT_m^2 + dT_m^3 \qquad \text{(Equation 5-2)}$$

Attachment I shows the calculation details for the SR Baseline Case (with and without drip shield; files */Excel_Files/d55_cir_fit.xls* and */Excel_Files/d55_cir_nodrip_fit.xls*) and Case 2 (file */Excel_Files/d55_trh_gs_fit.xls*).

Table 5-1. Case Summary

| SR Baseline Case (with drip shield) | SR Baseline Case (without drip shield) | Case 1 | Case 2 | Case 3 | Case 4 | Case 5 | Case 6 |
|---|---|---|---|---|---|---|---|
| /SR_dp/ | /SR_nd/ | /case1/ | /case2/ | /case3/ | /case4/ | /case5/ | /case6/ |
| d55_001 | d55_001 | d45_001 | d55_001 | d60_001 | d60_001 | d50_001 | d40_001 |
| d55_004 | d55_004 | d45_004 | d55_004 | d60_004 | d60_004 | d50_004 | d40_004 |
| d55_008 | d55_008 | d45_008 | d55_008 | d60_008 | d60_008 | d50_008 | d40_008 |
| d55_012 | d55_012 | d45_012 | d55_012 | d60_012 | d60_012 | d50_012 | d40_012 |
| d55_016 | d55_016 | d45_016 | d55_016 | d60_016 | d60_016 | d50_016 | d40_016 |
| d55_020 | d55_020 | d45_020 | d55_020 | d60_020 | d60_020 | d50_020 | d40_020 |
| d55_024 | d55_024 | d45_024 | d55_024 | d60_024 | d60_024 | d50_024 | d40_024 |
| d55_028 | d55_028 | d45_028 | d55_028 | d60_028 | d60_028 | d50_028 | d40_028 |
| d55_032 | d55_032 | d45_032 | d55_032 | d60_032 | d60_032 | d50_032 | d40_032 |
| d55_036 | d55_036 | d45_036 | d55_036 | d60_036 | d60_036 | d50_036 | d40_036 |
| d55_040 | d55_040 | d45_040 | d55_040 | d60_040 | d60_040 | d50_040 | d40_040 |
| d55_044 | d55_044 | d45_044 | d55_044 | d60_044 | d60_044 | d50_044 | d40_044 |
| d55_048 | d55_048 | d45_048 | d55_048 | d60_048 | d60_048 | d50_048 | d40_048 |
| d55_052 | d55_052 | d45_052 | d55_052 | d60_052 | d60_052 | d50_052 | d40_052 |
| d55_056 | d55_056 | d45_056 | d55_056 | d60_056 | d60_056 | d50_056 | d40_056 |
| d55_060 | d55_060 | d45_060 | d55_060 | d60_060 | d60_060 | d50_060 | d40_060 |
| d55_064 | d55_064 | d45_064 | d55_064 | d60_064 | d60_064 | d50_064 | d40_064 |
| d55_068 | d55_068 | d45_068 | d55_068 | d60_068 | d60_068 | d50_068 | d40_068 |
| d55_072 | d55_072 | d45_072 | d55_072 | d60_072 | d60_072 | d50_072 | d40_072 |
| d55_076 | d55_076 | d45_076 | d55_076 | d60_076 | d60_076 | d50_076 | d40_076 |
| d55_080 | d55_080 | d45_080 | d55_080 | d60_080 | d60_080 | d50_080 | d40_080 |
| d55_084 | d55_084 | d45_084 | d55_084 | d60_084 | d60_084 | d50_084 | d40_084 |
| d55_088 | d55_088 | d45_088 | d55_088 | d60_088 | d60_088 | d50_088 | d40_088 |
| d55_092 | d55_092 | d45_092 | d55_092 | d60_092 | d60_092 | d50_092 | d40_092 |
| d55_096 | d55_096 | d45_096 | d55_096 | d60_096 | d60_096 | d50_096 | d40_096 |
| d55_100 | d55_100 | d45_100 | d55_100 | d60_100 | d60_100 | d50_100 | d40_100 |
| d55_104 | d55_104 | d45_104 | d55_104 | d60_104 | d60_104 | d50_104 | d40_104 |
| d55_108 | d55_108 | d45_108 | d55_108 | d60_108 | d60_108 | d50_108 | d40_108 |
| d55_112 | d55_112 | d45_112 | d55_112 | d60_112 | d60_112 | d50_112 | d40_112 |
| d55_116 | d55_116 | d45_116 | d55_116 | d60_116 | d60_116 | d50_116 | d40_116 |
| d55_120 | d55_120 | d45_120 | d55_120 | d60_120 | d60_120 | d50_120 | d40_120 |
| d55_124 | d55_124 | d45_124 | d55_124 | d60_124 | d60_124 | d50_124 | d40_124 |
| d55_128 | d55_128 | d45_128 | d55_128 | d60_128 | d60_128 | d50_128 | d40_128 |
| d55_132 | d55_132 | d45_132 | d55_132 | d60_132 | d60_132 | d50_132 | d40_132 |
| d55_136 | d55_136 | d45_136 | d55_136 | d60_136 | d60_136 | d50_136 | d40_136 |
| d55_140 | d55_140 | d45_140 | d55_140 | d60_140 | d60_140 | d50_140 | d40_140 |
| d55_144 | d55_144 | d45_144 | d55_144 | d60_144 | d60_144 | d50_144 | d40_144 |
| d55_5c | d55_5c | | | | | | |

For the calculations described above, the waste package diameter and shell thickness are based on the dimensions of a 21-PWR waste package (Ref. 19). Note that the waste package outer shell thickness of 25 mm instead of 20 mm is used in the calculation. This thickness difference, although it may have a small impact on the waste package internal temperature, will not affect the waste package surface temperature results, which is of concern for this calculation.

The design of the drift invert (SR Baseline Case and Case 3) requires using two layers of materials. The top region is composed of steel beams and ballast material (sand) and the bottom region is composed of only ballast material (see Ref. 20, p. 25 for the design). The sand material is filled to the top of the steel invert giving it a height of 0.806 m (Ref. 20, p. 24) from the

bottom of the drift. The sand-filled steel invert structure is represented in ANSYS using homogenous thermal properties calculated in Ref. 4. Geometrically, the top region has a depth of a W12X65 beam from the surface of the invert. Page 1-28 of Ref. 14 lists the depth of a W12X65 beam as 12.12 inches (0.3078 m).

The design details and overall dimensions of the drip shield are provided in Ref. 23. In this calculation, the drip shield is simplified as titanium plate with a width of 2.512 m, a top radius of curvature of 1.285 m, and a thickness of 15 mm.

All other dimensions of the alternative in-drift configurations are in Section 5.1.1.

Table 5-2 lists the key dimensions used in this calculation.

Table 5-2. Key Dimensions Used in the Calculation

| Description | Dimension |
|---|---|
| Waste Package Outer Diameter | 1.564 m |
| Waste Package Inner Shell Thickness | 0.050 m |
| Waste Package Outer Shell Thickness | 0.025 m |
| Drip Shield Width | 2.512 m |
| Drip Shield Top Radius | 1.285 m |
| Drip Shield Thickness | 0.015 m |

## 5.2 WASTE PACKAGE DIAMETER EFFECT

The effect of waste package diameter variance on the thermal performance can be estimated by using a simple radiation equation for concentric cylinders (p. 739 of Ref. 17):

$$q_{12} = \frac{\sigma A_1 (T_1^4 - T_2^4)}{\frac{1}{\varepsilon_1} + \frac{1-\varepsilon_2}{\varepsilon_2}\left(\frac{r_1}{r_2}\right)} \qquad \text{(Equation 5-3)}$$

where:

$q_{12}$ = heat transfer rate from waste package to drift (W)
$\sigma$ = Stefan-Boltzmann constant = 5.670e+8 $W/m^2 \cdot K^4$
$A_1$ = waste package surface area ($m^2$)
$T_1$ = waste package surface temperature (K)
$T_2$ = drift wall temperature (K)
$\varepsilon_1$ = waste package surface emissivity
$\varepsilon_2$ = drift wall emissivity

Since the drift wall temperature remains the same for different waste package diameters as long as the waste package thermal output is the same, the waste package surface temperatures for different waste package diameters are compared against that of a 21 PWR waste package (D = 1.564 m) for a given drift wall temperature. The drift diameter used in the calculation is 5.5 m,

and the waste package diameters of 1 m, 1.5 m, 2 m and 2.5 m are used to evaluate the thermal effect.

The calculation is performed in a Microsoft Excel spreadsheet included in Attachment I (file */Excel_Files/wpdia.xls*).

## 5.3 THERMAL PROPERTIES

The number of digits in the values cited herein may be the result of a calculation or may reflect the results of a units conversion; consequently, it should not be interpreted as an indication of accuracy.

Table 5-3 summarizes the waste package, drip shield, trench, ground support, and rock materials used in the calculation.

Table 5-3. Material List

| Name | Material |
|---|---|
| Waste Package Outer Shell | Alloy 22 |
| Waste Package Inner Shell | 316NG |
| Waste Package Internal | homogeneous material |
| Drip Shield | Titanium Grade 7 |
| Ground Support Conduit | Titanium Grade 7 |
| Ground Support Conduit Filler | Ballast Material |
| Trench | Ballast Material |
| Trench Liner | Alloy 22 |
| Rock | Tptpll |

The drift rock material used in the calculation is Tptpll, since the location of the proposed repository is limited to the TSw2 geologic unit at an elevation of 1072.3 meters (Ref. 18, p. 16), which is located in the Tptpll according to the rock layer thicknesses (Ref. 8). Table 5-4 lists thermal conductivity and emissivity of the drift rock (Tptpll) taken from Ref. 8 (see Assumption 3.5) and Ref. 17, page 853 (for rock), respectively.

Table 5-4. Thermal Properties of the Drift Rock

| Emissivity | Thermal Conductivity (W/m·K) | |
|---|---|---|
| | T≤100°C | T>100°C |
| 0.92 | 2.02 | 1.20 |

To simplify the waste package emplacement representation, the waste package is assumed to be emplaced in the drift as a homogeneous heat-generating cylinder (Assumption 3.1). The effective thermal conductivity for the waste package internal homogeneous cylinder is taken from Ref. 9, Equation 5.1.3-2 for a 21-PWR (pressurized water reactor) waste package. Table 5-5 lists the effective thermal conductivity of the waste package internal cylinder.

Table 5-5. Effective Thermal Conductivity of the Waste Package Internal Cylinder

| Thermal Conductivity (W/m·K) |
|---|
| 1.5 |

Table 5-6 lists the thermal conductivity of Alloy 22, the outer shell and trench liner material. Values for thermal conductivity are taken from Ref. 12, p. 13.

The material properties of stainless steel 316 are used for the inner shell material, stainless steel 316NG. Stainless steel 316NG, which is 316 with tightened control on carbon and nitrogen content, has the same mechanical and physical properties as 316 (see Ref. 16, page 931 and Ref. 15, SA-240 in Section II, Table U). Table 5-7 lists the thermal conductivity of stainless steel 316NG. Values for thermal conductivity of stainless steel 316NG (16Cr-12Ni-2Mo) are taken from Ref. 15, Section II, Table TCD.

Table 5-8 lists the emissivity of the outer shell and trench liner material Alloy 22. The emissivity is taken from Ref. 11, p. 10-297 for nickel-chromium alloy.

Table 5-6. Thermal Conductivity of Alloy 22

| Temperature (°C) | Thermal Conductivity (W/m·K) |
|---|---|
| 48 | 10.1 |
| 100 | 11.1 |
| 200 | 13.4 |
| 300 | 15.5 |
| 400 | 17.5 |
| 500 | 19.5 |
| 600 | 21.3 |

Table 5-7. Thermal Conductivity of 316NG

| Temperature | | Thermal Conductivity (Btu/hr-ft-°F) | Thermal Conductivity (W/m·K) |
|---|---|---|---|
| (°F) | (°C) | | |
| 70 | 21.11 | 7.7 | 13.33 |
| 100 | 37.78 | 7.9 | 13.67 |
| 150 | 65.56 | 8.2 | 14.19 |
| 200 | 93.33 | 8.4 | 14.54 |
| 250 | 121.11 | 8.7 | 15.06 |
| 300 | 148.89 | 9.0 | 15.58 |
| 350 | 176.67 | 9.2 | 15.92 |
| 400 | 204.44 | 9.5 | 16.44 |
| 450 | 232.22 | 9.8 | 16.96 |
| 500 | 260.00 | 10.0 | 17.31 |
| 550 | 287.78 | 10.3 | 17.83 |
| 600 | 315.56 | 10.5 | 18.17 |
| 650 | 343.33 | 10.7 | 18.52 |
| 700 | 371.11 | 11.0 | 19.04 |
| 750 | 398.89 | 11.2 | 19.38 |
| 800 | 426.67 | 11.5 | 19.90 |

Table 5-8. Emissivity of Alloy 22

| Emissivity |
|---|
| 0.87 |

Table 5-9 lists the emissivity of Titanium Grade 7 used as the drip shield and conduit material. The emissivity of Titanium Grade 7 is from Ref. 11, Page 10-298, and generalized as that of titanium.

Table 5-10 lists the thermal conductivity of Titanium Grade 7. The thermal conductivity is taken from Ref. 15, Section II, Table TCD.

Table 5-9. Emissivity of Titanium Grade 7

| Emissivity |
|---|
| 0.63 |

Table 5-10. Thermal Conductivity of Titanium Grade 7

| Temperature | | Thermal Conductivity (Btu/hr·ft·°F) | Thermal Conductivity (W/m·K) |
|---|---|---|---|
| (°F) | (°C) | | |
| 70 | 21.11 | 12.68 | 21.95 |
| 100 | 37.78 | 12.52 | 21.67 |
| 150 | 65.56 | 12.25 | 21.20 |
| 200 | 93.33 | 12.00 | 20.77 |
| 250 | 121.11 | 11.85 | 20.51 |
| 300 | 148.89 | 11.72 | 20.28 |
| 350 | 176.67 | 11.60 | 20.08 |
| 400 | 204.44 | 11.45 | 19.82 |
| 450 | 232.22 | 11.35 | 19.64 |
| 500 | 260.00 | 11.29 | 19.54 |
| 550 | 287.78 | 11.23 | 19.44 |
| 600 | 315.56 | 11.20 | 19.38 |
| 650 | 343.33 | 11.17 | 19.33 |
| 700 | 371.11 | 11.15 | 19.30 |
| 750 | 398.89 | 11.18 | 19.35 |
| 800 | 426.67 | 11.20 | 19.38 |
| 850 | 454.44 | 11.23 | 19.44 |
| 900 | 482.22 | 11.30 | 19.56 |
| 950 | 510.00 | 11.36 | 19.66 |
| 1000 | 537.78 | 11.43 | 19.78 |
| 1050 | 565.56 | 11.51 | 19.92 |
| 1100 | 593.33 | 11.58 | 20.04 |

Table 5-11 lists the effective thermal conductivity of the invert top layer (composed of steel beams and ballast material), which is taken from Ref. 4, Tables 6-4, 6-8 and 6-12. Table 5-12 lists the properties of the invert bottom layer and conduit filler, which are ballast material. The

thermal conductivity is based on Assumption 3.2. The emissivity of sand (Table A.11, Ref. 17) is used for the invert surface listed in Table 5-12.

Table 5-11. Effective Thermal Conductivity of the Invert (top layer)

| Temperature (°C) | Thermal Conductivity (W/m·K) | | |
|---|---|---|---|
| | Vertical | Lateral | Axial |
| 50 | 7.078 | 1.735 | 1.206 |
| 100 | 7.163 | 1.723 | 1.212 |
| 150 | 7.170 | 1.705 | 1.210 |
| 200 | 7.111 | 1.680 | 1.202 |
| 250 | 7.001 | 1.651 | 1.187 |
| 300 | 6.852 | 1.617 | 1.168 |
| 350 | 6.678 | 1.580 | 1.145 |

Table 5-12. Thermal Properties of Invert Ballast Material (bottom layer)

| Thermal Conductivity (W/m·K) | Emissivity |
|---|---|
| 0.2 | 0.9 |

## 5.4 ANSYS FILES

This section briefly describes the ANSYS format used to develop the thermal representations.

The format of the input file normally includes the following:

1) Describe the file names, problem evaluated, and additional files needed to run the input file, etc.
2) Define parameters and dimensions which are repeatedly used in the representation.
3) Read in additional files, i.e., material property files and heat load files needed for the execution.
4) Define element types used in the file.
5) Define geometry and generate mesh.
6) Apply the body load (heat output) and boundary conditions and solve the problem.
7) Extract temperature results at desired locations in the representation.

All ANSYS files including material properties files (.dat) and output files (.out) are stored on a compact disc (Attachment I) and summarized in Attachment II, Table II-1.

The mesh of the finite element representation is appropriately generated according to standard engineering practice. Thus, the accuracy and representativeness of the results of this thermal calculation is deemed acceptable.

# 6. RESULTS

## 6.1 ALTERNATIVE IN-DRIFT CONFIGURATION TEMPERATURE RESULTS

Tables 6-1 through 6-8 list the maximum waste package surface and drift wall temperatures at different instantaneous linear thermal loads and different rock boundary conditions for the SR Baseline case and alternative in-drift configurations cases.

Figures 6-1, 6-3, 6-5, 6-7, 6-9, 6-11, 6-13, and 6-15 show the waste package surface temperature comparison with that of the SR base design (with drip shield) at different instantaneous linear heat loads. For any rock boundary conditions, all cases except for (1) and (2) with conduit / ballast ground support design have lower waste package surface temperatures than the SR base design.

Figure 6-11 shows the 5m-into-rock temperature condition at 70°C. This boundary condition is similar to that of post-closure at 200-300 years (Ref. 3, Figures 6-4 and 6-5). The instantaneous linear heat load for a 2-m waste package spacing at these times is about 0.12-0.15 kW/m. Therefore the temperature difference between the alternative cases and the SR base design becomes insignificant.

Similar results can be observed in the drift wall temperature comparison shown in Figures 6-2, 6-4, 6-6, 6-8, 6-10, 6-12, 6-14, and 6-16. The drift wall temperatures do not change significantly for the alternative in-drift configurations.

Figure 6-17 shows the ANSYS representations and temperature contours for all the cases at rock temperature of 70°C.

## 6.2 IN-DRIFT THERMAL RESISTANCE

The thermal resistance calculated for SR Baseline Case and the Case 2 (See Attachment I, Files: */Excel_Files:/d55_cir_fit.xls; /Excel_Files:/d55_cir_nodrip_fit.xls; /Excel_Files:/d55_trh_gs_fit.xls*) are listed as follows:

SR Baseline Case (with drip shield):

$$R = 123.60980 - 1.04808 \times T_m + 0.00504 \times T_m^2 - 1.40067e-5 \times T_m^3 + 1.67707e-8 \times T_m^4 \quad \text{(Equation 6-1)}$$

SR Baseline Case (without drip shield):

$$R = 69.41964 - 0.59251 \times T_m + 0.00290 \times T_m^2 - 8.19436e-6 \times T_m^3 + 1.00068e-8 \times T_m^4 \quad \text{(Equation 6-2)}$$

Case 2:

$$R = 116.24725 - 0.57115 \times T_m + 0.00214 \times T_m^2 - 3.62399e-6 \times T_m^3 + 2.13395e-9 \times T_m^4 \quad \text{(Equation 6-3)}$$

Table 6-1. Temperature Results for SR Baseline Case (D = 5.5 m; circular; with drip shield)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5* | | 0.01 | 7.0 | 5.8 | | 0.52 | 85.4 | 47.8 | | 1.04 | 143.9 | 91.1 |
| 20 | | 0.01 | 21.8 | 20.8 | | 0.52 | 97.0 | 62.9 | | 1.04 | 156.0 | 108.0 |
| 30 | | 0.01 | 31.8 | 30.8 | | 0.52 | 105.0 | 72.9 | | 1.04 | 166.0 | 121.5 |
| 40 | | 0.01 | 41.7 | 40.8 | | 0.52 | 113.0 | 83.0 | | 1.04 | 176.6 | 135.6 |
| 50 | /SR_dp/ d55_001 | 0.01 | 51.6 | 50.8 | /SR_dp/ d55_052 | 0.52 | 121.3 | 93.0 | /SR_dp/ d55_104 | 1.04 | 187.9 | 149.9 |
| 60 | | 0.01 | 61.6 | 60.8 | | 0.52 | 130.3 | 103.9 | | 1.04 | 198.3 | 162.8 |
| 70 | | 0.01 | 71.5 | 70.8 | | 0.52 | 141.8 | 117.7 | | 1.04 | 210.1 | 177.2 |
| 80 | | 0.01 | 81.5 | 80.8 | | 0.52 | 153.7 | 131.4 | | 1.04 | 222.1 | 191.5 |
| 90 | | 0.01 | 91.4 | 90.8 | | 0.52 | 166.1 | 145.6 | | 1.04 | 233.0 | 204.3 |
| 5* | | 0.04 | 12.8 | 8.3 | | 0.56 | 90.4 | 51.1 | | 1.08 | 148.0 | 94.4 |
| 20 | | 0.04 | 27.3 | 23.3 | | 0.56 | 101.9 | 66.2 | | 1.08 | 160.9 | 112.5 |
| 30 | | 0.04 | 37.0 | 33.3 | | 0.56 | 109.8 | 76.2 | | 1.08 | 171.0 | 126.3 |
| 40 | | 0.04 | 46.7 | 43.3 | | 0.56 | 117.8 | 86.3 | | 1.08 | 181.1 | 139.5 |
| 50 | /SR_dp/ d55_004 | 0.04 | 56.4 | 53.3 | /SR_dp/ d55_056 | 0.56 | 126.0 | 96.3 | /SR_dp/ d55_108 | 1.08 | 192.5 | 154.0 |
| 60 | | 0.04 | 66.2 | 63.3 | | 0.56 | 135.9 | 108.4 | | 1.08 | 204.1 | 168.4 |
| 70 | | 0.04 | 76.0 | 73.3 | | 0.56 | 147.5 | 122.4 | | 1.08 | 214.8 | 181.4 |
| 80 | | 0.04 | 85.8 | 83.3 | | 0.56 | 159.4 | 136.2 | | 1.08 | 226.9 | 195.9 |
| 90 | | 0.04 | 95.7 | 93.3 | | 0.56 | 171.5 | 150.0 | | 1.08 | 238.2 | 209.2 |
| 5* | | 0.08 | 20.2 | 11.5 | | 0.6 | 95.3 | 54.4 | | 1.12 | 152.0 | 97.8 |
| 20 | | 0.08 | 34.2 | 26.5 | | 0.6 | 106.7 | 69.5 | | 1.12 | 165.8 | 117.1 |
| 30 | | 0.08 | 43.6 | 36.6 | | 0.6 | 114.5 | 79.6 | | 1.12 | 176.0 | 131.0 |
| 40 | | 0.08 | 53.1 | 46.6 | | 0.6 | 122.5 | 89.6 | | 1.12 | 186.8 | 145.2 |
| 50 | /SR_dp/ d55_008 | 0.08 | 62.7 | 56.6 | /SR_dp/ d55_060 | 0.6 | 130.6 | 99.7 | /SR_dp/ d55_112 | 1.12 | 197.0 | 158.1 |
| 60 | | 0.08 | 72.2 | 66.6 | | 0.6 | 141.3 | 112.9 | | 1.12 | 208.8 | 172.8 |
| 70 | | 0.08 | 81.9 | 76.6 | | 0.6 | 152.8 | 126.6 | | 1.12 | 219.6 | 185.9 |
| 80 | | 0.08 | 91.5 | 86.6 | | 0.6 | 164.6 | 140.5 | | 1.12 | 231.7 | 200.3 |
| 90 | | 0.08 | 101.2 | 96.6 | | 0.6 | 176.8 | 154.4 | | 1.12 | 243.8 | 214.6 |
| 5* | | 0.12 | 27.3 | 14.8 | | 0.64 | 100.1 | 57.8 | | 1.16 | 156.1 | 101.2 |
| 20 | | 0.12 | 40.9 | 29.8 | | 0.64 | 111.4 | 72.8 | | 1.16 | 170.7 | 121.8 |
| 30 | | 0.12 | 50.1 | 39.8 | | 0.64 | 119.2 | 82.9 | | 1.16 | 180.5 | 135.1 |
| 40 | | 0.12 | 59.3 | 49.9 | | 0.64 | 127.1 | 92.9 | | 1.16 | 191.3 | 149.2 |
| 50 | /SR_dp/ d55_012 | 0.12 | 68.7 | 59.9 | /SR_dp/ d55_064 | 0.64 | 135.8 | 103.8 | /SR_dp/ d55_116 | 1.16 | 202.8 | 163.8 |
| 60 | | 0.12 | 78.1 | 69.9 | | 0.64 | 146.8 | 117.5 | | 1.16 | 213.4 | 177.0 |
| 70 | | 0.12 | 87.6 | 79.9 | | 0.64 | 158.5 | 131.5 | | 1.16 | 225.4 | 191.5 |
| 80 | | 0.12 | 97.1 | 89.9 | | 0.64 | 170.4 | 145.5 | | 1.16 | 236.4 | 204.7 |
| 90 | | 0.12 | 106.6 | 100.0 | | 0.64 | 182.1 | 158.9 | | 1.16 | 248.8 | 219.4 |
| 5* | /SR_dp/ d55_016 | 0.16 | 34.0 | 18.1 | /SR_dp/ d55_068 | 0.68 | 104.8 | 61.1 | /SR_dp/ d55_120 | 1.2 | 160.7 | 105.6 |
| 20 | | 0.16 | 47.3 | 33.1 | | 0.68 | 116.0 | 76.2 | | 1.2 | 175.1 | 125.9 |
| 30 | | 0.16 | 56.3 | 43.1 | | 0.68 | 123.8 | 86.2 | | 1.2 | 185.7 | 140.2 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | 0.16 | 65.4 | 53.1 | | 0.68 | 131.6 | 96.3 | | 1.2 | 195.7 | 153.2 |
| 50 | | 0.16 | 74.5 | 63.2 | | 0.68 | 141.1 | 108.3 | | 1.2 | 207.4 | 168.1 |
| 60 | | 0.16 | 83.8 | 73.2 | | 0.68 | 152.2 | 122.0 | | 1.2 | 218.0 | 181.2 |
| 70 | | 0.16 | 93.1 | 83.2 | | 0.68 | 163.6 | 135.7 | | 1.2 | 230.2 | 196.1 |
| 80 | | 0.16 | 102.5 | 93.2 | | 0.68 | 175.7 | 149.9 | | 1.2 | 241.1 | 209.1 |
| 90 | | 0.16 | 112.9 | 104.3 | | 0.68 | 187.6 | 163.7 | | 1.2 | 253.7 | 224.0 |
| 5* | | 0.2 | 40.4 | 21.3 | | 0.72 | 109.4 | 64.4 | | 1.24 | 165.3 | 110.0 |
| 20 | | 0.2 | 53.5 | 36.4 | | 0.72 | 120.6 | 79.5 | | 1.24 | 180.0 | 130.6 |
| 30 | | 0.2 | 62.3 | 46.4 | | 0.72 | 128.3 | 89.5 | | 1.24 | 190.0 | 144.2 |
| 40 | /SR_dp/ | 0.2 | 71.2 | 56.4 | /SR_dp/ | 0.72 | 136.1 | 99.6 | /SR_dp/ | 1.24 | 201.5 | 159.1 |
| 50 | d55_020 | 0.2 | 80.2 | 66.5 | d55_072 | 0.72 | 146.4 | 112.8 | d55_124 | 1.24 | 211.9 | 172.3 |
| 60 | | 0.2 | 89.3 | 76.5 | | 0.72 | 157.3 | 126.3 | | 1.24 | 223.1 | 186.1 |
| 70 | | 0.2 | 98.5 | 86.5 | | 0.72 | 169.3 | 140.7 | | 1.24 | 234.9 | 200.5 |
| 80 | | 0.2 | 107.8 | 96.5 | | 0.72 | 180.7 | 154.2 | | 1.24 | 245.9 | 213.6 |
| 90 | | 0.2 | 119.2 | 108.9 | | 0.72 | 193.1 | 168.6 | | 1.24 | 258.6 | 228.6 |
| 5* | | 0.24 | 46.7 | 24.6 | | 0.76 | 114.0 | 67.7 | | 1.28 | 170.0 | 114.7 |
| 20 | | 0.24 | 59.4 | 39.7 | | 0.76 | 125.1 | 82.8 | | 1.28 | 184.9 | 135.6 |
| 30 | | 0.24 | 68.1 | 49.7 | | 0.76 | 132.7 | 92.9 | | 1.28 | 195.1 | 149.3 |
| 40 | /SR_dp/ | 0.24 | 76.9 | 59.8 | /SR_dp/ | 0.76 | 141.1 | 103.7 | /SR_dp/ | 1.28 | 206.0 | 163.3 |
| 50 | d55_024 | 0.24 | 85.8 | 69.8 | d55_076 | 0.76 | 151.7 | 117.4 | d55_128 | 1.28 | 216.4 | 176.4 |
| 60 | | 0.24 | 94.7 | 79.8 | | 0.76 | 163.0 | 131.4 | | 1.28 | 228.5 | 191.5 |
| 70 | | 0.24 | 103.8 | 89.8 | | 0.76 | 174.3 | 144.9 | | 1.28 | 239.5 | 204.8 |
| 80 | | 0.24 | 113.0 | 99.9 | | 0.76 | 186.1 | 158.9 | | 1.28 | 250.5 | 218.0 |
| 90 | | 0.24 | 125.3 | 113.4 | | 0.76 | 198.3 | 173.1 | | 1.28 | 263.4 | 233.1 |
| 5* | | 0.28 | 52.7 | 27.9 | | 0.8 | 118.4 | 71.1 | | 1.32 | 174.8 | 119.5 |
| 20 | | 0.28 | 65.2 | 43.0 | | 0.8 | 129.5 | 86.2 | | 1.32 | 189.3 | 139.6 |
| 30 | | 0.28 | 73.8 | 53.0 | | 0.8 | 137.1 | 96.2 | | 1.32 | 200.1 | 154.1 |
| 40 | /SR_dp/ | 0.28 | 82.4 | 63.1 | /SR_dp/ | 0.8 | 146.3 | 108.3 | /SR_dp/ | 1.32 | 210.4 | 167.4 |
| 50 | d55_028 | 0.28 | 91.2 | 73.1 | d55_080 | 0.8 | 156.9 | 121.9 | d55_132 | 1.32 | 221.5 | 181.5 |
| 60 | | 0.28 | 100.0 | 83.1 | | 0.8 | 167.8 | 135.4 | | 1.32 | 233.1 | 195.8 |
| 70 | | 0.28 | 109.0 | 93.1 | | 0.8 | 179.7 | 149.8 | | 1.32 | 244.0 | 209.1 |
| 80 | | 0.28 | 118.9 | 104.2 | | 0.8 | 191.6 | 163.9 | | 1.32 | 255.4 | 222.7 |
| 90 | | 0.28 | 131.4 | 118.0 | | 0.8 | 203.4 | 177.6 | | 1.32 | 268.2 | 237.7 |
| 5* | | 0.32 | 58.6 | 31.2 | | 0.84 | 122.8 | 74.4 | | 1.36 | 179.1 | 123.6 |
| 20 | | 0.32 | 70.9 | 46.3 | | 0.84 | 133.8 | 89.5 | | 1.36 | 194.4 | 144.8 |
| 30 | | 0.32 | 79.3 | 56.3 | | 0.84 | 141.4 | 99.5 | | 1.36 | 204.4 | 158.2 |
| 40 | /SR_dp/ | 0.32 | 87.8 | 66.4 | /SR_dp/ | 0.84 | 151.4 | 112.8 | /SR_dp/ | 1.36 | 214.7 | 171.4 |
| 50 | d55_032 | 0.32 | 96.5 | 76.4 | d55_084 | 0.84 | 162.0 | 126.3 | d55_136 | 1.36 | 226.8 | 186.8 |
| 60 | | 0.32 | 105.2 | 86.4 | | 0.84 | 173.6 | 140.7 | | 1.36 | 237.6 | 200.2 |
| 70 | | 0.32 | 114.1 | 96.5 | | 0.84 | 185.0 | 154.5 | | 1.36 | 248.6 | 213.4 |
| 80 | | 0.32 | 124.8 | 108.7 | | 0.84 | 196.6 | 168.3 | | 1.36 | 261.2 | 228.5 |
| 90 | | 0.32 | 137.4 | 122.5 | | 0.84 | 208.5 | 182.1 | | 1.36 | 273.0 | 242.3 |

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5* | /SR_dp/ d55_036 | 0.36 | 64.2 | 34.5 | /SR_dp/ d55_088 | 0.88 | 127.2 | 77.7 | /SR_dp/ d55_140 | 1.4 | 183.8 | 128.2 |
| 20 | | 0.36 | 76.4 | 49.6 | | 0.88 | 138.1 | 92.8 | | 1.4 | 198.6 | 148.9 |
| 30 | | 0.36 | 84.6 | 59.6 | | 0.88 | 146.2 | 103.7 | | 1.4 | 208.7 | 162.2 |
| 40 | | 0.36 | 93.1 | 69.7 | | 0.88 | 156.5 | 117.3 | | 1.4 | 220.6 | 177.5 |
| 50 | | 0.36 | 101.6 | 79.7 | | 0.88 | 167.2 | 130.9 | | 1.4 | 231.3 | 191.1 |
| 60 | | 0.36 | 110.3 | 89.7 | | 0.88 | 178.4 | 144.8 | | 1.4 | 242.2 | 204.5 |
| 70 | | 0.36 | 119.1 | 99.8 | | 0.88 | 189.8 | 158.7 | | 1.4 | 253.1 | 217.7 |
| 80 | | 0.36 | 130.8 | 113.2 | | 0.88 | 201.5 | 172.6 | | 1.4 | 266.0 | 233.2 |
| 90 | | 0.36 | 143.2 | 127.1 | | 0.88 | 213.5 | 186.6 | | 1.4 | 277.7 | 246.9 |
| 5* | /SR_dp/ d55_040 | 0.4 | 69.7 | 37.8 | /SR_dp/ d55_092 | 0.92 | 131.4 | 81.1 | /SR_dp/ d55_144 | 1.44 | 188.6 | 133.2 |
| 20 | | 0.4 | 81.7 | 52.9 | | 0.92 | 142.4 | 96.2 | | 1.44 | 202.8 | 152.8 |
| 30 | | 0.4 | 89.9 | 63.0 | | 0.92 | 151.2 | 108.0 | | 1.44 | 214.5 | 168.3 |
| 40 | | 0.4 | 98.2 | 73.0 | | 0.92 | 161.7 | 122.0 | | 1.44 | 225.0 | 181.8 |
| 50 | | 0.4 | 106.7 | 83.0 | | 0.92 | 172.6 | 135.9 | | 1.44 | 235.7 | 195.3 |
| 60 | | 0.4 | 115.3 | 93.1 | | 0.92 | 183.6 | 149.5 | | 1.44 | 246.6 | 208.7 |
| 70 | | 0.4 | 124.7 | 104.0 | | 0.92 | 194.8 | 163.1 | | 1.44 | 258.2 | 222.7 |
| 80 | | 0.4 | 136.6 | 117.8 | | 0.92 | 206.4 | 176.9 | | 1.44 | 270.7 | 237.7 |
| 90 | | 0.4 | 149.1 | 131.7 | | 0.92 | 218.4 | 191.0 | | 1.44 | 282.5 | 251.5 |
| 5* | /SR_dp/ d55_044 | 0.44 | 75.1 | 41.1 | /SR_dp/ d55_096 | 0.96 | 135.7 | 84.4 | | | | |
| 20 | | 0.44 | 86.9 | 56.2 | | 0.96 | 146.6 | 99.5 | | | | |
| 30 | | 0.44 | 95.0 | 66.3 | | 0.96 | 156.1 | 112.5 | | | | |
| 40 | | 0.44 | 103.3 | 76.3 | | 0.96 | 166.7 | 126.5 | | | | |
| 50 | | 0.44 | 111.6 | 86.4 | | 0.96 | 177.5 | 140.3 | | | | |
| 60 | | 0.44 | 120.1 | 96.4 | | 0.96 | 188.9 | 154.4 | | | | |
| 70 | | 0.44 | 130.4 | 108.5 | | 0.96 | 200.5 | 168.5 | | | | |
| 80 | | 0.44 | 142.4 | 122.3 | | 0.96 | 211.6 | 181.7 | | | | |
| 90 | | 0.44 | 154.7 | 136.2 | | 0.96 | 223.3 | 195.4 | | | | |
| 5* | /SR_dp/ d55_048 | 0.48 | 80.3 | 44.5 | /SR_dp/ d55_100 | 1 | 139.8 | 87.7 | | | | |
| 20 | | 0.48 | 92.0 | 59.5 | | 1 | 151.2 | 103.6 | | | | |
| 30 | | 0.48 | 100.0 | 69.6 | | 1 | 161.1 | 117.0 | | | | |
| 40 | | 0.48 | 108.2 | 79.6 | | 1 | 171.4 | 130.6 | | | | |
| 50 | | 0.48 | 116.5 | 89.7 | | 1 | 182.1 | 144.3 | | | | |
| 60 | | 0.48 | 124.9 | 99.7 | | 1 | 193.6 | 158.6 | | | | |
| 70 | | 0.48 | 136.1 | 113.1 | | 1 | 205.3 | 172.8 | | | | |
| 80 | | 0.48 | 148.3 | 127.1 | | 1 | 217.2 | 187.1 | | | | |
| 90 | | 0.48 | 140.8 | | | 1 | 228.1 | 199.8 | | | | |

Note: * The case name for this boundary condition is /SR_dp/d55_5c.

