BSC | **Design Calculation or Analysis Cover Sheet** | 1. QA: QA
2. Page 1

Complete only applicable items.

3. System	4. Document Identifier
Monitored Geologic Repository	000-PSA-MGR0-00600-000-00B

5. Title

GROA Airborne Release Dispersion Factor Calculation

ENG.20071213.0003

6. Group

Preclosure Safety Analyses

7. Document Status Designation

☐ Preliminary ☒ Committed ☐ Confirmed ☐ Cancelled/Superseded

8. Notes/Comments

The Preclosure Safety Analyses department should be consulted before any use of information herein for any purpose other than that stated herein or before being used by any individual other than authorized personnel in the department.

Revision B is a complete rewrite and reorganization of sections; thus, no revision bars are used.

Attachments	Total Number of Pages
ATTACHMENT I. VENTILATION DESIGN PARAMETERS OF GROA FACILITIES	2
ATTACHMENT II. ELECTRONIC FILES ON ATTACHED CD	50
ATTACHMENT III. One compact disk (CD) containing the Excel spreadsheet and ARCON96 input and output files.	1 CD-ROM

RECORD OF REVISIONS

9. No.	10. Reason For Revision	11. Total # of Pgs.	12. Last Pg. #	13. Originator (Print/Sign/Date)	14. Checker (Print/Sign/Date)	15. EGS (Print/Sign/Date)	16. Approved/Accepted (Print/Sign/Date)
00A	Initial Issue	126	IV-46	J. Wang	W. Wu	S. Tsai	M. Wisenburg
00B	Revised for updated GROA configuration	116	II-50	J. Schulz 12/11/2007	W. Wu 12/11/07	S. Tsai 12/12/2007	M. Wisenburg 12/13/2007

DISCLAIMER

The calculations contained in this document were developed by Bechtel SAIC Company, LLC, and are intended solely for the use of Bechtel SAIC Company, LLC, in its work for the Yucca Mountain Project.

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FIGURES

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TABLES

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ACRONYMS AND ABBREVIATIONS

ACRONYMS

ARCON96	Atmospheric Relative CONcentrations in Building Wakes, V.96
CFD	cumulative frequency distribution
CRCF	Canister Receipt and Closure Facility
CRCF 1	Canister Receipt and Closure Facility #1
CRCF 2	Canister Receipt and Closure Facility #2
CRCF 3	Canister Receipt and Closure Facility #3
GROA	geologic repository operations area
HVAC	heating, ventilation, and air conditioning
IHF	Initial Handling Facility
LLWF	Low-Level Waste Facility
NRC	Nuclear Regulatory Commission
QA	Quality Assurance
PC	Personal Computer
RF	Receipt Facility
WHF	Wet Handling Facility

ABBREVIATIONS

χ/Q	atmospheric dispersion factor or relative atmospheric concentration
ft	feet
hr	hour
m^2	meter squared

1 PURPOSE

The purpose of this document is to calculate airborne release dispersion factors (χ/Qs) for the surface and subsurface facilities at the geologic repository operations area (GROA). The calculated χ/Q values may be used to estimate radiological consequences to workers for potential releases from normal operations and event sequences.

The scope of this document is to provide estimates of χ/Q values at potential onsite receptor locations from facility releases, under normal operating conditions and during event sequences.

2 REFERENCES

2.1 PROCEDURES/DIRECTIVES

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2.1.3 BSC 2007. *Software Management*. IT-PRO-0011, Rev. 7. Las Vegas, Nevada. Bechtel SAIC Company. ACC: DOC.20070905.0007.

2.1.4 BSC 2007. *Preclosure Safety Analysis Process*. LS-PRO-0201, Rev. 5. Las Vegas, Nevada. Bechtel SAIC Company. ACC: DOC.20071010.0021.

2.1.5 BSC (Bechtel SAIC Company) 2007. *Desktop Information for Using CalcTrac*. EG-DSK-3013, Rev. 2. Las Vegas, Nevada. Bechtel SAIC Company. ACC: ENG.20070516.0024.

2.2 DESIGN INPUTS

2.2.1 10 CFR 63. 2007. Energy: Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada. Internet Accessible. [DIRS 180319]

2.2.2 ARCON V96. 2007. Windows XP. STN: 10912-96-01. [DIRS 183876]

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2.2.5 BSC 2004. *Software Problem Report SPR026820040902, ARCON V.96.* STN: 10912-96-00. Las Vegas, NV: Bechtel SAIC Company. ACC: MOL.20040902.0466. [DIRS 181003]

2.2.6 BSC 2006. *Ventilation Network Model Parameters for LA.* 800-KVC-VUE0-00100-000-00A. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20061117.0006.

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2.2.13 BSC 2007. *Receipt Facility General Arrangement Sections C and D*. 200-P10-RF00-00107-000 Rev 00A. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20070608.0017.

2.2.14 BSC 2007. *Wet Handling Facility General Arrangement Sections A and B*. 050-P10-WH00-00108-000 Rev 00B. Las Vegas, Nevada: Bechtel SAIC Company. ACC: ENG.20071206.0038.

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2.2.24 Ramsdell, J.V., Jr. and Simonen, C.A. 1997. *Atmospheric Relative Concentrations in Building Wakes.* NUREG/CR-6331, Rev. 1. Washington, D.C.: U.S. Nuclear Regulatory Commission. TIC: 233690. [DIRS 164547]

2.2.25 Regulatory Guide 1.194.2003. Atmospheric Relative Concentrations for Control Room Radiological Habitability Assessments at Nuclear Power Plants. Washington, D.C.: U.S. Nuclear Regulatory Commission. ACC: MOL.20060105.0194. [DIRS 165736]

2.3 DESIGN CONSTRAINTS

None.

2.4 DESIGN OUTPUTS

This calculation does not support a specific engineering drawing, specification, or design list. The results of this calculation may be used in other preclosure safety analyses.

3 ASSUMPTIONS

3.1 ASSUMPTIONS REQUIRING VERIFICATION

The following assumptions are based on the best available information on the heating, ventilation, and air conditioning (HVAC) designs of surface facilities. The information used as assumptions requiring verification is tracked using *CalcTrac* (Reference 2.1.5).

3.1.1 Locations and Ventilation Parameters of Potential Releases from Surface Facilities

The locations of potential HVAC exhausts of GROA surface facilities are obtained from Reference 2.2.23 (see Attachment I) and shown in Table 1. Exhausts from the Canister Receipt and Closure Facility (CRCF), Receipt Facility (RF), Wet Handling Facility (WHF), Initial Handling Facility (IHF), and Low-Level Waste Facility (LLWF) are considered.

Table 1. Ventilation Discharge Parameters of Potential Releases from Surface Facilities

Facility	Release Point Code[a]	Discharge Parameters				Location in Plant Coordinates (ft)		
		Flow Rate (ACFM)	Minimum Velocity (fpm)	Nozzle Diameter (in)	Actual Velocity (fpm)	Highest Exhaust Pt. Elev.	Plant North	Plant East
CRCF-1	060a	33,670	3,000	44	3,190	3,774.00	21,319.00	21,027.00
	060b	33,670	3,000	44	3,190	3,774.00	21,089.00	21,027.00
CRCF-2[b]	070a	33,670	3,000	44	3,190			
	070b	33,670	3,000	44	3,190			
CRCF-3[b]	080a	33,670	3,000	44	3,190			
	080b	33,670	3,000	44	3,190			
RF	200a	33,700	3,000	44	3,193	3,771.00	21,915.50	21,076.00
	200b	33,700	3,000	44	3,193	3,771.00	21,801.00	21,076.00
WHF	050a	44,300	3,000	52	3,005	3,792.00	20,432.41	20,937.41
	050b	44,300	3,000	52	3,005	3,727.50	20,269.00	20,841.00
IHF	51A	35,140	3,000	46	3,045	3,789.00	19,242.25	21,430.33
LLWF	160	40,000	3,000	48	3,184	3,755.00	20,966.00	20,063.50

Notes: [a] The release point code is the facility area number and a lower case letter if there are more than one discharges per facility.

[b] Per Assumption 3.2.2, CRCF 2 and CRCF 3 are identical to CRCF 1.

Source: Worksheet *Exhaust* of Spreadsheet *HVAC Input Data to PCSA (intake & Exhaust) 11-05-07 Final.xls* from Reference 2.2.23.

Rationale: Reference 2.2.23 provides preliminary HVAC system design parameters. This is the best available information and is suitable for use in this calculation.

3.1.2 Locations and Ventilation Parameters of Intakes for Surface Facilities

The locations of potential HVAC intakes of GROA surface facilities are obtained from Reference 2.2.23 (see Attachment I) and shown in Table 2. Intakes from CRCF, RF, WHF, IHF, and LLWF are considered.

Table 2. Ventilation Intake Parameters for Surface Facilities

Facility	Receptor Code[a]	Intake Parameters		Location in Plant Coordinates (ft)		
		Flow Rate (ACFM)	Max. Intake Velocity (fpm)	Intake Duct Elevation	Plant North	Plant East
CRCF-1	060a	6,090	500	3,717.50	21,515.00	21,123.00
	060b	7,150	500	3,689.00	21,056.00	20,917.00
	060c	7,720	500	3,688.00	21,204.00	20,792.00
	060d	2,910	500	3,679.00	21,410.00	20,963.00
	060e	13,420	500	3,686.50	21,410.00	21,093.00
CRCF-2[b]	070a	6,090	500			
	070b	7,150	500			
	070c	7,720	500			
	070d	2,910	500			
	070e	13,420	500			
CRCF-3[b]	080a	6,090	500			
	080b	7,150	500			
	080c	7,720	500			
	080d	2,910	500			
	080e	13,420	500			
RF	200a	10,280	500	3,708.00	21,826.50	21,257.00
	200b	11,400	500	3,711.00	21,978.00	21,131.00
	200c	7,940	500	3,712.00	21,736.00	21,057.00
	200d	28,390	500	3,709.00	21,736.00	21,132.50
WHF	050a	34,200	500	3,699.50	20,418.00	20,823.00
	050b	34,200	500	3,699.50	20,378.00	20,823.00
	050c	15,540	500	3,732.00	20,483.00	20,902.00
	050d	21,350	500	3,731.50	20,315.50	20,823.00
IHF	51Aa	12,900	500	3,678.50	19,169.00	21,656.00
	51Ab	12,900	500	3,678.50	19,169.00	21,672.00
LLWF	160a	40,000	500	3,689.50	20,940.50	20,004.00
	160b	40,000	500	3,689.50	20,932.50	20,004.00
	160c	20,000	500	3,696.00	20,909.00	20,191.00

Notes: [a] The release point code is the facility area number and a lower case letter if there are more than one discharge per facility.

[b] Per Assumption 3.2.2, CRCF 2 and CRCF 3 are identical to CRCF 1.

Source: Worksheet *Intake* of Spreadsheet *HVAC Input Data to PCSA (intake & Exhaust) 11-05-07 Final.xls* from Reference 2.2.23.

Rationale: Reference 2.2.23 provides preliminary HVAC system design parameters. This is the best available information and is suitable for use in this calculation.

3.1.3 Intake Height

The intake height is the height difference from grade to the intake duct elevation for the waste handling facilities from Assumption 3.1.2. For all other facilities the intake height is assumed to

be 10 ft above grade. For the subsurface intakes, the intake height is assumed to be zero feet above grade.

Rationale: The design of the HVAC systems for facilities other than the waste handling facilities is not available. Therefore, a nominal intake height of 10 ft above grade is assumed. The design of the subsurface intake shafts has not been finalized; therefore, it is conservative to assume a ground level intake height.

3.2 ASSUMPTIONS NOT REQUIRING VERIFICATION

3.2.1 Release Type

Releases from all surface facilities except for the aging pads (17P and 17R) are modeled as vent releases (type 2). Releases from the aging pads and from the subsurface are modeled as ground level releases (type 1). (See p. 102 of Reference 2.2.24 for the definition of release type)

Rationale: Modeling of the releases from the HVAC systems as vent releases takes credit for the flow rates and velocities expected from these sources. The HVAC systems for the surface facilities are expected to be operational during normal operations and Category 1 event sequences. Natural circulation is the only motive force for releases from the surfaces of canisters in aging overpacks located at the aging pads. These releases would be through the ventilation openings of the aging overpacks within the wake boundary; therefore, these releases are modeled as ground level releases. The exhaust shafts from the subsurface facilities are expected to have ventilation fans located at the surface with exhaust vents facing upwards downstream of the fans. These vents, which have not been designed, will be at some height above the surface; therefore, it is conservative to consider the releases as ground level releases.

3.2.2 Building Design of CRCF 2 and CRCF 3

The building design of CRCF 2 and CRCF 3 is assumed to be the same as that of CRCF 1. The stack height, building area, flow, exit velocity, and intake height are assumed to be the same for these facilities.

Rationale: The CRCF 2 and CRCF 3 are expected to have the same design as CRCF 1. There is no need of verification for this assumption.

3.2.3 Release Height

For vent releases, the release heights of waste handling facilities are the difference from grade to the exhaust elevation from Assumption 3.1.1. Zero release height is assumed for all subsurface releases.

Rationale: No additional height (e.g., thermal plume release) except the physical height is considered in this calculation; therefore, the release height is conservative for the dispersion calculation. (See Table 1 for release heights)

3.2.4 Release Exit Velocity for the Waste Handling Facilities

The minimum discharge velocity from Assumption 3.1.1 is used to represent the exit velocity for effluents from the waste handling facilities.

Rationale: The exit velocity is used by ARCON96 to determine if a vent release is to be treated as an elevated release, ground level release, or as a mixed-mode release (Reference 2.2.24 Section 3.2.5). If the exit velocity is more than 5 times the wind speed, the release is treated as an elevated release. If the exit velocity is less than the wind speed, the release is treated as a ground level release. If the exit velocity is less than 5 times the wind speed but greater than the wind speed, the release is treated as a mixed-mode release. Therefore, using the minimum exit velocity instead of the actual exit velocity results in more conservative atmospheric dispersion factors.

3.2.5 Release Exit Velocity for the Aging Pads

For the aging pads (17P and 17R), the exit flow velocity is conservatively assumed to be zero.

Rationale: Natural circulation is the only motive force for releases from the surfaces of canisters in aging overpacks located at the aging pads; therefore, a small release exit velocity is expected. Therefore, it is bounding to set the exit velocity to zero.

3.2.6 Initial Vertical Diffusion Coefficient of Aging Facility Releases

The initial vertical diffusion coefficient of the Aging Facility releases is conservatively assumed to be 2.5 m.

Rationale: The potential releases from the aging pads are from the surface contamination of aging casks. The aging cask height could vary from 10 to 15 ft, and there is an additional 3 to 4 ft rise for the bottom concrete slab. The total height is about 13 to 19 ft (4 to 5.8 m). For a vertical area source, the initial vertical diffusion coefficient is half of the height of the exposure area (Reference 2.2.24, p. 39). A value of 2.5 m for the initial vertical diffusion coefficient for the aging casks in the Aging Facility is reasonably assumed.

3.2.7 North Ramp as the Surface Facility Receptor for Subsurface Releases

The receptor location of the north ramp is conservatively assumed to represent other receptor locations of surface facilities for subsurface releases.

Rationale: For subsurface releases, the north ramp is the nearest receptor location among all surface receptors. Because of the long distance (greater than 2 km), the dispersion results from subsurface releases to surface receptors are expected to be similar to and only slightly less than those at the emplacement ramp.

4 METHODOLOGY

4.1 QUALITY ASSURANCE

The results of this calculation will be used to determine the radiological hazards for facilities important to safety. Therefore, this document is subject to the requirements of *Quality Management Directive* (Reference 2.1.1). This calculation was performed in accordance with EG-PRO-3DP-G04B-00037, *Calculations and Analyses* (Reference 2.1.2), LS-PRO-0201, *Preclosure Safety Analysis Process* (Reference 2.1.4). Additional preparation information has been derived from EG-DSK-3013, *Desktop Information for Using CalcTrac* (Reference 2.1.5), to track the assumptions requiring verification in Section 3.1. The results of this calculation will be used in calculations and analyses to demonstrate conformance of the repository design to the performance objectives of the requirements of 10 CFR 63.111 (Reference 2.2.1). Therefore, the approved version is designated as QA: QA.

4.2 USE OF SOFTWARE

4.2.1 Qualified Software

The ARCON96 code (ARCON, V.96) (Reference 2.2.2) is used to calculate the relative atmospheric concentrations (χ/Q) for receptors of interest. The software specifications are as follows:

- Program Name: ARCON
- Version/Revision Number: V.96
- Platform/Operating System: PC/Windows XP
- Software Tracking Number/Status: 10912-96-01/Qualified
- Computer Type: PC Dell Optiplex GX620
- Central Processing Unit Number: YMP004480.

In this document, ARCON96 is used for the χ/Q calculations of vent, ground, and area source releases. The ARCON96 code is used only within the range of validation as documented in Reference 2.2.4, Table 3, Table 4, and Attachment I: Tests 1, 2, and 5 and Reference 2.2.22. The software was obtained from Software Configuration Management in accordance with IT-PRO-0011, *Software Management* (Reference 2.1.3).

The ARCON96 test cases were run, and the output (log and cfd) files were compared to the files provided with the code package. The results of this comparison are available in files *complog.txt* and *compcfd.txt* provided in a compact disc as Attachment III.

The input and output files for ARCON96 calculations are listed in Attachment II and contained on a compact disc as Attachment III of this calculation.

There are two Software Problem Reports (SPR) issued for ARCON96, SPR026820040902 (Reference 2.2.5) and SPR011020070607 (Reference 2.2.7).

SPR026820040902 indicates that in some occasions the cfd file may be scaled incorrectly by a factor of 10 for time intervals greater than 8 hours. A review of the cfd files provided in Attachment III indicates that this condition is present in 75 of the 852 cases run in this calculation. The method used to handle this error is discussed in Section 6.3.2

SPR011020070607 concerns a discrepancy found in test case 6 of the validation tests. As discussed in the SPR this is only a discrepancy in the input file, that, when corrected provides correct results. Therefore, there are no impacts to this calculation.

4.2.2 Commercial Off-the-Shelf Software

Microsoft® Excel software was used for performing calculations. The use of Microsoft® EXCEL 2000 is classified as Level 2 software usage per procedure IT-PRO-0011, *Software Management* (Reference 2.1.3 Attachment 12) and is not required to be qualified in accordance with procedure IT-PRO-0011. Details of the software are given below:

Title: Excel
Version/Revision Number: Microsoft® Excel 2003, SP-2
This version is installed on a Dell Optiplex GX620 personal computer running Microsoft® Windows XP with CPU number YMP004480.

User-defined formulas, input, and results are documented in sufficient detail in Section 6 to allow an independent checker to reproduce or verify the results without recourse to the originator. This information was verified by checks using hand calculations.

The Excel files used to perform the calculations are included in Attachment III (Attachment II gives the file information for Attachment III).

4.3 BACKGROUND

4.3.1 Atmospheric Dispersion Factors

The χ/Q is the time averaged normalized contaminant concentration in air at the receptor. It represents the dilution of an airborne contaminant from atmospheric mixing and turbulence based on the atmospheric conditions, the relative configuration of the release point and the receptor, and the distance from the release point to the receptor of interest. The χ/Q is the ratio of the average contaminant concentration in air at the receptor to the contaminant release rate at the release point. Values of 95^{th} percentile χ/Q are calculated using ARCON96, sponsored by the U.S. Nuclear Regulatory Commission (NRC) (Reference 2.2.25). This computer code has been baselined in accordance with IT-PRO-0011 (Reference 2.1.3).

4.3.2 ARCON96 Model

ARCON96 was developed by Pacific Northwest National Laboratory for the U.S. Nuclear Regulatory Commission to calculate χ/Q values in plumes for nuclear power plants at control room air intakes in the vicinity of the release point (Reference 2.2.25). ARCON96 implements a straight-line Gaussian dispersion model with dispersion coefficients that are modified to account

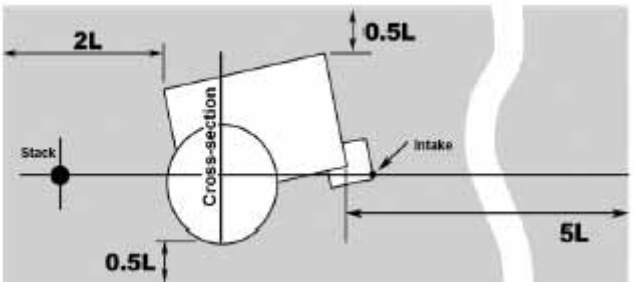
for low wind meander and building wake effects. The code calculates normalized concentrations (χ/Q) using hourly meteorological data. These hourly values are averaged to form χ/Qs for various time periods ranging from 2 hours to a much longer duration. The calculated values for each period are then used to form cumulative frequency distributions (CFDs).

ARCON96 takes into account the variations in the location of release points and plume dispersion due to building wakes and plume meander under low wind speed conditions. For each receptor of interest, a CFD of χ/Q is constructed by the code for various release time periods (e.g., 2-hour, 4-hour, 8-hour, and 12-hour, or longer time periods). The 8,760-hour probabilistic χ/Q distribution may be used to determine the annual mean and median (50^{th} percentile weather probability) χ/Q values for the receptor of interest. The 95^{th} percentile χ/Q values of 0 to 2 hour may be used to assess conservatively the potential consequences under event sequences.

4.4 CALCULATION METHODOLOGY

4.4.1 Building Area

ARCON96 uses a building vertical cross-sectional area perpendicular to the wind direction to determine building-wake effects (Reference 2.2.25, Table A-2). The building areas of the surface facilities are based on the dimensions of building section drawings (References 2.2.10 through 2.2.18). For considering the building wake, the receptor must be located within the influence zone of the stack as shown in Figure 1. The characteristic length (L) is taken has the height or width, whichever is less, of the building cross-section perpendicular to the wind.



Source: Reference 2.2.25, Figure 1.

Figure 1. Zone of Influence for Stacks

The north and east cross-sectional area based on the plant coordinate system is calculated from the building section drawings (References 2.2.10 through 2.2.18). The calculation of the cross-sectional area for the direction from the release to the receptor is illustrated in Figure 2. The areas are calculated using the following expression:

$$A_{Dir} = A_N \cos\theta + A_E \sin\theta \qquad \textbf{Equation 1}$$

Where A_N is the north cross-sectional area, A_E is the east cross-sectional area and θ is the angle from the north to the receptor.

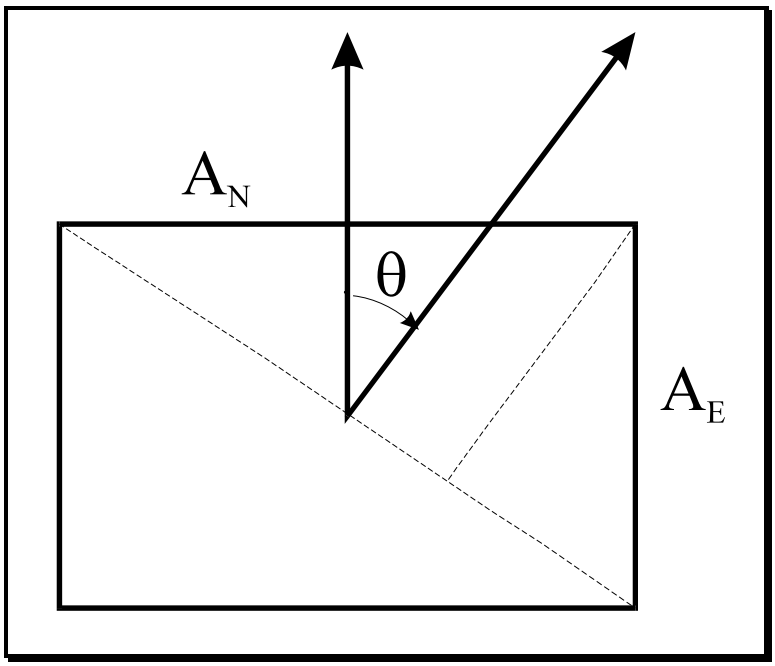


Figure 2. Area Calculation Diagram

ARCON96 requires a non-zero building cross-sectional area. Therefore, for the cases where no building wake effect is considered, such as releases from the subsurface facilities a nominal value of 0.01 m^2 is used (Reference 2.2.25, Table A-2).

The calculation of the north and east cross-sectional areas is presented in Section 6.2.1.

4.4.2 Area Source Modeling for Aging Pads

NRC Regulatory Guide 1.194 (Reference 2.2.25), Section 3.2.4.7, states that the application of the diffuse area source model to determine χ/Q values for multiple (i.e., 3 or more) roof vents is:

> "…appropriate for configurations in which (1) the vents are in close arrangement, (2) no individual vent is significantly closer to the control room intake than the center of the area source, (3) the release rate from each vent is approximately the same, and (4) no credit is taken for plume rise."

These conditions are met by the canisters in aging overpacks located on aging pads 17P and 17R. As shown on the general arrangement drawings (References 2.2.19 and 2.2.20) the canisters are closely arranged, thus satisfying condition (1). No individual canister is significantly closer to any of the receptor locations; therefore, condition (2) is satisfied. Per assumption 3.2.5, the exit velocity is assumed to be zero; therefore, conditions (3) and (4) are satisfied.

A review of the general arrangement drawings (References 2.2.19 and 2.2.20) shows that the aging pads can be logically divided into four distinct areas. Aging pad 17P can be divided into a north and a south section. The north section (17PN) consists of aging sub pads A through C. The south section (17PS) consists of aging sub pads D through G. Aging pad 17R can be divided into

an east and a west section. The east section (17RE) consists of aging sup pads F through K. The west section (17PW) consists of aging sub pads A through E.

ARCON96 uses two initial diffusion coefficients, lateral σ_{y0} and vertical σ_{z0}, to represent the area source (Reference 2.2.24, pp. 36 and 37). To model area sources for aging pads, area-equivalent circular sources with the same center are used.

The initial lateral diffusion coefficient σ_{y0} is estimated by using Equation 2 of ARCON96 code manual (Reference 2.2.24, p. 37):

$$\sigma_{y0} = r_A/2.15 \qquad \textbf{Equation 2}$$

Where r_A is the radius of a circle whose area is equal to the aging pad area.

The calculation of the area source and location of the center of each aging pad area source is presented in Section 6.2.2.

4.4.3 Conversion of Nevada State Plane Coordinates to Plant Coordinates

In this calculation all locations are presented in the plant coordinate system. The plant coordinate system base point is the North Portal, which is designated as 20,000 ft North and 20,000 ft East in the plant coordinate system and 765,352.70 ft North and 569,814.37 ft East in the Nevada State Plane coordinate system (Reference 2.2.9). The location of the subsurface ventilation intake and exhaust shafts are provided in the Nevada State Plane coordinate system.

Figure 3 shows the location of a point (Xnv, Ynv) in the Nevada State Plane coordinate system that will be converted to the plant coordinate system. The following procedure is used to convert these coordinates to the plant coordinate system.

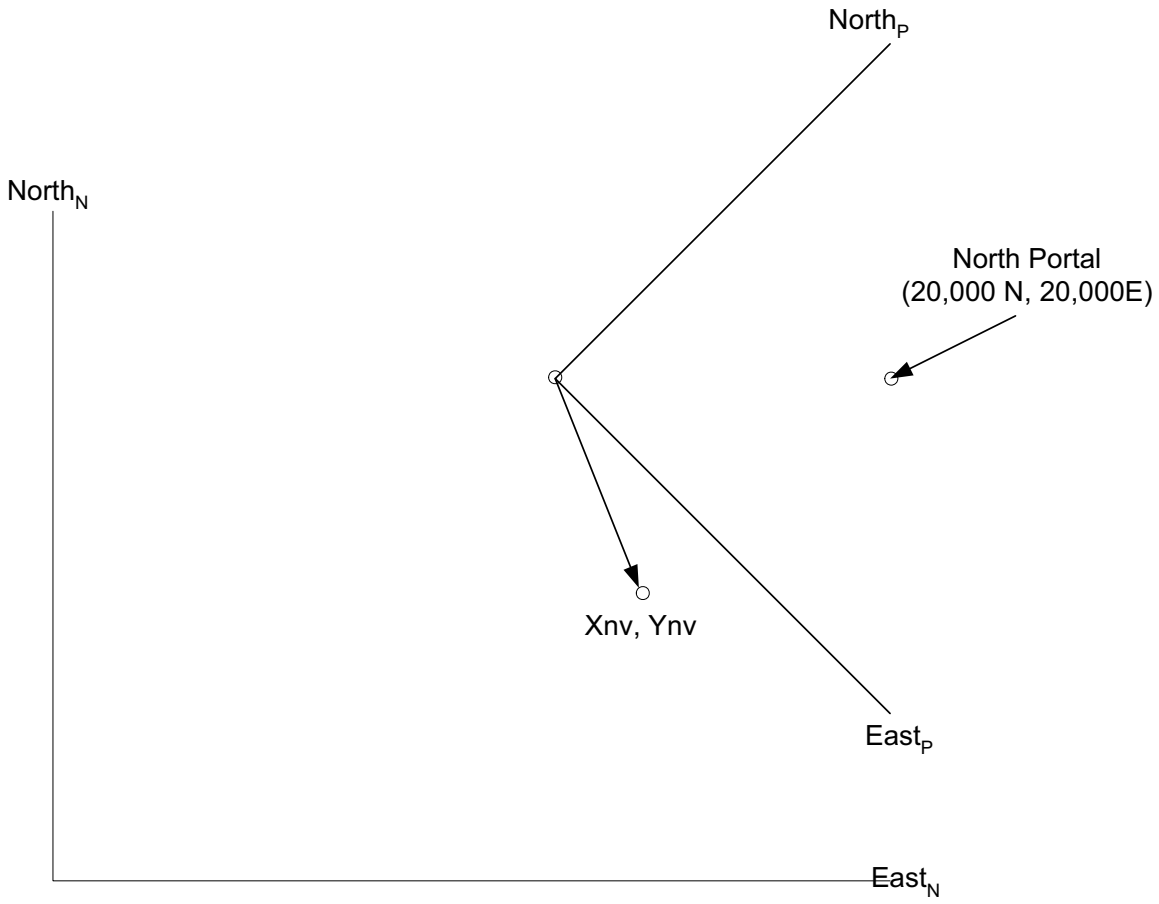


Figure 3. Coordinate System Conversion Example

1. The origin of the plant coordinate system is determined. Plant north is 45º from true north. The north plant origin is the same as the north portal north coordinate in the Nevada State Plane coordinate system (765,352.70 ft North). The east plant origin is calculated as:

$$East_{0P} = E_{NV} - \sqrt[2]{N_{YMP}^2 + E_{YMP}^2} \qquad \textbf{Equation 3}$$

Where:

E_{NV} = North Portal east coordinate in Nevada State Plane coordinate system (569,814.37 ft East)

N_{YMP} = North Portal north coordinate in plant coordinate system (20,000 ft North)

E_{YMP} = North Portal east coordinate in plant coordinate system (20,000 ft East)

The east plant origin is calculated to be 541,530.10 ft East.

2. The distance from the plant origin to the point Xnv, Ynv is calculated using the following expression:

$$Dist = \sqrt{\left(Xnv - East_{0P}\right)^2 - \left(Ynv - North_{0P}\right)^2} \qquad \textbf{Equation 4}$$

3. The direction with respect to the Nevada State Plane coordinate system east-west axis is calculated using the following expression:

$$\theta = \tan^{-1}\left(\frac{Ynv - North_{0P}}{Xnv - East_{0P}}\right) \qquad \textbf{Equation 5}$$

4. The direction with respect to north is calculated as follows:

$$\theta_N = \left(270 - \theta\right) - 360 \times \text{int}\left(\frac{270 - \theta}{360}\right) \qquad \textbf{Equation 6}$$

5. The direction with respect to plant north is calculated as follows:

$$\theta_{PN} = \theta_N - 45 \qquad \textbf{Equation 7}$$

6. The east and west plant coordinates for point Xnv, Ynv is calculated as follows:

$$X_P = Dist \times \sin\theta_{PN}$$
$$Y_p = Dist \times \cos\theta_{PN} \qquad \textbf{Equation 8}$$

4.4.4 Calculation of Median and Average χ/Q

ARCON96 is a directionally-dependent code; it computes χ/Qs only when the wind direction is within a (default) 90º window centered on the intake-to-source direction. ARCON96 determines 95th percentile χ/Q values but not 50th percentile (median) χ/Q values. Thus, 50th percentile χ/Qs must be determined outside the code. The following discussion describes the development of the methodology that is used to calculate 50th percentile χ/Qs.

One of the output files generated by the ARCON96 code is a cumulative frequency distribution (CFD). The CFD lists the number of hours that a certain χ/Q value has been exceeded for each of the averaging periods. The median χ/Q is calculated from the ARCON96 CFD output based on the accumulated number of hours for which valid χ/Q data exist. Thus, for example, the median annual χ/Q is that χ/Q that is not exceeded for 21,587 hours out of an accumulated 43,174 valid hours. The median χ/Q value, which is determined by linear interpolation between the two nearest values in the CFD data that bound the number of hours exceeded, i.e. 21,587 hours, as shown below.

$$\frac{\tilde{\chi}}{Q} = \frac{\chi}{Q_{lower}} + \frac{\frac{\chi}{Q_{lower}} - \frac{\chi}{Q_{upper}}}{Hours_{lower} - Hours_{upper}} \times (Hours_{median} - Hours_{lower}) \quad \textbf{Equation 9}$$

where:

$Hours_{median}$ is the hours exceeded corresponding to the 50th percentile χ/Q
$Hours_{lower}$ is the nearest hours exceeded less than $Hours_{median}$
$Hours_{upper}$ is the nearest hours exceeded greater than $Hours_{median}$
$\frac{\chi}{Q_{lower}}$ is the χ/Q value for $Hours_{lower}$
$\frac{\chi}{Q_{upper}}$ is the χ/Q value for $Hours_{upper}$
$\frac{\tilde{\chi}}{Q}$ is the median χ/Q for the averaging period

The mean χ/Q is calculated as follows:

$$\frac{\bar{\chi}}{Q} = \frac{\sum_{i=1}^{n} \frac{\chi}{Q_i} \times \Delta H_i}{Hours_{total}} \quad \textbf{Equation 10}$$

where:

$\frac{\bar{\chi}}{Q}$ is the mean χ/Q
$Hours_{total}$ is the number of valid hours
ΔH_i is the number of hours from the CFD file between χ/Q_{i-1} and χ/Q_i

5 LIST OF ATTACHMENTS

		Number of Pages
Attachment I.	VENTILATION DESIGN PARAMETERS OF GROA FACILITIES	2
Attachment II.	ELECTRONIC FILES ON ATTACHED CD	50
Attachment III.	One compact disk (CD) containing the Excel spreadsheet and ARCON96 input and output files.	1 CD-ROM

6 BODY OF CALCULATION

In this calculation, there are 852 ARCON96 runs: 16 surface releases with 51 receptors and six subsurface releases with six receptors. Each run is a dispersion calculation for a release-receptor scenario. The design inputs are presented in Section 6.1. Calculated parameters are determined in Section 6.2.

6.1 DESIGN INPUTS

This section discusses various design parameters used to prepare inputs to the ARCON96 calculation.

6.1.1 Receptor Locations

A receptor of interest in this calculation is either at a location near an intake of a facility or a location where an onsite worker may be potentially exposed to the contaminated air effluent. In addition to the waste handling facilities (Assumption 3.1.2), other facilities and locations are considered as receptor locations. The plant coordinates and elevations are obtained from the North Portal Site Plan (Reference 2.2.9) and presented in Table 3.

Table 3. Receptor Locations

Facility	Receptor Code[a]	Facility Description	Height Relative to Grade[b] (ft)	Plant North (ft)	Plant East (ft)	Grade Elevation (ft)
HEMF	220	Heavy Equipment Maintenance Facility	10.00	19,449.00	21,016.00	3,680.20
CCCF	240	Central Communication Control Facility	10.00	19,890.00	21,825.00	3,659.00
WNNRF	230	Warehouse and Non-Nuclear Receipt Facility	10.00	19,825.00	22,263.00	3,650.00
UF	25A	Utilities Facility	10.00	21,500.00	22,312.00	3,620.00
AF	620	Administration Facility	10.00	22,178.00	22,277.00	3,625.00
CS	71A	Craft Shops	10.00	22,883.00	22,142.00	3,632.00
	30A	Central Security Station	10.00	21,312.00	21,870.00	3,630.00
	30B	Cask Receipt Security Station	10.00	18,375.00	25,000.00	3,659.00
	30C	North Perimeter Security Station	10.00	20,645.00	23,557.00	3,690.00
	27A	Switchyard	0.00	18,000.00	22,850.00	3,712.00
	780	Lower Muck Yard	0.00	20,000.00	23,625.00	3,624.00
	33A	Rail Buffer Area	0.00	19,062.00	22,875.00	3,660.00
	33B	Truck Buffer Area	0.00	18,600.00	23,812.00	3,660.00

Notes: [a] The receptor code is the facility area number
[b] Intake heights are obtained from Assumption 3.1.3

Source: Reference 2.2.9

6.1.2 Subsurface Intake and Exhaust Locations

The location of the subsurface facilities ventilation intake and exhaust shafts are obtained from the Subsurface Facilities Shaft Locations drawing (Reference 2.2.3). The naming convention for the shafts is taken from Reference 2.2.8 Figures 3 and 4. The location of the North Construction Portal and the South Portal are taken from Reference 2.2.3. The location of the North Portal is taken from Reference 2.2.9. All coordinates are provided in the Nevada State Plane coordinate system. The locations are presented in Table 4. The cited references provide the best available information and are suitable for use in this calculation.

Table 4. Subsurface Facilities Exhaust and Intake Locations

Facility	Release or Receptor Code	Description	North Coordinate[a] (ft)	East Coordinate[a] (ft)	Elevation[a] (ft)
ES	ES1	Exhaust Shaft 1 (Formerly Exhaust Raise 1)[c]	767,748	560,005	4,708.00
	ES2	Exhaust Shaft 2 (Formerly Exhaust Shaft 3)[c]	757,357	559,937	4,593.00
	ES3N	Exhaust Shaft 3N (Formerly Exhaust Shaft 2)[c]	775,360	563,658	4,757.00
	ES3S	Exhaust Shaft 3S (Formerly Exhaust Raise 2)[c]	769,618	563,942	4,396.00
	ES4	Exhaust Shaft 4 (Formerly Exhaust Shaft 1)[c]	770,604	559,368	4,823.00
	ECRB	ECRB Exhaust Shaft[c]	764,531	558,983	4,839.00
IS	IS2	Intake Shaft 2 (Formerly Intake Shaft 3)[c]	765,288	562,081	4,347.00
	IS3	Intake Shaft 3 (Formerly Intake Shaft 2)[c]	773,960	563,667	4,626.00
	IS4	Intake Shaft 4 (Formerly Intake Shaft 1)[c]	769,272	559,582	4,757.00
Portals	NC	North Construction Portal	771,743[b]	568,278[b]	3,891.00[b]
	NP	North Portal	765,352.70	569,814.37	3,683.95
	SP	South Portal	756,608	567,259	3,806.00
Sources:	[a] Reference 2.2.3 [b] Reference 2.2.9 [c] Reference 2.2.8 Figures 3 and 4				

6.1.3 Subsurface Exhaust Ventilation Parameters

The subsurface ventilation parameters are presented in Table 5. The airflow and velocity are obtained from Reference 2.2.8. The shaft cross sectional area is obtained from Reference 2.2.6. The cited references provide the best available information and are suitable for use in this calculation.

Table 5. Subsurface Facilities Exhaust Ventilation Parameters

Facility	Release Code	Description	Airflow[a] (cfm)	Area[b] (ft^2)	Velocity[a] (fpm)
ES	ES1	Exhaust Shaft 1 (Formerly Exhaust Raise 1)	347,000	161.51	2,148
	ES2	Exhaust Shaft 2 (Formerly Exhaust Shaft 3)	717,000	452.39	1,585
	ES3N	Exhaust Shaft 3N (Formerly Exhaust Shaft 2)	832,000	452.39	1,839
	ES3S	Exhaust Shaft 3S (Formerly Exhaust Raise 2)	347,000	161.51	2,148
	ES4	Exhaust Shaft 4 (Formerly Exhaust Shaft 1)	842,000	452.39	1,861
	ECRB	ECRB Exhaust Shaft	817,000	452.39	1,806

Sources: [a] Reference 2.2.8, Table 2
[b] Reference 2.2.6, Table 1

6.1.4 Meteorological Data

Meteorological input data used to run ARCON96 is based on the onsite meteorological measurements made over the period from January 1, 2001 through December 31, 2005 at Air Quality and Meteorology Monitoring Site 1, a 60-m tower located approximately 1 km south–southwest of the North Portal (Reference 2.2.21, Section 6.1.2). The meteorological input file is named as *ymp0105x.met* in this calculation for the entire meteorological records over the period of 2001 to 2005 (Reference 2.2.21, Attachment I, file *ymp.met*). Two measurement heights, 10 and 60 m, are used in the meteorological input data. The wind speeds are expressed in m/s, which corresponds with wind speed unit type 1 in ARCON96 (Reference 2.2.24, p.102).

