Exhibit AA
Electric and Magnetic Fields

Boardman to Hemingway Transmission Line Project

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Preliminary Application for Site Certificate

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ACRONYMS AND ABBREVIATIONS

Note: Not all acronyms and abbreviations listed will appear in this Exhibit.

°C	degrees Celsius
4WD	4-wheel-drive
A	ampere
A/ph	amperes/phase
AC	alternating current
ACDP	Air Contaminant Discharge Permit
ACEC	Area of Critical Environmental Concern
ACSR	aluminum conductor steel reinforced
AIMP	Agricultural Impact Mitigation Plan
AMS	Analysis of the Management Situation
aMW	average megawatt
ANSI	American National Standards Institute
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
ARPA	Archaeological Resource Protection Act
ASC	Application for Site Certificate
ASCE	American Society of Civil Engineers
ASP	Archaeological Survey Plan
AST	aboveground storage tank
ASTM	American Society of Testing and Materials
ATC	available transmission capacity
ATV	all-terrain vehicle
AUM	animal unit month
B2H	Boardman to Hemingway Transmission Line Project
BCCP	Baker County Comprehensive Plan
BCZSO	Baker County Zoning and Subdivision Ordinance
BLM	Bureau of Land Management
BMP	best management practice
BPA	Bonneville Power Administration
BOR	Bureau of Reclamation
C and D	construction and demolition
CAA	Clean Air Act
CadnaA	Computer-Aided Noise Abatement
CAFE	Corona and Field Effects
CAP	Community Advisory Process
CBM	capacity benefit margin
CFR	Code of Federal Regulations
CH	critical habitat
CIP	critical infrastructure protection
CL	centerline
cm	centimeter
cmil	circular mil
COA	Conservation Opportunity Area
CO_2e	carbon dioxide equivalent

COM Plan	Construction, Operations, and Maintenance Plan
CPCN	Certificate of Public Convenience and Necessity
cps	cycle per second
CRP	Conservation Reserve Program
CRT	cathode-ray tube
CRUP	Cultural Resource Use Permit
CSZ	Cascadia Subduction Zone
CTUIR	Confederated Tribes of the Umatilla Indian Reservation
CWA	*Clean Water Act of 1972*
CWR	Critical Winter Range
dB	decibel
dBA	A-weighted decibel
DC	direct current
DoD	Department of Defense
DOE	U.S. Department of Energy
DOGAMI	Oregon Department of Geology and Mineral Industries
DPS	Distinct Population Segment
DSL	Oregon Department of State Lands
EA	environmental assessment
EDRR	Early Detection and Rapid Response
EIS	Environmental Impact Statement (DEIS for Draft and FEIS for Final)
EFSC or Council	Energy Facility Siting Council
EFU	Exclusive Farm Use
EHS	extra high strength
EMF	electric and magnetic fields
EPA	Environmental Protection Agency
EPC	Engineer, Procure, Construct
EPM	environmental protection measure
EPRI	Electric Power Research Institute
ERO	Electric Reliability Organization
ERU	Exclusive Range Use
ESA	Endangered Species Act
ESCP	Erosion and Sediment Control Plan
ESU	Evolutionarily Significant Unit
EU	European Union
FAA	Federal Aviation Administration
FCC	Federal Communication Commission
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FFT	find, fix, track, and report
FLPMA	Federal Land Policy and Management Act
Forest Plan	Land and Resource Management Plan
FPA	Forest Practices Act
FSA	Farm Services Agency
FWS	U.S. Fish and Wildlife Service
G	gauss

GeoBOB	Geographic Biotic Observation
GF	Grazing Farm Zone
GHG	greenhouse gas
GHz	gigahertz
GIL	gas insulated transmission line
GIS	geographic information system
GPS	Global Positioning System
GRMW	Grande Ronde Model Watershed
GRP	Grassland Reserve Program
HAC	Historic Archaeological Cultural
HCNRA	Hells Canyon National Recreation Area
HPFF	high pressure fluid-filled
HPMP	Historic Properties Management Plan
HUC	Hydrologic Unit Code
Hz	hertz
I-84	Interstate 84
ICC	International Code Council
ICES	International Committee on Electromagnetic Safety
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IDAPA	Idaho Administrative Procedures Act
IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDWR	Idaho Department of Water Resources
ILS	intensive-level survey
IM	Instructional Memorandum
INHP	Idaho Natural Heritage Program
INRMP	Integrated Natural Resources Management Plan
IPC	Idaho Power Company
IPUC	Idaho Public Utilities Commission
IRP	integrated resource plan
IRPAC	IRP Advisory Council
ISDA	Idaho State Department of Agriculture
JPA	Joint Permit Application
KCM	thousand circular mils
kHz	kilohertz
km	kilometer
KOP	Key Observation Point
kV	kilovolt
kV/m	kilovolt per meter
kWh	kilowatt-hour
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
lb	pound
LCDC	Land Conservation and Development Commission
LDMA	Lost Dutchman's Mining Association
LiDAR	light detection and ranging
LIT	Local Implementation Team

LMP	land management plan
LOLE	Loss of Load Expectation
LRMP	land and resource management plan
LUBA	Land Use Board of Appeals
LWD	large woody debris
m	meter
mA	milliampere
MA	Management Area
MAIFI	Momentary Average Interruption Frequency Index
MCC	Malheur County Code
MCCP	Morrow County Comprehensive Plan
MCE	Maximum Credible Earthquake
MCZO	Morrow County Zoning Ordinance
mG	milligauss
MHz	megahertz
mm	millimeter
MMI	Modified Mercalli Intensity
MP	milepost
MPE	maximum probable earthquake
MRI	magnetic resonance imaging
MVAR	megavolt ampere reactive
Mw	mean magnitude
MW	megawatt
µV/m	microvolt per meter
N_2O	nitrous oxide
NAIP	National Agriculture Imagery Program
NED	National Elevation Dataset
NEMS	National Energy Modeling System
NEPA	*National Environmental Policy Act of 1969*
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NF	National Forest
NFPA	National Fire Protection Association
NFS	National Forest System
NGDC	National Geophysical Data Center
NHD	National Hydrography Dataset
NHOTIC	National Historic Oregon Trail Interpretive Center
NHT	National Historic Trail
NIEHS	National Institute of Environmental Health Sciences
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NOAA Fisheries	National Oceanic and Atmospheric Administration Fisheries Division
NOI	Notice of Intent to File an Application for Site Certificate
NOV	Notice of Violation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service

NRHP	National Register of Historic Places
NSR	noise sensitive receptor
NTTG	Northern Tier Transmission Group
NWGAP	Northwest Regional Gap Analysis Landcover Data
NWI	National Wetlands Inventory
NWPP	Northwest Power Pool
NWR	National Wildlife Refuge
NWSRS	National Wild and Scenic Rivers System
NWSTF	Naval Weapons Systems Training Facility
O_3	ozone
O&M	operation and maintenance
OAIN	Oregon Agricultural Information Network
OAR	Oregon Administrative Rules
OATT	Open Access Transmission Tariff
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ODOT	Oregon Department of Transportation
OHGW	overhead ground wire
OHV	off-highway vehicle
OPGW	optical ground wire
OPRD	Oregon Parks and Recreation Department
OPS	U.S. Department of Transportation, Office of Pipeline Safety
OPUC	Public Utility Commission of Oregon
OR	Oregon (State) Highway
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
ORWAP	Oregon Rapid Wetland Assessment Protocol
OS	Open Space
OSDAM	Oregon Streamflow Duration Assessment Methodology
OSHA	Occupational Safety and Health Administration
OSSC	Oregon Structural Specialty Code
OSWB	Oregon State Weed Board
OWC	Oregon Wetland Cover
P	Preservation
PA	Programmatic Agreement
pASC	Preliminary Application for Site Certificate
PAT	Project Advisory Team
PCE	Primary Constituent Element
PEM	palustrine emergent
PFO	palustrine forested
PGA	peak ground acceleration
PGE	Portland General Electric
PGH	Preliminary General Habitats
Pike	Pike Energy Solutions

PNSN	Pacific Northwest Seismic Network
POD	Plan of Development
POMU	Permit to Operate, Maintain and Use a State Highway Approach
PPH	Preliminary Priority Habitats
Project	Boardman to Hemingway Transmission Line Project
PSD	Prevention of Significant Deterioration
PSS	palustrine scrub-shrub
R	Retention
R-F	removal-fill
RCM	Reliability Centered Maintenance
RCRA	Resource Conservation and Recovery Act
ReGAP	Regional Gap Analysis Project
RFP	request for proposal
RLS	reconnaissance-level survey
RMP	resource management plan
ROD	Record of Decision
ROE	right of entry
RNA	research natural area
ROW	right-of-way
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SC	Sensitive Critical
SEORMP	Southeastern Oregon Resource Management Plan
SF6	sulfur hexafluoride
Shaw	Shaw Environmental and Infrastructure, Inc.
SHPO	State Historic Preservation Office
SLIDO	Statewide Landslide Inventory Database for Oregon
SMS	Scenery Management System
SMU	Species Management Unit
SPCC	Spill Prevention, Containment, and Countermeasures
SRMA	Special Recreation Management Area
SRSAM	Salmon Resources and Sensitive Area Mapping
SSURGO	Soil Survey Geographic Database
STATSGO	State Soil Geographic Database
SUP	special-use permit
SV	Sensitive Vulnerable
SWPPP	Stormwater Pollution Prevention Plan
T/A/Y	tons/acre/year
TDG	Total Dissolved Gas
TES	threatened, endangered, and sensitive (species)
TG	Timber Grazing
TMIP	Transmission Maintenance and Inspection Plan
TNC	The Nature Conservancy
tpy	tons per year
TSD	treatment, storage, and disposal
TV	television
TVES	Terrestrial Visual Encounter Surveys

TVMP	Transmission Vegetation Management Program
UBAR	Umatilla Basin Aquifer Restoration
UBWC	Umatilla Basin Water Commission
UCDC	Umatilla County Development Code
UCZPSO	Union County Zoning, Partition and Subdivision Ordinance
UDP	Unanticipated Discovery Plan
U.S.	United States
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USFS	U.S. Department of Agriculture, Forest Service
USGS	U.S. Geological Survey
UWIN	Utah Wildlife in Need
V/C	volume to capacity
V	volt
VAHP	Visual Assessment of Historic Properties
VMS	Visual Management System
VQO	Visual Quality Objective
VRM	Visual Resource Management
WAGS	Washington ground squirrel
WCU	Wilderness Characteristic Unit
WECC	Western Electricity Coordinating Council
WHO	World Health Organization
WMA	Wildlife Management Area
WOS	waters of the state
WOUS	waters of the United States
WPCF	Water Pollution Control Facility
WR	winter range
WRCC	Western Regional Climate Center
WRD	(Oregon) Water Resources Division
WRP	Wetland Reserve Program
WWE	West-wide Energy
XLPE	cross-linked polyethylene

Exhibit AA
Electric and Magnetic Fields

1.0 INTRODUCTION

Exhibit AA provides an analysis of electric and magnetic fields for the Boardman to Hemingway Transmission Line Project (Project). Exhibit AA demonstrates that Idaho Power Company (IPC) will comply with the approval standard for transmission lines with regard to electric and magnetic fields in accordance with Oregon Administrative Rule (OAR) 345-024-0090 based on the information provided pursuant to OAR 345-021-0010(1)(aa), paragraphs (A) and (B).

Exhibit AA provides the background information and analysis that together with the data provided in Exhibit DD demonstrates that the Project is consistent with the public health and safety and complies with the specific approval standard for transmission lines with regard to electric fields under OAR 345-24-0090 (see Exhibit DD, Section 2.0).

2.0 APPLICABLE RULES AND STATUTES

The Council does not have an "EMF Standard." However, it does have a statutory mandate to adopt any conditions needed to ensure public health and safety (Oregon Revised Statute 469.310).

Moreover, OAR 345-021-0010(1)(aa) specifies that Exhibit AA must include the following:

(A) Information about the expected electric and magnetic fields, including:

(i) The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way.

(ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line.

(iii) The approximate distance in feet from the proposed center line to each structure identified in (A).

(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line.

(v) Any measures the applicant proposes to reduce electric or magnetic field levels.

(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current in amperes on each proposed transmission line.

(vii) The applicant's proposed monitoring program, if any, for actual electric and magnetic field levels.

(B) An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways.

Additionally, Section VIII of the Project Order requires Exhibit AA to include the following specific information:

- *The information provided by the rule should address public concerns expressed during the scoping period about electric and magnetic fields (EMF) generated by the proposed transmission facility (see Section VII of this order). Although the Council does not have an "EMF Standard," it does have a statutory mandate to adopt any conditions needed to ensure public health and safety. This mandate provides the regulatory basis for any findings or conditions, including setbacks, based on EMF considerations.*
- *Numerous commenters expressed concern about potential human health impacts of a high voltage transmission line from electromagnetic fields, corona effects, and induced currents. Exhibit AA of the ASC must include evidence that the proposed facility can meet the Council standards specific to transmission lines, and include mitigation measures proposed by the applicant to reduce or eliminate threats to human health and safety during construction and operation of the transmission line.*
- *Many commenters expressed concern about the possibility that the transmission line will interfere with the normal operations of radios, telephones, and other electronic devices in the vicinity of the line. Exhibit AA should include discussion and mitigation measures to reduce or eliminate interference with electronic devices. This is especially important in farm use zones, where farmers often use a variety of electronic locating devices on mechanical equipment during planting and harvesting and other farming activities.*

3.0 ANALYSIS

3.1 Analysis Area

Pursuant to the Project Order, the analysis area for Exhibit AA is the Site Boundary, which is defined in OAR 345-001-0010(55) as "the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas, and all corridors and micrositing corridors proposed by the applicant." The Site Boundary for the Project includes the following related and supporting facilities in Oregon:

- Proposed Corridor: 277.2 miles of 500-kilovolt (kV) transmission line corridor, 5.0 miles of double circuit 138/69-kV transmission line corridor, and 0.3 miles of 138-kV transmission line corridor.[1]
- Alternate Corridor Segments: Seven alternate corridor segments consisting of approximately 134.1 miles that could replace certain segments of the Proposed Corridor. IPC has proposed these alternate corridor segments in order to allow flexibility for IPC and EFSC, as well as federal agencies, to reconcile competing resource constraints in several key locations.
- One proposed substation expansion of 3 acres; two alternate substation sites (one 3-acre substation expansion and one new 20-acre substation). IPC ultimately needs to construct and operate only one substation expansion or substation in the Boardman area.
- Eight communication station sites of less than one acre each in size; four alternate communication station sites along alternate corridor segments.
- Temporary and permanent access roads.

[1] Because of its limited extent the 0.3 mile of 138-kV single-circuit is not discussed further in this document.

- Temporary multi-use areas, pulling and tensioning sites, and fly yards.

The features of the Project are fully described in Exhibit B and the Site Boundary for each Project feature is described in Exhibit C, Table C-21. The location of the Project (Site Boundary) is outlined in Exhibit C.

Although the Project Order identifies the Site Boundary as the analysis area, the specific information requirements of OAR 345-021-0010(1)(aa)(A) require more specific analysis criteria. Accordingly, IPC analyzed an area 200 feet from either side of the proposed transmission line centerline at three centerline location positions within the right-of-way (ROW) for the Proposed Corridor and alternate corridor segments: A) centerline as proposed, B) centerline shifted to the west and/or south of proposed, and C) centerline shifted to the east and/or north of proposed (see Attachment AA-2). Other electric or magnetic field levels information requirements are related to the facility rather than the Site Boundary.

3.2 Methods

Algorithms developed by the U.S. Department of Energy (DOE) and Bonneville Power Administration (BPA) were used to calculate the expected levels of electric field, magnetic field, audible noise, and radio noise that may be produced by the proposed transmission line. These calculation techniques are described in the Corona and Field Effects (CAFE) program from BPA (BPA n.d.). The inputs to the model are line voltage, load flow (current), and the physical dimensions of the line (conductor diameter, spacing, and height). The input and output variables and results are listed in Attachment AA-1. The EMF values were calculated at a reference height of 1 meter above ground. For modeling purposes, it was assumed that the maximum voltage of the 500-kV circuits was 10 percent above the nominal 500-kV value and the maximum voltage of 230-kV, 138-kV, and 69-kV circuits was 5 percent above the nominal value. Five transmission line designs were modeled corresponding to the designs that are expected to be used in Oregon. Three line geometries were modeled for the Proposed Corridor and alternate corridor segments:

- 500-kV transmission line on a single-circuit lattice steel tower;
- 138/69-kV transmission line on a double-circuit steel monopole; and
- 230-kV transmission line on a single-circuit steel H-frame.

In addition, two alternative geometries were modeled where special structures could be employed to meet unique siting concerns:

- 500-kV transmission line on a single-circuit H-frame structure, and
- 500-kV transmission line on a single circuit steel monopole.

For the case of the proposed 500-kV line, a minimum ground clearance of 37 feet was used. For the proposed 230-kV rebuild, a minimum line height of 27 feet was used. For the proposed double-circuit 138/69-kV rebuild section a minimum ground clearance of 34 feet to the transmission conductors was used. Proposed and alternative structure dimensions and ROW dimensions, the location and description of existing and proposed lines, line geometries, minimum line heights, conductor descriptions, and electrical loading are described in Exhibit B, Section 3.2.

In general, the separation between the proposed 500-kV line and parallel lines will be 1,500 feet or greater, which should ensure that the EMFs and audible and radio noise levels from the lines will not be affected by the presence of the other line and thus can be analyzed and shown separately. In some cases the proposed 500-kV line runs less than 1,500 feet from adjacent

existing 500-kV, 230-kV, 138-kV, or 69-kV transmission lines. In these cases fields at edges of ROW nearest adjacent line may increase or decrease depending on load and phasing as shown in Table AA-1.

Table AA-1. Proposed and Alternate Corridors with less than 1,500 feet Separation to Existing Parallel Lines

County	Paralleled Transmission Line	Parallel Location	Parallel Distance	Separation Distance	Effect on Electric and Magnetic Field
Proposed Corridor					
Morrow	Boardman-Slatt 500-kV (PGE)	MP 0 - MP 6.5	6.5	470’	Little effect on highest fields within ROW May increase or decrease fields at edges of ROW nearest adjacent line <20% depending on load and phasing;
Union	Roundup - La Grande 230-kV (BPA)	MP 97.5 - MP 105.1 (3 segments)	3.2 (3 segments)	715’-1500’ (1000 ft average)	Little effect on fields within ROW
Union	Quartz - La Grande 230-kV (IPC)	MP 131 - MP 132.7	1.7	715’-1500’ (1000 ft average)	Little effect on fields within ROW
Baker	Quartz - Durkee 69-kV (IPC)	MP 163.9 - MP 176.1 (2 segments)	6.7 (2 segments)	220’-720’ (500 ft average)	Little effect on highest fields within ROW Little effect on electric fields at edges of ROW May increase or decrease magnetic fields <5% at ROW edge nearest adjacent line depending on load and phasing;
Flagstaff Alternate					
Baker	Quartz - La Grande 230-kV (IPC)	MP 1.1 - MP 5.9	4.8	330’-500’ (400 ft average)	Little effect on highest fields within ROW May increase or decrease fields at edges of ROW nearest adjacent line <10% depending on load and phasing
Baker	Quartz - Ontario 138-kV (IPC)	MP 10.7 - MP 14	3.3	210’ (majority of distance)	Little effect on highest fields within ROW Little effect on electric fields at edges of ROW May increase or decrease magnetic fields <5% at ROW edge nearest adjacent line depending on load and phasing;
Baker	Quartz - Durkee 69-kV (IPC)	MP 11.2 - MP 14	2.8	1200’ (majority of distance)	Little effect on fields

3.3 Information Required by OAR 345-021-0010(1)(aa)

3.3.1 Expected Electric and Magnetic Fields

OAR 345-021-0010(1)(aa)(A) – Information about the expected electric and magnetic fields,

(i) The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way;

The following centerline dimensions apply. Each is illustrated in Attachment AA-2:

- The edge of the ROW is 125 feet from the centerline for the 500-kV transmission line portions for an overall ROW width of 250 feet. The final location determined for the transmission line centerline may shift up to 125 feet on either side of the proposed centerline within the 500-foot Site Boundary.
- The edge of the ROW is 62.5 feet from the centerline for the 230-kV transmission line portions for an overall ROW width of 125 feet. The final location determined for the transmission line centerline may shift up to 187.5 feet on either side of the proposed centerline within the 500-foot Site Boundary.
- For the double-circuit 138/69-kV rebuild transmission line, the edge of the ROW is 50 feet from the proposed centerline for an overall ROW width of 100 feet. The final location determined for the transmission line centerline may shift up to 200 feet on either side of the proposed centerline within the 500-foot Site Boundary.

(ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line;

Geographic Information System (GIS) and aerial photographs were used to identify structures within 325 feet of the 500-kV Proposed Corridor centerline and alternate corridor segment centerlines to account for the different location scenarios associated with the 250-foot ROW. Structures within 387.5 feet of the 230-kV rebuild centerline and within 400 feet of the double-circuit 138/69kV rebuild centerline were identified to account for the different scenarios associated with the 125-foot ROW and 100-foot ROW, respectively. Once structures were identified, aerial photos were used to identify the type of structures so a judgment could be made as to whether they were occupied or not. A field reconnaissance was then undertaken to determine occupancy. Distance and direction from each structure to the closest route centerline were then calculated and are presented in Attachment AA-3.

Occupied structures included in this analysis are defined by OAR 345-021-0010 as including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers, hospitals and rest areas. Receptors that were not included as occupied structures consisted of silos, tanks, gravel pits, mines, quarries, and water features identified within the 200 foot analysis distance. GIS was then used to measure the distance and direction to the occupied structures from the centerline under the following three location scenarios described above for each ROW width: A) centerline as proposed, B) centerline shifted to the west and/or south of proposed, and C) centerline shifted to the east and/or north of proposed. These scenarios incorporate the most conservative location approach for analyzing EMF effects. Attachment AA-2 illustrates the three centerline location scenarios.

(iii) The approximate distance in feet from the proposed center line to each structure identified in (A);

There were no occupied structures located within 200 feet of any of the three centerline scenarios for the proposed 500-kV route or for the 230-kV rebuild. Five occupied structures within 200 feet of the 138/69-kV centerline scenarios were identified. All five of the occupied structures are part of the same campground facility located in Baker County. The location of each occupied structure relative to each centerline scenario for the 138/69-kV rebuild is shown in Table AA-2.

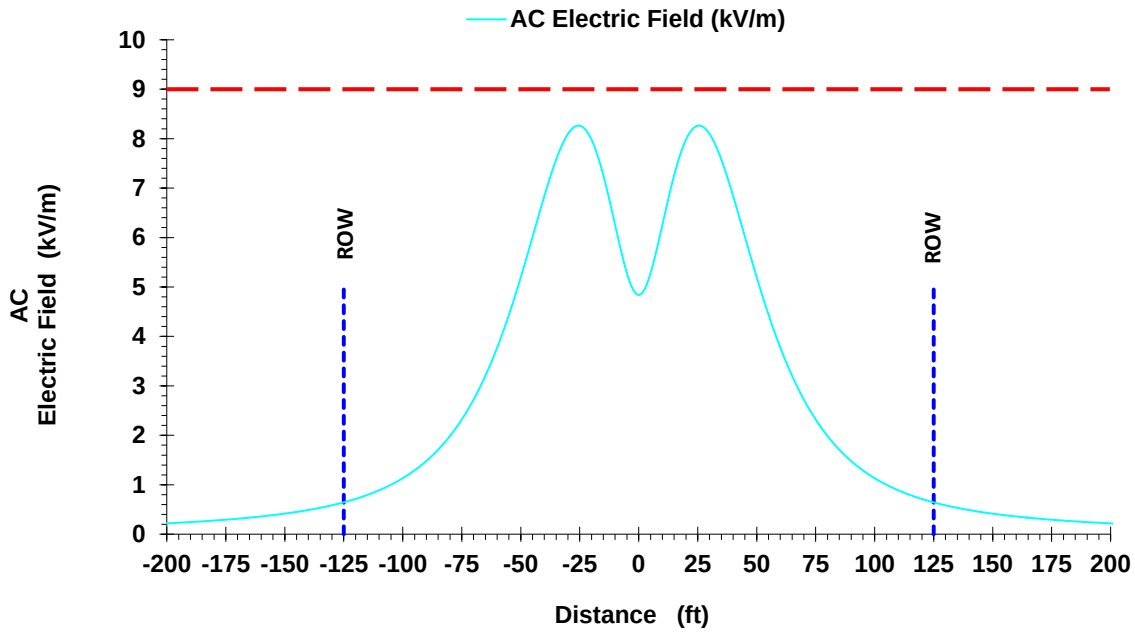
Table AA-2. Occupied Structures within 200 Feet of Centerline Location Scenarios

County	Route Name	Closest Mile Post	Receptor ID	Structure Type	Occupied Structure	Distance from Route (feet)	Direction from Route
Scenario A – Proposed 138/69kV Rebuild							
Baker	Proposed 138/69kV Rebuild	2.8	40	Campground Facility	Yes	29	W
		2.7	41	Campground Facility	Yes	82	E
		2.6	42	Campground Facility	Yes	181	E
		2.7	457	Campground Facility	Yes	123	E
		2.6	575	Campground Facility	Yes	174	E
Scenario B –Proposed 138/69kV Rebuild shifted West and/or South 200 feet							
Baker	Proposed 138/69kV Rebuild	2.8	40	Campground Facility	Yes	170.6	E
		2.7	41	Campground Facility	Yes	282.4	E
		2.6	42	Campground Facility	Yes	381.2	E
		2.7	457	Campground Facility	Yes	323.1	E
		2.6	575	Campground Facility	Yes	374.2	E
Scenario C – Proposed 138/69kV Rebuild shifted East and/or North 200 feet							
Baker	Proposed 138/69kV Rebuild	2.8	40	Campground Facility	Yes	229.4	W
		2.7	41	Campground Facility	Yes	117.6	W
		2.6	42	Campground Facility	Yes	18.8	W
		2.7	457	Campground Facility	Yes	76.9	W
		2.6	575	Campground Facility	Yes	25.8	W

(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line;

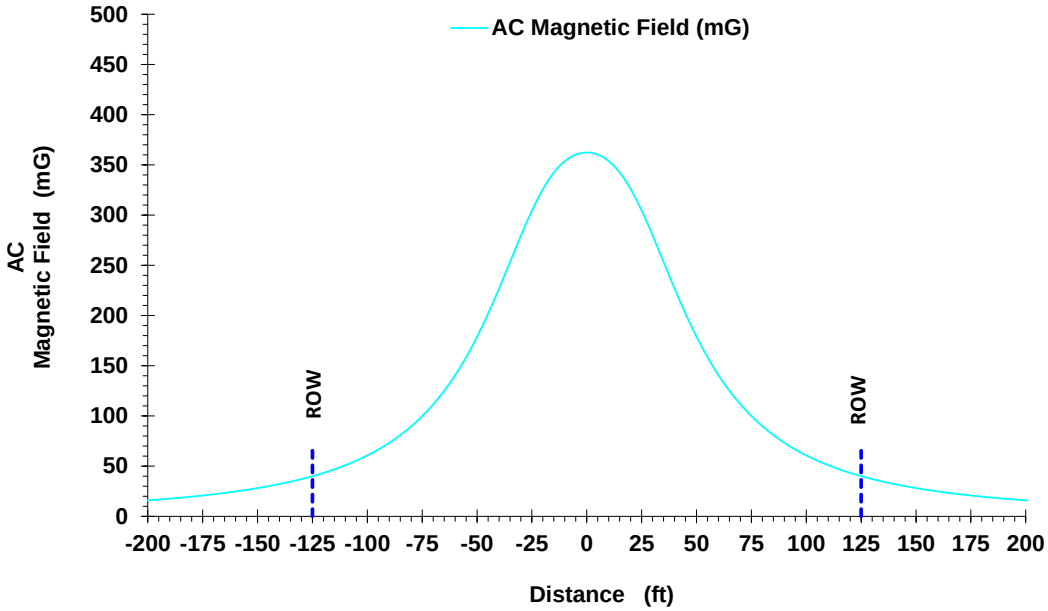
The predicted EMF levels out to distances of 200 feet on either side of each proposed transmission line structure type are shown as follows:

- Figures AA-1 and AA-2 show electric and magnetic field profiles at mid span for single-circuit 500-kV lattice structures.
- Figures AA-3 and AA-4 show electric and magnetic field profiles at mid span for alternative single-circuit 500-kV tubular steel-pole H-frame structures.
- Figures AA-5 and AA-6 show electric and magnetic field profiles at mid span for alternative single-circuit 500-kV tubular steel monopole structures.
- Figures AA-7 and AA-8 show electric and magnetic field profiles at mid span for single-circuit 230-kV tubular steel-pole H-frame structures.
- Figures AA-9 and AA-10 show electric and magnetic field profiles at mid span for double-circuit 138/69-kV tubular steel monopole structures.