Table 6-2. Temperature Results for SR Baseline Case (D = 5.5 m; circular; without drip shield)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5° | /SR_nd/ d55_001 | 0.01 | 6.5 | 5.8 | /SR_nd/ d55_052 | 0.52 | 70.9 | 48.7 | /SR_nd/ d55_104 | 1.04 | 124.0 | 92.3 |
| 20 | | 0.01 | 21.4 | 20.8 | | 0.52 | 83.7 | 63.7 | | 1.04 | 137.9 | 109.4 |
| 30 | | 0.01 | 31.4 | 30.8 | | 0.52 | 92.4 | 73.7 | | 1.04 | 149.1 | 122.9 |
| 40 | | 0.01 | 41.3 | 40.8 | | 0.52 | 101.2 | 83.7 | | 1.04 | 160.8 | 136.6 |
| 50 | | 0.01 | 51.3 | 50.8 | | 0.52 | 110.1 | 93.7 | | 1.04 | 173.1 | 150.8 |
| 60 | | 0.01 | 61.3 | 60.8 | | 0.52 | 120.0 | 104.7 | | 1.04 | 184.7 | 163.9 |
| 70 | | 0.01 | 71.2 | 70.8 | | 0.52 | 132.2 | 118.3 | | 1.04 | 197.2 | 177.9 |
| 80 | | 0.01 | 81.2 | 80.8 | | 0.52 | 144.9 | 132.0 | | 1.04 | 210.2 | 192.3 |
| 90 | | 0.01 | 91.2 | 90.8 | | 0.52 | 157.9 | 146.1 | | 1.04 | 221.8 | 205.1 |
| 5° | /SR_nd/ d55_004 | 0.04 | 10.9 | 8.4 | /SR_nd/ d55_056 | 0.56 | 75.3 | 52.0 | /SR_nd/ d55_108 | 1.08 | 127.8 | 95.7 |
| 20 | | 0.04 | 25.6 | 23.4 | | 0.56 | 88.1 | 67.0 | | 1.08 | 142.6 | 113.8 |
| 30 | | 0.04 | 35.4 | 33.4 | | 0.56 | 96.7 | 77.0 | | 1.08 | 153.9 | 127.4 |
| 40 | | 0.04 | 45.3 | 43.4 | | 0.56 | 105.4 | 87.0 | | 1.08 | 165.3 | 140.8 |
| 50 | | 0.04 | 55.1 | 53.4 | | 0.56 | 114.3 | 97.0 | | 1.08 | 177.5 | 154.9 |
| 60 | | 0.04 | 65.0 | 63.4 | | 0.56 | 125.2 | 109.2 | | 1.08 | 190.2 | 169.3 |
| 70 | | 0.04 | 74.9 | 73.4 | | 0.56 | 137.6 | 123.1 | | 1.08 | 201.8 | 182.2 |
| 80 | | 0.04 | 84.8 | 83.4 | | 0.56 | 150.2 | 136.8 | | 1.08 | 214.8 | 196.7 |
| 90 | | 0.04 | 94.7 | 93.4 | | 0.56 | 162.9 | 150.6 | | 1.08 | 226.9 | 210.0 |
| 5° | /SR_nd/ d55_008 | 0.08 | 16.7 | 11.7 | /SR_nd/ d55_060 | 0.6 | 79.6 | 55.4 | /SR_nd/ d55_112 | 1.12 | 131.6 | 99.0 |
| 20 | | 0.08 | 31.1 | 26.7 | | 0.6 | 92.3 | 70.4 | | 1.12 | 147.3 | 118.3 |
| 30 | | 0.08 | 40.7 | 36.7 | | 0.6 | 100.9 | 80.4 | | 1.12 | 158.9 | 132.3 |
| 40 | | 0.08 | 50.4 | 46.7 | | 0.6 | 109.6 | 90.4 | | 1.12 | 170.7 | 146.2 |
| 50 | | 0.08 | 60.2 | 56.7 | | 0.6 | 118.5 | 100.4 | | 1.12 | 181.9 | 159.0 |
| 60 | | 0.08 | 69.9 | 66.7 | | 0.6 | 130.3 | 113.8 | | 1.12 | 194.8 | 173.6 |
| 70 | | 0.08 | 79.7 | 76.7 | | 0.6 | 142.5 | 127.4 | | 1.12 | 206.7 | 187.0 |
| 80 | | 0.08 | 89.5 | 86.7 | | 0.6 | 155.1 | 141.2 | | 1.12 | 219.4 | 201.1 |
| 90 | | 0.08 | 99.3 | 96.7 | | 0.6 | 167.9 | 155.0 | | 1.12 | 232.4 | 215.4 |
| 5° | /SR_nd/ d55_012 | 0.12 | 22.2 | 15.1 | /SR_nd/ d55_064 | 0.64 | 83.9 | 58.8 | /SR_nd/ d55_116 | 1.16 | 135.8 | 103.1 |
| 20 | | 0.12 | 36.4 | 30.1 | | 0.64 | 96.5 | 73.7 | | 1.16 | 152.1 | 123.1 |
| 30 | | 0.12 | 45.9 | 40.1 | | 0.64 | 105.1 | 83.7 | | 1.16 | 163.2 | 136.3 |
| 40 | | 0.12 | 55.5 | 50.1 | | 0.64 | 113.7 | 93.7 | | 1.16 | 175.0 | 150.2 |
| 50 | | 0.12 | 65.1 | 60.1 | | 0.64 | 123.4 | 104.8 | | 1.16 | 187.7 | 164.8 |
| 60 | | 0.12 | 74.7 | 70.1 | | 0.64 | 135.4 | 118.4 | | 1.16 | 199.2 | 177.9 |
| 70 | | 0.12 | 84.4 | 80.1 | | 0.64 | 147.8 | 132.1 | | 1.16 | 212.2 | 192.4 |
| 80 | | 0.12 | 94.1 | 90.1 | | 0.64 | 160.6 | 146.2 | | 1.16 | 224.0 | 205.5 |
| 90 | | 0.12 | 103.9 | 100.1 | | 0.64 | 172.9 | 159.5 | | 1.16 | 237.3 | 220.1 |
| 5° | /SR_nd/ d55_016 | 0.16 | 27.6 | 18.4 | /SR_nd/ d55_068 | 0.68 | 88.1 | 62.1 | /SR_nd/ d55_120 | 1.2 | 140.4 | 107.5 |
| 20 | | 0.16 | 41.6 | 33.4 | | 0.68 | 100.7 | 77.1 | | 1.2 | 156.9 | 127.8 |
| 30 | | 0.16 | 50.9 | 43.4 | | 0.68 | 109.2 | 87.1 | | 1.2 | 168.3 | 141.3 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | 0.16 | 60.4 | 53.4 | | 0.68 | 117.8 | 97.1 | | 1.2 | 179.4 | 154.4 |
| 50 | | 0.16 | 69.9 | 63.4 | | 0.68 | 128.4 | 109.3 | | 1.2 | 192.2 | 169.1 |
| 60 | | 0.16 | 79.5 | 73.4 | | 0.68 | 140.5 | 123.0 | | 1.2 | 203.6 | 182.0 |
| 70 | | 0.16 | 89.1 | 83.4 | | 0.68 | 152.7 | 136.5 | | 1.2 | 216.8 | 196.9 |
| 80 | | 0.16 | 98.7 | 93.4 | | 0.68 | 165.5 | 150.6 | | 1.2 | 228.6 | 209.9 |
| 90 | | 0.16 | 109.4 | 104.6 | | 0.68 | 178.2 | 164.4 | | 1.2 | 242.1 | 224.7 |
| 5° | | 0.2 | 32.9 | 21.8 | | 0.72 | 92.3 | 65.5 | | 1.24 | 144.8 | 111.8 |
| 20 | | 0.2 | 46.6 | 36.8 | | 0.72 | 104.8 | 80.5 | | 1.24 | 161.2 | 131.8 |
| 30 | | 0.2 | 55.9 | 46.8 | | 0.72 | 113.3 | 90.4 | | 1.24 | 172.4 | 145.3 |
| 40 | /SR_nd/ | 0.2 | 65.2 | 56.8 | /SR_nd/ | 0.72 | 121.9 | 100.5 | /SR_nd/ | 1.24 | 185.1 | 160.1 |
| 50 | d55_020 | 0.2 | 74.6 | 66.8 | d55_072 | 0.72 | 133.5 | 113.9 | d55_124 | 1.24 | 196.6 | 173.2 |
| 60 | | 0.2 | 84.1 | 76.8 | | 0.72 | 145.3 | 127.3 | | 1.24 | 209.2 | 187.6 |
| 70 | | 0.2 | 93.6 | 86.8 | | 0.72 | 158.0 | 141.4 | | 1.24 | 221.4 | 201.3 |
| 80 | | 0.2 | 103.2 | 96.8 | | 0.72 | 170.2 | 154.9 | | 1.24 | 233.2 | 214.3 |
| 90 | | 0.2 | 115.0 | 109.2 | | 0.72 | 183.4 | 169.3 | | 1.24 | 246.8 | 229.3 |
| 5° | | 0.24 | 38.0 | 25.2 | | 0.76 | 96.4 | 68.8 | | 1.28 | 149.2 | 116.1 |
| 20 | | 0.24 | 51.6 | 40.1 | | 0.76 | 108.8 | 83.8 | | 1.28 | 166.3 | 136.9 |
| 30 | | 0.24 | 60.7 | 50.2 | | 0.76 | 117.3 | 93.8 | | 1.28 | 178.1 | 151.1 |
| 40 | /SR_nd/ | 0.24 | 70.0 | 60.2 | /SR_nd/ | 0.76 | 126.8 | 104.9 | /SR_nd/ | 1.28 | 189.5 | 164.3 |
| 50 | d55_024 | 0.24 | 79.3 | 70.1 | d55_076 | 0.76 | 138.5 | 118.5 | d55_128 | 1.28 | 200.9 | 177.4 |
| 60 | | 0.24 | 88.7 | 80.1 | | 0.76 | 150.6 | 132.1 | | 1.28 | 214.1 | 192.4 |
| 70 | | 0.24 | 98.2 | 90.2 | | 0.76 | 162.7 | 145.6 | | 1.28 | 226.0 | 205.7 |
| 80 | | 0.24 | 107.7 | 100.2 | | 0.76 | 175.5 | 159.8 | | 1.28 | 237.8 | 218.7 |
| 90 | | 0.24 | 120.5 | 113.7 | | 0.76 | 188.3 | 173.8 | | 1.28 | 251.5 | 233.9 |
| 5° | | 0.28 | 43.0 | 28.5 | | 0.8 | 100.4 | 72.2 | | 1.32 | 154.0 | 120.8 |
| 20 | | 0.28 | 56.4 | 43.5 | | 0.8 | 112.9 | 87.2 | | 1.32 | 170.4 | 140.8 |
| 30 | | 0.28 | 65.5 | 53.5 | | 0.8 | 121.3 | 97.2 | | 1.32 | 182.4 | 155.2 |
| 40 | /SR_nd/ | 0.28 | 74.7 | 63.5 | /SR_nd/ | 0.8 | 131.7 | 109.3 | /SR_nd/ | 1.32 | 193.8 | 168.4 |
| 50 | d55_028 | 0.28 | 83.9 | 73.5 | d55_080 | 0.8 | 143.5 | 123.1 | d55_132 | 1.32 | 206.7 | 183.2 |
| 60 | | 0.28 | 93.2 | 83.5 | | 0.8 | 155.3 | 136.4 | | 1.32 | 218.6 | 196.7 |
| 70 | | 0.28 | 102.6 | 93.5 | | 0.8 | 168.2 | 150.8 | | 1.32 | 230.5 | 210.0 |
| 80 | | 0.28 | 113.0 | 104.6 | | 0.8 | 180.7 | 164.6 | | 1.32 | 242.8 | 223.7 |
| 90 | | 0.28 | 126.0 | 118.3 | | 0.8 | 193.2 | 178.3 | | 1.32 | 256.3 | 238.5 |
| 5° | | 0.32 | 47.9 | 31.9 | | 0.84 | 104.5 | 75.5 | | 1.36 | 158.8 | 125.7 |
| 20 | | 0.32 | 61.1 | 46.9 | | 0.84 | 116.9 | 90.5 | | 1.36 | 175.6 | 146.1 |
| 30 | | 0.32 | 70.1 | 56.9 | | 0.84 | 125.3 | 100.6 | | 1.36 | 186.7 | 159.2 |
| 40 | /SR_nd/ | 0.32 | 79.2 | 66.9 | /SR_nd/ | 0.84 | 136.5 | 113.8 | /SR_nd/ | 1.36 | 198.4 | 172.9 |
| 50 | d55_032 | 0.32 | 88.4 | 76.9 | d55_084 | 0.84 | 148.4 | 127.5 | d55_136 | 1.36 | 211.3 | 187.7 |
| 60 | | 0.32 | 97.7 | 86.9 | | 0.84 | 160.7 | 141.5 | | 1.36 | 223.1 | 201.0 |
| 70 | | 0.32 | 107.0 | 96.9 | | 0.84 | 173.0 | 155.2 | | 1.36 | 234.9 | 214.3 |
| 80 | | 0.32 | 118.4 | 109.1 | | 0.84 | 185.5 | 169.0 | | 1.36 | 248.5 | 229.4 |
| 90 | | 0.32 | 131.4 | 122.9 | | 0.84 | 198.1 | 182.8 | | 1.36 | 261.0 | 243.1 |

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5* | /SR_nd/ d55_036 | 0.36 | 52.7 | 35.3 | /SR_nd/ d55_088 | 0.88 | 108.4 | 78.9 | /SR_nd/ d55_140 | 1.4 | 162.8 | 129.5 |
| 20 | | 0.36 | 65.8 | 50.2 | | 0.88 | 120.8 | 93.9 | | 1.4 | 179.7 | 150.0 |
| 30 | | 0.36 | 74.7 | 60.2 | | 0.88 | 130.0 | 104.9 | | 1.4 | 190.9 | 163.4 |
| 40 | | 0.36 | 83.8 | 70.2 | | 0.88 | 141.4 | 118.3 | | 1.4 | 204.0 | 178.6 |
| 50 | | 0.36 | 92.9 | 80.2 | | 0.88 | 153.0 | 131.8 | | 1.4 | 215.7 | 192.0 |
| 60 | | 0.36 | 102.0 | 90.2 | | 0.88 | 165.2 | 145.6 | | 1.4 | 227.5 | 205.3 |
| 70 | | 0.36 | 111.4 | 100.3 | | 0.88 | 177.6 | 159.5 | | 1.4 | 239.4 | 218.6 |
| 80 | | 0.36 | 123.8 | 113.7 | | 0.88 | 190.2 | 173.4 | | 1.4 | 253.2 | 234.0 |
| 90 | | 0.36 | 136.7 | 127.5 | | 0.88 | 202.9 | 187.2 | | 1.4 | 265.7 | 247.6 |
| 5* | /SR_nd/ d55_040 | 0.4 | 57.4 | 38.6 | /SR_nd/ d55_092 | 0.92 | 112.4 | 82.3 | /SR_nd/ d55_144 | 1.44 | 167.8 | 134.7 |
| 20 | | 0.4 | 70.4 | 53.6 | | 0.92 | 124.7 | 97.2 | | 1.44 | 184.0 | 154.3 |
| 30 | | 0.4 | 79.3 | 63.6 | | 0.92 | 134.9 | 109.5 | | 1.44 | 196.8 | 169.4 |
| 40 | | 0.4 | 88.2 | 73.6 | | 0.92 | 146.3 | 122.9 | | 1.44 | 208.4 | 182.9 |
| 50 | | 0.4 | 97.3 | 83.6 | | 0.92 | 158.5 | 137.1 | | 1.44 | 220.1 | 196.3 |
| 60 | | 0.4 | 106.4 | 93.6 | | 0.92 | 170.6 | 150.7 | | 1.44 | 231.9 | 209.6 |
| 70 | | 0.4 | 116.6 | 104.7 | | 0.92 | 182.5 | 164.0 | | 1.44 | 244.8 | 224.1 |
| 80 | | 0.4 | 129.1 | 118.3 | | 0.92 | 194.8 | 177.7 | | 1.44 | 257.9 | 238.5 |
| 90 | | 0.4 | 142.2 | 132.2 | | 0.92 | 207.6 | 191.7 | | 1.44 | 270.3 | 252.2 |
| 5* | /SR_nd/ d55_044 | 0.44 | 61.9 | 42.0 | /SR_nd/ d55_096 | 0.96 | 116.3 | 85.6 | | | | |
| 20 | | 0.44 | 74.9 | 56.9 | | 0.96 | 128.6 | 100.6 | | | | |
| 30 | | 0.44 | 83.7 | 66.9 | | 0.96 | 139.8 | 114.1 | | | | |
| 40 | | 0.44 | 92.6 | 76.9 | | 0.96 | 151.3 | 127.7 | | | | |
| 50 | | 0.44 | 101.6 | 86.9 | | 0.96 | 163.0 | 141.2 | | | | |
| 60 | | 0.44 | 110.7 | 96.9 | | 0.96 | 175.4 | 155.3 | | | | |
| 70 | | 0.44 | 121.8 | 109.2 | | 0.96 | 188.0 | 169.3 | | | | |
| 80 | | 0.44 | 134.4 | 122.8 | | 0.96 | 200.0 | 182.6 | | | | |
| 90 | | 0.44 | 147.3 | 136.7 | | 0.96 | 212.4 | 196.2 | | | | |
| 5* | /SR_nd/ d55_048 | 0.48 | 66.5 | 45.3 | /SR_nd/ d55_100 | 1 | 120.1 | 89.0 | | | | |
| 20 | | 0.48 | 79.3 | 60.3 | | 1 | 133.2 | 105.0 | | | | |
| 30 | | 0.48 | 88.1 | 70.3 | | 1 | 144.5 | 118.6 | | | | |
| 40 | | 0.48 | 96.9 | 80.3 | | 1 | 155.9 | 131.9 | | | | |
| 50 | | 0.48 | 105.9 | 90.3 | | 1 | 167.6 | 145.4 | | | | |
| 60 | | 0.48 | 115.0 | 100.4 | | 1 | 179.9 | 159.4 | | | | |
| 70 | | 0.48 | 127.0 | 113.7 | | 1 | 192.6 | 173.6 | | | | |
| 80 | | 0.48 | 139.8 | 127.6 | | 1 | 205.4 | 187.8 | | | | |
| 90 | | 0.48 | 152.5 | 141.3 | | 1 | 217.1 | 200.6 | | | | |

Note: * The case name for this boundary condition is /SR_nd/d55_5c.

Table 6-3. Temperature Results for Case 1 (D = 4.5 m; circular; trench; ground support)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | 0.01 | 22.2 | 21.6 | | 0.52 | 119.3 | 106.1 | | 1.04 | 214.1 | 200.3 |
| 30 | | 0.01 | 32.1 | 31.6 | | 0.52 | 128.5 | 116.1 | | 1.04 | 226.8 | 214.0 |
| 40 | | 0.01 | 42.1 | 41.6 | | 0.52 | 137.7 | 126.1 | | 1.04 | 240.0 | 228.2 |
| 50 | /case1/ | 0.01 | 52.1 | 51.6 | /case1/ | 0.52 | 147.6 | 136.8 | /case1/ | 1.04 | 253.3 | 242.4 |
| 60 | d45_001 | 0.01 | 62.0 | 61.7 | d45_052 | 0.52 | 159.7 | 150.0 | d45_104 | 1.04 | 266.2 | 256.0 |
| 70 | | 0.01 | 72.0 | 71.7 | | 0.52 | 172.8 | 164.0 | | 1.04 | 279.1 | 269.7 |
| 80 | | 0.01 | 82.0 | 81.7 | | 0.52 | 186.0 | 177.9 | | 1.04 | 292.2 | 283.4 |
| 90 | | 0.01 | 92.0 | 91.7 | | 0.52 | 199.0 | 191.6 | | 1.04 | 305.7 | 297.5 |
| 20 | | 0.04 | 28.7 | 26.6 | | 0.56 | 126.3 | 112.7 | | 1.08 | 221.5 | 207.7 |
| 30 | | 0.04 | 38.5 | 36.6 | | 0.56 | 135.4 | 122.7 | | 1.08 | 234.9 | 222.2 |
| 40 | | 0.04 | 48.3 | 46.6 | | 0.56 | 144.6 | 132.8 | | 1.08 | 248.0 | 236.2 |
| 50 | /case1/ | 0.04 | 58.2 | 56.6 | /case1/ | 0.56 | 155.5 | 144.7 | /case1/ | 1.08 | 261.0 | 250.1 |
| 60 | d45_004 | 0.04 | 68.1 | 66.6 | d45_056 | 0.56 | 167.9 | 158.0 | d45_108 | 1.08 | 274.0 | 263.9 |
| 70 | | 0.04 | 78.0 | 76.6 | | 0.56 | 180.8 | 171.8 | | 1.08 | 287.0 | 277.6 |
| 80 | | 0.04 | 87.9 | 86.6 | | 0.56 | 194.0 | 185.7 | | 1.08 | 300.3 | 291.5 |
| 90 | | 0.04 | 97.8 | 96.6 | | 0.56 | 207.4 | 199.8 | | 1.08 | 313.7 | 305.5 |
| 20 | | 0.08 | 37.0 | 33.2 | | 0.6 | 133.2 | 119.3 | | 1.12 | 230.1 | 216.6 |
| 30 | | 0.08 | 46.7 | 43.2 | | 0.6 | 142.3 | 129.4 | | 1.12 | 242.1 | 229.5 |
| 40 | | 0.08 | 56.5 | 53.2 | | 0.6 | 151.5 | 139.4 | | 1.12 | 255.4 | 243.7 |
| 50 | /case1/ | 0.08 | 66.2 | 63.2 | /case1/ | 0.6 | 163.3 | 152.3 | /case1/ | 1.12 | 268.6 | 257.8 |
| 60 | d45_008 | 0.08 | 76.0 | 73.2 | d45_060 | 0.6 | 176.3 | 166.3 | d45_112 | 1.12 | 281.7 | 271.7 |
| 70 | | 0.08 | 85.8 | 83.2 | | 0.6 | 189.1 | 179.9 | | 1.12 | 294.9 | 285.5 |
| 80 | | 0.08 | 95.6 | 93.2 | | 0.6 | 202.1 | 193.6 | | 1.12 | 308.7 | 300.0 |
| 90 | | 0.08 | 105.4 | 103.2 | | 0.6 | 215.6 | 207.8 | | 1.12 | 321.6 | 313.5 |
| 20 | | 0.12 | 45.2 | 39.8 | | 0.64 | 140.1 | 126.0 | | 1.16 | 238.1 | 224.8 |
| 30 | | 0.12 | 54.8 | 49.8 | | 0.64 | 149.2 | 136.0 | | 1.16 | 250.8 | 238.4 |
| 40 | | 0.12 | 64.4 | 59.8 | | 0.64 | 159.9 | 147.7 | | 1.16 | 262.8 | 251.3 |
| 50 | /case1/ | 0.12 | 74.0 | 69.8 | /case1/ | 0.64 | 171.5 | 160.5 | /case1/ | 1.16 | 276.1 | 265.4 |
| 60 | d45_012 | 0.12 | 83.7 | 79.8 | d45_064 | 0.64 | 184.1 | 174.0 | d45_116 | 1.16 | 289.4 | 279.5 |
| 70 | | 0.12 | 93.4 | 89.9 | | 0.64 | 197.7 | 188.4 | | 1.16 | 302.9 | 293.6 |
| 80 | | 0.12 | 103.2 | 99.9 | | 0.64 | 210.4 | 201.9 | | 1.16 | 316.6 | 307.9 |
| 90 | | 0.12 | 113.5 | 110.4 | | 0.64 | 223.6 | 215.7 | | 1.16 | 329.6 | 321.5 |
| 20 | | 0.16 | 53.2 | 46.4 | | 0.68 | 147.0 | 132.6 | | 1.2 | 246.1 | 232.9 |
| 30 | | 0.16 | 62.7 | 56.4 | | 0.68 | 156.0 | 142.7 | | 1.2 | 258.8 | 246.6 |
| 40 | | 0.16 | 72.2 | 66.4 | | 0.68 | 167.3 | 155.1 | | 1.2 | 271.6 | 260.3 |
| 50 | /case1/ | 0.16 | 81.8 | 76.5 | /case1/ | 0.68 | 179.3 | 168.2 | /case1/ | 1.2 | 283.7 | 273.1 |
| 60 | d45_016 | 0.16 | 91.4 | 86.5 | d45_068 | 0.68 | 192.7 | 182.5 | d45_120 | 1.2 | 297.3 | 287.4 |
| 70 | | 0.16 | 101.0 | 96.5 | | 0.68 | 205.5 | 196.1 | | 1.2 | 311.2 | 302.0 |
| 80 | | 0.16 | 110.7 | 106.5 | | 0.68 | 219.0 | 210.3 | | 1.2 | 324.4 | 315.8 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 0.16 | 122.3 | 118.5 | | 0.68 | 231.5 | 223.5 | | 1.2 | 337.5 | 329.5 |
| 20 | | 0.2 | 61.0 | 53.0 | | 0.72 | 153.8 | 139.3 | | 1.24 | 253.8 | 240.8 |
| 30 | | 0.2 | 70.4 | 63.0 | | 0.72 | 163.1 | 149.6 | | 1.24 | 267.3 | 255.2 |
| 40 | | 0.2 | 79.8 | 73.1 | | 0.72 | 175.1 | 162.8 | | 1.24 | 280.6 | 269.3 |
| 50 | /case1/ | 0.2 | 89.3 | 83.1 | /case1/ | 0.72 | 188.0 | 176.9 | /case1/ | 1.24 | 293.4 | 282.9 |
| 60 | d45_020 | 0.2 | 98.9 | 93.1 | d45_072 | 0.72 | 201.1 | 190.8 | d45_124 | 1.24 | 305.5 | 295.6 |
| 70 | | 0.2 | 108.5 | 103.1 | | 0.72 | 213.3 | 203.8 | | 1.24 | 318.9 | 309.7 |
| 80 | | 0.2 | 118.1 | 113.1 | | 0.72 | 227.0 | 218.3 | | 1.24 | 332.2 | 323.7 |
| 90 | | 0.2 | 131.0 | 126.6 | | 0.72 | 239.6 | 231.4 | | 1.24 | 345.5 | 337.5 |
| 20 | | 0.24 | 68.6 | 59.6 | | 0.76 | 160.5 | 145.9 | | 1.28 | 261.1 | 248.1 |
| 30 | | 0.24 | 77.9 | 69.6 | | 0.76 | 171.6 | 158.3 | | 1.28 | 274.7 | 262.8 |
| 40 | | 0.24 | 87.3 | 79.7 | | 0.76 | 183.2 | 171.1 | | 1.28 | 288.2 | 277.1 |
| 50 | /case1/ | 0.24 | 96.8 | 89.7 | /case1/ | 0.76 | 196.2 | 185.0 | /case1/ | 1.28 | 301.5 | 291.1 |
| 60 | d45_024 | 0.24 | 106.3 | 99.7 | d45_076 | 0.76 | 208.6 | 198.3 | d45_128 | 1.28 | 313.6 | 303.8 |
| 70 | | 0.24 | 115.9 | 109.8 | | 0.76 | 222.4 | 212.9 | | 1.28 | 326.6 | 317.5 |
| 80 | | 0.24 | 126.4 | 120.9 | | 0.76 | 235.1 | 226.3 | | 1.28 | 340.1 | 331.5 |
| 90 | | 0.24 | 139.7 | 134.7 | | 0.76 | 248.0 | 239.8 | | 1.28 | 353.4 | 345.4 |
| 20 | | 0.28 | 76.1 | 66.2 | | 0.8 | 167.2 | 152.6 | | 1.32 | 269.7 | 256.9 |
| 30 | | 0.28 | 85.4 | 76.3 | | 0.8 | 178.8 | 165.5 | | 1.32 | 282.1 | 270.2 |
| 40 | | 0.28 | 94.8 | 86.3 | | 0.8 | 191.1 | 178.9 | | 1.32 | 295.8 | 284.8 |
| 50 | /case1/ | 0.28 | 104.2 | 96.3 | /case1/ | 0.8 | 203.8 | 192.5 | /case1/ | 1.32 | 309.3 | 299.0 |
| 60 | d45_028 | 0.28 | 113.7 | 106.4 | d45_080 | 0.8 | 217.0 | 206.7 | d45_132 | 1.32 | 322.5 | 312.9 |
| 70 | | 0.28 | 123.2 | 116.4 | | 0.8 | 230.4 | 220.9 | | 1.32 | 334.3 | 325.2 |
| 80 | | 0.28 | 135.0 | 128.9 | | 0.8 | 243.3 | 234.5 | | 1.32 | 347.9 | 339.4 |
| 90 | | 0.28 | 148.4 | 142.8 | | 0.8 | 256.6 | 248.5 | | 1.32 | 361.4 | 353.4 |
| 20 | | 0.32 | 83.5 | 72.8 | | 0.84 | 175.6 | 161.0 | | 1.36 | 277.8 | 265.3 |
| 30 | | 0.32 | 92.8 | 82.9 | | 0.84 | 186.7 | 173.4 | | 1.36 | 289.5 | 277.7 |
| 40 | | 0.32 | 102.1 | 92.9 | | 0.84 | 199.5 | 187.3 | | 1.36 | 303.3 | 292.4 |
| 50 | /case1/ | 0.32 | 111.5 | 102.9 | /case1/ | 0.84 | 212.4 | 201.2 | /case1/ | 1.36 | 317.0 | 306.9 |
| 60 | d45_032 | 0.32 | 120.9 | 113.0 | d45_084 | 0.84 | 225.7 | 215.4 | d45_136 | 1.36 | 330.5 | 321.0 |
| 70 | | 0.32 | 131.1 | 123.8 | | 0.84 | 238.3 | 228.7 | | 1.36 | 343.0 | 334.1 |
| 80 | | 0.32 | 143.6 | 137.0 | | 0.84 | 251.2 | 242.3 | | 1.36 | 355.6 | 347.2 |
| 90 | | 0.32 | 156.9 | 150.9 | | 0.84 | 264.9 | 256.7 | | 1.36 | 369.3 | 361.4 |
| 20 | | 0.36 | 90.8 | 79.4 | | 0.88 | 183.1 | 168.8 | | 1.4 | 286.5 | 274.2 |
| 30 | | 0.36 | 100.1 | 89.5 | | 0.88 | 194.8 | 181.7 | | 1.4 | 298.6 | 287.1 |
| 40 | | 0.36 | 109.3 | 99.6 | | 0.88 | 207.5 | 195.4 | | 1.4 | 310.9 | 300.1 |
| 50 | /case1/ | 0.36 | 118.7 | 109.6 | /case1/ | 0.88 | 220.9 | 209.7 | /case1/ | 1.4 | 324.7 | 314.7 |
| 60 | d45_036 | 0.36 | 128.1 | 119.7 | d45_088 | 0.88 | 233.5 | 223.1 | d45_140 | 1.4 | 338.3 | 329.0 |
| 70 | | 0.36 | 139.0 | 131.3 | | 0.88 | 246.1 | 236.5 | | 1.4 | 351.6 | 342.8 |
| 80 | | 0.36 | 152.3 | 145.3 | | 0.88 | 259.0 | 250.1 | | 1.4 | 363.5 | 355.1 |
| 90 | | 0.36 | 165.4 | 159.1 | | 0.88 | 273.2 | 265.0 | | 1.4 | 377.2 | 369.4 |
| 20 | /case1/ d45_040 | 0.4 | 98.1 | 86.1 | /case1/ d45_092 | 0.92 | 190.2 | 175.9 | /case1/ d45_144 | 1.44 | 293.9 | 281.8 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | 0.4 | 107.3 | 96.2 | | 0.92 | 202.7 | 189.6 | | 1.44 | 307.6 | 296.3 |
| 40 | | 0.4 | 116.5 | 106.2 | | 0.92 | 215.7 | 203.6 | | 1.44 | 318.4 | 307.7 |
| 50 | | 0.4 | 125.8 | 116.2 | | 0.92 | 228.4 | 217.3 | | 1.44 | 332.4 | 322.5 |
| 60 | | 0.4 | 135.2 | 126.2 | | 0.92 | 241.1 | 230.8 | | 1.44 | 346.2 | 336.9 |
| 70 | | 0.4 | 147.4 | 139.4 | | 0.92 | 254.2 | 244.6 | | 1.44 | 359.7 | 351.0 |
| 80 | | 0.4 | 160.5 | 153.2 | | 0.92 | 267.7 | 258.9 | | 1.44 | 371.3 | 363.0 |
| 90 | | 0.4 | 173.8 | 167.1 | | 0.92 | 281.5 | 273.3 | | 1.44 | 385.2 | 377.4 |
| 20 | | 0.44 | 105.2 | 92.8 | | 0.96 | 198.2 | 184.1 | | | | |
| 30 | | 0.44 | 114.4 | 102.8 | | 0.96 | 210.1 | 197.0 | | | | |
| 40 | | 0.44 | 123.6 | 112.8 | | 0.96 | 223.1 | 211.0 | | | | |
| 50 | /case1/ | 0.44 | 132.9 | 122.9 | /case1/ | 0.96 | 235.9 | 224.8 | | | | |
| 60 | d45_044 | 0.44 | 143.5 | 134.3 | d45_096 | 0.96 | 248.7 | 238.4 | | | | |
| 70 | | 0.44 | 156.0 | 147.7 | | 0.96 | 262.4 | 252.8 | | | | |
| 80 | | 0.44 | 169.1 | 161.5 | | 0.96 | 276.0 | 267.2 | | | | |
| 90 | | 0.44 | 182.1 | 175.1 | | 0.96 | 289.7 | 281.5 | | | | |
| 20 | | 0.48 | 112.3 | 99.4 | | 1 | 206.3 | 192.3 | | | | |
| 30 | | 0.48 | 121.4 | 109.4 | | 1 | 219.0 | 206.2 | | | | |
| 40 | | 0.48 | 130.7 | 119.5 | | 1 | 231.7 | 219.8 | | | | |
| 50 | /case1/ | 0.48 | 140.0 | 129.5 | /case1/ | 1 | 244.5 | 233.5 | | | | |
| 60 | d45_048 | 0.48 | 151.3 | 141.8 | d45_100 | 1 | 258.2 | 247.9 | | | | |
| 70 | | 0.48 | 164.1 | 155.5 | | 1 | 271.1 | 261.6 | | | | |
| 80 | | 0.48 | 177.1 | 169.2 | | 1 | 284.1 | 275.3 | | | | |
| 90 | | 0.48 | 190.7 | 183.5 | | 1 | 297.7 | 289.5 | | | | |