6.1.5 Default Values

To evaluate annual average and 95th percentile χ/Q values, 8,760 hr (annual) and 0 to 2 hour are used for hours in averages (Reference 2.2.24, Figure 13). The hours in averages are: 1, 2, 4, 8, 12, 24, 96, 168, 720, and 8,760. The recommended averaging sector width constant is 4.3 per Regulatory Guide 1.194 (Reference 2.2.25, Table A-2).

All other parameters of default values directly use the system defaults of ARCON96 averages (Reference 2.2.24, Figure 13). They are:

Surface Roughness Length (m) = 0.1
Minimum Wind Speed (m/s) = 0.5
Minimum Number of Hours = 1 2 4 8 11 22 87 152 324 648

6.2 PARAMETER CALCULATIONS

The parameters required to run the ARCON96 code that are not direct inputs are calculated using spreadsheet *GROA XQ Calculation.xls*. The calculations performed in the spreadsheet are described in the following subsections.

6.2.1 Building Cross-Sectional Area

The building cross-sectional area for the waste handling facilities is determined in worksheet *Building Cross-Sectional Area* of spreadsheet *GROA XQ Calculation.xls.* The dimensions used

in the calculation are obtained from the building section drawings (References 2.2.10 to 2.2.18). Conservatively, only the main structure of each facility is considered. Building extensions and entryways are not considered. The cited references provide the best available information and are suitable for use in this calculation.

Table 6. Building Cross-Sectional Areas

Facility	North Building Area (m^2)	East Building Area (m^2)
CRCF-1	2,273.85	2,726.33
CRCF-2	2,273.85	2,726.33
CRCF-3	2,273.85	2,726.33
RF	1,593.29	1,673.65
WHF	2,208.58	1,669.00
IHF	1,428.99	1,827.94
LLWF	1,782.10	973.14

Source: Worksheet *Building Cross-Sectional Area* of spreadsheet *GROA XQ Calculation.xls*

6.2.2 Area Source Modeling for Aging Pads

The aging pad areas and center point locations are calculated in worksheet *Aging Pads* of spreadsheet *GROA XQ Calculation.xls.* The dimensions are obtained from the general arrangement drawings (References 2.2.19 and 2.2.20). As discussed in Section 4.4.2, the aging pads are divided into four distinct areas. The calculation for aging pad 17RE, described in the following paragraphs also applies for the other aging pads.

The north-south length in feet, obtained from Reference 2.2.20, is presented in cell D3 and converted to meters in cell D4. The east-west length in feet, obtained from Reference 2.2.20, is presented in cell D5 and converted to meters in cell D6. The area in meters is calculated in cell D7.

The center point coordinates relative to the southeast point of the aging pad are one-half of the length and width. These coordinates are shown in cells D8 (north) and E8 (east). The distance from the south east point to the center point is calculated in cell D9. The angle from true north is calculated using the following equation in cell D10:

$$\theta = 90 - \tan^{-1}\left(\frac{Cell\ D8}{Cell\ E8}\right)$$

The Excel function ATAN gives the angle in radians. The Excel function DEGREES is used to convert the results to degrees.

The angle from plant north is calculated by subtracting 45º from the angle calculated in cell D10 as shown in cell D11.

The offset in plant coordinates from the south west point is calculated in cells D12 for the north direction and cell E12 for the east direction using the distance calculated in cell D9 as follows:

$$North = Dist \times \cos(Cell\ D11)$$
$$East = Dist \times \sin(Cell\ D11)$$

The Excel functions COS and SIN use angles in radians. The Excel function RADIANS is used to convert the input angle from degrees to radians.

The control point for sub-pad K obtained from Reference 2.2.20 is shown in cells D13 and E13 for the north and east direction, respectively. The north-south dimension of sub-pad K from Reference 2.2.20 is shown in cells D14.

The south-west point coordinates in the plant coordinate system is calculated in cells D15 and E15 using the following expressions:

$$North = -Cell\ D14 \times \cos(45) + Cell\ D13$$
$$East = Cell\ D14 \times \cos(45) + Cell\ E13$$

The center point coordinates are calculated by adding the south-west point coordinates with the offset in plant coordinates for the center point (row 12). The results are shown in cells D16 and E16 for the north and east direction, respectively.

The area and coordinates of the other aging pads are calculated using the same methodology discussed above. The results are summarized in Table 7.

Table 7. Aging Pad Area and Coordinates

Aging Pad	Plant Coordinates (ft)		Area (m^2)
	North	East	
17RE	23,776.47	19,063.23	50,028.29
17RW	23,217.67	18,501.03	50,028.29
17PN	24,952.88	17,400.83	30,684.02
17PS	24,635.35	17,938.97	60,571.85

Source: Worksheet *Aging Pads* of spreadsheet *GROA XQ Calculation.xls*

6.2.3 Release Point Parameters

The exhaust point parameters are presented in worksheet *Exhaust* of spreadsheet *GROA XQ Calculation.xls.*

Waste Handling Facilities – Rows 3 through 14 present the parameters for the waste handling facilities from Assumption 3.1.1. These parameters are presented in columns D through K. The height relative to grade in column I is calculated by subtracting the grade elevation from column N from the duct elevation in column H. This is used as the release height (Assumption 3.2.3).

The facility control point coordinates obtained from Reference 2.2.9 are presented in columns L through N. The stack flow rate is converted from cfm to m^3/s in column O. The minimum stack velocity (Assumption 3.2.4) is converted from fpm to m/s in column P. The stack radius is calculated in column Q. The north and east building cross-sectional areas (see Table 6) calculated in worksheet *Building Cross-Sectional Area* are presented in columns R and S. For these facilities the releases are vent releases (Assumption 3.2.1); therefore, the initial dispersion parameters σ_{y0} and σ_{z0} are set to zero in columns T and U. Columns V through Z are not used for these facilities.

Per Assumption 3.2.2 CRCF 2 and CRCF 3 are the same as CRCF 1, with the exception of the location of the facilities. Therefore, the exhaust duct coordinates for CRCF 2 and CRCF 3 are determined from the facility control point locations. The duct elevation in cells H5 through H8 and the north and east coordinates in cells J5 through K8 are adjusted using the parameters in cells L3 through N8.

Aging Pads – Rows 15 through 18 present the parameters for the aging pads. Per Assumption 3.2.5, the exit velocity from the aging pads is zero; therefore, no values are entered in cells D15 through G18. The grade elevations of the aging pads presented in cells N15 through N18 are obtained from References 2.2.19 and 2.2.20. Since the elevations vary slightly for each of the sub pads, an average elevation is used. Since the release is ground level (Assumption 3.2.1) the exhaust elevation in cells H15 through H18 is set to the grade elevation. The plant coordinates in cells J15 through K18 are obtained from worksheet *Aging Pads*. Columns O through Q are the same as for the waste handling facilities described above. As discussed in Section 4.4.1 a nominal value of 0.01 m^2 for building area is used for the no building wake cases as shown in cells R15 through S18. The initial lateral diffusion coefficient σ_{y0} is calculated using Equation 2 in cells T15 through T18. The initial vertical diffusion coefficient σ_{z0} is set to 2.5 m per Assumption 3.2.6. Columns V through Z are not used for the aging pads.

Subsurface Exhaust Shafts – Rows 19 through 24 present the parameters for the subsurface exhaust shafts. The flow rate from Table 5 (Design Input 6.1.3) is presented in cells D19 through D24. The air velocity from Table 5 is presented in cells E19 through E24. The exhaust shaft area from Table 5 is presented in cells G19 through G24. The exhaust diameter in cells F19 through F24 is calculated from the exhaust shaft areas. The grade elevations of the exhaust shafts presented in cells N19 through N24 are obtained from Table 4 (Design Input 6.1.2). Since the release is ground level (Assumption 3.2.1) the exhaust elevation in cells H19 through H24 is set to the grade elevation. Columns O through Q are the same as for the waste handling facilities described above. As discussed in Section 4.4.1 a nominal value of 0.01 m^2 for building area is used for the no building wake cases as shown in cells R19 through S24. For the exhaust shafts the releases are ground level releases (Assumption 3.2.1); therefore, the initial dispersion parameters σ_{y0} and σ_{z0} are set to zero in columns T and U. The coordinates in the Nevada State Plane coordinate system from Table 4 are presented in cells V18 through W24. The direction with respect to north in cells X18 through X24 is calculated using Equation 6. The direction with respect to plant north in cells Y18 through Y24 is calculated using Equation 7. The distance in cells Z18 through Z24 is calculated using Equation 4. The location of the exhaust shafts in the plant coordinate system is calculated in cells J18 through K24 using Equation 8.

6.2.4 Receptor Parameters

The receptor parameters are presented in worksheet *Intake* of spreadsheet *GROA XQ Calculation.xls*.

Waste Handling Facilities – Rows 3 through 30 present the parameters for the waste handling facilities from Assumption 3.1.2. These parameters are presented in columns D through I. The height relative to grade in column G is calculated by subtracting the grade elevation from column L from the duct elevation in column F. The facility control point coordinates obtained from Reference 2.2.9 are presented in columns J through L. Columns M through Q are not used for these facilities.

Per Assumption 3.2.2 CRCF 2 and CRCF 3 are the same as CRCF 1, with the exception of the location of the facilities. Therefore, the intake duct coordinates for CRCF 2 and CRCF 3 are determined from the facility control point locations. The duct elevation in column F, the north and east coordinates in columns H and I are adjusted using the parameters in columns J, K, and L.

Aging Pads – Rows 31 through 34 present the parameters for the aging pads. The grade elevations of the aging pads presented in cells L31 through L34 are obtained from References 2.2.19 and 2.2.20. Since the elevations vary slightly for each of the sub pads, an average elevation is used. A receptor at the aging pads is not in a facility with HVAC, therefore the intake elevation in cells F31 through F34 is set to the grade elevation. The plant coordinates in cells H31 through H34 are obtained from worksheet *Exhaust*. Columns M through Q are not used for the aging pads.

Subsurface Intake Shafts and Portals – Rows 35 through 40 present the parameters for the subsurface exhaust shafts. The grade elevations of the intake shafts and portals presented in cells L35 through L40 are obtained from Table 4 (Design Input 6.1.2). Since the intake location is at ground level elevation in cells F35 through F40 is set to the grade elevation. The coordinates in the Nevada State Plane coordinate system from Table 4 are presented in cells M35 through N40. The direction with respect to north in cells O35 through O40 is calculated using Equation 6. The direction with respect to plant north in cells P35 through P40 is calculated using Equation 7. The distance in cells Q35 through Q40 is calculated using Equation 4. The location of the exhaust shafts in the plant coordinate system is calculated in cells H35 through I40 using Equation 8.

Other GROA Facilities – Rows 41 through 53 present the parameters for other GROA facilities that may have workers present. The locations in plant coordinates and the grade elevation presented in columns H, I, and L are scaled from Reference 2.2.9. Per Assumption 3.1.3, the intake elevation for the facilities in column G is set to 10 feet. For receptors in the yards the intake elevation is set to zero.

6.2.5 Source to Receptor Parameters

The 16 surface release points and 6 subsurface release points discussed in Section 6.2.3 and the 51 receptor points discussed in Section 6.2.4 are combined into 852 different source to receptor scenarios (16 surface release points × 51 receptors + 6 subsurface release points × 6 receptors [5

subsurface receptors and 1 surface receptor per Assumption 3.2.7]). This is performed in worksheet *Source Receptor Distance* of spreadsheet *GROA XQ Calculation.xls*. This worksheet is described in the following paragraphs.

Column A presents the row number of the source in worksheet *Exhaust*. Column B presents the row number of the receptor in worksheet *Intake*. These values are used with the Excel functions ADDRESS and INDIRECT to obtain values for the different parameters from these two worksheets.

The source codes from worksheet *Exhaust* are presented in column C and the receptor codes from worksheet *Intake* are presented in column D. For example, cell D14 presents receptor code "080b" which is obtained from column 2 and row 14 of worksheet *Intake.*

The source locations from worksheet *Exhaust* are presented in columns E through G and the receptor locations from worksheet *Intake* are presented in columns H through J. The distance from the source to the receptor is calculated in column K in feet and converted to meters in column L. For example, the distance from source "060a" to receptor "070b" is calculated. Source "060a" is located at 21,319 ft north and 21,027 ft east. Receptor "070b" is located at 22,360 ft north and 21,081 ft east. The distance is then:

$$Dist = \sqrt{(21{,}319 - 22{,}360)^2 + (21{,}027 - 21{,}081)^2} = 1{,}042.40\ ft$$

This value is shown in cell K9.

The location of the source and the receptor for the aging pads is the same; therefore, using the above equation would result in a distance of zero feet. ARCON96 requires a non-zero distance; therefore, if the receptor is the same as the source for the aging pads, a value of 1 feet is entered. For example, this is shown in cells K643.

The direction from the source to the receptor is calculated in column M with respect to the plant coordinate system, in column N with respect to true north, and column O with respect to the ARCON96 convention (Reference 2.2.24, p. 16). This calculation is performed using the Excel functions MOD, ATAN2 and DEGREES. Function ATAN2 gives results in radians, which are converted to degrees using the function DEGREES. The angle calculated by ATAN2 is with respect the X axis (east-west); therefore, the function MOD is used to determine the remainder of the following expression:

$$\frac{Offset - \theta}{360}$$

Offset is 90º for plant north, 135º for true north, and 315º for the ARCON96 convention; θ is the angle calculated using the ATAN2 function. For example, the angle from source "060a" to receptor "070b" is calculated. Source "060a" is located at 21,319 ft north and 21,027 ft east. Receptor "070b" is located at 22,360 ft north and 21,081 ft east. The angle from the east-west axis is calculated as:

$$\theta = \tan^{-1}\left(\frac{21{,}319 - 22{,}360}{21{,}027 - 21{,}081}\right) = 87.03\,\text{deg}.$$

The angle from plant north is then 90º – 87.03º = 2.97º, the angle from true north is then 2.97º + 45º = 47.97º, and the angle in the ARCON96 convention is 47.97º + 180º = 227.97º. These values are shown in cells M9, N9, and O9, respectively.

The location of the source and the receptor for the aging pads is the same; therefore, using the above methodology would result in a error for calculating the direction. Therefore, if the receptor is the same as the source for the aging pads, a value of 360 is entered in column M, a value of 45 is entered in column N, and a value of 135 is entered in column O. This is shown in cells M643 through O643.

The elevation difference between the source and the receptor is calculated in feet in column P and converted to meters in column Q.

The cross-sectional area is calculated in column R using Equation 1. For example, the cross-sectional area from source "060a" to receptor "070b" is calculated. From Table 6, the cross-sectional area for CRCF 1 (060) is 2,273.85 m^2 north and 2,726.33 m^2 east. The angle from plant north was calculated previously as 2.97º. The cross-sectional area is then:

$$\begin{aligned} A_{Dir} &= A_N \cos\theta + A_E \sin\theta \\ &= 2{,}273.85 \times \cos 2.97 + 2{,}726.33 \times \sin 2.97 \\ &= 2{,}270.80 + 141.23 \\ &= 2{,}412.03\,m^2 \end{aligned}$$

This value is shown in cell R9.

The stack flow, exit velocity, and radius are extracted from worksheet *Exhaust* and presented in columns S through U. The initial dispersion parameters are extracted from worksheet *Exhaust* and presented in columns V and W.

The release type per Assumption 3.2.1 is vent release for the waste handling facilities (release type = 2) and ground level for the aging pads and subsurface exhausts (release type = 1). This is presented in column X.

6.2.6 ARCON96 Input Parameter Values

Table 8 summarizes the input parameters used to execute ARCON96. All the input values are documented in the worksheet *ARCON96 Input* of the attached spreadsheet *GROA XQ Calculation.xls*. Column A contains the name of the case. This name is made by concatenating the source code with the receptor code. This name is then used to determine the input, output, and cfd file names presented in columns B, C, and D, respectively. The parameters required to run ARCON96 are imported from worksheet Source Receptor Distance and presented in columns E through O.

Table 8. Summary of Input Parameter Values to Run ARCON96

Input Parameter	Value	Source
Number of Met Data Files	1	Design Input 6.1.4
Name of Met Data File	c:\arcon96\groa\ymp0105x.met	Design Input 6.1.4
Lower Measurement Height (m)	10.0	Design Input 6.1.4
Upper Measurement Height (m)	60.0	Design Input 6.1.4
Wind Speed Type	1	Design Input 6.1.4
Release Type	Column O	Worksheet *ARCON96 Input*
Release Height (m)	Column E	Worksheet *ARCON96 Input*
Building Area (m^2)	Column F	Worksheet *ARCON96 Input*
Exit Vertical Velocity (m/s)	Column G	Worksheet *ARCON96 Input*
Effluent Flow (m^3/s)	Column H	Worksheet *ARCON96 Input*
Stack Radius (m)	Column I	Worksheet *ARCON96 Input*
Distance to Receptor (m)	Column K	Worksheet *ARCON96 Input*
Intake Height (m)	Column L	Worksheet *ARCON96 Input*
Terrain Elevation Difference (m)	Column M	Worksheet *ARCON96 Input*
Direction to Source (degree)	Column J	Worksheet *ARCON96 Input*
Primary output file name	Column C	Worksheet *ARCON96 Input*
CFD output file name	Column D	Worksheet *ARCON96 Input*
Expanded Output file	N	Default of ARCON96
Surface Roughness Length (m)	0.1	Default, Design Input 6.1.5
Minimum Wind Speed (m/s)	0.5	Default, Design Input 6.1.5
Averaging Sector Width Constant	4.3	Default, Design Input 6.1.5
σ_{y0}(m)	Column N	Worksheet *ARCON96 Input*
σ_{z0} (m)	Column N	Worksheet *ARCON96 Input*
Hours in Averages	1 2 4 8 12 24 96 168 720 8760	Section Design Input 6.1.5
Minimum Number of Hours	1 2 4 8 11 22 87 152 324 648	Default, Design Input 6.1.5

6.3 CALCULATION OF RESULTS

The results of the 852 ARCON96 runs are imported into the *GROA XQ Calculation.xls* spreadsheet from the .log and .cfd files. The 95th percentile χ/Qs are imported for summary purposes only, no further processing is performed. The results from the .cfd files are processed to determine the annual average χ/Q values. The various worksheets used are discussed in the following subsections.

6.3.1 Worksheet *95Percentile*

This worksheet presents the 0 to 2-hour 95th percentile χ/Q values obtained from the output (.log) files. One χ/Q value for each of the 852 source-to-receptor combinations is presented.

6.3.2 Worksheet *Annual*

This worksheet imports the 8760 averaging period cumulative frequency distributions. Three rows are imported for each combination of source-to-receptor. The first row consists of the χ/Q

values (6th row of the .cfd file). The second row consists of the cumulative hours recorded for each χ/Q value (12th row of the .cfd file). The third row consists of the hours recorded from the previous χ/Q value to the current χ/Q value.

The average χ/Q value is calculated in column C using Equation 10. For example, for source "60a" to receptor "60a" hours are recorded for χ/Q values between 6.92×10^{-6} and 1.32×10^{-6} as shown below.

χ/Q (s/m³)	Cumulative Hours	ΔHours	Product χ/Q × ΔHours
6.92E-06	1,226	1,226	8.48E-03
6.31E-06	9,921	8,695	5.49E-02
5.75E-06	23,285	13,364	7.69E-02
5.25E-06	40,071	16,786	8.81E-02
4.79E-06	40,260	189	9.05E-04
4.37E-06	40,638	378	1.65E-03
3.98E-06	40,806	168	6.69E-04
3.63E-06	40,871	65	2.36E-04
3.31E-06	40,978	107	3.54E-04
3.02E-06	41,555	577	1.74E-03
2.75E-06	41,666	111	3.06E-04
2.51E-06	41,805	139	3.49E-04
2.29E-06	41,868	63	1.44E-04
2.09E-06	41,934	66	1.38E-04
1.91E-06	42,329	395	7.52E-04
1.74E-06	42,971	642	1.12E-03
1.59E-06	43,005	34	5.39E-05
1.45E-06	43,121	116	1.68E-04
1.32E-06	43,174	53	6.99E-05
		Total:	2.37E-01

The average is then the total product divided by the maximum number of hours, $0.237 \div 43{,}174 = 5.49 \times 10^{-6}$ s/m³. This value is shown in cell C3.

The median χ/Q value is calculated in column D using information presented in columns DC through DI. Using the previous example, there are a total of 43,174 hours. The 50th percentile number of hours is then 21,587 hours. From above, this value falls between 9,921 and 23,285 hours. The χ/Q values associated with these hours are 6.31×10^{-6} and 5.75×10^{-6}. Using a linear interpolation, the resultant median χ/Q value is:

$$\frac{\chi}{Q_{50}} = 6.31\times10^{-6} + \left(5.75\times10^{-6} - 6.31\times10^{-6}\right)\times\frac{21{,}587 - 9{,}921}{23{,}285 - 9{,}921}$$
$$= 5.82\times10^{-6}\, s/m^3$$

This value is shown in cell D3.

As discussed in Section 4.2.1, 75 of the 852 runs are scaled incorrectly by a factor of 10 for averaging intervals greater than 8 hr (Reference 2.2.5). The case of source "060a" to receptor "060b" is used to illustrate for the adjustment of CFD output file. Table 9 is a partial listing from file *060a060b.cfd*. Columns 1 and 6 are simply the χ/Q values. It is clear that the CFD over longer averaging intervals should be lower than that over shorter intervals, i.e., lower χ/Q for longer averaging interval. However, Table 9 shows that the CFDs for greater than 12 hours (columns 7 to 12) are higher than those for shorter periods (columns 2 to 5). Therefore, the χ/Q scale (column 6) for the distribution over 12 hours (columns 7 to 12) has to be reduced by a factor of 10. The annual CFD (last column of Table 9) with corrected χ/Q values is shown in worksheet Annual (see rows 6 and 7).

Table 9. Partial Listing of File *060a060b.cfd*

3.020E-04	0.	0.	0.	0.	3.020E-04	160.	0.	0.	0.	0.	0.
2.754E-04	0.	0.	0.	0.	2.754E-04	237.	3.	0.	0.	0.	0.
2.512E-04	0.	0.	0.	0.	2.512E-04	331.	12.	0.	0.	0.	0.
2.291E-04	0.	0.	0.	0.	2.291E-04	456.	22.	0.	0.	0.	0.
2.089E-04	0.	0.	0.	0.	2.089E-04	591.	59.	0.	0.	0.	0.
1.905E-04	0.	0.	0.	0.	1.905E-04	752.	118.	0.	0.	0.	0.
1.738E-04	0.	0.	0.	0.	1.738E-04	914.	190.	0.	0.	0.	0.
1.585E-04	0.	0.	0.	0.	1.585E-04	1110.	293.	0.	0.	0.	0.
1.445E-04	0.	0.	0.	0.	1.445E-04	1316.	411.	0.	0.	0.	0.
1.318E-04	0.	0.	0.	0.	1.318E-04	1577.	560.	0.	0.	0.	0.
1.202E-04	0.	0.	0.	0.	1.202E-04	1863.	765.	0.	0.	0.	0.
1.096E-04	2.	0.	0.	0.	1.096E-04	2100.	946.	0.	0.	0.	0.
1.000E-04	24.	1.	0.	0.	1.000E-04	2324.	1193.	16.	0.	0.	0.
9.120E-05	73.	10.	0.	0.	9.120E-05	2568.	1494.	73.	0.	0.	0.
8.318E-05	155.	33.	4.	0.	8.318E-05	2864.	1771.	171.	0.	0.	0.
7.586E-05	243.	64.	11.	0.	7.586E-05	3280.	2075.	234.	5.	0.	0.
6.918E-05	321.	102.	22.	0.	6.918E-05	3739.	2437.	400.	41.	0.	0.
6.310E-05	384.	125.	43.	5.	6.310E-05	4071.	2855.	599.	56.	0.	0.
5.754E-05	440.	162.	71.	7.	5.754E-05	4361.	3302.	853.	165.	0.	0.
5.248E-05	504.	226.	96.	22.	5.248E-05	4672.	3782.	1134.	331.	0.	0.
4.786E-05	818.	390.	181.	54.	4.786E-05	4956.	4160.	1477.	538.	0.	0.
4.365E-05	1015.	651.	282.	104.	4.365E-05	5305.	4595.	1991.	864.	0.	0.
3.981E-05	1198.	831.	420.	160.	3.981E-05	5878.	5170.	2562.	1270.	0.	0.
3.631E-05	1298.	1027.	567.	232.	3.631E-05	6190.	5708.	3280.	1880.	0.	0.
3.311E-05	1370.	1122.	708.	338.	3.311E-05	6489.	6274.	4168.	2630.	0.	0.
3.020E-05	1420.	1228.	811.	450.	3.020E-05	6697.	6768.	4791.	3261.	7.	0.
2.754E-05	1465.	1302.	926.	609.	2.754E-05	6896.	7174.	5694.	4161.	290.	0.

6.3.3 Worksheet *Summary of Results*

This worksheet summarizes the 95th percentile (0 – 2 hour average) and the average and median (annual average) χ/Q values for each combination of sources and receptors considered in this calculation. The average and median χ/Q values are extracted from the *Annual* worksheet, shown in columns D and E, using the Excel functions INDEX and MATCH. The match is performed using the concatenation of the source receptor codes. The lookup is performed on column DB or the *Annual* worksheet. The maximum of the median and average χ/Q values is presented in column F. The 95th percentile χ/Q values are extracted from worksheet *95Percentile* and presented in column G.

6.3.4 Worksheets *Annual Matrix* and *95 Percentile Matrix*

These two worksheets have the same structure. The *Annual Matrix* worksheet presents the values of column F of the *Summary of Results* worksheet, while the *95 Percentile Matrix* worksheet presents the values of column F of the *Summary of Results* worksheet. The sources are arrayed in columns B through W and the receptors are arrayed in rows 3 through 53. Per Assumption 3.2.7, the North Portal represents the location for all other receptors from subsurface releases.

Therefore, values in cells R3 through W34 and R41 through W53 are set equal to the values in cells R39 through W39.

6.3.5 Worksheets *Maximum Annual* and *Maximum 95 Percentile*

These two worksheets have the same structure. They extract the maximum χ/Q value for each source facility to the receptor facilities. For example, CRCF 1 has two exhaust sources and five intake receptors. The maximum of these ten values is then reported in these worksheets. The *Maximum Annual* worksheet extracts the maximum annual χ/Q values from worksheet *Annual Matrix* and the *Maximum 95 Percentile* worksheet extracts the maximum annual χ/Q values from worksheet *Annual 95 Percentile.*

For the aging pads cases where the release and receptor are the same, the χ/Q value is set to N/A since ARCON96 should not be used to calculate values for distances less than 10 meters.

6.4 RESULTANT ATMOSPHERIC DISPERSION FACTORS

The calculated results of annual mean, annual median, and 95th percentile of 0 to 2 hour dispersion factors (χ/Qs) are summarized in Table 10 to Table 31 for potential releases from normal operations and event sequences from surface and subsurface facilities.

The uncertainty of the calculated dispersion factor (χ/Q) is assessed in ARCON96 by constructing a cumulative probability distribution of the hourly χ/Q values. This cumulative probability distribution is then used to determine the median (50th percentile) χ/Q and the mean (arithmetic average) χ/Q for the locations of interest. For conservatism, the higher value of median and mean χ/Q is included in the last column of the tables as recommended values for consequence analyses. For subsurface release calculations, the χ/Qs calculated for the emplacement ramp may be used conservatively to represent the dispersion factors for all other surface receptors (Assumption 3.2.7).