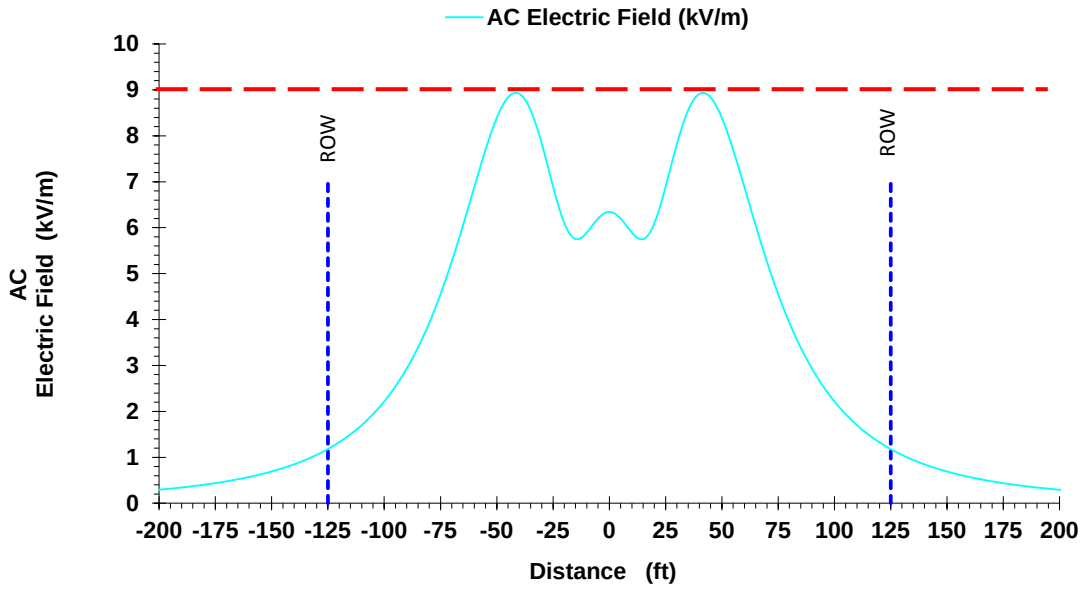
Note: Major axis electric field calculated at standard height of 1 meter.

Figure AA-1. Electric Field Profile at Mid Span for Corridor Segments with Single-Circuit 500-kV Lattice Structures. Minimum conductor clearance to ground is 37 feet.



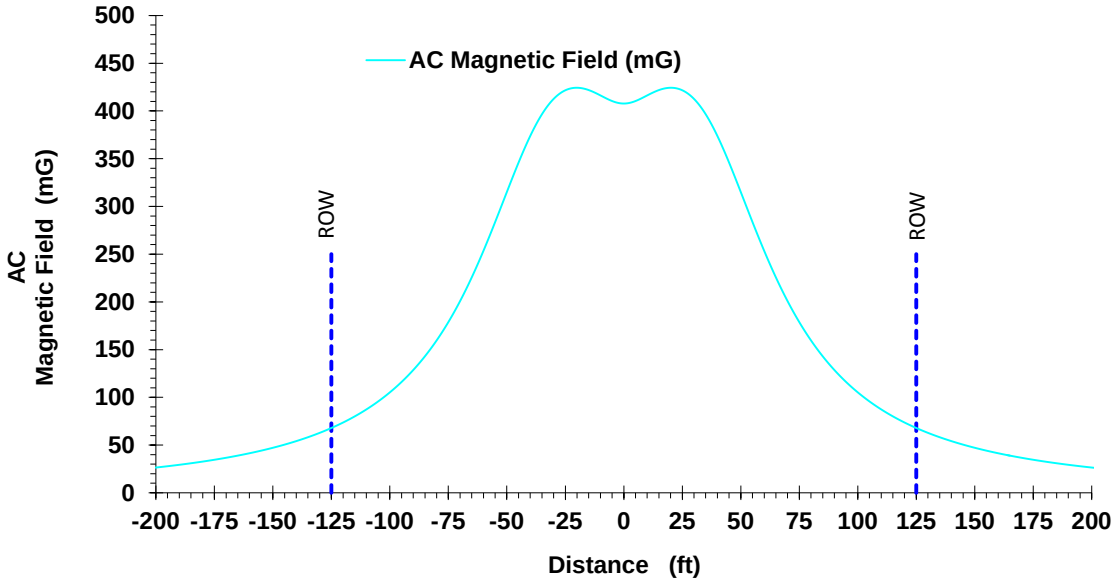
Note: Major Axis magnetic field calculated at standard height of 1 meter. Magnetic field plotted for emergency line loading of 2500 A/phase.

Figure AA-2. Magnetic Field Profile at Mid Span for Corridor Segments with Single-Circuit 500-kV Lattice Structures. Minimum conductor clearance to ground is 37 feet.



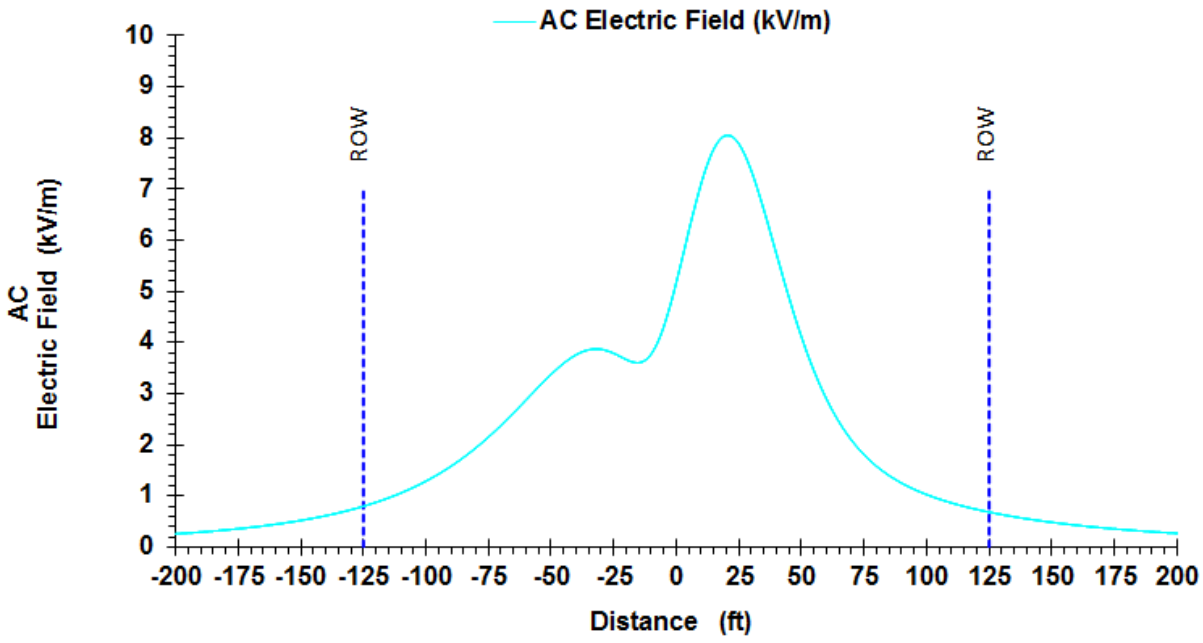
Note: Major axis electric field calculated at standard height of 1 meter.

Figure AA-3. Electric Field Profile at Mid Span for Corridor Segments with Alternative Single-Circuit 500- kV Tubular Steel-Pole H-Frame Structures. Minimum conductor clearance to ground is 37 feet.



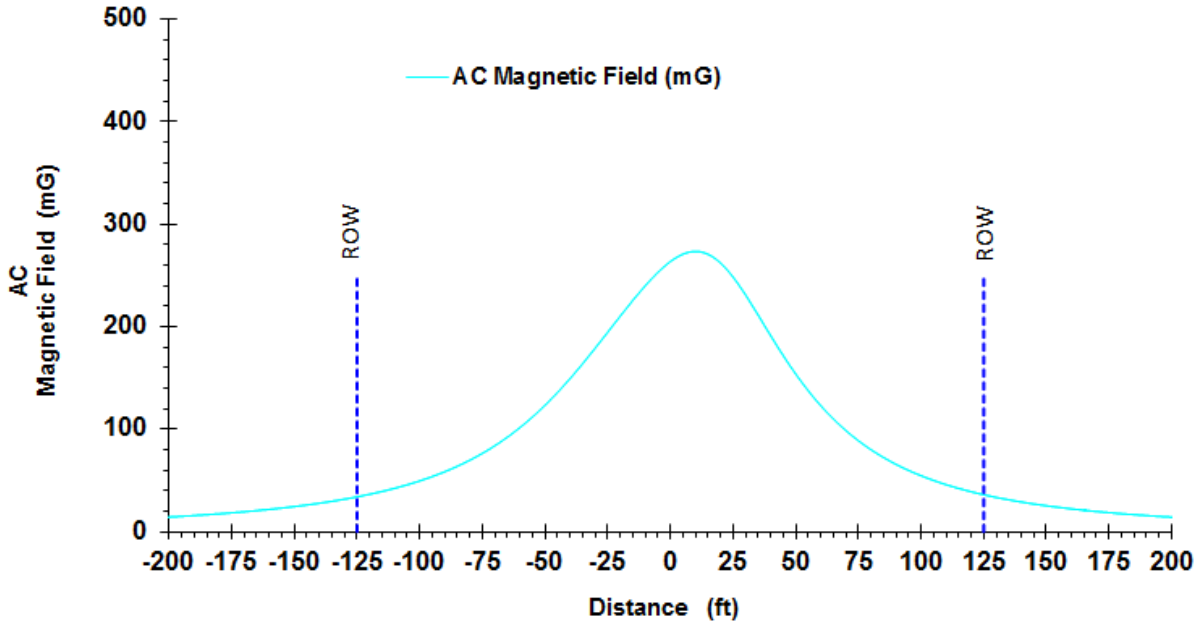
Note: Major Axis magnetic field calculated at standard height of 1 meter. Magnetic field plotted for emergency line loading of 2500 A/phase.

Figure AA-4. Magnetic Field Profile at Mid Span for Corridor Segments with Alternative Single-Circuit 500- kV Tubular Steel-Pole H-Frame Structures. Minimum conductor clearance to ground is 37 feet.



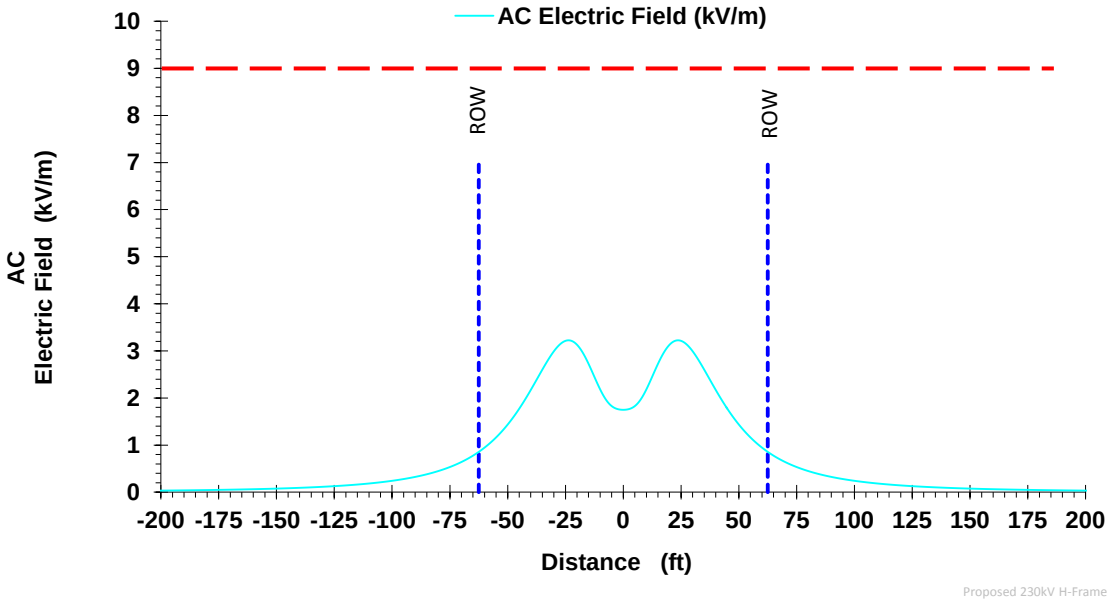
Note: Major axis electric field calculated at standard height of 1 meter.

Figure AA-5. Electric Field Profile at Mid Span for Corridor Segments with Alternative Single-Circuit 500-kV Tubular Steel Monopole Structures. Minimum conductor clearance to ground is 37 feet.



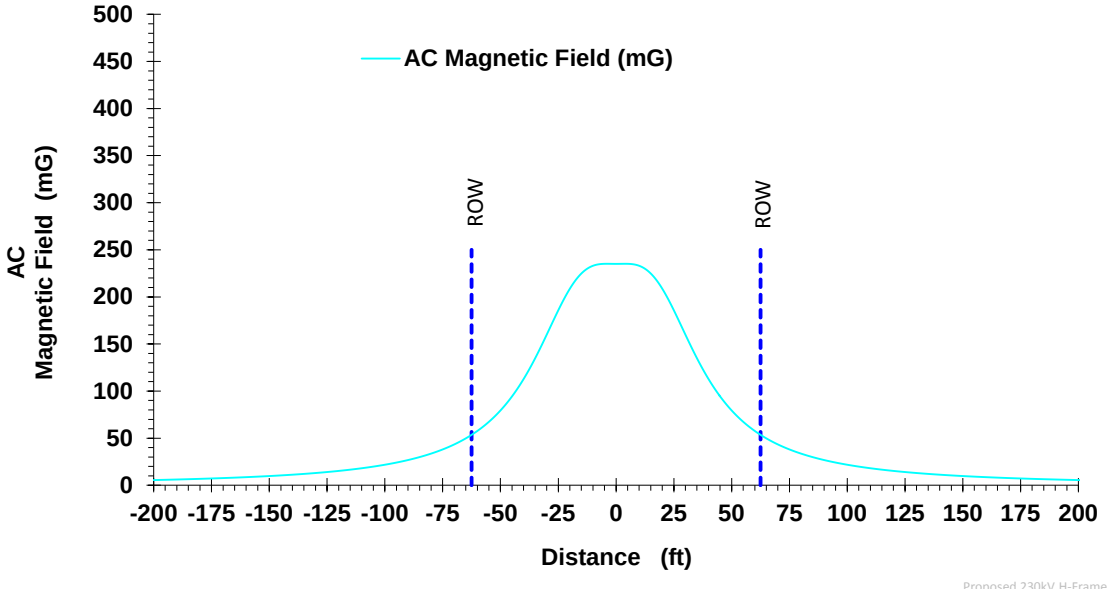
Note: Major Axis magnetic field calculated at standard height of 1 meter. Magnetic field plotted for emergency line loading of 2500 A/phases.

Figure AA-6. Magnetic Field Profile at Mid Span for Corridor Segments with Alternative Single-Circuit 500-kV Tubular Steel Monopole Structures. Minimum conductor clearance to ground is 37 feet.



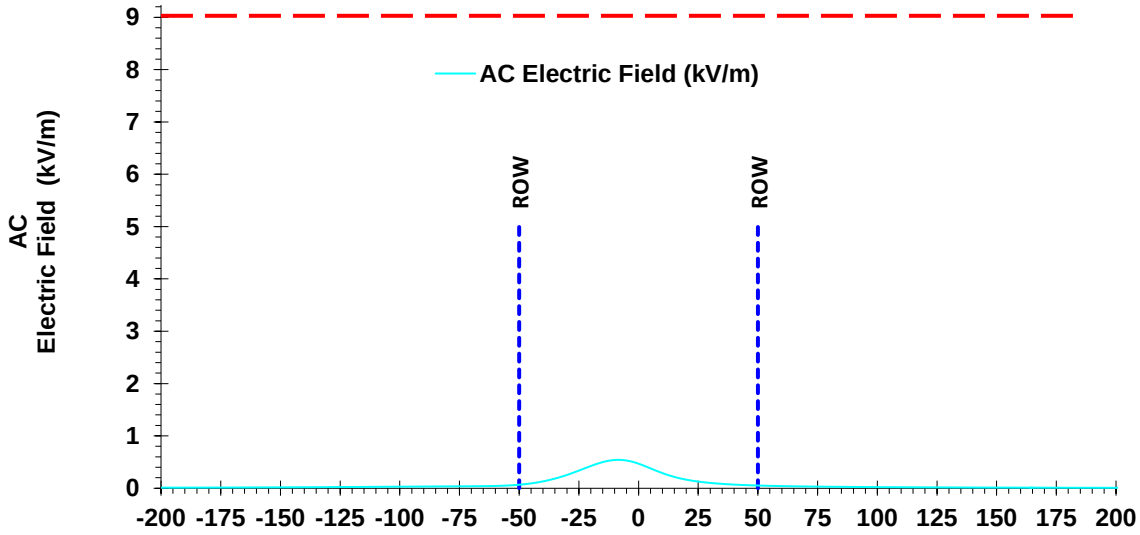
Note: Major Axis electric field calculated at standard height of 1 meter.

Figure AA-7. Electric Field Profile at Mid Span for Corridor Segment with Single – Circuit 230-kV Tubular Steel Pole H-Frame Structures. Minimum conductor clearance to ground is 27 feet.



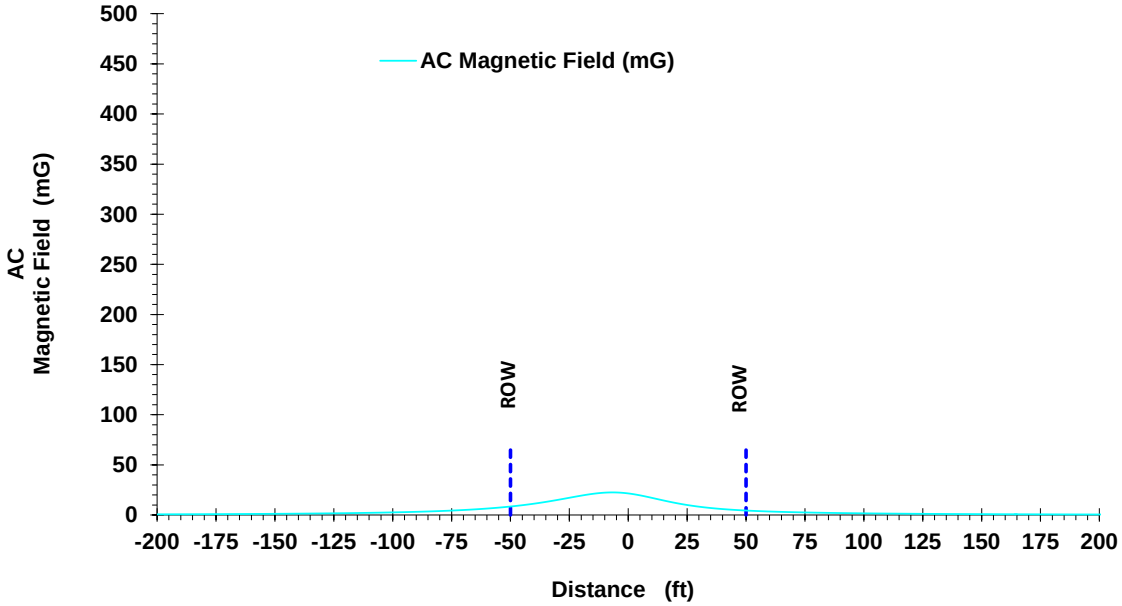
Note: Major Axis Magnetic Field Calculated at Standard Height of 1 meter. Magnetic field plotted for emergency line load of 1000 A/phase.

Figure AA-8. Magnetic Field Profile at Mid Span for Corridor Segment with Single-Circuit 230-kV Tubular Steel Pole H-Frame Structures. Minimum conductor clearance to ground is 27 feet.



Note: Major Axis electric field calculated at standard height of 1 meter. Conductor phasing from top to bottom is CBA-ABC.

Figure AA-9. Electric Field Profile at Mid Span for Corridor Segment with Double-Circuit 138/69-kV Tubular Steel Monopole Structures. Minimum conductor clearance to ground for 138/69-kV conductors is 34 feet.



Note: Major Axis Magnetic Field Calculated at Standard Height of 1 meter. Conductor Phasing from Top to Bottom is CBA-ABC. Magnetic field plotted for emergency line load of 625 A/phase for the 138 kV line and 275 A/phase for the 69 kV line.

Figure AA-10. Magnetic Field Profile at Mid Span for Corridor Segment with Double-Circuit 138/69-kV Tubular Steel Monopole Structures. Minimum conductor clearance to ground for 138/69-kV conductors is 34 feet.

(v) Any measures the applicant proposes to reduce electric or magnetic field levels;

For the following reasons, no additional measures to reduce electric field levels are proposed by IPC. The electric fields at the edges of the ROWs and the highest electric field found within the ROW for each portion of the line as shown in Figures AA-1, AA-3, AA-5, AA-7, and AA-9 are listed in Table AA-3. Based on the predicted results, the highest electric fields will be at or below9 kV/m even for minimum conductor to ground clearance and with a 10 percent overvoltage on the proposed 500-kV line.

Table AA-3. Electric Fields for Proposed and Alternate Corridors

Area	Structure Type	Miles	ROW Width (feet)	South/West ROW Edge (kV/m)	Maximum within ROW (kV/m)	North/East ROW Edge (kV/m)
Proposed Corridor/Proposed Transmission Structures						
Morrow County	500-kV lattice	40.6	250	0.6	8.3	0.6
Umatilla County	500-kV lattice	49.5	250	0.6	8.3	0.6
Union County	500-kV lattice	39.8	250	0.6	8.3	0.6
Baker County	500-kV lattice	69.2	250	0.6	8.3	0.6
	138/69-kV tubular steel monopole rebuild with distribution underbuild (1)	5.3	100	0.07	0.5	0.05
Malheur County	500-kV lattice	72.0	250	0.6	8.3	0.6
Alternate Corridor Segments						
Horn Butte	500-kV Single Circuit Lattice Structure	21.3	250	0.6	8.3	0.6
Longhorn	500-kV Single Circuit Lattice Structure	10.2	250	0.6	8.3	0.6
Glass Hill	500-kV Single Circuit Lattice Structure	7.5	250	0.6	8.3	0.6
Flagstaff	500-kV Single Circuit Lattice Structure	14.1	250	0.6	8.3	0.6
	230-kV Steel H-frame relocation	0.9	125	0.9	3.2	0.9
Willow Creek	500-kV Single Circuit Lattice Structure	24.6	250	0.6	8.3	0.6
Malheur S	500-kV Single Circuit Lattice Structure	33.6	250	0.6	8.3	0.6

Table AA-3. Electric Fields for Proposed and Alternate Corridors (continued)

Area	Structure Type	Miles	ROW Width (feet)	South/West ROW Edge (kV/m)	Maximum within ROW (kV/m)	North/East ROW Edge (kV/m)
Double Mountain	500-kV Single Circuit Lattice Structure	33.3	250	0.6	8.3	0.6
Alternative Transmission Structures						
NA	500-kV tubular steel H-frame	NA	250	1.2	8.9	1.2
NA	500-kV tubular steel monopole Structure	NA	250	0.8	8.1	0.7

Major Single Axis Electric Field at standard height of 1 meter.
kV/m = kilovolt per meter; ROW = right-of-way
Ground Clearance:
37 feet for 500 kV lines with lattice tower structures
37 feet for 500 kV lines with tubular H-frame structures
27 feet for 230-kV lines with steel H-frame structures
34 feet for 138/69 kV lines with single tubular pole structures. Line height allows for underbuilt distribution line.
(1) Levels reported are due to 138/69 kV transmission lines only. The inclusion of an underbuilt distribution line on the 138/69-kV line will reduce the reported electric field levels from the transmission lines or, as a worst-case, produce only a negligible reduction of the reported electric field levels.

Once the lines are energized, the alternating current (AC) magnetic fields may increase to those described in Table AA-4. The magnetic fields reported in Table AA-4 are for emergency line loading which is a rare condition but may occasionally occur. Emergency loading can be considered a worst-case condition. Most of the time the magnetic fields will be less than those reported in Table AA-4.

Table AA-4. Magnetic Fields for Proposed and Alternate Corridors based on Emergency Line Loading

County	Structure Type	Miles	ROW Width (feet)	South/West ROW Edge (mG)	Maximum within ROW (mG)	North/East ROW Edge (mG)
Proposed Corridor						
Morrow	500-kV lattice	40.6	250	40	362	40
Umatilla	500-kV lattice	49.5	250	40	362	40
Union	500-kV lattice	39.8	250	40	362	40
Baker	500-kV lattice	69.2	250	40	362	40
	138/69-kV tubular steel monopole rebuild with distribution underbuild(1)	5.3	100	8	23	4
Malheur	500-kV lattice	72.0	250	40	362	40

Table AA-4. Magnetic Fields for Proposed and Alternate Corridors based on Emergency Line Loading (continued)

County	Structure Type	Miles	ROW Width (feet)	South/West ROW Edge (mG)	Maximum within ROW (mG)	North/East ROW Edge (mG)
Alternate Corridor Segments						
Horn Butte	500-kV Single Circuit Lattice Structure	21.3	250	40	362	40
Longhorn	500-kV Single Circuit Lattice Structure	10.2	250	40	362	40
Glass Hill	500-kV Single Circuit Lattice Structure	7.5	250	40	362	40
Flagstaff	500-kV Single Circuit Lattice Structure	14.1	250	40	362	40
	230-kV Steel H-frame relocation	0.9	125	54	235	54
Willow Creek	500-kV Single Circuit Lattice Structure	24.6	250	40	362	40
Malheur S	500-kV Single Circuit Lattice Structure	33.6	250	40	362	40
Double Mountain	500-kV Single Circuit Lattice Structure	33.3	250	40	362	40
Alternative Transmission Structures						
NA	500-kV tubular steel H-frame	NA	250	68	424	68
NA	500-kV tubular steel monopole Structure	NA	250	34	273	36

Major Single Axis Magnetic Field at standard height of 1 meter.
mG = milliGauss; ROW = right-of-way
Emergency Loading on 500-kV circuit is 2,500 A/phase.
Emergency Loading on 230-kV circuit is 1,000 A/phase.
Emergency Loading on 138-kV circuit is 625 A/phase.
Emergency Loading on 69-kV circuit is 275 A/phase.
Ground Clearance:
37 feet for 500 kV lines with lattice tower or tubular steel-pole H-frame structures
27 feet for 230 kV lines with tubular steel-pole H-frame structures
34 feet for 138/69 kV lines with tubular steel monopole structures. Line height allows for underbuilt distribution line.

(1) Levels reported are for due to 138/69 kV lines only without contribution from underbuilt distribution line. The currents on an underbuilt distribution line can be highly variable and may add to or cancel a portion of the magnetic field due to the transmission lines. For simplicity, the magnetic fields due to the transmission lines have been reported. As a worst case assumption, the magnetic field from the transmission lines would add to the magnetic field from a distribution line. It is expected that the transmission line magnetic field will be the dominant source of magnetic fields within the ROW.

The major-axis magnetic field profiles at mid span (the point of closest approach of the conductors to the ground) were calculated for the five types of line designs and are plotted in Figure AA-2, AA-4,

AA-6, AA-8 and AA-10. The magnetic fields at the edges of the ROWs and the highest magnetic field found within the ROW for each of the portions are listed in Table AA-4. The largest magnetic field calculated at the edge of the ROW was found for ROWs containing the single-circuit 500-kV lattice structure. The highest magnetic field found within the ROW was for ROWs containing the tubular H-frame structure.