Table 6-4. Temperature Results for Case 2 (D = 5.5 m; circular; trench; ground support)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | 0.01 | 21.9 | 20.8 | | 0.52 | 105.6 | 64.1 | | 1.04 | 181.6 | 111.7 |
| 30 | | 0.01 | 31.9 | 30.8 | | 0.52 | 114.5 | 74.1 | | 1.04 | 193.0 | 124.9 |
| 40 | | 0.01 | 41.8 | 40.8 | | 0.52 | 123.6 | 84.2 | | 1.04 | 205.4 | 138.6 |
| 50 | /case2/ | 0.01 | 51.8 | 50.8 | /case2/ | 0.52 | 132.7 | 94.2 | /case2/ | 1.04 | 218.2 | 152.4 |
| 60 | d55_001 | 0.01 | 61.7 | 60.8 | d55_052 | 0.52 | 143.1 | 105.8 | d55_104 | 1.04 | 230.6 | 165.8 |
| 70 | | 0.01 | 71.7 | 70.8 | | 0.52 | 155.4 | 119.2 | | 1.04 | 243.1 | 179.3 |
| 80 | | 0.01 | 81.7 | 80.8 | | 0.52 | 168.2 | 132.8 | | 1.04 | 256.9 | 194.5 |
| 90 | | 0.01 | 91.7 | 90.8 | | 0.52 | 181.2 | 146.8 | | 1.04 | 270.3 | 208.4 |
| 20 | | 0.04 | 27.5 | 23.4 | | 0.56 | 111.5 | 67.5 | | 1.08 | 187.4 | 115.4 |
| 30 | | 0.04 | 37.3 | 33.4 | | 0.56 | 120.4 | 77.5 | | 1.08 | 199.4 | 129.0 |
| 40 | | 0.04 | 47.2 | 43.4 | | 0.56 | 129.5 | 87.6 | | 1.08 | 211.8 | 142.8 |
| 50 | /case2/ | 0.04 | 57.0 | 53.4 | /case2/ | 0.56 | 138.6 | 97.6 | /case2/ | 1.08 | 224.4 | 156.5 |
| 60 | d55_004 | 0.04 | 66.9 | 63.4 | d55_056 | 0.56 | 149.3 | 109.6 | d55_108 | 1.08 | 236.8 | 170.0 |
| 70 | | 0.04 | 76.8 | 73.4 | | 0.56 | 162.0 | 123.4 | | 1.08 | 250.0 | 184.3 |
| 80 | | 0.04 | 86.7 | 83.4 | | 0.56 | 175.0 | 137.5 | | 1.08 | 263.6 | 199.2 |
| 90 | | 0.04 | 96.6 | 93.4 | | 0.56 | 188.4 | 151.7 | | 1.08 | 277.0 | 213.1 |
| 20 | | 0.08 | 34.8 | 26.7 | | 0.6 | 117.3 | 70.9 | | 1.12 | 193.1 | 119.1 |
| 30 | | 0.08 | 44.5 | 36.8 | | 0.6 | 126.3 | 81.0 | | 1.12 | 205.3 | 132.9 |
| 40 | | 0.08 | 54.2 | 46.8 | | 0.6 | 135.3 | 91.0 | | 1.12 | 218.0 | 146.8 |
| 50 | /case2/ | 0.08 | 63.9 | 56.8 | /case2/ | 0.6 | 144.4 | 101.0 | /case2/ | 1.12 | 230.4 | 160.5 |
| 60 | d55_008 | 0.08 | 73.7 | 66.8 | d55_060 | 0.6 | 156.5 | 114.8 | d55_112 | 1.12 | 243.6 | 175.2 |
| 70 | | 0.08 | 83.5 | 76.8 | | 0.6 | 169.3 | 128.7 | | 1.12 | 257.5 | 190.2 |
| 80 | | 0.08 | 93.3 | 86.8 | | 0.6 | 182.3 | 142.6 | | 1.12 | 270.3 | 203.8 |
| 90 | | 0.08 | 103.1 | 96.8 | | 0.6 | 195.3 | 156.3 | | 1.12 | 283.6 | 217.7 |
| 20 | | 0.12 | 41.8 | 30.1 | | 0.64 | 123.1 | 74.3 | | 1.16 | 200.7 | 125.7 |
| 30 | | 0.12 | 51.4 | 40.1 | | 0.64 | 132.1 | 84.4 | | 1.16 | 212.9 | 139.5 |
| 40 | | 0.12 | 61.0 | 50.1 | | 0.64 | 141.1 | 94.4 | | 1.16 | 225.5 | 153.3 |
| 50 | /case2/ | 0.12 | 70.6 | 60.2 | /case2/ | 0.64 | 151.4 | 106.3 | /case2/ | 1.16 | 238.1 | 167.0 |
| 60 | d55_012 | 0.12 | 80.3 | 70.2 | d55_064 | 0.64 | 162.9 | 118.7 | d55_116 | 1.16 | 251.4 | 181.1 |
| 70 | | 0.12 | 90.0 | 80.2 | | 0.64 | 176.0 | 133.0 | | 1.16 | 264.0 | 194.7 |
| 80 | | 0.12 | 99.7 | 90.2 | | 0.64 | 188.9 | 146.9 | | 1.16 | 276.8 | 208.4 |
| 90 | | 0.12 | 109.6 | 100.3 | | 0.64 | 202.1 | 160.9 | | 1.16 | 290.1 | 222.2 |
| 20 | | 0.16 | 48.7 | 33.5 | | 0.68 | 128.9 | 77.8 | | 1.2 | 206.7 | 129.7 |
| 30 | | 0.16 | 58.2 | 43.5 | | 0.68 | 137.8 | 87.8 | | 1.2 | 219.3 | 143.7 |
| 40 | | 0.16 | 67.7 | 53.5 | | 0.68 | 146.9 | 97.8 | | 1.2 | 232.0 | 157.7 |
| 50 | /case2/ | 0.16 | 77.2 | 63.6 | /case2/ | 0.68 | 157.6 | 110.0 | /case2/ | 1.2 | 245.2 | 171.8 |
| 60 | d55_016 | 0.16 | 86.8 | 73.6 | d55_068 | 0.68 | 170.3 | 124.3 | d55_120 | 1.2 | 257.8 | 185.5 |
| 70 | | 0.16 | 96.5 | 83.6 | | 0.68 | 182.6 | 137.5 | | 1.2 | 270.5 | 199.2 |
| 80 | | 0.16 | 106.1 | 93.6 | | 0.68 | 195.6 | 151.3 | | 1.2 | 283.4 | 212.9 |

Originator: [signature] Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 0.16 | 116.8 | 104.8 | | 0.68 | 208.9 | 165.5 | | 1.2 | 296.7 | 226.8 |
| 20 | | 0.2 | 55.5 | 36.9 | | 0.72 | 134.7 | 81.2 | | 1.24 | 213.1 | 133.8 |
| 30 | | 0.2 | 64.8 | 46.9 | | 0.72 | 143.6 | 91.2 | | 1.24 | 225.7 | 147.9 |
| 40 | | 0.2 | 74.2 | 56.9 | | 0.72 | 152.6 | 101.3 | | 1.24 | 238.6 | 162.1 |
| 50 | /case2/ | 0.2 | 83.7 | 67.0 | /case2/ | 0.72 | 164.6 | 115.4 | /case2/ | 1.24 | 251.4 | 176.1 |
| 60 | d55_020 | 0.2 | 93.3 | 77.0 | d55_072 | 0.72 | 176.8 | 128.4 | d55_124 | 1.24 | 264.1 | 189.9 |
| 70 | | 0.2 | 102.8 | 87.0 | | 0.72 | 190.1 | 142.9 | | 1.24 | 276.9 | 203.7 |
| 80 | | 0.2 | 112.4 | 97.0 | | 0.72 | 202.5 | 156.2 | | 1.24 | 290.2 | 217.6 |
| 90 | | 0.2 | 124.2 | 109.4 | | 0.72 | 215.5 | 169.9 | | 1.24 | 303.2 | 231.4 |
| 20 | | 0.24 | 62.1 | 40.3 | | 0.76 | 140.4 | 84.6 | | 1.28 | 219.0 | 137.7 |
| 30 | | 0.24 | 71.4 | 50.3 | | 0.76 | 149.3 | 94.6 | | 1.28 | 231.9 | 152.0 |
| 40 | | 0.24 | 80.7 | 60.3 | | 0.76 | 159.6 | 106.8 | | 1.28 | 244.8 | 166.2 |
| 50 | /case2/ | 0.24 | 90.1 | 70.4 | /case2/ | 0.76 | 171.1 | 119.5 | /case2/ | 1.28 | 257.6 | 180.3 |
| 60 | d55_024 | 0.24 | 99.6 | 80.4 | d55_076 | 0.76 | 183.4 | 133.0 | d55_128 | 1.28 | 270.4 | 194.2 |
| 70 | | 0.24 | 109.1 | 90.4 | | 0.76 | 196.6 | 147.2 | | 1.28 | 283.4 | 208.1 |
| 80 | | 0.24 | 118.7 | 100.4 | | 0.76 | 209.8 | 161.5 | | 1.28 | 296.9 | 222.3 |
| 90 | | 0.24 | 131.5 | 114.1 | | 0.76 | 222.1 | 174.4 | | 1.28 | 309.8 | 236.0 |
| 20 | | 0.28 | 68.6 | 43.7 | | 0.8 | 146.0 | 88.0 | | 1.32 | 226.7 | 144.5 |
| 30 | | 0.28 | 77.8 | 53.7 | | 0.8 | 154.9 | 98.1 | | 1.32 | 237.9 | 156.2 |
| 40 | | 0.28 | 87.1 | 63.7 | | 0.8 | 165.7 | 110.6 | | 1.32 | 250.8 | 170.3 |
| 50 | /case2/ | 0.28 | 96.4 | 73.7 | /case2/ | 0.8 | 177.3 | 123.4 | /case2/ | 1.32 | 263.7 | 184.4 |
| 60 | d55_028 | 0.28 | 105.9 | 83.8 | d55_080 | 0.8 | 190.7 | 138.4 | d55_132 | 1.32 | 276.7 | 198.5 |
| 70 | | 0.28 | 115.3 | 93.8 | | 0.8 | 203.0 | 151.4 | | 1.32 | 289.9 | 212.6 |
| 80 | | 0.28 | 125.6 | 104.9 | | 0.8 | 216.4 | 166.0 | | 1.32 | 303.4 | 226.8 |
| 90 | | 0.28 | 138.8 | 118.7 | | 0.8 | 228.7 | 178.9 | | 1.32 | 316.3 | 240.5 |
| 20 | | 0.32 | 75.0 | 47.1 | | 0.84 | 151.7 | 91.5 | | 1.36 | 233.1 | 148.8 |
| 30 | | 0.32 | 84.1 | 57.1 | | 0.84 | 160.6 | 101.5 | | 1.36 | 245.7 | 163.0 |
| 40 | | 0.32 | 93.3 | 67.1 | | 0.84 | 171.6 | 114.3 | | 1.36 | 257.2 | 175.2 |
| 50 | /case2/ | 0.32 | 102.6 | 77.1 | /case2/ | 0.84 | 184.8 | 129.3 | /case2/ | 1.36 | 269.9 | 188.7 |
| 60 | d55_032 | 0.32 | 112.0 | 87.2 | d55_084 | 0.84 | 197.4 | 142.7 | d55_136 | 1.36 | 283.0 | 202.8 |
| 70 | | 0.32 | 121.5 | 97.2 | | 0.84 | 209.8 | 156.3 | | 1.36 | 296.7 | 217.3 |
| 80 | | 0.32 | 132.8 | 109.5 | | 0.84 | 223.0 | 170.5 | | 1.36 | 309.8 | 231.3 |
| 90 | | 0.32 | 146.0 | 123.4 | | 0.84 | 235.7 | 184.0 | | 1.36 | 322.8 | 245.1 |
| 20 | | 0.36 | 81.2 | 50.5 | | 0.88 | 157.3 | 94.9 | | 1.4 | 239.4 | 153.1 |
| 30 | | 0.36 | 90.3 | 60.5 | | 0.88 | 167.5 | 107.2 | | 1.4 | 252.1 | 167.3 |
| 40 | | 0.36 | 99.5 | 70.5 | | 0.88 | 179.0 | 120.2 | | 1.4 | 264.9 | 181.5 |
| 50 | /case2/ | 0.36 | 108.8 | 80.5 | /case2/ | 0.88 | 191.3 | 133.6 | /case2/ | 1.4 | 276.8 | 194.1 |
| 60 | d55_036 | 0.36 | 118.1 | 90.6 | d55_088 | 0.88 | 203.6 | 146.8 | d55_140 | 1.4 | 289.8 | 207.4 |
| 70 | | 0.36 | 127.5 | 100.6 | | 0.88 | 217.3 | 161.9 | | 1.4 | 303.1 | 221.7 |
| 80 | | 0.36 | 140.0 | 114.2 | | 0.88 | 229.7 | 175.0 | | 1.4 | 316.2 | 235.7 |
| 90 | | 0.36 | 153.1 | 128.0 | | 0.88 | 243.0 | 189.4 | | 1.4 | 329.3 | 249.7 |
| 20 | /case2/ d55_040 | 0.4 | 87.4 | 53.9 | /case2/ d55_092 | 0.92 | 162.8 | 98.3 | /case2/ d55_144 | 1.44 | 245.6 | 157.2 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | 0.4 | 96.5 | 63.9 | | 0.92 | 173.7 | 111.1 | | 1.44 | 258.8 | 171.8 |
| 40 | | 0.4 | 105.6 | 73.9 | | 0.92 | 185.4 | 124.3 | | 1.44 | 272.0 | 186.3 |
| 50 | | 0.4 | 114.9 | 84.0 | | 0.92 | 197.6 | 137.6 | | 1.44 | 284.9 | 200.4 |
| 60 | | 0.4 | 124.2 | 94.0 | | 0.92 | 210.8 | 152.5 | | 1.44 | 296.4 | 212.3 |
| 70 | | 0.4 | 134.4 | 105.2 | | 0.92 | 223.8 | 166.2 | | 1.44 | 309.4 | 226.1 |
| 80 | | 0.4 | 147.3 | 119.1 | | 0.92 | 236.4 | 179.5 | | 1.44 | 322.6 | 240.2 |
| 90 | | 0.4 | 160.3 | 132.9 | | 0.92 | 249.8 | 194.2 | | 1.44 | 335.8 | 254.3 |
| 20 | | 0.44 | 93.5 | 57.3 | | 0.96 | 168.4 | 101.7 | | | | |
| 30 | | 0.44 | 102.6 | 67.3 | | 0.96 | 179.6 | 114.8 | | | | |
| 40 | | 0.44 | 111.7 | 77.3 | | 0.96 | 191.5 | 128.2 | | | | |
| 50 | /case2/ | 0.44 | 120.9 | 87.4 | /case2/ | 0.96 | 204.8 | 143.5 | | | | |
| 60 | d55_044 | 0.44 | 130.1 | 97.4 | d55_096 | 0.96 | 217.9 | 157.4 | | | | |
| 70 | | 0.44 | 141.4 | 110.0 | | 0.96 | 230.2 | 170.6 | | | | |
| 80 | | 0.44 | 154.1 | 123.4 | | 0.96 | 242.9 | 183.9 | | | | |
| 90 | | 0.44 | 167.3 | 137.4 | | 0.96 | 256.6 | 198.9 | | | | |
| 20 | | 0.48 | 99.6 | 60.7 | | 1 | 175.3 | 107.7 | | | | |
| 30 | | 0.48 | 108.6 | 70.7 | | 1 | 186.6 | 120.8 | | | | |
| 40 | | 0.48 | 117.7 | 80.7 | | 1 | 199.0 | 134.4 | | | | |
| 50 | /case2/ | 0.48 | 126.8 | 90.8 | /case2/ | 1 | 211.5 | 148.0 | | | | |
| 60 | d55_048 | 0.48 | 136.1 | 100.8 | d55_100 | 1 | 224.3 | 161.7 | | | | |
| 70 | | 0.48 | 148.1 | 114.1 | | 1 | 236.6 | 174.9 | | | | |
| 80 | | 0.48 | 161.5 | 128.5 | | 1 | 249.3 | 188.5 | | | | |
| 90 | | 0.48 | 174.2 | 141.9 | | 1 | 263.4 | 203.6 | | | | |

Table 6-5. Temperature Results for Case 3 (D = 6.0 m; circular)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | 0.01 | 21.9 | 20.8 | | 0.52 | 97.0 | 61.6 | | 1.04 | 154.6 | 104.2 |
| 30 | | 0.01 | 31.8 | 30.8 | | 0.52 | 104.9 | 71.6 | | 1.04 | 164.2 | 117.5 |
| 40 | | 0.01 | 41.7 | 40.8 | | 0.52 | 112.8 | 81.6 | | 1.04 | 174.3 | 131.0 |
| 50 | /case3/ | 0.01 | 51.6 | 50.8 | /case3/ | 0.52 | 121.0 | 91.7 | /case3/ | 1.04 | 184.6 | 144.5 |
| 60 | d60_001 | 0.01 | 61.6 | 60.8 | d60_052 | 0.52 | 129.5 | 102.1 | d60_104 | 1.04 | 195.7 | 158.6 |
| 70 | | 0.01 | 71.5 | 70.8 | | 0.52 | 140.7 | 115.5 | | 1.04 | 207.2 | 172.7 |
| 80 | | 0.01 | 81.5 | 80.8 | | 0.52 | 152.4 | 129.2 | | 1.04 | 219.0 | 186.9 |
| 90 | | 0.01 | 91.4 | 90.8 | | 0.52 | 164.6 | 143.2 | | 1.04 | 229.8 | 199.7 |
| 20 | | 0.04 | 27.3 | 23.2 | | 0.56 | 101.9 | 64.8 | | 1.08 | 159.2 | 108.5 |
| 30 | | 0.04 | 37.0 | 33.2 | | 0.56 | 109.6 | 74.8 | | 1.08 | 168.9 | 121.8 |
| 40 | | 0.04 | 46.7 | 43.2 | | 0.56 | 117.5 | 84.9 | | 1.08 | 179.3 | 135.8 |
| 50 | /case3/ | 0.04 | 56.5 | 53.2 | /case3/ | 0.56 | 125.6 | 94.9 | /case3/ | 1.08 | 190.1 | 149.8 |
| 60 | d60_004 | 0.04 | 66.2 | 63.2 | d60_056 | 0.56 | 134.9 | 106.3 | d60_108 | 1.08 | 200.3 | 162.7 |
| 70 | | 0.04 | 76.0 | 73.2 | | 0.56 | 146.1 | 119.8 | | 1.08 | 211.8 | 176.9 |
| 80 | | 0.04 | 85.8 | 83.2 | | 0.56 | 157.9 | 133.8 | | 1.08 | 223.7 | 191.2 |
| 90 | | 0.04 | 95.6 | 93.2 | | 0.56 | 169.9 | 147.7 | | 1.08 | 234.6 | 204.2 |
| 20 | | 0.08 | 34.3 | 26.4 | | 0.6 | 106.6 | 68.0 | | 1.12 | 163.9 | 112.8 |
| 30 | | 0.08 | 43.7 | 36.4 | | 0.6 | 114.3 | 78.1 | | 1.12 | 173.8 | 126.5 |
| 40 | | 0.08 | 53.2 | 46.4 | | 0.6 | 122.2 | 88.1 | | 1.12 | 183.6 | 139.6 |
| 50 | /case3/ | 0.08 | 62.7 | 56.4 | /case3/ | 0.6 | 130.2 | 98.1 | /case3/ | 1.12 | 194.5 | 153.8 |
| 60 | d60_008 | 0.08 | 72.2 | 66.4 | d60_060 | 0.6 | 140.3 | 110.6 | d60_112 | 1.12 | 205.8 | 168.0 |
| 70 | | 0.08 | 81.8 | 76.4 | | 0.6 | 151.6 | 124.4 | | 1.12 | 216.3 | 180.9 |
| 80 | | 0.08 | 91.5 | 86.4 | | 0.6 | 163.2 | 138.1 | | 1.12 | 228.3 | 195.4 |
| 90 | | 0.08 | 101.1 | 96.4 | | 0.6 | 175.1 | 151.9 | | 1.12 | 239.7 | 209.0 |
| 20 | | 0.12 | 41.0 | 29.6 | | 0.64 | 111.3 | 71.3 | | 1.16 | 168.6 | 117.2 |
| 30 | | 0.12 | 50.2 | 39.6 | | 0.64 | 118.9 | 81.3 | | 1.16 | 178.4 | 130.7 |
| 40 | | 0.12 | 59.4 | 49.6 | | 0.64 | 126.7 | 91.3 | | 1.16 | 189.0 | 144.9 |
| 50 | /case3/ | 0.12 | 68.7 | 59.6 | /case3/ | 0.64 | 134.8 | 101.6 | /case3/ | 1.16 | 198.9 | 157.7 |
| 60 | d60_012 | 0.12 | 78.1 | 69.6 | d60_064 | 0.64 | 145.6 | 115.0 | d60_116 | 1.16 | 210.4 | 172.1 |
| 70 | | 0.12 | 87.5 | 79.6 | | 0.64 | 156.8 | 128.7 | | 1.16 | 221.2 | 185.5 |
| ~~80~~ | | ~~0.12~~ | ~~97.0~~ | ~~89.6~~ | | ~~0.64~~ | ~~166.4~~ | ~~142.4~~ | | ~~1.16~~ | ~~232.9~~ | ~~199.6~~ |
| 90 | | 0.12 | 106.5 | 99.6 | | 0.64 | 180.2 | 156.1 | | 1.16 | 245.0 | 214.0 |
| 20 | | 0.16 | 47.4 | 32.8 | | 0.68 | 115.9 | 74.5 | | 1.2 | 173.3 | 121.6 |
| 30 | | 0.16 | 56.4 | 42.8 | | 0.68 | 123.4 | 84.5 | | 1.2 | 183.0 | 134.9 |
| 40 | | 0.16 | 65.4 | 52.8 | | 0.68 | 131.2 | 94.5 | | 1.2 | 193.4 | 148.8 |
| 50 | /case3/ | 0.16 | 74.5 | 62.8 | /case3/ | 0.68 | 140.0 | 105.8 | /case3/ | 1.2 | 204.2 | 162.8 |
| 60 | d60_016 | 0.16 | 83.7 | 72.8 | d60_068 | 0.68 | 150.9 | 119.4 | d60_120 | 1.2 | 214.8 | 176.2 |
| 70 | | 0.16 | 93.0 | 82.8 | | 0.68 | 162.0 | 133.0 | | 1.2 | 226.6 | 190.7 |
| 80 | | 0.16 | 102.4 | 92.8 | | 0.68 | 173.9 | 147.1 | | 1.2 | 237.4 | 203.9 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 0.16 | 112.6 | 103.7 | | 0.68 | 185.5 | 160.6 | | 1.2 | 249.8 | 218.5 |
| 20 | | 0.2 | 53.6 | 36.0 | | 0.72 | 120.4 | 77.7 | | 1.24 | 177.6 | 125.5 |
| 30 | | 0.2 | 62.4 | 46.0 | | 0.72 | 127.9 | 87.7 | | 1.24 | 187.9 | 139.7 |
| 40 | | 0.2 | 71.3 | 56.0 | | 0.72 | 135.6 | 97.7 | | 1.24 | 197.6 | 152.7 |
| 50 | /case3/ | 0.2 | 80.2 | 66.0 | /case3/ | 0.72 | 145.2 | 110.1 | /case3/ | 1.24 | 208.8 | 167.2 |
| 60 | d60_020 | 0.2 | 89.3 | 76.0 | d60_072 | 0.72 | 156.1 | 123.8 | d60_124 | 1.24 | 219.2 | 180.2 |
| 70 | | 0.2 | 98.4 | 86.0 | | 0.72 | 167.3 | 137.4 | | 1.24 | 231.1 | 195.0 |
| 80 | | 0.2 | 107.6 | 96.0 | | 0.72 | 178.8 | 151.2 | | 1.24 | 242.0 | 208.1 |
| 90 | | 0.2 | 118.7 | 108.1 | | 0.72 | 190.9 | 165.4 | | 1.24 | 254.4 | 222.9 |
| 20 | | 0.24 | 59.6 | 39.2 | | 0.76 | 124.8 | 80.9 | | 1.28 | 182.4 | 130.3 |
| 30 | | 0.24 | 68.2 | 49.2 | | 0.76 | 132.3 | 90.9 | | 1.28 | 192.2 | 143.7 |
| 40 | | 0.24 | 76.9 | 59.2 | | 0.76 | 140.0 | 101.1 | | 1.28 | 203.0 | 158.0 |
| 50 | /case3/ | 0.24 | 85.7 | 69.2 | /case3/ | 0.76 | 150.4 | 114.5 | /case3/ | 1.28 | 213.2 | 171.2 |
| 60 | d60_024 | 0.24 | 94.7 | 79.2 | d60_076 | 0.76 | 161.1 | 127.9 | d60_128 | 1.28 | 224.1 | 184.9 |
| 70 | | 0.24 | 103.7 | 89.2 | | 0.76 | 172.5 | 141.9 | | 1.28 | 235.6 | 199.2 |
| 80 | | 0.24 | 112.7 | 99.2 | | 0.76 | 183.8 | 155.4 | | 1.28 | 246.5 | 212.3 |
| 90 | | 0.24 | 124.7 | 112.4 | | 0.76 | 196.0 | 169.8 | | 1.28 | 259.1 | 227.3 |
| 20 | | 0.28 | 65.4 | 42.4 | | 0.8 | 129.1 | 84.1 | | 1.32 | 186.7 | 134.3 |
| 30 | | 0.28 | 73.9 | 52.4 | | 0.8 | 136.6 | 94.1 | | 1.32 | 196.3 | 147.5 |
| 40 | | 0.28 | 82.4 | 62.4 | | 0.8 | 145.0 | 105.3 | | 1.32 | 207.4 | 162.2 |
| 50 | /case3/ | 0.28 | 91.1 | 72.4 | /case3/ | 0.8 | 155.5 | 118.9 | /case3/ | 1.32 | 217.5 | 175.2 |
| 60 | d60_028 | 0.28 | 99.9 | 82.4 | d60_080 | 0.8 | 166.3 | 132.5 | d60_132 | 1.32 | 229.3 | 190.1 |
| 70 | | 0.28 | 108.8 | 92.4 | | 0.8 | 177.3 | 145.9 | | 1.32 | 240.1 | 203.4 |
| 80 | | 0.28 | 118.4 | 103.1 | | 0.8 | 189.3 | 160.4 | | 1.32 | 251.0 | 216.5 |
| 90 | | 0.28 | 130.7 | 116.8 | | 0.8 | 201.0 | 174.1 | | 1.32 | 263.7 | 231.6 |
| 20 | | 0.32 | 71.0 | 45.6 | | 0.84 | 133.4 | 87.3 | | 1.36 | 191.4 | 138.9 |
| 30 | | 0.32 | 79.3 | 55.6 | | 0.84 | 140.8 | 97.3 | | 1.36 | 201.7 | 153.0 |
| 40 | | 0.32 | 87.8 | 65.6 | | 0.84 | 150.0 | 109.5 | | 1.36 | 211.6 | 166.1 |
| 50 | /case3/ | 0.32 | 96.4 | 75.6 | /case3/ | 0.84 | 160.6 | 123.3 | /case3/ | 1.36 | 222.1 | 179.7 |
| 60 | d60_032 | 0.32 | 105.0 | 85.6 | d60_084 | 0.84 | 171.1 | 136.6 | d60_136 | 1.36 | 233.7 | 194.3 |
| 70 | | 0.32 | 113.8 | 95.6 | | 0.84 | 182.8 | 150.9 | | 1.36 | 244.5 | 207.5 |
| 80 | | 0.32 | 124.2 | 107.4 | | 0.84 | 194.3 | 164.7 | | 1.36 | 255.8 | 221.2 |
| 90 | | 0.32 | 136.5 | 121.2 | | 0.84 | 205.9 | 178.4 | | 1.36 | 268.2 | 236.0 |
| 20 | | 0.36 | 76.5 | 48.8 | | 0.88 | 137.7 | 90.5 | | 1.4 | 195.6 | 142.9 |
| 30 | | 0.36 | 84.7 | 58.8 | | 0.88 | 145.1 | 100.6 | | 1.4 | 205.9 | 157.0 |
| 40 | | 0.36 | 93.0 | 68.8 | | 0.88 | 154.9 | 113.8 | | 1.4 | 215.8 | 170.0 |
| 50 | /case3/ | 0.36 | 101.5 | 78.8 | /case3/ | 0.88 | 165.4 | 127.4 | /case3/ | 1.4 | 227.4 | 185.0 |
| 60 | d60_036 | 0.36 | 110.1 | 88.8 | d60_088 | 0.88 | 176.5 | 141.4 | d60_140 | 1.4 | 238.1 | 198.4 |
| 70 | | 0.36 | 118.8 | 98.8 | | 0.88 | 187.6 | 155.1 | | 1.4 | 248.9 | 211.7 |
| 80 | | 0.36 | 130.0 | 111.8 | | 0.88 | 199.1 | 168.9 | | 1.4 | 261.3 | 226.6 |
| 90 | | 0.36 | 142.3 | 125.6 | | 0.88 | 210.8 | 182.7 | | 1.4 | 272.8 | 240.3 |
| 20 | /case3/ d60_040 | 0.4 | 81.8 | 52.0 | /case3/ d60_092 | 0.92 | 141.8 | 93.8 | /case3/ d60_144 | 1.44 | 200.4 | 147.8 |