Table 10. χ/Q Results for CRCF 1 Source "a"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
060a	060a	5.49E-06	5.82E-06	5.82E-06	1.08E-04
060a	060b	1.11E-06	1.12E-06	1.12E-06	1.55E-05
060a	060c	1.16E-06	1.19E-06	1.19E-06	2.01E-05
060a	060d	2.44E-05	2.58E-05	2.58E-05	2.79E-04
060a	060e	1.16E-05	1.25E-05	1.25E-05	2.13E-04
060a	070a	3.94E-06	4.03E-06	4.03E-06	7.87E-05
060a	070b	1.84E-06	1.94E-06	1.94E-06	1.99E-05
060a	070c	2.22E-06	2.34E-06	2.34E-06	2.49E-05
060a	070d	1.36E-06	1.41E-06	1.41E-06	1.73E-05
060a	070e	1.48E-06	1.53E-06	1.53E-06	2.42E-05
060a	080a	3.33E-06	3.39E-06	3.39E-06	7.88E-05
060a	080b	1.87E-06	1.92E-06	1.92E-06	3.43E-05
060a	080c	1.96E-06	2.02E-06	2.02E-06	3.46E-05
060a	080d	1.38E-06	1.41E-06	1.41E-06	2.64E-05
060a	080e	1.62E-06	1.67E-06	1.67E-06	3.21E-05
060a	200a	1.99E-06	2.08E-06	2.08E-06	3.00E-05
060a	200b	2.95E-06	3.10E-06	3.10E-06	3.83E-05
060a	200c	4.48E-06	4.70E-06	4.70E-06	6.35E-05
060a	200d	2.94E-06	3.13E-06	3.13E-06	4.68E-05
060a	050a	1.85E-06	1.93E-06	1.93E-06	2.66E-05
060a	050b	1.89E-06	1.97E-06	1.97E-06	2.72E-05
060a	050c	7.14E-06	7.22E-06	7.22E-06	1.24E-04
060a	050d	6.27E-06	6.29E-06	6.29E-06	1.16E-04
060a	51Aa	1.43E-06	1.40E-06	1.43E-06	2.23E-05
060a	51Ab	1.44E-06	1.41E-06	1.44E-06	2.23E-05
060a	160a	2.43E-06	2.52E-06	2.52E-06	3.99E-05
060a	160b	2.38E-06	2.46E-06	2.46E-06	3.94E-05
060a	160c	2.59E-06	2.68E-06	2.68E-06	4.25E-05
060a	17RE	3.70E-06	3.52E-06	3.70E-06	5.89E-05
060a	17RW	3.54E-06	3.25E-06	3.54E-06	5.50E-05
060a	17PN	1.59E-06	1.49E-06	1.59E-06	2.64E-05
060a	17PS	1.98E-06	1.85E-06	1.98E-06	3.26E-05
060a	IS2	1.69E-08	1.79E-08	1.79E-08	1.79E-07
060a	IS3	2.56E-08	2.68E-08	2.68E-08	3.49E-07
060a	IS4	8.67E-09	9.07E-09	9.07E-09	1.32E-07
060a	NC	5.72E-07	5.61E-07	5.72E-07	1.01E-05
060a	NP	1.36E-06	1.42E-06	1.42E-06	2.64E-05
060a	SP	7.53E-07	6.83E-07	7.53E-07	1.94E-05
060a	220	1.59E-06	1.61E-06	1.61E-06	2.73E-05
060a	240	1.24E-06	1.23E-06	1.24E-06	1.32E-05
060a	230	1.23E-06	1.22E-06	1.23E-06	1.26E-05
060a	25A	1.16E-06	1.23E-06	1.23E-06	7.70E-06
060a	620	6.02E-07	6.39E-07	6.39E-07	5.65E-06
060a	71A	3.49E-07	3.61E-07	3.61E-07	5.23E-06
060a	30A	2.43E-06	2.57E-06	2.57E-06	1.60E-05
060a	30B	1.58E-06	1.55E-06	1.58E-06	2.50E-05
060a	30C	2.67E-06	2.71E-06	2.71E-06	4.34E-05
060a	27A	2.55E-06	2.43E-06	2.55E-06	5.44E-05
060a	780	7.16E-07	7.20E-07	7.20E-07	7.32E-06
060a	33A	1.26E-06	1.23E-06	1.26E-06	1.73E-05
060a	33B	1.37E-06	1.36E-06	1.37E-06	1.93E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 11. χ/Q Results for CRCF 1 Source "b"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
060b	060a	3.53E-06	3.76E-06	3.76E-06	4.90E-05
060b	060b	3.54E-06	3.45E-06	3.54E-06	4.10E-05
060b	060c	8.46E-06	8.93E-06	8.93E-06	8.07E-05
060b	060d	6.15E-06	6.59E-06	6.59E-06	5.93E-05
060b	060e	2.97E-06	3.18E-06	3.18E-06	5.01E-05
060b	070a	3.70E-06	3.80E-06	3.80E-06	7.89E-05
060b	070b	1.91E-06	1.99E-06	1.99E-06	2.52E-05
060b	070c	2.16E-06	2.23E-06	2.23E-06	2.88E-05
060b	070d	1.37E-06	1.41E-06	1.41E-06	2.16E-05
060b	070e	1.54E-06	1.59E-06	1.59E-06	2.81E-05
060b	080a	3.07E-06	3.11E-06	3.11E-06	7.36E-05
060b	080b	1.83E-06	1.86E-06	1.86E-06	3.50E-05
060b	080c	1.92E-06	1.99E-06	1.99E-06	3.51E-05
060b	080d	1.38E-06	1.41E-06	1.41E-06	2.73E-05
060b	080e	1.60E-06	1.65E-06	1.65E-06	3.20E-05
060b	200a	2.18E-06	2.28E-06	2.28E-06	2.80E-05
060b	200b	3.29E-06	3.44E-06	3.44E-06	4.69E-05
060b	200c	3.82E-06	4.02E-06	4.02E-06	4.55E-05
060b	200d	2.73E-06	2.87E-06	2.87E-06	3.78E-05
060b	050a	1.66E-06	1.73E-06	1.73E-06	2.37E-05
060b	050b	1.69E-06	1.77E-06	1.77E-06	2.54E-05
060b	050c	7.27E-06	7.45E-06	7.45E-06	1.16E-04
060b	050d	6.86E-06	7.12E-06	7.12E-06	1.20E-04
060b	51Aa	1.46E-06	1.43E-06	1.46E-06	2.18E-05
060b	51Ab	1.47E-06	1.43E-06	1.47E-06	2.19E-05
060b	160a	3.24E-06	3.38E-06	3.38E-06	4.34E-05
060b	160b	3.14E-06	3.26E-06	3.26E-06	4.33E-05
060b	160c	3.53E-06	3.68E-06	3.68E-06	4.90E-05
060b	17RE	3.42E-06	3.22E-06	3.42E-06	5.51E-05
060b	17RW	3.39E-06	3.18E-06	3.39E-06	5.23E-05
060b	17PN	1.52E-06	1.41E-06	1.52E-06	2.57E-05
060b	17PS	1.86E-06	1.71E-06	1.86E-06	3.10E-05
060b	IS2	1.74E-08	1.83E-08	1.83E-08	1.73E-07
060b	IS3	2.60E-08	2.72E-08	2.72E-08	3.52E-07
060b	IS4	8.90E-09	9.38E-09	9.38E-09	1.41E-07
060b	NC	5.67E-07	5.58E-07	5.67E-07	1.00E-05
060b	NP	1.46E-06	1.52E-06	1.52E-06	2.57E-05
060b	SP	7.73E-07	7.02E-07	7.73E-07	2.03E-05
060b	220	1.61E-06	1.64E-06	1.64E-06	2.66E-05
060b	240	1.35E-06	1.36E-06	1.36E-06	1.06E-05
060b	230	1.32E-06	1.33E-06	1.33E-06	1.06E-05
060b	25A	9.76E-07	1.03E-06	1.03E-06	7.15E-06
060b	620	4.04E-07	4.22E-07	4.22E-07	4.76E-06
060b	71A	3.71E-07	3.82E-07	3.82E-07	6.48E-06
060b	30A	2.03E-06	2.15E-06	2.15E-06	1.50E-05
060b	30B	1.62E-06	1.60E-06	1.62E-06	2.56E-05
060b	30C	2.45E-06	2.49E-06	2.49E-06	4.27E-05
060b	27A	2.82E-06	2.68E-06	2.82E-06	5.82E-05
060b	780	7.11E-07	7.19E-07	7.19E-07	6.92E-06
060b	33A	1.31E-06	1.30E-06	1.31E-06	1.75E-05
060b	33B	1.38E-06	1.37E-06	1.38E-06	1.92E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 12. χ/Q Results for CRCF 2 Source "a"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
070a	060a	3.81E-06	3.83E-06	3.83E-06	6.39E-05
070a	060b	1.44E-06	1.48E-06	1.48E-06	2.50E-05
070a	060c	1.38E-06	1.43E-06	1.43E-06	2.37E-05
070a	060d	1.04E-06	1.08E-06	1.08E-06	1.48E-05
070a	060e	1.36E-06	1.39E-06	1.39E-06	1.82E-05
070a	070a	5.49E-06	5.82E-06	5.82E-06	1.08E-04
070a	070b	1.11E-06	1.12E-06	1.12E-06	1.55E-05
070a	070c	1.16E-06	1.19E-06	1.19E-06	2.01E-05
070a	070d	2.44E-05	2.58E-05	2.58E-05	2.79E-04
070a	070e	1.16E-05	1.25E-05	1.25E-05	2.13E-04
070a	080a	4.25E-06	4.42E-06	4.42E-06	7.64E-05
070a	080b	3.38E-06	3.57E-06	3.57E-06	4.93E-05
070a	080c	4.76E-06	5.07E-06	5.07E-06	4.40E-05
070a	080d	1.62E-06	1.70E-06	1.70E-06	2.18E-05
070a	080e	1.36E-06	1.42E-06	1.42E-06	1.98E-05
070a	200a	2.62E-06	2.66E-06	2.66E-06	3.25E-05
070a	200b	2.55E-06	2.62E-06	2.62E-06	3.64E-05
070a	200c	2.98E-06	3.10E-06	3.10E-06	4.48E-05
070a	200d	2.67E-06	2.73E-06	2.73E-06	3.65E-05
070a	050a	1.65E-06	1.65E-06	1.65E-06	3.27E-05
070a	050b	1.63E-06	1.63E-06	1.63E-06	3.27E-05
070a	050c	3.25E-06	3.01E-06	3.25E-06	6.49E-05
070a	050d	2.89E-06	2.67E-06	2.89E-06	5.75E-05
070a	51Aa	1.07E-06	1.04E-06	1.07E-06	2.03E-05
070a	51Ab	1.07E-06	1.04E-06	1.07E-06	2.03E-05
070a	160a	1.39E-06	1.43E-06	1.43E-06	2.82E-05
070a	160b	1.38E-06	1.42E-06	1.42E-06	2.80E-05
070a	160c	1.57E-06	1.62E-06	1.62E-06	3.15E-05
070a	17RE	5.30E-06	5.03E-06	5.30E-06	7.93E-05
070a	17RW	3.90E-06	3.56E-06	3.90E-06	5.48E-05
070a	17PN	1.96E-06	1.83E-06	1.96E-06	3.07E-05
070a	17PS	2.52E-06	2.37E-06	2.52E-06	3.95E-05
070a	IS2	1.54E-08	1.62E-08	1.62E-08	2.02E-07
070a	IS3	2.11E-08	2.21E-08	2.21E-08	3.08E-07
070a	IS4	7.78E-09	8.15E-09	8.15E-09	9.05E-08
070a	NC	5.42E-07	5.36E-07	5.42E-07	9.22E-06
070a	NP	9.80E-07	9.86E-07	9.86E-07	2.08E-05
070a	SP	5.88E-07	5.22E-07	5.88E-07	1.44E-05
070a	220	1.16E-06	1.14E-06	1.16E-06	2.41E-05
070a	240	1.05E-06	1.04E-06	1.05E-06	1.75E-05
070a	230	9.59E-07	9.40E-07	9.59E-07	1.48E-05
070a	25A	9.64E-07	9.96E-07	9.96E-07	5.63E-06
070a	620	1.53E-06	1.62E-06	1.62E-06	9.10E-06
070a	71A	1.68E-06	1.78E-06	1.78E-06	1.22E-05
070a	30A	7.16E-07	7.27E-07	7.27E-07	6.26E-06
070a	30B	1.29E-06	1.27E-06	1.29E-06	2.28E-05
070a	30C	4.89E-06	5.08E-06	5.08E-06	4.70E-05
070a	27A	1.52E-06	1.41E-06	1.52E-06	3.66E-05
070a	780	6.95E-07	6.97E-07	6.97E-07	8.54E-06
070a	33A	9.49E-07	9.20E-07	9.49E-07	1.65E-05
070a	33B	1.02E-06	9.80E-07	1.02E-06	1.83E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 13. χ/Q Results for CRCF 2 Source "b"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
070b	060a	3.82E-06	3.87E-06	3.87E-06	5.80E-05
070b	060b	1.42E-06	1.48E-06	1.48E-06	2.28E-05
070b	060c	1.36E-06	1.42E-06	1.42E-06	2.08E-05
070b	060d	9.67E-07	1.01E-06	1.01E-06	1.44E-05
070b	060e	1.25E-06	1.29E-06	1.29E-06	1.79E-05
070b	070a	3.53E-06	3.76E-06	3.76E-06	4.90E-05
070b	070b	3.54E-06	3.45E-06	3.54E-06	4.10E-05
070b	070c	8.46E-06	8.93E-06	8.93E-06	8.07E-05
070b	070d	6.15E-06	6.59E-06	6.59E-06	5.93E-05
070b	070e	2.97E-06	3.18E-06	3.18E-06	5.01E-05
070b	080a	4.50E-06	4.63E-06	4.63E-06	8.45E-05
070b	080b	2.46E-06	2.62E-06	2.62E-06	3.33E-05
070b	080c	3.26E-06	3.46E-06	3.46E-06	3.01E-05
070b	080d	1.48E-06	1.55E-06	1.55E-06	1.80E-05
070b	080e	1.37E-06	1.44E-06	1.44E-06	1.63E-05
070b	200a	2.46E-06	2.51E-06	2.51E-06	3.09E-05
070b	200b	2.23E-06	2.31E-06	2.31E-06	3.56E-05
070b	200c	2.59E-06	2.69E-06	2.69E-06	3.84E-05
070b	200d	2.33E-06	2.40E-06	2.40E-06	3.29E-05
070b	050a	1.71E-06	1.72E-06	1.72E-06	3.30E-05
070b	050b	1.71E-06	1.70E-06	1.71E-06	3.31E-05
070b	050c	3.61E-06	3.44E-06	3.61E-06	7.20E-05
070b	050d	3.22E-06	3.00E-06	3.22E-06	6.44E-05
070b	51Aa	1.11E-06	1.08E-06	1.11E-06	2.07E-05
070b	51Ab	1.11E-06	1.08E-06	1.11E-06	2.07E-05
070b	160a	1.46E-06	1.51E-06	1.51E-06	2.88E-05
070b	160b	1.46E-06	1.51E-06	1.51E-06	2.88E-05
070b	160c	1.69E-06	1.73E-06	1.73E-06	3.29E-05
070b	17RE	4.96E-06	4.66E-06	4.96E-06	7.54E-05
070b	17RW	3.94E-06	3.57E-06	3.94E-06	5.52E-05
070b	17PN	1.86E-06	1.70E-06	1.86E-06	3.03E-05
070b	17PS	2.40E-06	2.22E-06	2.40E-06	3.84E-05
070b	IS2	1.58E-08	1.66E-08	1.66E-08	2.02E-07
070b	IS3	2.18E-08	2.28E-08	2.28E-08	3.14E-07
070b	IS4	7.98E-09	8.40E-09	8.40E-09	9.68E-08
070b	NC	5.48E-07	5.42E-07	5.48E-07	9.22E-06
070b	NP	1.04E-06	1.05E-06	1.05E-06	2.19E-05
070b	SP	6.02E-07	5.41E-07	6.02E-07	1.50E-05
070b	220	1.23E-06	1.22E-06	1.23E-06	2.49E-05
070b	240	1.08E-06	1.06E-06	1.08E-06	1.75E-05
070b	230	9.78E-07	9.67E-07	9.78E-07	1.48E-05
070b	25A	1.13E-06	1.17E-06	1.17E-06	6.57E-06
070b	620	1.65E-06	1.73E-06	1.73E-06	1.00E-05
070b	71A	1.23E-06	1.31E-06	1.31E-06	1.05E-05
070b	30A	9.31E-07	9.59E-07	9.59E-07	7.79E-06
070b	30B	1.32E-06	1.28E-06	1.32E-06	2.31E-05
070b	30C	4.31E-06	4.50E-06	4.50E-06	4.75E-05
070b	27A	1.64E-06	1.54E-06	1.64E-06	3.90E-05
070b	780	7.00E-07	7.02E-07	7.02E-07	8.22E-06
070b	33A	9.96E-07	9.76E-07	9.96E-07	1.63E-05
070b	33B	1.06E-06	1.04E-06	1.06E-06	1.83E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 14. χ/Q Results for CRCF 3 Source "a"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
080a	060a	2.71E-06	2.66E-06	2.71E-06	5.28E-05
080a	060b	1.23E-06	1.24E-06	1.24E-06	2.38E-05
080a	060c	1.19E-06	1.23E-06	1.23E-06	2.33E-05
080a	060d	1.03E-06	1.05E-06	1.05E-06	1.81E-05
080a	060e	1.28E-06	1.29E-06	1.29E-06	2.29E-05
080a	070a	2.68E-06	2.77E-06	2.77E-06	3.85E-05
080a	070b	1.19E-06	1.25E-06	1.25E-06	1.80E-05
080a	070c	1.15E-06	1.19E-06	1.19E-06	1.66E-05
080a	070d	8.43E-07	8.77E-07	8.77E-07	1.31E-05
080a	070e	1.15E-06	1.18E-06	1.18E-06	1.99E-05
080a	080a	5.49E-06	5.82E-06	5.82E-06	1.08E-04
080a	080b	1.11E-06	1.12E-06	1.12E-06	1.55E-05
080a	080c	1.16E-06	1.19E-06	1.19E-06	2.01E-05
080a	080d	2.44E-05	2.58E-05	2.58E-05	2.79E-04
080a	080e	1.16E-05	1.25E-05	1.25E-05	2.13E-04
080a	200a	2.42E-06	2.42E-06	2.42E-06	4.16E-05
080a	200b	2.58E-06	2.62E-06	2.62E-06	4.56E-05
080a	200c	2.47E-06	2.48E-06	2.48E-06	4.66E-05
080a	200d	2.34E-06	2.37E-06	2.37E-06	4.27E-05
080a	050a	1.27E-06	1.25E-06	1.27E-06	2.69E-05
080a	050b	1.26E-06	1.23E-06	1.26E-06	2.67E-05
080a	050c	2.19E-06	2.01E-06	2.19E-06	4.45E-05
080a	050d	1.99E-06	1.82E-06	1.99E-06	4.07E-05
080a	51Aa	8.76E-07	8.46E-07	8.76E-07	1.77E-05
080a	51Ab	8.76E-07	8.45E-07	8.76E-07	1.77E-05
080a	160a	1.09E-06	1.12E-06	1.12E-06	2.28E-05
080a	160b	1.09E-06	1.11E-06	1.11E-06	2.27E-05
080a	160c	1.23E-06	1.25E-06	1.25E-06	2.60E-05
080a	17RE	5.02E-06	4.68E-06	5.02E-06	7.08E-05
080a	17RW	3.20E-06	2.90E-06	3.20E-06	4.39E-05
080a	17PN	2.03E-06	1.84E-06	2.03E-06	3.08E-05
080a	17PS	2.64E-06	2.41E-06	2.64E-06	3.91E-05
080a	IS2	1.49E-08	1.55E-08	1.55E-08	2.23E-07
080a	IS3	1.87E-08	1.96E-08	1.96E-08	2.69E-07
080a	IS4	7.31E-09	7.72E-09	7.72E-09	7.18E-08
080a	NC	5.05E-07	4.97E-07	5.05E-07	8.39E-06
080a	NP	8.03E-07	7.98E-07	8.03E-07	1.79E-05
080a	SP	5.21E-07	4.61E-07	5.21E-07	1.24E-05
080a	220	9.32E-07	8.93E-07	9.32E-07	2.02E-05
080a	240	8.80E-07	8.65E-07	8.80E-07	1.59E-05
080a	230	8.16E-07	7.97E-07	8.16E-07	1.40E-05
080a	25A	5.64E-07	5.64E-07	5.64E-07	4.74E-06
080a	620	1.02E-06	1.05E-06	1.05E-06	6.54E-06
080a	71A	2.27E-06	2.39E-06	2.39E-06	1.42E-05
080a	30A	5.45E-07	5.45E-07	5.45E-07	5.98E-06
080a	30B	1.05E-06	1.03E-06	1.05E-06	2.01E-05
080a	30C	6.21E-06	6.55E-06	6.55E-06	5.25E-05
080a	27A	1.17E-06	1.08E-06	1.17E-06	2.87E-05
080a	780	5.91E-07	5.80E-07	5.91E-07	8.22E-06
080a	33A	7.96E-07	7.74E-07	7.96E-07	1.50E-05
080a	33B	8.26E-07	8.02E-07	8.26E-07	1.64E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 15. χ/Q Results for CRCF 3 Source "b"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
080b	060a	2.91E-06	2.89E-06	2.91E-06	5.46E-05
080b	060b	1.26E-06	1.28E-06	1.28E-06	2.40E-05
080b	060c	1.24E-06	1.27E-06	1.27E-06	2.36E-05
080b	060d	1.02E-06	1.06E-06	1.06E-06	1.71E-05
080b	060e	1.28E-06	1.30E-06	1.30E-06	2.12E-05
080b	070a	3.03E-06	3.13E-06	3.13E-06	5.19E-05
080b	070b	1.09E-06	1.14E-06	1.14E-06	1.51E-05
080b	070c	1.09E-06	1.14E-06	1.14E-06	1.55E-05
080b	070d	7.19E-07	7.43E-07	7.43E-07	1.23E-05
080b	070e	1.25E-06	1.29E-06	1.29E-06	2.18E-05
080b	080a	3.53E-06	3.76E-06	3.76E-06	4.90E-05
080b	080b	3.54E-06	3.45E-06	3.54E-06	4.10E-05
080b	080c	8.46E-06	8.93E-06	8.93E-06	8.07E-05
080b	080d	6.15E-06	6.59E-06	6.59E-06	5.93E-05
080b	080e	2.97E-06	3.18E-06	3.18E-06	5.01E-05
080b	200a	2.47E-06	2.53E-06	2.53E-06	3.98E-05
080b	200b	2.61E-06	2.66E-06	2.66E-06	4.32E-05
080b	200c	2.57E-06	2.62E-06	2.62E-06	4.70E-05
080b	200d	2.43E-06	2.45E-06	2.45E-06	4.25E-05
080b	050a	1.33E-06	1.32E-06	1.33E-06	2.81E-05
080b	050b	1.32E-06	1.30E-06	1.32E-06	2.78E-05
080b	050c	2.43E-06	2.24E-06	2.43E-06	4.97E-05
080b	050d	2.19E-06	2.01E-06	2.19E-06	4.42E-05
080b	51Aa	9.03E-07	8.74E-07	9.03E-07	1.81E-05
080b	51Ab	9.03E-07	8.74E-07	9.03E-07	1.80E-05
080b	160a	1.16E-06	1.16E-06	1.16E-06	2.38E-05
080b	160b	1.16E-06	1.16E-06	1.16E-06	2.37E-05
080b	160c	1.29E-06	1.31E-06	1.31E-06	2.69E-05
080b	17RE	5.06E-06	4.70E-06	5.06E-06	7.26E-05
080b	17RW	3.39E-06	3.10E-06	3.39E-06	4.60E-05
080b	17PN	1.97E-06	1.79E-06	1.97E-06	3.03E-05
080b	17PS	2.56E-06	2.27E-06	2.56E-06	3.93E-05
080b	IS2	1.51E-08	1.58E-08	1.58E-08	2.17E-07
080b	IS3	1.93E-08	2.02E-08	2.02E-08	2.76E-07
080b	IS4	7.34E-09	7.75E-09	7.75E-09	7.20E-08
080b	NC	5.16E-07	5.03E-07	5.16E-07	8.67E-06
080b	NP	8.47E-07	8.58E-07	8.58E-07	1.90E-05
080b	SP	5.33E-07	4.67E-07	5.33E-07	1.27E-05
080b	220	9.82E-07	9.52E-07	9.82E-07	2.09E-05
080b	240	9.14E-07	8.99E-07	9.14E-07	1.61E-05
080b	230	8.34E-07	8.15E-07	8.34E-07	1.39E-05
080b	25A	6.31E-07	6.45E-07	6.45E-07	4.72E-06
080b	620	1.29E-06	1.35E-06	1.35E-06	7.71E-06
080b	71A	2.62E-06	2.75E-06	2.75E-06	1.64E-05
080b	30A	5.51E-07	5.54E-07	5.54E-07	5.84E-06
080b	30B	1.09E-06	1.06E-06	1.09E-06	2.04E-05
080b	30C	5.78E-06	6.04E-06	6.04E-06	4.96E-05
080b	27A	1.26E-06	1.17E-06	1.26E-06	3.04E-05
080b	780	6.08E-07	5.99E-07	6.08E-07	8.10E-06
080b	33A	8.30E-07	8.08E-07	8.30E-07	1.51E-05
080b	33B	8.60E-07	8.25E-07	8.60E-07	1.64E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 16. χ/Q Results for RF Source "a"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
200a	060a	3.97E-06	4.10E-06	4.10E-06	5.33E-05
200a	060b	1.42E-06	1.47E-06	1.47E-06	2.10E-05
200a	060c	1.28E-06	1.34E-06	1.34E-06	1.91E-05
200a	060d	1.03E-06	1.07E-06	1.07E-06	1.58E-05
200a	060e	1.67E-06	1.72E-06	1.72E-06	3.06E-05
200a	070a	4.60E-06	4.73E-06	4.73E-06	8.45E-05
200a	070b	3.66E-06	3.88E-06	3.88E-06	4.64E-05
200a	070c	4.68E-06	5.00E-06	5.00E-06	4.32E-05
200a	070d	1.72E-06	1.83E-06	1.83E-06	2.20E-05
200a	070e	1.43E-06	1.51E-06	1.51E-06	2.10E-05
200a	080a	4.47E-06	4.57E-06	4.57E-06	9.82E-05
200a	080b	1.93E-06	2.01E-06	2.01E-06	2.57E-05
200a	080c	2.29E-06	2.39E-06	2.39E-06	3.14E-05
200a	080d	1.48E-06	1.53E-06	1.53E-06	2.40E-05
200a	080e	1.71E-06	1.77E-06	1.77E-06	3.19E-05
200a	200a	3.20E-05	3.38E-05	3.38E-05	2.07E-04
200a	200b	2.43E-05	2.62E-05	2.62E-05	4.55E-04
200a	200c	4.51E-06	4.60E-06	4.60E-06	7.90E-05
200a	200d	1.06E-05	1.09E-05	1.09E-05	1.68E-04
200a	050a	2.13E-06	2.17E-06	2.17E-06	3.89E-05
200a	050b	2.14E-06	2.17E-06	2.17E-06	3.95E-05
200a	050c	5.54E-06	5.33E-06	5.54E-06	1.07E-04
200a	050d	4.73E-06	4.54E-06	4.73E-06	9.36E-05
200a	51Aa	1.35E-06	1.32E-06	1.35E-06	2.38E-05
200a	51Ab	1.35E-06	1.32E-06	1.35E-06	2.38E-05
200a	160a	1.86E-06	1.94E-06	1.94E-06	3.36E-05
200a	160b	1.84E-06	1.90E-06	1.90E-06	3.29E-05
200a	160c	2.13E-06	2.22E-06	2.22E-06	3.92E-05
200a	17RE	4.65E-06	4.30E-06	4.65E-06	7.16E-05
200a	17RW	4.06E-06	3.67E-06	4.06E-06	6.05E-05
200a	17PN	1.77E-06	1.65E-06	1.77E-06	2.87E-05
200a	17PS	2.20E-06	2.04E-06	2.20E-06	3.58E-05
200a	IS2	1.60E-08	1.68E-08	1.68E-08	1.85E-07
200a	IS3	2.38E-08	2.49E-08	2.49E-08	3.55E-07
200a	IS4	8.26E-09	8.67E-09	8.67E-09	1.13E-07
200a	NC	5.57E-07	5.51E-07	5.57E-07	9.54E-06
200a	NP	1.26E-06	1.28E-06	1.28E-06	2.58E-05
200a	SP	6.45E-07	5.75E-07	6.45E-07	1.61E-05
200a	220	1.53E-06	1.51E-06	1.53E-06	2.92E-05
200a	240	1.28E-06	1.26E-06	1.28E-06	1.85E-05
200a	230	1.17E-06	1.15E-06	1.17E-06	1.61E-05
200a	25A	1.36E-06	1.42E-06	1.42E-06	7.98E-06
200a	620	1.28E-06	1.36E-06	1.36E-06	8.87E-06
200a	71A	4.84E-07	5.06E-07	5.06E-07	6.16E-06
200a	30A	2.04E-06	2.15E-06	2.15E-06	1.24E-05
200a	30B	1.56E-06	1.53E-06	1.56E-06	2.59E-05
200a	30C	3.71E-06	3.83E-06	3.83E-06	5.20E-05
200a	27A	2.07E-06	1.98E-06	2.07E-06	4.82E-05
200a	780	7.81E-07	7.82E-07	7.82E-07	8.96E-06
200a	33A	1.18E-06	1.16E-06	1.18E-06	1.78E-05
200a	33B	1.31E-06	1.28E-06	1.31E-06	2.08E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 17. χ/Q Results for RF Source "b"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
200b	060a	5.24E-06	5.40E-06	5.40E-06	8.73E-05
200b	060b	1.34E-06	1.39E-06	1.39E-06	1.94E-05
200b	060c	1.22E-06	1.27E-06	1.27E-06	1.50E-05
200b	060d	1.02E-06	1.06E-06	1.06E-06	1.81E-05
200b	060e	2.06E-06	2.13E-06	2.13E-06	4.10E-05
200b	070a	4.71E-06	4.86E-06	4.86E-06	8.63E-05
200b	070b	3.06E-06	3.23E-06	3.23E-06	3.97E-05
200b	070c	3.97E-06	4.20E-06	4.20E-06	3.57E-05
200b	070d	1.66E-06	1.73E-06	1.73E-06	2.00E-05
200b	070e	1.46E-06	1.53E-06	1.53E-06	1.79E-05
200b	080a	4.30E-06	4.38E-06	4.38E-06	9.67E-05
200b	080b	1.96E-06	2.03E-06	2.03E-06	3.05E-05
200b	080c	2.29E-06	2.39E-06	2.39E-06	3.39E-05
200b	080d	1.49E-06	1.54E-06	1.54E-06	2.58E-05
200b	080e	1.76E-06	1.82E-06	1.82E-06	3.32E-05
200b	200a	3.43E-05	3.64E-05	3.64E-05	2.49E-04
200b	200b	6.92E-06	7.41E-06	7.41E-06	1.05E-04
200b	200c	9.56E-06	9.57E-06	9.57E-06	9.35E-05
200b	200d	9.42E-05	9.83E-05	9.83E-05	7.37E-04
200b	050a	2.18E-06	2.21E-06	2.21E-06	3.86E-05
200b	050b	2.16E-06	2.19E-06	2.19E-06	3.90E-05
200b	050c	5.87E-06	5.67E-06	5.87E-06	1.15E-04
200b	050d	5.04E-06	4.84E-06	5.04E-06	1.00E-04
200b	51Aa	1.37E-06	1.35E-06	1.37E-06	2.37E-05
200b	51Ab	1.40E-06	1.37E-06	1.40E-06	2.39E-05
200b	160a	1.93E-06	2.01E-06	2.01E-06	3.41E-05
200b	160b	1.93E-06	2.01E-06	2.01E-06	3.40E-05
200b	160c	2.22E-06	2.31E-06	2.31E-06	3.94E-05
200b	17RE	4.50E-06	4.23E-06	4.50E-06	6.88E-05
200b	17RW	3.97E-06	3.59E-06	3.97E-06	5.93E-05
200b	17PN	1.71E-06	1.57E-06	1.71E-06	2.82E-05
200b	17PS	2.16E-06	2.03E-06	2.16E-06	3.50E-05
200b	IS2	1.62E-08	1.69E-08	1.69E-08	1.86E-07
200b	IS3	2.46E-08	2.58E-08	2.58E-08	3.60E-07
200b	IS4	8.47E-09	8.85E-09	8.85E-09	1.23E-07
200b	NC	5.58E-07	5.53E-07	5.58E-07	9.61E-06
200b	NP	1.31E-06	1.35E-06	1.35E-06	2.59E-05
200b	SP	6.71E-07	6.08E-07	6.71E-07	1.71E-05
200b	220	1.57E-06	1.55E-06	1.57E-06	2.96E-05
200b	240	1.28E-06	1.27E-06	1.28E-06	1.82E-05
200b	230	1.17E-06	1.16E-06	1.17E-06	1.59E-05
200b	25A	1.40E-06	1.48E-06	1.48E-06	8.35E-06
200b	620	1.16E-06	1.24E-06	1.24E-06	8.41E-06
200b	71A	4.12E-07	4.29E-07	4.29E-07	5.52E-06
200b	30A	2.27E-06	2.38E-06	2.38E-06	1.39E-05
200b	30B	1.58E-06	1.54E-06	1.58E-06	2.60E-05
200b	30C	3.57E-06	3.64E-06	3.64E-06	5.11E-05
200b	27A	2.17E-06	2.04E-06	2.17E-06	5.04E-05
200b	780	7.82E-07	7.83E-07	7.83E-07	8.77E-06
200b	33A	1.22E-06	1.19E-06	1.22E-06	1.81E-05
200b	33B	1.36E-06	1.32E-06	1.36E-06	2.05E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 18. χ/Q Results for WHF Source "a"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
050a	060a	2.37E-06	2.46E-06	2.46E-06	3.37E-05
050a	060b	2.53E-06	2.72E-06	2.72E-06	3.05E-05
050a	060c	3.08E-06	3.35E-06	3.35E-06	2.91E-05
050a	060d	1.35E-06	1.43E-06	1.43E-06	1.67E-05
050a	060e	9.72E-07	1.03E-06	1.03E-06	1.42E-05
050a	070a	3.40E-06	3.48E-06	3.48E-06	7.47E-05
050a	070b	1.45E-06	1.51E-06	1.51E-06	2.16E-05
050a	070c	1.61E-06	1.67E-06	1.67E-06	2.33E-05
050a	070d	1.15E-06	1.18E-06	1.18E-06	1.77E-05
050a	070e	1.30E-06	1.35E-06	1.35E-06	2.17E-05
050a	080a	3.54E-06	3.59E-06	3.59E-06	8.78E-05
050a	080b	1.66E-06	1.70E-06	1.70E-06	3.18E-05
050a	080c	1.78E-06	1.83E-06	1.83E-06	3.34E-05
050a	080d	1.34E-06	1.38E-06	1.38E-06	2.59E-05
050a	080e	1.52E-06	1.55E-06	1.55E-06	3.26E-05
050a	200a	1.74E-06	1.80E-06	1.80E-06	2.72E-05
050a	200b	2.42E-06	2.47E-06	2.47E-06	3.65E-05
050a	200c	2.50E-06	2.60E-06	2.60E-06	3.48E-05
050a	200d	1.92E-06	1.99E-06	1.99E-06	2.84E-05
050a	050a	6.15E-06	6.26E-06	6.26E-06	7.62E-05
050a	050b	1.15E-06	1.06E-06	1.15E-06	1.00E-07
050a	050c	5.37E-05	5.70E-05	5.70E-05	6.59E-04
050a	050d	1.27E-06	1.26E-06	1.27E-06	1.18E-07
050a	51Aa	1.11E-06	1.11E-06	1.11E-06	1.14E-05
050a	51Ab	1.11E-06	1.11E-06	1.11E-06	1.16E-05
050a	160a	3.83E-06	4.06E-06	4.06E-06	3.40E-05
050a	160b	3.84E-06	4.07E-06	4.07E-06	3.43E-05
050a	160c	4.63E-06	4.92E-06	4.92E-06	3.93E-05
050a	17RE	6.65E-06	6.63E-06	6.65E-06	1.46E-04
050a	17RW	6.86E-06	6.73E-06	6.86E-06	1.42E-04
050a	17PN	4.46E-06	4.28E-06	4.46E-06	9.66E-05
050a	17PS	5.34E-06	5.14E-06	5.34E-06	1.15E-04
050a	IS2	2.28E-08	2.40E-08	2.40E-08	2.25E-07
050a	IS3	3.19E-08	3.33E-08	3.33E-08	3.63E-07
050a	IS4	1.05E-08	1.10E-08	1.10E-08	1.18E-07
050a	NC	1.53E-06	1.51E-06	1.53E-06	2.97E-05
050a	NP	1.41E-06	1.48E-06	1.48E-06	2.10E-05
050a	SP	6.59E-06	6.87E-06	6.87E-06	2.69E-04
050a	220	1.18E-06	1.22E-06	1.22E-06	1.37E-05
050a	240	8.10E-07	8.13E-07	8.13E-07	9.53E-06
050a	230	5.64E-07	5.63E-07	5.64E-07	6.02E-06
050a	25A	1.32E-07	1.37E-07	1.37E-07	1.41E-06
050a	620	1.86E-07	1.92E-07	1.92E-07	2.31E-06
050a	71A	3.03E-07	3.09E-07	3.09E-07	5.03E-06
050a	30A	1.81E-07	1.87E-07	1.87E-07	1.87E-06
050a	30B	1.87E-06	1.92E-06	1.92E-06	4.21E-05
050a	30C	2.59E-06	2.65E-06	2.65E-06	4.98E-05
050a	27A	5.93E-06	6.06E-06	6.06E-06	1.30E-04
050a	780	2.89E-07	2.88E-07	2.89E-07	3.60E-06
050a	33A	8.59E-07	8.59E-07	8.59E-07	1.05E-05
050a	33B	1.23E-06	1.24E-06	1.24E-06	1.65E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 19. χ/Q Results for WHF Source "b"

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
050b	060a	2.15E-05	2.08E-05	2.15E-05	4.85E-04
050b	060b	1.21E-05	1.25E-05	1.25E-05	2.07E-04
050b	060c	1.28E-05	1.32E-05	1.32E-05	2.08E-04
050b	060d	6.96E-06	7.20E-06	7.20E-06	1.31E-04
050b	060e	8.70E-06	8.89E-06	8.89E-06	1.90E-04
050b	070a	6.53E-06	6.21E-06	6.53E-06	1.52E-04
050b	070b	5.91E-06	5.99E-06	5.99E-06	1.49E-04
050b	070c	5.50E-06	5.57E-06	5.57E-06	1.31E-04
050b	070d	4.07E-06	4.14E-06	4.14E-06	1.03E-04
050b	070e	4.61E-06	4.64E-06	4.64E-06	1.23E-04
050b	080a	4.42E-06	4.21E-06	4.42E-06	1.04E-04
050b	080b	4.37E-06	4.31E-06	4.37E-06	1.13E-04
050b	080c	4.07E-06	4.07E-06	4.07E-06	1.00E-04
050b	080d	3.22E-06	3.23E-06	3.23E-06	8.47E-05
050b	080e	3.57E-06	3.51E-06	3.57E-06	9.37E-05
050b	200a	1.25E-05	1.24E-05	1.25E-05	3.29E-04
050b	200b	1.17E-05	1.14E-05	1.17E-05	2.75E-04
050b	200c	1.52E-05	1.49E-05	1.52E-05	3.37E-04
050b	200d	1.40E-05	1.38E-05	1.40E-05	3.33E-04
050b	050a	3.98E-05	4.25E-05	4.25E-05	4.16E-04
050b	050b	5.15E-05	5.53E-05	5.53E-05	4.83E-04
050b	050c	3.79E-04	3.84E-04	3.84E-04	7.80E-03
050b	050d	1.75E-03	1.83E-03	1.83E-03	1.41E-02
050b	51Aa	9.84E-06	9.64E-06	9.84E-06	1.51E-04
050b	51Ab	9.83E-06	9.63E-06	9.83E-06	1.53E-04
050b	160a	1.61E-05	1.65E-05	1.65E-05	2.20E-04
050b	160b	1.62E-05	1.65E-05	1.65E-05	2.21E-04
050b	160c	2.29E-05	2.35E-05	2.35E-05	3.10E-04
050b	17RE	3.07E-06	2.93E-06	3.07E-06	5.22E-05
050b	17RW	3.22E-06	3.05E-06	3.22E-06	5.29E-05
050b	17PN	1.19E-06	1.17E-06	1.19E-06	2.27E-05
050b	17PS	1.39E-06	1.39E-06	1.39E-06	2.61E-05
050b	IS2	1.71E-08	1.80E-08	1.80E-08	8.19E-08
050b	IS3	2.69E-08	2.83E-08	2.83E-08	3.58E-07
050b	IS4	9.34E-09	9.76E-09	9.76E-09	1.67E-07
050b	NC	4.81E-07	4.77E-07	4.81E-07	8.35E-06
050b	NP	9.85E-06	1.00E-05	1.00E-05	1.56E-04
050b	SP	8.55E-07	8.14E-07	8.55E-07	2.52E-05
050b	220	1.28E-05	1.27E-05	1.28E-05	2.03E-04
050b	240	6.72E-06	6.59E-06	6.72E-06	9.19E-05
050b	230	5.23E-06	5.12E-06	5.23E-06	7.54E-05
050b	25A	1.09E-06	1.10E-06	1.10E-06	2.07E-05
050b	620	1.24E-06	1.26E-06	1.26E-06	2.51E-05
050b	71A	1.47E-06	1.50E-06	1.50E-06	3.79E-05
050b	30A	1.14E-06	1.16E-06	1.16E-06	2.27E-05
050b	30B	5.39E-06	5.42E-06	5.42E-06	8.74E-05
050b	30C	3.88E-06	3.78E-06	3.88E-06	8.29E-05
050b	27A	1.57E-05	1.57E-05	1.57E-05	3.81E-04
050b	780	1.95E-06	1.93E-06	1.95E-06	2.99E-05
050b	33A	5.73E-06	5.61E-06	5.73E-06	8.68E-05
050b	33B	5.29E-06	5.22E-06	5.29E-06	8.21E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 20. χ/Q Results for IHF Release

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
51A	060a	2.74E-06	2.81E-06	2.81E-06	4.67E-05
51A	060b	1.93E-06	2.01E-06	2.01E-06	2.35E-05
51A	060c	1.89E-06	1.95E-06	1.95E-06	2.39E-05
51A	060d	1.44E-06	1.49E-06	1.49E-06	1.87E-05
51A	060e	1.57E-06	1.62E-06	1.62E-06	2.23E-05
51A	070a	1.71E-06	1.72E-06	1.72E-06	3.74E-05
51A	070b	1.32E-06	1.36E-06	1.36E-06	2.34E-05
51A	070c	1.30E-06	1.33E-06	1.33E-06	2.28E-05
51A	070d	1.05E-06	1.07E-06	1.07E-06	1.89E-05
51A	070e	1.14E-06	1.16E-06	1.16E-06	2.16E-05
51A	080a	1.44E-06	1.43E-06	1.44E-06	3.40E-05
51A	080b	1.16E-06	1.17E-06	1.17E-06	2.34E-05
51A	080c	1.15E-06	1.16E-06	1.16E-06	2.27E-05
51A	080d	9.36E-07	9.60E-07	9.60E-07	1.92E-05
51A	080e	1.02E-06	1.04E-06	1.04E-06	2.19E-05
51A	200a	1.98E-06	2.02E-06	2.02E-06	3.59E-05
51A	200b	2.05E-06	2.09E-06	2.09E-06	3.77E-05
51A	200c	2.35E-06	2.41E-06	2.41E-06	3.97E-05
51A	200d	2.15E-06	2.20E-06	2.20E-06	3.72E-05
51A	050a	3.17E-06	3.30E-06	3.30E-06	3.14E-05
51A	050b	3.22E-06	3.38E-06	3.38E-06	3.15E-05
51A	050c	6.44E-06	6.64E-06	6.64E-06	8.56E-05
51A	050d	7.10E-06	7.32E-06	7.32E-06	8.82E-05
51A	51Aa	2.10E-05	2.20E-05	2.20E-05	1.42E-04
51A	51Ab	1.91E-05	2.00E-05	2.00E-05	1.29E-04
51A	160a	2.14E-06	2.19E-06	2.19E-06	2.76E-05
51A	160b	2.14E-06	2.20E-06	2.20E-06	2.76E-05
51A	160c	2.50E-06	2.58E-06	2.58E-06	3.19E-05
51A	17RE	1.59E-06	1.53E-06	1.59E-06	2.82E-05
51A	17RW	1.66E-06	1.55E-06	1.66E-06	2.86E-05
51A	17PN	1.05E-06	9.68E-07	1.05E-06	1.77E-05
51A	17PS	1.20E-06	1.08E-06	1.20E-06	2.05E-05
51A	IS2	2.22E-08	2.34E-08	2.34E-08	2.05E-07
51A	IS3	2.88E-08	3.01E-08	3.01E-08	3.53E-07
51A	IS4	1.14E-08	1.18E-08	1.18E-08	1.96E-07
51A	NC	5.36E-07	5.26E-07	5.36E-07	9.88E-06
51A	NP	2.46E-06	2.57E-06	2.57E-06	2.77E-05
51A	SP	1.20E-06	1.10E-06	1.20E-06	3.16E-05
51A	220	5.36E-06	5.75E-06	5.75E-06	4.02E-05
51A	240	7.63E-07	8.07E-07	8.07E-07	1.45E-05
51A	230	1.06E-06	1.13E-06	1.13E-06	1.15E-05
51A	25A	2.56E-07	2.67E-07	2.67E-07	3.59E-06
51A	620	3.24E-07	3.33E-07	3.33E-07	6.21E-06
51A	71A	4.15E-07	4.24E-07	4.24E-07	8.75E-06
51A	30A	3.52E-07	3.69E-07	3.69E-07	4.14E-06
51A	30B	1.33E-06	1.30E-06	1.33E-06	1.82E-05
51A	30C	1.22E-06	1.22E-06	1.22E-06	2.41E-05
51A	27A	3.46E-06	3.42E-06	3.46E-06	4.50E-05
51A	780	5.03E-07	5.26E-07	5.26E-07	3.33E-06
51A	33A	1.20E-06	1.26E-06	1.26E-06	6.90E-06
51A	33B	1.02E-06	1.02E-06	1.02E-06	1.09E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 21. χ/Q Results for LLWF Release

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
160	060a	1.52E-05	1.53E-05	1.53E-05	2.66E-04
160	060b	3.99E-06	4.10E-06	4.10E-06	3.35E-05
160	060c	3.42E-06	3.53E-06	3.53E-06	2.44E-05
160	060d	2.27E-06	2.38E-06	2.38E-06	2.24E-05
160	060e	3.15E-06	3.19E-06	3.19E-06	4.54E-05
160	070a	5.49E-06	5.44E-06	5.49E-06	1.64E-04
160	070b	2.65E-06	2.66E-06	2.66E-06	5.38E-05
160	070c	2.53E-06	2.57E-06	2.57E-06	5.28E-05
160	070d	1.89E-06	1.91E-06	1.91E-06	3.90E-05
160	070e	2.37E-06	2.40E-06	2.40E-06	5.55E-05
160	080a	4.05E-06	3.94E-06	4.05E-06	1.24E-04
160	080b	2.61E-06	2.64E-06	2.64E-06	7.10E-05
160	080c	2.46E-06	2.50E-06	2.50E-06	6.57E-05
160	080d	1.90E-06	1.93E-06	1.93E-06	4.99E-05
160	080e	2.26E-06	2.27E-06	2.27E-06	6.40E-05
160	200a	7.73E-06	7.87E-06	7.87E-06	1.48E-04
160	200b	7.50E-06	7.57E-06	7.57E-06	1.75E-04
160	200c	9.16E-06	9.33E-06	9.33E-06	1.78E-04
160	200d	8.08E-06	8.14E-06	8.14E-06	1.47E-04
160	050a	7.33E-06	7.25E-06	7.33E-06	8.68E-05
160	050b	7.38E-06	7.30E-06	7.38E-06	8.84E-05
160	050c	4.90E-05	4.85E-05	4.90E-05	6.70E-04
160	050d	4.34E-05	4.25E-05	4.34E-05	6.15E-04
160	51Aa	3.48E-06	3.42E-06	3.48E-06	5.09E-05
160	51Ab	3.47E-06	3.42E-06	3.47E-06	5.09E-05
160	160a	5.30E-06	4.95E-06	5.30E-06	4.98E-05
160	160b	4.06E-06	3.80E-06	4.06E-06	1.72E-05
160	160c	5.29E-05	5.53E-05	5.53E-05	3.89E-04
160	17RE	4.82E-06	4.54E-06	4.82E-06	7.94E-05
160	17RW	5.47E-06	5.10E-06	5.47E-06	8.30E-05
160	17PN	1.72E-06	1.69E-06	1.72E-06	3.01E-05
160	17PS	2.08E-06	2.03E-06	2.08E-06	3.67E-05
160	IS2	1.62E-08	1.70E-08	1.70E-08	1.05E-07
160	IS3	2.90E-08	3.03E-08	3.03E-08	4.20E-07
160	IS4	8.99E-09	9.45E-09	9.45E-09	1.45E-07
160	NC	6.29E-07	6.19E-07	6.29E-07	1.07E-05
160	NP	2.35E-06	2.40E-06	2.40E-06	3.26E-05
160	SP	9.03E-07	8.57E-07	9.03E-07	2.71E-05
160	220	4.24E-06	4.15E-06	4.24E-06	6.41E-05
160	240	2.86E-06	2.83E-06	2.86E-06	3.82E-05
160	230	2.33E-06	2.31E-06	2.33E-06	3.13E-05
160	25A	9.06E-07	9.17E-07	9.17E-07	1.12E-05
160	620	8.26E-07	8.46E-07	8.46E-07	1.30E-05
160	71A	7.68E-07	7.78E-07	7.78E-07	1.43E-05
160	30A	1.09E-06	1.12E-06	1.12E-06	1.07E-05
160	30B	2.34E-06	2.32E-06	2.34E-06	3.77E-05
160	30C	2.80E-06	2.84E-06	2.84E-06	7.30E-05
160	27A	5.58E-06	5.53E-06	5.58E-06	1.08E-04
160	780	1.12E-06	1.11E-06	1.12E-06	1.53E-05
160	33A	2.35E-06	2.33E-06	2.35E-06	3.40E-05
160	33B	2.23E-06	2.21E-06	2.23E-06	3.51E-05

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 22. χ/Q Results for Aging Pad 17R East

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
17RE	060a	3.35E-06	3.47E-06	3.47E-06	2.03E-05
17RE	060b	2.28E-06	2.33E-06	2.33E-06	1.85E-05
17RE	060c	2.43E-06	2.47E-06	2.47E-06	1.98E-05
17RE	060d	3.13E-06	3.20E-06	3.20E-06	2.03E-05
17RE	060e	3.20E-06	3.29E-06	3.29E-06	2.02E-05
17RE	070a	5.58E-06	5.80E-06	5.80E-06	2.69E-05
17RE	070b	5.25E-06	5.48E-06	5.48E-06	2.67E-05
17RE	070c	5.77E-06	6.02E-06	6.02E-06	2.92E-05
17RE	070d	5.80E-06	6.04E-06	6.04E-06	2.92E-05
17RE	070e	5.51E-06	5.68E-06	5.68E-06	2.68E-05
17RE	080a	5.72E-06	5.99E-06	5.99E-06	2.78E-05
17RE	080b	6.01E-06	6.20E-06	6.20E-06	2.92E-05
17RE	080c	6.58E-06	6.79E-06	6.79E-06	3.20E-05
17RE	080d	6.15E-06	6.45E-06	6.45E-06	2.95E-05
17RE	080e	5.78E-06	6.03E-06	6.03E-06	2.85E-05
17RE	200a	3.99E-06	4.15E-06	4.15E-06	2.21E-05
17RE	200b	4.41E-06	4.58E-06	4.58E-06	2.43E-05
17RE	200c	3.95E-06	4.13E-06	4.13E-06	2.23E-05
17RE	200d	3.95E-06	4.13E-06	4.13E-06	2.22E-05
17RE	050a	1.47E-06	1.49E-06	1.49E-06	1.53E-05
17RE	050b	1.41E-06	1.41E-06	1.41E-06	1.48E-05
17RE	050c	1.55E-06	1.56E-06	1.56E-06	1.57E-05
17RE	050d	1.39E-06	1.40E-06	1.40E-06	1.44E-05
17RE	51Aa	1.09E-06	1.09E-06	1.09E-06	1.12E-05
17RE	51Ab	1.13E-06	1.14E-06	1.14E-06	1.14E-05
17RE	160a	1.38E-06	1.38E-06	1.38E-06	1.77E-05
17RE	160b	1.37E-06	1.38E-06	1.38E-06	1.77E-05
17RE	160c	1.42E-06	1.42E-06	1.42E-06	1.73E-05
17RE	17RE	N/A	N/A	N/A	N/A
17RE	17RW	2.58E-06	2.66E-06	2.66E-06	5.15E-05
17RE	17PN	2.21E-06	2.24E-06	2.24E-06	2.44E-05
17RE	17PS	3.67E-06	3.82E-06	3.82E-06	3.86E-05
17RE	IS2	1.39E-07	1.28E-07	1.39E-07	1.93E-06
17RE	IS3	1.57E-07	1.45E-07	1.57E-07	2.32E-06
17RE	IS4	1.11E-07	9.96E-08	1.11E-07	1.53E-06
17RE	NC	4.34E-07	4.24E-07	4.34E-07	6.99E-06
17RE	NP	8.66E-07	8.66E-07	8.66E-07	1.21E-05
17RE	SP	3.82E-07	3.79E-07	3.82E-07	4.56E-06
17RE	220	9.84E-07	9.81E-07	9.84E-07	1.14E-05
17RE	240	1.60E-06	1.63E-06	1.63E-06	1.30E-05
17RE	230	1.76E-06	1.82E-06	1.82E-06	1.26E-05
17RE	25A	2.98E-06	3.11E-06	3.11E-06	1.58E-05
17RE	620	3.43E-06	3.53E-06	3.53E-06	1.75E-05
17RE	71A	3.94E-06	4.13E-06	4.13E-06	2.03E-05
17RE	30A	3.03E-06	3.15E-06	3.15E-06	1.70E-05
17RE	30B	1.41E-06	1.47E-06	1.47E-06	8.65E-06
17RE	30C	9.19E-06	9.58E-06	9.58E-06	4.49E-05
17RE	27A	1.01E-06	1.03E-06	1.03E-06	9.27E-06
17RE	780	1.91E-06	1.99E-06	1.99E-06	1.10E-05
17RE	33A	1.48E-06	1.52E-06	1.52E-06	1.07E-05
17RE	33B	1.46E-06	1.51E-06	1.51E-06	9.55E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 23. χ/Q Results for Aging Pad 17R West