Based on the predicted results, no additional measures to reduce magnetic field levels are necessary or proposed by IPC.

(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current in amperes on each proposed transmission line; and

The line geometry, conductor diameter, conductor phasing, line voltages, and line currents were used to predict the electric field and magnetic field from the proposed transmission lines. The assumptions and methods found in the BPA software program commonly known as CAFE for determining the major axis electric and magnetic fields were used for the calculations. Table AA-4 lists the proposed transmission line structure configuration by Proposed and Alternate Corridor Segments. Exhibit B, Figures B-13 through B-17 provide illustrations of the proposed and alternative structures.

A 10 percent overvoltage (550 kV), emergency current of 2,500 A/phase, and a minimum conductor clearance to ground of 37 feet were considered for calculating the major axis EMF at a prescribed height of 1 meter (3.28 feet) above ground. Lower levels of voltage and current and greater ground clearance would be expected during normal operation of the line.[2] These factors would reduce the expected fields during normal operation even further.

A 5 percent overvoltage was considered for the lower voltage circuits (230-kV, 138-kV, and 69-kV circuits). An emergency current of 1,000 A/phase was considered for the 230-kv circuit, an emergency current of 625 A/phase was considered for the 138-kV circuit and an emergency current of 275 A/phase was considered for the 69-kV circuit. Both currents were flowing in the same direction and a phasing of C-B-A A-B-C, top to bottom was considered for calculating the fields from the two circuits. A minimum ground clearance of 34 feet was considered for the field calculations. Lower levels of voltage and current and greater ground clearance would be expected during normal operation of the line. These factors would reduce the electric and magnetic fields expected during normal operation even further.

(vii) The Applicant's proposed monitoring program, if any, for actual electrical and magnetic field levels: and

Post-construction monitoring is not proposed because EMF levels (both electric and magnetic fields) have been conservatively calculated assuming worst case conditions of line overvoltage, emergency line current, and minimum ground clearance. As a result, EMF levels are likely to be lower than those presented. IPC will respond to questions or concerns regarding the EMF from the Project should they occur.

[2] 10% and 5% are commonly accepted/used overvoltage limits expected on US transmission lines (10% overvoltage for lines operating at 500 kV and above and 5% for lines operating at 345 kV and below). Operating voltages will often be above the named voltage of a line (e.g. a 115 kV line will often have operating voltages in the 117 to 119 range; 345 kV lines will often have operating voltages in the 352 to 357 range).

3.3.2 Radio Interference

Radio Interference

OAR 345-021-0010(1)(aa)

(B) An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways;

Electromagnetic interference from power transmission systems in the U.S. is governed by the Federal Communication Commission (FCC) Rules and Regulations (FCC 1988). A power transmission line is categorized by the FCC as an "incidental radiation device." It is defined as "a device that radiates radio frequency energy during the course of its operation although the device is not intentionally designed to generate radio frequency energy." Such a device "shall be operated so that the radio frequency energy that is emitted does not cause harmful interference. In the event that harmful interference is caused, the operator of the device shall promptly take steps to eliminate the harmful interference." In this case, "harmful interference" is defined as "any emission, radiation or induction which endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communication service operating in accordance with this chapter" (FCC 1988).

Types of Interference that May Occur

Corona: The high voltage of transmission lines generate strong electric fields at the surface of the transmission line conductors and energized components (conductor, connectors, insulators, etc.) sufficient to breakdown the dielectric strength of the air, thus causing a phenomena known as corona. As a general matter, the incidence of corona is minimized through design and the specifications of corona-free hardware.

Corona on a transmission line conductor depends on several factors such as operating voltage, conductor diameter, overall line geometry, weather conditions, and altitude. Conductor size, line voltage and line geometry are taken into consideration when designing a transmission line so that the electric fields at the conductor surface are minimized. However, for a high voltage line such as the proposed 500 kV line, any incidental irregularities on the conductor surface (water droplets, dust, debris, nicks or scratches in the conductor, etc.) act as points where the electric field may be intensified sufficiently to produce corona. This is particularly true during foul weather where raindrops on the conductor surface act as points producing corona.

Corona may cause broad-band electromagnetic noise, spanning the frequency spectrum from roughly 100 kilohertz (kHz) to 1,000 megahertz (MHz). Corona activity on a high voltage transmission line may produce noticeable low-frequency radio interference within a few hundred feet of the transmission line. The radio noise that may be produced in some weather conditions is generally most noticeable directly underneath the line conductors, and then quickly decreases with distance from the transmission line.

Gap Discharge: Another type of air breakdown capable of producing electromagnetic noise, called a gap discharge, may also produce radio frequency noise. A gap discharge occurs when current arcs across a gap between two conductive objects. Gap discharges can produce radio noise in the lower frequencies (AM radio frequencies) and well into the microwave range (analog TV frequencies). These discharges can be produced by loose connections, a problem that more commonly occurs on low-voltage distribution lines but rarely occurs on high voltage transmission lines (Trinh 2012). Unlike corona discharge, which may occur anywhere along a high voltage transmission line conductor, gap discharge occurs at mechanical connectors and components that are used to hold the conductors in place. Gap discharge is controlled through proper construction and maintenance practices to ensure all mechanical connectors and

components are properly assembled. Gap discharges are intermittent, temporary, localized and are an easily managed and readily corrected problem.

Effects

The level of interference due to radio noise from a transmission line to the reception of a radio signal depends on the location of the radio transmitter, the radio receiver, and the transmission line. A transmission line that is directly between a radio transmitter and a listener's receiver may be more likely to interfere with that listener's reception, whereas a transmission line behind or beside the listener in relation to the transmitter would not necessarily cause interference depending on the radio receivers antennae. The radio noise generated by a transmission line is very low in power and decreases very rapidly as distance from the line increases. It is experienced only when in very close proximity to the transmission line.

In general, complaints related to corona-generated interference are infrequent. Moreover, the advent of cable or satellite television converting to digital broadcast in June 2009 has reduced the occurrence of corona-generated interference; cable, satellite, and digital broadcast are generally not affected by corona-generated interference. Electric power companies are able to operate very effectively under the present FCC rule because harmful interference can generally be eliminated or effectively mitigated.

Radio noise during fair weather is calculated to be approximately 40 decibels (dB-1 microvolt per meter [1µV/m]) at the edge of the ROW. This is considered an acceptable level (IEEE 1971). When the transmission line is in close proximity to roadways (interstate, U.S., and state highways, etc.) such as when it passes over these roadways, radio interference may be experienced for short distances while in close proximity to the line. Interference may be more noticeable near the line particularly during foul weather when radio noise from an AC transmission line can be at its highest.

Evaluation of Alternate Methods and Costs to Reduce Interference

Design options for reducing the radio noise from the transmission line include use of larger diameter conductors, or use of more conductors within the conductor bundles. Increasing the distance between phases of the lines (conductor bundles) may also result in a decrease in the radio noise. These line design options have been employed to minimize the generation of radio noise to acceptable levels. Proper construction techniques also minimize the generation of radio noise. This will be managed by requiring the construction contractor to adhere to stringent construction specifications. For this reason and because the Project as proposed will meet acceptable levels, further design options are not proposed.

Additionally, should complaints occur, IPC will investigate to identify the source and magnitude of radio noise, and will work with complainants to resolve the issue. Often a solution can be found through simple, very effective, and low cost changes involving the complainant's receivers, antennas, filters and/or signal amplifiers.

In conclusion, radio interference from the Project can and will be managed and minimized. Radio interference, if it occurs, decreases rapidly with distance from the line. It will be highest under and very close to the line where the general public will typically not be, except for very short periods of time.

3.3.3 Public Concerns

Section VIII of the Project Order requires Exhibit AA to include the following specific information:

The information provided by the rule should address public concerns expressed during the scoping period about electric and magnetic fields (EMF) generated by the proposed transmission facility (see Section VII of this order). Although the Council does not have an "EMF Standard," it does have a statutory mandate to adopt any conditions needed to ensure public health and safety. This mandate provides the regulatory basis for any findings or conditions, including setbacks, based on EMF considerations.

Numerous commenters expressed concern about potential human health impacts of a high voltage transmission line from electromagnetic fields, corona effects, and induced currents. Exhibit AA of the ASC must include evidence that the proposed facility can meet the Council standards specific to transmission lines, and include mitigation measures proposed by the applicant to reduce or eliminate threats to human health and safety during construction and operation of the transmission line.

Many commenters expressed concern about the possibility that the transmission line will interfere with the normal operations of radios, telephones, and other electronic devices in the vicinity of the line. Exhibit AA should include discussion and mitigation measures to reduce or eliminate interference with electronic devices. This is especially important in farm use zones, where farmers often use a variety of electronic locating devices on mechanical equipment during planting and harvesting and other farming activities

3.3.3.1 EMFs

Over the years, members of the public have voiced concern regarding the effect of EMFs on humans, and ODOE has received comments regarding the EMFs that might be caused by the Project. This section discusses the characteristics and causes of EMFs and describes the EMF that might be associated with the Project. The estimated EMF from the Project's transmission line is well below applicable state, federal, and international recommended levels.

Description of EMF

Electric and magnetic fields, or EMFs, emanate from natural and manmade sources and surround us on a daily basis. The standard unit for measuring the strength of an electric field is volts per meter (V/m), while magnetic-field levels are measured in milligauss (mG). EMFs are characterized by the frequency at which their direction and magnitude oscillate per second, which for EMFs that exist as a result of the natural environment are essentially the static natural electric field of the earth, which is due primarily to atmospheric conditions and can range from a few hundred V/m to kV/m, and the natural magnetic field of the earth, which is in the range of 300 mG to 600 mG; however, both of the fields are essentially static or slowly varying.

EMFs are also associated with the operation of AC power lines and devices supplied with AC electricity and are a description of the electrical and magnetic properties of a location or point in space. They include the forces that will be experienced by a charged body in that space by virtue of its charge or the movement of charges. The voltage, which is the force, produces an electric field that moves the electricity through wires. The current produces a magnetic field, which is a measure of how much electricity is flowing. Thus, wherever electric current is flowing (including through any type of wiring or conductive material), both an electric and a magnetic field exist. Typically, the frequency for AC power lines is 60 cycles per second (cps), or 60 hertz (Hz).

In addition to transmission and distribution power lines, typical sources of EMFs include home and office appliances, tools, building wiring, and currents flowing on water pipes. The importance of these sources to overall exposure varies considerably. For example, if a

transmission or distribution line (which runs near most residences) is within 50 feet of a residence, it could be the dominant, but not necessarily the only, source of magnetic fields in the home. Depending on the circumstances, other sources may be of equal or greater importance. For example, a random survey of 1,000 residences in the U.S. reported currents flowing on water pipes and other components of house grounding systems are twice as likely as outside power lines to be the source of the highest magnetic fields in homes (Zaffanella 1993).

Electric-field levels depend primarily on a line's voltage; the higher the voltage on a line, the higher the electric-field levels. Little variation is expected in electric-field levels from power lines because their voltages are held relatively constant. In addition, conducting objects, including fences, shrubbery, and buildings, easily block electric fields.

Magnetic-field levels depend primarily on the current, or load, flowing on the line; as electricity demand increases and the current on the line increases, magnetic-field levels associated with the line generally increase. To allow higher levels of power to flow in a line while keeping the current in the line to reasonable levels, the voltage at which a line is energized is increased.

When the voltage that a line is energized at is increased, the tower height and right of way width are also increased. The higher voltage level allows a lower current level to be used for a given desired power flow. These and the fact that both electric and magnetic field levels decrease rapidly with distance from both distribution or transmission lines helps manage EMF levels.

Regulation of EMFs

No federal regulations or guidelines apply directly to the EMF levels for the Project's proposed lines in Oregon. The National Institute of Environmental Health Sciences (NIEHS) performed an extensive review of field related issues in the 1990s that resulted in the decision that regulatory actions are unwarranted (NIEHS 1999).

Although there are no federal regulations on power-frequency (60Hz) EMF in the United States (U.S.), international recommendations and guidelines exist. Table AA-5 lists EMF guidelines recommended by the European Union (EU), the International Committee on Electromagnetic Safety (ICES), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), an affiliate of the World Health Organization (WHO) (ICES 2002; ICNIRP 2010). Table AA-6 lists EMF-level regulations set in other states. Seven states have adopted limits for electric field strength at either the edge or within the ROW of the transmission line corridor. Only Florida and New York limit magnetic-field levels from transmission lines and these limits only apply at the edge of the ROW and were based on preventing magnetic-field levels from new lines from increasing.

In the fall of 2009, the Council commissioned a review of existing information to prepare for the review of several transmission lines under discussion at that time. That review was conducted by Dr. Kara Warner and presented to the Council on November 20, 2009, during a regular Council meeting. The prevailing conclusion was that there is a need to continue to monitor the science on EMF, that low cost, prudent avoidance measures of public EMF exposure are appropriate, but that health-based limits are not appropriate given the scientific data available (EFSC 2009).

Table AA-5. International Guidelines for AC EMF Levels

Agency	Exposure	Location	Electric Field	Magnetic Field
EU	General public	Edge of ROW	4.2 kilovolts (kV)/m	0.833 gauss (G)
ICES	Occupational[1] General public	Within ROW Edge of ROW	10 kV/m 5 kV/m	27.1 G 9.04 G
ICNIRP	Occupational General public	Within ROW Edge of ROW	8.3 kV/m 4.2 kV/m	10.0 G 2.00 G

[1]20 kilovolts per meter (kV/m) in controlled occupational setting.
Magnetic fields are measured in gauss (G) and milligauss (mG). 1 G = 1,000 mG.
EU = European Union; ICES = International Committee on Electromagnetic Safety; ICNIRP = International Commission on Non-Ionizing Radiation Protection

Table AA-6. State-Regulated AC EMF Levels

State	Location	Electric Field	Magnetic Field
Florida			
500-kV lines	Within ROW	10 kV/m	NA
- single circuit	Edge of ROW	2 kV/m	200 mG
- double circuit		2 kV/m	250 mG
230 kV or less	Within ROW	8 kV/m	NA
	Edge of ROW	2 kV/m	150 mG
Minnesota	Within ROW	8 kV/m	NA
Montana	Within ROW–road crossing	7 kV/m	NA
	Edge of ROW	1 kV/m[1]	NA
New Jersey	Within ROW	NA	NA
	Edge of ROW	3 kV/m	NA
New York	Within ROW–open	11.8 kV/m	NA
	Within ROW–public road	7 kV/m	NA
	Edge of ROW	1.6 kV/m	200 mG
North Dakota	Within ROW	9 kV/m	NA
	Edge of ROW	NA	NA
Oregon	Within ROW	9 kV/m	NA
	Edge of ROW	NA	NA

[1] Can be waived by landowner.
kV/m = kilovolt per meter
mG = milligauss
NA = Not Applicable. No requirements.
ROW = right-of-way

EMF Effects

The effects of EMF on humans or animals near or underneath high-voltage lines can be categorized as either short- or long-term. Short-term effects, such as induced currents or shocks, can generally be perceived and may be considered a nuisance. Long-term effects generally relate to concerns about health.

Short-Term Electric-Field Effects

Short-term electric-field effects involve potentials and currents that may be induced on objects such as conductive roofs or buildings, fences, vehicles, or agricultural equipment, near

high-voltage lines. If sufficiently large, these potentials and currents may result in perceptible shocks or current flow. The magnitude of induced currents and potentials on objects or equipment under the proposed lines will depend on the magnitude of the electric field, the size and shape of the object, and the object's connection (resistance) to ground. Grounding the object will reduce the induced potential to essentially zero and eliminate the object as a source of shocks or currents. Objects that are not grounded or poorly grounded may be a source of currents or shocks.

Fences or metal objects within the ROW should be grounded. Grounding will eliminate induced currents or potentials on these objects as a concern. Unlike fences or buildings, mobile equipment, such as vehicles and agricultural machinery, cannot be permanently grounded. The National Electrical Safety Code (NESC) requires that for high-voltage power lines, such as the 69-kV, 138-kV, and 500-kV lines proposed for the Project, sufficient conductor clearance to the ground be maintained to limit the short-circuit current induced in the largest anticipated vehicle under the line to 5 milliamperes (mA) or less (NESC 2012). If necessary, this can be accomplished at locations where large vehicles are anticipated by increasing the line height, shielding the electric field, or by limiting access.

The relation between short-circuit current and electric field for several vehicles and agricultural related pieces of equipment has been measured and is listed in Table AA-7 (EPRI 1982).

Table AA-7. Induced Current Factors

Object	I_{sc}/E (mA/kV)
Car—L 4.6 m x W 1.78 m x 1.37 m	0.088
Pickup Truck—L 5.2 m x W 2.0 m x H 1.7m	0.11
Tractor-Semitrailer (40-foot trailer)—L 15.75 m x W 2.4 m x H 3.7 m	0.64
Farm Tractor pulling Crop Wagon—Total Length 9.55 m Tractor—L 3.7 m x W 1.95 m x H 1.5 m Crop Wagon—L 5.65 m x W 2.11 m x H 2.5 m	0.30

I_{sc} = short-circuit current
E = AC electric field

Multiplying the factors listed in Table AA-7 by the electric field yields the short-circuit current expected under conditions expected to produce the greatest magnitude short-circuit currents. The highest electric field calculated within the ROW for the proposed lines in Oregon was below 9 kV/m (8.3 kV/m for lattice tower, 8.9 kV/m for H-frame). The vehicles and equipment listed in Table AA-7 will have short-circuit currents less than the 5-mA current required by the NESC except for the tractor-semitrailer, for which the induced current would be 5.7 mA if the entire length of the tractor-semitrailer were in an 8.9 kV/m electric field (e.g., parallel to the line). Tractor-semitrailers generally will not be anticipated under the line except at line road crossings where they will not be parallel to the line but will be at an angle close to perpendicular to the line. However, at agricultural or other locations where large vehicles (such as tractors or trucks) are anticipated, the line height will be increased if necessary (or the line design altered) so that the line complies with the NESC 5-mA safety requirement.

Although transmission lines are designed to limit induced currents on objects underneath the lines to a safe level (5 mA or less), currents or contact electric shock may still occur if the object is not grounded and contact is made. This may be considered a nuisance depending on the magnitude of the current or shock. The peak electric field found under the 500-kV lines is sufficient that currents and potentials induced on vehicles and farm equipment operated within the ROW might occur. Most of the areas under the lines have lower fields and only a small area under the 500-kV lines where the conductors come closest to ground near mid span will be

likely to induce perceivable currents or potentials on conductive objects, such as vehicles or farm equipment. Ground cover and vegetation in contact with the equipment will provide partial grounding and further reduce the likelihood of perceivable currents or potentials. Perceived currents or potentials on vehicles or farm equipment can be mitigated if they occur by using a ground strap on the vehicle or equipment or if the vehicle or equipment avoids stopping while under the lines. Since a spark and current may occur between objects under the line if the objects are not properly connected and grounded, refueling a vehicle while it is under the line should be avoided and is typically prohibited in IPC easement agreements.

Direct perception of the electric field has been reported in the instance of raising the back of the hand overhead toward a transmission line. The perception, which was due to movement of the hair on the back of the hand, occurred for a median electric field of 7 kV/m (EPRI 1982). For the proposed 500-kV lines, the electric field in a limited area of the ROW under the conductors near mid span can exceed the reported perception levels for certain conditions such as when the conductors are at minimum ground clearance and the line is at 10 percent overvoltage.

The electric fields from the proposed 69-kV, 138-kV, 230-kV, and 500-kV lines for the Project are comparable to those for other 69-kV, 138-kV, 230-kV, and 500-kV lines. Electric field impacts can be reduced or eliminated by following proper grounding practices for equipment and facilities and adherence to the NESC.

Short-Term Magnetic-Field Effects

Magnetic fields associated with transmission lines can induce voltage and current in long conducting objects parallel to the transmission line. As with electric-field induction, these induced voltages and currents are a potential source of shocks. A fence, irrigation pipe, pipeline, electrical distribution line, or telephone line can all form conducting loops when grounded at both ends. The earth forms the other portion of the loop. The magnetic field from a transmission line can induce a current to flow in such a loop if it is oriented parallel to the line. If only one end of a fence is grounded (possible loop), then an induced voltage appears across the open end of the loop. The possibility for a shock exists if a person closes the loop at the open end by contacting both the ground and the conductor. The magnitude of this potential shock depends on the magnitude of the magnetic field; the length of the object (the longer the object, the larger the induced voltage); the orientation of the object to the transmission line (parallel as opposed to perpendicular; no induction occurs on perpendicular loops); and the amount of electrical resistance in the loop (high resistance limits the current flow).

Magnetically induced currents from power lines have been investigated for many years, and mitigating measures have been developed and are available. Studies of gas pipelines near transmission lines have developed prediction methods and mitigation techniques for induced voltages on pipelines (Dabkowski and Taflove 1979; Taflove and Dabkowski 1979). Similar techniques and procedures are available for irrigation pipes and fences. Grounding policies employed by utilities for fences that parallel transmission lines for long distances reduce the potential magnitude of magnetically induced voltage and currents.

Magnetic fields of sufficient strength and in close proximity can cause distortion of the image on older-style video display terminals and computer monitors (cathode-ray tubes [CRTs]). The threshold magnetic field for interference depends on the type and size of the monitor and the frequency of the magnetic field. Interference has been observed for certain monitors at fields at or below 10 mG (Baishiki et al. 1990; Banfai et al. 2000). The problem typically arises when CRT computer monitors are in use near electrical distribution or transmission facilities in large office buildings. This issue is becoming less of a concern with the advent of flat-screen monitors, such as those used in laptop computers, because flat-screen monitors are not

susceptible to AC magnetic fields. Some specialized equipment (e.g., certain medical equipment, such as a magnetic resonance imaging (MRI) machine or test equipment, such as a scanning electron microscope) may be sensitive to even lower levels of magnetic field. However, equipment that is very sensitive to magnetic fields are typically installed in protected environments to shield them from the magnetic fields of 1 to 10 mG or higher that can be found in buildings due to their wiring, lights, and other equipment. Mitigation methods for magnetic fields are available and involve grounding practices, shielding, device geometry, and distance.

Long-Term Magnetic-Field Effects

For more than 30 years, questions have been asked about the potential effect on people of EMF from power lines. Early studies focused on electric fields, and magnetic fields began receiving increased attention in the late 1970s. A substantial amount of research has been conducted in the U.S. and around the world over the past several decades examining whether exposures to power-frequency EMFs cause health or environmental effects.

Epidemiology studies have addressed many of the issues raised about EMFs and health. Multidisciplinary reviews express the consensus in the scientific community that the epidemiologic evidence is insufficient to demonstrate a causal relationship between extremely low-frequency (power frequency) EMF and any health effect (NIEHS 1998; NIEHS 1999; HCN 2001, 2004; NRPB 2001, 2004; IARC 2002).

Several organizations responsible for health decisions, including national and international organizations, have convened groups of scientists to review the body of EMF research. These expert groups, including the National Academy of Science, the NIEHS, the International Agency for Research on Cancer, the National Radiological Protection Board of Great Britain, and the Health Council of the Netherlands, have included dozens of scientists with diverse skills that reflect the different research approaches required to answer questions about health. Direct excerpts from these reports summarizing general conclusions are included below.

National Institute of Environmental Health Sciences (NIEHS 1999)

"The scientific evidence suggesting that ELF-EMF exposures pose any health risk is weak. The strongest evidence for health effects comes from associations observed in human populations with two forms of cancer: childhood leukemia and chronic Lymphocytic leukemia in occupationally exposed adults. While the support from individual studies is weak, the epidemiological studies demonstrate, for some methods of measuring exposure, a fairly consistent pattern of a small, increased risk with increasing exposure that is somewhat weaker for chronic lymphocytic leukemia than for childhood leukemia. In contrast, the mechanistic studies and the animal toxicology literature fail to demonstrate any consistent pattern across studies although sporadic findings of biological effects have been reported. No indication of increased leukemia in experimental animals has been observed.

"The lack of connection between the human data and the experimental data (animal and mechanistic) severely complicates the interpretation of these results. The human data are in the "right" species, are tied to "real life" exposures and show some consistency that is difficult to ignore. This assessment is tempered by the observation that given the weak magnitude of these increased risks, some other factor or common source of error could explain these findings. However, no consistent explanation other than exposure to ELF-EMF has been identified.

"Epidemiological studies have serious limitations in their ability to demonstrate a cause and effect relationship whereas laboratory studies, by design, can clearly show that cause and effect are possible. Virtually all of the laboratory evidence in animals and humans and most of the mechanistic work done in cells fail to support a causal relationship between exposure to ELF-

EMF at environmental levels and changes in biological function or disease status. The lack of consistent, positive findings in animal or mechanistic studies weakens the belief that this association is actually due to ELF-EMF, but it cannot completely discount the epidemiological findings.

"The NIEHS concludes that ELF-EMF exposure cannot be recognized at this time as entirely safe because of weak scientific evidence that exposure may pose a leukemia hazard. However, because virtually everyone in the United States uses electricity and therefore is routinely exposed to ELF-EMF, passive regulatory action is warranted such as a continued emphasis on educating both the public and the regulated community on means aimed at reducing exposures. The NIEHS does not believe that other cancers or non-cancer health outcomes provide sufficient evidence of a risk to currently warrant concern."

National Academy of Sciences (NAS 1999)

"An earlier Research Council assessment of the available body of information on biologic effects of power-frequency magnetic fields (NRC 1997 http://www.nap.edu/catalog.php?record id=5155#toc) led to the conclusion 'that the current body of evidence does not show that exposure to these fields presents a human health hazard. Specifically, no conclusive and consistent evidence shows that exposure to residential electric and magnetic fields produces cancer, adverse neurobehavioral effects, or reproductive and developmental effects'. The new, largely unpublished contributions of the EMF-RAPID program are consistent with that conclusion. We conclude that no finding from the EMF-RAPID program alters the conclusions of the previous NRC review on the Possible Effects of Electromagnetic Fields on Biologic Systems (NRC 1997). In view of the negative outcomes of EMFRAPID replication studies, it now appears even less likely that MFs [magnetic fields] in the normal domestic or occupational environment produce important health effects, including cancer."

National Radiological Protection Board of Great Britain (NRPB 2001, 2004)

"Laboratory experiments have provided no good evidence that extremely low frequency [ELF] electromagnetic fields are capable of producing cancer, nor do human epidemiological studies suggests that they cause cancer in general. There is, however, some epidemiological evidence that prolonged exposure to higher levels of power frequency magnetic fields is associated with a small risk of leukemia in children. In practice, such levels of exposure are seldom encountered by the general public in the UK [or in the US].

"Because of the uncertainty… and in absence of a 'dose-response' relationship, NRPB has concluded that the data concerning childhood leukemia cannot be used to derive quantitative guidance on restricting exposure."

Health Council of the Netherlands (HCN 2001, 2004)

"Because the association is only weak and without a reasonable biological explanation, it is not unlikely that it [an association between ELF exposure and childhood leukemia] could also be explained by chance… The committee therefore sees no reason to modify its earlier conclusion that the association is not likely to be indicative of a causal relationship.

"The Committee, like the IARC itself, points out that there is no evidence to support the existence of a causal relationship here. Nor has research yet uncovered any evidence that a causal relationship might exist."

International Agency for Research on Cancer (IARC 2002)

"Studies in experimental animals have not shown consistent carcinogenic or co-carcinogenic effects of exposures to ELF [extremely low frequency] magnetic fields, and no scientific

explanation has been established for the observed association of increased childhood leukemia risk with increasing residential ELF magnetic field exposure." IARC categorized EMF as a "possible carcinogen" for exposures at high levels, based on the meta-analysis of studies of statistical links with childhood leukemia at levels above 3-4 mG.

The assessments by these organizations agree there is little evidence to suggest EMF is associated with adverse health effects, including most forms of adult and childhood cancer, heart disease, Alzheimer's disease, depression, and reproductive effects. However, all of the assessments concluded that epidemiology studies in total suggest an association between magnetic fields at higher time-weighted average exposure levels (greater than 4 mG) and childhood leukemia. Nevertheless, all agree that the experimental laboratory data do not support a causal link between EMF and any adverse health effect, including leukemia, and have not concluded that EMF is, in fact, the cause of any disease.