Originator: Hm Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | 0.4 | 89.9 | 62.0 | | 0.92 | 149.8 | 104.7 | | 1.44 | 210.0 | 160.8 |
| 40 | | 0.4 | 98.1 | 72.0 | | 0.92 | 159.9 | 118.2 | | 1.44 | 221.2 | 175.6 |
| 50 | | 0.4 | 106.5 | 82.0 | | 0.92 | 170.3 | 131.7 | | 1.44 | 231.8 | 189.2 |
| 60 | | 0.4 | 115.0 | 92.0 | | 0.92 | 181.1 | 145.3 | | 1.44 | 242.5 | 202.5 |
| 70 | | 0.4 | 124.0 | 102.6 | | 0.92 | 192.3 | 159.1 | | 1.44 | 253.3 | 215.8 |
| 80 | | 0.4 | 135.8 | 116.2 | | 0.92 | 203.8 | 173.0 | | 1.44 | 265.9 | 231.1 |
| 90 | | 0.4 | 148.0 | 130.0 | | 0.92 | 215.6 | 186.9 | | 1.44 | 277.3 | 244.6 |
| 20 | | 0.44 | 87.0 | 55.2 | | 0.96 | 145.9 | 97.0 | | | | |
| 30 | | 0.44 | 95.0 | 65.2 | | 0.96 | 154.7 | 109.0 | | | | |
| 40 | | 0.44 | 103.1 | 75.2 | | 0.96 | 164.9 | 122.7 | | | | |
| 50 | /case3/ | 0.44 | 111.4 | 85.2 | /case3/ | 0.96 | 175.4 | 136.4 | | | | |
| 60 | d60_044 | 0.44 | 119.8 | 95.2 | d60_096 | 0.96 | 186.2 | 150.0 | | | | |
| 70 | | 0.44 | 129.7 | 106.9 | | 0.96 | 197.3 | 163.6 | | | | |
| 80 | | 0.44 | 141.5 | 120.6 | | 0.96 | 208.5 | 177.2 | | | | |
| 90 | | 0.44 | 153.6 | 134.4 | | 0.96 | 220.3 | 191.2 | | | | |
| 20 | | 0.48 | 92.1 | 58.4 | | 1 | 150.0 | 100.2 | | | | |
| 30 | | 0.48 | 100.0 | 68.4 | | 1 | 159.5 | 113.3 | | | | |
| 40 | | 0.48 | 108.0 | 78.4 | | 1 | 169.7 | 127.0 | | | | |
| 50 | /case3/ | 0.48 | 116.2 | 88.4 | /case3/ | 1 | 180.2 | 140.7 | | | | |
| 60 | d60_048 | 0.48 | 124.6 | 98.5 | d60_100 | 1 | 191.2 | 154.6 | | | | |
| 70 | | 0.48 | 135.2 | 111.2 | | 1 | 202.6 | 168.6 | | | | |
| 80 | | 0.48 | 146.9 | 124.9 | | 1 | 213.8 | 182.1 | | | | |
| 90 | | 0.48 | 159.0 | 138.7 | | 1 | 225.1 | 195.4 | | | | |

Table 6-6. Temperature Results for Case 4 (D = 6.0 m; circular; trench)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | 0.01 | 21.6 | 20.7 | | 0.52 | 88.9 | 58.2 | | 1.04 | 141.5 | 97.1 |
| 30 | | 0.01 | 31.6 | 30.7 | | 0.52 | 97.0 | 68.3 | | 1.04 | 151.1 | 109.8 |
| 40 | | 0.01 | 41.5 | 40.7 | | 0.52 | 105.2 | 78.4 | | 1.04 | 161.7 | 123.5 |
| 50 | /case4/ | 0.01 | 51.4 | 50.7 | /case4/ | 0.52 | 113.6 | 88.4 | /case4/ | 1.04 | 173.2 | 138.0 |
| 60 | d60_001 | 0.01 | 61.4 | 60.7 | d60_052 | 0.52 | 122.2 | 98.5 | d60_104 | 1.04 | 184.6 | 152.0 |
| 70 | | 0.01 | 71.3 | 70.7 | | 0.52 | 133.5 | 111.7 | | 1.04 | 196.1 | 165.9 |
| 80 | | 0.01 | 81.3 | 80.7 | | 0.52 | 145.6 | 125.6 | | 1.04 | 207.2 | 179.1 |
| 90 | | 0.01 | 91.3 | 90.7 | | 0.52 | 157.8 | 139.4 | | 1.04 | 219.1 | 193.0 |
| 20 | | 0.04 | 26.4 | 22.9 | | 0.56 | 93.3 | 61.2 | | 1.08 | 145.4 | 100.2 |
| 30 | | 0.04 | 36.1 | 32.9 | | 0.56 | 101.4 | 71.3 | | 1.08 | 155.6 | 113.9 |
| 40 | | 0.04 | 45.9 | 42.9 | | 0.56 | 109.6 | 81.4 | | 1.08 | 166.5 | 127.9 |
| 50 | /case4/ | 0.04 | 55.7 | 52.9 | /case4/ | 0.56 | 117.9 | 91.4 | /case4/ | 1.08 | 177.3 | 141.6 |
| 60 | d60_004 | 0.04 | 65.5 | 62.9 | d60_056 | 0.56 | 126.8 | 102.0 | d60_108 | 1.08 | 188.8 | 155.8 |
| 70 | | 0.04 | 75.3 | 72.9 | | 0.56 | 138.5 | 115.7 | | 1.08 | 200.5 | 169.9 |
| 80 | | 0.04 | 85.1 | 83.0 | | 0.56 | 150.6 | 129.6 | | 1.08 | 212.3 | 184.0 |
| 90 | | 0.04 | 95.0 | 93.0 | | 0.56 | 163.0 | 143.7 | | 1.08 | 223.5 | 196.9 |
| 20 | | 0.08 | 32.6 | 25.8 | | 0.6 | 97.7 | 64.2 | | 1.12 | 149.7 | 104.1 |
| 30 | | 0.08 | 42.1 | 35.8 | | 0.6 | 105.7 | 74.3 | | 1.12 | 160.0 | 117.9 |
| 40 | | 0.08 | 51.6 | 45.9 | | 0.6 | 113.8 | 84.3 | | 1.12 | 170.6 | 131.6 |
| 50 | /case4/ | 0.08 | 61.2 | 55.9 | /case4/ | 0.6 | 122.1 | 94.4 | /case4/ | 1.12 | 181.7 | 145.5 |
| 60 | d60_008 | 0.08 | 70.8 | 65.9 | d60_060 | 0.6 | 131.8 | 106.0 | d60_112 | 1.12 | 193.0 | 159.5 |
| 70 | | 0.08 | 80.5 | 75.9 | | 0.6 | 143.5 | 119.8 | | 1.12 | 204.7 | 173.8 |
| 80 | | 0.08 | 90.2 | 85.9 | | 0.6 | 155.7 | 134.0 | | 1.12 | 216.7 | 188.1 |
| 90 | | 0.08 | 99.9 | 95.9 | | 0.6 | 167.9 | 147.9 | | 1.12 | 227.8 | 201.0 |
| 20 | | 0.12 | 38.5 | 28.7 | | 0.64 | 102.0 | 67.2 | | 1.16 | 154.1 | 108.2 |
| 30 | | 0.12 | 47.8 | 38.8 | | 0.64 | 109.9 | 77.2 | | 1.16 | 164.3 | 121.8 |
| 40 | | 0.12 | 57.1 | 48.8 | | 0.64 | 118.0 | 87.3 | | 1.16 | 175.4 | 136.1 |
| 50 | /case4/ | 0.12 | 66.5 | 58.8 | /case4/ | 0.64 | 126.2 | 97.4 | /case4/ | 1.16 | 186.7 | 150.5 |
| 60 | d60_012 | 0.12 | 76.0 | 68.8 | d60_064 | 0.64 | 136.8 | 110.1 | d60_116 | 1.16 | 197.7 | 163.9 |
| 70 | | 0.12 | 85.5 | 78.9 | | 0.64 | 148.6 | 124.1 | | 1.16 | 209.2 | 177.9 |
| 80 | | 0.12 | 95.1 | 88.9 | | 0.64 | 160.5 | 137.9 | | 1.16 | 221.2 | 192.2 |
| 90 | | 0.12 | 104.7 | 98.9 | | 0.64 | 172.7 | 151.9 | | 1.16 | 232.4 | 205.3 |
| 20 | | 0.16 | 44.2 | 31.7 | | 0.68 | 106.2 | 70.1 | | 1.2 | 158.5 | 112.3 |
| 30 | | 0.16 | 53.3 | 41.7 | | 0.68 | 114.1 | 80.2 | | 1.2 | 169.0 | 126.3 |
| 40 | | 0.16 | 62.5 | 51.7 | | 0.68 | 122.1 | 90.3 | | 1.2 | 179.4 | 139.7 |
| 50 | /case4/ | 0.16 | 71.7 | 61.7 | /case4/ | 0.68 | 130.4 | 100.5 | /case4/ | 1.2 | 190.8 | 154.2 |
| 60 | d60_016 | 0.16 | 81.0 | 71.8 | d60_068 | 0.68 | 141.7 | 114.2 | d60_120 | 1.2 | 202.5 | 168.6 |
| 70 | | 0.16 | 90.4 | 81.8 | | 0.68 | 153.5 | 128.1 | | 1.2 | 213.4 | 181.7 |
| 80 | | 0.16 | 99.9 | 91.8 | | 0.68 | 165.4 | 142.1 | | 1.2 | 225.7 | 196.4 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 0.16 | 110.0 | 102.5 | | 0.68 | 177.4 | 155.8 | | 1.2 | 237.2 | 209.9 |
| 20 | | 0.2 | 49.7 | 34.6 | | 0.72 | 110.3 | 73.1 | | 1.24 | 163.0 | 116.6 |
| 30 | | 0.2 | 58.6 | 44.6 | | 0.72 | 118.2 | 83.2 | | 1.24 | 173.3 | 130.3 |
| 40 | | 0.2 | 67.7 | 54.7 | | 0.72 | 126.1 | 93.3 | | 1.24 | 184.5 | 144.9 |
| 50 | /case4/ | 0.2 | 76.8 | 64.7 | /case4/ | 0.72 | 135.3 | 104.5 | /case4/ | 1.24 | 194.9 | 157.9 |
| 60 | d60_020 | 0.2 | 86.0 | 74.7 | d60_072 | 0.72 | 146.7 | 118.4 | d60_124 | 1.24 | 206.7 | 172.5 |
| 70 | | 0.2 | 95.3 | 84.8 | | 0.72 | 158.4 | 132.3 | | 1.24 | 218.0 | 186.1 |
| 80 | | 0.2 | 104.6 | 94.8 | | 0.72 | 170.4 | 146.4 | | 1.24 | 230.0 | 200.4 |
| 90 | | 0.2 | 115.6 | 106.6 | | 0.72 | 182.2 | 160.0 | | 1.24 | 242.1 | 214.6 |
| 20 | | 0.24 | 55.0 | 37.5 | | 0.76 | 114.4 | 76.1 | | 1.28 | 167.2 | 120.5 |
| 30 | | 0.24 | 63.8 | 47.6 | | 0.76 | 122.2 | 86.2 | | 1.28 | 177.7 | 134.5 |
| 40 | | 0.24 | 72.7 | 57.6 | | 0.76 | 130.2 | 96.3 | | 1.28 | 188.6 | 148.6 |
| 50 | /case4/ | 0.24 | 81.7 | 67.7 | /case4/ | 0.76 | 140.1 | 108.6 | /case4/ | 1.28 | 200.1 | 163.1 |
| 60 | d60_024 | 0.24 | 90.8 | 77.7 | d60_076 | 0.76 | 151.5 | 122.5 | d60_128 | 1.28 | 210.8 | 176.3 |
| 70 | | 0.24 | 100.0 | 87.7 | | 0.76 | 163.1 | 136.3 | | 1.28 | 222.9 | 190.9 |
| 80 | | 0.24 | 109.2 | 97.8 | | 0.76 | 175.0 | 150.4 | | 1.28 | 234.2 | 204.3 |
| 90 | | 0.24 | 121.2 | 110.7 | | 0.76 | 187.2 | 164.4 | | 1.28 | 246.6 | 218.9 |
| 20 | | 0.28 | 60.2 | 40.4 | | 0.8 | 116.5 | 79.1 | | 1.32 | 171.4 | 124.5 |
| 30 | | 0.28 | 68.9 | 50.5 | | 0.8 | 126.2 | 89.2 | | 1.32 | 182.1 | 138.7 |
| 40 | | 0.28 | 77.7 | 60.6 | | 0.8 | 134.2 | 99.3 | | 1.32 | 192.6 | 152.2 |
| 50 | /case4/ | 0.28 | 86.6 | 70.6 | /case4/ | 0.8 | 144.9 | 112.7 | /case4/ | 1.32 | 204.4 | 167.1 |
| 60 | d60_028 | 0.28 | 95.5 | 80.7 | d60_080 | 0.8 | 156.1 | 126.4 | d60_132 | 1.32 | 215.1 | 180.3 |
| 70 | | 0.28 | 104.6 | 90.7 | | 0.8 | 168.1 | 140.8 | | 1.32 | 227.1 | 194.9 |
| 80 | | 0.28 | 114.0 | 101.0 | | 0.8 | 179.7 | 154.3 | | 1.32 | 238.4 | 208.2 |
| 90 | | 0.28 | 126.7 | 114.8 | | 0.8 | 192.1 | 168.8 | | 1.32 | 251.1 | 223.2 |
| 20 | | 0.32 | 65.3 | 43.4 | | 0.84 | 122.4 | 82.1 | | 1.36 | 176.0 | 129.1 |
| 30 | | 0.32 | 73.8 | 53.5 | | 0.84 | 130.1 | 92.2 | | 1.36 | 186.4 | 142.9 |
| 40 | | 0.32 | 82.5 | 63.5 | | 0.84 | 138.6 | 103.0 | | 1.36 | 197.6 | 157.3 |
| 50 | /case4/ | 0.32 | 91.3 | 73.6 | /case4/ | 0.84 | 149.6 | 116.8 | /case4/ | 1.36 | 208.3 | 170.8 |
| 60 | d60_032 | 0.32 | 100.2 | 83.6 | d60_084 | 0.84 | 161.2 | 131.0 | d60_136 | 1.36 | 219.7 | 184.7 |
| 70 | | 0.32 | 109.2 | 93.7 | | 0.84 | 172.5 | 144.5 | | 1.36 | 231.3 | 198.9 |
| 80 | | 0.32 | 119.4 | 105.0 | | 0.84 | 184.5 | 158.7 | | 1.36 | 242.5 | 212.2 |
| 90 | | 0.32 | 132.1 | 118.9 | | 0.84 | 196.8 | 172.9 | | 1.36 | 255.6 | 227.5 |
| 20 | | 0.36 | 70.2 | 46.3 | | 0.88 | 126.3 | 85.1 | | 1.4 | 179.8 | 132.6 |
| 30 | | 0.36 | 78.7 | 56.4 | | 0.88 | 134.0 | 95.2 | | 1.4 | 190.3 | 146.4 |
| 40 | | 0.36 | 87.2 | 66.5 | | 0.88 | 143.3 | 107.0 | | 1.4 | 201.9 | 161.4 |
| 50 | /case4/ | 0.36 | 95.9 | 76.5 | /case4/ | 0.88 | 154.3 | 120.8 | /case4/ | 1.4 | 212.3 | 174.5 |
| 60 | d60_036 | 0.36 | 104.7 | 86.6 | d60_088 | 0.88 | 165.6 | 134.7 | d60_140 | 1.4 | 224.5 | 189.6 |
| 70 | | 0.36 | 113.6 | 96.6 | | 0.88 | 177.5 | 149.0 | | 1.4 | 235.7 | 203.0 |
| 80 | | 0.36 | 124.8 | 109.1 | | 0.88 | 189.3 | 163.0 | | 1.4 | 246.7 | 216.1 |
| 90 | | 0.36 | 137.4 | 123.0 | | 0.88 | 201.4 | 177.0 | | 1.4 | 260.0 | 231.7 |
| 20 | /case4/ d60_040 | 0.4 | 75.1 | 49.3 | /case4/ d60_092 | 0.92 | 130.2 | 88.1 | /case4/ d60_144 | 1.44 | 184.6 | 137.4 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | 0.4 | 83.4 | 59.4 | | 0.92 | 137.9 | 98.2 | | 1.44 | 195.5 | 151.9 |
| 40 | | 0.4 | 91.9 | 69.5 | | 0.92 | 148.0 | 111.2 | | 1.44 | 205.9 | 165.2 |
| 50 | | 0.4 | 100.5 | 79.5 | | 0.92 | 159.0 | 125.0 | | 1.44 | 216.7 | 178.7 |
| 60 | | 0.4 | 109.2 | 89.6 | | 0.92 | 170.7 | 139.5 | | 1.44 | 228.6 | 193.5 |
| 70 | | 0.4 | 118.1 | 99.6 | | 0.92 | 182.1 | 153.2 | | 1.44 | 240.0 | 207.1 |
| 80 | | 0.4 | 130.1 | 113.2 | | 0.92 | 193.9 | 167.1 | | 1.44 | 251.1 | 220.4 |
| 90 | | 0.4 | 142.6 | 127.1 | | 0.92 | 205.9 | 181.0 | | 1.44 | 264.2 | 235.8 |
| 20 | | 0.44 | 79.8 | 52.3 | | 0.96 | 134.0 | 91.1 | | | | |
| 30 | | 0.44 | 88.0 | 62.4 | | 0.96 | 142.0 | 101.5 | | | | |
| 40 | | 0.44 | 96.4 | 72.4 | | 0.96 | 152.6 | 115.3 | | | | |
| 50 | /case4/ | 0.44 | 104.9 | 82.5 | /case4/ | 0.96 | 163.8 | 129.4 | | | | |
| 60 | d60_044 | 0.44 | 113.6 | 92.5 | d60_096 | 0.96 | 175.1 | 143.2 | | | | |
| 70 | | 0.44 | 123.1 | 103.5 | | 0.96 | 186.5 | 157.1 | | | | |
| 80 | | 0.44 | 135.3 | 117.3 | | 0.96 | 198.4 | 171.1 | | | | |
| 90 | | 0.44 | 147.8 | 131.3 | | 0.96 | 210.3 | 185.0 | | | | |
| 20 | | 0.48 | 84.4 | 55.2 | | 1 | 137.8 | 94.1 | | | | |
| 30 | | 0.48 | 92.5 | 65.3 | | 1 | 146.5 | 105.6 | | | | |
| 40 | | 0.48 | 100.9 | 75.4 | | 1 | 157.1 | 119.3 | | | | |
| 50 | /case4/ | 0.48 | 109.3 | 85.5 | /case4/ | 1 | 168.0 | 133.0 | | | | |
| 60 | d60_048 | 0.48 | 117.9 | 95.5 | d60_100 | 1 | 179.4 | 147.0 | | | | |
| 70 | | 0.48 | 128.3 | 107.5 | | 1 | 191.0 | 161.0 | | | | |
| 80 | | 0.48 | 140.5 | 121.5 | | 1 | 202.7 | 175.0 | | | | |
| 90 | | 0.48 | 152.9 | 135.3 | | 1 | 214.7 | 189.0 | | | | |

Table 6-7. Temperature Results for Case 5 (D = 5.0 m; mailbox)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | 0.01 | 21.6 | 20.7 | | 0.52 | 87.8 | 58.0 | | 1.04 | 142.4 | 97.3 |
| 30 | | 0.01 | 31.5 | 30.7 | | 0.52 | 96.0 | 68.0 | | 1.04 | 152.6 | 110.7 |
| 40 | | 0.01 | 41.5 | 40.7 | | 0.52 | 104.4 | 78.1 | | 1.04 | 163.4 | 124.4 |
| 50 | /case5/ | 0.01 | 51.4 | 50.7 | /case5/ | 0.52 | 113.2 | 88.3 | /case5/ | 1.04 | 174.1 | 137.9 |
| 60 | d50_001 | 0.01 | 61.4 | 60.7 | d50_052 | 0.52 | 122.6 | 98.6 | d50_104 | 1.04 | 186.0 | 152.4 |
| 70 | | 0.01 | 71.3 | 70.7 | | 0.52 | 134.3 | 112.1 | | 1.04 | 197.8 | 166.7 |
| 80 | | 0.01 | 81.3 | 80.7 | | 0.52 | 146.5 | 126.0 | | 1.04 | 209.5 | 180.4 |
| 90 | | 0.01 | 91.2 | 90.7 | | 0.52 | 158.7 | 139.8 | | 1.04 | 221.1 | 194.0 |
| 20 | | 0.04 | 26.2 | 22.9 | | 0.56 | 92.2 | 60.9 | | 1.08 | 146.4 | 100.5 |
| 30 | | 0.04 | 36.0 | 32.9 | | 0.56 | 100.4 | 71.0 | | 1.08 | 157.0 | 114.4 |
| 40 | | 0.04 | 45.8 | 42.9 | | 0.56 | 108.7 | 81.1 | | 1.08 | 167.6 | 128.1 |
| 50 | /case5/ | 0.04 | 55.6 | 52.9 | /case5/ | 0.56 | 117.8 | 91.3 | /case5/ | 1.08 | 179.2 | 142.7 |
| 60 | d50_004 | 0.04 | 65.4 | 62.9 | d50_056 | 0.56 | 127.3 | 102.0 | d50_108 | 1.08 | 190.2 | 156.1 |
| 70 | | 0.04 | 75.2 | 72.9 | | 0.56 | 139.3 | 116.1 | | 1.08 | 202.1 | 170.5 |
| 80 | | 0.04 | 85.1 | 82.9 | | 0.56 | 151.4 | 130.0 | | 1.08 | 213.9 | 184.4 |
| 90 | | 0.04 | 94.9 | 92.9 | | 0.56 | 163.8 | 144.0 | | 1.08 | 225.6 | 198.1 |
| 20 | | 0.08 | 32.2 | 25.8 | | 0.6 | 96.6 | 63.9 | | 1.12 | 150.7 | 104.1 |
| 30 | | 0.08 | 41.7 | 35.8 | | 0.6 | 104.7 | 74.0 | | 1.12 | 161.4 | 118.3 |
| 40 | | 0.08 | 51.3 | 45.8 | | 0.6 | 113.2 | 84.1 | | 1.12 | 172.6 | 132.7 |
| 50 | /case5/ | 0.08 | 60.9 | 55.8 | /case5/ | 0.6 | 122.3 | 94.4 | /case5/ | 1.12 | 184.0 | 147.0 |
| 60 | d50_008 | 0.08 | 70.6 | 65.8 | d50_060 | 0.6 | 132.7 | 106.5 | d50_112 | 1.12 | 194.6 | 160.1 |
| 70 | | 0.08 | 80.3 | 75.9 | | 0.6 | 144.5 | 120.4 | | 1.12 | 206.4 | 174.4 |
| 80 | | 0.08 | 90.0 | 85.9 | | 0.6 | 156.7 | 134.4 | | 1.12 | 218.3 | 188.4 |
| 90 | | 0.08 | 99.8 | 95.9 | | 0.6 | 168.7 | 148.0 | | 1.12 | 230.2 | 202.4 |
| 20 | | 0.12 | 38.0 | 28.7 | | 0.64 | 100.9 | 66.8 | | 1.16 | 155.9 | 109.5 |
| 30 | | 0.12 | 47.3 | 38.7 | | 0.64 | 108.9 | 76.9 | | 1.16 | 166.5 | 123.4 |
| 40 | | 0.12 | 56.7 | 48.7 | | 0.64 | 117.6 | 87.2 | | 1.16 | 177.2 | 137.1 |
| 50 | /case5/ | 0.12 | 66.2 | 58.7 | /case5/ | 0.64 | 126.7 | 97.5 | /case5/ | 1.16 | 188.0 | 150.6 |
| 60 | d50_012 | 0.12 | 75.7 | 68.8 | d50_064 | 0.64 | 137.5 | 110.4 | d50_116 | 1.16 | 200.0 | 165.3 |
| 70 | | 0.12 | 85.3 | 78.8 | | 0.64 | 149.4 | 124.3 | | 1.16 | 210.7 | 178.3 |
| 80 | | 0.12 | 94.9 | 88.8 | | 0.64 | 161.4 | 138.2 | | 1.16 | 222.7 | 192.5 |
| 90 | | 0.12 | 104.7 | 98.9 | | 0.64 | 173.7 | 152.2 | | 1.16 | 234.8 | 206.6 |
| 20 | | 0.16 | 43.6 | 31.6 | | 0.68 | 105.0 | 69.8 | | 1.2 | 160.3 | 113.3 |
| 30 | | 0.16 | 52.7 | 41.6 | | 0.68 | 113.2 | 79.9 | | 1.2 | 171.0 | 127.4 |
| 40 | | 0.16 | 62.0 | 51.6 | | 0.68 | 122.0 | 90.2 | | 1.2 | 181.7 | 141.1 |
| 50 | /case5/ | 0.16 | 71.3 | 61.7 | /case5/ | 0.68 | 131.1 | 100.7 | /case5/ | 1.2 | 192.2 | 154.4 |
| 60 | d50_016 | 0.16 | 80.7 | 71.7 | d50_068 | 0.68 | 143.0 | 115.0 | d50_120 | 1.2 | 204.3 | 169.3 |
| 70 | | 0.16 | 90.1 | 81.7 | | 0.68 | 154.6 | 128.8 | | 1.2 | 215.2 | 182.5 |
| 80 | | 0.16 | 99.6 | 91.8 | | 0.68 | 166.6 | 142.6 | | 1.2 | 227.1 | 196.5 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 0.16 | 110.2 | 102.6 | | 0.68 | 178.7 | 156.5 | | 1.2 | 239.4 | 210.9 |
| 20 | | 0.2 | 49.0 | 34.5 | | 0.72 | 109.2 | 72.8 | | 1.24 | 164.5 | 117.0 |
| 30 | | 0.2 | 58.0 | 44.5 | | 0.72 | 117.6 | 83.0 | | 1.24 | 175.0 | 130.9 |
| 40 | | 0.2 | 67.1 | 54.6 | | 0.72 | 126.4 | 93.3 | | 1.24 | 185.8 | 144.8 |
| 50 | /case5/ | 0.2 | 76.3 | 64.6 | /case5/ | 0.72 | 136.1 | 105.0 | /case5/ | 1.24 | 197.7 | 159.8 |
| 60 | d50_020 | 0.2 | 85.6 | 74.6 | d50_072 | 0.72 | 147.5 | 118.7 | d50_124 | 1.24 | 208.5 | 173.1 |
| 70 | | 0.2 | 94.9 | 84.7 | | 0.72 | 159.2 | 132.5 | | 1.24 | 220.6 | 187.7 |
| 80 | | 0.2 | 104.4 | 94.7 | | 0.72 | 171.5 | 146.9 | | 1.24 | 231.6 | 200.8 |
| 90 | | 0.2 | 115.9 | 106.7 | | 0.72 | 183.5 | 160.7 | | 1.24 | 243.9 | 215.1 |
| 20 | | 0.24 | 54.2 | 37.4 | | 0.76 | 113.3 | 75.8 | | 1.28 | 168.8 | 121.0 |
| 30 | | 0.24 | 63.1 | 47.4 | | 0.76 | 121.9 | 86.0 | | 1.28 | 179.3 | 134.9 |
| 40 | | 0.24 | 72.1 | 57.5 | | 0.76 | 130.7 | 96.4 | | 1.28 | 190.3 | 149.2 |
| 50 | /case5/ | 0.24 | 81.2 | 67.5 | /case5/ | 0.76 | 141.2 | 109.2 | /case5/ | 1.28 | 202.0 | 163.8 |
| 60 | d50_024 | 0.24 | 90.4 | 77.6 | d50_076 | 0.76 | 152.8 | 123.2 | d50_128 | 1.28 | 212.6 | 176.9 |
| 70 | | 0.24 | 99.6 | 87.6 | | 0.76 | 164.6 | 137.3 | | 1.28 | 224.9 | 191.7 |
| 80 | | 0.24 | 109.3 | 97.8 | | 0.76 | 176.1 | 150.7 | | 1.28 | 236.2 | 205.2 |
| 90 | | 0.24 | 121.5 | 110.8 | | 0.76 | 188.3 | 164.7 | | 1.28 | 248.3 | 219.3 |
| 20 | | 0.28 | 59.4 | 40.3 | | 0.8 | 117.6 | 78.8 | | 1.32 | 173.6 | 126.0 |
| 30 | | 0.28 | 68.1 | 50.4 | | 0.8 | 126.2 | 89.1 | | 1.32 | 184.6 | 140.3 |
| 40 | | 0.28 | 77.0 | 60.4 | | 0.8 | 134.9 | 99.5 | | 1.32 | 195.5 | 154.2 |
| 50 | /case5/ | 0.28 | 86.0 | 70.5 | /case5/ | 0.8 | 145.8 | 113.0 | /case5/ | 1.32 | 206.1 | 167.5 |
| 60 | d50_028 | 0.28 | 95.0 | 80.5 | d50_080 | 0.8 | 157.6 | 127.3 | d50_132 | 1.32 | 216.9 | 180.8 |
| 70 | | 0.28 | 104.2 | 90.6 | | 0.8 | 169.1 | 141.0 | | 1.32 | 229.1 | 195.6 |
| 80 | | 0.28 | 114.3 | 101.0 | | 0.8 | 180.9 | 154.9 | | 1.32 | 240.6 | 209.3 |
| 90 | | 0.28 | 127.1 | 115.0 | | 0.8 | 193.0 | 168.9 | | 1.32 | 252.6 | 223.3 |
| 20 | | 0.32 | 64.4 | 43.2 | | 0.84 | 121.9 | 81.9 | | 1.36 | 178.3 | 130.4 |
| 30 | | 0.32 | 73.0 | 53.3 | | 0.84 | 130.4 | 92.2 | | 1.36 | 188.6 | 144.0 |
| 40 | | 0.32 | 81.8 | 63.4 | | 0.84 | 139.4 | 103.0 | | 1.36 | 199.6 | 158.0 |
| 50 | /case5/ | 0.32 | 90.7 | 73.4 | /case5/ | 0.84 | 151.2 | 117.9 | /case5/ | 1.36 | 210.1 | 171.3 |
| 60 | d50_032 | 0.32 | 99.6 | 83.5 | d50_084 | 0.84 | 162.0 | 131.0 | d50_136 | 1.36 | 222.3 | 186.3 |
| 70 | | 0.32 | 108.9 | 93.6 | | 0.84 | 173.7 | 145.0 | | 1.36 | 233.3 | 199.5 |
| 80 | | 0.32 | 119.8 | 105.2 | | 0.84 | 186.1 | 159.5 | | 1.36 | 245.2 | 213.7 |
| 90 | | 0.32 | 132.5 | 119.1 | | 0.84 | 197.8 | 173.1 | | 1.36 | 256.9 | 227.3 |
| 20 | | 0.36 | 69.3 | 46.2 | | 0.88 | 126.1 | 84.9 | | 1.4 | 182.2 | 134.0 |
| 30 | | 0.36 | 77.8 | 56.2 | | 0.88 | 134.6 | 95.3 | | 1.4 | 192.9 | 148.1 |
| 40 | | 0.36 | 86.5 | 66.3 | | 0.88 | 144.8 | 108.1 | | 1.4 | 203.5 | 161.6 |
| 50 | /case5/ | 0.36 | 95.3 | 76.4 | /case5/ | 0.88 | 155.6 | 121.5 | /case5/ | 1.4 | 214.2 | 175.1 |
| 60 | d50_036 | 0.36 | 104.2 | 86.4 | d50_088 | 0.88 | 167.5 | 136.0 | d50_140 | 1.4 | 226.7 | 190.4 |
| 70 | | 0.36 | 113.7 | 96.6 | | 0.88 | 179.0 | 149.8 | | 1.4 | 237.5 | 203.5 |
| 80 | | 0.36 | 125.2 | 109.3 | | 0.88 | 190.6 | 163.5 | | 1.4 | 249.7 | 217.9 |
| 90 | | 0.36 | 137.9 | 123.3 | | 0.88 | 202.5 | 177.3 | | 1.4 | 261.2 | 231.4 |
| 20 | /case5/ d50_040 | 0.4 | 74.0 | 49.1 | /case5/ d50_092 | 0.92 | 130.3 | 88.0 | /case5/ d50_144 | 1.44 | 186.1 | 137.6 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | 0.4 | 82.5 | 59.2 | | 0.92 | 138.7 | 98.4 | | 1.44 | 196.9 | 151.8 |
| 40 | | 0.4 | 91.1 | 69.3 | | 0.92 | 149.3 | 111.8 | | 1.44 | 207.5 | 165.4 |
| 50 | | 0.4 | 99.8 | 79.3 | | 0.92 | 160.2 | 125.5 | | 1.44 | 219.9 | 180.8 |
| 60 | | 0.4 | 108.7 | 89.4 | | 0.92 | 171.8 | 139.7 | | 1.44 | 230.8 | 194.3 |
| 70 | | 0.4 | 118.4 | 99.7 | | 0.92 | 183.5 | 153.7 | | 1.44 | 241.7 | 207.5 |
| 80 | | 0.4 | 130.7 | 113.5 | | 0.92 | 195.1 | 167.4 | | 1.44 | 254.0 | 222.0 |
| 90 | | 0.4 | 143.2 | 127.4 | | 0.92 | 207.1 | 181.4 | | 1.44 | 265.5 | 235.5 |
| 20 | | 0.44 | 78.7 | 52.1 | | 0.96 | 134.4 | 91.1 | | | | |
| 30 | | 0.44 | 87.1 | 62.1 | | 0.96 | 142.9 | 101.7 | | | | |
| 40 | | 0.44 | 95.6 | 72.2 | | 0.96 | 153.8 | 115.7 | | | | |
| 50 | /case5/ | 0.44 | 104.2 | 82.3 | /case5/ | 0.96 | 165.3 | 130.2 | | | | |
| 60 | d50_044 | 0.44 | 113.4 | 92.5 | d50_096 | 0.96 | 176.1 | 143.4 | | | | |
| 70 | | 0.44 | 123.8 | 103.9 | | 0.96 | 187.8 | 157.5 | | | | |
| 80 | | 0.44 | 136.1 | 117.7 | | 0.96 | 199.6 | 171.4 | | | | |
| 90 | | 0.44 | 148.5 | 131.6 | | 0.96 | 211.8 | 185.6 | | | | |
| 20 | | 0.48 | 83.3 | 55.0 | | 1 | 138.4 | 94.2 | | | | |
| 30 | | 0.48 | 91.6 | 65.1 | | 1 | 147.5 | 105.9 | | | | |
| 40 | | 0.48 | 100.0 | 75.2 | | 1 | 159.1 | 120.7 | | | | |
| 50 | /case5/ | 0.48 | 108.7 | 85.3 | /case5/ | 1 | 169.9 | 134.2 | | | | |
| 60 | d50_048 | 0.48 | 118.1 | 95.5 | d50_100 | 1 | 181.7 | 148.6 | | | | |
| 70 | | 0.48 | 128.9 | 107.7 | | 1 | 192.6 | 161.8 | | | | |
| 80 | | 0.48 | 141.1 | 121.7 | | 1 | 204.4 | 175.8 | | | | |
| 90 | | 0.48 | 153.5 | 135.6 | | 1 | 216.5 | 189.8 | | | | |