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
17RW	060a	3.88E-06	4.05E-06	4.05E-06	2.03E-05
17RW	060b	3.51E-06	3.64E-06	3.64E-06	2.00E-05
17RW	060c	3.81E-06	3.93E-06	3.93E-06	2.05E-05
17RW	060d	3.94E-06	4.12E-06	4.12E-06	2.05E-05
17RW	060e	3.82E-06	3.94E-06	3.94E-06	2.03E-05
17RW	070a	4.68E-06	4.91E-06	4.91E-06	2.25E-05
17RW	070b	4.89E-06	5.05E-06	5.05E-06	2.43E-05
17RW	070c	5.27E-06	5.50E-06	5.50E-06	2.66E-05
17RW	070d	4.97E-06	5.13E-06	5.13E-06	2.44E-05
17RW	070e	4.74E-06	4.97E-06	4.97E-06	2.26E-05
17RW	080a	4.18E-06	4.34E-06	4.34E-06	2.22E-05
17RW	080b	4.80E-06	5.01E-06	5.01E-06	2.43E-05
17RW	080c	5.05E-06	5.26E-06	5.26E-06	2.50E-05
17RW	080d	4.59E-06	4.77E-06	4.77E-06	2.30E-05
17RW	080e	4.36E-06	4.56E-06	4.56E-06	2.23E-05
17RW	200a	4.04E-06	4.19E-06	4.19E-06	2.04E-05
17RW	200b	4.47E-06	4.62E-06	4.62E-06	2.23E-05
17RW	200c	4.25E-06	4.43E-06	4.43E-06	2.22E-05
17RW	200d	4.18E-06	4.31E-06	4.31E-06	2.07E-05
17RW	050a	2.60E-06	2.67E-06	2.67E-06	1.71E-05
17RW	050b	2.50E-06	2.59E-06	2.59E-06	1.70E-05
17RW	050c	2.70E-06	2.81E-06	2.81E-06	1.71E-05
17RW	050d	2.46E-06	2.53E-06	2.53E-06	1.68E-05
17RW	51Aa	1.70E-06	1.74E-06	1.74E-06	1.24E-05
17RW	51Ab	1.70E-06	1.73E-06	1.73E-06	1.24E-05
17RW	160a	2.78E-06	2.85E-06	2.85E-06	2.34E-05
17RW	160b	2.78E-06	2.84E-06	2.84E-06	2.34E-05
17RW	160c	3.01E-06	3.09E-06	3.09E-06	2.19E-05
17RW	17RE	7.48E-06	7.87E-06	7.87E-06	9.54E-05
17RW	17RW	N/A	N/A	N/A	N/A
17RW	17PN	2.28E-06	2.38E-06	2.38E-06	2.52E-05
17RW	17PS	3.38E-06	3.52E-06	3.52E-06	3.71E-05
17RW	IS2	1.50E-07	1.40E-07	1.50E-07	2.13E-06
17RW	IS3	1.79E-07	1.69E-07	1.79E-07	2.81E-06
17RW	IS4	1.18E-07	1.07E-07	1.18E-07	1.61E-06
17RW	NC	6.09E-07	6.02E-07	6.09E-07	8.62E-06
17RW	NP	1.41E-06	1.41E-06	1.41E-06	1.55E-05
17RW	SP	4.66E-07	4.67E-07	4.67E-07	5.25E-06
17RW	220	1.61E-06	1.65E-06	1.65E-06	1.37E-05
17RW	240	2.28E-06	2.38E-06	2.38E-06	1.36E-05
17RW	230	2.20E-06	2.26E-06	2.26E-06	1.28E-05
17RW	25A	2.93E-06	3.03E-06	3.03E-06	1.54E-05
17RW	620	3.18E-06	3.27E-06	3.27E-06	1.64E-05
17RW	71A	3.37E-06	3.50E-06	3.50E-06	1.72E-05
17RW	30A	3.14E-06	3.23E-06	3.23E-06	1.65E-05
17RW	30B	1.46E-06	1.51E-06	1.51E-06	8.59E-06
17RW	30C	5.96E-06	6.17E-06	6.17E-06	3.15E-05
17RW	27A	1.39E-06	1.42E-06	1.42E-06	9.73E-06
17RW	780	1.97E-06	2.03E-06	2.03E-06	1.09E-05
17RW	33A	1.79E-06	1.84E-06	1.84E-06	1.09E-05
17RW	33B	1.60E-06	1.66E-06	1.66E-06	9.57E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 24. χ/Q Results for Aging Pad 17P North

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
17PN	060a	2.20E-06	2.26E-06	2.26E-06	1.28E-05
17PN	060b	1.91E-06	1.99E-06	1.99E-06	1.23E-05
17PN	060c	2.00E-06	2.05E-06	2.05E-06	1.28E-05
17PN	060d	2.13E-06	2.20E-06	2.20E-06	1.29E-05
17PN	060e	2.12E-06	2.20E-06	2.20E-06	1.28E-05
17PN	070a	2.76E-06	2.87E-06	2.87E-06	1.44E-05
17PN	070b	2.66E-06	2.74E-06	2.74E-06	1.43E-05
17PN	070c	2.76E-06	2.87E-06	2.87E-06	1.50E-05
17PN	070d	2.79E-06	2.89E-06	2.89E-06	1.49E-05
17PN	070e	2.74E-06	2.86E-06	2.86E-06	1.44E-05
17PN	080a	2.92E-06	3.02E-06	3.02E-06	1.52E-05
17PN	080b	2.89E-06	2.98E-06	2.98E-06	1.52E-05
17PN	080c	3.02E-06	3.15E-06	3.15E-06	1.56E-05
17PN	080d	3.01E-06	3.14E-06	3.14E-06	1.55E-05
17PN	080e	2.91E-06	3.00E-06	3.00E-06	1.52E-05
17PN	200a	2.32E-06	2.41E-06	2.41E-06	1.31E-05
17PN	200b	2.43E-06	2.51E-06	2.51E-06	1.35E-05
17PN	200c	2.32E-06	2.41E-06	2.41E-06	1.32E-05
17PN	200d	2.30E-06	2.39E-06	2.39E-06	1.31E-05
17PN	050a	1.47E-06	1.51E-06	1.51E-06	1.14E-05
17PN	050b	1.47E-06	1.51E-06	1.51E-06	1.13E-05
17PN	050c	1.55E-06	1.59E-06	1.59E-06	1.15E-05
17PN	050d	1.40E-06	1.42E-06	1.42E-06	1.12E-05
17PN	51Aa	1.12E-06	1.15E-06	1.15E-06	9.13E-06
17PN	51Ab	1.12E-06	1.14E-06	1.14E-06	9.13E-06
17PN	160a	1.47E-06	1.50E-06	1.50E-06	1.29E-05
17PN	160b	1.47E-06	1.50E-06	1.50E-06	1.29E-05
17PN	160c	1.58E-06	1.62E-06	1.62E-06	1.28E-05
17PN	17RE	6.85E-06	7.17E-06	7.17E-06	3.46E-05
17PN	17RW	3.88E-06	3.92E-06	3.92E-06	3.24E-05
17PN	17PN	N/A	N/A	N/A	N/A
17PN	17PS	3.11E-05	3.22E-05	3.22E-05	1.54E-04
17PN	IS2	1.48E-07	1.39E-07	1.48E-07	2.02E-06
17PN	IS3	1.65E-07	1.55E-07	1.65E-07	2.31E-06
17PN	IS4	1.17E-07	1.06E-07	1.17E-07	1.58E-06
17PN	NC	4.40E-07	4.30E-07	4.40E-07	7.04E-06
17PN	NP	9.91E-07	9.88E-07	9.91E-07	1.05E-05
17PN	SP	4.15E-07	4.12E-07	4.15E-07	4.76E-06
17PN	220	1.08E-06	1.09E-06	1.09E-06	9.71E-06
17PN	240	1.46E-06	1.51E-06	1.51E-06	9.87E-06
17PN	230	1.46E-06	1.51E-06	1.51E-06	9.54E-06
17PN	25A	1.98E-06	2.03E-06	2.03E-06	1.11E-05
17PN	620	2.16E-06	2.23E-06	2.23E-06	1.18E-05
17PN	71A	2.39E-06	2.46E-06	2.46E-06	1.27E-05
17PN	30A	2.01E-06	2.06E-06	2.06E-06	1.15E-05
17PN	30B	1.18E-06	1.22E-06	1.22E-06	7.30E-06
17PN	30C	3.59E-06	3.75E-06	3.75E-06	1.85E-05
17PN	27A	1.01E-06	1.04E-06	1.04E-06	7.84E-06
17PN	780	1.47E-06	1.52E-06	1.52E-06	8.76E-06
17PN	33A	1.31E-06	1.36E-06	1.36E-06	8.57E-06
17PN	33B	1.22E-06	1.26E-06	1.26E-06	7.87E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 25. χ/Q Results for Aging Pad 17P South

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
17PS	060a	2.43E-06	2.50E-06	2.50E-06	1.42E-05
17PS	060b	2.00E-06	2.05E-06	2.05E-06	1.36E-05
17PS	060c	2.09E-06	2.17E-06	2.17E-06	1.41E-05
17PS	060d	2.30E-06	2.39E-06	2.39E-06	1.43E-05
17PS	060e	2.30E-06	2.39E-06	2.39E-06	1.41E-05
17PS	070a	3.18E-06	3.28E-06	3.28E-06	1.67E-05
17PS	070b	3.01E-06	3.14E-06	3.14E-06	1.63E-05
17PS	070c	3.19E-06	3.30E-06	3.30E-06	1.70E-05
17PS	070d	3.21E-06	3.32E-06	3.32E-06	1.70E-05
17PS	070e	3.13E-06	3.22E-06	3.22E-06	1.66E-05
17PS	080a	3.37E-06	3.49E-06	3.49E-06	1.71E-05
17PS	080b	3.33E-06	3.46E-06	3.46E-06	1.72E-05
17PS	080c	3.51E-06	3.64E-06	3.64E-06	1.84E-05
17PS	080d	3.47E-06	3.58E-06	3.58E-06	1.77E-05
17PS	080e	3.34E-06	3.47E-06	3.47E-06	1.71E-05
17PS	200a	2.60E-06	2.67E-06	2.67E-06	1.45E-05
17PS	200b	2.74E-06	2.86E-06	2.86E-06	1.53E-05
17PS	200c	2.55E-06	2.64E-06	2.64E-06	1.48E-05
17PS	200d	2.55E-06	2.64E-06	2.64E-06	1.47E-05
17PS	050a	1.43E-06	1.46E-06	1.46E-06	1.21E-05
17PS	050b	1.42E-06	1.44E-06	1.44E-06	1.20E-05
17PS	050c	1.56E-06	1.59E-06	1.59E-06	1.23E-05
17PS	050d	1.40E-06	1.42E-06	1.42E-06	1.19E-05
17PS	51Aa	1.10E-06	1.12E-06	1.12E-06	9.70E-06
17PS	51Ab	1.10E-06	1.12E-06	1.12E-06	9.70E-06
17PS	160a	1.35E-06	1.37E-06	1.37E-06	1.38E-05
17PS	160b	1.35E-06	1.37E-06	1.37E-06	1.37E-05
17PS	160c	1.45E-06	1.47E-06	1.47E-06	1.37E-05
17PS	17RE	9.86E-06	1.03E-05	1.03E-05	5.03E-05
17PS	17RW	3.49E-06	3.51E-06	3.51E-06	4.04E-05
17PS	17PN	1.02E-05	1.06E-05	1.06E-05	9.60E-05
17PS	17PS	N/A	N/A	N/A	N/A
17PS	IS2	1.43E-07	1.31E-07	1.43E-07	2.00E-06
17PS	IS3	1.59E-07	1.48E-07	1.59E-07	2.18E-06
17PS	IS4	1.15E-07	1.05E-07	1.15E-07	1.57E-06
17PS	NC	4.11E-07	3.97E-07	4.11E-07	6.26E-06
17PS	NP	9.08E-07	9.02E-07	9.08E-07	1.06E-05
17PS	SP	4.08E-07	4.05E-07	4.08E-07	4.69E-06
17PS	220	1.04E-06	1.05E-06	1.05E-06	1.02E-05
17PS	240	1.46E-06	1.51E-06	1.51E-06	1.06E-05
17PS	230	1.54E-06	1.59E-06	1.59E-06	1.01E-05
17PS	25A	2.15E-06	2.22E-06	2.22E-06	1.20E-05
17PS	620	2.39E-06	2.46E-06	2.46E-06	1.30E-05
17PS	71A	2.67E-06	2.76E-06	2.76E-06	1.41E-05
17PS	30A	2.19E-06	2.25E-06	2.25E-06	1.26E-05
17PS	30B	1.22E-06	1.26E-06	1.26E-06	7.55E-06
17PS	30C	4.36E-06	4.55E-06	4.55E-06	2.22E-05
17PS	27A	1.02E-06	1.04E-06	1.04E-06	8.15E-06
17PS	780	1.57E-06	1.64E-06	1.64E-06	9.20E-06
17PS	33A	1.34E-06	1.39E-06	1.39E-06	9.00E-06
17PS	33B	1.26E-06	1.30E-06	1.30E-06	8.23E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 26. χ/Q Results for Exhaust Shaft 1

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
ES1	IS2	4.40E-06	4.58E-06	4.58E-06	2.18E-05
ES1	IS3	4.93E-07	5.07E-07	5.07E-07	5.96E-06
ES1	IS4	4.17E-06	4.25E-06	4.25E-06	4.26E-05
ES1	NC	3.23E-07	3.33E-07	3.33E-07	5.39E-06
ES1	NP	9.48E-07	9.92E-07	9.92E-07	7.12E-06
ES1	SP	1.08E-06	1.12E-06	1.12E-06	6.21E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 27. χ/Q Results for Exhaust Shaft 2

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
ES2	IS2	4.18E-07	4.22E-07	4.22E-07	4.91E-06
ES2	IS3	1.95E-07	1.91E-07	1.95E-07	2.23E-06
ES2	IS4	2.65E-07	2.65E-07	2.65E-07	3.10E-06
ES2	NC	2.08E-07	2.05E-07	2.08E-07	2.43E-06
ES2	NP	2.40E-07	2.45E-07	2.45E-07	3.50E-06
ES2	SP	8.88E-07	9.37E-07	9.37E-07	8.81E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 28. χ/Q Results for Exhaust Shaft 3N

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
ES3N	IS2	8.51E-07	8.66E-07	8.66E-07	7.10E-06
ES3N	IS3	1.22E-05	1.27E-05	1.27E-05	6.74E-05
ES3N	IS4	4.33E-07	4.26E-07	4.33E-07	6.13E-06
ES3N	NC	2.13E-06	2.21E-06	2.21E-06	1.17E-05
ES3N	NP	1.19E-06	1.23E-06	1.23E-06	6.80E-06
ES3N	SP	7.76E-07	7.97E-07	7.97E-07	4.99E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 29. χ/Q Results for Exhaust Shaft 3S

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
ES3S	IS2	1.02E-06	1.03E-06	1.03E-06	1.21E-05
ES3S	IS3	9.03E-07	9.13E-07	9.13E-07	1.05E-05
ES3S	IS4	3.25E-07	3.21E-07	3.25E-07	5.14E-06
ES3S	NC	6.25E-07	6.53E-07	6.53E-07	1.08E-05
ES3S	NP	1.72E-06	1.80E-06	1.80E-06	9.83E-06
ES3S	SP	1.02E-06	1.05E-06	1.05E-06	6.16E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 30. χ/Q Results for Exhaust Shaft 4

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
ES4	IS2	2.22E-06	2.29E-06	2.29E-06	1.16E-05
ES4	IS3	5.64E-07	5.90E-07	5.90E-07	8.72E-06
ES4	IS4	1.40E-05	1.47E-05	1.47E-05	7.16E-05
ES4	NC	4.17E-07	4.25E-07	4.25E-07	6.46E-06
ES4	NP	1.06E-06	1.10E-06	1.10E-06	6.72E-06
ES4	SP	9.29E-07	9.57E-07	9.57E-07	5.53E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

Table 31. χ/Q Results for ECRB Exhaust Shaft

Codes		Annual Average χ/Q (s/m^3)			95th Percentile χ/Q (s/m^3)
Source	Receptor	Average	Median	Suggested	
ECRB	IS2	1.08E-06	1.13E-06	1.13E-06	1.80E-05
ECRB	IS3	3.21E-07	3.25E-07	3.25E-07	3.83E-06
ECRB	IS4	8.12E-07	8.27E-07	8.27E-07	9.45E-06
ECRB	NC	2.57E-07	2.63E-07	2.63E-07	3.80E-06
ECRB	NP	3.84E-07	3.92E-07	3.92E-07	5.60E-06
ECRB	SP	1.19E-06	1.24E-06	1.24E-06	6.89E-06

Source: *Worksheet Summary of Results* of spreadsheet *GROA XQ Calculation.xls*

6.5 EXCEL MACROS

Three Excel macros are used to create the ARCON95 input files and to import the results from the output files to the Excel spreadsheet. These macros are discussed in the following subsections.

6.5.1 Macro *InputWrite*

This macro takes the information presented in worksheet *ARCON96 Input* of the Excel spreadsheet *GROA XQ Calculation.xls* discussed in Section 6.2.6 and creates the input files to run ARCON96. It also generates a batch file to run all of the cases considered. This macro is verified by reviewing the input file generated and comparing it to the information presented in worksheet *ARCON96 Input.* For example, the input file *060a080a.rsf*, shown below, is compared with the information in row 13 of worksheet *ARCON96 Input.* This comparison shows that the macro correctly extracts the information and creates the input file.

File *060a080a.rsf* listing:

```
1
c:\arcon96\groa\ymp0105x.met
10
60
1
2
34.1
2729.87
15.24
15.89
0.56
 235    90
670.1
16.9
-1.2
```

```
c:\arcon96\groa\060a080a.log
c:\arcon96\groa\060a080a.cfd
0.1
0.5
4.3
   1   2   4   8  12  24  96 168 7208760
   1   2   4   8  11  22  87 152 324 648
     0.00    0.00
n
```

The listing of the macro *InputWrite* is shown below:

```
Sub InputWrite()
'   This routine generates the ARCON96 input files and a batch file to run them
'
'   8 November 2007
'_____________________________________________________________________________

    Dim FileName As String, lin(24) As String, Loc As String, ColRef(24) As String
    Dim Batch As String, Arcon As String

'   Define the location of the input parameters that change for each case

    ColRef(6) = "'Arcon96 Input'!O"
    ColRef(7) = "'Arcon96 Input'!E"
    ColRef(8) = "'Arcon96 Input'!F"
    ColRef(9) = "'Arcon96 Input'!G"
    ColRef(10) = "'Arcon96 Input'!H"
    ColRef(11) = "'Arcon96 Input'!I"
    ColRef(12) = "'Arcon96 Input'!J"
    ColRef(13) = "'Arcon96 Input'!K"
    ColRef(14) = "'Arcon96 Input'!L"
    ColRef(15) = "'Arcon96 Input'!M"
    ColRef(16) = "'Arcon96 Input'!C"
    ColRef(17) = "'Arcon96 Input'!D"
    ColRef(23) = "'Arcon96 Input'!N"

'   Open the batch file for processing

    Loc = "'Parameters'!B6"
    FileName = Range(Loc).Value
    Open FileName For Output As #2
    Print #2, "del *.log"
    Print #2, "del *.cfd"

'   Obtain the name and path of the ARCON96 executable file

    Loc = "'Parameters'!B2"
    Arcon = Range(Loc).Value

'   Find the number of files to process

    numrecs = Range("'Arcon96 Input'!A1").Value + 2

'   Copy a template for the input file

    For i = 1 To 24
        Loc = "'Template'!A" & Format(i)
        lin(i) = Range(Loc).Value
    Next i

'   Process the input information for each of the input files

    For j = 3 To numrecs

'       Open the ARCON96 input file

        Loc = "'Arcon96 Input'!B" & Format(j)
        FileName = Range(Loc).Value
        Open FileName For Output As #1

'       Populate the variable lin with the input information

        Loc = ColRef(23) & Format(j)
        lin(23) = Range(Loc).Value
```

```
        For k = 6 To 17
            Loc = ColRef(k) & Format(j)
            lin(k) = Range(Loc).Value
        Next k

'       Print the input information to the input file

        For i = 1 To 24
            Print #1, lin(i)
        Next i

        Close #1

'       Print the line to execute ARCON96 for the current input file
'       to the batch file

        Batch = Arcon + FileName
        Print #2, Batch
    Next j
        Close #2
End Sub
```

6.5.2 Macro *LogFileRead*

This macro is used to extract the 0 – 2 hour χ/Q values from the .log output files and place them in the worksheet *95Percentile* of the Excel spreadsheet *GROA XQ Calculation.xls* discussed in Section 6.3.1. This macro is verified by comparing the results in the .log file with the values presented in the worksheet *95Percentile*. For example, from file 080a71A.log, the 0 – 2 hour χ/Q is 1.42×10^{-5} s/m^3. This is the value shown in cell C250 of worksheet *95Percentile*.

The listing of macro *LogFileRead* is shown below:

```
Sub LogFileRead()
'   This routine reads the ARCON96 log file and extracts the 0-2 hr
'   95th percentile X/Q
'
'   8 November 2007
'_____________________________________________________________________________

    Dim lin As String, FileName As String, Loc As String

'   Find the number of files to process

    numrecs = Range("'Arcon96 Input'!A1").Value + 2

    For j = 3 To numrecs

'       Open the log file

        Loc = "'Arcon96 Input'!C" & Format(j)
        FileName = Range(Loc).Value
        Open FileName For Input As #1

'       Read the log file line by line the 0-2 hr X/Q is on line 98

        For i = 1 To 101
        Input #1, lin
        If (i = 98) Then
            Loc = "'95Percentile'!C" & Format(j)
            test = Right(lin, 8)
            Range(Loc).Value = test

        End If
        Next i
        Close #1
    Next j
End Sub
```

6.5.3 Macro *CFDFileRead*

This macro is used to extract the 8,760 averaging period cumulative frequency distributions from the .cfd output files and place them in the worksheet *Annual* of the Excel spreadsheet *GROA XQ Calculation.xls* discussed in Section 6.3.2. This macro also adjusts the scaling for the cases that exhibit the ARCON96 error discussed in Sections 4.2.1 and 6.3.2.

This macro is verified by comparing the results in the .cfd file with the values presented in the worksheet *Annual*. For example, from file 060a060a.cfd, the first non-zero cumulative hours is for the χ/Q value of 6.918×10^{-6} s/m^3. For this χ/Q value there are 1,226 hours. This value is shown in cell BG4 of worksheet *Annual*. Macro CFDFileRead also determines hours from the previous χ/Q value to the current χ/Q value. Continuing on the example, the next χ/Q value is 6.310×10^{-6} s/m^3 and has a cumulative 9,921 hours (as shown in cell BH4). Therefore, the number of hours from χ/Q value of 6.918×10^{-6} s/m^3 to χ/Q value is 6.310×10^{-6} s/m^3 is 9,921 – 1,226 = 8,695. This value is shown in cell BH5.

As discussed in Section 6.3.2 the file *060a060b.cfd* exhibits the ARCON96 error. The first χ/Q value shown for the averaging times greater than 8 hours is 9.12×10^{-4} s/m^3. This value is correctly adjusted to 9.12×10^{-5} s/m^3 as shown in cell F6. The first non-zero cumulative hours is for the χ/Q value of 1.738×10^{-5} s/m^3 as shown in file *060a060b.cfd.* This correctly adjusted to 1.74×10^{-6} s/m^3 as shown in cell AW6. The 9 cumulative hours are shown in cell AW7

The listing of macro *CFDFileRead* is shown below:

```
Sub CFDFileRead()
'   This routine reads the ARCON96 CFD file and extracts the annual
'   average X/Qs and hours of occurrence
'
'   8 November 2007
'_____________________________________________________________________________

    Dim lin As String, FileName As String, Loc As String, Mis As String, Source As String
    Dim Receptor As String

    Mis = "Mismatch"

'   Find the number of files to process

    numrecs = Range("'Arcon96 Input'!A1").Value + 2

'   Initialize counters

    k = 3

    For j = 3 To numrecs

'       Initialize variables

        test = 0
        Adjust = 1
        imis = 0

        Loc = "'CFD Check'!C" & Format(j)
        Range(Loc).Value = ""

'       Open the cfd file

        Loc = "'Arcon96 Input'!D" & Format(j)
        FileName = Range(Loc).Value
        Open FileName For Input As #1

'       Find the case codes for the source and receptor
```

```
            Loc = "'95Percentile'!A" & Format(j)
            Source = Range(Loc).Value
            Loc = "'95Percentile'!B" & Format(j)
            Receptor = Range(Loc).Value

'           Print the case codes in the Annual worksheet

            Set curCell = Worksheets("Annual").Cells(k, 1)
            curCell.Value = Source
            Set curCell = Worksheets("Annual").Cells(k, 2)
            curCell.Value = Receptor

'           Print descriptions

            Set curCell = Worksheets("Annual").Cells(k, 5)
            curCell.Value = "X/Q Value: "
            Set curCell = Worksheets("Annual").Cells(k + 1, 5)
            curCell.Value = "Cumulative hours: "
            Set curCell = Worksheets("Annual").Cells(k + 2, 5)
            curCell.Value = "Difference hours: "

'           Initialize variables

            CumPrev = 0
            Hours = 0

'           Read the cfd file line by line

            For i = 1 To 104

            Input #1, lin

'           First three lines contain header information

            If (i > 4) Then

'               Read the hours of observations for the 1 hour averaging
'               and the 12 hour averaging columns to determine if the
'               ARCON96 error is present

                test1 = val(Mid(lin, 11, 6))
                test2 = val(Mid(lin, 54, 6))
                If (test = 0) Then

'                   If the 12 hour averaging column has hours, check to
'                   see if the number of hours is greater than the number
'                   of hours for the 1 hour averaging column. If so, a
'                   message is written in worksheet CFD Check and the X/Q values
'                   are reduced by one order of magnitude.

                    If (test2 > 0) Then
                        If (test2 > test1) Then
                            Loc = "'CFD Check'!C" & Format(j)
                            Range(Loc).Value = Mis
                            Adjust = 0.1
                            imis = 1
                        End If
                        test = 1
                    End If
                End If

'               Extract the X/Q value and the cumulative hours for the
'               annual averaging column

                XOQ = val(Mid(lin, 42, 9)) * Adjust
                Cum = val(Right(lin, 7))

'               For the case where the ARCON96 error is present, the X/Q values
'               written into the spreadsheet prior to the check need to be adjusted

                If (imis = 1 And i > 6) Then
                    For l = 6 To i
                        Set curCell = Worksheets("Annual").Cells(k, l)
                        testXQ = curCell.Value * Adjust
                        curCell.Value = testXQ
                    Next l
                    imis = 0
                End If

'               Write the values into the worksheet
```

```
            Set curCell = Worksheets("Annual").Cells(k, i + 1)
            curCell.Value = XOQ
            Set curCell = Worksheets("Annual").Cells(k + 1, i + 1)
            curCell.Value = Cum

'           Calculate the difference from the previous cumulative
'           number of hours and write the results in the worksheet

            Hours = Cum - CumPrev
            CumPrev = Cum
            Set curCell = Worksheets("Annual").Cells(k + 2, i + 1)
            curCell.Value = Hours

        End If

        Next i
        Close #1

        k = k + 3

    Next j


End Sub
```

7 RESULTS AND CONCLUSION

While some facilities have more than one release or receptor location, only the highest χ/Q value for each facility combination of source to receptor from Table 10 to Table 31 is summarized in Table 32 for annual average χ/Qs and Table 33 for the 0 – 2 hour 95th percentile χ/Qs. The annual average χ/Qs can be used to estimate radiological consequences to workers for potential releases from normal operations. The 0 – 2 hour 95th percentile χ/Qs can be used to estimate radiological consequences to workers from Category 1 event sequences.

The outputs are reasonable compared to the inputs. The dispersion factors calculated in this document are suitable for radiological dose assessment for the operation of repository facilities.

Table 32. Onsite Annual Average Atmospheric Dispersion Factor Values

Receptor Location	Annual Average Atmospheric Dispersion Factor (s/m^3) for Release from Facility																
	060	070	080	200	050	51A	160	17RE	17RW	17PN	17PS	ES1	ES2	ES3N	ES3S	ES4	ECRB
060	2.58E-05	3.87E-06	2.91E-06	5.40E-06	2.15E-05	2.81E-06	1.53E-05	3.47E-06	4.12E-06	2.26E-06	2.50E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
070	4.03E-06	2.58E-05	3.13E-06	5.00E-06	6.53E-06	1.72E-06	5.49E-06	6.04E-06	5.50E-06	2.89E-06	3.32E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
080	3.39E-06	5.07E-06	2.58E-05	4.57E-06	4.42E-06	1.44E-06	4.05E-06	6.79E-06	5.26E-06	3.15E-06	3.64E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
200	4.70E-06	3.10E-06	2.66E-06	9.83E-05	1.52E-05	2.41E-06	9.33E-06	4.58E-06	4.62E-06	2.51E-06	2.86E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
050	7.45E-06	3.61E-06	2.43E-06	5.87E-06	1.83E-03	7.32E-06	4.90E-05	1.56E-06	2.81E-06	1.59E-06	1.59E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
51A	1.47E-06	1.11E-06	9.03E-07	1.40E-06	9.84E-06	2.20E-05	3.48E-06	1.14E-06	1.74E-06	1.15E-06	1.12E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
160	3.68E-06	1.73E-06	1.31E-06	2.31E-06	2.35E-05	2.58E-06	5.53E-05	1.42E-06	3.09E-06	1.62E-06	1.47E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
17RE	3.70E-06	5.30E-06	5.06E-06	4.65E-06	6.65E-06	1.59E-06	4.82E-06	N/A	7.87E-06	7.17E-06	1.03E-05	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
17RW	3.54E-06	3.94E-06	3.39E-06	4.06E-06	6.86E-06	1.66E-06	5.47E-06	2.66E-06	N/A	3.92E-06	3.51E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
17PN	1.59E-06	1.96E-06	2.03E-06	1.77E-06	4.46E-06	1.05E-06	1.72E-06	2.24E-06	2.38E-06	N/A	1.06E-05	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
17PS	1.98E-06	2.52E-06	2.64E-06	2.20E-06	5.34E-06	1.20E-06	2.08E-06	3.82E-06	3.52E-06	3.22E-05	N/A	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
IS2	1.83E-08	1.66E-08	1.58E-08	1.69E-08	2.40E-08	2.34E-08	1.70E-08	1.39E-07	1.50E-07	1.48E-07	1.43E-07	4.58E-06	4.22E-07	8.66E-07	1.03E-06	2.29E-06	1.13E-06
IS3	2.72E-08	2.28E-08	2.02E-08	2.58E-08	3.33E-08	3.01E-08	3.03E-08	1.57E-07	1.79E-07	1.65E-07	1.59E-07	5.07E-07	1.95E-07	1.27E-05	9.13E-07	5.90E-07	3.25E-07
IS4	9.38E-09	8.40E-09	7.75E-09	8.85E-09	1.10E-08	1.18E-08	9.45E-09	1.11E-07	1.18E-07	1.17E-07	1.15E-07	4.25E-06	2.65E-07	4.33E-07	3.25E-07	1.47E-05	8.27E-07
NC	5.72E-07	5.48E-07	5.16E-07	5.58E-07	1.53E-06	5.36E-07	6.29E-07	4.34E-07	6.09E-07	4.40E-07	4.11E-07	3.33E-07	2.08E-07	2.21E-06	6.53E-07	4.25E-07	2.63E-07
NP	1.52E-06	1.05E-06	8.58E-07	1.35E-06	1.00E-05	2.57E-06	2.40E-06	8.66E-07	1.41E-06	9.91E-07	9.08E-07	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
SP	7.73E-07	6.02E-07	5.33E-07	6.71E-07	6.87E-06	1.20E-06	9.03E-07	3.82E-07	4.67E-07	4.15E-07	4.08E-07	1.12E-06	9.37E-07	7.97E-07	1.05E-06	9.57E-07	1.24E-06
220	1.64E-06	1.23E-06	9.82E-07	1.57E-06	1.28E-05	5.75E-06	4.24E-06	9.84E-07	1.65E-06	1.09E-06	1.05E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
240	1.36E-06	1.08E-06	9.14E-07	1.28E-06	6.72E-06	8.07E-07	2.86E-06	1.63E-06	2.38E-06	1.51E-06	1.51E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
230	1.33E-06	9.78E-07	8.34E-07	1.17E-06	5.23E-06	1.13E-06	2.33E-06	1.82E-06	2.26E-06	1.51E-06	1.59E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
25A	1.23E-06	1.17E-06	6.45E-07	1.48E-06	1.10E-06	2.67E-07	9.17E-07	3.11E-06	3.03E-06	2.03E-06	2.22E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
620	6.39E-07	1.73E-06	1.35E-06	1.36E-06	1.26E-06	3.33E-07	8.46E-07	3.53E-06	3.27E-06	2.23E-06	2.46E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
71A	3.82E-07	1.78E-06	2.75E-06	5.06E-07	1.50E-06	4.24E-07	7.78E-07	4.13E-06	3.50E-06	2.46E-06	2.76E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
30A	2.57E-06	9.59E-07	5.54E-07	2.38E-06	1.16E-06	3.69E-07	1.12E-06	3.15E-06	3.23E-06	2.06E-06	2.25E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
30B	1.62E-06	1.32E-06	1.09E-06	1.58E-06	5.42E-06	1.33E-06	2.34E-06	1.47E-06	1.51E-06	1.22E-06	1.26E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
30C	2.71E-06	5.08E-06	6.55E-06	3.83E-06	3.88E-06	1.22E-06	2.84E-06	9.58E-06	6.17E-06	3.75E-06	4.55E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
27A	2.82E-06	1.64E-06	1.26E-06	2.17E-06	1.57E-05	3.46E-06	5.58E-06	1.03E-06	1.42E-06	1.04E-06	1.04E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
780	7.20E-07	7.02E-07	6.08E-07	7.83E-07	1.95E-06	5.26E-07	1.12E-06	1.99E-06	2.03E-06	1.52E-06	1.64E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
33A	1.31E-06	9.96E-07	8.30E-07	1.22E-06	5.73E-06	1.26E-06	2.35E-06	1.52E-06	1.84E-06	1.36E-06	1.39E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07
33B	1.38E-06	1.06E-06	8.60E-07	1.36E-06	5.29E-06	1.02E-06	2.23E-06	1.51E-06	1.66E-06	1.26E-06	1.30E-06	9.92E-07	2.45E-07	1.23E-06	1.80E-06	1.10E-06	3.92E-07

Source: Worksheet *Maximum Annual* of spreadsheet *GROA XQ Calculation.xls*

Table 33. Onsite 95th Percentile Atmospheric Dispersion Factor Values

Receptor Location	95th Percentile Atmospheric Dispersion Factor (s/m3) for Release from Facility																
	060	070	080	200	050	51A	160	17RE	17RW	17PN	17PS	ES1	ES2	ES3N	ES3S	ES4	ECRB
060	2.79E-04	6.39E-05	5.46E-05	8.73E-05	4.85E-04	4.67E-05	2.66E-04	2.03E-05	2.05E-05	1.29E-05	1.43E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
070	7.89E-05	2.79E-04	5.19E-05	8.63E-05	1.52E-04	3.74E-05	1.64E-04	2.92E-05	2.66E-05	1.50E-05	1.70E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
080	7.88E-05	8.45E-05	2.79E-04	9.82E-05	1.13E-04	3.40E-05	1.24E-04	3.20E-05	2.50E-05	1.56E-05	1.84E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
200	6.35E-05	4.48E-05	4.70E-05	7.37E-04	3.37E-04	3.97E-05	1.78E-04	2.43E-05	2.23E-05	1.35E-05	1.53E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
050	1.24E-04	7.20E-05	4.97E-05	1.15E-04	1.41E-02	8.82E-05	6.70E-04	1.57E-05	1.71E-05	1.15E-05	1.23E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
51A	2.23E-05	2.07E-05	1.81E-05	2.39E-05	1.53E-04	1.42E-04	5.09E-05	1.14E-05	1.24E-05	9.13E-06	9.70E-06	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
160	4.90E-05	3.29E-05	2.69E-05	3.94E-05	3.10E-04	3.19E-05	3.89E-04	1.77E-05	2.34E-05	1.29E-05	1.38E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
17RE	5.89E-05	7.93E-05	7.26E-05	7.16E-05	1.46E-04	2.82E-05	7.94E-05	N/A	9.54E-05	3.46E-05	5.03E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
17RW	5.50E-05	5.52E-05	4.60E-05	6.05E-05	1.42E-04	2.86E-05	8.30E-05	5.15E-05	N/A	3.24E-05	4.04E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
17PN	2.64E-05	3.07E-05	3.08E-05	2.87E-05	9.66E-05	1.77E-05	3.01E-05	2.44E-05	2.52E-05	N/A	9.60E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
17PS	3.26E-05	3.95E-05	3.93E-05	3.58E-05	1.15E-04	2.05E-05	3.67E-05	3.86E-05	3.71E-05	1.54E-04	N/A	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
IS2	1.79E-07	2.02E-07	2.23E-07	1.86E-07	2.25E-07	2.05E-07	1.05E-07	1.93E-06	2.13E-06	2.02E-06	2.00E-06	2.18E-05	4.91E-06	7.10E-06	1.21E-05	1.16E-05	1.80E-05
IS3	3.52E-07	3.14E-07	2.76E-07	3.60E-07	3.63E-07	3.53E-07	4.20E-07	2.32E-06	2.81E-06	2.31E-06	2.18E-06	5.96E-06	2.23E-06	6.74E-05	1.05E-05	8.72E-06	3.83E-06
IS4	1.41E-07	9.68E-08	7.20E-08	1.23E-07	1.67E-07	1.96E-07	1.45E-07	1.53E-06	1.61E-06	1.58E-06	1.57E-06	4.26E-05	3.10E-06	6.13E-06	5.14E-06	7.16E-05	9.45E-06
NC	1.01E-05	9.22E-06	8.67E-06	9.61E-06	2.97E-05	9.88E-06	1.07E-05	6.99E-06	8.62E-06	7.04E-06	6.26E-06	5.39E-06	2.43E-06	1.17E-05	1.08E-05	6.46E-06	3.80E-06
NP	2.64E-05	2.19E-05	1.90E-05	2.59E-05	1.56E-04	2.77E-05	3.26E-05	1.21E-05	1.55E-05	1.05E-05	1.06E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
SP	2.03E-05	1.50E-05	1.27E-05	1.71E-05	2.69E-04	3.16E-05	2.71E-05	4.56E-06	5.25E-06	4.76E-06	4.69E-06	6.21E-06	8.81E-06	4.99E-06	6.16E-06	5.53E-06	6.89E-06
220	2.73E-05	2.49E-05	2.09E-05	2.96E-05	2.03E-04	4.02E-05	6.41E-05	1.14E-05	1.37E-05	9.71E-06	1.02E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
240	1.32E-05	1.75E-05	1.61E-05	1.85E-05	9.19E-05	1.45E-05	3.82E-05	1.30E-05	1.36E-05	9.87E-06	1.06E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
230	1.26E-05	1.48E-05	1.40E-05	1.61E-05	7.54E-05	1.15E-05	3.13E-05	1.26E-05	1.28E-05	9.54E-06	1.01E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
25A	7.70E-06	6.57E-06	4.74E-06	8.35E-06	2.07E-05	3.59E-06	1.12E-05	1.58E-05	1.54E-05	1.11E-05	1.20E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
620	5.65E-06	1.00E-05	7.71E-06	8.87E-06	2.51E-05	6.21E-06	1.30E-05	1.75E-05	1.64E-05	1.18E-05	1.30E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
71A	6.48E-06	1.22E-05	1.64E-05	6.16E-06	3.79E-05	8.75E-06	1.43E-05	2.03E-05	1.72E-05	1.27E-05	1.41E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
30A	1.60E-05	7.79E-06	5.98E-06	1.39E-05	2.27E-05	4.14E-06	1.07E-05	1.70E-05	1.65E-05	1.15E-05	1.26E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
30B	2.56E-05	2.31E-05	2.04E-05	2.60E-05	8.74E-05	1.82E-05	3.77E-05	8.65E-06	8.59E-06	7.30E-06	7.55E-06	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
30C	4.34E-05	4.75E-05	5.25E-05	5.20E-05	8.29E-05	2.41E-05	7.30E-05	4.49E-05	3.15E-05	1.85E-05	2.22E-05	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
27A	5.82E-05	3.90E-05	3.04E-05	5.04E-05	3.81E-04	4.50E-05	1.08E-04	9.27E-06	9.73E-06	7.84E-06	8.15E-06	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
780	7.32E-06	8.54E-06	8.22E-06	8.96E-06	2.99E-05	3.33E-06	1.53E-05	1.10E-05	1.09E-05	8.76E-06	9.20E-06	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
33A	1.75E-05	1.65E-05	1.51E-05	1.81E-05	8.68E-05	6.90E-06	3.40E-05	1.07E-05	1.09E-05	8.57E-06	9.00E-06	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06
33B	1.93E-05	1.83E-05	1.64E-05	2.08E-05	8.21E-05	1.09E-05	3.51E-05	9.55E-06	9.57E-06	7.87E-06	8.23E-06	7.12E-06	3.50E-06	6.80E-06	9.83E-06	6.72E-06	5.60E-06

Source: Worksheet *Maximum 95 Percentile* of spreadsheet *GROA XQ Calculation.xls*

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I VENTILATION DESIGN PARAMETERS OF GROA FACILITIES

The ventilation design parameters are obtained from the attachment to the E-mail from Engineering (Reference 2.2.23) shown below. The attachments are included in the attached CD (Attachment III)

Greg Gould
11/05/2007 09:24 AM

To: Dale Dexheimer/YM/RWDOE@CRWMS
cc: Debra Nevergold/YM/RWDOE@CRWMS, David Tooker/YM/RWDOE@CRWMS, Thomas Sauer/YM/RWDOE@CRWMS, Tracy Johnson/YM/RWDOE, Charles Sauer/YM/RWDOE@CRWMS
Subject: Fw: HVAC Design Inputs for PCSA

LSN: Not Relevant - Not Privileged
User Filed as: Excl/AdminMgmt-14-4/QA:N/A

Dale,

Please find the attached .pdf file and .xls file with the information that you request for your dispersion model. The information was assembled by Mechanical HVAC and Plant Design from the latest information to date. The information should be suitable to use as an assumption requiring verification in your calculation/analysis. This version corrects the elevation and location for the IHF air handling units' intake louvers and adds some explanatory notes to the Intake table. Note that the intake elevations are taken at the center of the louver. Additionally, the IHF exhaust outlet elevation was corrected.