Animal exposure to EMFs has also been investigated for over 30 years. Vegetation in the form of grasses, shrubs, and small trees largely shields small, ground-dwelling species, such as mice, rabbits, foxes, and snakes, from electric fields. Species that live underground, such as moles, woodchucks, and worms, are further shielded from electric fields by the soil; aquatic species are shielded from electric fields by water. Large species such as deer and domestic livestock have greater potential exposures to electric fields since they can stand taller than the surrounding vegetation. However, the duration of exposure for deer and other large animals is limited to foraging bouts or the time it takes them to cross under the line. All species will be exposed to higher magnetic fields under or near a transmission line than elsewhere because vegetation and soil do not provide shielding from this aspect of the transmission-line electrical environment.

Field studies have been performed to monitor the behavior of large mammals in the vicinity of high-voltage transmission lines. No effects of electric or magnetic fields were evident in two studies from the northern U.S. on big game species, such as deer and elk, exposed to a 500-kV transmission line (Goodwin 1975; Picton et al. 1985).

Much larger populations of animals that might spend time near a transmission line are livestock that graze under or near transmission lines. To provide a more sensitive and reliable test for adverse effects other than informal observation, scientists have studied animals continuously exposed to fields from high-voltage lines in relatively controlled conditions. For example, grazing animals, such as cows and sheep, have been exposed to high-voltage transmission lines and their reproductive performance examined (Lee et al. 1996). No adverse effects were found among cattle exposed to a 500-kV direct-current overhead transmission line over one or more successive breeding events (Angell et al. 1990). Compared to unexposed animals in a similar environment, the exposure to 50-Hz fields did not affect reproductive functions or pregnancy of cows (Algers and Hennichs 1985; Algers and Hultgren 1987). Sheep and cattle exposed to EMFs from transmission lines exceeding 500-kV were examined and no effect was found on their levels of hormones in the blood, weight gain, onset of puberty, or behavior (Stormshak et al. 1992; Lee et al. 1993; Lee et al. 1995; Thompson et al. 1995; Burchard et al. 1998; Burchard et al. 2004).

Greenberg et al. (1981) studied honeybee colonies placed near 765-kV transmission lines. They found that hives exposed to AC electric fields of 7-kV/m had decreased hive weight, abnormal amounts of propolis (a resinous material) at hive entrances, increased mortality and irritability, loss of the queen in some hives, and a decrease in the hive's overall survival compared to hives that were not exposed. Placing the hive farther from the line, shielding the hive, or using hives without metallic parts eliminates this problem.

Numerous studies have been carried out to assess the effect of plant exposure to transmission line EMFs. These studies have involved forest species and agriculture crops. Researchers have found no adverse effects on plant responses, including seed germination, seedling emergence, seedling growth, leaf area per plant, flowering, seed production, germination of the seeds, longevity, and biomass production (Lee et al. 1996).

Oregon Energy Facility Siting Council (2009)

In the fall of 2009, EFSC requested that its contractor review recently released and historical information about EMF to validate that the 9 kV/m requirement was still relevant. In 2009, ICNIRP released their update, and that report triggered EFSC's request.

Previously, in 1991 EFSC had established an Electric and Magnetic Field Committee that conducted its own review of the science concerning EMF, and concluded that while low-cost prudent avoidance of EMF exposure by the general public was encouraged, it was premature to set health-based limits to EMF from 60 Hz power lines based on the available science at that time. The Committee did recommend continuing to review the science surrounding EMF and potential health issues. The report compiled newly available information and was presented to EFSC in 2009. The report contained a discussion of U.S. state and federal level regulatory activities regarding EMF from transmission lines, along with a discussion of the factors that confound experiments and epidemiological EMF studies, complicating their interpretation.

Dr. Warner concluded: "Although there has been considerable research on the potential negative health effects of extremely low frequency EMF exposure in the last two decades, the conclusions drawn by US and international reviewing bodies are not significantly different from those drawn by the Council's Electric and Magnetic Field Committee in 1993. Those conclusions are (1) there is a need to continue to monitor the science on EMF, (2) low-cost prudent avoidance measures of public EMF exposure is appropriate, and (3) health-based exposure limits are not appropriate with the scientific data available to date." At this point EFSC decided to take no additional actions regarding the 9 kV/m requirement.

EMF Summary

The estimated EMF from the Project's transmission line will be well below applicable state, federal, and international recommended levels. The peak AC electric field for a 10 percent overvoltage of the proposed 500-kV line with a minimum conductor clearance to ground of 37 feet is below the Oregon electric field limit of 9 kV/m. The electric fields calculated at the edge of the ROW for the 500-kV lines at 10 percent overvoltage and minimum conductor ground clearance are less than 1 kV/m for the 500-kV lattice structure and 1.2 kV/m or less for the 500-kV tubular H-frame structure. The electric fields at the edges of the ROWs and the highest electric field found within the ROW for each portion of the line are listed in Table AA-3.

The magnetic fields calculated at the edge of the ROW for the 500-kV lattice-structure line portions are 40 mG or less (Table AA-4). For magnetic fields within the ROW, the 500-kV lattice-structure line portions (Table AA-4) have peak magnetic fields of 362 mG. The 500-kV tubular H-frame line has 68 mG magnetic fields at the ROW edge and peak magnetic fields within the ROW of 424 mG (Table AA-4). Mitigation techniques, such as grounding practices and shielding, exist to address short-term effects that might be reported. The scientific consensus is that little evidence exists suggesting EMF is associated with adverse health effects, and no exposure standards have been recommended.

3.3.3.2 Audible and Radio Noise

Audible and radio noise from transmission lines occurs when the 60-Hz electric fields at the surface of power line conductors are large enough to cause a local breakdown in the insulating properties of the air. This electrical breakdown or ionization of the air at the surface of the conductor produces a small spark or electrical breakdown in the air surrounding the conductor called a corona. If there is sufficient corona activity, audible, and radio/television noise can be noticed within a few hundred feet of the transmission line, and small amounts of ozone (O_3) and nitrous oxide (N_2O) can be released. These effects are most pronounced directly underneath the line conductors and decrease with distance from the transmission line.

Corona activity depends on a number of factors, such as altitude, line voltage, conductor size, conductor geometry, and weather conditions. The breakdown strength of air is 30 kV per centimeter (cm) at sea level and decreases with increasing altitude. For a particular altitude, conductor size and line voltage are taken into consideration when designing transmission lines so that the electric fields at the conductor surface do not exceed the breakdown potential of air. However, for lines with a voltage typically equal to or greater than 345 kV, any irregularities on the conductor surface (e.g., nicks, water droplets, or debris) may create points where the electric field is intensified sufficiently to produce corona. In inclement weather, moisture, such as raindrops or snowflakes accumulating on the conductor surface, will also act as points for corona inception. Corona activity is, therefore, most likely to occur on high-voltage transmission lines at higher altitudes during inclement weather. High-voltage transmission lines are designed to avoid corona levels that will be likely to cause electronic or audible interference. These factors can be addressed and mitigated if necessary through design choices for the transmission line, such as the conductor size and bundling as well as the general geometry of the transmission line.

Audible Noise—No federal regulatory requirements exist for audible noise levels from transmission lines. The Environmental Protection Agency (EPA) has audible noise guidelines developed for the protection of public health and welfare against long-term exposure to environmental noise that are widely accepted by state and local governments for the (EPA 1974). The EPA employs the equivalent sound level (L_{eq}) and day–night sound level (L_{dn}) metrics in its guidelines. The L_{eq} is the energy-averaged sound level over a specified time, whereas the L_{dn} is a 24-hour average sound level that includes a 10 A-weighted decibel (dBA) penalty to sound levels during nighttime hours (10:00 p.m.–7:00 a.m.). The EPA guideline lists an L_{dn} of 55 dBA to protect the public from interference to activity or annoyance outdoors in residential areas. Table AA-8 provides a summary of the EPA audible noise guidelines.

Table AA-8 Summary of EPA Guidelines for Audible Noise

Location	Level	Concern
All public accessible areas with prolonged exposure	70 dBA $L_{eq(24h)}$	Protection for safety/hearing loss
Outdoor at residential structures or other noise-sensitive areas where large amounts of time spent	55 dBA L_{dn}	Protection against annoyance and activity interference
Outdoor areas where limited amounts of time are spent (parks, school yards, golf courses, etc.)	55 dBA $L_{eq(24h)}$	
Indoor residential	45 dBA L_{dn}	
Indoor non-residential	45 dBA $L_{eq(24h)}$	

Oregon does have applicable noise regulations. OAR Chapter 340, Division 35 establishes statewide environmental audible noise levels for new commercial or industrial noise sources. The Oregon Department of Environmental Quality (ODEQ) has additional audible noise limits for

industrial and commercial sources in quiet areas. Table AA-9 provides a summary of the Oregon audible noise guidelines.

Table AA-9. Summary of ODEQ Guidelines for Audible Noise

Allowable Statistical Noise Levels for Industrial and Commercial Noise Sources	
7 a.m.–10 p.m.	**10 p.m.–7 a.m.**
L_{50}—55 dBA	L_{50}—50 dBA
L_{10}—60 dBA	L_{10}—55 dBA
L_{10}—75 dBA	L_{10}—60 dBA

*NOTE: According to Oregon regulations, audible noise measurements should **not** be made in precipitation when such precipitation can affect the measurements.
Source: OAR 340-35-037, Table 7.

The audible noise regulations apply at "appropriate measurement points" on "noise sensitive properties." OAR 340-035-0015 states that "[n]oise sensitive properties" are defined as "real property normally used for sleeping, or normally used as schools, churches, hospitals, or public libraries." Property used for industrial or agricultural activities is not noise-sensitive property unless it meets the above criteria in more than an incidental manner. The "appropriate measurement point" is defined as the point on the noise-sensitive property nearest the noise source or 25 feet toward the noise source from the nearest point on the noise-sensitive building, whichever is farther from the noise source (OAR 340-035-0035, Noise Control Regulations for Industry and Commerce). The use of what has been termed the ambient degradation rule has also been introduced by ODOE as being applicable to new transmission line projects. The ambient degradation rule allows for a net increase in sound of 10 dBA relative to the pre-development existing background sound level. For an electric transmission line the existing background sound level is based on the actual or representative ambient background levels. Exhibit X, Section 2.2 describes ODEQ criteria in greater detail.

The air breakdown, or small spark caused by corona at the surface of a transmission-line conductor, is accompanied by a snapping sound causing audible noise. If there is sufficient corona activity on a high-voltage line, many small snaps from corona sources along a conductor may occur and produce discernible audible noise or crackle at the edge of the ROW. At lower system voltages (voltages below 230 kV), audible noise from the transmission line conductors is typically not formally evaluated because of the very low levels of corona activity and correspondingly low occurrence of corona effects. For lines at higher voltages (345 kV and above) with higher conductor-surface gradients, corona activity is more likely and audible noise more frequent, particularly in inclement weather, and is therefore taken into account in the design of the transmission line.

Sound intensity is measured in decibels (dB) referenced to 20 micropascals, which is approximately the pressure threshold of human hearing at 1 kilohertz (kHz). The range of audible frequencies for the human ear is from approximately 20 Hz to 20 kHz, with peak sensitivity near 1 kHz. The change in sensitivity of the human ear with frequency is reflected in measurements by weighting the contribution of sound at different frequencies. The weighting of sound over the frequency spectrum to account for the sensitivity of the human ear is called the A-weighted sound level. When the A-weighting scale is applied to a sound-pressure measurement, the level is often reported as dBA.

The sound intensity of typical human speech is approximately 60 to 70 dBA, and background levels of noise in rural environments are about 30 to 40 dBA. Specific identifiable noises, such as birdcalls, neighborhood activity, and traffic, can produce background audible-noise levels of

50 to 70 dBA or higher. Noise effects are discussed in detail in Exhibit X. Sections 3.2 through 3.4.

Radio Noise—Oregon does not have limits for either radio interference or television interference. Electromagnetic interference from power transmission systems in the U.S. is governed by the Federal Communication Commission (FCC) Rules and Regulations (FCC 1988). A power transmission line is categorized by the FCC as an "incidental radiation device." It is defined as "a device that radiates radio frequency energy during the course of its operation although the device is not intentionally designed to generate radio frequency energy." Such a device "shall be operated so that the radio frequency energy that is emitted does not cause harmful interference. In the event that harmful interference is caused, the operator of the device shall promptly take steps to eliminate the harmful interference." In this case, "harmful interference" is defined as "any emission, radiation or induction which endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radio communication service operating in accordance with this chapter" (FCC 1988).

Complaints related to corona-generated interference are infrequent. The advent of cable or satellite television and the move to digital broadcast television in June 2009 has also reduced the possibility of corona-generated interference; cable, satellite, and digital broadcast are generally not subject to corona-generated interference. Electric power companies have been able to work well under the present FCC rule because harmful interference can generally be eliminated or effectively mitigated.

The impulsive corona currents cause wide-band electric- and magnetic-noise fields. This radio noise spans the frequency spectrum from below 100 kHz to approximately 1,000 MHz. Inclement weather and high altitude increase radio-noise levels. This noise from transmission lines can produce interference to AM signals, such as a commercial AM radio audio signal (i.e., radio noise) or the video portion of an older analog broadcast television (TV) station (i.e., TV noise). Frequency modulation (FM) radio stations and the audio portion of an older analog broadcast TV station signal, which is also frequency modulated, are generally not affected by noise from a transmission line. As digital signal processing has been integrated into these communication systems, the potential interference impact of corona-generated radio noise has decreased. Radio noise is measured in units of dB based on its field strength referenced to a signal level of 1 microvolt per meter (IEEE 1986). Like audible noise, since it is due to corona activity radio noise is more likely to occur at higher-voltage lines (345 kV and above) with higher conductor-surface gradients, particularly at higher altitudes and in inclement weather.

3.3.3.3 Other Effects

Other effects from the proposed Project transmission lines may include visible corona, ozone, field induction, and interference with electronic devices such as Global Positioning Systems (GPS), cell phones, or satellite receivers. These effects will be localized to the area of the transmission line where they occur. Factors influencing the severity of these other effects include the field strength at the surface of the conductor (visible corona, ozone, and interference with electronic devices) or the field strength at ground level (field induction).

Electromagnetic Interference—Community communication systems, cell phones, GPS units, and satellite receivers typically operate at high frequencies in the tens to hundreds of megahertz (MHz) or even gigahertz (GHz). These systems also often use FM or digital coding of the signals so they are relatively immune to electromagnetic interference from transmission line corona. GPS units are used in a wide range of activities, including several important agricultural activities in the study area discussed later, such as monitoring pivot irrigation, tracking wheeled

and tracked equipment movements during farming operation, and checking the orientation of aerial spraying aircraft. GPS units operate in the frequency range of 1.2 to 1.6 GHz. Satellite receivers operate at frequencies of 3.4 GHz to 7 GHz and have shown no effect from transmission lines unless the receiver was trying to view the satellite through the transmission tower or conductor bundle of the transmission line (Chartier et al. 1986). Repositioning the receiver by a few feet was sufficient to eliminate the obstruction and reduced signal. Mobile phones operate in the radiofrequency range of about 800 MHz to 1,900 Mhz or higher. EMFs at these high frequencies have very different physical characteristics from 60-Hz power frequency EMFs. Due to the frequencies used by these devices and modulation and processing techniques, effects from interference are unlikely.

GPS is used in modern farming equipment to guide tractors used for planting, cultivation, and harvesting. If power lines significantly interfere with GPS guidance systems, this could make them less accurate and result in wasted fuel, increased labor costs, and under- or over-fertilizing resulting in reduced productivity.

GPS accuracy can be impacted by many factors including atmospheric conditions; satellite constellation and geometry; the design, quality, and position of GPS antennas and receivers; signal interference; and multipath. Of these, possible affects to GPS accuracy, a transmission line and its structures could theoretically contribute to signal interference and multipath.

Signal interference occurs when other signals at the same frequency as the satellite signal are present. Multipath occurs when objects such as buildings, structures, or tractor parts reflect a GPS satellite signal, causing the satellite signal to arrive at the receiver later than it would have if it followed a straight line from the satellite. A study commissioned by the Electric Power Research Institute (EPRI) found that signal interference is “unlikely” based on the design of GPS receivers and their ability to separate the GPS signal from background noise (Silva and Olsen 2002). Another study compared the accuracy of real-time kinematic GPS receivers at different locations to transmission lines and towers (Gibblings et al. 2001). This study concluded that multipath from transmission towers could result in GPS-initialization errors (e.g., the system reports the wrong starting location) 1.1 percent to 2.3 percent of the time. This study also reported that GPS software was able to identify and correct these initialization errors within the normal startup time. This study reported initialization errors due to electromagnetic interference from energized overhead transmission lines when the GPS receiver was located outside the vehicle but concluded that “most, if not all of this effect can be eliminated by shielding the receiver and cables.” Placing the receiver inside the vehicle significantly reduced initialization errors.

IPC does not specifically track interference with GPS tractor navigation systems; however, these systems are widely used in other locations in IPC’s service area and several existing transmission lines up to 500 kV cross the area. Over the last 10 years, IPC has not been contacted about interference with tractor GPS navigation systems. Users of these systems have expressed concerns about the possibility of interference, but no specific examples have been reported.

Field Induction (Induced Currents and Nuisance Shocks)—The electric fields associated with a transmission line can induce small electric currents in metallic objects adjacent to or under transmission lines. Metallic roofs, vehicles, equipment, and fences are examples of objects that can develop a small electric charge when in proximity to high-voltage transmission lines. The amount of induced charge depends on the characteristics and size of the object, its grounding, and the electric-field strength. An electric current can flow when an object has an induced charge and a path to ground. The amount of current flow is determined by the impedance of the object to the ground and the voltage induced between the object and ground.

The amount of induced current that can flow is important for evaluating the potential for nuisance shocks to people and the possibility of other effects such as fuel ignition.

The threshold of perception is approximately 1 mA for humans (Dalziel and Mansfield 1950). If the current increases sufficiently beyond a person's perception threshold, it can become bothersome and possibly startling. Larger currents can cause the muscles of the arm and hand to involuntarily contract so a person cannot let go of an object. The value at which 99.5 percent of men, women, and children can still let go of an object is approximately 9, 6, and 5 mA, respectively. The NESC addresses this issue by limiting the steady-state current that can flow between an object and the earth near a transmission line to 5 mA, which is considered a safe level. The proposed 500-kV transmission line is designed such that the maximum amount of current induced on the largest metallic object normally expected under the line will be less than 5 mA.

When establishing contact with a vehicle or metallic object under a transmission line, a small arc may occur. This is often called a nuisance shock. Nuisance shocks and induced currents can be eliminated by proper grounding of the object, shielding it from electric fields, or positioning it farther from the transmission line.

Grounding of fences and large metal structures under or near the lines will eliminate these objects as sources of voltage potentials, currents, or shocks. However, mobile objects such as vehicles or pieces of farm equipment cannot be grounded permanently and thus can develop a potential and currents while under or near the transmission line. A tractor pulling a wagon under the proposed single-circuit 500-kV line at the point of highest electric field (8.9 kV/m) can develop a current of 2.7 mA (Table AA-7). A pickup truck at the same location can develop a current of 1 mA. These currents are likely to be perceived. The actual currents will likely be much lower due to the line height being higher, lower operating overvoltage, and inadvertent grounding of the vehicle by field vegetation and non-ideal insulation by tires. Placing a ground strap on vehicles or equipment will help ground the vehicle, mitigating induced currents or potentials. Dragging a log chain from large equipment that passes under high-voltage lines can be used to provide grounding. Simply avoiding stopping to enter or exit vehicles while under high-voltage lines is another common-sense way to avoid induced potentials or currents. In the cases reported to IPC, engineers have responded by checking the voltage and current at the fence or other objects to ensure the 5-mA limit is not exceeded, then providing suggestions to customers on ways to eliminate the issue. This issue is well understood and can be mitigated with proper grounding of the equipment or structure. The transmission line conductor clearances are designed to prevent the 5-mA limit described above from being exceeded at objects that will be difficult to ground, such as vehicles with rubber tires.

Cardiac Pacemakers—Concern has focused on potential interference to cardiac pacemakers and defibrillators. A cardiac pacemaker monitors the electrical activity of the heart. If the heart fails to beat, the pacemaker administers a small stimulus to trigger the missing beats. An implanted cardiac defibrillator similarly monitors the electrical activity of the heart but is designed to block disorganized contractions of the heart (arrhythmias) by administering a strong electrical shock to restore normal heart rhythms. Exposure to EMFs could affect the function of these devices if induced signals on sensing leads are interpreted as natural cardiac activity (Griffin 1986; CCOHS 1988; Barold et al. 1991). Due to recent design improvements, many pacemakers will not be particularly susceptible to electrical fields. There remains a small possibility that some pacemakers, particularly those of older designs and with single-lead electrodes, may sense potentials induced on the electrodes and leads of the pacemaker and provide unnecessary stimulation to the heart. However, the opportunities for exposure and interference from power lines are lower than for contact with ordinary household appliances.

EMFs from a variety of sources, including some industrial equipment, automobile ignition wiring, anti-theft devices in stores, MRI machines, slot machines, cell phones, and certain medical procedures (e.g., radiation therapy, electrocautery, and defibrillation), have been reported to affect the operation of implanted cardiac pacemakers and defibrillators. In theory, pacemaker interference from the electric fields associated with high-voltage transmission lines may be possible depending upon the type of pacemaker, the person's location and orientation under the conductors of the transmission line, and the voltage and design of the transmission line. The manufacturers of pacemakers have designed their devices in various ways to minimize potential interference from external sources, including power line EMFs. For example, the increasingly prevalent bipolar pacemaker models are virtually immune to interference. Medtronic, a leading producer of pacemakers, notifies users of its products to limit their exposure to power frequency fields to below 6 kV/m and 1,000 mG to protect against possible electrical interference (Medtronic 2006). Two general types of pacemakers exist: asynchronous and synchronous. The asynchronous pacemaker pulses at a predetermined rate. It is practically immune to interference because it has no sensing circuitry and is not exceptionally complex. The synchronous pacemaker, on the other hand, pulses only when its sensing circuitry determines pacing is necessary. Interference resulting from transmission line EMFs can cause a spurious signal in the pacemaker's sensing circuitry. However, when these pacemakers detect a spurious signal, such as a 60-Hz signal, they are programmed to revert to an asynchronous or fixed pacing mode of operation and return to synchronous operation within a specified time after the signal is no longer detected. The potential for pacer interference depends on the manufacturer, model, and implantation method, among other factors. Studies have determined thresholds of interference for the most sensitive units to be about 2,000 to 12,000 mG for magnetic fields and about 1.5 to 2.0 kV/m for electric fields. The magnetic fields from the transmission lines are well below these values, even the peak magnetic field of 424 mG found on the ROW (Table AA-4) for the Tubular H-Frame tower. The electric fields expected at the edges of the ROW (1.2 kV/m or less) are below the threshold level of 1.5 kV/m for the most sensitive pacemaker. The proposed transmission lines will not have an effect on pacemakers outside the ROW.

Cardiovascular specialists do not consider prolonged asynchronous pacing to be a problem. Periods of operation in this mode are commonly induced by cardiologists to check pacemaker performance. Although the electric field within areas of the transmission line ROW may affect the operation of some models of pacemakers by causing them to revert to asynchronous pacing, this will only be for a short duration while walking under the transmission lines and is not considered harmful. The vehicle compartment of a car or truck or the cab of agricultural equipment (combine or tractor) shields the occupant from the electric field. Pacemakers in areas outside the transmission line ROW will not be affected. Before walking under the conductors of a high-voltage transmission line on the ROW, those with pacemakers or defibrillators should check with their physician if they have concerns.

Electrolysis—Electrolysis is a process in which direct current (DC) voltage is applied from an external power source to combinations of materials and electrolytes in order to produce an otherwise non-spontaneous electrochemical reaction or to accelerate a spontaneous electrochemical reaction. For example, electrolysis is used in some metal-plating processes and to separate hydrogen and oxygen from water. The transmission system operates using AC voltage and current, which does not produce or accelerate electrolysis.

DC voltage is deliberately applied to many underground metallic pipelines or other metallic structures to counter the effects of galvanic corrosion. These active galvanic corrosion protection systems can produce DC voltages between different points on other nearby metallic structures, which can accelerate the galvanic corrosion reaction in these structures. IPC uses

an active galvanic corrosion protection system on some of its existing steel tower transmission lines. An active galvanic corrosion protection system is not planned for the proposed line

Visible Corona—Corona is sometimes visible as a faint, bluish glow near the conductors on high-voltage lines. Corona will be more likely during foul weather than fair weather due water droplets on the conductors. Any corona on the conductors will be visible under only the darkest conditions and after the eyes have had time to adapt to the dark; it is unlikely corona will be noticed or affect the local environment.

Ozone—Small amounts of ozone and other oxidants can be produced around the conductors when a corona is present. Ozone accounts for the majority of the oxidants with nitrous oxide accounting for the remainder. Ozone is a naturally occurring part of the air with levels of 10 to 30 parts per billion (ppb) at night in rural settings and increasing during daylight to approximately 70 to 100 ppb. Ozone levels exceeding 100 ppb can be found in urban areas and cities. Ozone is also produced by many common appliances, such as copy machines, battery chargers, air fresheners, and welding equipment. The ozone levels from a 500-kV line are at the single-digit ppb level or below. The ozone from the high-voltage lines is at the limit of ozone detection equipment, well below ambient-level fluctuations, and will not affect the ambient air quality.

4.0 CONCLUSION

Exhibit AA demonstrates that IPC will comply with the approval standard for transmission lines with regard to electric and magnetic fields in accordance with OAR 345-024-0090 based on the information provided pursuant to OAR 345-021-0010(1)(aa), paragraphs (A) and (B). Exhibit AA provides the information and analysis that, together with the data provided in Exhibit DD, demonstrate the Project is consistent with the public health and safety and complies with the specific approval standard for transmission lines with regard to electric fields under OAR 345-24-0090 (see Exhibit DD, Section 2.0).

5.0 SUBMITTAL AND APPROVAL COMPLIANCE MATRICES

Tables AA-10 and AA-11 provide cross references between Exhibit submittal requirements of OAR 345-021-0010 and the Council's Approval standards of OAR 345-022-0000 and where discussion can be found in this Exhibit.

Table AA-10. Submittal Requirements Matrix

Requirement	Location
OAR 345-021-0010(1)(aa)	
(aa) **Exhibit AA.** If the proposed energy facility is a transmission line or has, as a related or supporting facility, a transmission line of any size:	
(A) Information about the expected electric and magnetic fields, including:	Section 3.3.1
(i) The distance in feet from the proposed center line of each proposed transmission line to the edge of the right-of-way;	Section 3.3.1, Attachment AA-2
(ii) The type of each occupied structure, including but not limited to residences, commercial establishments, industrial facilities, schools, daycare centers and hospitals, within 200 feet on each side of the proposed center line of each proposed transmission line;	Section 3.3.1, Attachment AA-3

Table AA-10. Submittal Requirements Matrix (continued)

Requirement	Location
(iii) The approximate distance in feet from the proposed center line to each structure identified in (A);	Section 3.3.1, Table AA-2
(iv) At representative locations along each proposed transmission line, a graph of the predicted electric and magnetic fields levels from the proposed center line to 200 feet on each side of the proposed center line;	Section 3.3.1, Figures AA-1 through AA-10
(v) Any measures the applicant proposes to reduce electric or magnetic field levels;	Section 3.3.1
(vi) The assumptions and methods used in the electric and magnetic field analysis, including the current in amperes on each proposed transmission line; and	Section 3.3.1
(vii) The applicant's proposed monitoring program, if any, for actual electric and magnetic field levels; and	Section 3.3.1
(B) An evaluation of alternate methods and costs of reducing radio interference likely to be caused by the transmission line in the primary reception area near interstate, U.S. and state highways;	Section 3.3.2
Project Order Section VI(aa) Comments	
The information provided by the rule should address public concerns expressed during the scoping period about electric and magnetic fields (EMF) generated by the proposed transmission facility (see Section VII of this order). Although the Council does not have an "EMF Standard," it does have a statutory mandate to adopt any conditions needed to ensure public health and safety. This mandate provides the regulatory basis for any findings or conditions, including setbacks, based on EMF considerations.	Section 3.3.3

Table AA-11. Approval Standard

Requirement	Location
OAR 345-022-0000	
None applicable. See Exhibit DD for related approval standard.	NA

6.0 RESPONSE TO COMMENTS FROM REVIEWING AGENCIES AND THE PUBLIC

Table AA-12 provides cross references between comments cited in the Project Order from the public and reviewing agencies and where discussion can be found in this Exhibit.