Table 6-8. Temperature Results for Case 6 (D = 4.0 m; mailbox; no drip shield)

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | | 0.01 | 21.4 | 21.0 | | 0.52 | 83.2 | 70.5 | | 1.04 | 143.6 | 127.6 |
| 30 | | 0.01 | 31.3 | 31.0 | | 0.52 | 92.1 | 80.4 | | 1.04 | 155.8 | 141.3 |
| 40 | | 0.01 | 41.3 | 41.0 | | 0.52 | 101.2 | 90.3 | | 1.04 | 168.0 | 154.7 |
| 50 | /case6/ | 0.01 | 51.3 | 51.0 | /case6/ | 0.52 | 110.3 | 100.3 | /case6/ | 1.04 | 180.8 | 168.6 |
| 60 | d40_001 | 0.01 | 61.3 | 61.0 | d40_052 | 0.52 | 123.0 | 113.9 | d40_104 | 1.04 | 193.4 | 182.2 |
| 70 | | 0.01 | 71.2 | 71.0 | | 0.52 | 135.7 | 127.5 | | 1.04 | 206.3 | 196.1 |
| 80 | | 0.01 | 81.2 | 81.0 | | 0.52 | 148.8 | 141.3 | | 1.04 | 219.1 | 209.7 |
| 90 | | 0.01 | 91.2 | 91.0 | | 0.52 | 161.8 | 155.0 | | 1.04 | 231.8 | 223.1 |
| 20 | | 0.04 | 25.5 | 23.9 | | 0.56 | 87.5 | 74.3 | | 1.08 | 148.6 | 132.6 |
| 30 | | 0.04 | 35.3 | 33.9 | | 0.56 | 96.4 | 84.2 | | 1.08 | 160.7 | 146.1 |
| 40 | | 0.04 | 45.2 | 43.9 | | 0.56 | 105.5 | 94.2 | | 1.08 | 173.3 | 159.9 |
| 50 | /case6/ | 0.04 | 55.1 | 53.9 | /case6/ | 0.56 | 116.3 | 105.9 | /case6/ | 1.08 | 186.2 | 174.0 |
| 60 | d40_004 | 0.04 | 65.0 | 63.9 | d40_056 | 0.56 | 128.4 | 119.0 | d40_108 | 1.08 | 198.5 | 187.3 |
| 70 | | 0.04 | 74.9 | 73.9 | | 0.56 | 141.4 | 133.0 | | 1.08 | 211.2 | 200.9 |
| 80 | | 0.04 | 84.8 | 83.9 | | 0.56 | 154.2 | 146.5 | | 1.08 | 224.6 | 215.1 |
| 90 | | 0.04 | 94.7 | 93.9 | | 0.56 | 167.5 | 160.5 | | 1.08 | 237.0 | 228.2 |
| 20 | | 0.08 | 30.8 | 27.8 | | 0.6 | 91.8 | 78.2 | | 1.12 | 153.6 | 137.6 |
| 30 | | 0.08 | 40.5 | 37.8 | | 0.6 | 100.7 | 88.1 | | 1.12 | 166.4 | 151.8 |
| 40 | | 0.08 | 50.3 | 47.8 | | 0.6 | 109.7 | 98.0 | | 1.12 | 178.9 | 165.6 |
| 50 | /case6/ | 0.08 | 60.1 | 57.8 | /case6/ | 0.6 | 121.0 | 110.3 | /case6/ | 1.12 | 191.3 | 179.0 |
| 60 | d40_008 | 0.08 | 69.9 | 67.8 | d40_060 | 0.6 | 134.0 | 124.4 | d40_112 | 1.12 | 204.0 | 192.7 |
| 70 | | 0.08 | 79.7 | 77.8 | | 0.6 | 146.8 | 138.0 | | 1.12 | 216.4 | 206.0 |
| 80 | | 0.08 | 89.5 | 87.7 | | 0.6 | 159.8 | 151.8 | | 1.12 | 230.4 | 220.8 |
| 90 | | 0.08 | 99.4 | 97.7 | | 0.6 | 173.0 | 165.8 | | 1.12 | 242.1 | 233.3 |
| 20 | | 0.12 | 36.0 | 31.7 | | 0.64 | 96.1 | 82.0 | | 1.16 | 159.5 | 143.6 |
| 30 | | 0.12 | 45.6 | 41.7 | | 0.64 | 105.0 | 91.9 | | 1.16 | 171.8 | 157.2 |
| 40 | | 0.12 | 55.3 | 51.7 | | 0.64 | 114.0 | 101.9 | | 1.16 | 184.0 | 170.6 |
| 50 | /case6/ | 0.12 | 65.0 | 61.7 | /case6/ | 0.64 | 127.1 | 116.2 | /case6/ | 1.16 | 196.2 | 183.9 |
| 60 | d40_012 | 0.12 | 74.7 | 71.7 | d40_064 | 0.64 | 139.6 | 129.7 | d40_116 | 1.16 | 208.8 | 197.5 |
| 70 | | 0.12 | 84.4 | 81.6 | | 0.64 | 152.5 | 143.5 | | 1.16 | 222.1 | 211.7 |
| 80 | | 0.12 | 94.2 | 91.6 | | 0.64 | 165.4 | 157.2 | | 1.16 | 235.5 | 226.0 |
| 90 | | 0.12 | 104.5 | 102.1 | | 0.64 | 178.3 | 170.8 | | 1.16 | 247.3 | 238.4 |
| 20 | | 0.16 | 41.1 | 35.6 | | 0.68 | 100.3 | 85.9 | | 1.2 | 164.4 | 148.5 |
| 30 | | 0.16 | 50.6 | 45.6 | | 0.68 | 109.2 | 95.8 | | 1.2 | 176.6 | 162.1 |
| 40 | | 0.16 | 60.2 | 55.6 | | 0.68 | 120.2 | 108.0 | | 1.2 | 188.9 | 175.6 |
| 50 | /case6/ | 0.16 | 69.8 | 65.6 | /case6/ | 0.68 | 132.2 | 121.0 | /case6/ | 1.2 | 201.8 | 189.6 |
| 60 | d40_016 | 0.16 | 79.4 | 75.5 | d40_068 | 0.68 | 145.0 | 134.9 | d40_120 | 1.2 | 214.7 | 203.4 |
| 70 | | 0.16 | 89.1 | 85.5 | | 0.68 | 157.8 | 148.6 | | 1.2 | 227.3 | 216.9 |
| 80 | | 0.16 | 98.8 | 95.5 | | 0.68 | 171.0 | 162.6 | | 1.2 | 240.6 | 231.0 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 90 | | 0.16 | 110.4 | 107.4 | | 0.68 | 183.5 | 175.9 | | 1.2 | 252.6 | 243.7 |
| 20 | | 0.2 | 46.1 | 39.5 | | 0.72 | 104.5 | 89.7 | | 1.24 | 169.2 | 153.3 |
| 30 | | 0.2 | 55.5 | 49.5 | | 0.72 | 113.4 | 99.6 | | 1.24 | 181.5 | 166.9 |
| 40 | | 0.2 | 65.0 | 59.4 | | 0.72 | 124.9 | 112.4 | | 1.24 | 194.3 | 181.0 |
| 50 | /case6/ d40_020 | 0.2 | 74.5 | 69.4 | /case6/ d40_072 | 0.72 | 138.1 | 126.8 | /case6/ d40_124 | 1.24 | 207.3 | 195.0 |
| 60 | | 0.2 | 84.1 | 79.4 | | 0.72 | 150.4 | 140.1 | | 1.24 | 219.8 | 208.5 |
| 70 | | 0.2 | 93.7 | 89.4 | | 0.72 | 163.3 | 153.9 | | 1.24 | 233.1 | 222.7 |
| 80 | | 0.2 | 103.3 | 99.3 | | 0.72 | 176.0 | 167.5 | | 1.24 | 245.6 | 235.9 |
| 90 | | 0.2 | 116.3 | 112.7 | | 0.72 | 189.0 | 181.1 | | 1.24 | 258.2 | 249.3 |
| 20 | | 0.24 | 51.0 | 43.4 | | 0.76 | 108.7 | 93.5 | | 1.28 | 174.9 | 159.2 |
| 30 | | 0.24 | 60.3 | 53.4 | | 0.76 | 117.7 | 103.7 | | 1.28 | 187.5 | 173.0 |
| 40 | | 0.24 | 69.7 | 63.3 | | 0.76 | 131.2 | 118.6 | | 1.28 | 199.8 | 186.6 |
| 50 | /case6/ d40_024 | 0.24 | 79.2 | 73.3 | /case6/ d40_076 | 0.76 | 143.2 | 131.6 | /case6/ d40_128 | 1.28 | 212.3 | 200.1 |
| 60 | | 0.24 | 88.7 | 83.3 | | 0.76 | 156.0 | 145.6 | | 1.28 | 225.0 | 213.7 |
| 70 | | 0.24 | 98.2 | 93.2 | | 0.76 | 168.8 | 159.3 | | 1.28 | 238.5 | 228.1 |
| 80 | | 0.24 | 108.8 | 104.2 | | 0.76 | 181.5 | 172.7 | | 1.28 | 250.6 | 240.9 |
| 90 | | 0.24 | 122.2 | 118.0 | | 0.76 | 194.7 | 186.7 | | 1.28 | 263.9 | 255.0 |
| 20 | | 0.28 | 55.8 | 47.3 | | 0.8 | 112.8 | 97.4 | | 1.32 | 180.3 | 164.6 |
| 30 | | 0.28 | 65.1 | 57.2 | | 0.8 | 124.1 | 110.0 | | 1.32 | 192.5 | 178.1 |
| 40 | | 0.28 | 74.4 | 67.2 | | 0.8 | 136.0 | 123.2 | | 1.32 | 205.0 | 191.8 |
| 50 | /case6/ d40_028 | 0.28 | 83.8 | 77.1 | /case6/ d40_080 | 0.8 | 148.8 | 137.1 | /case6/ d40_132 | 1.32 | 217.2 | 205.0 |
| 60 | | 0.28 | 93.2 | 87.1 | | 0.8 | 161.2 | 150.5 | | 1.32 | 231.0 | 219.7 |
| 70 | | 0.28 | 102.7 | 97.1 | | 0.8 | 174.0 | 164.3 | | 1.32 | 243.4 | 233.0 |
| 80 | | 0.28 | 114.7 | 109.6 | | 0.8 | 187.1 | 178.2 | | 1.32 | 255.6 | 245.9 |
| 90 | | 0.28 | 127.9 | 123.3 | | 0.8 | 200.3 | 192.2 | | 1.32 | 269.5 | 260.5 |
| 20 | | 0.32 | 60.5 | 51.2 | | 0.84 | 117.0 | 101.2 | | 1.36 | 185.1 | 169.4 |
| 30 | | 0.32 | 69.7 | 61.1 | | 0.84 | 128.7 | 114.4 | | 1.36 | 197.5 | 183.1 |
| 40 | | 0.32 | 79.0 | 71.1 | | 0.84 | 141.3 | 128.4 | | 1.36 | 209.8 | 196.6 |
| 50 | /case6/ d40_032 | 0.32 | 88.3 | 81.0 | /case6/ d40_084 | 0.84 | 154.2 | 142.4 | /case6/ d40_136 | 1.36 | 222.5 | 210.3 |
| 60 | | 0.32 | 97.7 | 91.0 | | 0.84 | 166.9 | 156.1 | | 1.36 | 235.8 | 224.6 |
| 70 | | 0.32 | 107.2 | 101.0 | | 0.84 | 179.5 | 169.7 | | 1.36 | 248.3 | 237.9 |
| 80 | | 0.32 | 120.5 | 114.9 | | 0.84 | 192.8 | 183.8 | | 1.36 | 260.6 | 250.9 |
| 90 | | 0.32 | 133.8 | 128.7 | | 0.84 | 205.9 | 197.6 | | 1.36 | 275.1 | 266.1 |
| 20 | | 0.36 | 65.2 | 55.0 | | 0.88 | 122.9 | 107.2 | | 1.4 | 189.9 | 174.2 |
| 30 | | 0.36 | 74.3 | 65.0 | | 0.88 | 135.2 | 120.9 | | 1.4 | 202.3 | 188.0 |
| 40 | | 0.36 | 83.5 | 74.9 | | 0.88 | 147.0 | 134.0 | | 1.4 | 214.7 | 201.5 |
| 50 | /case6/ d40_036 | 0.36 | 92.8 | 84.9 | /case6/ d40_088 | 0.88 | 159.2 | 147.2 | /case6/ d40_140 | 1.4 | 227.8 | 215.7 |
| 60 | | 0.36 | 102.1 | 94.8 | | 0.88 | 172.2 | 161.4 | | 1.4 | 240.6 | 229.4 |
| 70 | | 0.36 | 113.0 | 106.2 | | 0.88 | 184.7 | 174.7 | | 1.4 | 253.2 | 242.8 |
| 80 | | 0.36 | 126.2 | 120.1 | | 0.88 | 198.0 | 188.9 | | 1.4 | 265.6 | 255.9 |
| 90 | | 0.36 | 139.4 | 133.9 | | 0.88 | 211.1 | 202.7 | | 1.4 | 280.5 | 271.5 |
| 20 | /case6/ d40_040 | 0.4 | 69.8 | 58.9 | /case6/ d40_092 | 0.92 | 127.9 | 112.1 | /case6/ d40_144 | 1.44 | 195.0 | 179.5 |

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| B.C. at 5m-into-rock (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) | Case Name | Instantaneous Linear Heat (kW/m) | Max. Waste Package Surface Temperature (°C) | Max. Drift Wall Temperature (°C) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | | 0.4 | 78.8 | 68.8 | | 0.92 | 139.8 | 125.4 | | 1.44 | 207.5 | 193.2 |
| 40 | | 0.4 | 88.0 | 78.8 | | 0.92 | 152.0 | 138.9 | | 1.44 | 220.4 | 207.3 |
| 50 | | 0.4 | 97.2 | 88.7 | | 0.92 | 165.0 | 153.1 | | 1.44 | 232.5 | 220.3 |
| 60 | | 0.4 | 106.5 | 98.7 | | 0.92 | 177.2 | 166.2 | | 1.44 | 245.4 | 234.2 |
| 70 | | 0.4 | 118.8 | 111.6 | | 0.92 | 190.3 | 180.3 | | 1.44 | 258.1 | 247.7 |
| 80 | | 0.4 | 131.9 | 125.4 | | 0.92 | 203.1 | 193.8 | | 1.44 | 271.1 | 261.4 |
| 90 | | 0.4 | 145.1 | 139.3 | | 0.92 | 216.3 | 207.8 | | 1.44 | 285.6 | 276.7 |
| 20 | | 0.44 | 74.3 | 62.8 | | 0.96 | 132.4 | 116.4 | | | | |
| 30 | | 0.44 | 83.3 | 72.7 | | 0.96 | 144.8 | 130.3 | | | | |
| 40 | | 0.44 | 92.4 | 82.6 | | 0.96 | 157.7 | 144.5 | | | | |
| 50 | /case6/ | 0.44 | 101.6 | 92.6 | /case6/ | 0.96 | 170.2 | 158.1 | | | | |
| 60 | d40_044 | 0.44 | 111.7 | 103.3 | d40_096 | 0.96 | 182.8 | 171.8 | | | | |
| 70 | | 0.44 | 124.6 | 117.1 | | 0.96 | 195.7 | 185.5 | | | | |
| 80 | | 0.44 | 137.6 | 130.8 | | 0.96 | 208.1 | 198.8 | | | | |
| 90 | | 0.44 | 150.8 | 144.6 | | 0.96 | 221.5 | 212.9 | | | | |
| 20 | | 0.48 | 78.8 | 66.6 | | 1 | 138.9 | 123.1 | | | | |
| 30 | | 0.48 | 87.7 | 76.6 | | 1 | 151.0 | 136.5 | | | | |
| 40 | | 0.48 | 96.8 | 86.5 | | 1 | 163.1 | 149.8 | | | | |
| 50 | /case6/ | 0.48 | 106.0 | 96.4 | /case6/ | 1 | 175.2 | 163.1 | | | | |
| 60 | d40_048 | 0.48 | 117.0 | 108.3 | d40_100 | 1 | 188.3 | 177.2 | | | | |
| 70 | | 0.48 | 130.2 | 122.3 | | 1 | 201.4 | 191.2 | | | | |
| 80 | | 0.48 | 143.1 | 136.0 | | 1 | 213.4 | 204.0 | | | | |
| 90 | | 0.48 | 156.2 | 149.7 | | 1 | 226.7 | 218.0 | | | | |

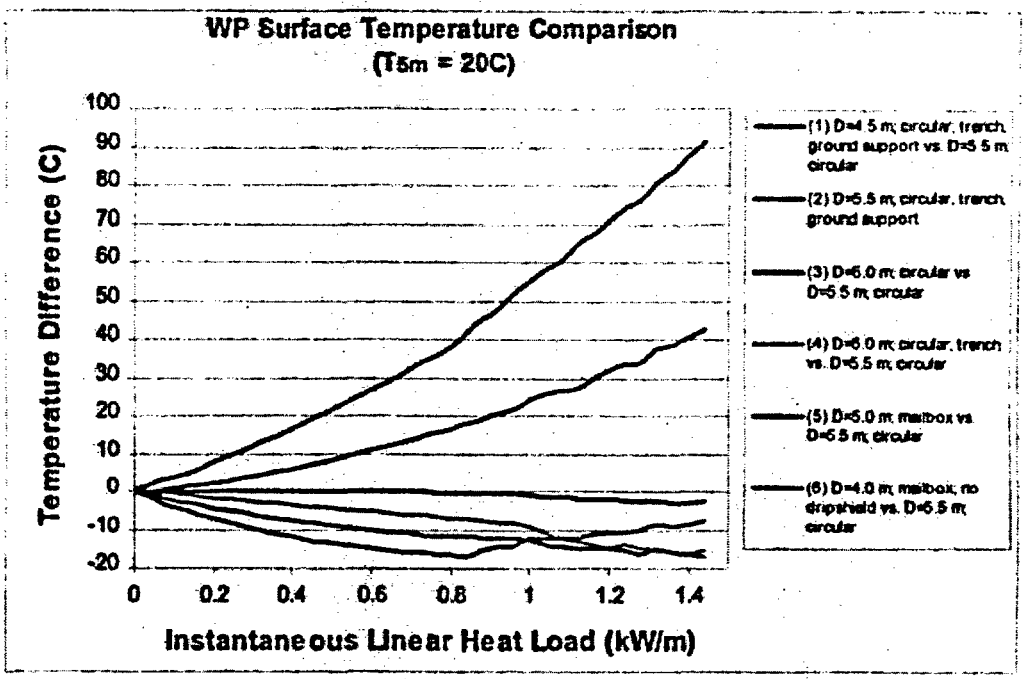



Figure 6-1. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=20°C)

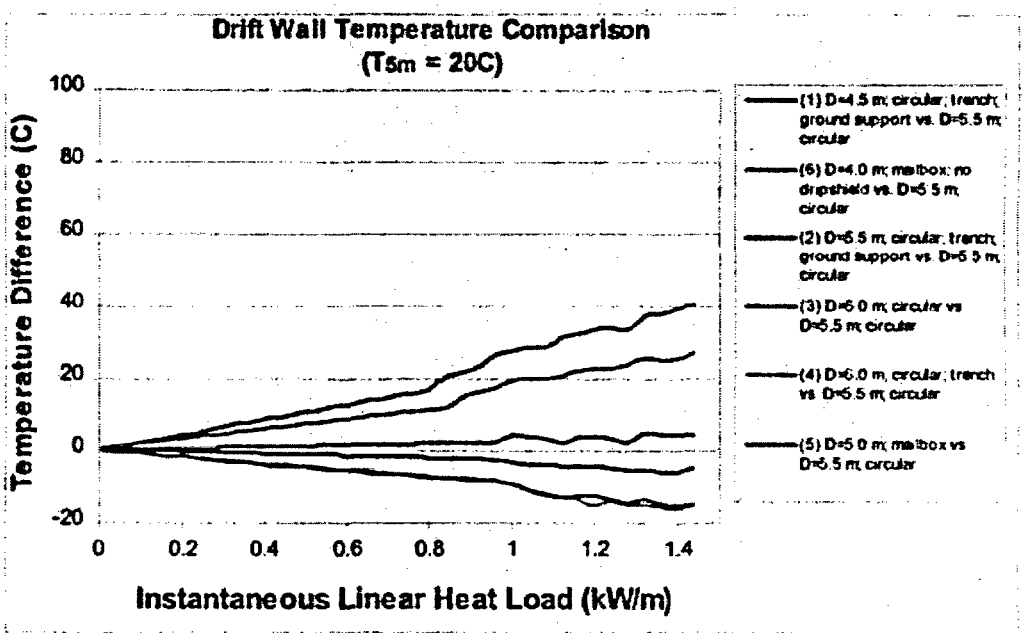



Figure 6-2. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=20°C)

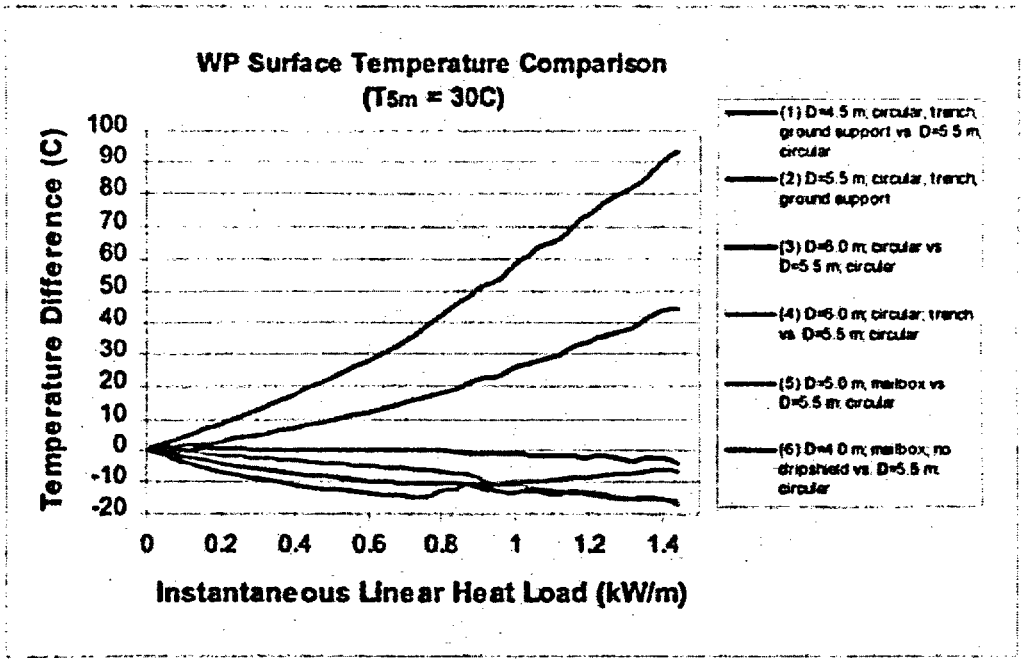



Figure 6-3. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=30°C)

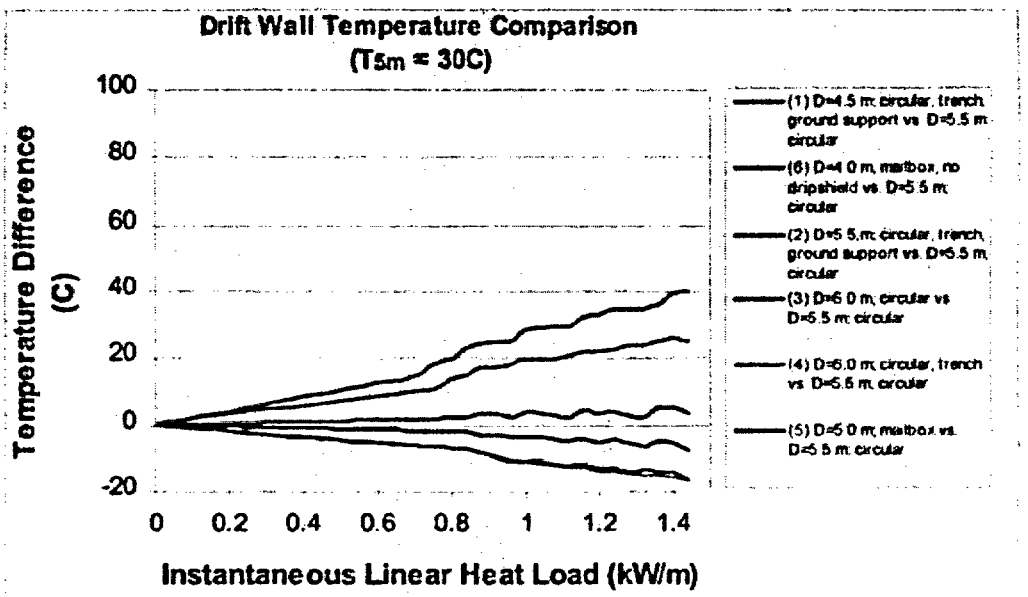



Figure 6-4. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=30°C)

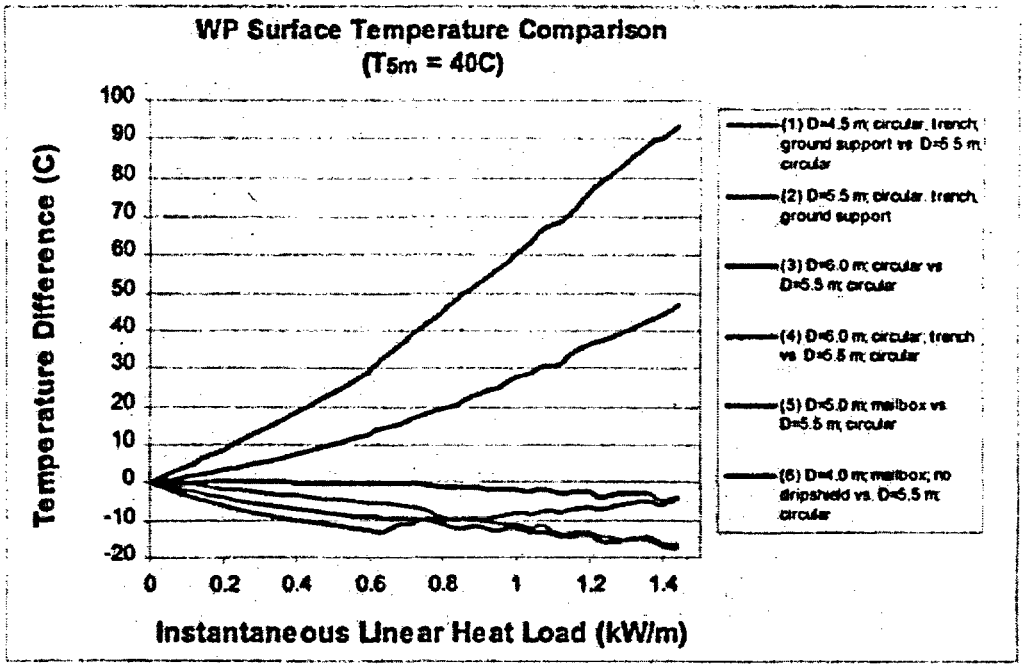



Figure 6-5. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=40°C)