HVAC Input Data.to PCSA(intake & Exhaust)11-05-07 Final.xls HVAC Input Data.to PCSA(intake & Exhaust)11-05-07 Final.pdf

If you have any questions, please feel free to ask.

Greg Gould

---------- Forwarded by Greg Gould/YM/RWDOE on 11/05/2007 08:59 AM ----------

Greg Gould
10/30/2007 12:37 PM

To: Dale Dexheimer/YM/RWDOE@CRWMS
cc: Debra Nevergold/YM/RWDOE@CRWMS, David Tooker/YM/RWDOE@CRWMS, Thomas Sauer/YM/RWDOE@CRWMS, Tracy Johnson/YM/RWDOE, Charles Sauer/YM/RWDOE@CRWMS
Subject: RE: HVAC Design Inputs for PCSA

LSN: Not Relevant - Not Privileged
User Filed as: Excl/AdminMgmt-14-4/QA:N/A

Dale,

Please find the attached .pdf file and .xls file with the information that you request for your dispersion model. The information was assembled by Mechanical HVAC and Plant Design from the latest information to date. The information should be suitable to use as an assumption requiring verification in your calculation/analysis.

[attachment "HVAC Input Data.to PCSA(intake & Exhaust)10-30-07 Final.xls" deleted by Greg Gould/YM/RWDOE]
[attachment "HVAC Input Data.to PCSA(intake & Exhaust)10-30-07 Final.pdf" deleted by Greg Gould/YM/RWDOE]

If you have any questions, please feel free to ask.

Greg Gould

Dale Dexheimer

Dale Dexheimer
10/16/2007 12:59 PM

To: Debra Nevergold/YM/RWDOE@CRWMS, David Tooker/YM/RWDOE@CRWMS
cc: Greg Gould/YM/RWDOE@CRWMS, Thomas Sauer/YM/RWDOE@CRWMS, John Wang/YM/RWDOE@CRWMS, Sen-Sung Tsai/YM/RWDOE@CRWMS, William Duffy/YM/RWDOE@CRWMS, Tracy Johnson/YM/RWDOE@CRWMS, Charles Sauer/YM/RWDOE@CRWMS
Subject: RE: HVAC Design Inputs for PCSA

LSN: Not Relevant - Not Privileged
User Filed as: Excl/AdminMgmt-14-4/QA:N/A

Debra, Dave,

In March 2007, preliminary HVAC design information was provided to PCSA by the Mechanical HVAC group for the purpose of determining on-site atmospheric dispersion factors. The information included locations, elevations, flow rates, and minimum discharge velocity's of exhausts from the LLWF, WHF, RF, and CRCF1,2,3. For intakes of those facilities only the locations and elevations are needed.

We are finalizing the LA Section 1.8 and supporting calculations that develop or use those atmospheric dispersion factors and need to confirm or update the preliminary HVAC design inputs. Attached is a simple spreadsheet that I have recently discussed with Greg Gould that would provide the minimum amount of input data needed by PCSA. Because the HVAC duct routing is shown only on the 3-D model, Plant Design and Mechanical HVAC would both need to be involved to provide information on that spreadsheet.

Can you please make appropriate arrangements to proceed with an effort to provide the identified input data. This is not expected to be a large effort, because the information is already developed. In order to support our LA section completion schedule, we would need the information by Wednesday October 24.

Thanks,
Dale

[attachment "HVAC Input Data.to PCSA.xls" deleted by Greg Gould/YM/RWDOE]

II ELECTRONIC FILES ON ATTACHED CD

Electronic I/O files of ARCON96 calculations and Excel files are provided on a compact disc (Attachment III). The attributes of the electronic files are listed in Table II - 1. Each file is identified by its name, size (in bytes), date, and time. The I/O files can be opened using a text editor (e.g., Notepad).

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
D:\			
===			
GROA	DIR	12/10/2007	14:24:38
HVAC INPUT	DIR	11/16/2007	7:42:38
TEST	DIR	11/16/2007	7:41:41
GROA XQ Calculation.xls	6,158,336	12/4/2007	13:13:46
D:\GROA			
=======			
050a050a.cfd	11,168	12/4/2007	12:09:28
050a050a.log	4,794	12/4/2007	12:09:28
050a050a.rsf	291	12/4/2007	12:06:46
050a050b.cfd	11,168	12/4/2007	12:09:28
050a050b.log	4,794	12/4/2007	12:09:28
050a050b.rsf	291	12/4/2007	12:06:46
050a050c.cfd	11,168	12/4/2007	12:09:28
050a050c.log	4,794	12/4/2007	12:09:28
050a050c.rsf	292	12/4/2007	12:06:46
050a050d.cfd	11,168	12/4/2007	12:09:28
050a050d.log	4,794	12/4/2007	12:09:28
050a050d.rsf	291	12/4/2007	12:06:46
050a060a.cfd	11,168	12/4/2007	12:09:22
050a060a.log	4,794	12/4/2007	12:09:22
050a060a.rsf	293	12/4/2007	12:06:46
050a060b.cfd	11,168	12/4/2007	12:09:22
050a060b.log	4,794	12/4/2007	12:09:22
050a060b.rsf	292	12/4/2007	12:06:46
050a060c.cfd	11,168	12/4/2007	12:09:22
050a060c.log	4,794	12/4/2007	12:09:22
050a060c.rsf	292	12/4/2007	12:06:46
050a060d.cfd	11,168	12/4/2007	12:09:24
050a060d.log	4,794	12/4/2007	12:09:24
050a060d.rsf	292	12/4/2007	12:06:46
050a060e.cfd	11,168	12/4/2007	12:09:24
050a060e.log	4,794	12/4/2007	12:09:24
050a060e.rsf	292	12/4/2007	12:06:46
050a070a.cfd	11,168	12/4/2007	12:09:24
050a070a.log	4,794	12/4/2007	12:09:24
050a070a.rsf	293	12/4/2007	12:06:46
050a070b.cfd	11,168	12/4/2007	12:09:24
050a070b.log	4,794	12/4/2007	12:09:24
050a070b.rsf	292	12/4/2007	12:06:46
050a070c.cfd	11,168	12/4/2007	12:09:24

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
050a070c.log	4,794	12/4/2007	12:09:24
050a070c.rsf	292	12/4/2007	12:06:46
050a070d.cfd	11,168	12/4/2007	12:09:24
050a070d.log	4,794	12/4/2007	12:09:24
050a070d.rsf	292	12/4/2007	12:06:46
050a070e.cfd	11,168	12/4/2007	12:09:26
050a070e.log	4,794	12/4/2007	12:09:26
050a070e.rsf	292	12/4/2007	12:06:46
050a080a.cfd	11,168	12/4/2007	12:09:26
050a080a.log	4,794	12/4/2007	12:09:26
050a080a.rsf	293	12/4/2007	12:06:46
050a080b.cfd	11,168	12/4/2007	12:09:26
050a080b.log	4,794	12/4/2007	12:09:26
050a080b.rsf	292	12/4/2007	12:06:46
050a080c.cfd	11,168	12/4/2007	12:09:26
050a080c.log	4,794	12/4/2007	12:09:26
050a080c.rsf	292	12/4/2007	12:06:46
050a080d.cfd	11,168	12/4/2007	12:09:26
050a080d.log	4,794	12/4/2007	12:09:26
050a080d.rsf	292	12/4/2007	12:06:46
050a080e.cfd	11,168	12/4/2007	12:09:26
050a080e.log	4,794	12/4/2007	12:09:26
050a080e.rsf	292	12/4/2007	12:06:46
050a160a.cfd	11,168	12/4/2007	12:09:30
050a160a.log	4,794	12/4/2007	12:09:30
050a160a.rsf	292	12/4/2007	12:06:46
050a160b.cfd	11,168	12/4/2007	12:09:30
050a160b.log	4,794	12/4/2007	12:09:30
050a160b.rsf	292	12/4/2007	12:06:46
050a160c.cfd	11,168	12/4/2007	12:09:30
050a160c.log	4,794	12/4/2007	12:09:30
050a160c.rsf	292	12/4/2007	12:06:46
050a17PN.cfd	11,168	12/4/2007	12:09:32
050a17PN.log	4,794	12/4/2007	12:09:32
050a17PN.rsf	295	12/4/2007	12:06:46
050a17PS.cfd	11,168	12/4/2007	12:09:32
050a17PS.log	4,794	12/4/2007	12:09:32
050a17PS.rsf	295	12/4/2007	12:06:46
050a17RE.cfd	11,168	12/4/2007	12:09:32
050a17RE.log	4,794	12/4/2007	12:09:32
050a17RE.rsf	295	12/4/2007	12:06:46
050a17RW.cfd	11,168	12/4/2007	12:09:32
050a17RW.log	4,794	12/4/2007	12:09:32
050a17RW.rsf	295	12/4/2007	12:06:46
050a200a.cfd	11,168	12/4/2007	12:09:26
050a200a.log	4,794	12/4/2007	12:09:26
050a200a.rsf	293	12/4/2007	12:06:46
050a200b.cfd	11,168	12/4/2007	12:09:26
050a200b.log	4,794	12/4/2007	12:09:26
050a200b.rsf	293	12/4/2007	12:06:46
050a200c.cfd	11,168	12/4/2007	12:09:28
050a200c.log	4,794	12/4/2007	12:09:28
050a200c.rsf	293	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
050a200d.cfd	11,168	12/4/2007	12:09:28
050a200d.log	4,794	12/4/2007	12:09:28
050a200d.rsf	293	12/4/2007	12:06:46
050a220.cfd	11,168	12/4/2007	12:09:34
050a220.log	4,794	12/4/2007	12:09:34
050a220.rsf	290	12/4/2007	12:06:46
050a230.cfd	11,168	12/4/2007	12:09:36
050a230.log	4,794	12/4/2007	12:09:36
050a230.rsf	290	12/4/2007	12:06:46
050a240.cfd	11,168	12/4/2007	12:09:36
050a240.log	4,794	12/4/2007	12:09:36
050a240.rsf	290	12/4/2007	12:06:46
050a25A.cfd	11,168	12/4/2007	12:09:36
050a25A.log	4,794	12/4/2007	12:09:36
050a25A.rsf	291	12/4/2007	12:06:46
050a27A.cfd	11,168	12/4/2007	12:09:36
050a27A.log	4,794	12/4/2007	12:09:36
050a27A.rsf	290	12/4/2007	12:06:46
050a30A.cfd	11,168	12/4/2007	12:09:36
050a30A.log	4,794	12/4/2007	12:09:36
050a30A.rsf	291	12/4/2007	12:06:46
050a30B.cfd	11,168	12/4/2007	12:09:36
050a30B.log	4,794	12/4/2007	12:09:36
050a30B.rsf	291	12/4/2007	12:06:46
050a30C.cfd	11,168	12/4/2007	12:09:36
050a30C.log	4,794	12/4/2007	12:09:36
050a30C.rsf	291	12/4/2007	12:06:46
050a33A.cfd	11,168	12/4/2007	12:09:38
050a33A.log	4,794	12/4/2007	12:09:38
050a33A.rsf	290	12/4/2007	12:06:46
050a33B.cfd	11,168	12/4/2007	12:09:38
050a33B.log	4,794	12/4/2007	12:09:38
050a33B.rsf	291	12/4/2007	12:06:46
050a51Aa.cfd	11,168	12/4/2007	12:09:28
050a51Aa.log	4,794	12/4/2007	12:09:28
050a51Aa.rsf	292	12/4/2007	12:06:46
050a51Ab.cfd	11,168	12/4/2007	12:09:30
050a51Ab.log	4,794	12/4/2007	12:09:30
050a51Ab.rsf	292	12/4/2007	12:06:46
050a620.cfd	11,168	12/4/2007	12:09:36
050a620.log	4,794	12/4/2007	12:09:36
050a620.rsf	291	12/4/2007	12:06:46
050a71A.cfd	11,168	12/4/2007	12:09:36
050a71A.log	4,794	12/4/2007	12:09:36
050a71A.rsf	291	12/4/2007	12:06:46
050a780.cfd	11,168	12/4/2007	12:09:38
050a780.log	4,794	12/4/2007	12:09:38
050a780.rsf	291	12/4/2007	12:06:46
050aIS2.cfd	11,168	12/4/2007	12:09:32
050aIS2.log	4,794	12/4/2007	12:09:32
050aIS2.rsf	293	12/4/2007	12:06:46
050aIS3.cfd	11,168	12/4/2007	12:09:32
050aIS3.log	4,794	12/4/2007	12:09:32

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
050aIS3.rsf	294	12/4/2007	12:06:46
050aIS4.cfd	11,168	12/4/2007	12:09:34
050aIS4.log	4,794	12/4/2007	12:09:34
050aIS4.rsf	294	12/4/2007	12:06:46
050aNC.cfd	11,168	12/4/2007	12:09:34
050aNC.log	4,794	12/4/2007	12:09:34
050aNC.rsf	291	12/4/2007	12:06:46
050aNP.cfd	11,168	12/4/2007	12:09:34
050aNP.log	4,794	12/4/2007	12:09:34
050aNP.rsf	289	12/4/2007	12:06:46
050aSP.cfd	11,168	12/4/2007	12:09:34
050aSP.log	4,794	12/4/2007	12:09:34
050aSP.rsf	290	12/4/2007	12:06:46
050b050a.cfd	11,168	12/4/2007	12:09:44
050b050a.log	4,794	12/4/2007	12:09:44
050b050a.rsf	291	12/4/2007	12:06:46
050b050b.cfd	11,168	12/4/2007	12:09:44
050b050b.log	4,794	12/4/2007	12:09:44
050b050b.rsf	291	12/4/2007	12:06:46
050b050c.cfd	11,168	12/4/2007	12:09:44
050b050c.log	4,794	12/4/2007	12:09:44
050b050c.rsf	292	12/4/2007	12:06:46
050b050d.cfd	11,168	12/4/2007	12:09:44
050b050d.log	4,794	12/4/2007	12:09:44
050b050d.rsf	292	12/4/2007	12:06:46
050b060a.cfd	11,168	12/4/2007	12:09:38
050b060a.log	4,794	12/4/2007	12:09:38
050b060a.rsf	293	12/4/2007	12:06:46
050b060b.cfd	11,168	12/4/2007	12:09:38
050b060b.log	4,794	12/4/2007	12:09:38
050b060b.rsf	292	12/4/2007	12:06:46
050b060c.cfd	11,168	12/4/2007	12:09:38
050b060c.log	4,794	12/4/2007	12:09:38
050b060c.rsf	292	12/4/2007	12:06:46
050b060d.cfd	11,168	12/4/2007	12:09:38
050b060d.log	4,794	12/4/2007	12:09:38
050b060d.rsf	292	12/4/2007	12:06:46
050b060e.cfd	11,168	12/4/2007	12:09:40
050b060e.log	4,794	12/4/2007	12:09:40
050b060e.rsf	292	12/4/2007	12:06:46
050b070a.cfd	11,168	12/4/2007	12:09:40
050b070a.log	4,794	12/4/2007	12:09:40
050b070a.rsf	293	12/4/2007	12:06:46
050b070b.cfd	11,168	12/4/2007	12:09:40
050b070b.log	4,794	12/4/2007	12:09:40
050b070b.rsf	292	12/4/2007	12:06:46
050b070c.cfd	11,168	12/4/2007	12:09:40
050b070c.log	4,794	12/4/2007	12:09:40
050b070c.rsf	292	12/4/2007	12:06:46
050b070d.cfd	11,168	12/4/2007	12:09:40
050b070d.log	4,794	12/4/2007	12:09:40
050b070d.rsf	292	12/4/2007	12:06:46
050b070e.cfd	11,168	12/4/2007	12:09:40

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
050b070e.log	4,794	12/4/2007	12:09:40
050b070e.rsf	292	12/4/2007	12:06:46
050b080a.cfd	11,168	12/4/2007	12:09:40
050b080a.log	4,794	12/4/2007	12:09:40
050b080a.rsf	293	12/4/2007	12:06:46
050b080b.cfd	11,168	12/4/2007	12:09:40
050b080b.log	4,794	12/4/2007	12:09:40
050b080b.rsf	292	12/4/2007	12:06:46
050b080c.cfd	11,168	12/4/2007	12:09:40
050b080c.log	4,794	12/4/2007	12:09:40
050b080c.rsf	292	12/4/2007	12:06:46
050b080d.cfd	11,168	12/4/2007	12:09:42
050b080d.log	4,794	12/4/2007	12:09:42
050b080d.rsf	292	12/4/2007	12:06:46
050b080e.cfd	11,168	12/4/2007	12:09:42
050b080e.log	4,794	12/4/2007	12:09:42
050b080e.rsf	292	12/4/2007	12:06:46
050b160a.cfd	11,168	12/4/2007	12:09:44
050b160a.log	4,794	12/4/2007	12:09:44
050b160a.rsf	292	12/4/2007	12:06:46
050b160b.cfd	11,168	12/4/2007	12:09:44
050b160b.log	4,794	12/4/2007	12:09:44
050b160b.rsf	292	12/4/2007	12:06:46
050b160c.cfd	11,168	12/4/2007	12:09:46
050b160c.log	4,794	12/4/2007	12:09:46
050b160c.rsf	292	12/4/2007	12:06:46
050b17PN.cfd	11,168	12/4/2007	12:09:46
050b17PN.log	4,794	12/4/2007	12:09:46
050b17PN.rsf	295	12/4/2007	12:06:46
050b17PS.cfd	11,168	12/4/2007	12:09:46
050b17PS.log	4,794	12/4/2007	12:09:46
050b17PS.rsf	295	12/4/2007	12:06:46
050b17RE.cfd	11,168	12/4/2007	12:09:46
050b17RE.log	4,794	12/4/2007	12:09:46
050b17RE.rsf	295	12/4/2007	12:06:46
050b17RW.cfd	11,168	12/4/2007	12:09:46
050b17RW.log	4,794	12/4/2007	12:09:46
050b17RW.rsf	295	12/4/2007	12:06:46
050b200a.cfd	11,168	12/4/2007	12:09:42
050b200a.log	4,794	12/4/2007	12:09:42
050b200a.rsf	293	12/4/2007	12:06:46
050b200b.cfd	11,168	12/4/2007	12:09:42
050b200b.log	4,794	12/4/2007	12:09:42
050b200b.rsf	293	12/4/2007	12:06:46
050b200c.cfd	11,168	12/4/2007	12:09:42
050b200c.log	4,794	12/4/2007	12:09:42
050b200c.rsf	293	12/4/2007	12:06:46
050b200d.cfd	11,168	12/4/2007	12:09:42
050b200d.log	4,794	12/4/2007	12:09:42
050b200d.rsf	293	12/4/2007	12:06:46
050b220.cfd	11,168	12/4/2007	12:09:50
050b220.log	4,794	12/4/2007	12:09:50
050b220.rsf	290	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
050b230.cfd	11,168	12/4/2007	12:09:50
050b230.log	4,794	12/4/2007	12:09:50
050b230.rsf	290	12/4/2007	12:06:46
050b240.cfd	11,168	12/4/2007	12:09:50
050b240.log	4,794	12/4/2007	12:09:50
050b240.rsf	290	12/4/2007	12:06:46
050b25A.cfd	11,168	12/4/2007	12:09:50
050b25A.log	4,794	12/4/2007	12:09:50
050b25A.rsf	291	12/4/2007	12:06:46
050b27A.cfd	11,168	12/4/2007	12:09:52
050b27A.log	4,794	12/4/2007	12:09:52
050b27A.rsf	290	12/4/2007	12:06:46
050b30A.cfd	11,168	12/4/2007	12:09:52
050b30A.log	4,794	12/4/2007	12:09:52
050b30A.rsf	291	12/4/2007	12:06:46
050b30B.cfd	11,168	12/4/2007	12:09:52
050b30B.log	4,794	12/4/2007	12:09:52
050b30B.rsf	291	12/4/2007	12:06:46
050b30C.cfd	11,168	12/4/2007	12:09:52
050b30C.log	4,794	12/4/2007	12:09:52
050b30C.rsf	292	12/4/2007	12:06:46
050b33A.cfd	11,168	12/4/2007	12:09:54
050b33A.log	4,794	12/4/2007	12:09:54
050b33A.rsf	290	12/4/2007	12:06:46
050b33B.cfd	11,168	12/4/2007	12:09:54
050b33B.log	4,794	12/4/2007	12:09:54
050b33B.rsf	291	12/4/2007	12:06:46
050b51Aa.cfd	11,168	12/4/2007	12:09:44
050b51Aa.log	4,794	12/4/2007	12:09:44
050b51Aa.rsf	291	12/4/2007	12:06:46
050b51Ab.cfd	11,168	12/4/2007	12:09:44
050b51Ab.log	4,794	12/4/2007	12:09:44
050b51Ab.rsf	291	12/4/2007	12:06:46
050b620.cfd	11,168	12/4/2007	12:09:50
050b620.log	4,794	12/4/2007	12:09:50
050b620.rsf	291	12/4/2007	12:06:46
050b71A.cfd	11,168	12/4/2007	12:09:50
050b71A.log	4,794	12/4/2007	12:09:50
050b71A.rsf	291	12/4/2007	12:06:46
050b780.cfd	11,168	12/4/2007	12:09:52
050b780.log	4,794	12/4/2007	12:09:52
050b780.rsf	291	12/4/2007	12:06:46
050bIS2.cfd	11,168	12/4/2007	12:09:48
050bIS2.log	4,794	12/4/2007	12:09:48
050bIS2.rsf	293	12/4/2007	12:06:46
050bIS3.cfd	11,168	12/4/2007	12:09:48
050bIS3.log	4,794	12/4/2007	12:09:48
050bIS3.rsf	294	12/4/2007	12:06:46
050bIS4.cfd	11,168	12/4/2007	12:09:48
050bIS4.log	4,794	12/4/2007	12:09:48
050bIS4.rsf	294	12/4/2007	12:06:46
050bNC.cfd	11,168	12/4/2007	12:09:48
050bNC.log	4,794	12/4/2007	12:09:48

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
050bNC.rsf	291	12/4/2007	12:06:46
050bNP.cfd	11,168	12/4/2007	12:09:48
050bNP.log	4,794	12/4/2007	12:09:48
050bNP.rsf	289	12/4/2007	12:06:46
050bSP.cfd	11,168	12/4/2007	12:09:50
050bSP.log	4,794	12/4/2007	12:09:50
050bSP.rsf	290	12/4/2007	12:06:46
060a050a.cfd	11,168	12/4/2007	12:07:18
060a050a.log	4,794	12/4/2007	12:07:18
060a050a.rsf	292	12/4/2007	12:06:44
060a050b.cfd	11,168	12/4/2007	12:07:18
060a050b.log	4,794	12/4/2007	12:07:18
060a050b.rsf	292	12/4/2007	12:06:44
060a050c.cfd	11,168	12/4/2007	12:07:18
060a050c.log	4,794	12/4/2007	12:07:18
060a050c.rsf	293	12/4/2007	12:06:44
060a050d.cfd	11,168	12/4/2007	12:07:20
060a050d.log	4,794	12/4/2007	12:07:20
060a050d.rsf	293	12/4/2007	12:06:44
060a060a.cfd	11,168	12/4/2007	12:07:12
060a060a.log	4,794	12/4/2007	12:07:12
060a060a.rsf	292	12/4/2007	12:06:44
060a060b.cfd	11,168	12/4/2007	12:07:12
060a060b.log	4,794	12/4/2007	12:07:12
060a060b.rsf	290	12/4/2007	12:06:44
060a060c.cfd	11,168	12/4/2007	12:07:12
060a060c.log	4,794	12/4/2007	12:07:12
060a060c.rsf	291	12/4/2007	12:06:44
060a060d.cfd	11,168	12/4/2007	12:07:12
060a060d.log	4,794	12/4/2007	12:07:12
060a060d.rsf	291	12/4/2007	12:06:44
060a060e.cfd	11,168	12/4/2007	12:07:14
060a060e.log	4,794	12/4/2007	12:07:14
060a060e.rsf	291	12/4/2007	12:06:44
060a070a.cfd	11,168	12/4/2007	12:07:14
060a070a.log	4,794	12/4/2007	12:07:14
060a070a.rsf	294	12/4/2007	12:06:44
060a070b.cfd	11,168	12/4/2007	12:07:14
060a070b.log	4,794	12/4/2007	12:07:14
060a070b.rsf	293	12/4/2007	12:06:44
060a070c.cfd	11,168	12/4/2007	12:07:14
060a070c.log	4,794	12/4/2007	12:07:14
060a070c.rsf	293	12/4/2007	12:06:44
060a070d.cfd	11,168	12/4/2007	12:07:14
060a070d.log	4,794	12/4/2007	12:07:14
060a070d.rsf	293	12/4/2007	12:06:44
060a070e.cfd	11,168	12/4/2007	12:07:16
060a070e.log	4,794	12/4/2007	12:07:16
060a070e.rsf	293	12/4/2007	12:06:44
060a080a.cfd	11,168	12/4/2007	12:07:16
060a080a.log	4,794	12/4/2007	12:07:16
060a080a.rsf	294	12/4/2007	12:06:44
060a080b.cfd	11,168	12/4/2007	12:07:16

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
060a080b.log	4,794	12/4/2007	12:07:16
060a080b.rsf	293	12/4/2007	12:06:44
060a080c.cfd	11,168	12/4/2007	12:07:16
060a080c.log	4,794	12/4/2007	12:07:16
060a080c.rsf	293	12/4/2007	12:06:44
060a080d.cfd	11,168	12/4/2007	12:07:16
060a080d.log	4,794	12/4/2007	12:07:16
060a080d.rsf	293	12/4/2007	12:06:44
060a080e.cfd	11,168	12/4/2007	12:07:16
060a080e.log	4,794	12/4/2007	12:07:16
060a080e.rsf	293	12/4/2007	12:06:44
060a160a.cfd	11,168	12/4/2007	12:07:20
060a160a.log	4,794	12/4/2007	12:07:20
060a160a.rsf	293	12/4/2007	12:06:44
060a160b.cfd	11,168	12/4/2007	12:07:20
060a160b.log	4,794	12/4/2007	12:07:20
060a160b.rsf	293	12/4/2007	12:06:44
060a160c.cfd	11,168	12/4/2007	12:07:22
060a160c.log	4,794	12/4/2007	12:07:22
060a160c.rsf	293	12/4/2007	12:06:44
060a17PN.cfd	11,168	12/4/2007	12:07:22
060a17PN.log	4,794	12/4/2007	12:07:22
060a17PN.rsf	295	12/4/2007	12:06:44
060a17PS.cfd	11,168	12/4/2007	12:07:22
060a17PS.log	4,794	12/4/2007	12:07:22
060a17PS.rsf	295	12/4/2007	12:06:44
060a17RE.cfd	11,168	12/4/2007	12:07:22
060a17RE.log	4,794	12/4/2007	12:07:22
060a17RE.rsf	294	12/4/2007	12:06:44
060a17RW.cfd	11,168	12/4/2007	12:07:22
060a17RW.log	4,794	12/4/2007	12:07:22
060a17RW.rsf	294	12/4/2007	12:06:44
060a200a.cfd	11,168	12/4/2007	12:07:18
060a200a.log	4,794	12/4/2007	12:07:18
060a200a.rsf	293	12/4/2007	12:06:44
060a200b.cfd	11,168	12/4/2007	12:07:18
060a200b.log	4,794	12/4/2007	12:07:18
060a200b.rsf	293	12/4/2007	12:06:44
060a200c.cfd	11,168	12/4/2007	12:07:18
060a200c.log	4,794	12/4/2007	12:07:18
060a200c.rsf	293	12/4/2007	12:06:44
060a200d.cfd	11,168	12/4/2007	12:07:18
060a200d.log	4,794	12/4/2007	12:07:18
060a200d.rsf	293	12/4/2007	12:06:44
060a220.cfd	11,168	12/4/2007	12:07:24
060a220.log	4,794	12/4/2007	12:07:24
060a220.rsf	290	12/4/2007	12:06:44
060a230.cfd	11,168	12/4/2007	12:07:24
060a230.log	4,794	12/4/2007	12:07:24
060a230.rsf	288	12/4/2007	12:06:44
060a240.cfd	11,168	12/4/2007	12:07:24
060a240.log	4,794	12/4/2007	12:07:24
060a240.rsf	289	12/4/2007	12:06:44

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
060a25A.cfd	11,168	12/4/2007	12:07:26
060a25A.log	4,794	12/4/2007	12:07:26
060a25A.rsf	291	12/4/2007	12:06:44
060a27A.cfd	11,168	12/4/2007	12:07:26
060a27A.log	4,794	12/4/2007	12:07:26
060a27A.rsf	292	12/4/2007	12:06:44
060a30A.cfd	11,168	12/4/2007	12:07:26
060a30A.log	4,794	12/4/2007	12:07:26
060a30A.rsf	290	12/4/2007	12:06:44
060a30B.cfd	11,168	12/4/2007	12:07:26
060a30B.log	4,794	12/4/2007	12:07:26
060a30B.rsf	291	12/4/2007	12:06:44
060a30C.cfd	11,168	12/4/2007	12:07:26
060a30C.log	4,794	12/4/2007	12:07:26
060a30C.rsf	291	12/4/2007	12:06:44
060a33A.cfd	11,168	12/4/2007	12:07:28
060a33A.log	4,794	12/4/2007	12:07:28
060a33A.rsf	288	12/4/2007	12:06:44
060a33B.cfd	11,168	12/4/2007	12:07:28
060a33B.log	4,794	12/4/2007	12:07:28
060a33B.rsf	291	12/4/2007	12:06:44
060a51Aa.cfd	11,168	12/4/2007	12:07:20
060a51Aa.log	4,794	12/4/2007	12:07:20
060a51Aa.rsf	292	12/4/2007	12:06:44
060a51Ab.cfd	11,168	12/4/2007	12:07:20
060a51Ab.log	4,794	12/4/2007	12:07:20
060a51Ab.rsf	292	12/4/2007	12:06:44
060a620.cfd	11,168	12/4/2007	12:07:26
060a620.log	4,794	12/4/2007	12:07:26
060a620.rsf	291	12/4/2007	12:06:44
060a71A.cfd	11,168	12/4/2007	12:07:26
060a71A.log	4,794	12/4/2007	12:07:26
060a71A.rsf	290	12/4/2007	12:06:44
060a780.cfd	11,168	12/4/2007	12:07:26
060a780.log	4,794	12/4/2007	12:07:26
060a780.rsf	291	12/4/2007	12:06:44
060aIS2.cfd	11,168	12/4/2007	12:07:22
060aIS2.log	4,794	12/4/2007	12:07:22
060aIS2.rsf	293	12/4/2007	12:06:44
060aIS3.cfd	11,168	12/4/2007	12:07:22
060aIS3.log	4,794	12/4/2007	12:07:22
060aIS3.rsf	294	12/4/2007	12:06:44
060aIS4.cfd	11,168	12/4/2007	12:07:22
060aIS4.log	4,794	12/4/2007	12:07:22
060aIS4.rsf	294	12/4/2007	12:06:44
060aNC.cfd	11,168	12/4/2007	12:07:24
060aNC.log	4,794	12/4/2007	12:07:24
060aNC.rsf	291	12/4/2007	12:06:44
060aNP.cfd	11,168	12/4/2007	12:07:24
060aNP.log	4,794	12/4/2007	12:07:24
060aNP.rsf	288	12/4/2007	12:06:44
060aSP.cfd	11,168	12/4/2007	12:07:24
060aSP.log	4,794	12/4/2007	12:07:24

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
060aSP.rsf	290	12/4/2007	12:06:44
060b050a.cfd	11,168	12/4/2007	12:07:34
060b050a.log	4,794	12/4/2007	12:07:34
060b050a.rsf	292	12/4/2007	12:06:44
060b050b.cfd	11,168	12/4/2007	12:07:34
060b050b.log	4,794	12/4/2007	12:07:34
060b050b.rsf	292	12/4/2007	12:06:44
060b050c.cfd	11,168	12/4/2007	12:07:34
060b050c.log	4,794	12/4/2007	12:07:34
060b050c.rsf	293	12/4/2007	12:06:44
060b050d.cfd	11,168	12/4/2007	12:07:34
060b050d.log	4,794	12/4/2007	12:07:34
060b050d.rsf	293	12/4/2007	12:06:44
060b060a.cfd	11,168	12/4/2007	12:07:28
060b060a.log	4,794	12/4/2007	12:07:28
060b060a.rsf	293	12/4/2007	12:06:44
060b060b.cfd	11,168	12/4/2007	12:07:28
060b060b.log	4,794	12/4/2007	12:07:28
060b060b.rsf	291	12/4/2007	12:06:44
060b060c.cfd	11,168	12/4/2007	12:07:30
060b060c.log	4,794	12/4/2007	12:07:30
060b060c.rsf	291	12/4/2007	12:06:44
060b060d.cfd	11,168	12/4/2007	12:07:30
060b060d.log	4,794	12/4/2007	12:07:30
060b060d.rsf	291	12/4/2007	12:06:44
060b060e.cfd	11,168	12/4/2007	12:07:30
060b060e.log	4,794	12/4/2007	12:07:30
060b060e.rsf	291	12/4/2007	12:06:44
060b070a.cfd	11,168	12/4/2007	12:07:30
060b070a.log	4,794	12/4/2007	12:07:30
060b070a.rsf	294	12/4/2007	12:06:44
060b070b.cfd	11,168	12/4/2007	12:07:30
060b070b.log	4,794	12/4/2007	12:07:30
060b070b.rsf	293	12/4/2007	12:06:44
060b070c.cfd	11,168	12/4/2007	12:07:30
060b070c.log	4,794	12/4/2007	12:07:30
060b070c.rsf	293	12/4/2007	12:06:44
060b070d.cfd	11,168	12/4/2007	12:07:30
060b070d.log	4,794	12/4/2007	12:07:30
060b070d.rsf	293	12/4/2007	12:06:44
060b070e.cfd	11,168	12/4/2007	12:07:32
060b070e.log	4,794	12/4/2007	12:07:32
060b070e.rsf	293	12/4/2007	12:06:44
060b080a.cfd	11,168	12/4/2007	12:07:32
060b080a.log	4,794	12/4/2007	12:07:32
060b080a.rsf	294	12/4/2007	12:06:44
060b080b.cfd	11,168	12/4/2007	12:07:32
060b080b.log	4,794	12/4/2007	12:07:32
060b080b.rsf	293	12/4/2007	12:06:44
060b080c.cfd	11,168	12/4/2007	12:07:32
060b080c.log	4,794	12/4/2007	12:07:32
060b080c.rsf	293	12/4/2007	12:06:44
060b080d.cfd	11,168	12/4/2007	12:07:32

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
060b080d.log	4,794	12/4/2007	12:07:32
060b080d.rsf	293	12/4/2007	12:06:44
060b080e.cfd	11,168	12/4/2007	12:07:32
060b080e.log	4,794	12/4/2007	12:07:32
060b080e.rsf	293	12/4/2007	12:06:44
060b160a.cfd	11,168	12/4/2007	12:07:34
060b160a.log	4,794	12/4/2007	12:07:34
060b160a.rsf	293	12/4/2007	12:06:44
060b160b.cfd	11,168	12/4/2007	12:07:36
060b160b.log	4,794	12/4/2007	12:07:36
060b160b.rsf	293	12/4/2007	12:06:44
060b160c.cfd	11,168	12/4/2007	12:07:36
060b160c.log	4,794	12/4/2007	12:07:36
060b160c.rsf	293	12/4/2007	12:06:44
060b17PN.cfd	11,168	12/4/2007	12:07:36
060b17PN.log	4,794	12/4/2007	12:07:36
060b17PN.rsf	295	12/4/2007	12:06:44
060b17PS.cfd	11,168	12/4/2007	12:07:38
060b17PS.log	4,794	12/4/2007	12:07:38
060b17PS.rsf	295	12/4/2007	12:06:44
060b17RE.cfd	11,168	12/4/2007	12:07:36
060b17RE.log	4,794	12/4/2007	12:07:36
060b17RE.rsf	295	12/4/2007	12:06:44
060b17RW.cfd	11,168	12/4/2007	12:07:36
060b17RW.log	4,794	12/4/2007	12:07:36
060b17RW.rsf	295	12/4/2007	12:06:44
060b200a.cfd	11,168	12/4/2007	12:07:32
060b200a.log	4,794	12/4/2007	12:07:32
060b200a.rsf	293	12/4/2007	12:06:44
060b200b.cfd	11,168	12/4/2007	12:07:32
060b200b.log	4,794	12/4/2007	12:07:32
060b200b.rsf	293	12/4/2007	12:06:44
060b200c.cfd	11,168	12/4/2007	12:07:34
060b200c.log	4,794	12/4/2007	12:07:34
060b200c.rsf	293	12/4/2007	12:06:44
060b200d.cfd	11,168	12/4/2007	12:07:34
060b200d.log	4,794	12/4/2007	12:07:34
060b200d.rsf	293	12/4/2007	12:06:44
060b220.cfd	11,168	12/4/2007	12:07:40
060b220.log	4,794	12/4/2007	12:07:40
060b220.rsf	290	12/4/2007	12:06:44
060b230.cfd	11,168	12/4/2007	12:07:40
060b230.log	4,794	12/4/2007	12:07:40
060b230.rsf	288	12/4/2007	12:06:44
060b240.cfd	11,168	12/4/2007	12:07:40
060b240.log	4,794	12/4/2007	12:07:40
060b240.rsf	289	12/4/2007	12:06:44
060b25A.cfd	11,168	12/4/2007	12:07:40
060b25A.log	4,794	12/4/2007	12:07:40
060b25A.rsf	291	12/4/2007	12:06:44
060b27A.cfd	11,168	12/4/2007	12:07:42
060b27A.log	4,794	12/4/2007	12:07:42
060b27A.rsf	292	12/4/2007	12:06:44