Table AA-12. Public and Reviewing Agency Comments

Requirement	Location
Specific to Siting Standards for Transmission Lines (OAR 345-024-0090)	
Numerous commenters expressed concern about potential human health impacts of a high voltage transmission line from electromagnetic fields, corona effects, and induced currents. Exhibit AA of the ASC must include evidence that the proposed facility can meet the Council standards specific to transmission lines, and include mitigation measures proposed by the applicant to reduce or eliminate threats to human health and safety during construction and operation of the transmission line.	Section 3.3.3
Many commenters expressed concern about the possibility that the transmission line will interfere with the normal operations of radios, telephones, and other electronic devices in the vicinity of the line. Exhibit AA should include discussion and mitigation measures to reduce or eliminate interference with electronic devices. This is especially important in farm use zones, where farmers often use a variety of electronic locating devices on mechanical equipment during planting and harvesting and other farming activities.	Section 3.3.3

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ATTACHMENT AA-1
INPUT AND OUTPUT VARIABLES

INPUT AND OUTPUT VARIABLES

The information used to calculate the electric and magnetic fields, audible noise and radio noise for the 500kV lattice tower line configuration, the 500kV H-frame line configuration, the 230kV H-frame line configuration, and the 138kV/69kV vertical double circuit line configuration is provided in the following pages along with the calculated levels of fields, audible noise, and radio noise that resulted and were used to plot the levels shown in Figures AA-1 through AA-10.

The first few rows (five to seven rows depending on transmission line configuration) provides information related to the conductors (or conductor bundles) of the transmission line. This is the input data used to describe the transmission line cross section. Each row the input data represents the x and y position in feet of one of the line's conductor bundles, how many conductors are in that bundle, the diameter in inches of the conductor, the bundle spacing in inches, the voltage in kV referenced to ground for the conductor bundle, the phase in degrees of the conductor bundle, the current in amperes carried by the conductor, and the phase-phase voltage in kV of conductor bundle (a 10% overvoltage is used for 500kV lines; and 5% overvoltage is used for lower voltage lines such as for 230kV, 138kV, and 69kV lines). The x and y position that is input to the calculations is the center of the conductor bundle (e.g. the ground clearance of the lowest conductor for the 500kV lines is 37 feet so approximately 38 feet corresponds to the center of the conductor bundle) Other information regarding the transmission line is also shown and identified in the input/output file such as the position in feet from the center-line of the right-of-way (ROW), the heights of the calculations above ground level in feet (fields at 3.28 feet, audible noise as 5 feet, and radio noise at 3 feet), and the altitude in feet of the line used for audible noise calculations.

The levels of electric field (kV/m), magnetic field (mG), audible noise (dB-A), and radio noise (dB-1µV/m at 1 megahertz) along a lateral profile perpendicular to the transmission line at mid-span are then calculated and listed in columns for various distances (ft) from the center-line of the transmission line.

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Bundle	x-feet	y-feet	n cond	cond dia	spacing	l-n voltage	Phasing	Current	Ph-Ph Voltage	Line Type	W RoW	E RoW
1	-21.08	38.04	3	1.345	25.02	317.5	0	2500	550	**500 kV Lattice**	-125	125
2	0.00	74.96	3	1.345	25.02	317.5	240	2500	550	Bittern		
3	21.08	38.04	3	1.345	25.02	317.5	120	2500	550			
4	-21.00	104.96	1	0.500	0.00	0.0	0	0	0	1/2EHS		
5	21.00	104.96	1	0.637	0.00	0.0	0	0	0	OPGW		
6												
7												
8												
9												
10												
11												
12												

500kV Transmission Line voltage set at 10% overvoltage

Transmission Line-Neutral/Ground voltage set at 10% overvoltage for 500 kV line

A Phase	B Phase	C Phase
0	240	120

				Fields	Audible	Radio
			Sensor HT	3.28	5	3
			Altitude	5380	**Frequency**	1.0
Dist	**E kV/m**	**Bmaj mG**	**AN L50-Rn**	**AN L50-Fr**	**RI L50-Rn**	**RI L50-Fr**
-499	0.03	2.5	45.3	20.3	44.4	27.4
-498	0.04	2.5	45.3	20.3	44.4	27.4
-497	0.04	2.5	45.3	20.3	44.5	27.5
-496	0.04	2.5	45.4	20.4	44.5	27.5
-495	0.04	2.6	45.4	20.4	44.5	27.5
-494	0.04	2.6	45.4	20.4	44.5	27.5
-493	0.04	2.6	45.4	20.4	44.5	27.5
-492	0.04	2.6	45.4	20.4	44.6	27.6
-491	0.04	2.6	45.4	20.4	44.6	27.6
-490	0.04	2.6	45.4	20.4	44.6	27.6
-489	0.04	2.6	45.4	20.4	44.6	27.6
-488	0.04	2.6	45.4	20.4	44.6	27.6
-487	0.04	2.6	45.4	20.4	44.7	27.7
-486	0.04	2.7	45.5	20.5	44.7	27.7
-485	0.04	2.7	45.5	20.5	44.7	27.7
-484	0.04	2.7	45.5	20.5	44.7	27.7
-483	0.04	2.7	45.5	20.5	44.7	27.7
-482	0.04	2.7	45.5	20.5	44.7	27.7
-481	0.04	2.7	45.5	20.5	44.8	27.8
-480	0.04	2.7	45.5	20.5	44.8	27.8
-479	0.04	2.7	45.5	20.5	44.8	27.8
-478	0.04	2.7	45.5	20.5	44.8	27.8
-477	0.04	2.8	45.5	20.5	44.8	27.8
-476	0.04	2.8	45.6	20.6	44.9	27.9
-475	0.04	2.8	45.6	20.6	44.9	27.9
-474	0.04	2.8	45.6	20.6	44.9	27.9
-473	0.04	2.8	45.6	20.6	44.9	27.9
-472	0.04	2.8	45.6	20.6	44.9	27.9
-471	0.04	2.8	45.6	20.6	45.0	28.0
-470	0.04	2.8	45.6	20.6	45.0	28.0
-469	0.04	2.9	45.6	20.6	45.0	28.0
-468	0.04	2.9	45.6	20.6	45.0	28.0

	W RoW	E RoW	Max in Row
Location	-125	125	0
Bmaj Field (mG)	40.1	40.1	362.3
Location	-125	125	-26
E Field (kV/m)	0.6	0.6	8.3
Location	-125	125	0
AN R-50	52	52	57
	27	27	32
Location	-125	125	21
RI R-50	58	58	76
	41	41	59

-467	0.04	2.9	45.7	20.7	45.0	28.0
-466	0.04	2.9	45.7	20.7	45.1	28.1
-465	0.04	2.9	45.7	20.7	45.1	28.1
-464	0.04	2.9	45.7	20.7	45.1	28.1
-463	0.04	2.9	45.7	20.7	45.1	28.1
-462	0.04	2.9	45.7	20.7	45.1	28.1
-461	0.04	3.0	45.7	20.7	45.2	28.2
-460	0.04	3.0	45.7	20.7	45.2	28.2
-459	0.04	3.0	45.7	20.7	45.2	28.2
-458	0.04	3.0	45.7	20.7	45.2	28.2
-457	0.04	3.0	45.8	20.8	45.2	28.2
-456	0.04	3.0	45.8	20.8	45.3	28.3
-455	0.04	3.0	45.8	20.8	45.3	28.3
-454	0.04	3.0	45.8	20.8	45.3	28.3
-453	0.04	3.1	45.8	20.8	45.3	28.3
-452	0.04	3.1	45.8	20.8	45.4	28.4
-451	0.04	3.1	45.8	20.8	45.4	28.4
-450	0.04	3.1	45.8	20.8	45.4	28.4
-449	0.04	3.1	45.8	20.8	45.4	28.4
-448	0.04	3.1	45.9	20.9	45.4	28.4
-447	0.04	3.1	45.9	20.9	45.5	28.5
-446	0.04	3.2	45.9	20.9	45.5	28.5
-445	0.04	3.2	45.9	20.9	45.5	28.5
-444	0.04	3.2	45.9	20.9	45.5	28.5
-443	0.04	3.2	45.9	20.9	45.5	28.5
-442	0.04	3.2	45.9	20.9	45.6	28.6
-441	0.04	3.2	45.9	20.9	45.6	28.6
-440	0.04	3.2	45.9	20.9	45.6	28.6
-439	0.05	3.3	46.0	21.0	45.6	28.6
-438	0.05	3.3	46.0	21.0	45.6	28.6
-437	0.05	3.3	46.0	21.0	45.7	28.7
-436	0.05	3.3	46.0	21.0	45.7	28.7
-435	0.05	3.3	46.0	21.0	45.7	28.7
-434	0.05	3.3	46.0	21.0	45.7	28.7
-433	0.05	3.4	46.0	21.0	45.8	28.8
-432	0.05	3.4	46.0	21.0	45.8	28.8
-431	0.05	3.4	46.0	21.0	45.8	28.8
-430	0.05	3.4	46.1	21.1	45.8	28.8
-429	0.05	3.4	46.1	21.1	45.8	28.8
-428	0.05	3.4	46.1	21.1	45.9	28.9
-427	0.05	3.4	46.1	21.1	45.9	28.9
-426	0.05	3.5	46.1	21.1	45.9	28.9
-425	0.05	3.5	46.1	21.1	45.9	28.9
-424	0.05	3.5	46.1	21.1	46.0	29.0
-423	0.05	3.5	46.1	21.1	46.0	29.0
-422	0.05	3.5	46.1	21.1	46.0	29.0
-421	0.05	3.5	46.2	21.2	46.0	29.0
-420	0.05	3.6	46.2	21.2	46.0	29.0
-419	0.05	3.6	46.2	21.2	46.1	29.1
-418	0.05	3.6	46.2	21.2	46.1	29.1
-417	0.05	3.6	46.2	21.2	46.1	29.1
-416	0.05	3.6	46.2	21.2	46.1	29.1
-415	0.05	3.7	46.2	21.2	46.2	29.2
-414	0.05	3.7	46.2	21.2	46.2	29.2
-413	0.05	3.7	46.3	21.3	46.2	29.2
-412	0.05	3.7	46.3	21.3	46.2	29.2
-411	0.05	3.7	46.3	21.3	46.3	29.3
-410	0.05	3.7	46.3	21.3	46.3	29.3
-409	0.05	3.8	46.3	21.3	46.3	29.3
-408	0.05	3.8	46.3	21.3	46.3	29.3
-407	0.05	3.8	46.3	21.3	46.3	29.3

-406	0.05	3.8	46.3	21.3	46.4	29.4
-405	0.05	3.8	46.4	21.4	46.4	29.4
-404	0.05	3.9	46.4	21.4	46.4	29.4
-403	0.05	3.9	46.4	21.4	46.4	29.4
-402	0.05	3.9	46.4	21.4	46.5	29.5
-401	0.05	3.9	46.4	21.4	46.5	29.5
-400	0.05	3.9	46.4	21.4	46.5	29.5
-399	0.05	4.0	46.4	21.4	46.5	29.5
-398	0.05	4.0	46.4	21.4	46.6	29.6
-397	0.06	4.0	46.4	21.4	46.6	29.6
-396	0.06	4.0	46.5	21.5	46.6	29.6
-395	0.06	4.0	46.5	21.5	46.6	29.6
-394	0.06	4.1	46.5	21.5	46.7	29.7
-393	0.06	4.1	46.5	21.5	46.7	29.7
-392	0.06	4.1	46.5	21.5	46.7	29.7
-391	0.06	4.1	46.5	21.5	46.7	29.7
-390	0.06	4.1	46.5	21.5	46.8	29.8
-389	0.06	4.2	46.5	21.5	46.8	29.8
-388	0.06	4.2	46.6	21.6	46.8	29.8
-387	0.06	4.2	46.6	21.6	46.8	29.8
-386	0.06	4.2	46.6	21.6	46.9	29.9
-385	0.06	4.3	46.6	21.6	46.9	29.9
-384	0.06	4.3	46.6	21.6	46.9	29.9
-383	0.06	4.3	46.6	21.6	46.9	29.9
-382	0.06	4.3	46.6	21.6	47.0	30.0
-381	0.06	4.3	46.7	21.7	47.0	30.0
-380	0.06	4.4	46.7	21.7	47.0	30.0
-379	0.06	4.4	46.7	21.7	47.0	30.0
-378	0.06	4.4	46.7	21.7	47.1	30.1
-377	0.06	4.4	46.7	21.7	47.1	30.1
-376	0.06	4.5	46.7	21.7	47.1	30.1
-375	0.06	4.5	46.7	21.7	47.1	30.1
-374	0.06	4.5	46.7	21.7	47.2	30.2
-373	0.06	4.5	46.8	21.8	47.2	30.2
-372	0.06	4.6	46.8	21.8	47.2	30.2
-371	0.06	4.6	46.8	21.8	47.2	30.2
-370	0.06	4.6	46.8	21.8	47.3	30.3
-369	0.06	4.6	46.8	21.8	47.3	30.3
-368	0.06	4.7	46.8	21.8	47.3	30.3
-367	0.06	4.7	46.8	21.8	47.3	30.3
-366	0.06	4.7	46.8	21.8	47.4	30.4
-365	0.07	4.7	46.9	21.9	47.4	30.4
-364	0.07	4.8	46.9	21.9	47.4	30.4
-363	0.07	4.8	46.9	21.9	47.4	30.4
-362	0.07	4.8	46.9	21.9	47.5	30.5
-361	0.07	4.8	46.9	21.9	47.5	30.5
-360	0.07	4.9	46.9	21.9	47.5	30.5
-359	0.07	4.9	46.9	21.9	47.6	30.6
-358	0.07	4.9	47.0	22.0	47.6	30.6
-357	0.07	5.0	47.0	22.0	47.6	30.6
-356	0.07	5.0	47.0	22.0	47.6	30.6
-355	0.07	5.0	47.0	22.0	47.7	30.7
-354	0.07	5.0	47.0	22.0	47.7	30.7
-353	0.07	5.1	47.0	22.0	47.7	30.7
-352	0.07	5.1	47.0	22.0	47.7	30.7
-351	0.07	5.1	47.1	22.1	47.8	30.8
-350	0.07	5.2	47.1	22.1	47.8	30.8
-349	0.07	5.2	47.1	22.1	47.8	30.8
-348	0.07	5.2	47.1	22.1	47.9	30.9
-347	0.07	5.3	47.1	22.1	47.9	30.9
-346	0.07	5.3	47.1	22.1	47.9	30.9

-345	0.07	5.3	47.1	22.1	47.9	30.9
-344	0.07	5.3	47.2	22.2	48.0	31.0
-343	0.07	5.4	47.2	22.2	48.0	31.0
-342	0.07	5.4	47.2	22.2	48.0	31.0
-341	0.07	5.4	47.2	22.2	48.1	31.1
-340	0.07	5.5	47.2	22.2	48.1	31.1
-339	0.08	5.5	47.2	22.2	48.1	31.1
-338	0.08	5.5	47.2	22.2	48.1	31.1
-337	0.08	5.6	47.3	22.3	48.2	31.2
-336	0.08	5.6	47.3	22.3	48.2	31.2
-335	0.08	5.6	47.3	22.3	48.2	31.2
-334	0.08	5.7	47.3	22.3	48.3	31.3
-333	0.08	5.7	47.3	22.3	48.3	31.3
-332	0.08	5.7	47.3	22.3	48.3	31.3
-331	0.08	5.8	47.3	22.3	48.3	31.3
-330	0.08	5.8	47.4	22.4	48.4	31.4
-329	0.08	5.9	47.4	22.4	48.4	31.4
-328	0.08	5.9	47.4	22.4	48.4	31.4
-327	0.08	5.9	47.4	22.4	48.5	31.5
-326	0.08	6.0	47.4	22.4	48.5	31.5
-325	0.08	6.0	47.4	22.4	48.5	31.5
-324	0.08	6.0	47.4	22.4	48.6	31.6
-323	0.08	6.1	47.5	22.5	48.6	31.6
-322	0.08	6.1	47.5	22.5	48.6	31.6
-321	0.08	6.1	47.5	22.5	48.6	31.6
-320	0.08	6.2	47.5	22.5	48.7	31.7
-319	0.09	6.2	47.5	22.5	48.7	31.7
-318	0.09	6.3	47.5	22.5	48.7	31.7
-317	0.09	6.3	47.6	22.6	48.8	31.8
-316	0.09	6.3	47.6	22.6	48.8	31.8
-315	0.09	6.4	47.6	22.6	48.8	31.8
-314	0.09	6.4	47.6	22.6	48.9	31.9
-313	0.09	6.5	47.6	22.6	48.9	31.9
-312	0.09	6.5	47.6	22.6	48.9	31.9
-311	0.09	6.6	47.6	22.6	49.0	32.0
-310	0.09	6.6	47.7	22.7	49.0	32.0
-309	0.09	6.6	47.7	22.7	49.0	32.0
-308	0.09	6.7	47.7	22.7	49.1	32.1
-307	0.09	6.7	47.7	22.7	49.1	32.1
-306	0.09	6.8	47.7	22.7	49.1	32.1
-305	0.09	6.8	47.7	22.7	49.2	32.2
-304	0.09	6.9	47.8	22.8	49.2	32.2
-303	0.09	6.9	47.8	22.8	49.2	32.2
-302	0.10	7.0	47.8	22.8	49.3	32.3
-301	0.10	7.0	47.8	22.8	49.3	32.3
-300	0.10	7.1	47.8	22.8	49.3	32.3
-299	0.10	7.1	47.8	22.8	49.3	32.3
-298	0.10	7.1	47.9	22.9	49.4	32.4
-297	0.10	7.2	47.9	22.9	49.4	32.4
-296	0.10	7.2	47.9	22.9	49.4	32.4
-295	0.10	7.3	47.9	22.9	49.5	32.5
-294	0.10	7.3	47.9	22.9	49.5	32.5
-293	0.10	7.4	47.9	22.9	49.6	32.6
-292	0.10	7.4	48.0	23.0	49.6	32.6
-291	0.10	7.5	48.0	23.0	49.6	32.6
-290	0.10	7.6	48.0	23.0	49.7	32.7
-289	0.10	7.6	48.0	23.0	49.7	32.7
-288	0.10	7.7	48.0	23.0	49.7	32.7
-287	0.11	7.7	48.0	23.0	49.8	32.8
-286	0.11	7.8	48.1	23.1	49.8	32.8
-285	0.11	7.8	48.1	23.1	49.8	32.8

-284	0.11	7.9	48.1	23.1	49.9	32.9
-283	0.11	7.9	48.1	23.1	49.9	32.9
-282	0.11	8.0	48.1	23.1	49.9	32.9
-281	0.11	8.1	48.1	23.1	50.0	33.0
-280	0.11	8.1	48.2	23.2	50.0	33.0
-279	0.11	8.2	48.2	23.2	50.0	33.0
-278	0.11	8.2	48.2	23.2	50.1	33.1
-277	0.11	8.3	48.2	23.2	50.1	33.1
-276	0.11	8.3	48.2	23.2	50.2	33.2
-275	0.11	8.4	48.2	23.2	50.2	33.2
-274	0.12	8.5	48.3	23.3	50.2	33.2
-273	0.12	8.5	48.3	23.3	50.3	33.3
-272	0.12	8.6	48.3	23.3	50.3	33.3
-271	0.12	8.7	48.3	23.3	50.3	33.3
-270	0.12	8.7	48.3	23.3	50.4	33.4
-269	0.12	8.8	48.4	23.4	50.4	33.4
-268	0.12	8.9	48.4	23.4	50.4	33.4
-267	0.12	8.9	48.4	23.4	50.5	33.5
-266	0.12	9.0	48.4	23.4	50.5	33.5
-265	0.12	9.1	48.4	23.4	50.6	33.6
-264	0.12	9.1	48.4	23.4	50.6	33.6
-263	0.13	9.2	48.5	23.5	50.6	33.6
-262	0.13	9.3	48.5	23.5	50.7	33.7
-261	0.13	9.3	48.5	23.5	50.7	33.7
-260	0.13	9.4	48.5	23.5	50.8	33.8
-259	0.13	9.5	48.5	23.5	50.8	33.8
-258	0.13	9.6	48.6	23.6	50.8	33.8
-257	0.13	9.6	48.6	23.6	50.9	33.9
-256	0.13	9.7	48.6	23.6	50.9	33.9
-255	0.13	9.8	48.6	23.6	51.0	34.0
-254	0.13	9.9	48.6	23.6	51.0	34.0
-253	0.14	10.0	48.7	23.7	51.0	34.0
-252	0.14	10.0	48.7	23.7	51.1	34.1
-251	0.14	10.1	48.7	23.7	51.1	34.1
-250	0.14	10.2	48.7	23.7	51.2	34.2
-249	0.14	10.3	48.7	23.7	51.2	34.2
-248	0.14	10.4	48.7	23.7	51.2	34.2
-247	0.14	10.4	48.8	23.8	51.3	34.3
-246	0.14	10.5	48.8	23.8	51.3	34.3
-245	0.14	10.6	48.8	23.8	51.4	34.4
-244	0.15	10.7	48.8	23.8	51.4	34.4
-243	0.15	10.8	48.8	23.8	51.4	34.4
-242	0.15	10.9	48.9	23.9	51.5	34.5
-241	0.15	11.0	48.9	23.9	51.5	34.5
-240	0.15	11.1	48.9	23.9	51.6	34.6
-239	0.15	11.2	48.9	23.9	51.6	34.6
-238	0.15	11.3	48.9	23.9	51.7	34.7
-237	0.16	11.4	49.0	24.0	51.7	34.7
-236	0.16	11.5	49.0	24.0	51.7	34.7
-235	0.16	11.5	49.0	24.0	51.8	34.8
-234	0.16	11.6	49.0	24.0	51.8	34.8
-233	0.16	11.7	49.0	24.0	51.9	34.9
-232	0.16	11.9	49.1	24.1	51.9	34.9
-231	0.16	12.0	49.1	24.1	52.0	35.0
-230	0.17	12.1	49.1	24.1	52.0	35.0
-229	0.17	12.2	49.1	24.1	52.1	35.1
-228	0.17	12.3	49.2	24.2	52.1	35.1
-227	0.17	12.4	49.2	24.2	52.1	35.1
-226	0.17	12.5	49.2	24.2	52.2	35.2
-225	0.17	12.6	49.2	24.2	52.2	35.2
-224	0.17	12.7	49.2	24.2	52.3	35.3

-223	0.18	12.8	49.3	24.3	52.3	35.3
-222	0.18	12.9	49.3	24.3	52.4	35.4
-221	0.18	13.1	49.3	24.3	52.4	35.4
-220	0.18	13.2	49.3	24.3	52.5	35.5
-219	0.18	13.3	49.3	24.3	52.5	35.5
-218	0.18	13.4	49.4	24.4	52.6	35.6
-217	0.19	13.6	49.4	24.4	52.6	35.6
-216	0.19	13.7	49.4	24.4	52.7	35.7
-215	0.19	13.8	49.4	24.4	52.7	35.7
-214	0.19	13.9	49.5	24.5	52.8	35.8
-213	0.19	14.1	49.5	24.5	52.8	35.8
-212	0.20	14.2	49.5	24.5	52.8	35.8
-211	0.20	14.3	49.5	24.5	52.9	35.9
-210	0.20	14.5	49.6	24.6	52.9	35.9
-209	0.20	14.6	49.6	24.6	53.0	36.0
-208	0.20	14.8	49.6	24.6	53.0	36.0
-207	0.21	14.9	49.6	24.6	53.1	36.1
-206	0.21	15.0	49.6	24.6	53.1	36.1
-205	0.21	15.2	49.7	24.7	53.2	36.2
-204	0.21	15.3	49.7	24.7	53.2	36.2
-203	0.21	15.5	49.7	24.7	53.3	36.3
-202	0.22	15.6	49.7	24.7	53.4	36.4
-201	0.22	15.8	49.8	24.8	53.4	36.4
-200	0.22	16.0	49.8	24.8	53.5	36.5
-199	0.22	16.1	49.8	24.8	53.5	36.5
-198	0.23	16.3	49.8	24.8	53.6	36.6
-197	0.23	16.5	49.9	24.9	53.6	36.6
-196	0.23	16.6	49.9	24.9	53.7	36.7
-195	0.23	16.8	49.9	24.9	53.7	36.7
-194	0.24	17.0	49.9	24.9	53.8	36.8
-193	0.24	17.1	50.0	25.0	53.8	36.8
-192	0.24	17.3	50.0	25.0	53.9	36.9
-191	0.24	17.5	50.0	25.0	53.9	36.9
-190	0.25	17.7	50.0	25.0	54.0	37.0
-189	0.25	17.9	50.1	25.1	54.0	37.0
-188	0.25	18.1	50.1	25.1	54.1	37.1
-187	0.26	18.3	50.1	25.1	54.2	37.2
-186	0.26	18.4	50.1	25.1	54.2	37.2
-185	0.26	18.6	50.2	25.2	54.3	37.3
-184	0.26	18.8	50.2	25.2	54.3	37.3
-183	0.27	19.1	50.2	25.2	54.4	37.4
-182	0.27	19.3	50.2	25.2	54.4	37.4
-181	0.27	19.5	50.3	25.3	54.5	37.5
-180	0.28	19.7	50.3	25.3	54.6	37.6
-179	0.28	19.9	50.3	25.3	54.6	37.6
-178	0.28	20.1	50.3	25.3	54.7	37.7
-177	0.29	20.4	50.4	25.4	54.7	37.7
-176	0.29	20.6	50.4	25.4	54.8	37.8
-175	0.29	20.8	50.4	25.4	54.9	37.9
-174	0.30	21.1	50.5	25.5	54.9	37.9
-173	0.30	21.3	50.5	25.5	55.0	38.0
-172	0.31	21.5	50.5	25.5	55.0	38.0
-171	0.31	21.8	50.5	25.5	55.1	38.1
-170	0.31	22.0	50.6	25.6	55.2	38.2
-169	0.32	22.3	50.6	25.6	55.2	38.2
-168	0.32	22.6	50.6	25.6	55.3	38.3
-167	0.33	22.8	50.6	25.6	55.3	38.3
-166	0.33	23.1	50.7	25.7	55.4	38.4
-165	0.34	23.4	50.7	25.7	55.5	38.5
-164	0.34	23.7	50.7	25.7	55.5	38.5
-163	0.35	24.0	50.8	25.8	55.6	38.6