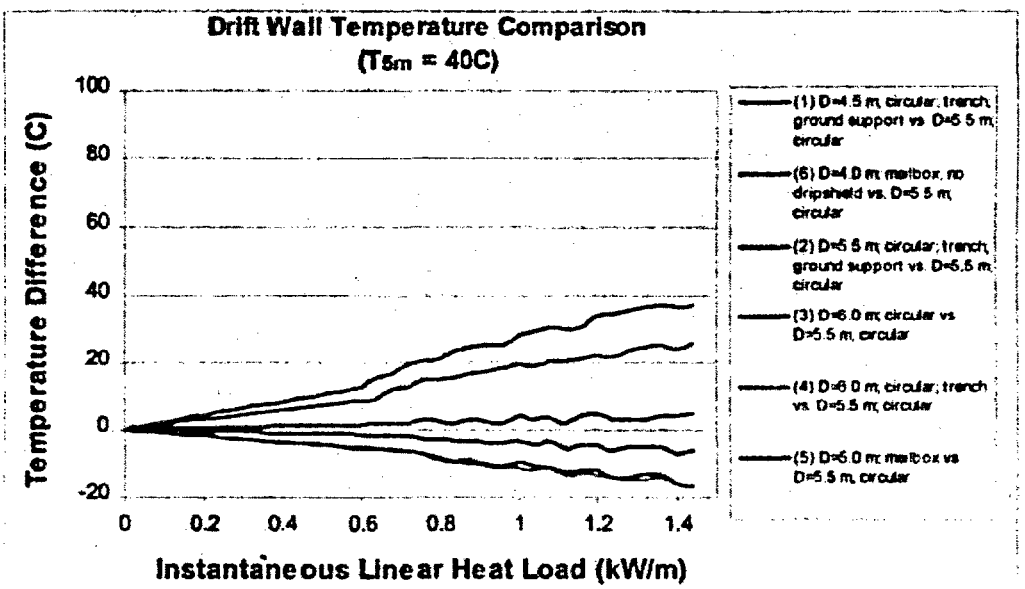



Figure 6-6. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=40°C)

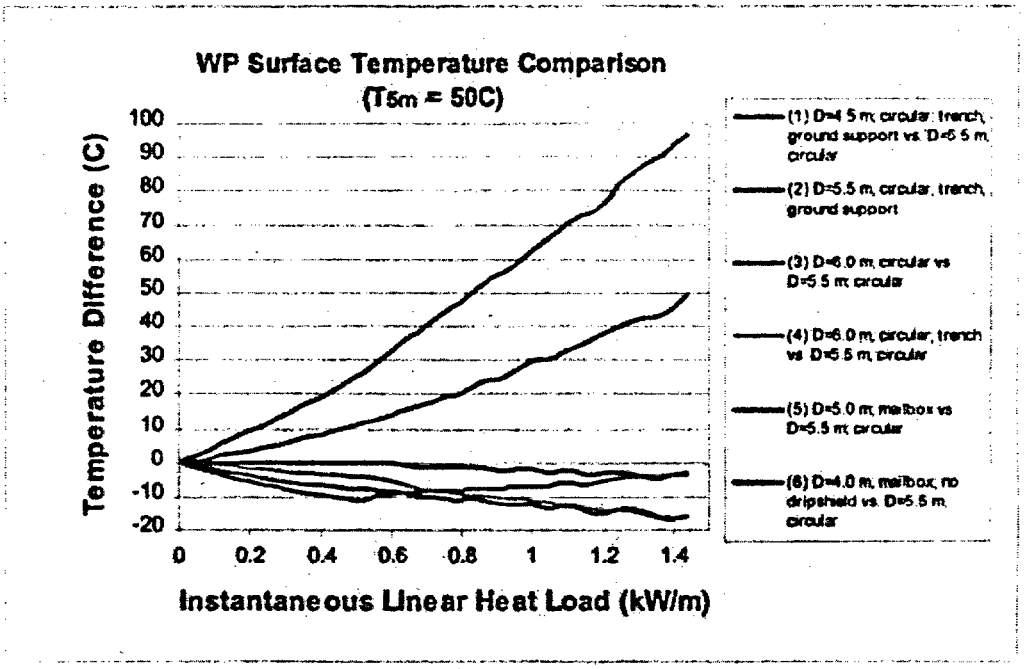



Figure 6-7. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=50°C)

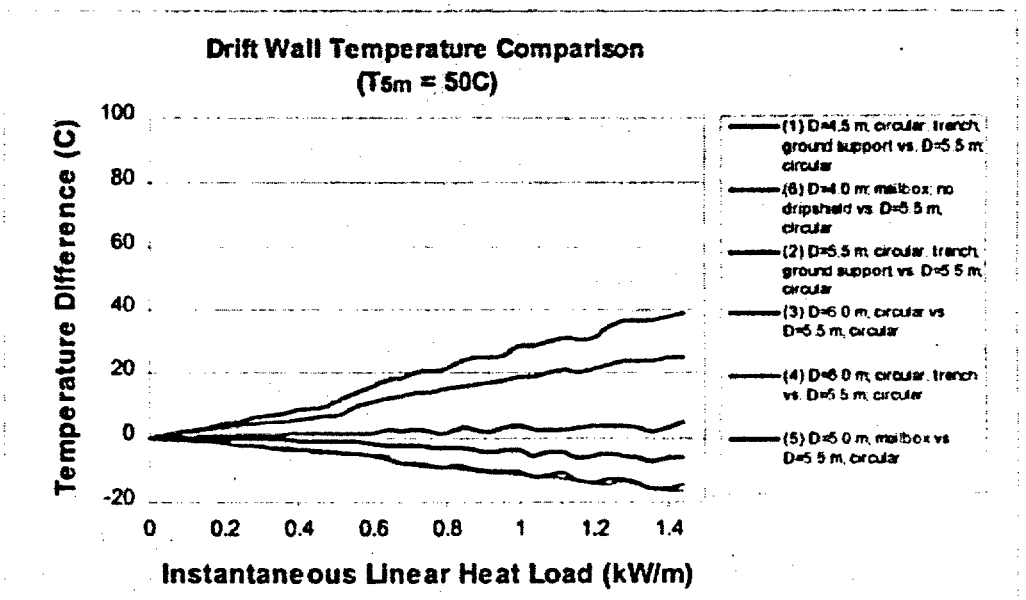



Figure 6-8. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=50°C)

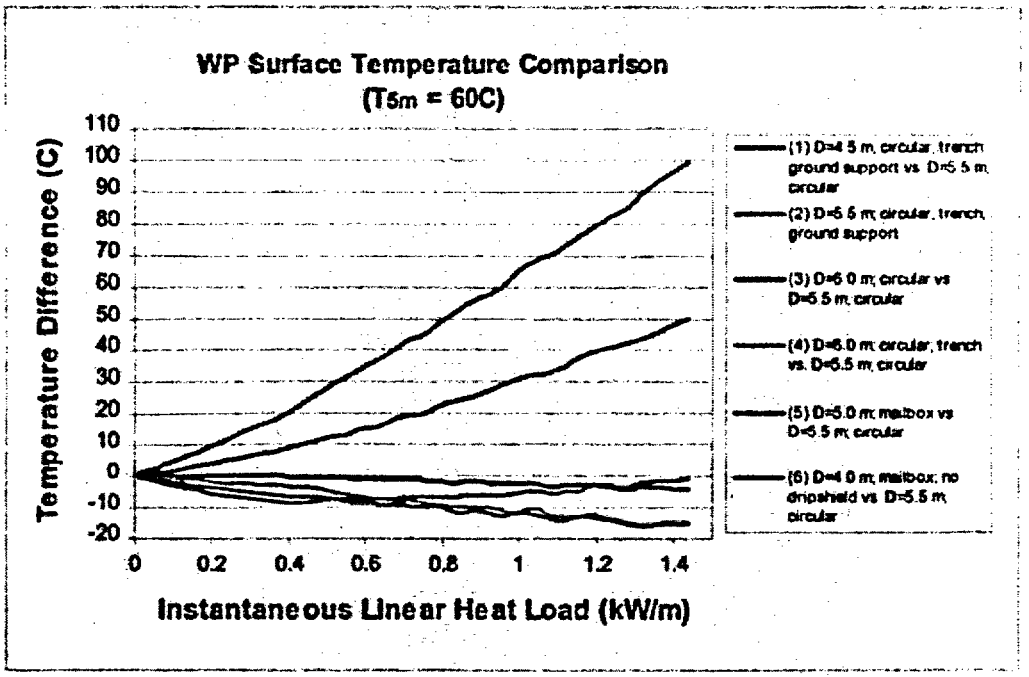



Figure 6-9. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=60°C)

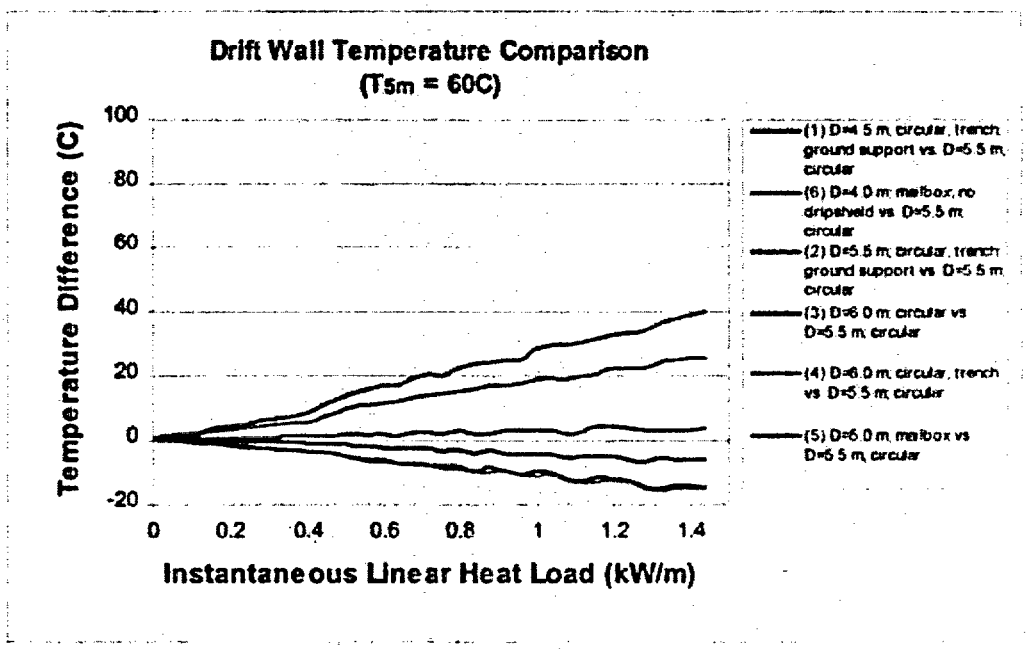



Figure 6-10. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=60°C)

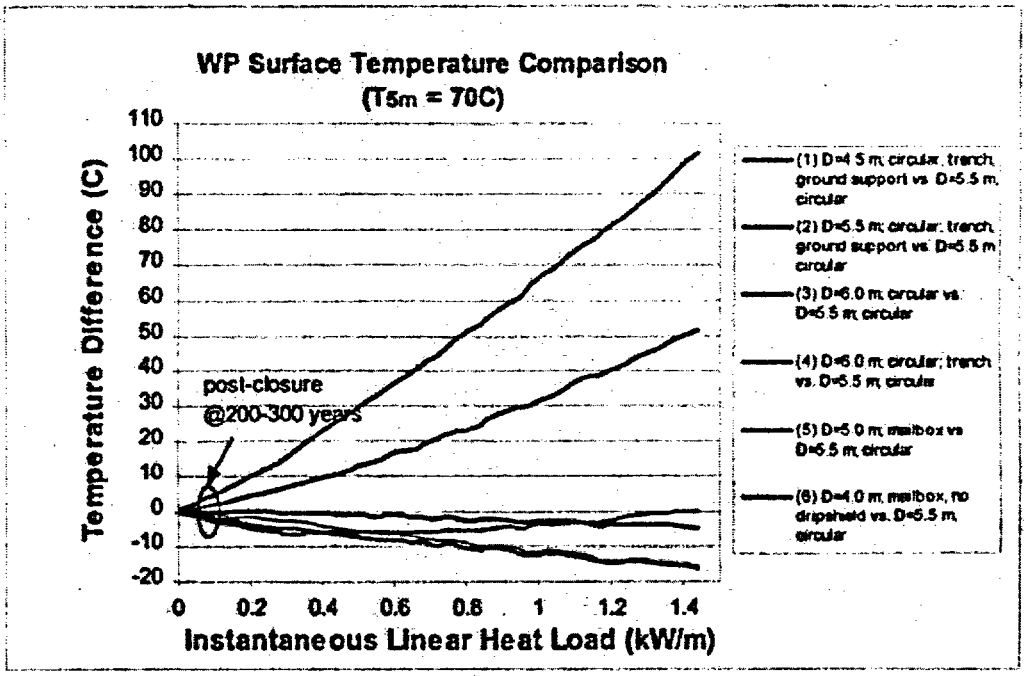



Figure 6-11. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=70°C)

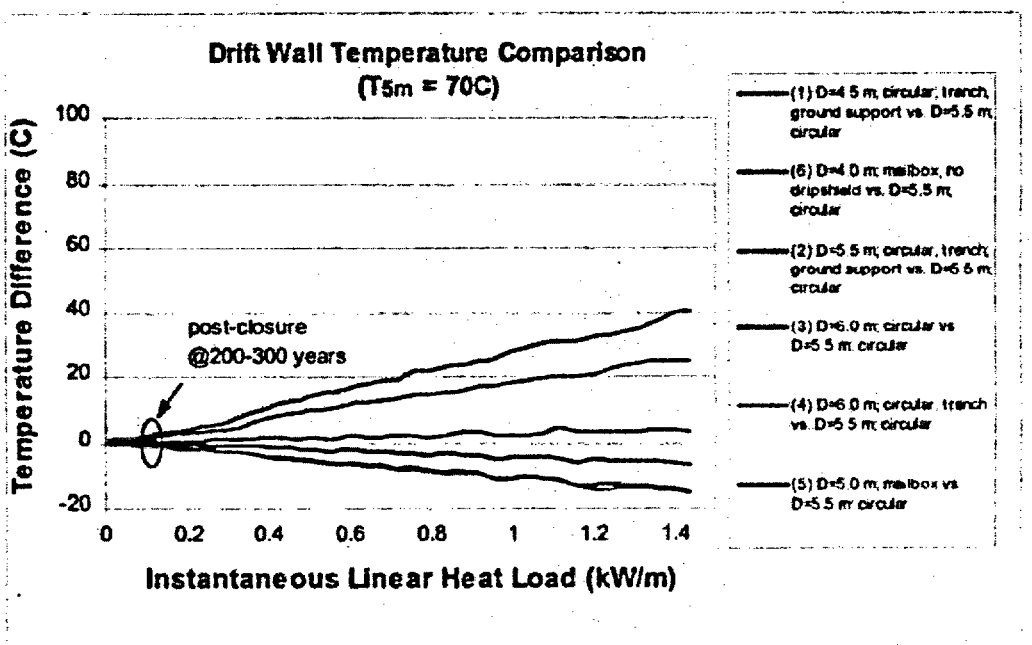



Figure 6-12. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=70°C)

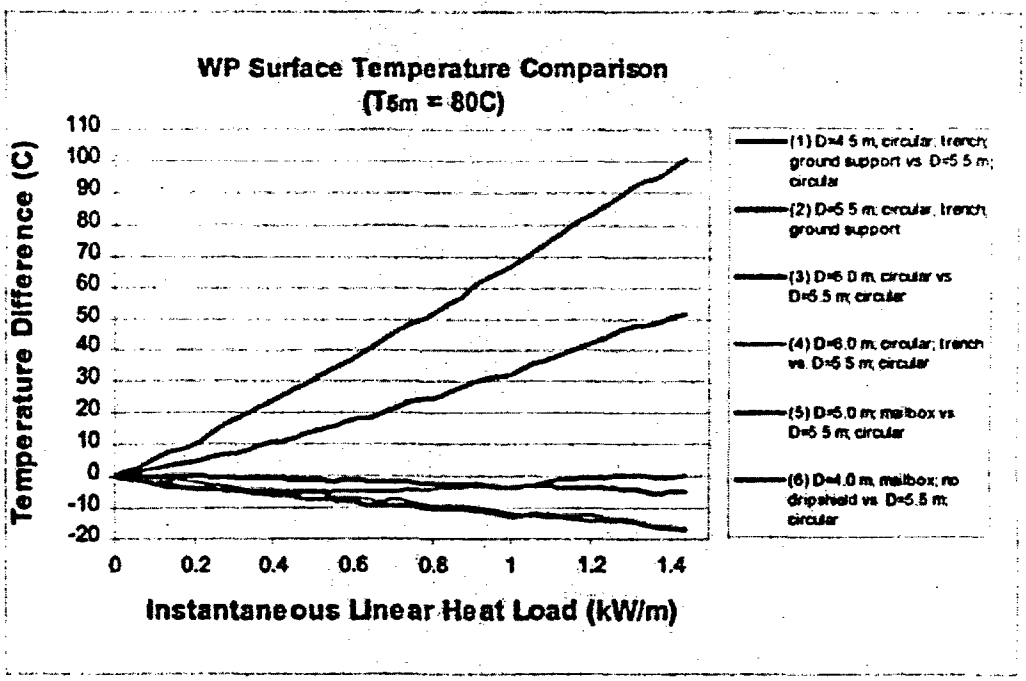



Figure 6-13. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=80°C)

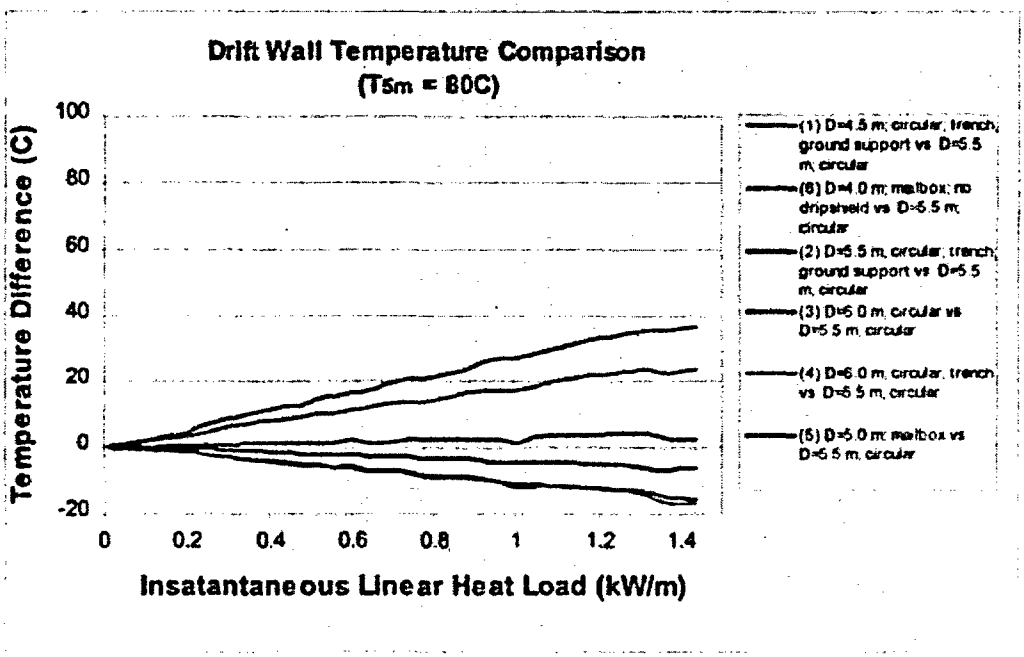



Figure 6-14. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=80°C)

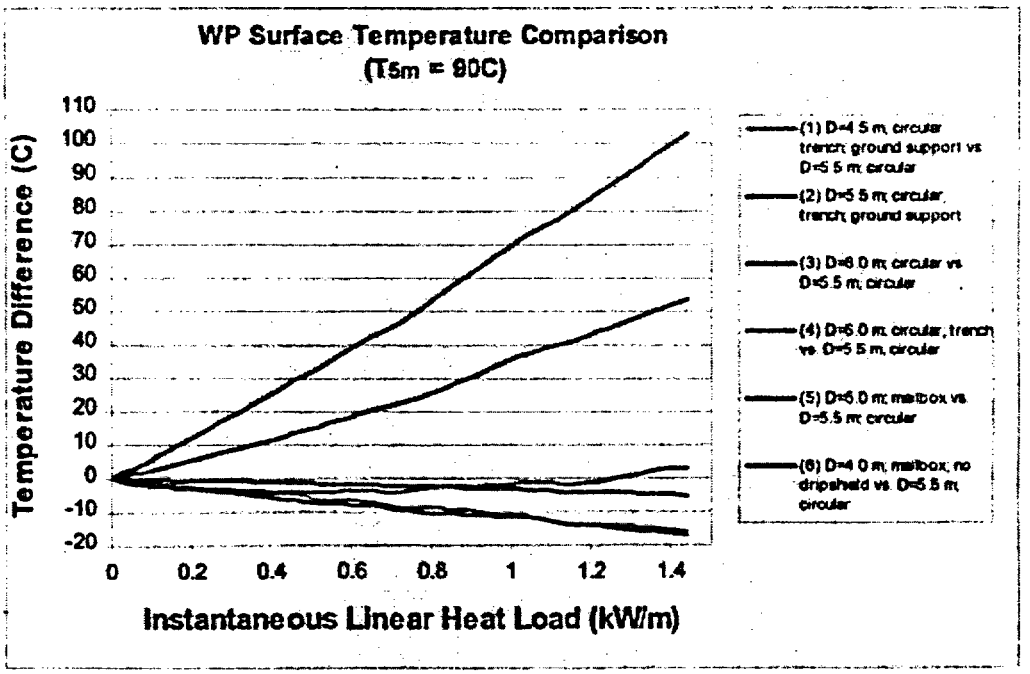



Figure 6-15. Waste Package Surface Temperature Comparison with SR Baseline Design ($T_{5m}$=90°C)

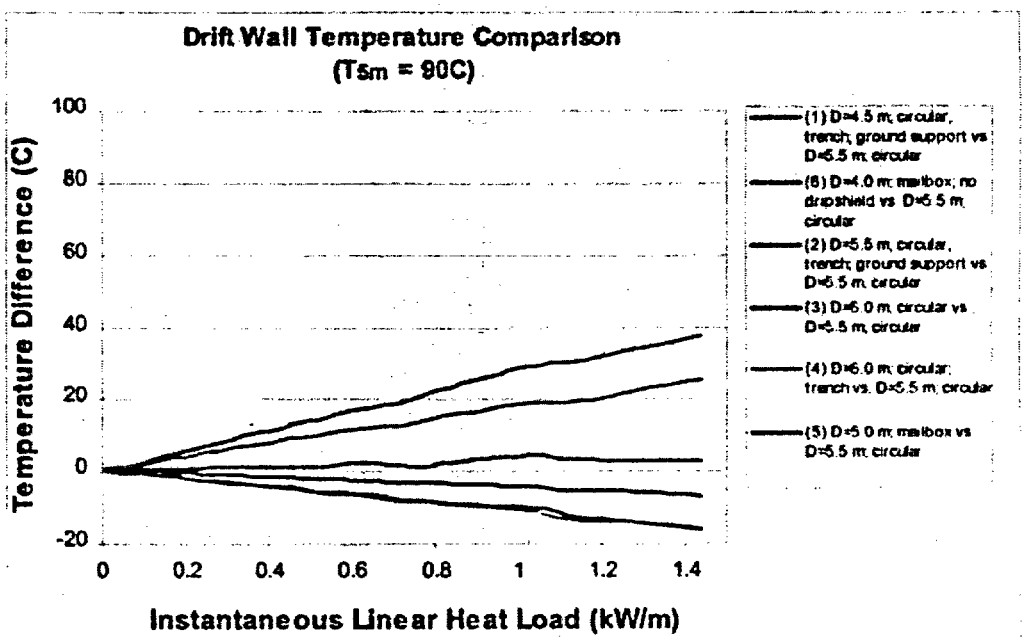
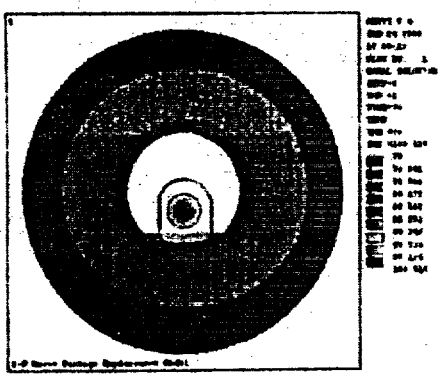
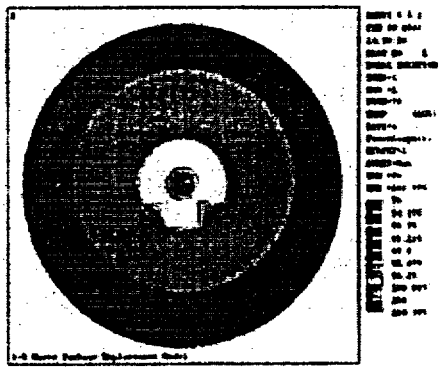



Figure 6-16. Drift Wall Temperature Comparison with SR Baseline Design ($T_{5m}$=90°C)

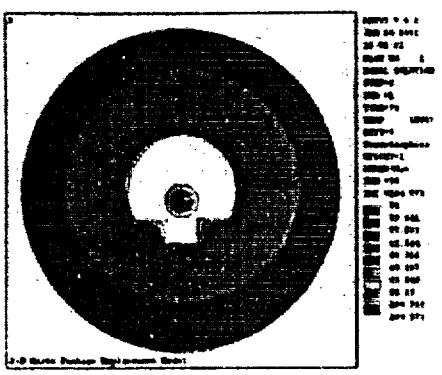
SR Baseline Case:



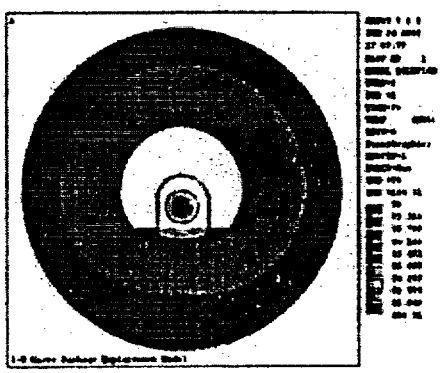
Case 1:



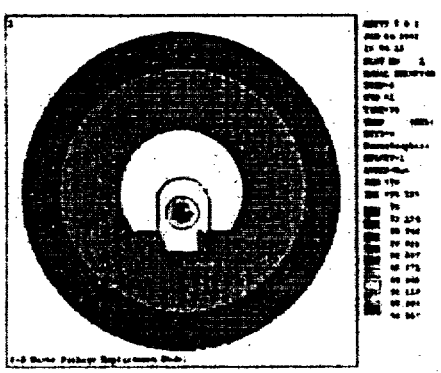
Case 2:



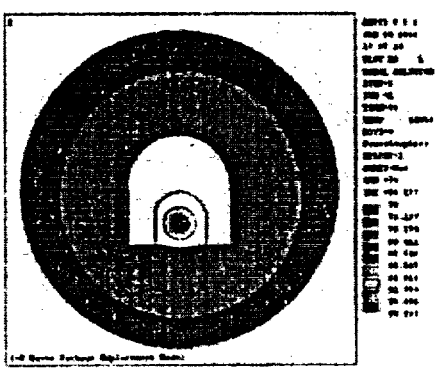
Case 3:



Case 4:



Case 5:



Case 6:

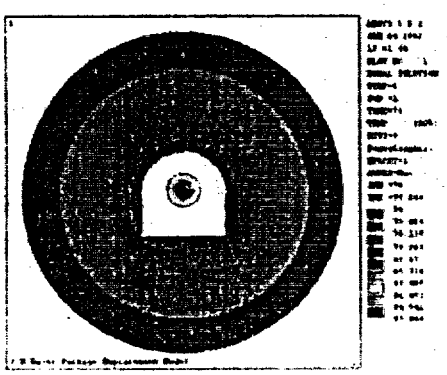


Figure 6-17. Temperature Contours ($T_{5m}$ = 70°C)

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## 6.3 RESULTS OF DRIFT DIAMETER EFFECT

Tables 6-9 through 6-12 list the waste package surface temperature differences due to the change in diameter from that of a 21 PWR waste package. Figures 6-18 through 6-26 graphically present the comparison (for drift wall temperatures of 20°C to 90°C and 200°C).

The results show that waste package surface temperature increases with decreasing of the waste package diameter. For the same linear heat load, the higher the drift wall temperature, the smaller the waste package surface temperature difference with changing of the waste package diameter.

Figure 6-23 shows the drift wall temperature condition at 70°C. This boundary condition is similar to that of post-closure at 200-300 years (Ref. 3, Figures 6-4 and 6-5). The instantaneous linear heat load for a 2-m waste package spacing at these times is about 0.12-0.15 kW/m. Therefore the waste package surface temperature difference for all the waste package sizes compared to that of the 21 PWR is insignificant.