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
060b30A.cfd	11,168	12/4/2007	12:07:42
060b30A.log	4,794	12/4/2007	12:07:42
060b30A.rsf	290	12/4/2007	12:06:44
060b30B.cfd	11,168	12/4/2007	12:07:42
060b30B.log	4,794	12/4/2007	12:07:42
060b30B.rsf	291	12/4/2007	12:06:44
060b30C.cfd	11,168	12/4/2007	12:07:42
060b30C.log	4,794	12/4/2007	12:07:42
060b30C.rsf	291	12/4/2007	12:06:44
060b33A.cfd	11,168	12/4/2007	12:07:42
060b33A.log	4,794	12/4/2007	12:07:42
060b33A.rsf	288	12/4/2007	12:06:44
060b33B.cfd	11,168	12/4/2007	12:07:44
060b33B.log	4,794	12/4/2007	12:07:44
060b33B.rsf	291	12/4/2007	12:06:44
060b51Aa.cfd	11,168	12/4/2007	12:07:34
060b51Aa.log	4,794	12/4/2007	12:07:34
060b51Aa.rsf	292	12/4/2007	12:06:44
060b51Ab.cfd	11,168	12/4/2007	12:07:34
060b51Ab.log	4,794	12/4/2007	12:07:34
060b51Ab.rsf	292	12/4/2007	12:06:44
060b620.cfd	11,168	12/4/2007	12:07:40
060b620.log	4,794	12/4/2007	12:07:40
060b620.rsf	291	12/4/2007	12:06:44
060b71A.cfd	11,168	12/4/2007	12:07:40
060b71A.log	4,794	12/4/2007	12:07:40
060b71A.rsf	290	12/4/2007	12:06:44
060b780.cfd	11,168	12/4/2007	12:07:42
060b780.log	4,794	12/4/2007	12:07:42
060b780.rsf	291	12/4/2007	12:06:44
060bIS2.cfd	11,168	12/4/2007	12:07:38
060bIS2.log	4,794	12/4/2007	12:07:38
060bIS2.rsf	293	12/4/2007	12:06:44
060bIS3.cfd	11,168	12/4/2007	12:07:38
060bIS3.log	4,794	12/4/2007	12:07:38
060bIS3.rsf	294	12/4/2007	12:06:44
060bIS4.cfd	11,168	12/4/2007	12:07:38
060bIS4.log	4,794	12/4/2007	12:07:38
060bIS4.rsf	294	12/4/2007	12:06:44
060bNC.cfd	11,168	12/4/2007	12:07:38
060bNC.log	4,794	12/4/2007	12:07:38
060bNC.rsf	291	12/4/2007	12:06:44
060bNP.cfd	11,168	12/4/2007	12:07:40
060bNP.log	4,794	12/4/2007	12:07:40
060bNP.rsf	288	12/4/2007	12:06:44
060bSP.cfd	11,168	12/4/2007	12:07:40
060bSP.log	4,794	12/4/2007	12:07:40
060bSP.rsf	290	12/4/2007	12:06:44
070a050a.cfd	11,168	12/4/2007	12:07:50
070a050a.log	4,794	12/4/2007	12:07:50
070a050a.rsf	292	12/4/2007	12:06:44
070a050b.cfd	11,168	12/4/2007	12:07:52
070a050b.log	4,794	12/4/2007	12:07:52

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
070a050b.rsf	292	12/4/2007	12:06:44
070a050c.cfd	11,168	12/4/2007	12:07:52
070a050c.log	4,794	12/4/2007	12:07:52
070a050c.rsf	293	12/4/2007	12:06:44
070a050d.cfd	11,168	12/4/2007	12:07:52
070a050d.log	4,794	12/4/2007	12:07:52
070a050d.rsf	293	12/4/2007	12:06:44
070a060a.cfd	11,168	12/4/2007	12:07:44
070a060a.log	4,794	12/4/2007	12:07:44
070a060a.rsf	292	12/4/2007	12:06:44
070a060b.cfd	11,168	12/4/2007	12:07:44
070a060b.log	4,794	12/4/2007	12:07:44
070a060b.rsf	291	12/4/2007	12:06:44
070a060c.cfd	11,168	12/4/2007	12:07:44
070a060c.log	4,794	12/4/2007	12:07:44
070a060c.rsf	291	12/4/2007	12:06:44
070a060d.cfd	11,168	12/4/2007	12:07:44
070a060d.log	4,794	12/4/2007	12:07:44
070a060d.rsf	291	12/4/2007	12:06:44
070a060e.cfd	11,168	12/4/2007	12:07:46
070a060e.log	4,794	12/4/2007	12:07:46
070a060e.rsf	291	12/4/2007	12:06:44
070a070a.cfd	11,168	12/4/2007	12:07:46
070a070a.log	4,794	12/4/2007	12:07:46
070a070a.rsf	292	12/4/2007	12:06:44
070a070b.cfd	11,168	12/4/2007	12:07:46
070a070b.log	4,794	12/4/2007	12:07:46
070a070b.rsf	290	12/4/2007	12:06:44
070a070c.cfd	11,168	12/4/2007	12:07:46
070a070c.log	4,794	12/4/2007	12:07:46
070a070c.rsf	291	12/4/2007	12:06:44
070a070d.cfd	11,168	12/4/2007	12:07:46
070a070d.log	4,794	12/4/2007	12:07:46
070a070d.rsf	291	12/4/2007	12:06:44
070a070e.cfd	11,168	12/4/2007	12:07:48
070a070e.log	4,794	12/4/2007	12:07:48
070a070e.rsf	291	12/4/2007	12:06:44
070a080a.cfd	11,168	12/4/2007	12:07:48
070a080a.log	4,794	12/4/2007	12:07:48
070a080a.rsf	294	12/4/2007	12:06:44
070a080b.cfd	11,168	12/4/2007	12:07:48
070a080b.log	4,794	12/4/2007	12:07:48
070a080b.rsf	293	12/4/2007	12:06:44
070a080c.cfd	11,168	12/4/2007	12:07:48
070a080c.log	4,794	12/4/2007	12:07:48
070a080c.rsf	293	12/4/2007	12:06:44
070a080d.cfd	11,168	12/4/2007	12:07:48
070a080d.log	4,794	12/4/2007	12:07:48
070a080d.rsf	293	12/4/2007	12:06:44
070a080e.cfd	11,168	12/4/2007	12:07:50
070a080e.log	4,794	12/4/2007	12:07:50
070a080e.rsf	293	12/4/2007	12:06:44
070a160a.cfd	11,168	12/4/2007	12:07:54

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
070a160a.log	4,794	12/4/2007	12:07:54
070a160a.rsf	292	12/4/2007	12:06:44
070a160b.cfd	11,168	12/4/2007	12:07:54
070a160b.log	4,794	12/4/2007	12:07:54
070a160b.rsf	292	12/4/2007	12:06:44
070a160c.cfd	11,168	12/4/2007	12:07:54
070a160c.log	4,794	12/4/2007	12:07:54
070a160c.rsf	292	12/4/2007	12:06:44
070a17PN.cfd	11,168	12/4/2007	12:07:56
070a17PN.log	4,794	12/4/2007	12:07:56
070a17PN.rsf	295	12/4/2007	12:06:44
070a17PS.cfd	11,168	12/4/2007	12:07:56
070a17PS.log	4,794	12/4/2007	12:07:56
070a17PS.rsf	295	12/4/2007	12:06:44
070a17RE.cfd	11,168	12/4/2007	12:07:54
070a17RE.log	4,794	12/4/2007	12:07:54
070a17RE.rsf	294	12/4/2007	12:06:44
070a17RW.cfd	11,168	12/4/2007	12:07:54
070a17RW.log	4,794	12/4/2007	12:07:54
070a17RW.rsf	294	12/4/2007	12:06:44
070a200a.cfd	11,168	12/4/2007	12:07:50
070a200a.log	4,794	12/4/2007	12:07:50
070a200a.rsf	292	12/4/2007	12:06:44
070a200b.cfd	11,168	12/4/2007	12:07:50
070a200b.log	4,794	12/4/2007	12:07:50
070a200b.rsf	292	12/4/2007	12:06:44
070a200c.cfd	11,168	12/4/2007	12:07:50
070a200c.log	4,794	12/4/2007	12:07:50
070a200c.rsf	292	12/4/2007	12:06:44
070a200d.cfd	11,168	12/4/2007	12:07:50
070a200d.log	4,794	12/4/2007	12:07:50
070a200d.rsf	292	12/4/2007	12:06:44
070a220.cfd	11,168	12/4/2007	12:07:58
070a220.log	4,794	12/4/2007	12:07:58
070a220.rsf	290	12/4/2007	12:06:44
070a230.cfd	11,168	12/4/2007	12:07:58
070a230.log	4,794	12/4/2007	12:07:58
070a230.rsf	289	12/4/2007	12:06:44
070a240.cfd	11,168	12/4/2007	12:07:58
070a240.log	4,794	12/4/2007	12:07:58
070a240.rsf	289	12/4/2007	12:06:44
070a25A.cfd	11,168	12/4/2007	12:07:58
070a25A.log	4,794	12/4/2007	12:07:58
070a25A.rsf	289	12/4/2007	12:06:44
070a27A.cfd	11,168	12/4/2007	12:08:02
070a27A.log	4,794	12/4/2007	12:08:02
070a27A.rsf	292	12/4/2007	12:06:44
070a30A.cfd	11,168	12/4/2007	12:08:00
070a30A.log	4,794	12/4/2007	12:08:00
070a30A.rsf	290	12/4/2007	12:06:44
070a30B.cfd	11,168	12/4/2007	12:08:00
070a30B.log	4,794	12/4/2007	12:08:00
070a30B.rsf	289	12/4/2007	12:06:44

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
070a30C.cfd	11,168	12/4/2007	12:08:00
070a30C.log	4,794	12/4/2007	12:08:00
070a30C.rsf	291	12/4/2007	12:06:44
070a33A.cfd	11,168	12/4/2007	12:08:02
070a33A.log	4,794	12/4/2007	12:08:02
070a33A.rsf	290	12/4/2007	12:06:44
070a33B.cfd	11,168	12/4/2007	12:08:02
070a33B.log	4,794	12/4/2007	12:08:02
070a33B.rsf	290	12/4/2007	12:06:44
070a51Aa.cfd	11,168	12/4/2007	12:07:52
070a51Aa.log	4,794	12/4/2007	12:07:52
070a51Aa.rsf	293	12/4/2007	12:06:44
070a51Ab.cfd	11,168	12/4/2007	12:07:52
070a51Ab.log	4,794	12/4/2007	12:07:52
070a51Ab.rsf	293	12/4/2007	12:06:44
070a620.cfd	11,168	12/4/2007	12:08:00
070a620.log	4,794	12/4/2007	12:08:00
070a620.rsf	291	12/4/2007	12:06:44
070a71A.cfd	11,168	12/4/2007	12:08:00
070a71A.log	4,794	12/4/2007	12:08:00
070a71A.rsf	290	12/4/2007	12:06:44
070a780.cfd	11,168	12/4/2007	12:08:02
070a780.log	4,794	12/4/2007	12:08:02
070a780.rsf	290	12/4/2007	12:06:44
070aIS2.cfd	11,168	12/4/2007	12:07:56
070aIS2.log	4,794	12/4/2007	12:07:56
070aIS2.rsf	293	12/4/2007	12:06:44
070aIS3.cfd	11,168	12/4/2007	12:07:56
070aIS3.log	4,794	12/4/2007	12:07:56
070aIS3.rsf	294	12/4/2007	12:06:44
070aIS4.cfd	11,168	12/4/2007	12:07:56
070aIS4.log	4,794	12/4/2007	12:07:56
070aIS4.rsf	294	12/4/2007	12:06:44
070aNC.cfd	11,168	12/4/2007	12:07:56
070aNC.log	4,794	12/4/2007	12:07:56
070aNC.rsf	291	12/4/2007	12:06:44
070aNP.cfd	11,168	12/4/2007	12:07:56
070aNP.log	4,794	12/4/2007	12:07:56
070aNP.rsf	288	12/4/2007	12:06:44
070aSP.cfd	11,168	12/4/2007	12:07:58
070aSP.log	4,794	12/4/2007	12:07:58
070aSP.rsf	290	12/4/2007	12:06:44
070b050a.cfd	11,168	12/4/2007	12:08:08
070b050a.log	4,794	12/4/2007	12:08:08
070b050a.rsf	292	12/4/2007	12:06:44
070b050b.cfd	11,168	12/4/2007	12:08:08
070b050b.log	4,794	12/4/2007	12:08:08
070b050b.rsf	292	12/4/2007	12:06:44
070b050c.cfd	11,168	12/4/2007	12:08:08
070b050c.log	4,794	12/4/2007	12:08:08
070b050c.rsf	293	12/4/2007	12:06:44
070b050d.cfd	11,168	12/4/2007	12:08:10
070b050d.log	4,794	12/4/2007	12:08:10

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
070b050d.rsf	293	12/4/2007	12:06:44
070b060a.cfd	11,168	12/4/2007	12:08:02
070b060a.log	4,794	12/4/2007	12:08:02
070b060a.rsf	292	12/4/2007	12:06:44
070b060b.cfd	11,168	12/4/2007	12:08:04
070b060b.log	4,794	12/4/2007	12:08:04
070b060b.rsf	291	12/4/2007	12:06:44
070b060c.cfd	11,168	12/4/2007	12:08:04
070b060c.log	4,794	12/4/2007	12:08:04
070b060c.rsf	291	12/4/2007	12:06:44
070b060d.cfd	11,168	12/4/2007	12:08:04
070b060d.log	4,794	12/4/2007	12:08:04
070b060d.rsf	291	12/4/2007	12:06:44
070b060e.cfd	11,168	12/4/2007	12:08:04
070b060e.log	4,794	12/4/2007	12:08:04
070b060e.rsf	291	12/4/2007	12:06:44
070b070a.cfd	11,168	12/4/2007	12:08:04
070b070a.log	4,794	12/4/2007	12:08:04
070b070a.rsf	293	12/4/2007	12:06:44
070b070b.cfd	11,168	12/4/2007	12:08:04
070b070b.log	4,794	12/4/2007	12:08:04
070b070b.rsf	291	12/4/2007	12:06:44
070b070c.cfd	11,168	12/4/2007	12:08:06
070b070c.log	4,794	12/4/2007	12:08:06
070b070c.rsf	291	12/4/2007	12:06:44
070b070d.cfd	11,168	12/4/2007	12:08:06
070b070d.log	4,794	12/4/2007	12:08:06
070b070d.rsf	291	12/4/2007	12:06:44
070b070e.cfd	11,168	12/4/2007	12:08:06
070b070e.log	4,794	12/4/2007	12:08:06
070b070e.rsf	291	12/4/2007	12:06:44
070b080a.cfd	11,168	12/4/2007	12:08:06
070b080a.log	4,794	12/4/2007	12:08:06
070b080a.rsf	294	12/4/2007	12:06:44
070b080b.cfd	11,168	12/4/2007	12:08:06
070b080b.log	4,794	12/4/2007	12:08:06
070b080b.rsf	293	12/4/2007	12:06:44
070b080c.cfd	11,168	12/4/2007	12:08:06
070b080c.log	4,794	12/4/2007	12:08:06
070b080c.rsf	293	12/4/2007	12:06:44
070b080d.cfd	11,168	12/4/2007	12:08:06
070b080d.log	4,794	12/4/2007	12:08:06
070b080d.rsf	293	12/4/2007	12:06:44
070b080e.cfd	11,168	12/4/2007	12:08:08
070b080e.log	4,794	12/4/2007	12:08:08
070b080e.rsf	293	12/4/2007	12:06:44
070b160a.cfd	11,168	12/4/2007	12:08:10
070b160a.log	4,794	12/4/2007	12:08:10
070b160a.rsf	292	12/4/2007	12:06:44
070b160b.cfd	11,168	12/4/2007	12:08:10
070b160b.log	4,794	12/4/2007	12:08:10
070b160b.rsf	292	12/4/2007	12:06:44
070b160c.cfd	11,168	12/4/2007	12:08:10

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
070b160c.log	4,794	12/4/2007	12:08:10
070b160c.rsf	292	12/4/2007	12:06:44
070b17PN.cfd	11,168	12/4/2007	12:08:12
070b17PN.log	4,794	12/4/2007	12:08:12
070b17PN.rsf	295	12/4/2007	12:06:44
070b17PS.cfd	11,168	12/4/2007	12:08:12
070b17PS.log	4,794	12/4/2007	12:08:12
070b17PS.rsf	295	12/4/2007	12:06:44
070b17RE.cfd	11,168	12/4/2007	12:08:10
070b17RE.log	4,794	12/4/2007	12:08:10
070b17RE.rsf	294	12/4/2007	12:06:44
070b17RW.cfd	11,168	12/4/2007	12:08:10
070b17RW.log	4,794	12/4/2007	12:08:10
070b17RW.rsf	294	12/4/2007	12:06:44
070b200a.cfd	11,168	12/4/2007	12:08:08
070b200a.log	4,794	12/4/2007	12:08:08
070b200a.rsf	292	12/4/2007	12:06:44
070b200b.cfd	11,168	12/4/2007	12:08:08
070b200b.log	4,794	12/4/2007	12:08:08
070b200b.rsf	292	12/4/2007	12:06:44
070b200c.cfd	11,168	12/4/2007	12:08:08
070b200c.log	4,794	12/4/2007	12:08:08
070b200c.rsf	292	12/4/2007	12:06:44
070b200d.cfd	11,168	12/4/2007	12:08:08
070b200d.log	4,794	12/4/2007	12:08:08
070b200d.rsf	292	12/4/2007	12:06:44
070b220.cfd	11,168	12/4/2007	12:08:14
070b220.log	4,794	12/4/2007	12:08:14
070b220.rsf	290	12/4/2007	12:06:44
070b230.cfd	11,168	12/4/2007	12:08:14
070b230.log	4,794	12/4/2007	12:08:14
070b230.rsf	289	12/4/2007	12:06:44
070b240.cfd	11,168	12/4/2007	12:08:14
070b240.log	4,794	12/4/2007	12:08:14
070b240.rsf	289	12/4/2007	12:06:44
070b25A.cfd	11,168	12/4/2007	12:08:16
070b25A.log	4,794	12/4/2007	12:08:16
070b25A.rsf	291	12/4/2007	12:06:44
070b27A.cfd	11,168	12/4/2007	12:08:18
070b27A.log	4,794	12/4/2007	12:08:18
070b27A.rsf	292	12/4/2007	12:06:44
070b30A.cfd	11,168	12/4/2007	12:08:16
070b30A.log	4,794	12/4/2007	12:08:16
070b30A.rsf	290	12/4/2007	12:06:44
070b30B.cfd	11,168	12/4/2007	12:08:18
070b30B.log	4,794	12/4/2007	12:08:18
070b30B.rsf	289	12/4/2007	12:06:44
070b30C.cfd	11,168	12/4/2007	12:08:18
070b30C.log	4,794	12/4/2007	12:08:18
070b30C.rsf	291	12/4/2007	12:06:44
070b33A.cfd	11,168	12/4/2007	12:08:18
070b33A.log	4,794	12/4/2007	12:08:18
070b33A.rsf	290	12/4/2007	12:06:44

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
070b33B.cfd	11,168	12/4/2007	12:08:20
070b33B.log	4,794	12/4/2007	12:08:20
070b33B.rsf	290	12/4/2007	12:06:44
070b51Aa.cfd	11,168	12/4/2007	12:08:10
070b51Aa.log	4,794	12/4/2007	12:08:10
070b51Aa.rsf	292	12/4/2007	12:06:44
070b51Ab.cfd	11,168	12/4/2007	12:08:10
070b51Ab.log	4,794	12/4/2007	12:08:10
070b51Ab.rsf	292	12/4/2007	12:06:44
070b620.cfd	11,168	12/4/2007	12:08:16
070b620.log	4,794	12/4/2007	12:08:16
070b620.rsf	291	12/4/2007	12:06:44
070b71A.cfd	11,168	12/4/2007	12:08:16
070b71A.log	4,794	12/4/2007	12:08:16
070b71A.rsf	290	12/4/2007	12:06:44
070b780.cfd	11,168	12/4/2007	12:08:18
070b780.log	4,794	12/4/2007	12:08:18
070b780.rsf	292	12/4/2007	12:06:44
070bIS2.cfd	11,168	12/4/2007	12:08:12
070bIS2.log	4,794	12/4/2007	12:08:12
070bIS2.rsf	293	12/4/2007	12:06:44
070bIS3.cfd	11,168	12/4/2007	12:08:12
070bIS3.log	4,794	12/4/2007	12:08:12
070bIS3.rsf	294	12/4/2007	12:06:44
070bIS4.cfd	11,168	12/4/2007	12:08:12
070bIS4.log	4,794	12/4/2007	12:08:12
070bIS4.rsf	294	12/4/2007	12:06:44
070bNC.cfd	11,168	12/4/2007	12:08:14
070bNC.log	4,794	12/4/2007	12:08:14
070bNC.rsf	291	12/4/2007	12:06:44
070bNP.cfd	11,168	12/4/2007	12:08:14
070bNP.log	4,794	12/4/2007	12:08:14
070bNP.rsf	288	12/4/2007	12:06:44
070bSP.cfd	11,168	12/4/2007	12:08:14
070bSP.log	4,794	12/4/2007	12:08:14
070bSP.rsf	290	12/4/2007	12:06:44
080a050a.cfd	11,168	12/4/2007	12:08:26
080a050a.log	4,794	12/4/2007	12:08:26
080a050a.rsf	292	12/4/2007	12:06:44
080a050b.cfd	11,168	12/4/2007	12:08:26
080a050b.log	4,794	12/4/2007	12:08:26
080a050b.rsf	292	12/4/2007	12:06:44
080a050c.cfd	11,168	12/4/2007	12:08:26
080a050c.log	4,794	12/4/2007	12:08:26
080a050c.rsf	293	12/4/2007	12:06:44
080a050d.cfd	11,168	12/4/2007	12:08:26
080a050d.log	4,794	12/4/2007	12:08:26
080a050d.rsf	293	12/4/2007	12:06:44
080a060a.cfd	11,168	12/4/2007	12:08:20
080a060a.log	4,794	12/4/2007	12:08:20
080a060a.rsf	292	12/4/2007	12:06:44
080a060b.cfd	11,168	12/4/2007	12:08:20
080a060b.log	4,794	12/4/2007	12:08:20

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
080a060b.rsf	291	12/4/2007	12:06:44
080a060c.cfd	11,168	12/4/2007	12:08:20
080a060c.log	4,794	12/4/2007	12:08:20
080a060c.rsf	291	12/4/2007	12:06:44
080a060d.cfd	11,168	12/4/2007	12:08:20
080a060d.log	4,794	12/4/2007	12:08:20
080a060d.rsf	291	12/4/2007	12:06:44
080a060e.cfd	11,168	12/4/2007	12:08:22
080a060e.log	4,794	12/4/2007	12:08:22
080a060e.rsf	291	12/4/2007	12:06:44
080a070a.cfd	11,168	12/4/2007	12:08:22
080a070a.log	4,794	12/4/2007	12:08:22
080a070a.rsf	292	12/4/2007	12:06:44
080a070b.cfd	11,168	12/4/2007	12:08:22
080a070b.log	4,794	12/4/2007	12:08:22
080a070b.rsf	291	12/4/2007	12:06:44
080a070c.cfd	11,168	12/4/2007	12:08:22
080a070c.log	4,794	12/4/2007	12:08:22
080a070c.rsf	291	12/4/2007	12:06:44
080a070d.cfd	11,168	12/4/2007	12:08:22
080a070d.log	4,794	12/4/2007	12:08:22
080a070d.rsf	291	12/4/2007	12:06:44
080a070e.cfd	11,168	12/4/2007	12:08:22
080a070e.log	4,794	12/4/2007	12:08:22
080a070e.rsf	291	12/4/2007	12:06:44
080a080a.cfd	11,168	12/4/2007	12:08:22
080a080a.log	4,794	12/4/2007	12:08:22
080a080a.rsf	292	12/4/2007	12:06:44
080a080b.cfd	11,168	12/4/2007	12:08:22
080a080b.log	4,794	12/4/2007	12:08:22
080a080b.rsf	290	12/4/2007	12:06:44
080a080c.cfd	11,168	12/4/2007	12:08:22
080a080c.log	4,794	12/4/2007	12:08:22
080a080c.rsf	291	12/4/2007	12:06:44
080a080d.cfd	11,168	12/4/2007	12:08:24
080a080d.log	4,794	12/4/2007	12:08:24
080a080d.rsf	291	12/4/2007	12:06:44
080a080e.cfd	11,168	12/4/2007	12:08:24
080a080e.log	4,794	12/4/2007	12:08:24
080a080e.rsf	291	12/4/2007	12:06:44
080a160a.cfd	11,168	12/4/2007	12:08:26
080a160a.log	4,794	12/4/2007	12:08:26
080a160a.rsf	291	12/4/2007	12:06:44
080a160b.cfd	11,168	12/4/2007	12:08:26
080a160b.log	4,794	12/4/2007	12:08:26
080a160b.rsf	291	12/4/2007	12:06:44
080a160c.cfd	11,168	12/4/2007	12:08:28
080a160c.log	4,794	12/4/2007	12:08:28
080a160c.rsf	291	12/4/2007	12:06:44
080a17PN.cfd	11,168	12/4/2007	12:08:28
080a17PN.log	4,794	12/4/2007	12:08:28
080a17PN.rsf	295	12/4/2007	12:06:44
080a17PS.cfd	11,168	12/4/2007	12:08:28

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
080a17PS.log	4,794	12/4/2007	12:08:28
080a17PS.rsf	295	12/4/2007	12:06:44
080a17RE.cfd	11,168	12/4/2007	12:08:28
080a17RE.log	4,794	12/4/2007	12:08:28
080a17RE.rsf	294	12/4/2007	12:06:44
080a17RW.cfd	11,168	12/4/2007	12:08:28
080a17RW.log	4,794	12/4/2007	12:08:28
080a17RW.rsf	294	12/4/2007	12:06:44
080a200a.cfd	11,168	12/4/2007	12:08:24
080a200a.log	4,794	12/4/2007	12:08:24
080a200a.rsf	292	12/4/2007	12:06:44
080a200b.cfd	11,168	12/4/2007	12:08:24
080a200b.log	4,794	12/4/2007	12:08:24
080a200b.rsf	292	12/4/2007	12:06:44
080a200c.cfd	11,168	12/4/2007	12:08:24
080a200c.log	4,794	12/4/2007	12:08:24
080a200c.rsf	292	12/4/2007	12:06:44
080a200d.cfd	11,168	12/4/2007	12:08:24
080a200d.log	4,794	12/4/2007	12:08:24
080a200d.rsf	292	12/4/2007	12:06:44
080a220.cfd	11,168	12/4/2007	12:08:32
080a220.log	4,794	12/4/2007	12:08:32
080a220.rsf	291	12/4/2007	12:06:44
080a230.cfd	11,168	12/4/2007	12:08:32
080a230.log	4,794	12/4/2007	12:08:32
080a230.rsf	290	12/4/2007	12:06:44
080a240.cfd	11,168	12/4/2007	12:08:32
080a240.log	4,794	12/4/2007	12:08:32
080a240.rsf	290	12/4/2007	12:06:44
080a25A.cfd	11,168	12/4/2007	12:08:32
080a25A.log	4,794	12/4/2007	12:08:32
080a25A.rsf	290	12/4/2007	12:06:44
080a27A.cfd	11,168	12/4/2007	12:08:34
080a27A.log	4,794	12/4/2007	12:08:34
080a27A.rsf	292	12/4/2007	12:06:44
080a30A.cfd	11,168	12/4/2007	12:08:34
080a30A.log	4,794	12/4/2007	12:08:34
080a30A.rsf	290	12/4/2007	12:06:44
080a30B.cfd	11,168	12/4/2007	12:08:34
080a30B.log	4,794	12/4/2007	12:08:34
080a30B.rsf	289	12/4/2007	12:06:44
080a30C.cfd	11,168	12/4/2007	12:08:34
080a30C.log	4,794	12/4/2007	12:08:34
080a30C.rsf	291	12/4/2007	12:06:44
080a33A.cfd	11,168	12/4/2007	12:08:34
080a33A.log	4,794	12/4/2007	12:08:34
080a33A.rsf	290	12/4/2007	12:06:44
080a33B.cfd	11,168	12/4/2007	12:08:36
080a33B.log	4,794	12/4/2007	12:08:36
080a33B.rsf	290	12/4/2007	12:06:44
080a51Aa.cfd	11,168	12/4/2007	12:08:26
080a51Aa.log	4,794	12/4/2007	12:08:26
080a51Aa.rsf	293	12/4/2007	12:06:44

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
080a51Ab.cfd	11,168	12/4/2007	12:08:26
080a51Ab.log	4,794	12/4/2007	12:08:26
080a51Ab.rsf	293	12/4/2007	12:06:44
080a620.cfd	11,168	12/4/2007	12:08:32
080a620.log	4,794	12/4/2007	12:08:32
080a620.rsf	289	12/4/2007	12:06:44
080a71A.cfd	11,168	12/4/2007	12:08:34
080a71A.log	4,794	12/4/2007	12:08:34
080a71A.rsf	291	12/4/2007	12:06:44
080a780.cfd	11,168	12/4/2007	12:08:34
080a780.log	4,794	12/4/2007	12:08:34
080a780.rsf	291	12/4/2007	12:06:44
080aIS2.cfd	11,168	12/4/2007	12:08:28
080aIS2.log	4,794	12/4/2007	12:08:28
080aIS2.rsf	293	12/4/2007	12:06:44
080aIS3.cfd	11,168	12/4/2007	12:08:30
080aIS3.log	4,794	12/4/2007	12:08:30
080aIS3.rsf	294	12/4/2007	12:06:44
080aIS4.cfd	11,168	12/4/2007	12:08:30
080aIS4.log	4,794	12/4/2007	12:08:30
080aIS4.rsf	294	12/4/2007	12:06:44
080aNC.cfd	11,168	12/4/2007	12:08:30
080aNC.log	4,794	12/4/2007	12:08:30
080aNC.rsf	291	12/4/2007	12:06:44
080aNP.cfd	11,168	12/4/2007	12:08:30
080aNP.log	4,794	12/4/2007	12:08:30
080aNP.rsf	289	12/4/2007	12:06:44
080aSP.cfd	11,168	12/4/2007	12:08:30
080aSP.log	4,794	12/4/2007	12:08:30
080aSP.rsf	290	12/4/2007	12:06:44
080b050a.cfd	11,168	12/4/2007	12:08:40
080b050a.log	4,794	12/4/2007	12:08:40
080b050a.rsf	292	12/4/2007	12:06:46
080b050b.cfd	11,168	12/4/2007	12:08:42
080b050b.log	4,794	12/4/2007	12:08:42
080b050b.rsf	292	12/4/2007	12:06:46
080b050c.cfd	11,168	12/4/2007	12:08:42
080b050c.log	4,794	12/4/2007	12:08:42
080b050c.rsf	293	12/4/2007	12:06:46
080b050d.cfd	11,168	12/4/2007	12:08:42
080b050d.log	4,794	12/4/2007	12:08:42
080b050d.rsf	293	12/4/2007	12:06:46
080b060a.cfd	11,168	12/4/2007	12:08:36
080b060a.log	4,794	12/4/2007	12:08:36
080b060a.rsf	292	12/4/2007	12:06:44
080b060b.cfd	11,168	12/4/2007	12:08:36
080b060b.log	4,794	12/4/2007	12:08:36
080b060b.rsf	291	12/4/2007	12:06:44
080b060c.cfd	11,168	12/4/2007	12:08:36
080b060c.log	4,794	12/4/2007	12:08:36
080b060c.rsf	291	12/4/2007	12:06:44
080b060d.cfd	11,168	12/4/2007	12:08:36
080b060d.log	4,794	12/4/2007	12:08:36

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
080b060d.rsf	291	12/4/2007	12:06:44
080b060e.cfd	11,168	12/4/2007	12:08:36
080b060e.log	4,794	12/4/2007	12:08:36
080b060e.rsf	291	12/4/2007	12:06:44
080b070a.cfd	11,168	12/4/2007	12:08:36
080b070a.log	4,794	12/4/2007	12:08:36
080b070a.rsf	291	12/4/2007	12:06:44
080b070b.cfd	11,168	12/4/2007	12:08:38
080b070b.log	4,794	12/4/2007	12:08:38
080b070b.rsf	291	12/4/2007	12:06:44
080b070c.cfd	11,168	12/4/2007	12:08:38
080b070c.log	4,794	12/4/2007	12:08:38
080b070c.rsf	291	12/4/2007	12:06:44
080b070d.cfd	11,168	12/4/2007	12:08:38
080b070d.log	4,794	12/4/2007	12:08:38
080b070d.rsf	291	12/4/2007	12:06:44
080b070e.cfd	11,168	12/4/2007	12:08:38
080b070e.log	4,794	12/4/2007	12:08:38
080b070e.rsf	291	12/4/2007	12:06:44
080b080a.cfd	11,168	12/4/2007	12:08:38
080b080a.log	4,794	12/4/2007	12:08:38
080b080a.rsf	293	12/4/2007	12:06:44
080b080b.cfd	11,168	12/4/2007	12:08:38
080b080b.log	4,794	12/4/2007	12:08:38
080b080b.rsf	291	12/4/2007	12:06:44
080b080c.cfd	11,168	12/4/2007	12:08:38
080b080c.log	4,794	12/4/2007	12:08:38
080b080c.rsf	291	12/4/2007	12:06:44
080b080d.cfd	11,168	12/4/2007	12:08:40
080b080d.log	4,794	12/4/2007	12:08:40
080b080d.rsf	291	12/4/2007	12:06:44
080b080e.cfd	11,168	12/4/2007	12:08:40
080b080e.log	4,794	12/4/2007	12:08:40
080b080e.rsf	291	12/4/2007	12:06:46
080b160a.cfd	11,168	12/4/2007	12:08:42
080b160a.log	4,794	12/4/2007	12:08:42
080b160a.rsf	291	12/4/2007	12:06:46
080b160b.cfd	11,168	12/4/2007	12:08:42
080b160b.log	4,794	12/4/2007	12:08:42
080b160b.rsf	291	12/4/2007	12:06:46
080b160c.cfd	11,168	12/4/2007	12:08:42
080b160c.log	4,794	12/4/2007	12:08:42
080b160c.rsf	291	12/4/2007	12:06:46
080b17PN.cfd	11,168	12/4/2007	12:08:44
080b17PN.log	4,794	12/4/2007	12:08:44
080b17PN.rsf	295	12/4/2007	12:06:46
080b17PS.cfd	11,168	12/4/2007	12:08:44
080b17PS.log	4,794	12/4/2007	12:08:44
080b17PS.rsf	295	12/4/2007	12:06:46
080b17RE.cfd	11,168	12/4/2007	12:08:42
080b17RE.log	4,794	12/4/2007	12:08:42
080b17RE.rsf	294	12/4/2007	12:06:46
080b17RW.cfd	11,168	12/4/2007	12:08:44

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
080b17RW.log	4,794	12/4/2007	12:08:44
080b17RW.rsf	294	12/4/2007	12:06:46
080b200a.cfd	11,168	12/4/2007	12:08:40
080b200a.log	4,794	12/4/2007	12:08:40
080b200a.rsf	292	12/4/2007	12:06:46
080b200b.cfd	11,168	12/4/2007	12:08:40
080b200b.log	4,794	12/4/2007	12:08:40
080b200b.rsf	292	12/4/2007	12:06:46
080b200c.cfd	11,168	12/4/2007	12:08:40
080b200c.log	4,794	12/4/2007	12:08:40
080b200c.rsf	292	12/4/2007	12:06:46
080b200d.cfd	11,168	12/4/2007	12:08:40
080b200d.log	4,794	12/4/2007	12:08:40
080b200d.rsf	292	12/4/2007	12:06:46
080b220.cfd	11,168	12/4/2007	12:08:46
080b220.log	4,794	12/4/2007	12:08:46
080b220.rsf	291	12/4/2007	12:06:46
080b230.cfd	11,168	12/4/2007	12:08:48
080b230.log	4,794	12/4/2007	12:08:48
080b230.rsf	290	12/4/2007	12:06:46
080b240.cfd	11,168	12/4/2007	12:08:46
080b240.log	4,794	12/4/2007	12:08:46
080b240.rsf	289	12/4/2007	12:06:46
080b25A.cfd	11,168	12/4/2007	12:08:48
080b25A.log	4,794	12/4/2007	12:08:48
080b25A.rsf	290	12/4/2007	12:06:46
080b27A.cfd	11,168	12/4/2007	12:08:50
080b27A.log	4,794	12/4/2007	12:08:50
080b27A.rsf	292	12/4/2007	12:06:46
080b30A.cfd	11,168	12/4/2007	12:08:48
080b30A.log	4,794	12/4/2007	12:08:48
080b30A.rsf	290	12/4/2007	12:06:46
080b30B.cfd	11,168	12/4/2007	12:08:48
080b30B.log	4,794	12/4/2007	12:08:48
080b30B.rsf	289	12/4/2007	12:06:46
080b30C.cfd	11,168	12/4/2007	12:08:50
080b30C.log	4,794	12/4/2007	12:08:50
080b30C.rsf	291	12/4/2007	12:06:46
080b33A.cfd	11,168	12/4/2007	12:08:50
080b33A.log	4,794	12/4/2007	12:08:50
080b33A.rsf	290	12/4/2007	12:06:46
080b33B.cfd	11,168	12/4/2007	12:08:50
080b33B.log	4,794	12/4/2007	12:08:50
080b33B.rsf	290	12/4/2007	12:06:46
080b51Aa.cfd	11,168	12/4/2007	12:08:42
080b51Aa.log	4,794	12/4/2007	12:08:42
080b51Aa.rsf	293	12/4/2007	12:06:46
080b51Ab.cfd	11,168	12/4/2007	12:08:42
080b51Ab.log	4,794	12/4/2007	12:08:42
080b51Ab.rsf	293	12/4/2007	12:06:46
080b620.cfd	11,168	12/4/2007	12:08:48
080b620.log	4,794	12/4/2007	12:08:48
080b620.rsf	291	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
080b71A.cfd	11,168	12/4/2007	12:08:48
080b71A.log	4,794	12/4/2007	12:08:48
080b71A.rsf	291	12/4/2007	12:06:46
080b780.cfd	11,168	12/4/2007	12:08:50
080b780.log	4,794	12/4/2007	12:08:50
080b780.rsf	290	12/4/2007	12:06:46
080bIS2.cfd	11,168	12/4/2007	12:08:44
080bIS2.log	4,794	12/4/2007	12:08:44
080bIS2.rsf	293	12/4/2007	12:06:46
080bIS3.cfd	11,168	12/4/2007	12:08:44
080bIS3.log	4,794	12/4/2007	12:08:44
080bIS3.rsf	294	12/4/2007	12:06:46
080bIS4.cfd	11,168	12/4/2007	12:08:46
080bIS4.log	4,794	12/4/2007	12:08:46
080bIS4.rsf	294	12/4/2007	12:06:46
080bNC.cfd	11,168	12/4/2007	12:08:46
080bNC.log	4,794	12/4/2007	12:08:46
080bNC.rsf	291	12/4/2007	12:06:46
080bNP.cfd	11,168	12/4/2007	12:08:46
080bNP.log	4,794	12/4/2007	12:08:46
080bNP.rsf	289	12/4/2007	12:06:46
080bSP.cfd	11,168	12/4/2007	12:08:46
080bSP.log	4,794	12/4/2007	12:08:46
080bSP.rsf	290	12/4/2007	12:06:46
160050a.cfd	11,168	12/4/2007	12:10:18
160050a.log	4,794	12/4/2007	12:10:18
160050a.rsf	291	12/4/2007	12:06:46
160050b.cfd	11,168	12/4/2007	12:10:18
160050b.log	4,794	12/4/2007	12:10:18
160050b.rsf	291	12/4/2007	12:06:46
160050c.cfd	11,168	12/4/2007	12:10:20
160050c.log	4,794	12/4/2007	12:10:20
160050c.rsf	292	12/4/2007	12:06:46
160050d.cfd	11,168	12/4/2007	12:10:20
160050d.log	4,794	12/4/2007	12:10:20
160050d.rsf	292	12/4/2007	12:06:46
160060a.cfd	11,168	12/4/2007	12:10:12
160060a.log	4,794	12/4/2007	12:10:12
160060a.rsf	291	12/4/2007	12:06:46
160060b.cfd	11,168	12/4/2007	12:10:12
160060b.log	4,794	12/4/2007	12:10:12
160060b.rsf	290	12/4/2007	12:06:46
160060c.cfd	11,168	12/4/2007	12:10:14
160060c.log	4,794	12/4/2007	12:10:14
160060c.rsf	290	12/4/2007	12:06:46
160060d.cfd	11,168	12/4/2007	12:10:14
160060d.log	4,794	12/4/2007	12:10:14
160060d.rsf	290	12/4/2007	12:06:46
160060e.cfd	11,168	12/4/2007	12:10:14
160060e.log	4,794	12/4/2007	12:10:14
160060e.rsf	290	12/4/2007	12:06:46
160070a.cfd	11,168	12/4/2007	12:10:14
160070a.log	4,794	12/4/2007	12:10:14