-162	0.35	24.2	50.8	25.8	55.7	38.7
-161	0.35	24.5	50.8	25.8	55.7	38.7
-160	0.36	24.8	50.8	25.8	55.8	38.8
-159	0.37	25.2	50.9	25.9	55.9	38.9
-158	0.37	25.5	50.9	25.9	55.9	38.9
-157	0.38	25.8	50.9	25.9	56.0	39.0
-156	0.38	26.1	51.0	26.0	56.1	39.1
-155	0.39	26.4	51.0	26.0	56.1	39.1
-154	0.39	26.8	51.0	26.0	56.2	39.2
-153	0.40	27.1	51.1	26.1	56.3	39.3
-152	0.40	27.5	51.1	26.1	56.3	39.3
-151	0.41	27.8	51.1	26.1	56.4	39.4
-150	0.42	28.2	51.2	26.2	56.5	39.5
-149	0.42	28.6	51.2	26.2	56.5	39.5
-148	0.43	28.9	51.2	26.2	56.6	39.6
-147	0.44	29.3	51.2	26.2	56.7	39.7
-146	0.44	29.7	51.3	26.3	56.7	39.7
-145	0.45	30.1	51.3	26.3	56.8	39.8
-144	0.46	30.5	51.3	26.3	56.9	39.9
-143	0.47	30.9	51.4	26.4	57.0	40.0
-142	0.47	31.4	51.4	26.4	57.0	40.0
-141	0.48	31.8	51.4	26.4	57.1	40.1
-140	0.49	32.2	51.5	26.5	57.2	40.2
-139	0.50	32.7	51.5	26.5	57.3	40.3
-138	0.51	33.2	51.5	26.5	57.3	40.3
-137	0.52	33.6	51.6	26.6	57.4	40.4
-136	0.53	34.1	51.6	26.6	57.5	40.5
-135	0.54	34.6	51.6	26.6	57.6	40.6
-134	0.55	35.1	51.7	26.7	57.6	40.6
-133	0.56	35.6	51.7	26.7	57.7	40.7
-132	0.57	36.1	51.7	26.7	57.8	40.8
-131	0.58	36.6	51.8	26.8	57.9	40.9
-130	0.59	37.2	51.8	26.8	57.9	40.9
-129	0.60	37.7	51.9	26.9	58.0	41.0
-128	0.61	38.3	51.9	26.9	58.1	41.1
-127	0.62	38.9	51.9	26.9	58.2	41.2
-126	0.63	39.5	52.0	27.0	58.3	41.3
-125	0.65	40.1	52.0	27.0	58.3	41.3
-124	0.66	40.7	52.0	27.0	58.4	41.4
-123	0.67	41.3	52.1	27.1	58.5	41.5
-122	0.69	42.0	52.1	27.1	58.6	41.6
-121	0.70	42.6	52.2	27.2	58.7	41.7
-120	0.71	43.3	52.2	27.2	58.7	41.7
-119	0.73	44.0	52.2	27.2	58.8	41.8
-118	0.75	44.7	52.3	27.3	58.9	41.9
-117	0.76	45.4	52.3	27.3	59.0	42.0
-116	0.78	46.2	52.3	27.3	59.2	42.2
-115	0.79	46.9	52.4	27.4	59.3	42.3
-114	0.81	47.7	52.4	27.4	59.5	42.5
-113	0.83	48.5	52.5	27.5	59.6	42.6
-112	0.85	49.3	52.5	27.5	59.7	42.7
-111	0.87	50.1	52.5	27.5	59.9	42.9
-110	0.89	51.0	52.6	27.6	60.0	43.0
-109	0.91	51.8	52.6	27.6	60.2	43.2
-108	0.93	52.7	52.7	27.7	60.3	43.3
-107	0.95	53.6	52.7	27.7	60.5	43.5
-106	0.98	54.6	52.8	27.8	60.6	43.6
-105	1.00	55.5	52.8	27.8	60.8	43.8
-104	1.03	56.5	52.8	27.8	60.9	43.9
-103	1.05	57.5	52.9	27.9	61.1	44.1
-102	1.08	58.6	52.9	27.9	61.3	44.3

-101	1.11	59.6	53.0	28.0	61.4	44.4
-100	1.13	60.7	53.0	28.0	61.6	44.6
-99	1.16	61.8	53.1	28.1	61.7	44.7
-98	1.19	63.0	53.1	28.1	61.9	44.9
-97	1.23	64.1	53.1	28.1	62.1	45.1
-96	1.26	65.3	53.2	28.2	62.2	45.2
-95	1.29	66.6	53.2	28.2	62.4	45.4
-94	1.33	67.9	53.3	28.3	62.6	45.6
-93	1.36	69.2	53.3	28.3	62.8	45.8
-92	1.40	70.5	53.4	28.4	62.9	45.9
-91	1.44	71.9	53.4	28.4	63.1	46.1
-90	1.48	73.3	53.5	28.5	63.3	46.3
-89	1.52	74.7	53.5	28.5	63.5	46.5
-88	1.57	76.2	53.6	28.6	63.7	46.7
-87	1.61	77.7	53.6	28.6	63.8	46.8
-86	1.66	79.3	53.7	28.7	64.0	47.0
-85	1.71	80.9	53.7	28.7	64.2	47.2
-84	1.76	82.6	53.8	28.8	64.4	47.4
-83	1.81	84.3	53.8	28.8	64.6	47.6
-82	1.87	86.1	53.9	28.9	64.8	47.8
-81	1.93	87.9	53.9	28.9	65.0	48.0
-80	1.99	89.7	54.0	29.0	65.2	48.2
-79	2.05	91.6	54.0	29.0	65.4	48.4
-78	2.11	93.6	54.1	29.1	65.6	48.6
-77	2.18	95.6	54.1	29.1	65.8	48.8
-76	2.25	97.7	54.2	29.2	66.0	49.0
-75	2.32	99.9	54.2	29.2	66.2	49.2
-74	2.39	102.1	54.3	29.3	66.4	49.4
-73	2.47	104.3	54.4	29.4	66.6	49.6
-72	2.55	106.7	54.4	29.4	66.9	49.9
-71	2.63	109.1	54.5	29.5	67.1	50.1
-70	2.72	111.5	54.5	29.5	67.3	50.3
-69	2.81	114.1	54.6	29.6	67.5	50.5
-68	2.90	116.7	54.6	29.6	67.7	50.7
-67	3.00	119.4	54.7	29.7	68.0	51.0
-66	3.10	122.2	54.7	29.7	68.2	51.2
-65	3.20	125.0	54.8	29.8	68.4	51.4
-64	3.31	128.0	54.9	29.9	68.6	51.6
-63	3.42	131.0	54.9	29.9	68.9	51.9
-62	3.53	134.1	55.0	30.0	69.1	52.1
-61	3.65	137.3	55.0	30.0	69.3	52.3
-60	3.77	140.6	55.1	30.1	69.6	52.6
-59	3.90	144.0	55.2	30.2	69.8	52.8
-58	4.03	147.5	55.2	30.2	70.0	53.0
-57	4.16	151.1	55.3	30.3	70.3	53.3
-56	4.30	154.7	55.4	30.4	70.5	53.5
-55	4.44	158.5	55.4	30.4	70.8	53.8
-54	4.58	162.4	55.5	30.5	71.0	54.0
-53	4.73	166.3	55.5	30.5	71.2	54.2
-52	4.88	170.4	55.6	30.6	71.5	54.5
-51	5.04	174.6	55.7	30.7	71.7	54.7
-50	5.20	178.9	55.7	30.7	71.9	54.9
-49	5.36	183.3	55.8	30.8	72.2	55.2
-48	5.52	187.7	55.8	30.8	72.4	55.4
-47	5.68	192.3	55.9	30.9	72.6	55.6
-46	5.85	197.0	56.0	31.0	72.9	55.9
-45	6.01	201.8	56.0	31.0	73.1	56.1
-44	6.18	206.6	56.1	31.1	73.3	56.3
-43	6.35	211.5	56.2	31.2	73.5	56.5
-42	6.51	216.6	56.2	31.2	73.7	56.7
-41	6.68	221.6	56.3	31.3	73.9	56.9

-40	6.84	226.8	56.3	31.3	74.1	57.1
-39	7.00	232.0	56.4	31.4	74.3	57.3
-38	7.15	237.3	56.5	31.5	74.5	57.5
-37	7.30	242.6	56.5	31.5	74.7	57.7
-36	7.44	247.9	56.6	31.6	74.9	57.9
-35	7.58	253.2	56.6	31.6	75.1	58.1
-34	7.70	258.6	56.7	31.7	75.2	58.2
-33	7.82	263.9	56.7	31.7	75.4	58.4
-32	7.92	269.2	56.8	31.8	75.5	58.5
-31	8.02	274.5	56.8	31.8	75.7	58.7
-30	8.10	279.7	56.9	31.9	75.8	58.8
-29	8.16	284.9	56.9	31.9	75.9	58.9
-28	8.21	289.9	56.9	31.9	76.0	59.0
-27	8.24	294.9	57.0	32.0	76.1	59.1
-26	8.26	299.8	57.0	32.0	76.1	59.1
-25	8.26	304.5	57.1	32.1	76.2	59.2
-24	8.24	309.1	57.1	32.1	76.2	59.2
-23	8.20	313.5	57.1	32.1	76.3	59.3
-22	8.15	317.8	57.2	32.2	76.3	59.3
-21	8.07	321.9	57.2	32.2	76.3	59.3
-20	7.98	325.8	57.2	32.2	76.3	59.3
-19	7.87	329.5	57.2	32.2	76.3	59.3
-18	7.74	333.0	57.2	32.2	76.2	59.2
-17	7.59	336.4	57.3	32.3	76.2	59.2
-16	7.43	339.5	57.3	32.3	76.1	59.1
-15	7.26	342.4	57.3	32.3	76.1	59.1
-14	7.07	345.1	57.3	32.3	76.0	59.0
-13	6.88	347.5	57.3	32.3	75.9	58.9
-12	6.67	349.8	57.3	32.3	75.8	58.8
-11	6.46	351.9	57.3	32.3	75.6	58.6
-10	6.25	353.7	57.3	32.3	75.5	58.5
-9	6.04	355.4	57.4	32.4	75.4	58.4
-8	5.83	356.9	57.4	32.4	75.2	58.2
-7	5.64	358.2	57.4	32.4	75.0	58.0
-6	5.45	359.3	57.4	32.4	74.9	57.9
-5	5.28	360.2	57.4	32.4	74.7	57.7
-4	5.13	361.0	57.4	32.4	74.5	57.5
-3	5.01	361.6	57.4	32.4	74.3	57.3
-2	4.92	362.0	57.4	32.4	74.1	57.1
-1	4.86	362.2	57.4	32.4	73.9	56.9
0	4.84	362.3	57.4	32.4	73.7	56.7
1	4.86	362.2	57.4	32.4	73.9	56.9
2	4.92	362.0	57.4	32.4	74.1	57.1
3	5.01	361.6	57.4	32.4	74.3	57.3
4	5.13	361.0	57.4	32.4	74.5	57.5
5	5.28	360.2	57.4	32.4	74.7	57.7
6	5.45	359.3	57.4	32.4	74.9	57.9
7	5.64	358.2	57.4	32.4	75.0	58.0
8	5.83	356.9	57.4	32.4	75.2	58.2
9	6.04	355.4	57.4	32.4	75.4	58.4
10	6.25	353.7	57.3	32.3	75.5	58.5
11	6.46	351.9	57.3	32.3	75.6	58.6
12	6.67	349.8	57.3	32.3	75.8	58.8
13	6.88	347.5	57.3	32.3	75.9	58.9
14	7.07	345.1	57.3	32.3	76.0	59.0
15	7.26	342.4	57.3	32.3	76.1	59.1
16	7.43	339.5	57.3	32.3	76.1	59.1
17	7.59	336.4	57.3	32.3	76.2	59.2
18	7.74	333.0	57.2	32.2	76.2	59.2
19	7.87	329.5	57.2	32.2	76.3	59.3
20	7.98	325.8	57.2	32.2	76.3	59.3

21	8.07	321.9	57.2	32.2	76.3	59.3
22	8.15	317.8	57.2	32.2	76.3	59.3
23	8.20	313.5	57.1	32.1	76.3	59.3
24	8.24	309.1	57.1	32.1	76.2	59.2
25	8.26	304.5	57.1	32.1	76.2	59.2
26	8.26	299.8	57.0	32.0	76.1	59.1
27	8.24	294.9	57.0	32.0	76.1	59.1
28	8.21	289.9	56.9	31.9	76.0	59.0
29	8.16	284.9	56.9	31.9	75.9	58.9
30	8.10	279.7	56.9	31.9	75.8	58.8
31	8.02	274.5	56.8	31.8	75.7	58.7
32	7.92	269.2	56.8	31.8	75.5	58.5
33	7.82	263.9	56.7	31.7	75.4	58.4
34	7.70	258.6	56.7	31.7	75.2	58.2
35	7.58	253.2	56.6	31.6	75.1	58.1
36	7.44	247.9	56.6	31.6	74.9	57.9
37	7.30	242.6	56.5	31.5	74.7	57.7
38	7.15	237.3	56.5	31.5	74.5	57.5
39	7.00	232.0	56.4	31.4	74.3	57.3
40	6.84	226.8	56.3	31.3	74.1	57.1
41	6.68	221.6	56.3	31.3	73.9	56.9
42	6.51	216.6	56.2	31.2	73.7	56.7
43	6.35	211.5	56.2	31.2	73.5	56.5
44	6.18	206.6	56.1	31.1	73.3	56.3
45	6.01	201.8	56.0	31.0	73.1	56.1
46	5.85	197.0	56.0	31.0	72.9	55.9
47	5.68	192.3	55.9	30.9	72.6	55.6
48	5.52	187.7	55.9	30.9	72.4	55.4
49	5.35	183.3	55.8	30.8	72.2	55.2
50	5.19	178.9	55.7	30.7	71.9	54.9
51	5.04	174.6	55.7	30.7	71.7	54.7
52	4.88	170.4	55.6	30.6	71.5	54.5
53	4.73	166.3	55.5	30.5	71.2	54.2
54	4.58	162.4	55.5	30.5	71.0	54.0
55	4.44	158.5	55.4	30.4	70.8	53.8
56	4.30	154.7	55.4	30.4	70.5	53.5
57	4.16	151.1	55.3	30.3	70.3	53.3
58	4.03	147.5	55.2	30.2	70.0	53.0
59	3.90	144.0	55.2	30.2	69.8	52.8
60	3.77	140.6	55.1	30.1	69.6	52.6
61	3.65	137.3	55.0	30.0	69.3	52.3
62	3.53	134.1	55.0	30.0	69.1	52.1
63	3.42	131.0	54.9	29.9	68.9	51.9
64	3.31	128.0	54.9	29.9	68.6	51.6
65	3.20	125.0	54.8	29.8	68.4	51.4
66	3.10	122.2	54.7	29.7	68.2	51.2
67	3.00	119.4	54.7	29.7	68.0	51.0
68	2.90	116.7	54.6	29.6	67.7	50.7
69	2.81	114.1	54.6	29.6	67.5	50.5
70	2.72	111.5	54.5	29.5	67.3	50.3
71	2.63	109.1	54.5	29.5	67.1	50.1
72	2.55	106.7	54.4	29.4	66.9	49.9
73	2.47	104.3	54.4	29.4	66.6	49.6
74	2.39	102.1	54.3	29.3	66.4	49.4
75	2.32	99.9	54.2	29.2	66.2	49.2
76	2.25	97.7	54.2	29.2	66.0	49.0
77	2.18	95.6	54.1	29.1	65.8	48.8
78	2.11	93.6	54.1	29.1	65.6	48.6
79	2.05	91.6	54.0	29.0	65.4	48.4
80	1.99	89.7	54.0	29.0	65.2	48.2
81	1.93	87.9	53.9	28.9	65.0	48.0

82	1.87	86.1	53.9	28.9	64.8	47.8
83	1.81	84.3	53.8	28.8	64.6	47.6
84	1.76	82.6	53.8	28.8	64.4	47.4
85	1.71	80.9	53.7	28.7	64.2	47.2
86	1.66	79.3	53.7	28.7	64.0	47.0
87	1.61	77.7	53.6	28.6	63.8	46.8
88	1.57	76.2	53.6	28.6	63.7	46.7
89	1.52	74.7	53.5	28.5	63.5	46.5
90	1.48	73.3	53.5	28.5	63.3	46.3
91	1.44	71.9	53.4	28.4	63.1	46.1
92	1.40	70.5	53.4	28.4	62.9	45.9
93	1.36	69.2	53.3	28.3	62.8	45.8
94	1.33	67.9	53.3	28.3	62.6	45.6
95	1.29	66.6	53.2	28.2	62.4	45.4
96	1.26	65.3	53.2	28.2	62.2	45.2
97	1.22	64.1	53.1	28.1	62.1	45.1
98	1.19	63.0	53.1	28.1	61.9	44.9
99	1.16	61.8	53.1	28.1	61.7	44.7
100	1.13	60.7	53.0	28.0	61.6	44.6
101	1.10	59.6	53.0	28.0	61.4	44.4
102	1.08	58.6	52.9	27.9	61.3	44.3
103	1.05	57.5	52.9	27.9	61.1	44.1
104	1.02	56.5	52.8	27.8	60.9	43.9
105	1.00	55.5	52.8	27.8	60.8	43.8
106	0.98	54.6	52.8	27.8	60.6	43.6
107	0.95	53.6	52.7	27.7	60.5	43.5
108	0.93	52.7	52.7	27.7	60.3	43.3
109	0.91	51.8	52.6	27.6	60.2	43.2
110	0.89	51.0	52.6	27.6	60.0	43.0
111	0.87	50.1	52.5	27.5	59.9	42.9
112	0.85	49.3	52.5	27.5	59.7	42.7
113	0.83	48.5	52.5	27.5	59.6	42.6
114	0.81	47.7	52.4	27.4	59.5	42.5
115	0.79	46.9	52.4	27.4	59.3	42.3
116	0.78	46.2	52.3	27.3	59.2	42.2
117	0.76	45.4	52.3	27.3	59.0	42.0
118	0.74	44.7	52.3	27.3	58.9	41.9
119	0.73	44.0	52.2	27.2	58.8	41.8
120	0.71	43.3	52.2	27.2	58.7	41.7
121	0.70	42.6	52.2	27.2	58.7	41.7
122	0.68	42.0	52.1	27.1	58.6	41.6
123	0.67	41.3	52.1	27.1	58.5	41.5
124	0.66	40.7	52.0	27.0	58.4	41.4
125	0.64	40.1	52.0	27.0	58.3	41.3
126	0.63	39.5	52.0	27.0	58.3	41.3
127	0.62	38.9	51.9	26.9	58.2	41.2
128	0.61	38.3	51.9	26.9	58.1	41.1
129	0.60	37.7	51.9	26.9	58.0	41.0
130	0.59	37.2	51.8	26.8	57.9	40.9
131	0.57	36.6	51.8	26.8	57.9	40.9
132	0.56	36.1	51.7	26.7	57.8	40.8
133	0.55	35.6	51.7	26.7	57.7	40.7
134	0.54	35.1	51.7	26.7	57.6	40.6
135	0.53	34.6	51.6	26.6	57.6	40.6
136	0.52	34.1	51.6	26.6	57.5	40.5
137	0.52	33.6	51.6	26.6	57.4	40.4
138	0.51	33.2	51.5	26.5	57.3	40.3
139	0.50	32.7	51.5	26.5	57.3	40.3
140	0.49	32.2	51.5	26.5	57.2	40.2
141	0.48	31.8	51.4	26.4	57.1	40.1
142	0.47	31.4	51.4	26.4	57.0	40.0

143	0.47	30.9	51.4	26.4	57.0	40.0
144	0.46	30.5	51.3	26.3	56.9	39.9
145	0.45	30.1	51.3	26.3	56.8	39.8
146	0.44	29.7	51.3	26.3	56.7	39.7
147	0.44	29.3	51.2	26.2	56.7	39.7
148	0.43	28.9	51.2	26.2	56.6	39.6
149	0.42	28.6	51.2	26.2	56.5	39.5
150	0.42	28.2	51.2	26.2	56.5	39.5
151	0.41	27.8	51.1	26.1	56.4	39.4
152	0.40	27.5	51.1	26.1	56.3	39.3
153	0.40	27.1	51.1	26.1	56.3	39.3
154	0.39	26.8	51.0	26.0	56.2	39.2
155	0.39	26.4	51.0	26.0	56.1	39.1
156	0.38	26.1	51.0	26.0	56.1	39.1
157	0.37	25.8	50.9	25.9	56.0	39.0
158	0.37	25.5	50.9	25.9	55.9	38.9
159	0.36	25.2	50.9	25.9	55.9	38.9
160	0.36	24.8	50.8	25.8	55.8	38.8
161	0.35	24.5	50.8	25.8	55.7	38.7
162	0.35	24.2	50.8	25.8	55.7	38.7
163	0.34	24.0	50.8	25.8	55.6	38.6
164	0.34	23.7	50.7	25.7	55.5	38.5
165	0.33	23.4	50.7	25.7	55.5	38.5
166	0.33	23.1	50.7	25.7	55.4	38.4
167	0.33	22.8	50.6	25.6	55.3	38.3
168	0.32	22.6	50.6	25.6	55.3	38.3
169	0.32	22.3	50.6	25.6	55.2	38.2
170	0.31	22.0	50.6	25.6	55.2	38.2
171	0.31	21.8	50.5	25.5	55.1	38.1
172	0.30	21.5	50.5	25.5	55.0	38.0
173	0.30	21.3	50.5	25.5	55.0	38.0
174	0.30	21.1	50.5	25.5	54.9	37.9
175	0.29	20.8	50.4	25.4	54.9	37.9
176	0.29	20.6	50.4	25.4	54.8	37.8
177	0.29	20.4	50.4	25.4	54.7	37.7
178	0.28	20.1	50.3	25.3	54.7	37.7
179	0.28	19.9	50.3	25.3	54.6	37.6
180	0.28	19.7	50.3	25.3	54.6	37.6
181	0.27	19.5	50.3	25.3	54.5	37.5
182	0.27	19.3	50.2	25.2	54.4	37.4
183	0.27	19.1	50.2	25.2	54.4	37.4
184	0.26	18.8	50.2	25.2	54.3	37.3
185	0.26	18.6	50.2	25.2	54.3	37.3
186	0.26	18.4	50.1	25.1	54.2	37.2
187	0.25	18.3	50.1	25.1	54.2	37.2
188	0.25	18.1	50.1	25.1	54.1	37.1
189	0.25	17.9	50.1	25.1	54.0	37.0
190	0.25	17.7	50.0	25.0	54.0	37.0
191	0.24	17.5	50.0	25.0	53.9	36.9
192	0.24	17.3	50.0	25.0	53.9	36.9
193	0.24	17.1	50.0	25.0	53.8	36.8
194	0.23	17.0	49.9	24.9	53.8	36.8
195	0.23	16.8	49.9	24.9	53.7	36.7
196	0.23	16.6	49.9	24.9	53.7	36.7
197	0.23	16.5	49.9	24.9	53.6	36.6
198	0.22	16.3	49.8	24.8	53.6	36.6
199	0.22	16.1	49.8	24.8	53.5	36.5
200	0.22	16.0	49.8	24.8	53.5	36.5
201	0.22	15.8	49.8	24.8	53.4	36.4
202	0.22	15.6	49.7	24.7	53.4	36.4
203	0.21	15.5	49.7	24.7	53.3	36.3

204	0.21	15.3	49.7	24.7	53.2	36.2
205	0.21	15.2	49.7	24.7	53.2	36.2
206	0.21	15.0	49.6	24.6	53.1	36.1
207	0.20	14.9	49.6	24.6	53.1	36.1
208	0.20	14.8	49.6	24.6	53.0	36.0
209	0.20	14.6	49.6	24.6	53.0	36.0
210	0.20	14.5	49.6	24.6	52.9	35.9
211	0.20	14.3	49.5	24.5	52.9	35.9
212	0.19	14.2	49.5	24.5	52.8	35.8
213	0.19	14.1	49.5	24.5	52.8	35.8
214	0.19	13.9	49.5	24.5	52.8	35.8
215	0.19	13.8	49.4	24.4	52.7	35.7
216	0.19	13.7	49.4	24.4	52.7	35.7
217	0.19	13.6	49.4	24.4	52.6	35.6
218	0.18	13.4	49.4	24.4	52.6	35.6
219	0.18	13.3	49.3	24.3	52.5	35.5
220	0.18	13.2	49.3	24.3	52.5	35.5
221	0.18	13.1	49.3	24.3	52.4	35.4
222	0.18	12.9	49.3	24.3	52.4	35.4
223	0.18	12.8	49.3	24.3	52.3	35.3
224	0.17	12.7	49.2	24.2	52.3	35.3
225	0.17	12.6	49.2	24.2	52.2	35.2
226	0.17	12.5	49.2	24.2	52.2	35.2
227	0.17	12.4	49.2	24.2	52.1	35.1
228	0.17	12.3	49.2	24.2	52.1	35.1
229	0.17	12.2	49.1	24.1	52.1	35.1
230	0.16	12.1	49.1	24.1	52.0	35.0
231	0.16	12.0	49.1	24.1	52.0	35.0
232	0.16	11.9	49.1	24.1	51.9	34.9
233	0.16	11.7	49.0	24.0	51.9	34.9
234	0.16	11.6	49.0	24.0	51.8	34.8
235	0.16	11.5	49.0	24.0	51.8	34.8
236	0.16	11.5	49.0	24.0	51.7	34.7
237	0.15	11.4	49.0	24.0	51.7	34.7
238	0.15	11.3	48.9	23.9	51.7	34.7
239	0.15	11.2	48.9	23.9	51.6	34.6
240	0.15	11.1	48.9	23.9	51.6	34.6
241	0.15	11.0	48.9	23.9	51.5	34.5
242	0.15	10.9	48.9	23.9	51.5	34.5
243	0.15	10.8	48.8	23.8	51.4	34.4
244	0.15	10.7	48.8	23.8	51.4	34.4
245	0.14	10.6	48.8	23.8	51.4	34.4
246	0.14	10.5	48.8	23.8	51.3	34.3
247	0.14	10.4	48.8	23.8	51.3	34.3
248	0.14	10.4	48.7	23.7	51.2	34.2
249	0.14	10.3	48.7	23.7	51.2	34.2
250	0.14	10.2	48.7	23.7	51.2	34.2
251	0.14	10.1	48.7	23.7	51.1	34.1
252	0.14	10.0	48.7	23.7	51.1	34.1
253	0.14	10.0	48.7	23.7	51.0	34.0
254	0.13	9.9	48.6	23.6	51.0	34.0
255	0.13	9.8	48.6	23.6	51.0	34.0
256	0.13	9.7	48.6	23.6	50.9	33.9
257	0.13	9.6	48.6	23.6	50.9	33.9
258	0.13	9.6	48.6	23.6	50.8	33.8
259	0.13	9.5	48.5	23.5	50.8	33.8
260	0.13	9.4	48.5	23.5	50.8	33.8
261	0.13	9.3	48.5	23.5	50.7	33.7
262	0.13	9.3	48.5	23.5	50.7	33.7
263	0.12	9.2	48.5	23.5	50.6	33.6
264	0.12	9.1	48.4	23.4	50.6	33.6

265	0.12	9.1	48.4	23.4	50.6	33.6
266	0.12	9.0	48.4	23.4	50.5	33.5
267	0.12	8.9	48.4	23.4	50.5	33.5
268	0.12	8.9	48.4	23.4	50.4	33.4
269	0.12	8.8	48.4	23.4	50.4	33.4
270	0.12	8.7	48.3	23.3	50.4	33.4
271	0.12	8.7	48.3	23.3	50.3	33.3
272	0.12	8.6	48.3	23.3	50.3	33.3
273	0.12	8.5	48.3	23.3	50.3	33.3
274	0.12	8.5	48.3	23.3	50.2	33.2
275	0.11	8.4	48.2	23.2	50.2	33.2
276	0.11	8.3	48.2	23.2	50.2	33.2
277	0.11	8.3	48.2	23.2	50.1	33.1
278	0.11	8.2	48.2	23.2	50.1	33.1
279	0.11	8.2	48.2	23.2	50.0	33.0
280	0.11	8.1	48.2	23.2	50.0	33.0
281	0.11	8.1	48.1	23.1	50.0	33.0
282	0.11	8.0	48.1	23.1	49.9	32.9
283	0.11	7.9	48.1	23.1	49.9	32.9
284	0.11	7.9	48.1	23.1	49.9	32.9
285	0.11	7.8	48.1	23.1	49.8	32.8
286	0.11	7.8	48.1	23.1	49.8	32.8
287	0.10	7.7	48.0	23.0	49.8	32.8
288	0.10	7.7	48.0	23.0	49.7	32.7
289	0.10	7.6	48.0	23.0	49.7	32.7
290	0.10	7.6	48.0	23.0	49.7	32.7
291	0.10	7.5	48.0	23.0	49.6	32.6
292	0.10	7.4	48.0	23.0	49.6	32.6
293	0.10	7.4	47.9	22.9	49.6	32.6
294	0.10	7.3	47.9	22.9	49.5	32.5
295	0.10	7.3	47.9	22.9	49.5	32.5
296	0.10	7.2	47.9	22.9	49.4	32.4
297	0.10	7.2	47.9	22.9	49.4	32.4
298	0.10	7.1	47.9	22.9	49.4	32.4
299	0.10	7.1	47.8	22.8	49.3	32.3
300	0.10	7.1	47.8	22.8	49.3	32.3
301	0.10	7.0	47.8	22.8	49.3	32.3
302	0.09	7.0	47.8	22.8	49.3	32.3
303	0.09	6.9	47.8	22.8	49.2	32.2
304	0.09	6.9	47.8	22.8	49.2	32.2
305	0.09	6.8	47.7	22.7	49.2	32.2
306	0.09	6.8	47.7	22.7	49.1	32.1
307	0.09	6.7	47.7	22.7	49.1	32.1
308	0.09	6.7	47.7	22.7	49.1	32.1
309	0.09	6.6	47.7	22.7	49.0	32.0
310	0.09	6.6	47.7	22.7	49.0	32.0
311	0.09	6.6	47.6	22.6	49.0	32.0
312	0.09	6.5	47.6	22.6	48.9	31.9
313	0.09	6.5	47.6	22.6	48.9	31.9
314	0.09	6.4	47.6	22.6	48.9	31.9
315	0.09	6.4	47.6	22.6	48.8	31.8
316	0.09	6.3	47.6	22.6	48.8	31.8
317	0.09	6.3	47.6	22.6	48.8	31.8
318	0.09	6.3	47.5	22.5	48.7	31.7
319	0.08	6.2	47.5	22.5	48.7	31.7
320	0.08	6.2	47.5	22.5	48.7	31.7
321	0.08	6.1	47.5	22.5	48.6	31.6
322	0.08	6.1	47.5	22.5	48.6	31.6
323	0.08	6.1	47.5	22.5	48.6	31.6
324	0.08	6.0	47.4	22.4	48.6	31.6
325	0.08	6.0	47.4	22.4	48.5	31.5