Table 6-9. Waste Package Surface Temperature Comparison (D = 1 m vs. D = 1.564 m)

| | Waste Package Surface Temperature Difference (D = 1 m vs. D = 1.564 m) (°C) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Linear Heat Load (kW/m) | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.45 |
| Tdrift (°C) | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 0.2 | 0.5 | 0.7 | 0.9 | 1.1 | 1.3 | 1.6 | 1.8 | 2.0 | 2.2 | 4.2 | 6.0 | 7.6 | 9.2 | 10.6 | 11.9 | 13.1 | 14.3 | 15.4 | 16.4 | 17.3 | 18.3 | 19.6 |
| 30 | 0.2 | 0.4 | 0.6 | 0.8 | 1.0 | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 3.8 | 5.5 | 7.1 | 8.5 | 9.8 | 11.1 | 12.3 | 13.4 | 14.5 | 15.5 | 16.4 | 17.3 | 18.6 |
| 40 | 0.2 | 0.4 | 0.6 | 0.7 | 0.9 | 1.1 | 1.3 | 1.5 | 1.6 | 1.8 | 3.5 | 5.1 | 6.5 | 7.9 | 9.2 | 10.4 | 11.5 | 12.6 | 13.6 | 14.6 | 15.5 | 16.4 | 17.6 |
| 50 | 0.2 | 0.3 | 0.5 | 0.7 | 0.8 | 1.0 | 1.2 | 1.3 | 1.5 | 1.7 | 3.2 | 4.7 | 6.0 | 7.3 | 8.5 | 9.7 | 10.8 | 11.8 | 12.8 | 13.7 | 14.6 | 15.5 | 16.7 |
| 60 | 0.2 | 0.3 | 0.5 | 0.6 | 0.8 | 0.9 | 1.1 | 1.2 | 1.4 | 1.5 | 3.0 | 4.3 | 5.6 | 6.8 | 7.9 | 9.0 | 10.1 | 11.1 | 12.0 | 12.9 | 13.8 | 14.6 | 15.8 |
| 70 | 0.1 | 0.3 | 0.4 | 0.6 | 0.7 | 0.8 | 1.0 | 1.1 | 1.3 | 1.4 | 2.7 | 4.0 | 5.2 | 6.3 | 7.4 | 8.4 | 9.4 | 10.4 | 11.3 | 12.1 | 13.0 | 13.8 | 15.0 |
| 80 | 0.1 | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 | 0.9 | 1.0 | 1.2 | 1.3 | 2.5 | 3.7 | 4.8 | 5.9 | 6.9 | 7.9 | 8.8 | 9.7 | 10.6 | 11.4 | 12.2 | 13.0 | 14.1 |
| 90 | 0.1 | 0.2 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 1.0 | 1.1 | 1.2 | 2.3 | 3.4 | 4.5 | 5.5 | 6.4 | 7.3 | 8.2 | 9.1 | 9.9 | 10.7 | 11.5 | 12.3 | 13.4 |
| 100 | 0.1 | 0.2 | 0.3 | 0.4 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 2.2 | 3.2 | 4.1 | 5.1 | 6.0 | 6.9 | 7.7 | 8.5 | 9.3 | 10.1 | 10.8 | 11.6 | 12.6 |
| 110 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 2.0 | 2.9 | 3.9 | 4.7 | 5.6 | 6.4 | 7.2 | 8.0 | 8.8 | 9.5 | 10.2 | 10.9 | 11.9 |
| 120 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 1.9 | 2.7 | 3.6 | 4.4 | 5.2 | 6.0 | 6.8 | 7.5 | 8.2 | 8.9 | 9.6 | 10.3 | 11.2 |
| 130 | 0.1 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.7 | 2.5 | 3.4 | 4.1 | 4.9 | 5.6 | 6.3 | 7.0 | 7.7 | 8.4 | 9.1 | 9.7 | 10.6 |
| 140 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 1.6 | 2.4 | 3.1 | 3.9 | 4.6 | 5.3 | 6.0 | 6.6 | 7.3 | 7.9 | 8.5 | 9.1 | 10.0 |
| 150 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.8 | 1.5 | 2.2 | 2.9 | 3.6 | 4.3 | 4.9 | 5.6 | 6.2 | 6.8 | 7.4 | 8.0 | 8.6 | 9.5 |
| 160 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 1.4 | 2.1 | 2.7 | 3.4 | 4.0 | 4.6 | 5.3 | 5.9 | 6.4 | 7.0 | 7.6 | 8.1 | 8.9 |
| 170 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 1.3 | 1.9 | 2.6 | 3.2 | 3.8 | 4.4 | 4.9 | 5.5 | 6.1 | 6.6 | 7.1 | 7.7 | 8.4 |
| 180 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 1.2 | 1.8 | 2.4 | 3.0 | 3.6 | 4.1 | 4.7 | 5.2 | 5.7 | 6.2 | 6.7 | 7.2 | 8.0 |
| 190 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 1.2 | 1.7 | 2.3 | 2.8 | 3.3 | 3.9 | 4.4 | 4.9 | 5.4 | 5.9 | 6.4 | 6.9 | 7.6 |
| 200 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 1.1 | 1.6 | 2.1 | 2.6 | 3.1 | 3.6 | 4.1 | 4.6 | 5.1 | 5.6 | 6.0 | 6.5 | 7.1 |
| 210 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.4 | 3.9 | 4.4 | 4.8 | 5.3 | 5.7 | 6.1 | 6.8 |
| 220 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 1.0 | 1.4 | 1.9 | 2.3 | 2.8 | 3.2 | 3.7 | 4.1 | 4.5 | 5.0 | 5.4 | 5.8 | 6.4 |
| 230 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.9 | 1.3 | 1.8 | 2.2 | 2.6 | 3.1 | 3.5 | 3.9 | 4.3 | 4.7 | 5.1 | 5.5 | 6.1 |
| 240 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.9 | 1.3 | 1.7 | 2.1 | 2.5 | 2.9 | 3.3 | 3.7 | 4.1 | 4.5 | 4.8 | 5.2 | 5.8 |
| 250 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.8 | 1.2 | 1.6 | 2.0 | 2.4 | 2.7 | 3.1 | 3.5 | 3.9 | 4.2 | 4.6 | 4.9 | 5.5 |
| 260 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.8 | 1.1 | 1.5 | 1.9 | 2.2 | 2.6 | 3.0 | 3.3 | 3.7 | 4.0 | 4.4 | 4.7 | 5.2 |
| 270 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.7 | 1.1 | 1.4 | 1.8 | 2.1 | 2.5 | 2.8 | 3.1 | 3.5 | 3.8 | 4.1 | 4.5 | 4.9 |
| 280 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.7 | 1.0 | 1.4 | 1.7 | 2.0 | 2.3 | 2.7 | 3.0 | 3.3 | 3.6 | 3.9 | 4.2 | 4.7 |
| 290 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.6 | 1.0 | 1.3 | 1.6 | 1.9 | 2.2 | 2.5 | 2.8 | 3.1 | 3.4 | 3.7 | 4.0 | 4.5 |
| 300 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.6 | 0.9 | 1.2 | 1.5 | 1.8 | 2.1 | 2.4 | 2.7 | 3.0 | 3.3 | 3.6 | 3.8 | 4.3 |

Table 6-10. Waste Package Surface Temperature Comparison (D = 1.5 m vs. D = 1.564 m)

| | Waste Package Surface Temperature Difference (D = 1.5 m vs. D = 1.564 m) (°C) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Linear Heat Load (kW/m) | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.45 |
| Tdrift (°C) | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 |
| 30 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 | 1.4 | 1.5 |
| 40 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 | 1.4 |
| 50 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.1 | 1.2 | 1.2 | 1.3 |
| 60 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 | 1.3 |
| 70 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 | 1.2 |
| 80 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.0 | 1.1 |
| 90 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 | 1.0 | 1.1 |
| 100 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.9 | 0.9 | 1.0 |
| 110 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 | 0.9 | 0.9 |
| 120 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.8 | 0.8 | 0.9 |
| 130 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.7 | 0.7 | 0.8 | 0.8 |
| 140 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 | 0.8 |
| 150 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 |
| 160 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 |
| 170 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 | 0.7 |
| 180 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 | 0.6 |
| 190 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.5 | 0.5 | 0.5 | 0.6 |
| 200 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 | 0.6 |
| 210 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 | 0.5 |
| 220 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 |
| 230 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 | 0.5 |
| 240 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 250 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 | 0.4 |
| 260 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 | 0.4 |
| 270 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 280 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 | 0.4 |
| 290 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 | 0.3 |
| 300 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.3 | 0.3 | 0.3 |

Table 6-11. Waste Package Surface Temperature Comparison (D = 2 m vs. D = 1.564 m)

| | Waste Package Surface Temperature Difference (D = 2 m vs. D = 1.564 m) (°C) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Linear Heat Load (kW/m) | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.45 |
| Tdrift (°C) | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | -0.1 | -0.2 | -0.3 | -0.4 | -0.4 | -0.5 | -0.6 | -0.7 | -0.8 | -0.9 | -1.7 | -2.4 | -3.1 | -3.8 | -4.4 | -5.0 | -5.5 | -6.1 | -6.6 | -7.0 | -7.5 | -7.9 | -8.6 |
| 30 | -0.1 | -0.2 | -0.2 | -0.3 | -0.4 | -0.5 | -0.6 | -0.6 | -0.7 | -0.8 | -1.5 | -2.2 | -2.9 | -3.5 | -4.1 | -4.6 | -5.1 | -5.6 | -6.1 | -6.6 | -7.0 | -7.5 | -8.1 |
| 40 | -0.1 | -0.1 | -0.2 | -0.3 | -0.4 | -0.4 | -0.5 | -0.6 | -0.6 | -0.7 | -1.4 | -2.0 | -2.6 | -3.2 | -3.8 | -4.3 | -4.8 | -5.3 | -5.7 | -6.2 | -6.6 | -7.0 | -7.6 |
| 50 | -0.1 | -0.1 | -0.2 | -0.3 | -0.3 | -0.4 | -0.5 | -0.5 | -0.6 | -0.6 | -1.3 | -1.9 | -2.4 | -3.0 | -3.5 | -4.0 | -4.4 | -4.9 | -5.3 | -5.8 | -6.2 | -6.6 | -7.1 |
| 60 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.4 | -0.4 | -0.5 | -0.5 | -0.6 | -1.2 | -1.7 | -2.2 | -2.7 | -3.2 | -3.7 | -4.1 | -4.6 | -5.0 | -5.4 | -5.8 | -6.2 | -6.7 |
| 70 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.5 | -1.1 | -1.6 | -2.1 | -2.5 | -3.0 | -3.4 | -3.8 | -4.3 | -4.7 | -5.0 | -5.4 | -5.8 | -6.3 |
| 80 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.5 | -1.0 | -1.5 | -1.9 | -2.3 | -2.8 | -3.2 | -3.6 | -4.0 | -4.3 | -4.7 | -5.1 | -5.4 | -5.9 |
| 90 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.9 | -1.3 | -1.8 | -2.2 | -2.6 | -3.0 | -3.3 | -3.7 | -4.1 | -4.4 | -4.7 | -5.1 | -5.6 |
| 100 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.4 | -0.4 | -0.8 | -1.2 | -1.6 | -2.0 | -2.4 | -2.8 | -3.1 | -3.5 | -3.8 | -4.1 | -4.4 | -4.8 | -5.2 |
| 110 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.8 | -1.2 | -1.5 | -1.9 | -2.2 | -2.6 | -2.9 | -3.2 | -3.5 | -3.9 | -4.2 | -4.5 | -4.9 |
| 120 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.4 | -0.7 | -1.1 | -1.4 | -1.7 | -2.1 | -2.4 | -2.7 | -3.0 | -3.3 | -3.6 | -3.9 | -4.2 | -4.6 |
| 130 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.7 | -1.0 | -1.3 | -1.6 | -1.9 | -2.2 | -2.5 | -2.8 | -3.1 | -3.4 | -3.7 | -3.9 | -4.3 |
| 140 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.6 | -0.9 | -1.2 | -1.5 | -1.8 | -2.1 | -2.4 | -2.6 | -2.9 | -3.2 | -3.4 | -3.7 | -4.1 |
| 150 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.6 | -0.9 | -1.1 | -1.4 | -1.7 | -2.0 | -2.2 | -2.5 | -2.7 | -3.0 | -3.2 | -3.5 | -3.8 |
| 160 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.5 | -0.8 | -1.1 | -1.3 | -1.6 | -1.8 | -2.1 | -2.3 | -2.6 | -2.8 | -3.0 | -3.3 | -3.6 |
| 170 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.5 | -0.8 | -1.0 | -1.2 | -1.5 | -1.7 | -2.0 | -2.2 | -2.4 | -2.6 | -2.9 | -3.1 | -3.4 |
| 180 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.5 | -0.7 | -0.9 | -1.2 | -1.4 | -1.6 | -1.8 | -2.1 | -2.3 | -2.5 | -2.7 | -2.9 | -3.2 |
| 190 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.4 | -0.7 | -0.9 | -1.1 | -1.3 | -1.5 | -1.7 | -1.9 | -2.1 | -2.3 | -2.5 | -2.7 | -3.0 |
| 200 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.4 | -0.6 | -0.8 | -1.0 | -1.2 | -1.4 | -1.6 | -1.8 | -2.0 | -2.2 | -2.4 | -2.6 | -2.8 |
| 210 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.4 | -0.6 | -0.8 | -1.0 | -1.2 | -1.3 | -1.5 | -1.7 | -1.9 | -2.1 | -2.3 | -2.4 | -2.7 |
| 220 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.4 | -0.6 | -0.7 | -0.9 | -1.1 | -1.3 | -1.4 | -1.6 | -1.8 | -2.0 | -2.1 | -2.3 | -2.5 |
| 230 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.4 | -0.5 | -0.7 | -0.9 | -1.0 | -1.2 | -1.4 | -1.5 | -1.7 | -1.9 | -2.0 | -2.2 | -2.4 |
| 240 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.3 | -0.5 | -0.7 | -0.8 | -1.0 | -1.1 | -1.3 | -1.4 | -1.6 | -1.8 | -1.9 | -2.1 | -2.3 |
| 250 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.3 | -0.5 | -0.6 | -0.8 | -0.9 | -1.1 | -1.2 | -1.4 | -1.5 | -1.7 | -1.8 | -1.9 | -2.2 |
| 260 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.3 | -0.4 | -0.6 | -0.7 | -0.9 | -1.0 | -1.2 | -1.3 | -1.4 | -1.6 | -1.7 | -1.8 | -2.0 |
| 270 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.3 | -0.4 | -0.6 | -0.7 | -0.8 | -1.0 | -1.1 | -1.2 | -1.4 | -1.5 | -1.6 | -1.8 | -1.9 |
| 280 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.3 | -0.4 | -0.5 | -0.7 | -0.8 | -0.9 | -1.0 | -1.2 | -1.3 | -1.4 | -1.5 | -1.7 | -1.8 |
| 290 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.3 | -0.4 | -0.5 | -0.6 | -0.7 | -0.9 | -1.0 | -1.1 | -1.2 | -1.3 | -1.5 | -1.6 | -1.8 |
| 300 | 0.0 | 0.0 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.4 | -0.5 | -0.6 | -0.7 | -0.8 | -0.9 | -1.1 | -1.2 | -1.3 | -1.4 | -1.5 | -1.7 |

Originator: HM Date: 5/29/02 Checker: MH Date: 5/29/02

Table 6-12. Waste Package Surface Temperature Comparison (D = 2.5 m vs. D = 1.564 m)

| | Waste Package Surface Temperature Difference (D = 2.5 m vs. D = 1.564 m) (°C) | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Linear Heat Load (kW/m) | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.06 | 0.07 | 0.08 | 0.09 | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 | 0.9 | 1 | 1.1 | 1.2 | 1.3 | 1.45 |
| Tdrift (°C) | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | -0.2 | -0.3 | -0.5 | -0.6 | -0.8 | -0.9 | -1.0 | -1.2 | -1.3 | -1.5 | -2.9 | -4.2 | -5.4 | -6.6 | -7.7 | -8.7 | -9.7 | -10.6 | -11.5 | -12.4 | -13.2 | -14.0 | -15.1 |
| 30 | -0.1 | -0.3 | -0.4 | -0.5 | -0.7 | -0.8 | -1.0 | -1.1 | -1.2 | -1.3 | -2.6 | -3.8 | -5.0 | -6.0 | -7.1 | -8.0 | -9.0 | -9.9 | -10.7 | -11.6 | -12.4 | -13.1 | -14.2 |
| 40 | -0.1 | -0.3 | -0.4 | -0.5 | -0.6 | -0.7 | -0.9 | -1.0 | -1.1 | -1.2 | -2.4 | -3.5 | -4.6 | -5.6 | -6.5 | -7.5 | -8.3 | -9.2 | -10.0 | -10.8 | -11.6 | -12.3 | -13.3 |
| 50 | -0.1 | -0.2 | -0.3 | -0.5 | -0.6 | -0.7 | -0.8 | -0.9 | -1.0 | -1.1 | -2.2 | -3.2 | -4.2 | -5.1 | -6.0 | -6.9 | -7.7 | -8.5 | -9.3 | -10.1 | -10.8 | -11.5 | -12.5 |
| 60 | -0.1 | -0.2 | -0.3 | -0.4 | -0.5 | -0.6 | -0.7 | -0.8 | -0.9 | -1.0 | -2.0 | -3.0 | -3.9 | -4.7 | -5.6 | -6.4 | -7.2 | -8.0 | -8.7 | -9.4 | -10.1 | -10.8 | -11.7 |
| 70 | -0.1 | -0.2 | -0.3 | -0.4 | -0.5 | -0.6 | -0.7 | -0.8 | -0.8 | -0.9 | -1.8 | -2.7 | -3.6 | -4.4 | -5.2 | -5.9 | -6.7 | -7.4 | -8.1 | -8.8 | -9.4 | -10.1 | -11.0 |
| 80 | -0.1 | -0.2 | -0.3 | -0.3 | -0.4 | -0.5 | -0.6 | -0.7 | -0.8 | -0.9 | -1.7 | -2.5 | -3.3 | -4.1 | -4.8 | -5.5 | -6.2 | -6.9 | -7.6 | -8.2 | -8.8 | -9.4 | -10.3 |
| 90 | -0.1 | -0.2 | -0.2 | -0.3 | -0.4 | -0.5 | -0.6 | -0.6 | -0.7 | -0.8 | -1.6 | -2.3 | -3.0 | -3.8 | -4.5 | -5.1 | -5.8 | -6.4 | -7.0 | -7.7 | -8.3 | -8.8 | -9.7 |
| 100 | -0.1 | -0.1 | -0.2 | -0.3 | -0.4 | -0.4 | -0.5 | -0.6 | -0.7 | -0.7 | -1.4 | -2.1 | -2.8 | -3.5 | -4.1 | -4.8 | -5.4 | -6.0 | -6.6 | -7.2 | -7.7 | -8.3 | -9.1 |
| 110 | -0.1 | -0.1 | -0.2 | -0.3 | -0.3 | -0.4 | -0.5 | -0.5 | -0.6 | -0.7 | -1.3 | -2.0 | -2.6 | -3.2 | -3.8 | -4.4 | -5.0 | -5.6 | -6.1 | -6.7 | -7.2 | -7.8 | -8.5 |
| 120 | -0.1 | -0.1 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.6 | -0.6 | -1.2 | -1.8 | -2.4 | -3.0 | -3.6 | -4.1 | -4.7 | -5.2 | -5.7 | -6.3 | -6.8 | -7.3 | -8.0 |
| 130 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.4 | -0.4 | -0.5 | -0.5 | -0.6 | -1.2 | -1.7 | -2.3 | -2.8 | -3.3 | -3.9 | -4.4 | -4.9 | -5.4 | -5.9 | -6.3 | -6.8 | -7.5 |
| 140 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.5 | -1.1 | -1.6 | -2.1 | -2.6 | -3.1 | -3.6 | -4.1 | -4.6 | -5.0 | -5.5 | -6.0 | -6.4 | -7.1 |
| 150 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.5 | -1.0 | -1.5 | -2.0 | -2.5 | -2.9 | -3.4 | -3.8 | -4.3 | -4.7 | -5.2 | -5.6 | -6.0 | -6.6 |
| 160 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.5 | -0.9 | -1.4 | -1.8 | -2.3 | -2.7 | -3.2 | -3.6 | -4.0 | -4.4 | -4.8 | -5.3 | -5.7 | -6.2 |
| 170 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.4 | -0.9 | -1.3 | -1.7 | -2.1 | -2.6 | -3.0 | -3.4 | -3.8 | -4.2 | -4.6 | -4.9 | -5.3 | -5.9 |
| 180 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.4 | -0.4 | -0.8 | -1.2 | -1.6 | -2.0 | -2.4 | -2.8 | -3.2 | -3.5 | -3.9 | -4.3 | -4.6 | -5.0 | -5.5 |
| 190 | 0.0 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.4 | -0.8 | -1.1 | -1.5 | -1.9 | -2.3 | -2.6 | -3.0 | -3.3 | -3.7 | -4.0 | -4.4 | -4.7 | -5.2 |
| 200 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.4 | -0.7 | -1.1 | -1.4 | -1.8 | -2.1 | -2.5 | -2.8 | -3.1 | -3.5 | -3.8 | -4.1 | -4.4 | -4.9 |
| 210 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.7 | -1.0 | -1.3 | -1.7 | -2.0 | -2.3 | -2.6 | -3.0 | -3.3 | -3.6 | -3.9 | -4.2 | -4.7 |
| 220 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.3 | -0.6 | -1.0 | -1.3 | -1.6 | -1.9 | -2.2 | -2.5 | -2.8 | -3.1 | -3.4 | -3.7 | -4.0 | -4.4 |
| 230 | 0.0 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.6 | -0.9 | -1.2 | -1.5 | -1.8 | -2.1 | -2.4 | -2.6 | -2.9 | -3.2 | -3.5 | -3.7 | -4.2 |
| 240 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.3 | -0.3 | -0.6 | -0.8 | -1.1 | -1.4 | -1.7 | -2.0 | -2.2 | -2.5 | -2.8 | -3.0 | -3.3 | -3.5 | -3.9 |
| 250 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.5 | -0.8 | -1.1 | -1.3 | -1.6 | -1.8 | -2.1 | -2.4 | -2.6 | -2.9 | -3.1 | -3.4 | -3.7 |
| 260 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.3 | -0.5 | -0.8 | -1.0 | -1.3 | -1.5 | -1.7 | -2.0 | -2.2 | -2.5 | -2.7 | -2.9 | -3.2 | -3.5 |
| 270 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.5 | -0.7 | -1.0 | -1.2 | -1.4 | -1.7 | -1.9 | -2.1 | -2.3 | -2.6 | -2.8 | -3.0 | -3.4 |
| 280 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.5 | -0.7 | -0.9 | -1.1 | -1.3 | -1.6 | -1.8 | -2.0 | -2.2 | -2.4 | -2.7 | -2.9 | -3.2 |
| 290 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.2 | -0.4 | -0.6 | -0.9 | -1.1 | -1.3 | -1.5 | -1.7 | -1.9 | -2.1 | -2.3 | -2.5 | -2.7 | -3.0 |
| 300 | 0.0 | 0.0 | -0.1 | -0.1 | -0.1 | -0.1 | -0.1 | -0.2 | -0.2 | -0.2 | -0.4 | -0.6 | -0.8 | -1.0 | -1.2 | -1.4 | -1.6 | -1.8 | -2.0 | -2.2 | -2.4 | -2.6 | -2.9 |

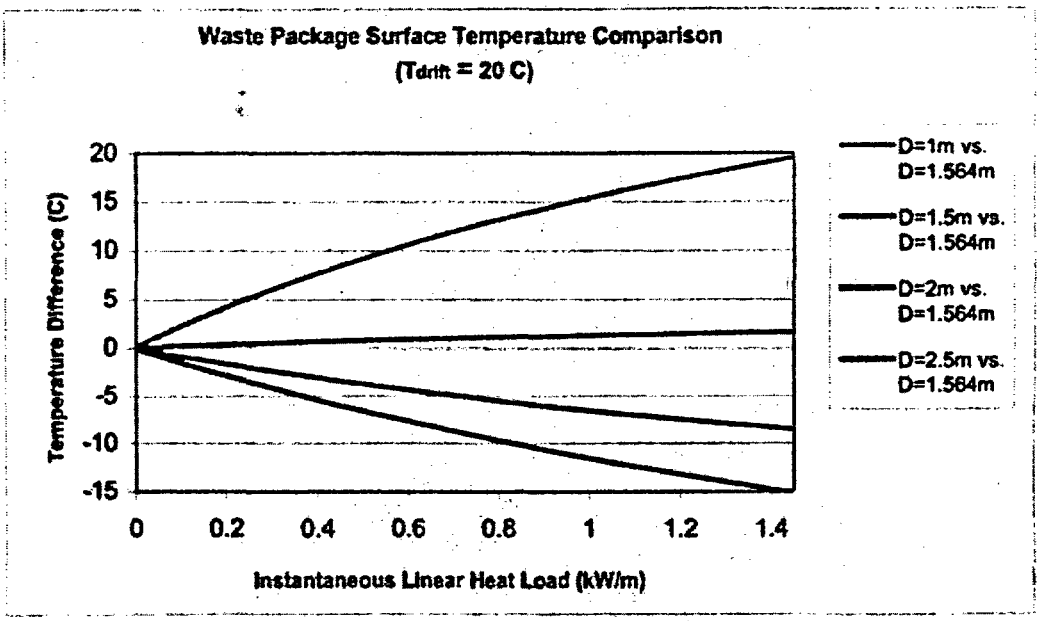


Figure 6-18. Waste Package Surface Temperature Comparison ($T_{drift}$ = 20°C)

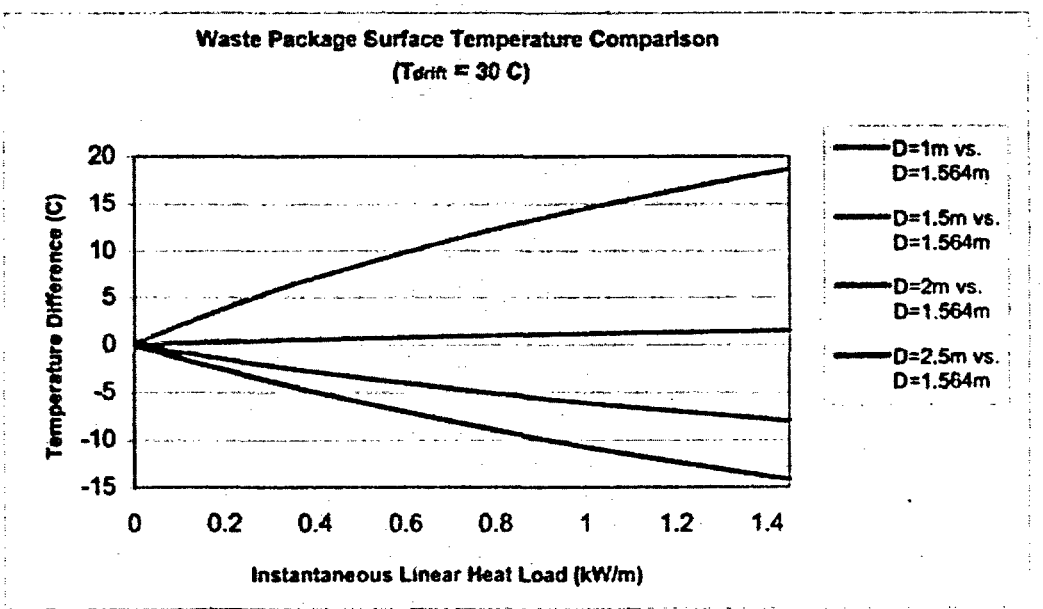


Figure 6-19. Waste Package Surface Temperature Comparison ($T_{drift}$ = 30°C)

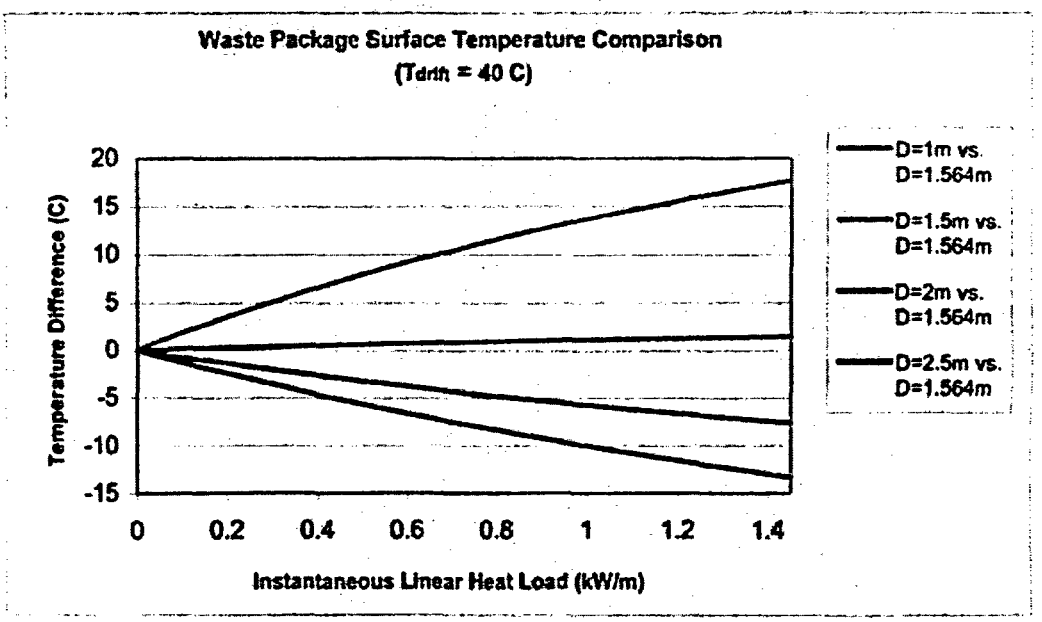


Figure 6-20. Waste Package Surface Temperature Comparison ($T_{drift}$ = 40°C)

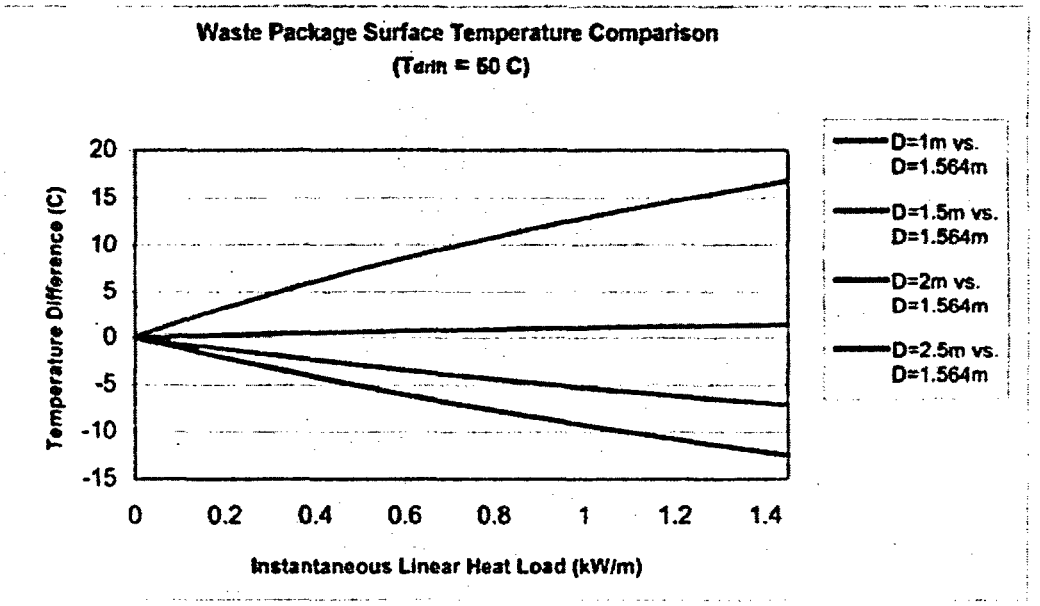


Figure 6-21. Waste Package Surface Temperature Comparison ($T_{drift}$ = 50°C)

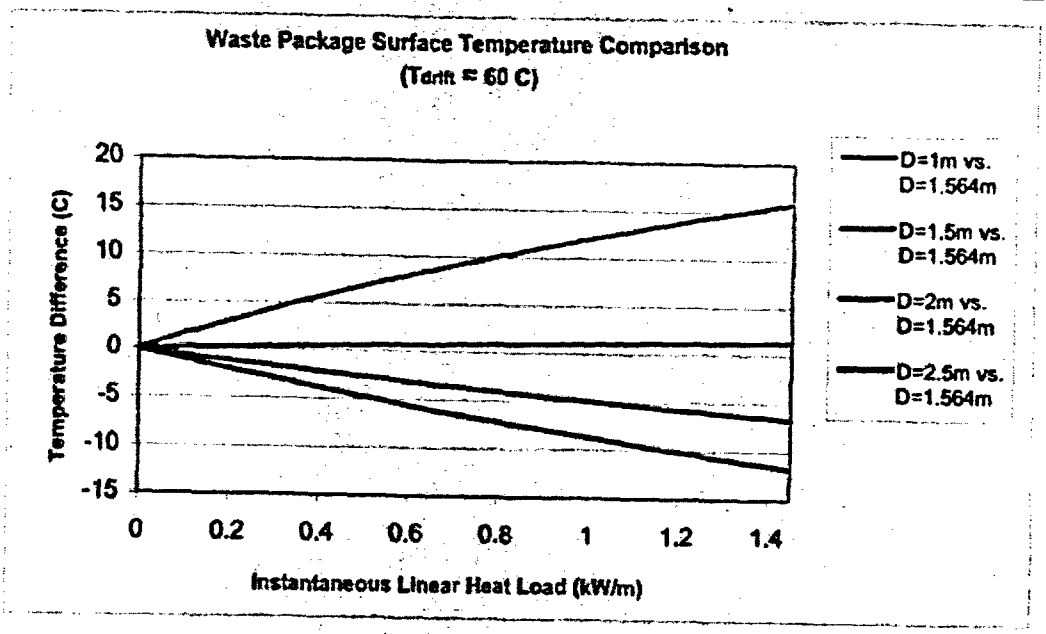


Figure 6-22. Waste Package Surface Temperature Comparison ($T_{drift}$ = 60°C)

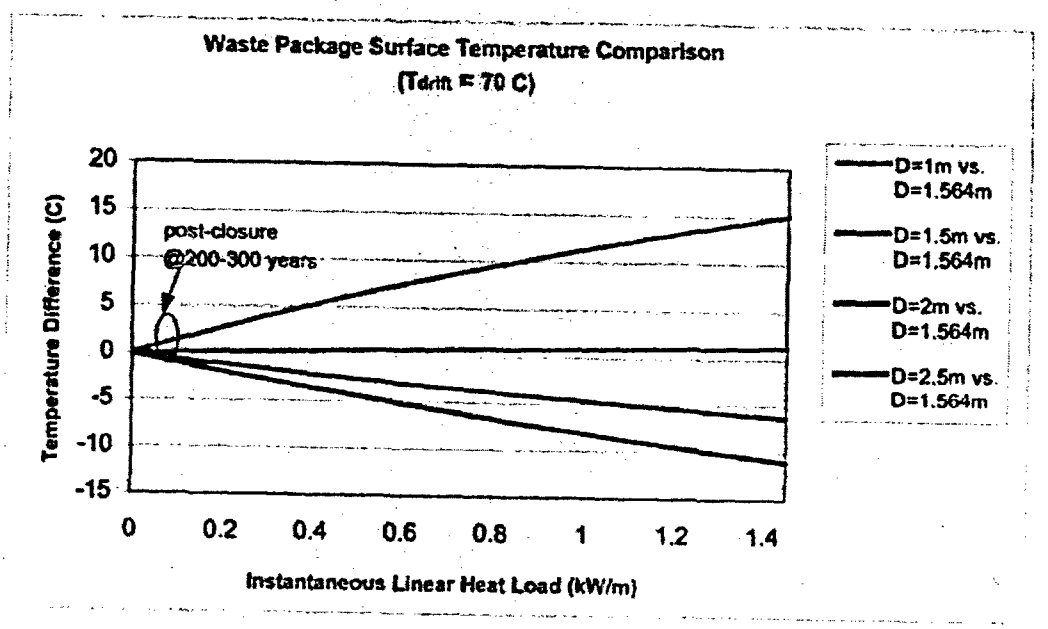


Figure 6-23. Waste Package Surface Temperature Comparison ($T_{drift}$ = 70°C)