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
160070a.rsf	291	12/4/2007	12:06:46
160070b.cfd	11,168	12/4/2007	12:10:14
160070b.log	4,794	12/4/2007	12:10:14
160070b.rsf	290	12/4/2007	12:06:46
160070c.cfd	11,168	12/4/2007	12:10:14
160070c.log	4,794	12/4/2007	12:10:14
160070c.rsf	290	12/4/2007	12:06:46
160070d.cfd	11,168	12/4/2007	12:10:14
160070d.log	4,794	12/4/2007	12:10:14
160070d.rsf	290	12/4/2007	12:06:46
160070e.cfd	11,168	12/4/2007	12:10:14
160070e.log	4,794	12/4/2007	12:10:14
160070e.rsf	290	12/4/2007	12:06:46
160080a.cfd	11,168	12/4/2007	12:10:16
160080a.log	4,794	12/4/2007	12:10:16
160080a.rsf	292	12/4/2007	12:06:46
160080b.cfd	11,168	12/4/2007	12:10:16
160080b.log	4,794	12/4/2007	12:10:16
160080b.rsf	291	12/4/2007	12:06:46
160080c.cfd	11,168	12/4/2007	12:10:16
160080c.log	4,794	12/4/2007	12:10:16
160080c.rsf	291	12/4/2007	12:06:46
160080d.cfd	11,168	12/4/2007	12:10:16
160080d.log	4,794	12/4/2007	12:10:16
160080d.rsf	291	12/4/2007	12:06:46
160080e.cfd	11,168	12/4/2007	12:10:16
160080e.log	4,794	12/4/2007	12:10:16
160080e.rsf	291	12/4/2007	12:06:46
160160a.cfd	11,168	12/4/2007	12:10:20
160160a.log	4,794	12/4/2007	12:10:20
160160a.rsf	289	12/4/2007	12:06:46
160160b.cfd	11,168	12/4/2007	12:10:20
160160b.log	4,794	12/4/2007	12:10:20
160160b.rsf	289	12/4/2007	12:06:46
160160c.cfd	11,168	12/4/2007	12:10:20
160160c.log	4,794	12/4/2007	12:10:20
160160c.rsf	289	12/4/2007	12:06:46
16017PN.cfd	11,168	12/4/2007	12:10:22
16017PN.log	4,794	12/4/2007	12:10:22
16017PN.rsf	293	12/4/2007	12:06:46
16017PS.cfd	11,168	12/4/2007	12:10:22
16017PS.log	4,794	12/4/2007	12:10:22
16017PS.rsf	293	12/4/2007	12:06:46
16017RE.cfd	11,168	12/4/2007	12:10:20
16017RE.log	4,794	12/4/2007	12:10:20
16017RE.rsf	292	12/4/2007	12:06:46
16017RW.cfd	11,168	12/4/2007	12:10:20
16017RW.log	4,794	12/4/2007	12:10:22
16017RW.rsf	292	12/4/2007	12:06:46
160200a.cfd	11,168	12/4/2007	12:10:18
160200a.log	4,794	12/4/2007	12:10:18
160200a.rsf	291	12/4/2007	12:06:46
160200b.cfd	11,168	12/4/2007	12:10:18

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
160200b.log	4,794	12/4/2007	12:10:18
160200b.rsf	291	12/4/2007	12:06:46
160200c.cfd	11,168	12/4/2007	12:10:18
160200c.log	4,794	12/4/2007	12:10:18
160200c.rsf	291	12/4/2007	12:06:46
160200d.cfd	11,168	12/4/2007	12:10:18
160200d.log	4,794	12/4/2007	12:10:18
160200d.rsf	291	12/4/2007	12:06:46
160220.cfd	11,168	12/4/2007	12:10:24
160220.log	4,794	12/4/2007	12:10:24
160220.rsf	288	12/4/2007	12:06:46
160230.cfd	11,168	12/4/2007	12:10:24
160230.log	4,794	12/4/2007	12:10:24
160230.rsf	288	12/4/2007	12:06:46
160240.cfd	11,168	12/4/2007	12:10:24
160240.log	4,794	12/4/2007	12:10:24
160240.rsf	288	12/4/2007	12:06:46
16025A.cfd	11,168	12/4/2007	12:10:24
16025A.log	4,794	12/4/2007	12:10:24
16025A.rsf	289	12/4/2007	12:06:46
16027A.cfd	11,168	12/4/2007	12:10:26
16027A.log	4,794	12/4/2007	12:10:26
16027A.rsf	289	12/4/2007	12:06:46
16030A.cfd	11,168	12/4/2007	12:10:26
16030A.log	4,794	12/4/2007	12:10:26
16030A.rsf	289	12/4/2007	12:06:46
16030B.cfd	11,168	12/4/2007	12:10:26
16030B.log	4,794	12/4/2007	12:10:26
16030B.rsf	289	12/4/2007	12:06:46
16030C.cfd	11,168	12/4/2007	12:10:26
16030C.log	4,794	12/4/2007	12:10:26
16030C.rsf	289	12/4/2007	12:06:46
16033A.cfd	11,168	12/4/2007	12:10:26
16033A.log	4,794	12/4/2007	12:10:26
16033A.rsf	289	12/4/2007	12:06:46
16033B.cfd	11,168	12/4/2007	12:10:28
16033B.log	4,794	12/4/2007	12:10:28
16033B.rsf	289	12/4/2007	12:06:46
16051Aa.cfd	11,168	12/4/2007	12:10:20
16051Aa.log	4,794	12/4/2007	12:10:20
16051Aa.rsf	289	12/4/2007	12:06:46
16051Ab.cfd	11,168	12/4/2007	12:10:20
16051Ab.log	4,794	12/4/2007	12:10:20
16051Ab.rsf	289	12/4/2007	12:06:46
160620.cfd	11,168	12/4/2007	12:10:24
160620.log	4,794	12/4/2007	12:10:24
160620.rsf	289	12/4/2007	12:06:46
16071A.cfd	11,168	12/4/2007	12:10:26
16071A.log	4,794	12/4/2007	12:10:26
16071A.rsf	289	12/4/2007	12:06:46
160780.cfd	11,168	12/4/2007	12:10:26
160780.log	4,794	12/4/2007	12:10:26
160780.rsf	290	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
160IS2.cfd	11,168	12/4/2007	12:10:22
160IS2.log	4,794	12/4/2007	12:10:22
160IS2.rsf	291	12/4/2007	12:06:46
160IS3.cfd	11,168	12/4/2007	12:10:22
160IS3.log	4,794	12/4/2007	12:10:22
160IS3.rsf	292	12/4/2007	12:06:46
160IS4.cfd	11,168	12/4/2007	12:10:22
160IS4.log	4,794	12/4/2007	12:10:22
160IS4.rsf	292	12/4/2007	12:06:46
160NC.cfd	11,168	12/4/2007	12:10:22
160NC.log	4,794	12/4/2007	12:10:22
160NC.rsf	289	12/4/2007	12:06:46
160NP.cfd	11,168	12/4/2007	12:10:24
160NP.log	4,794	12/4/2007	12:10:24
160NP.rsf	286	12/4/2007	12:06:46
160SP.cfd	11,168	12/4/2007	12:10:24
160SP.log	4,794	12/4/2007	12:10:24
160SP.rsf	288	12/4/2007	12:06:46
17PN050a.cfd	11,168	12/4/2007	12:11:04
17PN050a.log	4,802	12/4/2007	12:11:04
17PN050a.rsf	287	12/4/2007	12:06:46
17PN050b.cfd	11,168	12/4/2007	12:11:06
17PN050b.log	4,802	12/4/2007	12:11:06
17PN050b.rsf	287	12/4/2007	12:06:46
17PN050c.cfd	11,168	12/4/2007	12:11:06
17PN050c.log	4,802	12/4/2007	12:11:06
17PN050c.rsf	288	12/4/2007	12:06:46
17PN050d.cfd	11,168	12/4/2007	12:11:06
17PN050d.log	4,802	12/4/2007	12:11:06
17PN050d.rsf	288	12/4/2007	12:06:46
17PN060a.cfd	11,168	12/4/2007	12:11:00
17PN060a.log	4,802	12/4/2007	12:11:00
17PN060a.rsf	290	12/4/2007	12:06:46
17PN060b.cfd	11,168	12/4/2007	12:11:00
17PN060b.log	4,802	12/4/2007	12:11:00
17PN060b.rsf	287	12/4/2007	12:06:46
17PN060c.cfd	11,168	12/4/2007	12:11:00
17PN060c.log	4,802	12/4/2007	12:11:00
17PN060c.rsf	287	12/4/2007	12:06:46
17PN060d.cfd	11,168	12/4/2007	12:11:00
17PN060d.log	4,802	12/4/2007	12:11:00
17PN060d.rsf	289	12/4/2007	12:06:46
17PN060e.cfd	11,168	12/4/2007	12:11:00
17PN060e.log	4,802	12/4/2007	12:11:00
17PN060e.rsf	289	12/4/2007	12:06:46
17PN070a.cfd	11,168	12/4/2007	12:11:00
17PN070a.log	4,802	12/4/2007	12:11:00
17PN070a.rsf	290	12/4/2007	12:06:46
17PN070b.cfd	11,168	12/4/2007	12:11:00
17PN070b.log	4,802	12/4/2007	12:11:00
17PN070b.rsf	289	12/4/2007	12:06:46
17PN070c.cfd	11,168	12/4/2007	12:11:02
17PN070c.log	4,802	12/4/2007	12:11:02

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17PN070c.rsf	289	12/4/2007	12:06:46
17PN070d.cfd	11,168	12/4/2007	12:11:02
17PN070d.log	4,802	12/4/2007	12:11:02
17PN070d.rsf	289	12/4/2007	12:06:46
17PN070e.cfd	11,168	12/4/2007	12:11:02
17PN070e.log	4,802	12/4/2007	12:11:02
17PN070e.rsf	289	12/4/2007	12:06:46
17PN080a.cfd	11,168	12/4/2007	12:11:02
17PN080a.log	4,802	12/4/2007	12:11:02
17PN080a.rsf	290	12/4/2007	12:06:46
17PN080b.cfd	11,168	12/4/2007	12:11:02
17PN080b.log	4,802	12/4/2007	12:11:02
17PN080b.rsf	289	12/4/2007	12:06:46
17PN080c.cfd	11,168	12/4/2007	12:11:02
17PN080c.log	4,802	12/4/2007	12:11:02
17PN080c.rsf	289	12/4/2007	12:06:46
17PN080d.cfd	11,168	12/4/2007	12:11:02
17PN080d.log	4,802	12/4/2007	12:11:02
17PN080d.rsf	289	12/4/2007	12:06:46
17PN080e.cfd	11,168	12/4/2007	12:11:04
17PN080e.log	4,802	12/4/2007	12:11:04
17PN080e.rsf	289	12/4/2007	12:06:46
17PN160a.cfd	11,168	12/4/2007	12:11:06
17PN160a.log	4,802	12/4/2007	12:11:06
17PN160a.rsf	288	12/4/2007	12:06:46
17PN160b.cfd	11,168	12/4/2007	12:11:06
17PN160b.log	4,802	12/4/2007	12:11:06
17PN160b.rsf	288	12/4/2007	12:06:46
17PN160c.cfd	11,168	12/4/2007	12:11:06
17PN160c.log	4,802	12/4/2007	12:11:06
17PN160c.rsf	288	12/4/2007	12:06:46
17PN17PN.cfd	11,168	12/4/2007	12:11:08
17PN17PN.log	4,802	12/4/2007	12:11:08
17PN17PN.rsf	284	12/4/2007	12:06:46
17PN17PS.cfd	11,168	12/4/2007	12:11:08
17PN17PS.log	4,802	12/4/2007	12:11:08
17PN17PS.rsf	287	12/4/2007	12:06:46
17PN17RE.cfd	11,168	12/4/2007	12:11:08
17PN17RE.log	4,802	12/4/2007	12:11:08
17PN17RE.rsf	288	12/4/2007	12:06:46
17PN17RW.cfd	11,168	12/4/2007	12:11:08
17PN17RW.log	4,802	12/4/2007	12:11:08
17PN17RW.rsf	287	12/4/2007	12:06:46
17PN200a.cfd	11,168	12/4/2007	12:11:04
17PN200a.log	4,802	12/4/2007	12:11:04
17PN200a.rsf	290	12/4/2007	12:06:46
17PN200b.cfd	11,168	12/4/2007	12:11:04
17PN200b.log	4,802	12/4/2007	12:11:04
17PN200b.rsf	290	12/4/2007	12:06:46
17PN200c.cfd	11,168	12/4/2007	12:11:04
17PN200c.log	4,802	12/4/2007	12:11:04
17PN200c.rsf	290	12/4/2007	12:06:46
17PN200d.cfd	11,168	12/4/2007	12:11:04

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17PN200d.log	4,802	12/4/2007	12:11:04
17PN200d.rsf	290	12/4/2007	12:06:46
17PN220.cfd	11,168	12/4/2007	12:11:10
17PN220.log	4,802	12/4/2007	12:11:10
17PN220.rsf	286	12/4/2007	12:06:46
17PN230.cfd	11,168	12/4/2007	12:11:10
17PN230.log	4,802	12/4/2007	12:11:10
17PN230.rsf	285	12/4/2007	12:06:46
17PN240.cfd	11,168	12/4/2007	12:11:10
17PN240.log	4,802	12/4/2007	12:11:10
17PN240.rsf	285	12/4/2007	12:06:46
17PN25A.cfd	11,168	12/4/2007	12:11:12
17PN25A.log	4,802	12/4/2007	12:11:12
17PN25A.rsf	287	12/4/2007	12:06:46
17PN27A.cfd	11,168	12/4/2007	12:11:14
17PN27A.log	4,802	12/4/2007	12:11:14
17PN27A.rsf	285	12/4/2007	12:06:46
17PN30A.cfd	11,168	12/4/2007	12:11:12
17PN30A.log	4,802	12/4/2007	12:11:12
17PN30A.rsf	287	12/4/2007	12:06:46
17PN30B.cfd	11,168	12/4/2007	12:11:12
17PN30B.log	4,802	12/4/2007	12:11:12
17PN30B.rsf	287	12/4/2007	12:06:46
17PN30C.cfd	11,168	12/4/2007	12:11:14
17PN30C.log	4,802	12/4/2007	12:11:14
17PN30C.rsf	287	12/4/2007	12:06:46
17PN33A.cfd	11,168	12/4/2007	12:11:14
17PN33A.log	4,802	12/4/2007	12:11:14
17PN33A.rsf	285	12/4/2007	12:06:46
17PN33B.cfd	11,168	12/4/2007	12:11:14
17PN33B.log	4,802	12/4/2007	12:11:14
17PN33B.rsf	287	12/4/2007	12:06:46
17PN51Aa.cfd	11,168	12/4/2007	12:11:06
17PN51Aa.log	4,802	12/4/2007	12:11:06
17PN51Aa.rsf	287	12/4/2007	12:06:46
17PN51Ab.cfd	11,168	12/4/2007	12:11:06
17PN51Ab.log	4,802	12/4/2007	12:11:06
17PN51Ab.rsf	287	12/4/2007	12:06:46
17PN620.cfd	11,168	12/4/2007	12:11:12
17PN620.log	4,802	12/4/2007	12:11:12
17PN620.rsf	287	12/4/2007	12:06:46
17PN71A.cfd	11,168	12/4/2007	12:11:12
17PN71A.log	4,802	12/4/2007	12:11:12
17PN71A.rsf	287	12/4/2007	12:06:46
17PN780.cfd	11,168	12/4/2007	12:11:14
17PN780.log	4,802	12/4/2007	12:11:14
17PN780.rsf	287	12/4/2007	12:06:46
17PNIS2.cfd	11,168	12/4/2007	12:11:08
17PNIS2.log	4,802	12/4/2007	12:11:08
17PNIS2.rsf	288	12/4/2007	12:06:46
17PNIS3.cfd	11,168	12/4/2007	12:11:08
17PNIS3.log	4,802	12/4/2007	12:11:08
17PNIS3.rsf	289	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17PNIS4.cfd	11,168	12/4/2007	12:11:08
17PNIS4.log	4,802	12/4/2007	12:11:08
17PNIS4.rsf	288	12/4/2007	12:06:46
17PNNC.cfd	11,168	12/4/2007	12:11:08
17PNNC.log	4,802	12/4/2007	12:11:08
17PNNC.rsf	286	12/4/2007	12:06:46
17PNNP.cfd	11,168	12/4/2007	12:11:10
17PNNP.log	4,802	12/4/2007	12:11:10
17PNNP.rsf	284	12/4/2007	12:06:46
17PNSP.cfd	11,168	12/4/2007	12:11:10
17PNSP.log	4,802	12/4/2007	12:11:10
17PNSP.rsf	284	12/4/2007	12:06:46
17PS050a.cfd	11,168	12/4/2007	12:11:22
17PS050a.log	4,802	12/4/2007	12:11:22
17PS050a.rsf	288	12/4/2007	12:06:46
17PS050b.cfd	11,168	12/4/2007	12:11:22
17PS050b.log	4,802	12/4/2007	12:11:22
17PS050b.rsf	288	12/4/2007	12:06:46
17PS050c.cfd	11,168	12/4/2007	12:11:22
17PS050c.log	4,802	12/4/2007	12:11:22
17PS050c.rsf	288	12/4/2007	12:06:46
17PS050d.cfd	11,168	12/4/2007	12:11:22
17PS050d.log	4,802	12/4/2007	12:11:22
17PS050d.rsf	289	12/4/2007	12:06:46
17PS060a.cfd	11,168	12/4/2007	12:11:16
17PS060a.log	4,802	12/4/2007	12:11:16
17PS060a.rsf	290	12/4/2007	12:06:46
17PS060b.cfd	11,168	12/4/2007	12:11:16
17PS060b.log	4,802	12/4/2007	12:11:16
17PS060b.rsf	287	12/4/2007	12:06:46
17PS060c.cfd	11,168	12/4/2007	12:11:16
17PS060c.log	4,802	12/4/2007	12:11:16
17PS060c.rsf	287	12/4/2007	12:06:46
17PS060d.cfd	11,168	12/4/2007	12:11:16
17PS060d.log	4,802	12/4/2007	12:11:16
17PS060d.rsf	287	12/4/2007	12:06:46
17PS060e.cfd	11,168	12/4/2007	12:11:16
17PS060e.log	4,802	12/4/2007	12:11:16
17PS060e.rsf	287	12/4/2007	12:06:46
17PS070a.cfd	11,168	12/4/2007	12:11:18
17PS070a.log	4,802	12/4/2007	12:11:18
17PS070a.rsf	290	12/4/2007	12:06:46
17PS070b.cfd	11,168	12/4/2007	12:11:18
17PS070b.log	4,802	12/4/2007	12:11:18
17PS070b.rsf	289	12/4/2007	12:06:46
17PS070c.cfd	11,168	12/4/2007	12:11:18
17PS070c.log	4,802	12/4/2007	12:11:18
17PS070c.rsf	289	12/4/2007	12:06:46
17PS070d.cfd	11,168	12/4/2007	12:11:18
17PS070d.log	4,802	12/4/2007	12:11:18
17PS070d.rsf	289	12/4/2007	12:06:46
17PS070e.cfd	11,168	12/4/2007	12:11:18
17PS070e.log	4,802	12/4/2007	12:11:18

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17PS070e.rsf	289	12/4/2007	12:06:46
17PS080a.cfd	11,168	12/4/2007	12:11:18
17PS080a.log	4,802	12/4/2007	12:11:18
17PS080a.rsf	290	12/4/2007	12:06:46
17PS080b.cfd	11,168	12/4/2007	12:11:20
17PS080b.log	4,802	12/4/2007	12:11:20
17PS080b.rsf	289	12/4/2007	12:06:46
17PS080c.cfd	11,168	12/4/2007	12:11:20
17PS080c.log	4,802	12/4/2007	12:11:20
17PS080c.rsf	289	12/4/2007	12:06:46
17PS080d.cfd	11,168	12/4/2007	12:11:20
17PS080d.log	4,802	12/4/2007	12:11:20
17PS080d.rsf	289	12/4/2007	12:06:46
17PS080e.cfd	11,168	12/4/2007	12:11:20
17PS080e.log	4,802	12/4/2007	12:11:20
17PS080e.rsf	289	12/4/2007	12:06:46
17PS160a.cfd	11,168	12/4/2007	12:11:24
17PS160a.log	4,802	12/4/2007	12:11:24
17PS160a.rsf	288	12/4/2007	12:06:46
17PS160b.cfd	11,168	12/4/2007	12:11:24
17PS160b.log	4,802	12/4/2007	12:11:24
17PS160b.rsf	288	12/4/2007	12:06:46
17PS160c.cfd	11,168	12/4/2007	12:11:24
17PS160c.log	4,802	12/4/2007	12:11:24
17PS160c.rsf	288	12/4/2007	12:06:46
17PS17PN.cfd	11,168	12/4/2007	12:11:24
17PS17PN.log	4,802	12/4/2007	12:11:24
17PS17PN.rsf	288	12/4/2007	12:06:46
17PS17PS.cfd	11,168	12/4/2007	12:11:26
17PS17PS.log	4,802	12/4/2007	12:11:26
17PS17PS.rsf	284	12/4/2007	12:06:46
17PS17RE.cfd	11,168	12/4/2007	12:11:24
17PS17RE.log	4,802	12/4/2007	12:11:24
17PS17RE.rsf	288	12/4/2007	12:06:46
17PS17RW.cfd	11,168	12/4/2007	12:11:24
17PS17RW.log	4,802	12/4/2007	12:11:24
17PS17RW.rsf	287	12/4/2007	12:06:46
17PS200a.cfd	11,168	12/4/2007	12:11:20
17PS200a.log	4,802	12/4/2007	12:11:20
17PS200a.rsf	290	12/4/2007	12:06:46
17PS200b.cfd	11,168	12/4/2007	12:11:20
17PS200b.log	4,802	12/4/2007	12:11:20
17PS200b.rsf	290	12/4/2007	12:06:46
17PS200c.cfd	11,168	12/4/2007	12:11:22
17PS200c.log	4,802	12/4/2007	12:11:22
17PS200c.rsf	290	12/4/2007	12:06:46
17PS200d.cfd	11,168	12/4/2007	12:11:22
17PS200d.log	4,802	12/4/2007	12:11:22
17PS200d.rsf	290	12/4/2007	12:06:46
17PS220.cfd	11,168	12/4/2007	12:11:26
17PS220.log	4,802	12/4/2007	12:11:26
17PS220.rsf	286	12/4/2007	12:06:46
17PS230.cfd	11,168	12/4/2007	12:11:28

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17PS230.log	4,802	12/4/2007	12:11:28
17PS230.rsf	285	12/4/2007	12:06:46
17PS240.cfd	11,168	12/4/2007	12:11:26
17PS240.log	4,802	12/4/2007	12:11:26
17PS240.rsf	285	12/4/2007	12:06:46
17PS25A.cfd	11,168	12/4/2007	12:11:28
17PS25A.log	4,802	12/4/2007	12:11:28
17PS25A.rsf	287	12/4/2007	12:06:46
17PS27A.cfd	11,168	12/4/2007	12:11:30
17PS27A.log	4,802	12/4/2007	12:11:30
17PS27A.rsf	285	12/4/2007	12:06:46
17PS30A.cfd	11,168	12/4/2007	12:11:28
17PS30A.log	4,802	12/4/2007	12:11:28
17PS30A.rsf	287	12/4/2007	12:06:46
17PS30B.cfd	11,168	12/4/2007	12:11:30
17PS30B.log	4,802	12/4/2007	12:11:30
17PS30B.rsf	287	12/4/2007	12:06:46
17PS30C.cfd	11,168	12/4/2007	12:11:30
17PS30C.log	4,802	12/4/2007	12:11:30
17PS30C.rsf	286	12/4/2007	12:06:46
17PS33A.cfd	11,168	12/4/2007	12:11:30
17PS33A.log	4,802	12/4/2007	12:11:30
17PS33A.rsf	285	12/4/2007	12:06:46
17PS33B.cfd	11,168	12/4/2007	12:11:30
17PS33B.log	4,802	12/4/2007	12:11:30
17PS33B.rsf	285	12/4/2007	12:06:46
17PS51Aa.cfd	11,168	12/4/2007	12:11:22
17PS51Aa.log	4,802	12/4/2007	12:11:22
17PS51Aa.rsf	288	12/4/2007	12:06:46
17PS51Ab.cfd	11,168	12/4/2007	12:11:24
17PS51Ab.log	4,802	12/4/2007	12:11:24
17PS51Ab.rsf	288	12/4/2007	12:06:46
17PS620.cfd	11,168	12/4/2007	12:11:28
17PS620.log	4,802	12/4/2007	12:11:28
17PS620.rsf	287	12/4/2007	12:06:46
17PS71A.cfd	11,168	12/4/2007	12:11:28
17PS71A.log	4,802	12/4/2007	12:11:28
17PS71A.rsf	287	12/4/2007	12:06:46
17PS780.cfd	11,168	12/4/2007	12:11:30
17PS780.log	4,802	12/4/2007	12:11:30
17PS780.rsf	287	12/4/2007	12:06:46
17PSIS2.cfd	11,168	12/4/2007	12:11:26
17PSIS2.log	4,802	12/4/2007	12:11:26
17PSIS2.rsf	288	12/4/2007	12:06:46
17PSIS3.cfd	11,168	12/4/2007	12:11:26
17PSIS3.log	4,802	12/4/2007	12:11:26
17PSIS3.rsf	289	12/4/2007	12:06:46
17PSIS4.cfd	11,168	12/4/2007	12:11:26
17PSIS4.log	4,802	12/4/2007	12:11:26
17PSIS4.rsf	288	12/4/2007	12:06:46
17PSNC.cfd	11,168	12/4/2007	12:11:26
17PSNC.log	4,802	12/4/2007	12:11:26
17PSNC.rsf	286	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17PSNP.cfd	11,168	12/4/2007	12:11:26
17PSNP.log	4,802	12/4/2007	12:11:26
17PSNP.rsf	284	12/4/2007	12:06:46
17PSSP.cfd	11,168	12/4/2007	12:11:26
17PSSP.log	4,802	12/4/2007	12:11:26
17PSSP.rsf	284	12/4/2007	12:06:46
17RE050a.cfd	11,168	12/4/2007	12:10:34
17RE050a.log	4,802	12/4/2007	12:10:34
17RE050a.rsf	288	12/4/2007	12:06:46
17RE050b.cfd	11,168	12/4/2007	12:10:34
17RE050b.log	4,802	12/4/2007	12:10:34
17RE050b.rsf	288	12/4/2007	12:06:46
17RE050c.cfd	11,168	12/4/2007	12:10:34
17RE050c.log	4,802	12/4/2007	12:10:34
17RE050c.rsf	289	12/4/2007	12:06:46
17RE050d.cfd	11,168	12/4/2007	12:10:36
17RE050d.log	4,802	12/4/2007	12:10:36
17RE050d.rsf	289	12/4/2007	12:06:46
17RE060a.cfd	11,168	12/4/2007	12:10:28
17RE060a.log	4,802	12/4/2007	12:10:28
17RE060a.rsf	287	12/4/2007	12:06:46
17RE060b.cfd	11,168	12/4/2007	12:10:28
17RE060b.log	4,802	12/4/2007	12:10:28
17RE060b.rsf	288	12/4/2007	12:06:46
17RE060c.cfd	11,168	12/4/2007	12:10:28
17RE060c.log	4,802	12/4/2007	12:10:28
17RE060c.rsf	287	12/4/2007	12:06:46
17RE060d.cfd	11,168	12/4/2007	12:10:28
17RE060d.log	4,802	12/4/2007	12:10:28
17RE060d.rsf	286	12/4/2007	12:06:46
17RE060e.cfd	11,168	12/4/2007	12:10:30
17RE060e.log	4,802	12/4/2007	12:10:30
17RE060e.rsf	286	12/4/2007	12:06:46
17RE070a.cfd	11,168	12/4/2007	12:10:30
17RE070a.log	4,802	12/4/2007	12:10:30
17RE070a.rsf	289	12/4/2007	12:06:46
17RE070b.cfd	11,168	12/4/2007	12:10:30
17RE070b.log	4,802	12/4/2007	12:10:30
17RE070b.rsf	288	12/4/2007	12:06:46
17RE070c.cfd	11,168	12/4/2007	12:10:30
17RE070c.log	4,802	12/4/2007	12:10:30
17RE070c.rsf	288	12/4/2007	12:06:46
17RE070d.cfd	11,168	12/4/2007	12:10:32
17RE070d.log	4,802	12/4/2007	12:10:32
17RE070d.rsf	288	12/4/2007	12:06:46
17RE070e.cfd	11,168	12/4/2007	12:10:32
17RE070e.log	4,802	12/4/2007	12:10:32
17RE070e.rsf	288	12/4/2007	12:06:46
17RE080a.cfd	11,168	12/4/2007	12:10:32
17RE080a.log	4,802	12/4/2007	12:10:32
17RE080a.rsf	289	12/4/2007	12:06:46
17RE080b.cfd	11,168	12/4/2007	12:10:32
17RE080b.log	4,802	12/4/2007	12:10:32

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17RE080b.rsf	288	12/4/2007	12:06:46
17RE080c.cfd	11,168	12/4/2007	12:10:32
17RE080c.log	4,802	12/4/2007	12:10:32
17RE080c.rsf	288	12/4/2007	12:06:46
17RE080d.cfd	11,168	12/4/2007	12:10:32
17RE080d.log	4,802	12/4/2007	12:10:32
17RE080d.rsf	288	12/4/2007	12:06:46
17RE080e.cfd	11,168	12/4/2007	12:10:32
17RE080e.log	4,802	12/4/2007	12:10:32
17RE080e.rsf	288	12/4/2007	12:06:46
17RE160a.cfd	11,168	12/4/2007	12:10:36
17RE160a.log	4,802	12/4/2007	12:10:36
17RE160a.rsf	287	12/4/2007	12:06:46
17RE160b.cfd	11,168	12/4/2007	12:10:36
17RE160b.log	4,802	12/4/2007	12:10:36
17RE160b.rsf	287	12/4/2007	12:06:46
17RE160c.cfd	11,168	12/4/2007	12:10:36
17RE160c.log	4,802	12/4/2007	12:10:36
17RE160c.rsf	287	12/4/2007	12:06:46
17RE17PN.cfd	11,168	12/4/2007	12:10:38
17RE17PN.log	4,802	12/4/2007	12:10:38
17RE17PN.rsf	289	12/4/2007	12:06:46
17RE17PS.cfd	11,168	12/4/2007	12:10:38
17RE17PS.log	4,802	12/4/2007	12:10:38
17RE17PS.rsf	289	12/4/2007	12:06:46
17RE17RE.cfd	11,168	12/4/2007	12:10:38
17RE17RE.log	4,802	12/4/2007	12:10:38
17RE17RE.rsf	285	12/4/2007	12:06:46
17RE17RW.cfd	11,168	12/4/2007	12:10:38
17RE17RW.log	4,802	12/4/2007	12:10:38
17RE17RW.rsf	286	12/4/2007	12:06:46
17RE200a.cfd	11,168	12/4/2007	12:10:34
17RE200a.log	4,802	12/4/2007	12:10:34
17RE200a.rsf	289	12/4/2007	12:06:46
17RE200b.cfd	11,168	12/4/2007	12:10:34
17RE200b.log	4,802	12/4/2007	12:10:34
17RE200b.rsf	289	12/4/2007	12:06:46
17RE200c.cfd	11,168	12/4/2007	12:10:34
17RE200c.log	4,802	12/4/2007	12:10:34
17RE200c.rsf	287	12/4/2007	12:06:46
17RE200d.cfd	11,168	12/4/2007	12:10:34
17RE200d.log	4,802	12/4/2007	12:10:34
17RE200d.rsf	289	12/4/2007	12:06:46
17RE220.cfd	11,168	12/4/2007	12:10:40
17RE220.log	4,802	12/4/2007	12:10:40
17RE220.rsf	286	12/4/2007	12:06:46
17RE230.cfd	11,168	12/4/2007	12:10:40
17RE230.log	4,802	12/4/2007	12:10:40
17RE230.rsf	285	12/4/2007	12:06:46
17RE240.cfd	11,168	12/4/2007	12:10:40
17RE240.log	4,802	12/4/2007	12:10:40
17RE240.rsf	286	12/4/2007	12:06:46
17RE25A.cfd	11,168	12/4/2007	12:10:40

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17RE25A.log	4,802	12/4/2007	12:10:40
17RE25A.rsf	287	12/4/2007	12:06:46
17RE27A.cfd	11,168	12/4/2007	12:10:42
17RE27A.log	4,802	12/4/2007	12:10:42
17RE27A.rsf	286	12/4/2007	12:06:46
17RE30A.cfd	11,168	12/4/2007	12:10:42
17RE30A.log	4,802	12/4/2007	12:10:42
17RE30A.rsf	287	12/4/2007	12:06:46
17RE30B.cfd	11,168	12/4/2007	12:10:42
17RE30B.log	4,802	12/4/2007	12:10:42
17RE30B.rsf	287	12/4/2007	12:06:46
17RE30C.cfd	11,168	12/4/2007	12:10:42
17RE30C.log	4,802	12/4/2007	12:10:42
17RE30C.rsf	286	12/4/2007	12:06:46
17RE33A.cfd	11,168	12/4/2007	12:10:42
17RE33A.log	4,802	12/4/2007	12:10:42
17RE33A.rsf	285	12/4/2007	12:06:46
17RE33B.cfd	11,168	12/4/2007	12:10:44
17RE33B.log	4,802	12/4/2007	12:10:44
17RE33B.rsf	285	12/4/2007	12:06:46
17RE51Aa.cfd	11,168	12/4/2007	12:10:36
17RE51Aa.log	4,802	12/4/2007	12:10:36
17RE51Aa.rsf	288	12/4/2007	12:06:46
17RE51Ab.cfd	11,168	12/4/2007	12:10:36
17RE51Ab.log	4,802	12/4/2007	12:10:36
17RE51Ab.rsf	288	12/4/2007	12:06:46
17RE620.cfd	11,168	12/4/2007	12:10:42
17RE620.log	4,802	12/4/2007	12:10:42
17RE620.rsf	287	12/4/2007	12:06:46
17RE71A.cfd	11,168	12/4/2007	12:10:42
17RE71A.log	4,802	12/4/2007	12:10:42
17RE71A.rsf	286	12/4/2007	12:06:46
17RE780.cfd	11,168	12/4/2007	12:10:42
17RE780.log	4,802	12/4/2007	12:10:42
17RE780.rsf	287	12/4/2007	12:06:46
17REIS2.cfd	11,168	12/4/2007	12:10:38
17REIS2.log	4,802	12/4/2007	12:10:38
17REIS2.rsf	288	12/4/2007	12:06:46
17REIS3.cfd	11,168	12/4/2007	12:10:38
17REIS3.log	4,802	12/4/2007	12:10:38
17REIS3.rsf	289	12/4/2007	12:06:46
17REIS4.cfd	11,168	12/4/2007	12:10:38
17REIS4.log	4,802	12/4/2007	12:10:38
17REIS4.rsf	288	12/4/2007	12:06:46
17RENC.cfd	11,168	12/4/2007	12:10:38
17RENC.log	4,802	12/4/2007	12:10:38
17RENC.rsf	286	12/4/2007	12:06:46
17RENP.cfd	11,168	12/4/2007	12:10:38
17RENP.log	4,802	12/4/2007	12:10:38
17RENP.rsf	284	12/4/2007	12:06:46
17RESP.cfd	11,168	12/4/2007	12:10:40
17RESP.log	4,802	12/4/2007	12:10:40
17RESP.rsf	285	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17RW050a.cfd	11,168	12/4/2007	12:10:50
17RW050a.log	4,802	12/4/2007	12:10:50
17RW050a.rsf	287	12/4/2007	12:06:46
17RW050b.cfd	11,168	12/4/2007	12:10:50
17RW050b.log	4,802	12/4/2007	12:10:50
17RW050b.rsf	287	12/4/2007	12:06:46
17RW050c.cfd	11,168	12/4/2007	12:10:50
17RW050c.log	4,802	12/4/2007	12:10:50
17RW050c.rsf	288	12/4/2007	12:06:46
17RW050d.cfd	11,168	12/4/2007	12:10:50
17RW050d.log	4,802	12/4/2007	12:10:50
17RW050d.rsf	288	12/4/2007	12:06:46
17RW060a.cfd	11,168	12/4/2007	12:10:44
17RW060a.log	4,802	12/4/2007	12:10:44
17RW060a.rsf	289	12/4/2007	12:06:46
17RW060b.cfd	11,168	12/4/2007	12:10:44
17RW060b.log	4,802	12/4/2007	12:10:44
17RW060b.rsf	288	12/4/2007	12:06:46
17RW060c.cfd	11,168	12/4/2007	12:10:44
17RW060c.log	4,802	12/4/2007	12:10:44
17RW060c.rsf	288	12/4/2007	12:06:46
17RW060d.cfd	11,168	12/4/2007	12:10:44
17RW060d.log	4,802	12/4/2007	12:10:44
17RW060d.rsf	288	12/4/2007	12:06:46
17RW060e.cfd	11,168	12/4/2007	12:10:44
17RW060e.log	4,802	12/4/2007	12:10:44
17RW060e.rsf	288	12/4/2007	12:06:46
17RW070a.cfd	11,168	12/4/2007	12:10:44
17RW070a.log	4,802	12/4/2007	12:10:44
17RW070a.rsf	289	12/4/2007	12:06:46
17RW070b.cfd	11,168	12/4/2007	12:10:46
17RW070b.log	4,802	12/4/2007	12:10:46
17RW070b.rsf	288	12/4/2007	12:06:46
17RW070c.cfd	11,168	12/4/2007	12:10:46
17RW070c.log	4,802	12/4/2007	12:10:46
17RW070c.rsf	288	12/4/2007	12:06:46
17RW070d.cfd	11,168	12/4/2007	12:10:46
17RW070d.log	4,802	12/4/2007	12:10:46
17RW070d.rsf	288	12/4/2007	12:06:46
17RW070e.cfd	11,168	12/4/2007	12:10:46
17RW070e.log	4,802	12/4/2007	12:10:46
17RW070e.rsf	288	12/4/2007	12:06:46
17RW080a.cfd	11,168	12/4/2007	12:10:48
17RW080a.log	4,802	12/4/2007	12:10:48
17RW080a.rsf	289	12/4/2007	12:06:46
17RW080b.cfd	11,168	12/4/2007	12:10:48
17RW080b.log	4,802	12/4/2007	12:10:48
17RW080b.rsf	288	12/4/2007	12:06:46
17RW080c.cfd	11,168	12/4/2007	12:10:48
17RW080c.log	4,802	12/4/2007	12:10:48
17RW080c.rsf	288	12/4/2007	12:06:46
17RW080d.cfd	11,168	12/4/2007	12:10:48
17RW080d.log	4,802	12/4/2007	12:10:48

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17RW080d.rsf	288	12/4/2007	12:06:46
17RW080e.cfd	11,168	12/4/2007	12:10:48
17RW080e.log	4,802	12/4/2007	12:10:48
17RW080e.rsf	288	12/4/2007	12:06:46
17RW160a.cfd	11,168	12/4/2007	12:10:52
17RW160a.log	4,802	12/4/2007	12:10:52
17RW160a.rsf	287	12/4/2007	12:06:46
17RW160b.cfd	11,168	12/4/2007	12:10:52
17RW160b.log	4,802	12/4/2007	12:10:52
17RW160b.rsf	287	12/4/2007	12:06:46
17RW160c.cfd	11,168	12/4/2007	12:10:52
17RW160c.log	4,802	12/4/2007	12:10:52
17RW160c.rsf	286	12/4/2007	12:06:46
17RW17PN.cfd	11,168	12/4/2007	12:10:52
17RW17PN.log	4,802	12/4/2007	12:10:52
17RW17PN.rsf	289	12/4/2007	12:06:46
17RW17PS.cfd	11,168	12/4/2007	12:10:52
17RW17PS.log	4,802	12/4/2007	12:10:52
17RW17PS.rsf	289	12/4/2007	12:06:46
17RW17RE.cfd	11,168	12/4/2007	12:10:52
17RW17RE.log	4,802	12/4/2007	12:10:52
17RW17RE.rsf	287	12/4/2007	12:06:46
17RW17RW.cfd	11,168	12/4/2007	12:10:52
17RW17RW.log	4,802	12/4/2007	12:10:52
17RW17RW.rsf	284	12/4/2007	12:06:46
17RW200a.cfd	11,168	12/4/2007	12:10:50
17RW200a.log	4,802	12/4/2007	12:10:50
17RW200a.rsf	289	12/4/2007	12:06:46
17RW200b.cfd	11,168	12/4/2007	12:10:50
17RW200b.log	4,802	12/4/2007	12:10:50
17RW200b.rsf	289	12/4/2007	12:06:46
17RW200c.cfd	11,168	12/4/2007	12:10:50
17RW200c.log	4,802	12/4/2007	12:10:50
17RW200c.rsf	289	12/4/2007	12:06:46
17RW200d.cfd	11,168	12/4/2007	12:10:50
17RW200d.log	4,802	12/4/2007	12:10:50
17RW200d.rsf	289	12/4/2007	12:06:46
17RW220.cfd	11,168	12/4/2007	12:10:54
17RW220.log	4,802	12/4/2007	12:10:54
17RW220.rsf	286	12/4/2007	12:06:46
17RW230.cfd	11,168	12/4/2007	12:10:56
17RW230.log	4,802	12/4/2007	12:10:56
17RW230.rsf	287	12/4/2007	12:06:46
17RW240.cfd	11,168	12/4/2007	12:10:56
17RW240.log	4,802	12/4/2007	12:10:56
17RW240.rsf	285	12/4/2007	12:06:46
17RW25A.cfd	11,168	12/4/2007	12:10:56
17RW25A.log	4,802	12/4/2007	12:10:56
17RW25A.rsf	287	12/4/2007	12:06:46
17RW27A.cfd	11,168	12/4/2007	12:10:58
17RW27A.log	4,802	12/4/2007	12:10:58
17RW27A.rsf	285	12/4/2007	12:06:46
17RW30A.cfd	11,168	12/4/2007	12:10:58