326	0.08	6.0	47.4	22.4	48.5	31.5
327	0.08	5.9	47.4	22.4	48.5	31.5
328	0.08	5.9	47.4	22.4	48.4	31.4
329	0.08	5.9	47.4	22.4	48.4	31.4
330	0.08	5.8	47.4	22.4	48.4	31.4
331	0.08	5.8	47.3	22.3	48.3	31.3
332	0.08	5.7	47.3	22.3	48.3	31.3
333	0.08	5.7	47.3	22.3	48.3	31.3
334	0.08	5.7	47.3	22.3	48.3	31.3
335	0.08	5.6	47.3	22.3	48.2	31.2
336	0.08	5.6	47.3	22.3	48.2	31.2
337	0.08	5.6	47.3	22.3	48.2	31.2
338	0.08	5.5	47.2	22.2	48.1	31.1
339	0.08	5.5	47.2	22.2	48.1	31.1
340	0.07	5.5	47.2	22.2	48.1	31.1
341	0.07	5.4	47.2	22.2	48.1	31.1
342	0.07	5.4	47.2	22.2	48.0	31.0
343	0.07	5.4	47.2	22.2	48.0	31.0
344	0.07	5.3	47.2	22.2	48.0	31.0
345	0.07	5.3	47.1	22.1	47.9	30.9
346	0.07	5.3	47.1	22.1	47.9	30.9
347	0.07	5.3	47.1	22.1	47.9	30.9
348	0.07	5.2	47.1	22.1	47.9	30.9
349	0.07	5.2	47.1	22.1	47.8	30.8
350	0.07	5.2	47.1	22.1	47.8	30.8
351	0.07	5.1	47.1	22.1	47.8	30.8
352	0.07	5.1	47.0	22.0	47.7	30.7
353	0.07	5.1	47.0	22.0	47.7	30.7
354	0.07	5.0	47.0	22.0	47.7	30.7
355	0.07	5.0	47.0	22.0	47.7	30.7
356	0.07	5.0	47.0	22.0	47.6	30.6
357	0.07	5.0	47.0	22.0	47.6	30.6
358	0.07	4.9	47.0	22.0	47.6	30.6
359	0.07	4.9	46.9	21.9	47.6	30.6
360	0.07	4.9	46.9	21.9	47.5	30.5
361	0.07	4.8	46.9	21.9	47.5	30.5
362	0.07	4.8	46.9	21.9	47.5	30.5
363	0.07	4.8	46.9	21.9	47.4	30.4
364	0.07	4.8	46.9	21.9	47.4	30.4
365	0.06	4.7	46.9	21.9	47.4	30.4
366	0.06	4.7	46.8	21.8	47.4	30.4
367	0.06	4.7	46.8	21.8	47.3	30.3
368	0.06	4.7	46.8	21.8	47.3	30.3
369	0.06	4.6	46.8	21.8	47.3	30.3
370	0.06	4.6	46.8	21.8	47.3	30.3
371	0.06	4.6	46.8	21.8	47.2	30.2
372	0.06	4.6	46.8	21.8	47.2	30.2
373	0.06	4.5	46.8	21.8	47.2	30.2
374	0.06	4.5	46.7	21.7	47.2	30.2
375	0.06	4.5	46.7	21.7	47.1	30.1
376	0.06	4.5	46.7	21.7	47.1	30.1
377	0.06	4.4	46.7	21.7	47.1	30.1
378	0.06	4.4	46.7	21.7	47.1	30.1
379	0.06	4.4	46.7	21.7	47.0	30.0
380	0.06	4.4	46.7	21.7	47.0	30.0
381	0.06	4.3	46.7	21.7	47.0	30.0
382	0.06	4.3	46.6	21.6	47.0	30.0
383	0.06	4.3	46.6	21.6	46.9	29.9
384	0.06	4.3	46.6	21.6	46.9	29.9
385	0.06	4.3	46.6	21.6	46.9	29.9
386	0.06	4.2	46.6	21.6	46.9	29.9

387	0.06	4.2	46.6	21.6	46.8	29.8
388	0.06	4.2	46.6	21.6	46.8	29.8
389	0.06	4.2	46.5	21.5	46.8	29.8
390	0.06	4.1	46.5	21.5	46.8	29.8
391	0.06	4.1	46.5	21.5	46.7	29.7
392	0.06	4.1	46.5	21.5	46.7	29.7
393	0.06	4.1	46.5	21.5	46.7	29.7
394	0.06	4.1	46.5	21.5	46.7	29.7
395	0.06	4.0	46.5	21.5	46.6	29.6
396	0.06	4.0	46.5	21.5	46.6	29.6
397	0.05	4.0	46.4	21.4	46.6	29.6
398	0.05	4.0	46.4	21.4	46.6	29.6
399	0.05	4.0	46.4	21.4	46.5	29.5
400	0.05	3.9	46.4	21.4	46.5	29.5
401	0.05	3.9	46.4	21.4	46.5	29.5
402	0.05	3.9	46.4	21.4	46.5	29.5
403	0.05	3.9	46.4	21.4	46.4	29.4
404	0.05	3.9	46.4	21.4	46.4	29.4
405	0.05	3.8	46.4	21.4	46.4	29.4
406	0.05	3.8	46.3	21.3	46.4	29.4
407	0.05	3.8	46.3	21.3	46.3	29.3
408	0.05	3.8	46.3	21.3	46.3	29.3
409	0.05	3.8	46.3	21.3	46.3	29.3
410	0.05	3.7	46.3	21.3	46.3	29.3
411	0.05	3.7	46.3	21.3	46.3	29.3
412	0.05	3.7	46.3	21.3	46.2	29.2
413	0.05	3.7	46.3	21.3	46.2	29.2
414	0.05	3.7	46.2	21.2	46.2	29.2
415	0.05	3.7	46.2	21.2	46.2	29.2
416	0.05	3.6	46.2	21.2	46.1	29.1
417	0.05	3.6	46.2	21.2	46.1	29.1
418	0.05	3.6	46.2	21.2	46.1	29.1
419	0.05	3.6	46.2	21.2	46.1	29.1
420	0.05	3.6	46.2	21.2	46.0	29.0
421	0.05	3.5	46.2	21.2	46.0	29.0
422	0.05	3.5	46.1	21.1	46.0	29.0
423	0.05	3.5	46.1	21.1	46.0	29.0
424	0.05	3.5	46.1	21.1	46.0	29.0
425	0.05	3.5	46.1	21.1	45.9	28.9
426	0.05	3.5	46.1	21.1	45.9	28.9
427	0.05	3.4	46.1	21.1	45.9	28.9
428	0.05	3.4	46.1	21.1	45.9	28.9
429	0.05	3.4	46.1	21.1	45.8	28.8
430	0.05	3.4	46.1	21.1	45.8	28.8
431	0.05	3.4	46.0	21.0	45.8	28.8
432	0.05	3.4	46.0	21.0	45.8	28.8
433	0.05	3.4	46.0	21.0	45.8	28.8
434	0.05	3.3	46.0	21.0	45.7	28.7
435	0.05	3.3	46.0	21.0	45.7	28.7
436	0.05	3.3	46.0	21.0	45.7	28.7
437	0.05	3.3	46.0	21.0	45.7	28.7
438	0.05	3.3	46.0	21.0	45.6	28.6
439	0.04	3.3	46.0	21.0	45.6	28.6
440	0.04	3.2	45.9	20.9	45.6	28.6
441	0.04	3.2	45.9	20.9	45.6	28.6
442	0.04	3.2	45.9	20.9	45.6	28.6
443	0.04	3.2	45.9	20.9	45.5	28.5
444	0.04	3.2	45.9	20.9	45.5	28.5
445	0.04	3.2	45.9	20.9	45.5	28.5
446	0.04	3.2	45.9	20.9	45.5	28.5
447	0.04	3.1	45.9	20.9	45.5	28.5

448	0.04	3.1	45.9	20.9	45.4	28.4
449	0.04	3.1	45.8	20.8	45.4	28.4
450	0.04	3.1	45.8	20.8	45.4	28.4
451	0.04	3.1	45.8	20.8	45.4	28.4
452	0.04	3.1	45.8	20.8	45.4	28.4
453	0.04	3.1	45.8	20.8	45.3	28.3
454	0.04	3.0	45.8	20.8	45.3	28.3
455	0.04	3.0	45.8	20.8	45.3	28.3
456	0.04	3.0	45.8	20.8	45.3	28.3
457	0.04	3.0	45.8	20.8	45.2	28.2
458	0.04	3.0	45.7	20.7	45.2	28.2
459	0.04	3.0	45.7	20.7	45.2	28.2
460	0.04	3.0	45.7	20.7	45.2	28.2
461	0.04	3.0	45.7	20.7	45.2	28.2
462	0.04	2.9	45.7	20.7	45.1	28.1
463	0.04	2.9	45.7	20.7	45.1	28.1
464	0.04	2.9	45.7	20.7	45.1	28.1
465	0.04	2.9	45.7	20.7	45.1	28.1
466	0.04	2.9	45.7	20.7	45.1	28.1
467	0.04	2.9	45.7	20.7	45.0	28.0
468	0.04	2.9	45.6	20.6	45.0	28.0
469	0.04	2.9	45.6	20.6	45.0	28.0
470	0.04	2.8	45.6	20.6	45.0	28.0
471	0.04	2.8	45.6	20.6	45.0	28.0
472	0.04	2.8	45.6	20.6	44.9	27.9
473	0.04	2.8	45.6	20.6	44.9	27.9
474	0.04	2.8	45.6	20.6	44.9	27.9
475	0.04	2.8	45.6	20.6	44.9	27.9
476	0.04	2.8	45.6	20.6	44.9	27.9
477	0.04	2.8	45.5	20.5	44.8	27.8
478	0.04	2.7	45.5	20.5	44.8	27.8
479	0.04	2.7	45.5	20.5	44.8	27.8
480	0.04	2.7	45.5	20.5	44.8	27.8
481	0.04	2.7	45.5	20.5	44.8	27.8
482	0.04	2.7	45.5	20.5	44.7	27.7
483	0.04	2.7	45.5	20.5	44.7	27.7
484	0.04	2.7	45.5	20.5	44.7	27.7
485	0.04	2.7	45.5	20.5	44.7	27.7
486	0.04	2.7	45.5	20.5	44.7	27.7
487	0.04	2.6	45.4	20.4	44.7	27.7
488	0.04	2.6	45.4	20.4	44.6	27.6
489	0.04	2.6	45.4	20.4	44.6	27.6
490	0.04	2.6	45.4	20.4	44.6	27.6
491	0.04	2.6	45.4	20.4	44.6	27.6
492	0.04	2.6	45.4	20.4	44.6	27.6
493	0.04	2.6	45.4	20.4	44.5	27.5
494	0.04	2.6	45.4	20.4	44.5	27.5
495	0.04	2.6	45.4	20.4	44.5	27.5
496	0.04	2.5	45.4	20.4	44.5	27.5
497	0.04	2.5	45.3	20.3	44.5	27.5
498	0.03	2.5	45.3	20.3	44.4	27.4
499	0.03	2.5	45.3	20.3	44.4	27.4

Bundle	x-feet	y-feet	n cond	cond dia	spacing	l-n voltage	Phasing	Current	Ph-Ph Voltage
1	-37.00	38.04	3	1.345	25.02	317.5	0	2500	550
2	0.00	38.04	3	1.345	25.02	317.5	240	2500	550
3	37.00	38.04	3	1.345	25.02	317.5	120	2500	550
4	-18.00	85.94	1	0.500	0	0.0	0	0	0
5	18.00	85.94	1	0.637	0	0.0	0	0	0
6									
7									
8									
9									
10									
11									
12									

Line Type	W RoW	E RoW
500kV H-Frame	-125	125
Bittern		
1/2EHS		
OPGW		

500kV Transmission Line voltage set at 10% overvoltage

Transmission Line-Neutral/Ground voltage set at 10% overvoltage for 500 kV line

A Phase	B Phase	C Phase
0	240	120

			Fields	Audible	Radio
		Sensor HT	3.28	5	3
		Altitude	5380	**Frequency**	1.0
Dist	**Emj kV/m**	**Bmaj mG**	**AN L50-Rn**	**AN L50-Fr**	**RI L50-Rn**	**RI L50-Fr**
-499	0.02	4.2	45.4	20.4	41.9	24.9
-498	0.02	4.2	45.4	20.4	42.0	25.0
-497	0.02	4.3	45.4	20.4	42.0	25.0
-496	0.02	4.3	45.4	20.4	42.0	25.0
-495	0.02	4.3	45.4	20.4	42.0	25.0
-494	0.02	4.3	45.4	20.4	42.0	25.0
-493	0.02	4.3	45.4	20.4	42.1	25.1
-492	0.02	4.3	45.4	20.4	42.1	25.1
-491	0.02	4.4	45.4	20.4	42.1	25.1
-490	0.02	4.4	45.5	20.5	42.1	25.1
-489	0.02	4.4	45.5	20.5	42.1	25.1
-488	0.02	4.4	45.5	20.5	42.2	25.2
-487	0.02	4.4	45.5	20.5	42.2	25.2
-486	0.02	4.5	45.5	20.5	42.2	25.2
-485	0.02	4.5	45.5	20.5	42.2	25.2
-484	0.02	4.5	45.5	20.5	42.2	25.2
-483	0.02	4.5	45.5	20.5	42.3	25.3
-482	0.02	4.5	45.5	20.5	42.3	25.3
-481	0.02	4.6	45.5	20.5	42.3	25.3
-480	0.02	4.6	45.6	20.6	42.3	25.3
-479	0.02	4.6	45.6	20.6	42.3	25.3
-478	0.02	4.6	45.6	20.6	42.4	25.4
-477	0.02	4.6	45.6	20.6	42.4	25.4
-476	0.02	4.6	45.6	20.6	42.4	25.4
-475	0.02	4.7	45.6	20.6	42.4	25.4
-474	0.02	4.7	45.6	20.6	42.4	25.4
-473	0.02	4.7	45.6	20.6	42.5	25.5
-472	0.02	4.7	45.6	20.6	42.5	25.5
-471	0.02	4.7	45.7	20.7	42.5	25.5
-470	0.02	4.8	45.7	20.7	42.5	25.5
-469	0.02	4.8	45.7	20.7	42.5	25.5

	W RoW	E RoW	Max in Row
Location	-125	125	-20
Bmaj Field (mG)	67.9	67.9	424.3
Location	-125	125	-42
E Field (kV/m)	1.2	1.2	8.9
Location	-125	125	0
AN R-50	52	52	58
	27	27	33
Location	-125	125	0
RI R-50	58	58	78
	41	41	61

-468	0.02	4.8	45.7	20.7	42.6	25.6
-467	0.02	4.8	45.7	20.7	42.6	25.6
-466	0.02	4.8	45.7	20.7	42.6	25.6
-465	0.03	4.9	45.7	20.7	42.6	25.6
-464	0.03	4.9	45.7	20.7	42.6	25.6
-463	0.03	4.9	45.7	20.7	42.7	25.7
-462	0.03	4.9	45.7	20.7	42.7	25.7
-461	0.03	5.0	45.8	20.8	42.7	25.7
-460	0.03	5.0	45.8	20.8	42.7	25.7
-459	0.03	5.0	45.8	20.8	42.7	25.7
-458	0.03	5.0	45.8	20.8	42.8	25.8
-457	0.03	5.0	45.8	20.8	42.8	25.8
-456	0.03	5.1	45.8	20.8	42.8	25.8
-455	0.03	5.1	45.8	20.8	42.8	25.8
-454	0.03	5.1	45.8	20.8	42.9	25.9
-453	0.03	5.1	45.8	20.8	42.9	25.9
-452	0.03	5.2	45.9	20.9	42.9	25.9
-451	0.03	5.2	45.9	20.9	42.9	25.9
-450	0.03	5.2	45.9	20.9	42.9	25.9
-449	0.03	5.2	45.9	20.9	43.0	26.0
-448	0.03	5.2	45.9	20.9	43.0	26.0
-447	0.03	5.3	45.9	20.9	43.0	26.0
-446	0.03	5.3	45.9	20.9	43.0	26.0
-445	0.03	5.3	45.9	20.9	43.0	26.0
-444	0.03	5.3	45.9	20.9	43.1	26.1
-443	0.03	5.4	46.0	21.0	43.1	26.1
-442	0.03	5.4	46.0	21.0	43.1	26.1
-441	0.03	5.4	46.0	21.0	43.1	26.1
-440	0.03	5.4	46.0	21.0	43.2	26.2
-439	0.03	5.5	46.0	21.0	43.2	26.2
-438	0.03	5.5	46.0	21.0	43.2	26.2
-437	0.03	5.5	46.0	21.0	43.2	26.2
-436	0.03	5.5	46.0	21.0	43.2	26.2
-435	0.03	5.6	46.0	21.0	43.3	26.3
-434	0.03	5.6	46.1	21.1	43.3	26.3
-433	0.03	5.6	46.1	21.1	43.3	26.3
-432	0.03	5.6	46.1	21.1	43.3	26.3
-431	0.03	5.7	46.1	21.1	43.4	26.4
-430	0.03	5.7	46.1	21.1	43.4	26.4
-429	0.03	5.7	46.1	21.1	43.4	26.4
-428	0.03	5.7	46.1	21.1	43.4	26.4
-427	0.03	5.8	46.1	21.1	43.4	26.4
-426	0.03	5.8	46.2	21.2	43.5	26.5
-425	0.03	5.8	46.2	21.2	43.5	26.5
-424	0.03	5.9	46.2	21.2	43.5	26.5
-423	0.03	5.9	46.2	21.2	43.5	26.5
-422	0.03	5.9	46.2	21.2	43.6	26.6
-421	0.03	5.9	46.2	21.2	43.6	26.6
-420	0.03	6.0	46.2	21.2	43.6	26.6
-419	0.03	6.0	46.2	21.2	43.6	26.6
-418	0.03	6.0	46.2	21.2	43.7	26.7
-417	0.03	6.1	46.3	21.3	43.7	26.7
-416	0.03	6.1	46.3	21.3	43.7	26.7
-415	0.03	6.1	46.3	21.3	43.7	26.7
-414	0.03	6.1	46.3	21.3	43.7	26.7
-413	0.04	6.2	46.3	21.3	43.8	26.8
-412	0.04	6.2	46.3	21.3	43.8	26.8
-411	0.04	6.2	46.3	21.3	43.8	26.8
-410	0.04	6.3	46.3	21.3	43.8	26.8
-409	0.04	6.3	46.4	21.4	43.9	26.9
-408	0.04	6.3	46.4	21.4	43.9	26.9

-407	0.04	6.4	46.4	21.4	43.9	26.9
-406	0.04	6.4	46.4	21.4	43.9	26.9
-405	0.04	6.4	46.4	21.4	44.0	27.0
-404	0.04	6.5	46.4	21.4	44.0	27.0
-403	0.04	6.5	46.4	21.4	44.0	27.0
-402	0.04	6.5	46.4	21.4	44.0	27.0
-401	0.04	6.6	46.5	21.5	44.1	27.1
-400	0.04	6.6	46.5	21.5	44.1	27.1
-399	0.04	6.6	46.5	21.5	44.1	27.1
-398	0.04	6.7	46.5	21.5	44.1	27.1
-397	0.04	6.7	46.5	21.5	44.2	27.2
-396	0.04	6.7	46.5	21.5	44.2	27.2
-395	0.04	6.8	46.5	21.5	44.2	27.2
-394	0.04	6.8	46.5	21.5	44.2	27.2
-393	0.04	6.8	46.6	21.6	44.3	27.3
-392	0.04	6.9	46.6	21.6	44.3	27.3
-391	0.04	6.9	46.6	21.6	44.3	27.3
-390	0.04	6.9	46.6	21.6	44.3	27.3
-389	0.04	7.0	46.6	21.6	44.4	27.4
-388	0.04	7.0	46.6	21.6	44.4	27.4
-387	0.04	7.0	46.6	21.6	44.4	27.4
-386	0.04	7.1	46.6	21.6	44.4	27.4
-385	0.04	7.1	46.7	21.7	44.5	27.5
-384	0.04	7.1	46.7	21.7	44.5	27.5
-383	0.04	7.2	46.7	21.7	44.5	27.5
-382	0.04	7.2	46.7	21.7	44.5	27.5
-381	0.04	7.3	46.7	21.7	44.6	27.6
-380	0.04	7.3	46.7	21.7	44.6	27.6
-379	0.04	7.3	46.7	21.7	44.6	27.6
-378	0.05	7.4	46.7	21.7	44.6	27.6
-377	0.05	7.4	46.8	21.8	44.7	27.7
-376	0.05	7.5	46.8	21.8	44.7	27.7
-375	0.05	7.5	46.8	21.8	44.7	27.7
-374	0.05	7.5	46.8	21.8	44.7	27.7
-373	0.05	7.6	46.8	21.8	44.8	27.8
-372	0.05	7.6	46.8	21.8	44.8	27.8
-371	0.05	7.7	46.8	21.8	44.8	27.8
-370	0.05	7.7	46.9	21.9	44.9	27.9
-369	0.05	7.7	46.9	21.9	44.9	27.9
-368	0.05	7.8	46.9	21.9	44.9	27.9
-367	0.05	7.8	46.9	21.9	44.9	27.9
-366	0.05	7.9	46.9	21.9	45.0	28.0
-365	0.05	7.9	46.9	21.9	45.0	28.0
-364	0.05	8.0	46.9	21.9	45.0	28.0
-363	0.05	8.0	46.9	21.9	45.0	28.0
-362	0.05	8.0	47.0	22.0	45.1	28.1
-361	0.05	8.1	47.0	22.0	45.1	28.1
-360	0.05	8.1	47.0	22.0	45.1	28.1
-359	0.05	8.2	47.0	22.0	45.2	28.2
-358	0.05	8.2	47.0	22.0	45.2	28.2
-357	0.05	8.3	47.0	22.0	45.2	28.2
-356	0.05	8.3	47.0	22.0	45.2	28.2
-355	0.05	8.4	47.1	22.1	45.3	28.3
-354	0.05	8.4	47.1	22.1	45.3	28.3
-353	0.06	8.5	47.1	22.1	45.3	28.3
-352	0.06	8.5	47.1	22.1	45.4	28.4
-351	0.06	8.6	47.1	22.1	45.4	28.4
-350	0.06	8.6	47.1	22.1	45.4	28.4
-349	0.06	8.7	47.1	22.1	45.4	28.4
-348	0.06	8.7	47.2	22.2	45.5	28.5
-347	0.06	8.8	47.2	22.2	45.5	28.5

-346	0.06	8.8	47.2	22.2	45.5	28.5
-345	0.06	8.9	47.2	22.2	45.6	28.6
-344	0.06	8.9	47.2	22.2	45.6	28.6
-343	0.06	9.0	47.2	22.2	45.6	28.6
-342	0.06	9.0	47.2	22.2	45.6	28.6
-341	0.06	9.1	47.3	22.3	45.7	28.7
-340	0.06	9.1	47.3	22.3	45.7	28.7
-339	0.06	9.2	47.3	22.3	45.7	28.7
-338	0.06	9.2	47.3	22.3	45.8	28.8
-337	0.06	9.3	47.3	22.3	45.8	28.8
-336	0.06	9.3	47.3	22.3	45.8	28.8
-335	0.06	9.4	47.3	22.3	45.9	28.9
-334	0.06	9.5	47.4	22.4	45.9	28.9
-333	0.07	9.5	47.4	22.4	45.9	28.9
-332	0.07	9.6	47.4	22.4	45.9	28.9
-331	0.07	9.6	47.4	22.4	46.0	29.0
-330	0.07	9.7	47.4	22.4	46.0	29.0
-329	0.07	9.7	47.4	22.4	46.0	29.0
-328	0.07	9.8	47.4	22.4	46.1	29.1
-327	0.07	9.9	47.5	22.5	46.1	29.1
-326	0.07	9.9	47.5	22.5	46.1	29.1
-325	0.07	10.0	47.5	22.5	46.2	29.2
-324	0.07	10.0	47.5	22.5	46.2	29.2
-323	0.07	10.1	47.5	22.5	46.2	29.2
-322	0.07	10.2	47.5	22.5	46.3	29.3
-321	0.07	10.2	47.6	22.6	46.3	29.3
-320	0.07	10.3	47.6	22.6	46.3	29.3
-319	0.07	10.4	47.6	22.6	46.4	29.4
-318	0.07	10.4	47.6	22.6	46.4	29.4
-317	0.08	10.5	47.6	22.6	46.4	29.4
-316	0.08	10.6	47.6	22.6	46.4	29.4
-315	0.08	10.6	47.6	22.6	46.5	29.5
-314	0.08	10.7	47.7	22.7	46.5	29.5
-313	0.08	10.8	47.7	22.7	46.5	29.5
-312	0.08	10.8	47.7	22.7	46.6	29.6
-311	0.08	10.9	47.7	22.7	46.6	29.6
-310	0.08	11.0	47.7	22.7	46.6	29.6
-309	0.08	11.0	47.7	22.7	46.7	29.7
-308	0.08	11.1	47.8	22.8	46.7	29.7
-307	0.08	11.2	47.8	22.8	46.7	29.7
-306	0.08	11.3	47.8	22.8	46.8	29.8
-305	0.08	11.3	47.8	22.8	46.8	29.8
-304	0.09	11.4	47.8	22.8	46.9	29.9
-303	0.09	11.5	47.8	22.8	46.9	29.9
-302	0.09	11.6	47.9	22.9	46.9	29.9
-301	0.09	11.6	47.9	22.9	47.0	30.0
-300	0.09	11.7	47.9	22.9	47.0	30.0
-299	0.09	11.8	47.9	22.9	47.0	30.0
-298	0.09	11.9	47.9	22.9	47.1	30.1
-297	0.09	12.0	47.9	22.9	47.1	30.1
-296	0.09	12.0	48.0	23.0	47.1	30.1
-295	0.09	12.1	48.0	23.0	47.2	30.2
-294	0.09	12.2	48.0	23.0	47.2	30.2
-293	0.10	12.3	48.0	23.0	47.2	30.2
-292	0.10	12.4	48.0	23.0	47.3	30.3
-291	0.10	12.5	48.0	23.0	47.3	30.3
-290	0.10	12.5	48.1	23.1	47.3	30.3
-289	0.10	12.6	48.1	23.1	47.4	30.4
-288	0.10	12.7	48.1	23.1	47.4	30.4
-287	0.10	12.8	48.1	23.1	47.5	30.5
-286	0.10	12.9	48.1	23.1	47.5	30.5