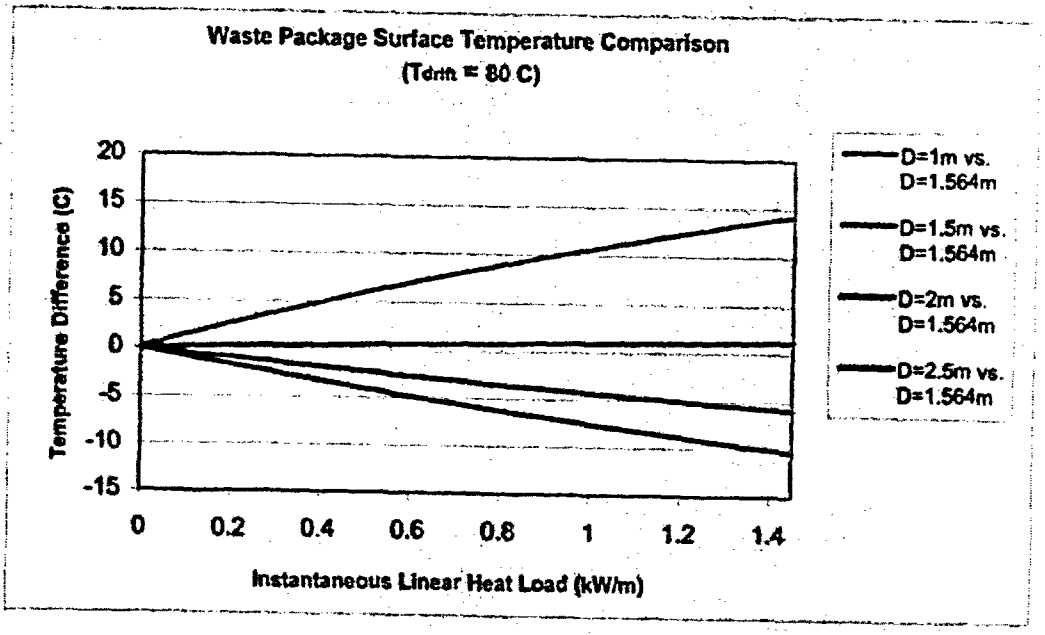


Figure 6-24. Waste Package Surface Temperature Comparison ($T_{drift}$ = 80°C)

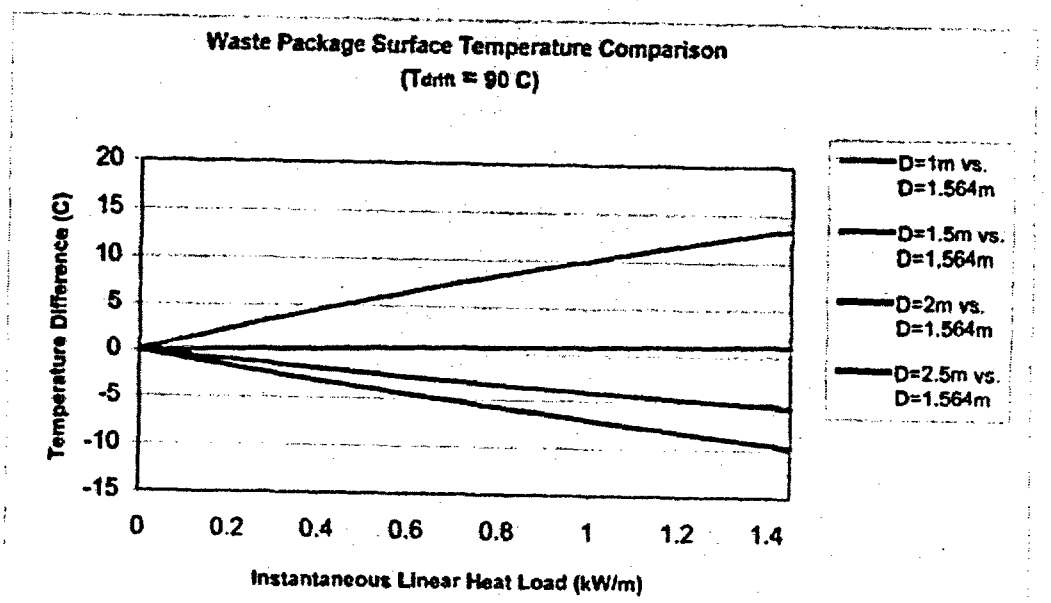


Figure 6-25. Waste Package Surface Temperature Comparison ($T_{drift}$ = 90°C)

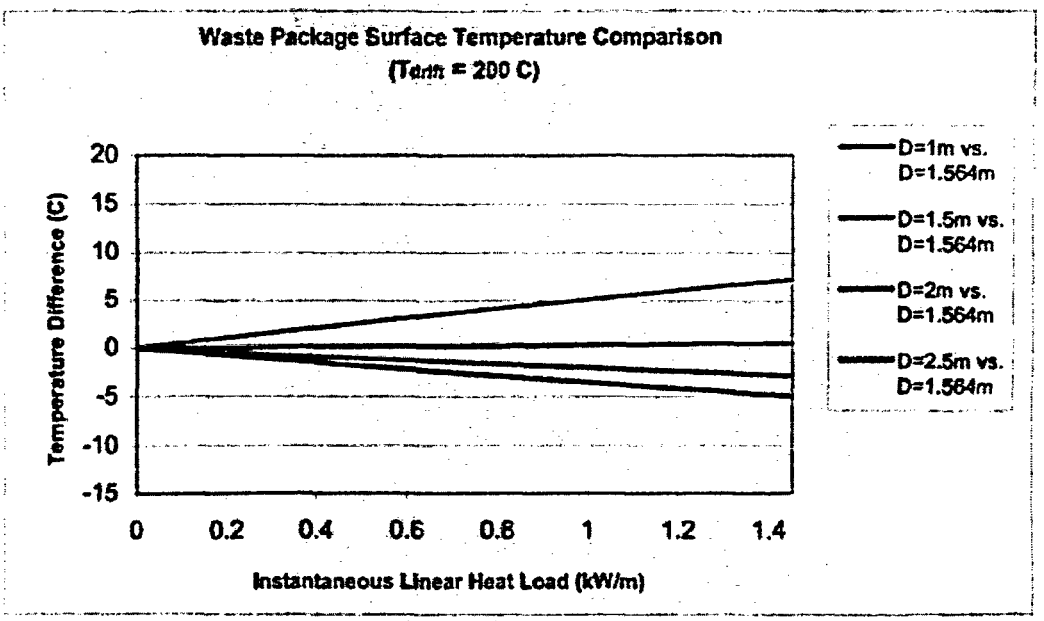


Figure 6-26. Waste Package Surface Temperature Comparison ($T_{drift}$ = 200°C)

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23. BSC (Bechtel SAIC Company) 2001. *Repository Design, Waste Package Project Interlocking Drip Shield, Sheet 1 of 3, Sheet 2 of 3, and Sheet 3 of 3.* DWG-EDS-ME-000001 REV A. Las Vegas, Nevada: Bechtel SAIC Company. ACC: MOL.20020102.0178.

## 8. ATTACHMENTS

The attachments to this calculation are summarized in Table 8-1.

Table 8-1. Attachments Summary

| Attachment Number | Description | Pages |
|---|---|---|
| I | Compact disk (CD) (1 of 1 ) containing ANSYS V5.4 and V5.6.2 files, and Excel files (see Attachment IV for file listing) | N/A |
| II | File Listing for Attachment I | 4 |

Table II-1. ANSYS and Excel File Listing

| /ANSYS_Files/case1 | | | | /ANSYS_Files/case2 | | | |
|---|---|---|---|---|---|---|---|
| File Name | Size (bytes) | Date | Time | File Name | Size (bytes) | Date | Time |
| d45_001.out | 302,060 | 03/29/2002 | 2:38p | d55_001.out | 305,023 | 03/29/2002 | 2:49p |
| d45_004.out | 302,204 | 03/29/2002 | 2:39p | d55_004.out | 305,023 | 03/29/2002 | 2:50p |
| d45_008.out | 302,204 | 03/29/2002 | 2:39p | d55_008.out | 305,023 | 03/29/2002 | 2:59p |
| d45_012.out | 302,637 | 03/29/2002 | 2:40p | d55_012.out | 305,168 | 03/29/2002 | 2:59p |
| d45_016.out | 302,637 | 03/29/2002 | 2:40p | d55_016.out | 305,600 | 03/29/2002 | 2:59p |
| d45_020.out | 303,069 | 03/29/2002 | 2:40p | d55_020.out | 305,744 | 03/29/2002 | 2:59p |
| d45_024.out | 303,213 | 03/29/2002 | 2:40p | d55_024.out | 306,032 | 03/29/2002 | 2:59p |
| d45_028.out | 303,357 | 03/29/2002 | 2:40p | d55_028.out | 306,176 | 03/29/2002 | 2:59p |
| d45_032.out | 303,645 | 03/29/2002 | 2:40p | d55_032.out | 306,320 | 03/29/2002 | 3:00p |
| d45_036.out | 303,789 | 03/29/2002 | 2:41p | d55_036.out | 306,320 | 03/29/2002 | 3:00p |
| d45_040.out | 304,077 | 03/29/2002 | 2:41p | d55_040.out | 306,608 | 03/29/2002 | 3:00p |
| d45_044.out | 304,077 | 03/29/2002 | 2:41p | d55_044.out | 306,464 | 03/29/2002 | 3:00p |
| d45_048.out | 304,365 | 03/29/2002 | 2:41p | d55_048.out | 306,896 | 03/29/2002 | 3:00p |
| d45_052.out | 305,085 | 03/29/2002 | 2:41p | d55_052.out | 306,896 | 03/29/2002 | 3:00p |
| d45_056.out | 304,653 | 03/29/2002 | 2:41p | d55_056.out | 307,763 | 03/29/2002 | 3:01p |
| d45_060.out | 304,941 | 03/29/2002 | 2:42p | d55_060.out | 307,040 | 03/29/2002 | 3:01p |
| d45_064.out | 304,509 | 03/29/2002 | 2:42p | d55_064.out | 307,184 | 03/29/2002 | 3:01p |
| d45_068.out | 304,992 | 03/29/2002 | 2:42p | d55_068.out | 307,040 | 03/29/2002 | 3:01p |
| d45_072.out | 305,280 | 03/29/2002 | 2:42p | d55_072.out | 307,616 | 03/29/2002 | 3:01p |
| d45_076.out | 306,144 | 03/29/2002 | 2:42p | d55_076.out | 307,472 | 03/29/2002 | 3:01p |
| d45_080.out | 306,576 | 03/29/2002 | 2:42p | d55_080.out | 307,184 | 03/29/2002 | 3:01p |
| d45_084.out | 306,784 | 03/29/2002 | 2:42p | d55_084.out | 308,691 | 03/29/2002 | 3:02p |
| d45_088.out | 305,776 | 03/29/2002 | 2:43p | d55_088.out | 308,835 | 03/29/2002 | 3:02p |
| d45_092.out | 307,072 | 03/29/2002 | 2:43p | d55_092.out | 309,123 | 03/29/2002 | 3:02p |
| d45_096.out | 306,640 | 03/29/2002 | 2:43p | d55_096.out | 308,547 | 03/29/2002 | 3:02p |
| d45_100.out | 307,217 | 03/29/2002 | 2:43p | d55_100.out | 308,900 | 03/29/2002 | 3:02p |
| d45_104.out | 306,497 | 03/29/2002 | 2:43p | d55_104.out | 309,124 | 03/29/2002 | 3:03p |
| d45_108.out | 306,065 | 03/29/2002 | 2:43p | d55_108.out | 308,756 | 03/29/2002 | 3:03p |
| d45_112.out | 379,112 | 03/29/2002 | 2:43p | d55_112.out | 309,396 | 03/29/2002 | 3:03p |
| d45_116.out | 385,879 | 03/29/2002 | 2:44p | d55_116.out | 308,900 | 03/29/2002 | 3:03p |
| d45_120.out | 380,318 | 03/29/2002 | 2:44p | d55_120.out | 308,180 | 03/29/2002 | 3:03p |
| d45_124.out | 378,561 | 03/29/2002 | 2:44p | d55_124.out | 308,532 | 03/29/2002 | 3:03p |
| d45_128.out | 414,339 | 03/29/2002 | 2:44p | d55_128.out | 308,327 | 03/29/2002 | 3:04p |
| d45_132.out | 305,800 | 03/29/2002 | 2:44p | d55_132.out | 308,052 | 03/29/2002 | 3:04p |
| d45_136.out | 434,502 | 03/29/2002 | 2:44p | d55_136.out | 308,337 | 03/29/2002 | 3:04p |
| d45_140.out | 306,088 | 03/29/2002 | 2:44p | d55_140.out | 308,913 | 03/29/2002 | 3:04p |
| d45_144.out | 305,656 | 03/29/2002 | 2:45p | d55_144.out | 372,523 | 03/29/2002 | 3:04p |
| pd45_001.out | 19,993 | 03/29/2002 | 2:39p | pd55_001.out | 19,993 | 03/29/2002 | 2:58p |
| pd45_004.out | 19,993 | 03/29/2002 | 2:39p | pd55_004.out | 19,993 | 03/29/2002 | 2:59p |
| pd45_008.out | 19,993 | 03/29/2002 | 2:39p | pd55_008.out | 19,852 | 03/29/2002 | 2:59p |
| pd45_012.out | 19,993 | 03/29/2002 | 2:40p | pd55_012.out | 19,993 | 03/29/2002 | 2:59p |
| pd45_016.out | 19,993 | 03/29/2002 | 2:40p | pd55_016.out | 19,993 | 03/29/2002 | 2:59p |
| pd45_020.out | 19,993 | 03/29/2002 | 2:40p | pd55_020.out | 19,993 | 03/29/2002 | 2:59p |
| pd45_024.out | 19,993 | 03/29/2002 | 2:40p | pd55_024.out | 19,993 | 03/29/2002 | 2:59p |
| pd45_028.out | 19,993 | 03/29/2002 | 2:40p | pd55_028.out | 19,993 | 03/29/2002 | 2:59p |
| pd45_032.out | 19,993 | 03/29/2002 | 2:40p | pd55_032.out | 19,993 | 03/29/2002 | 3:00p |
| pd45_036.out | 19,993 | 03/29/2002 | 2:41p | pd55_036.out | 19,993 | 03/29/2002 | 3:00p |
| pd45_040.out | 19,993 | 03/29/2002 | 2:41p | pd55_040.out | 19,993 | 03/29/2002 | 3:00p |
| pd45_044.out | 19,993 | 03/29/2002 | 2:41p | pd55_044.out | 19,993 | 03/29/2002 | 3:00p |
| pd45_048.out | 19,993 | 03/29/2002 | 2:41p | pd55_048.out | 19,993 | 03/29/2002 | 3:00p |
| pd45_052.out | 19,993 | 03/29/2002 | 2:41p | pd55_052.out | 19,993 | 03/29/2002 | 3:00p |
| pd45_056.out | 19,993 | 03/29/2002 | 2:41p | pd55_056.out | 19,993 | 03/29/2002 | 3:01p |
| pd45_060.out | 19,993 | 03/29/2002 | 2:42p | pd55_060.out | 19,993 | 03/29/2002 | 3:01p |
| pd45_064.out | 19,993 | 03/29/2002 | 2:42p | pd55_064.out | 19,993 | 03/29/2002 | 3:01p |
| pd45_068.out | 19,993 | 03/29/2002 | 2:42p | pd55_068.out | 19,993 | 03/29/2002 | 3:01p |
| pd45_072.out | 19,993 | 03/29/2002 | 2:42p | pd55_072.out | 19,993 | 03/29/2002 | 3:01p |
| pd45_076.out | 19,993 | 03/29/2002 | 2:42p | pd55_076.out | 19,993 | 03/29/2002 | 3:01p |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| pd45_080.out | 19,993 | 03/29/2002 | 2:42p | pd55_080.out | 19,993 | 03/29/2002 | 3:01p |
| pd45_084.out | 19,993 | 03/29/2002 | 2:42p | pd55_084.out | 19,993 | 03/29/2002 | 3:02p |
| pd45_088.out | 19,993 | 03/29/2002 | 2:43p | pd55_088.out | 19,993 | 03/29/2002 | 3:02p |
| pd45_092.out | 19,993 | 03/29/2002 | 2:43p | pd55_092.out | 19,993 | 03/29/2002 | 3:02p |
| pd45_096.out | 19,993 | 03/29/2002 | 2:43p | pd55_096.out | 19,993 | 03/29/2002 | 3:02p |
| pd45_100.out | 19,993 | 03/29/2002 | 2:43p | pd55_100.out | 19,993 | 03/29/2002 | 3:02p |
| pd45_104.out | 19,993 | 03/29/2002 | 2:43p | pd55_104.out | 19,993 | 03/29/2002 | 3:03p |
| pd45_108.out | 19,993 | 03/29/2002 | 2:43p | pd55_108.out | 19,993 | 03/29/2002 | 3:03p |
| pd45_112.out | 19,993 | 03/29/2002 | 2:43p | pd55_112.out | 19,993 | 03/29/2002 | 3:03p |
| pd45_116.out | 19,993 | 03/29/2002 | 2:44p | pd55_116.out | 19,993 | 03/29/2002 | 3:03p |
| pd45_120.out | 19,993 | 03/29/2002 | 2:44p | pd55_120.out | 19,993 | 03/29/2002 | 3:03p |
| pd45_124.out | 19,993 | 03/29/2002 | 2:44p | pd55_124.out | 19,993 | 03/29/2002 | 3:04p |
| pd45_128.out | 19,993 | 03/29/2002 | 2:44p | pd55_128.out | 19,993 | 03/29/2002 | 3:04p |
| pd45_132.out | 19,993 | 03/29/2002 | 2:44p | pd55_132.out | 19,993 | 03/29/2002 | 3:04p |
| pd45_136.out | 19,993 | 03/29/2002 | 2:44p | pd55_136.out | 19,993 | 03/29/2002 | 3:04p |
| pd45_140.out | 19,993 | 03/29/2002 | 2:44p | pd55_140.out | 19,993 | 03/29/2002 | 3:04p |
| pd45_144.out | 19,993 | 03/29/2002 | 2:45p | pd55_144.out | 19,302 | 03/29/2002 | 3:04p |
| /ANSYS_Files/case3 | | | | /ANSYS_Files/case4 | | | |
| File Name | Size (bytes) | Date | Time | File Name | Size (bytes) | Date | Time |
| d60_001.out | 357,736 | 03/29/2002 | 3:05p | d60_001.out | 304,676 | 03/29/2002 | 4:05p |
| d60_004.out | 357,528 | 03/29/2002 | 3:05p | d60_004.out | 304,820 | 03/29/2002 | 4:05p |
| d60_008.out | 357,736 | 03/29/2002 | 3:57p | d60_008.out | 304,964 | 03/29/2002 | 4:05p |
| d60_012.out | 357,737 | 03/29/2002 | 3:57p | d60_012.out | 305,541 | 03/29/2002 | 4:05p |
| d60_016.out | 358,153 | 03/29/2002 | 3:57p | d60_016.out | 305,973 | 03/29/2002 | 4:05p |
| d60_020.out | 358,777 | 03/29/2002 | 3:57p | d60_020.out | 306,117 | 03/29/2002 | 4:05p |
| d60_024.out | 358,985 | 03/29/2002 | 3:58p | d60_024.out | 306,117 | 03/29/2002 | 4:05p |
| d60_028.out | 359,753 | 03/29/2002 | 3:58p | d60_028.out | 306,405 | 03/29/2002 | 4:05p |
| d60_032.out | 359,753 | 03/29/2002 | 3:58p | d60_032.out | 306,405 | 03/29/2002 | 4:05p |
| d60_036.out | 359,753 | 03/29/2002 | 3:58p | d60_036.out | 306,405 | 03/29/2002 | 4:05p |
| d60_040.out | 359,545 | 03/29/2002 | 3:58p | d60_040.out | 306,693 | 03/29/2002 | 4:05p |
| d60_044.out | 359,961 | 03/29/2002 | 3:58p | d60_044.out | 306,837 | 03/29/2002 | 4:06p |
| d60_048.out | 359,961 | 03/29/2002 | 3:58p | d60_048.out | 306,837 | 03/29/2002 | 4:06p |
| d60_052.out | 360,729 | 03/29/2002 | 3:59p | d60_052.out | 307,413 | 03/29/2002 | 4:06p |
| d60_056.out | 360,793 | 03/29/2002 | 3:59p | d60_056.out | 307,557 | 03/29/2002 | 4:06p |
| d60_060.out | 360,937 | 03/29/2002 | 3:59p | d60_060.out | 307,701 | 03/29/2002 | 4:06p |
| d60_064.out | 361,225 | 03/29/2002 | 3:59p | d60_064.out | 307,701 | 03/29/2002 | 4:06p |
| d60_068.out | 361,033 | 03/29/2002 | 3:59p | d60_068.out | 309,150 | 03/29/2002 | 4:06p |
| d60_072.out | 361,964 | 03/29/2002 | 3:59p | d60_072.out | 307,989 | 03/29/2002 | 4:06p |
| d60_076.out | 361,244 | 03/29/2002 | 3:59p | d60_076.out | 309,147 | 03/29/2002 | 4:06p |
| d60_080.out | 361,484 | 03/29/2002 | 3:59p | d60_080.out | 308,421 | 03/29/2002 | 4:06p |
| d60_084.out | 361,596 | 03/29/2002 | 3:59p | d60_084.out | 308,421 | 03/29/2002 | 4:07p |
| d60_088.out | 362,111 | 03/29/2002 | 4:02p | d60_088.out | 308,277 | 03/29/2002 | 4:07p |
| d60_092.out | 361,465 | 03/29/2002 | 4:02p | d60_092.out | 308,824 | 03/29/2002 | 4:07p |
| d60_096.out | 362,025 | 03/29/2002 | 4:02p | d60_096.out | 309,115 | 03/29/2002 | 4:07p |
| d60_100.out | 362,877 | 03/29/2002 | 4:02p | d60_100.out | 309,548 | 03/29/2002 | 4:07p |
| d60_104.out | 362,256 | 03/29/2002 | 4:02p | d60_104.out | 309,257 | 03/29/2002 | 4:07p |
| d60_108.out | 361,578 | 03/29/2002 | 4:03p | d60_108.out | 309,401 | 03/29/2002 | 4:07p |
| d60_112.out | 362,797 | 03/29/2002 | 4:03p | d60_112.out | 309,692 | 03/29/2002 | 4:07p |
| d60_116.out | 362,522 | 03/29/2002 | 4:03p | d60_116.out | 309,404 | 03/29/2002 | 4:08p |
| d60_120.out | 290,823 | 03/29/2002 | 4:03p | d60_120.out | 310,271 | 03/29/2002 | 4:08p |
| d60_124.out | 362,464 | 03/29/2002 | 4:03p | d60_124.out | 310,124 | 03/29/2002 | 4:08p |
| d60_128.out | 362,093 | 03/29/2002 | 4:03p | d60_128.out | 309,401 | 03/29/2002 | 4:09p |
| d60_132.out | 361,722 | 03/29/2002 | 4:03p | d60_132.out | 310,044 | 03/29/2002 | 4:09p |
| d60_136.out | 362,877 | 03/29/2002 | 4:04p | d60_136.out | 309,977 | 03/29/2002 | 4:09p |
| d60_140.out | 362,733 | 03/29/2002 | 4:04p | d60_140.out | 309,113 | 03/29/2002 | 4:09p |
| d60_144.out | 290,544 | 03/29/2002 | 4:04p | d60_144.out | 310,335 | 03/29/2002 | 4:09p |
| /ANSYS_Files/case5 | | | | /ANSYS_Files/case6 | | | |
| File Name | Size (bytes) | Date | Time | File Name | Size (bytes) | Date | Time |
| d50_001.out | 301,569 | 03/29/2002 | 4:10p | d40_001.out | 296,977 | 03/29/2002 | 4:15p |
| d50_004.out | 301,569 | 03/29/2002 | 4:10p | d40_004.out | 297,121 | 03/29/2002 | 4:15p |
| d50_008.out | 301,713 | 03/29/2002 | 4:10p | d40_008.out | 297,121 | 03/29/2002 | 4:15p |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| d50_012.out | 302,290 | 03/29/2002 | 4:10p | d40_012.out | 297,410 | 03/29/2002 | 4:15p |
| d50_016.out | 302,722 | 03/29/2002 | 4:10p | d40_016.out | 297,554 | 03/29/2002 | 4:15p |
| d50_020.out | 303,010 | 03/29/2002 | 4:10p | d40_020.out | 297,842 | 03/29/2002 | 4:15p |
| d50_024.out | 303,010 | 03/29/2002 | 4:10p | d40_024.out | 298,274 | 03/29/2002 | 4:15p |
| d50_028.out | 303,298 | 03/29/2002 | 4:11p | d40_028.out | 298,274 | 03/29/2002 | 4:15p |
| d50_032.out | 303,298 | 03/29/2002 | 4:11p | d40_032.out | 298,706 | 03/29/2002 | 4:15p |
| d50_036.out | 303,442 | 03/29/2002 | 4:11p | d40_036.out | 298,562 | 03/29/2002 | 4:15p |
| d50_040.out | 303,586 | 03/29/2002 | 4:11p | d40_040.out | 298,994 | 03/29/2002 | 4:16p |
| d50_044.out | 303,730 | 03/29/2002 | 4:11p | d40_044.out | 299,429 | 03/29/2002 | 4:16p |
| d50_048.out | 303,874 | 03/29/2002 | 4:11p | d40_048.out | 298,994 | 03/29/2002 | 4:16p |
| d50_052.out | 303,874 | 03/29/2002 | 4:11p | d40_052.out | 299,717 | 03/29/2002 | 4:16p |
| d50_056.out | 304,888 | 03/29/2002 | 4:11p | d40_056.out | 299,426 | 03/29/2002 | 4:16p |
| d50_060.out | 305,131 | 03/29/2002 | 4:11p | d40_060.out | 299,429 | 03/29/2002 | 4:16p |
| d50_064.out | 304,885 | 03/29/2002 | 4:12p | d40_064.out | 299,282 | 03/29/2002 | 4:16p |
| d50_068.out | 304,885 | 03/29/2002 | 4:12p | d40_068.out | 299,429 | 03/29/2002 | 4:16p |
| d50_072.out | 304,882 | 03/29/2002 | 4:12p | d40_072.out | 300,152 | 03/29/2002 | 4:16p |
| d50_076.out | 305,026 | 03/29/2002 | 4:12p | d40_076.out | 301,013 | 03/29/2002 | 4:16p |
| d50_080.out | 304,882 | 03/29/2002 | 4:12p | d40_080.out | 301,224 | 03/29/2002 | 4:17p |
| d50_084.out | 305,752 | 03/29/2002 | 4:12p | d40_084.out | 301,867 | 03/29/2002 | 4:17p |
| d50_088.out | 304,882 | 03/29/2002 | 4:12p | d40_088.out | 300,146 | 03/29/2002 | 4:17p |
| d50_092.out | 305,026 | 03/29/2002 | 4:12p | d40_092.out | 300,437 | 03/29/2002 | 4:17p |
| d50_096.out | 305,026 | 03/29/2002 | 4:13p | d40_096.out | 301,016 | 03/29/2002 | 4:17p |
| d50_100.out | 305,606 | 03/29/2002 | 4:13p | d40_100.out | 300,726 | 03/29/2002 | 4:17p |
| d50_104.out | 304,883 | 03/29/2002 | 4:13p | d40_104.out | 300,147 | 03/29/2002 | 4:17p |
| d50_108.out | 305,171 | 03/29/2002 | 4:13p | d40_108.out | 300,726 | 03/29/2002 | 4:17p |
| d50_112.out | 306,441 | 03/29/2002 | 4:13p | d40_112.out | 301,158 | 03/29/2002 | 4:18p |
| d50_116.out | 305,747 | 03/29/2002 | 4:13p | d40_116.out | 300,585 | 03/29/2002 | 4:18p |
| d50_120.out | 305,462 | 03/29/2002 | 4:13p | d40_120.out | 300,579 | 03/29/2002 | 4:18p |
| d50_124.out | 305,606 | 03/29/2002 | 4:14p | d40_124.out | 301,718 | 03/29/2002 | 4:18p |
| d50_128.out | 306,249 | 03/29/2002 | 4:14p | d40_128.out | 301,014 | 03/29/2002 | 4:18p |
| d50_132.out | 305,894 | 03/29/2002 | 4:14p | d40_132.out | 301,014 | 03/29/2002 | 4:18p |
| d50_136.out | 306,166 | 03/29/2002 | 4:14p | d40_136.out | 301,289 | 03/29/2002 | 4:19p |
| d50_140.out | 305,897 | 03/29/2002 | 4:14p | d40_140.out | 300,425 | 03/29/2002 | 4:19p |
| d50_144.out | 305,654 | 03/29/2002 | 4:14p | d40_144.out | 301,062 | 03/29/2002 | 4:19p |
| /ANSYS_Files/SR_dp | | | | /ANSYS_Files/SR_nd | | | |
| File Name | Size (bytes) | Date | Time | File Name | Size (bytes) | Date | Time |
| d55_001.out | 283,814 | 04/11/2002 | 3:40p | d55_001.out | 268,203 | 04/03/2002 | 10:22a |
| d55_004.out | 283,830 | 04/11/2002 | 3:40p | d55_004.out | 268,347 | 04/03/2002 | 10:22a |
| d55_008.out | 283,831 | 04/11/2002 | 3:40p | d55_008.out | 268,347 | 04/03/2002 | 10:22a |
| d55_012.out | 283,831 | 04/11/2002 | 3:40p | d55_012.out | 268,492 | 04/03/2002 | 10:23a |
| d55_016.out | 284,039 | 04/11/2002 | 4:11p | d55_016.out | 269,068 | 04/03/2002 | 10:23a |
| d55_020.out | 284,455 | 04/11/2002 | 4:11p | d55_020.out | 269,212 | 04/03/2002 | 10:23a |
| d55_024.out | 284,871 | 04/11/2002 | 3:41p | d55_024.out | 269,644 | 04/03/2002 | 10:23a |
| d55_028.out | 285,647 | 04/11/2002 | 3:41p | d55_028.out | 269,788 | 04/03/2002 | 10:23a |
| d55_032.out | 285,639 | 04/11/2002 | 3:41p | d55_032.out | 269,932 | 04/03/2002 | 10:23a |
| d55_036.out | 285,847 | 04/11/2002 | 3:41p | d55_036.out | 270,367 | 04/03/2002 | 10:23a |
| d55_040.out | 286,056 | 04/11/2002 | 3:41p | d55_040.out | 270,364 | 04/03/2002 | 10:24a |
| d55_044.out | 286,039 | 04/11/2002 | 3:42p | d55_044.out | 270,220 | 04/03/2002 | 10:24a |
| d55_048.out | 286,055 | 04/11/2002 | 3:42p | d55_048.out | 270,511 | 04/03/2002 | 10:24a |
| d55_052.out | 286,327 | 04/11/2002 | 3:42p | d55_052.out | 270,796 | 04/03/2002 | 10:24a |
| d55_056.out | 287,031 | 04/11/2002 | 3:42p | d55_056.out | 270,364 | 04/03/2002 | 10:24a |
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| d55_132.out | 287,960 | 04/11/2002 | 3:45p | d55_132.out | 273,072 | 04/03/2002 | 10:26a |
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| d55_trh_gs_fit.xls | 180,224 | 04/01/2002 | 2:28p | | | | |
| wpdia.xls | 310,784 | 04/17/2002 | 9:25a | | | | |

# OFFICE OF CIVILIAN RADIOACTIVE WASTE MANAGEMENT

1. QA: QA

## SPECIAL INSTRUCTION SHEET

Page: 1 of: 1

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| 2. Record Date | 3. Accession Number |
|---|---|
| 05/29/2002 | ATT TO: MOL.20020613.0482 |
| **4. Author Name(s)** | **5. Author Organization** |
| HANGYAN MARR | N/A |

**6. Title/Description**
THERMAL CALCULATION OF THE IN-DRIFT CONFIGURATION OPTIONS

| 7. Document Number(s) | 8. Version Designator |
|---|---|
| CAL-WIS-TH-000013 | REV. A |

| 9. Document Type | 10. Medium |
|---|---|
| DATA | CD-ROM |

**11. Access Control Code**
PUB

**12. Traceability Designator**
DC# 31634

**13. Comments**
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