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
17RW30A.log	4,802	12/4/2007	12:10:58
17RW30A.rsf	287	12/4/2007	12:06:46
17RW30B.cfd	11,168	12/4/2007	12:10:58
17RW30B.log	4,802	12/4/2007	12:10:58
17RW30B.rsf	287	12/4/2007	12:06:46
17RW30C.cfd	11,168	12/4/2007	12:10:58
17RW30C.log	4,802	12/4/2007	12:10:58
17RW30C.rsf	286	12/4/2007	12:06:46
17RW33A.cfd	11,168	12/4/2007	12:10:58
17RW33A.log	4,802	12/4/2007	12:10:58
17RW33A.rsf	287	12/4/2007	12:06:46
17RW33B.cfd	11,168	12/4/2007	12:10:58
17RW33B.log	4,802	12/4/2007	12:10:58
17RW33B.rsf	287	12/4/2007	12:06:46
17RW51Aa.cfd	11,168	12/4/2007	12:10:52
17RW51Aa.log	4,802	12/4/2007	12:10:52
17RW51Aa.rsf	287	12/4/2007	12:06:46
17RW51Ab.cfd	11,168	12/4/2007	12:10:52
17RW51Ab.log	4,802	12/4/2007	12:10:52
17RW51Ab.rsf	287	12/4/2007	12:06:46
17RW620.cfd	11,168	12/4/2007	12:10:56
17RW620.log	4,802	12/4/2007	12:10:56
17RW620.rsf	287	12/4/2007	12:06:46
17RW71A.cfd	11,168	12/4/2007	12:10:56
17RW71A.log	4,802	12/4/2007	12:10:56
17RW71A.rsf	287	12/4/2007	12:06:46
17RW780.cfd	11,168	12/4/2007	12:10:58
17RW780.log	4,802	12/4/2007	12:10:58
17RW780.rsf	287	12/4/2007	12:06:46
17RWIS2.cfd	11,168	12/4/2007	12:10:54
17RWIS2.log	4,802	12/4/2007	12:10:54
17RWIS2.rsf	288	12/4/2007	12:06:46
17RWIS3.cfd	11,168	12/4/2007	12:10:54
17RWIS3.log	4,802	12/4/2007	12:10:54
17RWIS3.rsf	289	12/4/2007	12:06:46
17RWIS4.cfd	11,168	12/4/2007	12:10:54
17RWIS4.log	4,802	12/4/2007	12:10:54
17RWIS4.rsf	288	12/4/2007	12:06:46
17RWNC.cfd	11,168	12/4/2007	12:10:54
17RWNC.log	4,802	12/4/2007	12:10:54
17RWNC.rsf	286	12/4/2007	12:06:46
17RWNP.cfd	11,168	12/4/2007	12:10:54
17RWNP.log	4,802	12/4/2007	12:10:54
17RWNP.rsf	284	12/4/2007	12:06:46
17RWSP.cfd	11,168	12/4/2007	12:10:54
17RWSP.log	4,802	12/4/2007	12:10:54
17RWSP.rsf	285	12/4/2007	12:06:46
200a050a.cfd	11,168	12/4/2007	12:08:56
200a050a.log	4,794	12/4/2007	12:08:56
200a050a.rsf	292	12/4/2007	12:06:46
200a050b.cfd	11,168	12/4/2007	12:08:56
200a050b.log	4,794	12/4/2007	12:08:56
200a050b.rsf	292	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
200a050c.cfd	11,168	12/4/2007	12:08:56
200a050c.log	4,794	12/4/2007	12:08:56
200a050c.rsf	293	12/4/2007	12:06:46
200a050d.cfd	11,168	12/4/2007	12:08:56
200a050d.log	4,794	12/4/2007	12:08:56
200a050d.rsf	293	12/4/2007	12:06:46
200a060a.cfd	11,168	12/4/2007	12:08:50
200a060a.log	4,794	12/4/2007	12:08:50
200a060a.rsf	293	12/4/2007	12:06:46
200a060b.cfd	11,168	12/4/2007	12:08:50
200a060b.log	4,794	12/4/2007	12:08:50
200a060b.rsf	292	12/4/2007	12:06:46
200a060c.cfd	11,168	12/4/2007	12:08:50
200a060c.log	4,794	12/4/2007	12:08:50
200a060c.rsf	292	12/4/2007	12:06:46
200a060d.cfd	11,168	12/4/2007	12:08:52
200a060d.log	4,794	12/4/2007	12:08:52
200a060d.rsf	292	12/4/2007	12:06:46
200a060e.cfd	11,168	12/4/2007	12:08:52
200a060e.log	4,794	12/4/2007	12:08:52
200a060e.rsf	292	12/4/2007	12:06:46
200a070a.cfd	11,168	12/4/2007	12:08:52
200a070a.log	4,794	12/4/2007	12:08:52
200a070a.rsf	294	12/4/2007	12:06:46
200a070b.cfd	11,168	12/4/2007	12:08:52
200a070b.log	4,794	12/4/2007	12:08:52
200a070b.rsf	293	12/4/2007	12:06:46
200a070c.cfd	11,168	12/4/2007	12:08:52
200a070c.log	4,794	12/4/2007	12:08:52
200a070c.rsf	293	12/4/2007	12:06:46
200a070d.cfd	11,168	12/4/2007	12:08:52
200a070d.log	4,794	12/4/2007	12:08:52
200a070d.rsf	293	12/4/2007	12:06:46
200a070e.cfd	11,168	12/4/2007	12:08:54
200a070e.log	4,794	12/4/2007	12:08:54
200a070e.rsf	293	12/4/2007	12:06:46
200a080a.cfd	11,168	12/4/2007	12:08:54
200a080a.log	4,794	12/4/2007	12:08:54
200a080a.rsf	294	12/4/2007	12:06:46
200a080b.cfd	11,168	12/4/2007	12:08:54
200a080b.log	4,794	12/4/2007	12:08:54
200a080b.rsf	293	12/4/2007	12:06:46
200a080c.cfd	11,168	12/4/2007	12:08:54
200a080c.log	4,794	12/4/2007	12:08:54
200a080c.rsf	293	12/4/2007	12:06:46
200a080d.cfd	11,168	12/4/2007	12:08:54
200a080d.log	4,794	12/4/2007	12:08:54
200a080d.rsf	293	12/4/2007	12:06:46
200a080e.cfd	11,168	12/4/2007	12:08:54
200a080e.log	4,794	12/4/2007	12:08:54
200a080e.rsf	293	12/4/2007	12:06:46
200a160a.cfd	11,168	12/4/2007	12:08:58
200a160a.log	4,794	12/4/2007	12:08:58

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
200a160a.rsf	292	12/4/2007	12:06:46
200a160b.cfd	11,168	12/4/2007	12:08:58
200a160b.log	4,794	12/4/2007	12:08:58
200a160b.rsf	292	12/4/2007	12:06:46
200a160c.cfd	11,168	12/4/2007	12:08:58
200a160c.log	4,794	12/4/2007	12:08:58
200a160c.rsf	292	12/4/2007	12:06:46
200a17PN.cfd	11,168	12/4/2007	12:09:00
200a17PN.log	4,794	12/4/2007	12:09:00
200a17PN.rsf	295	12/4/2007	12:06:46
200a17PS.cfd	11,168	12/4/2007	12:09:00
200a17PS.log	4,794	12/4/2007	12:09:00
200a17PS.rsf	295	12/4/2007	12:06:46
200a17RE.cfd	11,168	12/4/2007	12:08:58
200a17RE.log	4,794	12/4/2007	12:08:58
200a17RE.rsf	294	12/4/2007	12:06:46
200a17RW.cfd	11,168	12/4/2007	12:09:00
200a17RW.log	4,794	12/4/2007	12:09:00
200a17RW.rsf	294	12/4/2007	12:06:46
200a200a.cfd	11,168	12/4/2007	12:08:54
200a200a.log	4,794	12/4/2007	12:08:54
200a200a.rsf	292	12/4/2007	12:06:46
200a200b.cfd	11,168	12/4/2007	12:08:56
200a200b.log	4,794	12/4/2007	12:08:56
200a200b.rsf	292	12/4/2007	12:06:46
200a200c.cfd	11,168	12/4/2007	12:08:56
200a200c.log	4,794	12/4/2007	12:08:56
200a200c.rsf	291	12/4/2007	12:06:46
200a200d.cfd	11,168	12/4/2007	12:08:56
200a200d.log	4,794	12/4/2007	12:08:56
200a200d.rsf	291	12/4/2007	12:06:46
200a220.cfd	11,168	12/4/2007	12:09:02
200a220.log	4,794	12/4/2007	12:09:02
200a220.rsf	290	12/4/2007	12:06:46
200a230.cfd	11,168	12/4/2007	12:09:02
200a230.log	4,794	12/4/2007	12:09:02
200a230.rsf	289	12/4/2007	12:06:46
200a240.cfd	11,168	12/4/2007	12:09:02
200a240.log	4,794	12/4/2007	12:09:02
200a240.rsf	290	12/4/2007	12:06:46
200a25A.cfd	11,168	12/4/2007	12:09:04
200a25A.log	4,794	12/4/2007	12:09:04
200a25A.rsf	291	12/4/2007	12:06:46
200a27A.cfd	11,168	12/4/2007	12:09:06
200a27A.log	4,794	12/4/2007	12:09:06
200a27A.rsf	292	12/4/2007	12:06:46
200a30A.cfd	11,168	12/4/2007	12:09:04
200a30A.log	4,794	12/4/2007	12:09:04
200a30A.rsf	290	12/4/2007	12:06:46
200a30B.cfd	11,168	12/4/2007	12:09:04
200a30B.log	4,794	12/4/2007	12:09:04
200a30B.rsf	292	12/4/2007	12:06:46
200a30C.cfd	11,168	12/4/2007	12:09:04

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
200a30C.log	4,794	12/4/2007	12:09:04
200a30C.rsf	291	12/4/2007	12:06:46
200a33A.cfd	11,168	12/4/2007	12:09:06
200a33A.log	4,794	12/4/2007	12:09:06
200a33A.rsf	291	12/4/2007	12:06:46
200a33B.cfd	11,168	12/4/2007	12:09:06
200a33B.log	4,794	12/4/2007	12:09:06
200a33B.rsf	290	12/4/2007	12:06:46
200a51Aa.cfd	11,168	12/4/2007	12:08:58
200a51Aa.log	4,794	12/4/2007	12:08:58
200a51Aa.rsf	292	12/4/2007	12:06:46
200a51Ab.cfd	11,168	12/4/2007	12:08:58
200a51Ab.log	4,794	12/4/2007	12:08:58
200a51Ab.rsf	292	12/4/2007	12:06:46
200a620.cfd	11,168	12/4/2007	12:09:04
200a620.log	4,794	12/4/2007	12:09:04
200a620.rsf	291	12/4/2007	12:06:46
200a71A.cfd	11,168	12/4/2007	12:09:04
200a71A.log	4,794	12/4/2007	12:09:04
200a71A.rsf	290	12/4/2007	12:06:46
200a780.cfd	11,168	12/4/2007	12:09:06
200a780.log	4,794	12/4/2007	12:09:06
200a780.rsf	291	12/4/2007	12:06:46
200aIS2.cfd	11,168	12/4/2007	12:09:00
200aIS2.log	4,794	12/4/2007	12:09:00
200aIS2.rsf	293	12/4/2007	12:06:46
200aIS3.cfd	11,168	12/4/2007	12:09:00
200aIS3.log	4,794	12/4/2007	12:09:00
200aIS3.rsf	294	12/4/2007	12:06:46
200aIS4.cfd	11,168	12/4/2007	12:09:02
200aIS4.log	4,794	12/4/2007	12:09:02
200aIS4.rsf	294	12/4/2007	12:06:46
200aNC.cfd	11,168	12/4/2007	12:09:02
200aNC.log	4,794	12/4/2007	12:09:02
200aNC.rsf	291	12/4/2007	12:06:46
200aNP.cfd	11,168	12/4/2007	12:09:02
200aNP.log	4,794	12/4/2007	12:09:02
200aNP.rsf	288	12/4/2007	12:06:46
200aSP.cfd	11,168	12/4/2007	12:09:02
200aSP.log	4,794	12/4/2007	12:09:02
200aSP.rsf	290	12/4/2007	12:06:46
200b050a.cfd	11,168	12/4/2007	12:09:12
200b050a.log	4,794	12/4/2007	12:09:12
200b050a.rsf	292	12/4/2007	12:06:46
200b050b.cfd	11,168	12/4/2007	12:09:12
200b050b.log	4,794	12/4/2007	12:09:12
200b050b.rsf	292	12/4/2007	12:06:46
200b050c.cfd	11,168	12/4/2007	12:09:12
200b050c.log	4,794	12/4/2007	12:09:12
200b050c.rsf	293	12/4/2007	12:06:46
200b050d.cfd	11,168	12/4/2007	12:09:12
200b050d.log	4,794	12/4/2007	12:09:12
200b050d.rsf	293	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
200b060a.cfd	11,168	12/4/2007	12:09:06
200b060a.log	4,794	12/4/2007	12:09:06
200b060a.rsf	292	12/4/2007	12:06:46
200b060b.cfd	11,168	12/4/2007	12:09:06
200b060b.log	4,794	12/4/2007	12:09:06
200b060b.rsf	292	12/4/2007	12:06:46
200b060c.cfd	11,168	12/4/2007	12:09:06
200b060c.log	4,794	12/4/2007	12:09:06
200b060c.rsf	292	12/4/2007	12:06:46
200b060d.cfd	11,168	12/4/2007	12:09:06
200b060d.log	4,794	12/4/2007	12:09:06
200b060d.rsf	292	12/4/2007	12:06:46
200b060e.cfd	11,168	12/4/2007	12:09:08
200b060e.log	4,794	12/4/2007	12:09:08
200b060e.rsf	292	12/4/2007	12:06:46
200b070a.cfd	11,168	12/4/2007	12:09:08
200b070a.log	4,794	12/4/2007	12:09:08
200b070a.rsf	294	12/4/2007	12:06:46
200b070b.cfd	11,168	12/4/2007	12:09:08
200b070b.log	4,794	12/4/2007	12:09:08
200b070b.rsf	293	12/4/2007	12:06:46
200b070c.cfd	11,168	12/4/2007	12:09:08
200b070c.log	4,794	12/4/2007	12:09:08
200b070c.rsf	293	12/4/2007	12:06:46
200b070d.cfd	11,168	12/4/2007	12:09:08
200b070d.log	4,794	12/4/2007	12:09:08
200b070d.rsf	293	12/4/2007	12:06:46
200b070e.cfd	11,168	12/4/2007	12:09:08
200b070e.log	4,794	12/4/2007	12:09:08
200b070e.rsf	293	12/4/2007	12:06:46
200b080a.cfd	11,168	12/4/2007	12:09:08
200b080a.log	4,794	12/4/2007	12:09:08
200b080a.rsf	294	12/4/2007	12:06:46
200b080b.cfd	11,168	12/4/2007	12:09:10
200b080b.log	4,794	12/4/2007	12:09:10
200b080b.rsf	293	12/4/2007	12:06:46
200b080c.cfd	11,168	12/4/2007	12:09:10
200b080c.log	4,794	12/4/2007	12:09:10
200b080c.rsf	293	12/4/2007	12:06:46
200b080d.cfd	11,168	12/4/2007	12:09:10
200b080d.log	4,794	12/4/2007	12:09:10
200b080d.rsf	293	12/4/2007	12:06:46
200b080e.cfd	11,168	12/4/2007	12:09:10
200b080e.log	4,794	12/4/2007	12:09:10
200b080e.rsf	293	12/4/2007	12:06:46
200b160a.cfd	11,168	12/4/2007	12:09:14
200b160a.log	4,794	12/4/2007	12:09:14
200b160a.rsf	292	12/4/2007	12:06:46
200b160b.cfd	11,168	12/4/2007	12:09:14
200b160b.log	4,794	12/4/2007	12:09:14
200b160b.rsf	292	12/4/2007	12:06:46
200b160c.cfd	11,168	12/4/2007	12:09:14
200b160c.log	4,794	12/4/2007	12:09:14

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
200b160c.rsf	292	12/4/2007	12:06:46
200b17PN.cfd	11,168	12/4/2007	12:09:16
200b17PN.log	4,794	12/4/2007	12:09:16
200b17PN.rsf	295	12/4/2007	12:06:46
200b17PS.cfd	11,168	12/4/2007	12:09:16
200b17PS.log	4,794	12/4/2007	12:09:16
200b17PS.rsf	295	12/4/2007	12:06:46
200b17RE.cfd	11,168	12/4/2007	12:09:14
200b17RE.log	4,794	12/4/2007	12:09:14
200b17RE.rsf	294	12/4/2007	12:06:46
200b17RW.cfd	11,168	12/4/2007	12:09:14
200b17RW.log	4,794	12/4/2007	12:09:14
200b17RW.rsf	294	12/4/2007	12:06:46
200b200a.cfd	11,168	12/4/2007	12:09:10
200b200a.log	4,794	12/4/2007	12:09:10
200b200a.rsf	292	12/4/2007	12:06:46
200b200b.cfd	11,168	12/4/2007	12:09:10
200b200b.log	4,794	12/4/2007	12:09:10
200b200b.rsf	292	12/4/2007	12:06:46
200b200c.cfd	11,168	12/4/2007	12:09:12
200b200c.log	4,794	12/4/2007	12:09:12
200b200c.rsf	291	12/4/2007	12:06:46
200b200d.cfd	11,168	12/4/2007	12:09:12
200b200d.log	4,794	12/4/2007	12:09:12
200b200d.rsf	290	12/4/2007	12:06:46
200b220.cfd	11,168	12/4/2007	12:09:18
200b220.log	4,794	12/4/2007	12:09:18
200b220.rsf	290	12/4/2007	12:06:46
200b230.cfd	11,168	12/4/2007	12:09:18
200b230.log	4,794	12/4/2007	12:09:18
200b230.rsf	289	12/4/2007	12:06:46
200b240.cfd	11,168	12/4/2007	12:09:18
200b240.log	4,794	12/4/2007	12:09:18
200b240.rsf	290	12/4/2007	12:06:46
200b25A.cfd	11,168	12/4/2007	12:09:18
200b25A.log	4,794	12/4/2007	12:09:18
200b25A.rsf	291	12/4/2007	12:06:46
200b27A.cfd	11,168	12/4/2007	12:09:22
200b27A.log	4,794	12/4/2007	12:09:22
200b27A.rsf	292	12/4/2007	12:06:46
200b30A.cfd	11,168	12/4/2007	12:09:20
200b30A.log	4,794	12/4/2007	12:09:20
200b30A.rsf	290	12/4/2007	12:06:46
200b30B.cfd	11,168	12/4/2007	12:09:20
200b30B.log	4,794	12/4/2007	12:09:20
200b30B.rsf	292	12/4/2007	12:06:46
200b30C.cfd	11,168	12/4/2007	12:09:20
200b30C.log	4,794	12/4/2007	12:09:20
200b30C.rsf	291	12/4/2007	12:06:46
200b33A.cfd	11,168	12/4/2007	12:09:22
200b33A.log	4,794	12/4/2007	12:09:22
200b33A.rsf	290	12/4/2007	12:06:46
200b33B.cfd	11,168	12/4/2007	12:09:22

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
200b33B.log	4,794	12/4/2007	12:09:22
200b33B.rsf	290	12/4/2007	12:06:46
200b51Aa.cfd	11,168	12/4/2007	12:09:12
200b51Aa.log	4,794	12/4/2007	12:09:12
200b51Aa.rsf	292	12/4/2007	12:06:46
200b51Ab.cfd	11,168	12/4/2007	12:09:14
200b51Ab.log	4,794	12/4/2007	12:09:14
200b51Ab.rsf	292	12/4/2007	12:06:46
200b620.cfd	11,168	12/4/2007	12:09:20
200b620.log	4,794	12/4/2007	12:09:20
200b620.rsf	291	12/4/2007	12:06:46
200b71A.cfd	11,168	12/4/2007	12:09:20
200b71A.log	4,794	12/4/2007	12:09:20
200b71A.rsf	290	12/4/2007	12:06:46
200b780.cfd	11,168	12/4/2007	12:09:22
200b780.log	4,794	12/4/2007	12:09:22
200b780.rsf	291	12/4/2007	12:06:46
200bIS2.cfd	11,168	12/4/2007	12:09:16
200bIS2.log	4,794	12/4/2007	12:09:16
200bIS2.rsf	293	12/4/2007	12:06:46
200bIS3.cfd	11,168	12/4/2007	12:09:16
200bIS3.log	4,794	12/4/2007	12:09:16
200bIS3.rsf	294	12/4/2007	12:06:46
200bIS4.cfd	11,168	12/4/2007	12:09:16
200bIS4.log	4,794	12/4/2007	12:09:16
200bIS4.rsf	294	12/4/2007	12:06:46
200bNC.cfd	11,168	12/4/2007	12:09:16
200bNC.log	4,794	12/4/2007	12:09:16
200bNC.rsf	291	12/4/2007	12:06:46
200bNP.cfd	11,168	12/4/2007	12:09:16
200bNP.log	4,794	12/4/2007	12:09:16
200bNP.rsf	288	12/4/2007	12:06:46
200bSP.cfd	11,168	12/4/2007	12:09:18
200bSP.log	4,794	12/4/2007	12:09:18
200bSP.rsf	290	12/4/2007	12:06:46
51A050a.cfd	11,168	12/4/2007	12:10:00
51A050a.log	4,794	12/4/2007	12:10:00
51A050a.rsf	290	12/4/2007	12:06:46
51A050b.cfd	11,168	12/4/2007	12:10:02
51A050b.log	4,794	12/4/2007	12:10:02
51A050b.rsf	290	12/4/2007	12:06:46
51A050c.cfd	11,168	12/4/2007	12:10:02
51A050c.log	4,794	12/4/2007	12:10:02
51A050c.rsf	291	12/4/2007	12:06:46
51A050d.cfd	11,168	12/4/2007	12:10:02
51A050d.log	4,794	12/4/2007	12:10:02
51A050d.rsf	291	12/4/2007	12:06:46
51A060a.cfd	11,168	12/4/2007	12:09:54
51A060a.log	4,794	12/4/2007	12:09:54
51A060a.rsf	291	12/4/2007	12:06:46
51A060b.cfd	11,168	12/4/2007	12:09:54
51A060b.log	4,794	12/4/2007	12:09:54
51A060b.rsf	290	12/4/2007	12:06:46

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
51A060c.cfd	11,168	12/4/2007	12:09:54
51A060c.log	4,794	12/4/2007	12:09:54
51A060c.rsf	290	12/4/2007	12:06:46
51A060d.cfd	11,168	12/4/2007	12:09:56
51A060d.log	4,794	12/4/2007	12:09:56
51A060d.rsf	290	12/4/2007	12:06:46
51A060e.cfd	11,168	12/4/2007	12:09:56
51A060e.log	4,794	12/4/2007	12:09:56
51A060e.rsf	290	12/4/2007	12:06:46
51A070a.cfd	11,168	12/4/2007	12:09:56
51A070a.log	4,794	12/4/2007	12:09:56
51A070a.rsf	292	12/4/2007	12:06:46
51A070b.cfd	11,168	12/4/2007	12:09:56
51A070b.log	4,794	12/4/2007	12:09:56
51A070b.rsf	290	12/4/2007	12:06:46
51A070c.cfd	11,168	12/4/2007	12:09:56
51A070c.log	4,794	12/4/2007	12:09:56
51A070c.rsf	291	12/4/2007	12:06:46
51A070d.cfd	11,168	12/4/2007	12:09:58
51A070d.log	4,794	12/4/2007	12:09:58
51A070d.rsf	291	12/4/2007	12:06:46
51A070e.cfd	11,168	12/4/2007	12:09:58
51A070e.log	4,794	12/4/2007	12:09:58
51A070e.rsf	291	12/4/2007	12:06:46
51A080a.cfd	11,168	12/4/2007	12:09:58
51A080a.log	4,794	12/4/2007	12:09:58
51A080a.rsf	292	12/4/2007	12:06:46
51A080b.cfd	11,168	12/4/2007	12:09:58
51A080b.log	4,794	12/4/2007	12:09:58
51A080b.rsf	291	12/4/2007	12:06:46
51A080c.cfd	11,168	12/4/2007	12:09:58
51A080c.log	4,794	12/4/2007	12:09:58
51A080c.rsf	291	12/4/2007	12:06:46
51A080d.cfd	11,168	12/4/2007	12:09:58
51A080d.log	4,794	12/4/2007	12:09:58
51A080d.rsf	291	12/4/2007	12:06:46
51A080e.cfd	11,168	12/4/2007	12:10:00
51A080e.log	4,794	12/4/2007	12:10:00
51A080e.rsf	291	12/4/2007	12:06:46
51A160a.cfd	11,168	12/4/2007	12:10:02
51A160a.log	4,794	12/4/2007	12:10:02
51A160a.rsf	290	12/4/2007	12:06:46
51A160b.cfd	11,168	12/4/2007	12:10:04
51A160b.log	4,794	12/4/2007	12:10:04
51A160b.rsf	290	12/4/2007	12:06:46
51A160c.cfd	11,168	12/4/2007	12:10:04
51A160c.log	4,794	12/4/2007	12:10:04
51A160c.rsf	290	12/4/2007	12:06:46
51A17PN.cfd	11,168	12/4/2007	12:10:04
51A17PN.log	4,794	12/4/2007	12:10:04
51A17PN.rsf	293	12/4/2007	12:06:46
51A17PS.cfd	11,168	12/4/2007	12:10:04
51A17PS.log	4,794	12/4/2007	12:10:04

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
51A17PS.rsf	293	12/4/2007	12:06:46
51A17RE.cfd	11,168	12/4/2007	12:10:04
51A17RE.log	4,794	12/4/2007	12:10:04
51A17RE.rsf	293	12/4/2007	12:06:46
51A17RW.cfd	11,168	12/4/2007	12:10:04
51A17RW.log	4,794	12/4/2007	12:10:04
51A17RW.rsf	293	12/4/2007	12:06:46
51A200a.cfd	11,168	12/4/2007	12:10:00
51A200a.log	4,794	12/4/2007	12:10:00
51A200a.rsf	291	12/4/2007	12:06:46
51A200b.cfd	11,168	12/4/2007	12:10:00
51A200b.log	4,794	12/4/2007	12:10:00
51A200b.rsf	291	12/4/2007	12:06:46
51A200c.cfd	11,168	12/4/2007	12:10:00
51A200c.log	4,794	12/4/2007	12:10:00
51A200c.rsf	291	12/4/2007	12:06:46
51A200d.cfd	11,168	12/4/2007	12:10:00
51A200d.log	4,794	12/4/2007	12:10:00
51A200d.rsf	291	12/4/2007	12:06:46
51A220.cfd	11,168	12/4/2007	12:10:08
51A220.log	4,794	12/4/2007	12:10:08
51A220.rsf	289	12/4/2007	12:06:46
51A230.cfd	11,168	12/4/2007	12:10:08
51A230.log	4,794	12/4/2007	12:10:08
51A230.rsf	288	12/4/2007	12:06:46
51A240.cfd	11,168	12/4/2007	12:10:08
51A240.log	4,794	12/4/2007	12:10:08
51A240.rsf	288	12/4/2007	12:06:46
51A25A.cfd	11,168	12/4/2007	12:10:08
51A25A.log	4,794	12/4/2007	12:10:08
51A25A.rsf	289	12/4/2007	12:06:46
51A27A.cfd	11,168	12/4/2007	12:10:10
51A27A.log	4,794	12/4/2007	12:10:10
51A27A.rsf	290	12/4/2007	12:06:46
51A30A.cfd	11,168	12/4/2007	12:10:10
51A30A.log	4,794	12/4/2007	12:10:10
51A30A.rsf	289	12/4/2007	12:06:46
51A30B.cfd	11,168	12/4/2007	12:10:10
51A30B.log	4,794	12/4/2007	12:10:10
51A30B.rsf	289	12/4/2007	12:06:46
51A30C.cfd	11,168	12/4/2007	12:10:10
51A30C.log	4,794	12/4/2007	12:10:10
51A30C.rsf	290	12/4/2007	12:06:46
51A33A.cfd	11,168	12/4/2007	12:10:12
51A33A.log	4,794	12/4/2007	12:10:12
51A33A.rsf	288	12/4/2007	12:06:46
51A33B.cfd	11,168	12/4/2007	12:10:12
51A33B.log	4,794	12/4/2007	12:10:12
51A33B.rsf	288	12/4/2007	12:06:46
51A51Aa.cfd	11,168	12/4/2007	12:10:02
51A51Aa.log	4,794	12/4/2007	12:10:02
51A51Aa.rsf	289	12/4/2007	12:06:46
51A51Ab.cfd	11,168	12/4/2007	12:10:02

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
51A51Ab.log	4,794	12/4/2007	12:10:02
51A51Ab.rsf	289	12/4/2007	12:06:46
51A620.cfd	11,168	12/4/2007	12:10:08
51A620.log	4,794	12/4/2007	12:10:08
51A620.rsf	289	12/4/2007	12:06:46
51A71A.cfd	11,168	12/4/2007	12:10:10
51A71A.log	4,794	12/4/2007	12:10:10
51A71A.rsf	290	12/4/2007	12:06:46
51A780.cfd	11,168	12/4/2007	12:10:12
51A780.log	4,794	12/4/2007	12:10:12
51A780.rsf	289	12/4/2007	12:06:46
51AIS2.cfd	11,168	12/4/2007	12:10:06
51AIS2.log	4,794	12/4/2007	12:10:06
51AIS2.rsf	292	12/4/2007	12:06:46
51AIS3.cfd	11,168	12/4/2007	12:10:06
51AIS3.log	4,794	12/4/2007	12:10:06
51AIS3.rsf	292	12/4/2007	12:06:46
51AIS4.cfd	11,168	12/4/2007	12:10:06
51AIS4.log	4,794	12/4/2007	12:10:06
51AIS4.rsf	292	12/4/2007	12:06:46
51ANC.cfd	11,168	12/4/2007	12:10:06
51ANC.log	4,794	12/4/2007	12:10:06
51ANC.rsf	289	12/4/2007	12:06:46
51ANP.cfd	11,168	12/4/2007	12:10:06
51ANP.log	4,794	12/4/2007	12:10:06
51ANP.rsf	287	12/4/2007	12:06:46
51ASP.cfd	11,168	12/4/2007	12:10:06
51ASP.log	4,794	12/4/2007	12:10:06
51ASP.rsf	288	12/4/2007	12:06:46
_all.bat	42,096	12/4/2007	12:06:46
ECRBIS2.cfd	11,168	12/4/2007	12:11:40
ECRBIS2.log	4,802	12/4/2007	12:11:40
ECRBIS2.rsf	288	12/4/2007	12:06:46
ECRBIS3.cfd	11,168	12/4/2007	12:11:42
ECRBIS3.log	4,802	12/4/2007	12:11:42
ECRBIS3.rsf	288	12/4/2007	12:06:46
ECRBIS4.cfd	11,168	12/4/2007	12:11:42
ECRBIS4.log	4,802	12/4/2007	12:11:42
ECRBIS4.rsf	288	12/4/2007	12:06:46
ECRBNC.cfd	11,168	12/4/2007	12:11:42
ECRBNC.log	4,802	12/4/2007	12:11:42
ECRBNC.rsf	287	12/4/2007	12:06:46
ECRBNP.cfd	11,168	12/4/2007	12:11:42
ECRBNP.log	4,802	12/4/2007	12:11:42
ECRBNP.rsf	287	12/4/2007	12:06:46
ECRBSP.cfd	11,168	12/4/2007	12:11:42
ECRBSP.log	4,802	12/4/2007	12:11:42
ECRBSP.rsf	287	12/4/2007	12:06:46
ES1IS2.cfd	11,168	12/4/2007	12:11:30
ES1IS2.log	4,802	12/4/2007	12:11:30
ES1IS2.rsf	287	12/4/2007	12:06:46
ES1IS3.cfd	11,168	12/4/2007	12:11:32
ES1IS3.log	4,802	12/4/2007	12:11:32

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
ES1IS3.rsf	287	12/4/2007	12:06:46
ES1IS4.cfd	11,168	12/4/2007	12:11:32
ES1IS4.log	4,802	12/4/2007	12:11:32
ES1IS4.rsf	287	12/4/2007	12:06:46
ES1NC.cfd	11,168	12/4/2007	12:11:32
ES1NC.log	4,802	12/4/2007	12:11:32
ES1NC.rsf	286	12/4/2007	12:06:46
ES1NP.cfd	11,168	12/4/2007	12:11:32
ES1NP.log	4,802	12/4/2007	12:11:32
ES1NP.rsf	286	12/4/2007	12:06:46
ES1SP.cfd	11,168	12/4/2007	12:11:32
ES1SP.log	4,802	12/4/2007	12:11:32
ES1SP.rsf	286	12/4/2007	12:06:46
ES2IS2.cfd	11,168	12/4/2007	12:11:34
ES2IS2.log	4,802	12/4/2007	12:11:34
ES2IS2.rsf	286	12/4/2007	12:06:46
ES2IS3.cfd	11,168	12/4/2007	12:11:34
ES2IS3.log	4,802	12/4/2007	12:11:34
ES2IS3.rsf	287	12/4/2007	12:06:46
ES2IS4.cfd	11,168	12/4/2007	12:11:34
ES2IS4.log	4,802	12/4/2007	12:11:34
ES2IS4.rsf	287	12/4/2007	12:06:46
ES2NC.cfd	11,168	12/4/2007	12:11:34
ES2NC.log	4,802	12/4/2007	12:11:34
ES2NC.rsf	285	12/4/2007	12:06:46
ES2NP.cfd	11,168	12/4/2007	12:11:34
ES2NP.log	4,802	12/4/2007	12:11:34
ES2NP.rsf	285	12/4/2007	12:06:46
ES2SP.cfd	11,168	12/4/2007	12:11:34
ES2SP.log	4,802	12/4/2007	12:11:34
ES2SP.rsf	285	12/4/2007	12:06:46
ES3NIS2.cfd	11,168	12/4/2007	12:11:34
ES3NIS2.log	4,802	12/4/2007	12:11:36
ES3NIS2.rsf	287	12/4/2007	12:06:46
ES3NIS3.cfd	11,168	12/4/2007	12:11:36
ES3NIS3.log	4,802	12/4/2007	12:11:36
ES3NIS3.rsf	287	12/4/2007	12:06:46
ES3NIS4.cfd	11,168	12/4/2007	12:11:36
ES3NIS4.log	4,802	12/4/2007	12:11:36
ES3NIS4.rsf	286	12/4/2007	12:06:46
ES3NNC.cfd	11,168	12/4/2007	12:11:36
ES3NNC.log	4,802	12/4/2007	12:11:36
ES3NNC.rsf	287	12/4/2007	12:06:46
ES3NNP.cfd	11,168	12/4/2007	12:11:36
ES3NNP.log	4,802	12/4/2007	12:11:36
ES3NNP.rsf	287	12/4/2007	12:06:46
ES3NSP.cfd	11,168	12/4/2007	12:11:36
ES3NSP.log	4,802	12/4/2007	12:11:36
ES3NSP.rsf	287	12/4/2007	12:06:46
ES3SIS2.cfd	11,168	12/4/2007	12:11:38
ES3SIS2.log	4,802	12/4/2007	12:11:38
ES3SIS2.rsf	288	12/4/2007	12:06:46
ES3SIS3.cfd	11,168	12/4/2007	12:11:38

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
ES3SIS3.log	4,802	12/4/2007	12:11:38
ES3SIS3.rsf	290	12/4/2007	12:06:46
ES3SIS4.cfd	11,168	12/4/2007	12:11:38
ES3SIS4.log	4,802	12/4/2007	12:11:38
ES3SIS4.rsf	290	12/4/2007	12:06:46
ES3SNC.cfd	11,168	12/4/2007	12:11:38
ES3SNC.log	4,802	12/4/2007	12:11:38
ES3SNC.rsf	288	12/4/2007	12:06:46
ES3SNP.cfd	11,168	12/4/2007	12:11:38
ES3SNP.log	4,802	12/4/2007	12:11:38
ES3SNP.rsf	288	12/4/2007	12:06:46
ES3SSP.cfd	11,168	12/4/2007	12:11:38
ES3SSP.log	4,802	12/4/2007	12:11:38
ES3SSP.rsf	288	12/4/2007	12:06:46
ES4IS2.cfd	11,168	12/4/2007	12:11:38
ES4IS2.log	4,802	12/4/2007	12:11:38
ES4IS2.rsf	287	12/4/2007	12:06:46
ES4IS3.cfd	11,168	12/4/2007	12:11:40
ES4IS3.log	4,802	12/4/2007	12:11:40
ES4IS3.rsf	286	12/4/2007	12:06:46
ES4IS4.cfd	11,168	12/4/2007	12:11:40
ES4IS4.log	4,802	12/4/2007	12:11:40
ES4IS4.rsf	285	12/4/2007	12:06:46
ES4NC.cfd	11,168	12/4/2007	12:11:40
ES4NC.log	4,802	12/4/2007	12:11:40
ES4NC.rsf	285	12/4/2007	12:06:46
ES4NP.cfd	11,168	12/4/2007	12:11:40
ES4NP.log	4,802	12/4/2007	12:11:40
ES4NP.rsf	285	12/4/2007	12:06:46
ES4SP.cfd	11,168	12/4/2007	12:11:40
ES4SP.log	4,802	12/4/2007	12:11:40
ES4SP.rsf	285	12/4/2007	12:06:46
ymp0105X.met	1,621,488	4/17/2007	14:34:52
D:\HVAC INPUT			
=============			
HVAC Input Data.to PCSA(intake & Exhaust)11-05-07 Final.pdf	11380	11/5/2007	9:39:08 AM
HVAC Input Data.to PCSA(intake & Exhaust)11-05-07 Final.xls	28160	11/5/2007	9:39:08 AM
D:\TEST			
=======			
compare.bat	2,426	1/26/2006	9:05:53
compcfd.txt	1,254	7/19/2007	6:45:21
complog.txt	4,977	7/19/2007	6:45:21
ex1_96.cfd	11,168	7/19/2007	6:44:55
ex1_96.log	4,829	7/19/2007	6:44:55
EX1_96.RSF	398	4/26/1996	14:16:48
ex2_96.cfd	11,168	7/19/2007	6:44:55
ex2_96.log	4,829	7/19/2007	6:44:55
EX2_96.RSF	398	4/26/1996	14:21:16
ex3_96.cfd	11,168	7/19/2007	6:44:55

Table II - 1. Electronic Files Used for Dispersion Calculation on the Compact Disc

File Name	Size/Type	Date	Time
ex3_96.log	4,829	7/19/2007	6:44:55
EX3_96.RSF	398	4/26/1996	14:24:46
ex4_96.cfd	11,168	7/19/2007	6:44:55
ex4_96.log	4,834	7/19/2007	6:44:55
EX4_96.RSF	398	4/26/1996	14:29:00
ex5a_96.cfd	11,168	7/19/2007	6:44:55
ex5a_96.log	4,829	7/19/2007	6:44:56
EX5A_96.RSF	387	5/2/1997	8:50:56
ex5b_96.cfd	11,168	7/19/2007	6:44:56
ex5b_96.log	4,829	7/19/2007	6:44:56
EX5B_96.RSF	387	5/2/1997	8:51:42
ex5c_96.cfd	11,168	7/19/2007	6:44:56
ex5c_96.log	4,829	7/19/2007	6:44:56
EX5C_96.RSF	387	5/2/1997	8:52:00
ex5d_96.cfd	11,168	7/19/2007	6:44:56
ex5d_96.log	4,829	7/19/2007	6:44:56
EX5D_96.RSF	387	5/2/1997	8:52:14
ex5e_96.cfd	11,168	7/19/2007	6:44:56
ex5e_96.log	4,829	7/19/2007	6:44:56
EX5E_96.RSF	387	5/2/1997	8:52:36
ex5f_96.cfd	11,168	7/19/2007	6:44:56
ex5f_96.log	4,829	7/19/2007	6:44:56
EX5F_96.RSF	387	5/2/1997	8:52:52
ex6_96.cfd	11,168	7/19/2007	6:44:56
ex6_96.log	4,829	7/19/2007	6:44:56
Ex6_96.rsf	390	7/19/2007	6:44:50
example.bat	772	1/26/2006	8:58:14
EXAMPLE.MET	324,120	4/1/1995	7:00:00
test.txt	112	7/19/2007	6:45:21