-285	0.10	13.0	48.1	23.1	47.5	30.5
-284	0.10	13.1	48.2	23.2	47.6	30.6
-283	0.11	13.2	48.2	23.2	47.6	30.6
-282	0.11	13.3	48.2	23.2	47.6	30.6
-281	0.11	13.4	48.2	23.2	47.7	30.7
-280	0.11	13.5	48.2	23.2	47.7	30.7
-279	0.11	13.6	48.3	23.3	47.8	30.8
-278	0.11	13.7	48.3	23.3	47.8	30.8
-277	0.11	13.8	48.3	23.3	47.8	30.8
-276	0.11	13.9	48.3	23.3	47.9	30.9
-275	0.11	14.0	48.3	23.3	47.9	30.9
-274	0.12	14.1	48.3	23.3	47.9	30.9
-273	0.12	14.2	48.4	23.4	48.0	31.0
-272	0.12	14.3	48.4	23.4	48.0	31.0
-271	0.12	14.4	48.4	23.4	48.1	31.1
-270	0.12	14.5	48.4	23.4	48.1	31.1
-269	0.12	14.6	48.4	23.4	48.1	31.1
-268	0.12	14.7	48.5	23.5	48.2	31.2
-267	0.13	14.8	48.5	23.5	48.2	31.2
-266	0.13	14.9	48.5	23.5	48.3	31.3
-265	0.13	15.0	48.5	23.5	48.3	31.3
-264	0.13	15.2	48.5	23.5	48.3	31.3
-263	0.13	15.3	48.5	23.5	48.4	31.4
-262	0.13	15.4	48.6	23.6	48.4	31.4
-261	0.13	15.5	48.6	23.6	48.5	31.5
-260	0.14	15.6	48.6	23.6	48.5	31.5
-259	0.14	15.7	48.6	23.6	48.5	31.5
-258	0.14	15.9	48.6	23.6	48.6	31.6
-257	0.14	16.0	48.7	23.7	48.6	31.6
-256	0.14	16.1	48.7	23.7	48.7	31.7
-255	0.14	16.2	48.7	23.7	48.7	31.7
-254	0.15	16.4	48.7	23.7	48.8	31.8
-253	0.15	16.5	48.7	23.7	48.8	31.8
-252	0.15	16.6	48.8	23.8	48.8	31.8
-251	0.15	16.8	48.8	23.8	48.9	31.9
-250	0.15	16.9	48.8	23.8	48.9	31.9
-249	0.15	17.0	48.8	23.8	49.0	32.0
-248	0.16	17.2	48.8	23.8	49.0	32.0
-247	0.16	17.3	48.9	23.9	49.1	32.1
-246	0.16	17.5	48.9	23.9	49.1	32.1
-245	0.16	17.6	48.9	23.9	49.2	32.2
-244	0.16	17.7	48.9	23.9	49.2	32.2
-243	0.17	17.9	48.9	23.9	49.2	32.2
-242	0.17	18.0	49.0	24.0	49.3	32.3
-241	0.17	18.2	49.0	24.0	49.3	32.3
-240	0.17	18.3	49.0	24.0	49.4	32.4
-239	0.17	18.5	49.0	24.0	49.4	32.4
-238	0.18	18.7	49.0	24.0	49.5	32.5
-237	0.18	18.8	49.1	24.1	49.5	32.5
-236	0.18	19.0	49.1	24.1	49.6	32.6
-235	0.18	19.1	49.1	24.1	49.6	32.6
-234	0.18	19.3	49.1	24.1	49.7	32.7
-233	0.19	19.5	49.1	24.1	49.7	32.7
-232	0.19	19.6	49.2	24.2	49.8	32.8
-231	0.19	19.8	49.2	24.2	49.8	32.8
-230	0.19	20.0	49.2	24.2	49.9	32.9
-229	0.20	20.2	49.2	24.2	49.9	32.9
-228	0.20	20.3	49.3	24.3	50.0	33.0
-227	0.20	20.5	49.3	24.3	50.0	33.0
-226	0.21	20.7	49.3	24.3	50.1	33.1
-225	0.21	20.9	49.3	24.3	50.1	33.1

-224	0.21	21.1	49.3	24.3	50.2	33.2
-223	0.21	21.3	49.4	24.4	50.2	33.2
-222	0.22	21.5	49.4	24.4	50.3	33.3
-221	0.22	21.7	49.4	24.4	50.3	33.3
-220	0.22	21.9	49.4	24.4	50.4	33.4
-219	0.23	22.1	49.5	24.5	50.4	33.4
-218	0.23	22.3	49.5	24.5	50.5	33.5
-217	0.23	22.5	49.5	24.5	50.5	33.5
-216	0.23	22.7	49.5	24.5	50.6	33.6
-215	0.24	22.9	49.5	24.5	50.6	33.6
-214	0.24	23.1	49.6	24.6	50.7	33.7
-213	0.24	23.3	49.6	24.6	50.7	33.7
-212	0.25	23.5	49.6	24.6	50.8	33.8
-211	0.25	23.8	49.6	24.6	50.8	33.8
-210	0.25	24.0	49.7	24.7	50.9	33.9
-209	0.26	24.2	49.7	24.7	50.9	33.9
-208	0.26	24.5	49.7	24.7	51.0	34.0
-207	0.27	24.7	49.7	24.7	51.0	34.0
-206	0.27	24.9	49.8	24.8	51.1	34.1
-205	0.27	25.2	49.8	24.8	51.2	34.2
-204	0.28	25.4	49.8	24.8	51.2	34.2
-203	0.28	25.7	49.8	24.8	51.3	34.3
-202	0.29	25.9	49.9	24.9	51.3	34.3
-201	0.29	26.2	49.9	24.9	51.4	34.4
-200	0.29	26.5	49.9	24.9	51.4	34.4
-199	0.30	26.7	49.9	24.9	51.5	34.5
-198	0.30	27.0	50.0	25.0	51.6	34.6
-197	0.31	27.3	50.0	25.0	51.6	34.6
-196	0.31	27.6	50.0	25.0	51.7	34.7
-195	0.32	27.8	50.0	25.0	51.7	34.7
-194	0.32	28.1	50.1	25.1	51.8	34.8
-193	0.33	28.4	50.1	25.1	51.9	34.9
-192	0.33	28.7	50.1	25.1	51.9	34.9
-191	0.34	29.0	50.1	25.1	52.0	35.0
-190	0.34	29.3	50.2	25.2	52.0	35.0
-189	0.35	29.7	50.2	25.2	52.1	35.1
-188	0.35	30.0	50.2	25.2	52.2	35.2
-187	0.36	30.3	50.2	25.2	52.2	35.2
-186	0.37	30.6	50.3	25.3	52.3	35.3
-185	0.37	31.0	50.3	25.3	52.4	35.4
-184	0.38	31.3	50.3	25.3	52.4	35.4
-183	0.38	31.6	50.3	25.3	52.5	35.5
-182	0.39	32.0	50.4	25.4	52.6	35.6
-181	0.40	32.3	50.4	25.4	52.6	35.6
-180	0.40	32.7	50.4	25.4	52.7	35.7
-179	0.41	33.1	50.5	25.5	52.8	35.8
-178	0.42	33.5	50.5	25.5	52.8	35.8
-177	0.42	33.8	50.5	25.5	52.9	35.9
-176	0.43	34.2	50.5	25.5	53.0	36.0
-175	0.44	34.6	50.6	25.6	53.0	36.0
-174	0.45	35.0	50.6	25.6	53.1	36.1
-173	0.45	35.4	50.6	25.6	53.2	36.2
-172	0.46	35.8	50.7	25.7	53.2	36.2
-171	0.47	36.3	50.7	25.7	53.3	36.3
-170	0.48	36.7	50.7	25.7	53.4	36.4
-169	0.49	37.1	50.7	25.7	53.4	36.4
-168	0.49	37.6	50.8	25.8	53.5	36.5
-167	0.50	38.0	50.8	25.8	53.6	36.6
-166	0.51	38.5	50.8	25.8	53.7	36.7
-165	0.52	39.0	50.9	25.9	53.7	36.7
-164	0.53	39.4	50.9	25.9	53.8	36.8

-163	0.54	39.9	50.9	25.9	53.9	36.9
-162	0.55	40.4	51.0	26.0	54.0	37.0
-161	0.56	40.9	51.0	26.0	54.0	37.0
-160	0.57	41.4	51.0	26.0	54.1	37.1
-159	0.58	42.0	51.0	26.0	54.2	37.2
-158	0.59	42.5	51.1	26.1	54.3	37.3
-157	0.60	43.0	51.1	26.1	54.3	37.3
-156	0.62	43.6	51.1	26.1	54.4	37.4
-155	0.63	44.2	51.2	26.2	54.5	37.5
-154	0.64	44.7	51.2	26.2	54.6	37.6
-153	0.65	45.3	51.2	26.2	54.7	37.7
-152	0.67	45.9	51.3	26.3	54.7	37.7
-151	0.68	46.5	51.3	26.3	54.8	37.8
-150	0.69	47.2	51.3	26.3	54.9	37.9
-149	0.71	47.8	51.4	26.4	55.0	38.0
-148	0.72	48.4	51.4	26.4	55.1	38.1
-147	0.73	49.1	51.4	26.4	55.2	38.2
-146	0.75	49.8	51.5	26.5	55.3	38.3
-145	0.76	50.5	51.5	26.5	55.4	38.4
-144	0.78	51.2	51.5	26.5	55.5	38.5
-143	0.80	51.9	51.6	26.6	55.7	38.7
-142	0.81	52.6	51.6	26.6	55.8	38.8
-141	0.83	53.4	51.6	26.6	55.9	38.9
-140	0.85	54.2	51.7	26.7	56.0	39.0
-139	0.87	54.9	51.7	26.7	56.2	39.2
-138	0.88	55.7	51.7	26.7	56.3	39.3
-137	0.90	56.5	51.8	26.8	56.4	39.4
-136	0.92	57.4	51.8	26.8	56.6	39.6
-135	0.94	58.2	51.9	26.9	56.7	39.7
-134	0.96	59.1	51.9	26.9	56.8	39.8
-133	0.99	60.0	51.9	26.9	57.0	40.0
-132	1.01	60.9	52.0	27.0	57.1	40.1
-131	1.03	61.8	52.0	27.0	57.2	40.2
-130	1.05	62.8	52.0	27.0	57.4	40.4
-129	1.08	63.8	52.1	27.1	57.5	40.5
-128	1.10	64.8	52.1	27.1	57.7	40.7
-127	1.13	65.8	52.2	27.2	57.8	40.8
-126	1.15	66.8	52.2	27.2	57.9	40.9
-125	1.18	67.9	52.2	27.2	58.1	41.1
-124	1.21	69.0	52.3	27.3	58.2	41.2
-123	1.24	70.1	52.3	27.3	58.4	41.4
-122	1.27	71.2	52.4	27.4	58.5	41.5
-121	1.30	72.4	52.4	27.4	58.7	41.7
-120	1.33	73.6	52.4	27.4	58.8	41.8
-119	1.36	74.8	52.5	27.5	59.0	42.0
-118	1.39	76.1	52.5	27.5	59.2	42.2
-117	1.43	77.4	52.6	27.6	59.3	42.3
-116	1.46	78.7	52.6	27.6	59.5	42.5
-115	1.50	80.1	52.7	27.7	59.6	42.6
-114	1.54	81.5	52.7	27.7	59.8	42.8
-113	1.58	82.9	52.7	27.7	60.0	43.0
-112	1.62	84.3	52.8	27.8	60.1	43.1
-111	1.66	85.8	52.8	27.8	60.3	43.3
-110	1.70	87.4	52.9	27.9	60.5	43.5
-109	1.75	89.0	52.9	27.9	60.7	43.7
-108	1.79	90.6	53.0	28.0	60.8	43.8
-107	1.84	92.3	53.0	28.0	61.0	44.0
-106	1.89	94.0	53.1	28.1	61.2	44.2
-105	1.94	95.7	53.1	28.1	61.4	44.4
-104	1.99	97.5	53.1	28.1	61.6	44.6
-103	2.04	99.4	53.2	28.2	61.7	44.7

-102	2.10	101.3	53.2	28.2	61.9	44.9
-101	2.16	103.2	53.3	28.3	62.1	45.1
-100	2.22	105.2	53.3	28.3	62.3	45.3
-99	2.28	107.3	53.4	28.4	62.5	45.5
-98	2.34	109.4	53.4	28.4	62.7	45.7
-97	2.41	111.6	53.5	28.5	62.9	45.9
-96	2.48	113.8	53.5	28.5	63.1	46.1
-95	2.55	116.1	53.6	28.6	63.3	46.3
-94	2.62	118.5	53.6	28.6	63.5	46.5
-93	2.69	120.9	53.7	28.7	63.7	46.7
-92	2.77	123.4	53.7	28.7	63.9	46.9
-91	2.85	126.0	53.8	28.8	64.1	47.1
-90	2.93	128.6	53.8	28.8	64.3	47.3
-89	3.02	131.3	53.9	28.9	64.5	47.5
-88	3.11	134.1	54.0	29.0	64.8	47.8
-87	3.20	137.0	54.0	29.0	65.0	48.0
-86	3.29	140.0	54.1	29.1	65.2	48.2
-85	3.39	143.0	54.1	29.1	65.4	48.4
-84	3.49	146.2	54.2	29.2	65.6	48.6
-83	3.60	149.4	54.2	29.2	65.9	48.9
-82	3.70	152.7	54.3	29.3	66.1	49.1
-81	3.81	156.1	54.3	29.3	66.3	49.3
-80	3.93	159.6	54.4	29.4	66.5	49.5
-79	4.05	163.3	54.5	29.5	66.8	49.8
-78	4.17	167.0	54.5	29.5	67.0	50.0
-77	4.29	170.8	54.6	29.6	67.2	50.2
-76	4.42	174.7	54.6	29.6	67.5	50.5
-75	4.55	178.8	54.7	29.7	67.7	50.7
-74	4.69	182.9	54.8	29.8	67.9	50.9
-73	4.83	187.2	54.8	29.8	68.2	51.2
-72	4.97	191.6	54.9	29.9	68.4	51.4
-71	5.11	196.1	54.9	29.9	68.7	51.7
-70	5.26	200.7	55.0	30.0	68.9	51.9
-69	5.42	205.5	55.1	30.1	69.1	52.1
-68	5.57	210.3	55.1	30.1	69.4	52.4
-67	5.73	215.3	55.2	30.2	69.6	52.6
-66	5.89	220.4	55.3	30.3	69.8	52.8
-65	6.05	225.6	55.3	30.3	70.1	53.1
-64	6.22	231.0	55.4	30.4	70.3	53.3
-63	6.38	236.4	55.4	30.4	70.5	53.5
-62	6.55	242.0	55.5	30.5	70.8	53.8
-61	6.72	247.7	55.6	30.6	71.0	54.0
-60	6.88	253.4	55.6	30.6	71.2	54.2
-59	7.05	259.3	55.7	30.7	71.4	54.4
-58	7.22	265.3	55.8	30.8	71.6	54.6
-57	7.38	271.3	55.8	30.8	71.8	54.8
-56	7.54	277.4	55.9	30.9	72.0	55.0
-55	7.70	283.6	56.0	31.0	72.2	55.2
-54	7.85	289.8	56.0	31.0	72.4	55.4
-53	8.00	296.1	56.1	31.1	72.6	55.6
-52	8.14	302.4	56.1	31.1	72.8	55.8
-51	8.27	308.7	56.2	31.2	73.0	56.0
-50	8.39	315.0	56.3	31.3	73.1	56.1
-49	8.50	321.3	56.3	31.3	73.3	56.3
-48	8.61	327.5	56.4	31.4	73.4	56.4
-47	8.70	333.7	56.4	31.4	73.6	56.6
-46	8.77	339.8	56.5	31.5	73.7	56.7
-45	8.84	345.8	56.5	31.5	73.8	56.8
-44	8.89	351.7	56.6	31.6	73.9	56.9
-43	8.92	357.5	56.7	31.7	74.0	57.0
-42	8.93	363.1	56.7	31.7	74.1	57.1

-41	8.93	368.5	56.8	31.8	74.1	57.1
-40	8.92	373.8	56.8	31.8	74.2	57.2
-39	8.88	378.8	56.9	31.9	74.2	57.2
-38	8.83	383.6	56.9	31.9	74.2	57.2
-37	8.75	388.1	57.0	32.0	74.2	57.2
-36	8.66	392.5	57.0	32.0	74.2	57.2
-35	8.56	396.5	57.0	32.0	74.2	57.2
-34	8.44	400.3	57.1	32.1	74.2	57.2
-33	8.30	403.8	57.1	32.1	74.1	57.1
-32	8.15	407.0	57.2	32.2	74.1	57.1
-31	7.99	409.9	57.2	32.2	74.0	57.0
-30	7.82	412.6	57.2	32.2	73.9	56.9
-29	7.64	415.0	57.3	32.3	73.8	56.8
-28	7.46	417.0	57.3	32.3	73.8	56.8
-27	7.27	418.8	57.4	32.4	74.0	57.0
-26	7.08	420.4	57.4	32.4	74.2	57.2
-25	6.90	421.6	57.4	32.4	74.4	57.4
-24	6.71	422.6	57.5	32.5	74.7	57.7
-23	6.54	423.4	57.5	32.5	74.9	57.9
-22	6.38	423.9	57.5	32.5	75.1	58.1
-21	6.23	424.2	57.6	32.6	75.3	58.3
-20	6.10	424.3	57.6	32.6	75.5	58.5
-19	5.99	424.2	57.6	32.6	75.7	58.7
-18	5.89	423.8	57.7	32.7	75.9	58.9
-17	5.83	423.3	57.7	32.7	76.1	59.1
-16	5.78	422.7	57.7	32.7	76.3	59.3
-15	5.75	421.9	57.8	32.8	76.5	59.5
-14	5.75	420.9	57.8	32.8	76.7	59.7
-13	5.76	419.9	57.8	32.8	76.8	59.8
-12	5.80	418.7	57.8	32.8	77.0	60.0
-11	5.84	417.5	57.9	32.9	77.1	60.1
-10	5.89	416.3	57.9	32.9	77.2	60.2
-9	5.95	415.0	57.9	32.9	77.4	60.4
-8	6.02	413.8	57.9	32.9	77.5	60.5
-7	6.08	412.5	57.9	32.9	77.6	60.6
-6	6.14	411.4	57.9	32.9	77.7	60.7
-5	6.20	410.4	58.0	33.0	77.7	60.7
-4	6.25	409.5	58.0	33.0	77.8	60.8
-3	6.29	408.8	58.0	33.0	77.9	60.9
-2	6.32	408.2	58.0	33.0	77.9	60.9
-1	6.34	407.9	58.0	33.0	77.9	60.9
0	6.34	407.8	58.0	33.0	77.9	60.9
1	6.34	407.9	58.0	33.0	77.9	60.9
2	6.32	408.2	58.0	33.0	77.9	60.9
3	6.29	408.8	58.0	33.0	77.9	60.9
4	6.25	409.5	58.0	33.0	77.8	60.8
5	6.20	410.4	58.0	33.0	77.7	60.7
6	6.14	411.4	57.9	32.9	77.7	60.7
7	6.08	412.5	57.9	32.9	77.6	60.6
8	6.02	413.8	57.9	32.9	77.5	60.5
9	5.95	415.0	57.9	32.9	77.4	60.4
10	5.89	416.3	57.9	32.9	77.2	60.2
11	5.84	417.5	57.9	32.9	77.1	60.1
12	5.79	418.7	57.8	32.8	77.0	60.0
13	5.76	419.9	57.8	32.8	76.8	59.8
14	5.75	420.9	57.8	32.8	76.7	59.7
15	5.75	421.9	57.8	32.8	76.5	59.5
16	5.78	422.7	57.7	32.7	76.3	59.3
17	5.82	423.3	57.7	32.7	76.1	59.1
18	5.89	423.8	57.7	32.7	75.9	58.9
19	5.98	424.2	57.6	32.6	75.7	58.7

20	6.10	424.3	57.6	32.6	75.5	58.5
21	6.23	424.2	57.6	32.6	75.3	58.3
22	6.38	423.9	57.5	32.5	75.1	58.1
23	6.54	423.4	57.5	32.5	74.9	57.9
24	6.71	422.6	57.5	32.5	74.7	57.7
25	6.89	421.6	57.4	32.4	74.4	57.4
26	7.08	420.4	57.4	32.4	74.2	57.2
27	7.27	418.8	57.4	32.4	74.0	57.0
28	7.46	417.0	57.3	32.3	73.8	56.8
29	7.64	415.0	57.3	32.3	73.8	56.8
30	7.82	412.6	57.2	32.2	73.9	56.9
31	7.99	409.9	57.2	32.2	74.0	57.0
32	8.15	407.0	57.2	32.2	74.1	57.1
33	8.30	403.8	57.1	32.1	74.1	57.1
34	8.44	400.3	57.1	32.1	74.2	57.2
35	8.56	396.5	57.0	32.0	74.2	57.2
36	8.66	392.5	57.0	32.0	74.2	57.2
37	8.75	388.1	57.0	32.0	74.2	57.2
38	8.82	383.6	56.9	31.9	74.2	57.2
39	8.88	378.8	56.9	31.9	74.2	57.2
40	8.91	373.8	56.8	31.8	74.2	57.2
41	8.93	368.5	56.8	31.8	74.1	57.1
42	8.93	363.1	56.7	31.7	74.1	57.1
43	8.92	357.5	56.7	31.7	74.0	57.0
44	8.88	351.7	56.6	31.6	73.9	56.9
45	8.84	345.8	56.5	31.5	73.8	56.8
46	8.77	339.8	56.5	31.5	73.7	56.7
47	8.69	333.7	56.4	31.4	73.6	56.6
48	8.60	327.5	56.4	31.4	73.4	56.4
49	8.50	321.3	56.3	31.3	73.3	56.3
50	8.39	315.0	56.3	31.3	73.1	56.1
51	8.26	308.7	56.2	31.2	73.0	56.0
52	8.13	302.4	56.1	31.1	72.8	55.8
53	7.99	296.1	56.1	31.1	72.6	55.6
54	7.85	289.8	56.0	31.0	72.4	55.4
55	7.69	283.6	56.0	31.0	72.3	55.3
56	7.54	277.4	55.9	30.9	72.1	55.1
57	7.38	271.3	55.8	30.8	71.9	54.9
58	7.21	265.3	55.8	30.8	71.6	54.6
59	7.05	259.3	55.7	30.7	71.4	54.4
60	6.88	253.4	55.6	30.6	71.2	54.2
61	6.71	247.7	55.6	30.6	71.0	54.0
62	6.55	242.0	55.5	30.5	70.8	53.8
63	6.38	236.4	55.4	30.4	70.5	53.5
64	6.21	231.0	55.4	30.4	70.3	53.3
65	6.05	225.6	55.3	30.3	70.1	53.1
66	5.89	220.4	55.3	30.3	69.8	52.8
67	5.73	215.3	55.2	30.2	69.6	52.6
68	5.57	210.3	55.1	30.1	69.4	52.4
69	5.41	205.5	55.1	30.1	69.1	52.1
70	5.26	200.7	55.0	30.0	68.9	51.9
71	5.11	196.1	54.9	29.9	68.7	51.7
72	4.97	191.6	54.9	29.9	68.4	51.4
73	4.82	187.2	54.8	29.8	68.2	51.2
74	4.68	182.9	54.8	29.8	68.0	51.0
75	4.55	178.8	54.7	29.7	67.7	50.7
76	4.42	174.7	54.6	29.6	67.5	50.5
77	4.29	170.8	54.6	29.6	67.2	50.2
78	4.16	167.0	54.5	29.5	67.0	50.0
79	4.04	163.3	54.5	29.5	66.8	49.8
80	3.93	159.6	54.4	29.4	66.6	49.6

81	3.81	156.1	54.3	29.3	66.3	49.3
82	3.70	152.7	54.3	29.3	66.1	49.1
83	3.59	149.4	54.2	29.2	65.9	48.9
84	3.49	146.2	54.2	29.2	65.6	48.6
85	3.39	143.0	54.1	29.1	65.4	48.4
86	3.29	140.0	54.1	29.1	65.2	48.2
87	3.20	137.0	54.0	29.0	65.0	48.0
88	3.11	134.1	54.0	29.0	64.8	47.8
89	3.02	131.3	53.9	28.9	64.6	47.6
90	2.93	128.6	53.9	28.9	64.3	47.3
91	2.85	126.0	53.8	28.8	64.1	47.1
92	2.77	123.4	53.7	28.7	63.9	46.9
93	2.69	120.9	53.7	28.7	63.7	46.7
94	2.62	118.5	53.6	28.6	63.5	46.5
95	2.54	116.1	53.6	28.6	63.3	46.3
96	2.47	113.8	53.5	28.5	63.1	46.1
97	2.41	111.6	53.5	28.5	62.9	45.9
98	2.34	109.4	53.4	28.4	62.7	45.7
99	2.28	107.3	53.4	28.4	62.5	45.5
100	2.21	105.2	53.3	28.3	62.3	45.3
101	2.16	103.2	53.3	28.3	62.1	45.1
102	2.10	101.3	53.2	28.2	61.9	44.9
103	2.04	99.4	53.2	28.2	61.8	44.8
104	1.99	97.5	53.1	28.1	61.6	44.6
105	1.94	95.7	53.1	28.1	61.4	44.4
106	1.89	94.0	53.1	28.1	61.2	44.2
107	1.84	92.3	53.0	28.0	61.0	44.0
108	1.79	90.6	53.0	28.0	60.8	43.8
109	1.74	89.0	52.9	27.9	60.7	43.7
110	1.70	87.4	52.9	27.9	60.5	43.5
111	1.66	85.8	52.8	27.8	60.3	43.3
112	1.62	84.3	52.8	27.8	60.2	43.2
113	1.58	82.9	52.7	27.7	60.0	43.0
114	1.54	81.5	52.7	27.7	59.8	42.8
115	1.50	80.1	52.7	27.7	59.7	42.7
116	1.46	78.7	52.6	27.6	59.5	42.5
117	1.43	77.4	52.6	27.6	59.3	42.3
118	1.39	76.1	52.5	27.5	59.2	42.2
119	1.36	74.8	52.5	27.5	59.0	42.0
120	1.33	73.6	52.4	27.4	58.9	41.9
121	1.30	72.4	52.4	27.4	58.7	41.7
122	1.26	71.2	52.4	27.4	58.5	41.5
123	1.24	70.1	52.3	27.3	58.4	41.4
124	1.21	69.0	52.3	27.3	58.2	41.2
125	1.18	67.9	52.2	27.2	58.1	41.1
126	1.15	66.8	52.2	27.2	58.0	41.0
127	1.13	65.8	52.2	27.2	57.8	40.8
128	1.10	64.8	52.1	27.1	57.7	40.7
129	1.08	63.8	52.1	27.1	57.5	40.5
130	1.05	62.8	52.0	27.0	57.4	40.4
131	1.03	61.8	52.0	27.0	57.2	40.2
132	1.01	60.9	52.0	27.0	57.1	40.1
133	0.98	60.0	51.9	26.9	57.0	40.0
134	0.96	59.1	51.9	26.9	56.8	39.8
135	0.94	58.2	51.9	26.9	56.7	39.7
136	0.92	57.4	51.8	26.8	56.6	39.6
137	0.90	56.5	51.8	26.8	56.4	39.4
138	0.88	55.7	51.8	26.8	56.3	39.3
139	0.86	54.9	51.7	26.7	56.2	39.2
140	0.85	54.2	51.7	26.7	56.0	39.0
141	0.83	53.4	51.6	26.6	55.9	38.9

142	0.81	52.6	51.6	26.6	55.8	38.8
143	0.80	51.9	51.6	26.6	55.7	38.7
144	0.78	51.2	51.5	26.5	55.5	38.5
145	0.76	50.5	51.5	26.5	55.4	38.4
146	0.75	49.8	51.5	26.5	55.3	38.3
147	0.73	49.1	51.4	26.4	55.2	38.2
148	0.72	48.4	51.4	26.4	55.1	38.1
149	0.70	47.8	51.4	26.4	55.0	38.0
150	0.69	47.2	51.3	26.3	54.9	37.9
151	0.68	46.5	51.3	26.3	54.8	37.8
152	0.66	45.9	51.3	26.3	54.7	37.7
153	0.65	45.3	51.2	26.2	54.7	37.7
154	0.64	44.7	51.2	26.2	54.6	37.6
155	0.63	44.2	51.2	26.2	54.5	37.5
156	0.61	43.6	51.1	26.1	54.4	37.4
157	0.60	43.0	51.1	26.1	54.3	37.3
158	0.59	42.5	51.1	26.1	54.3	37.3
159	0.58	42.0	51.0	26.0	54.2	37.2
160	0.57	41.4	51.0	26.0	54.1	37.1
161	0.56	40.9	51.0	26.0	54.0	37.0
162	0.55	40.4	51.0	26.0	54.0	37.0
163	0.54	39.9	50.9	25.9	53.9	36.9
164	0.53	39.4	50.9	25.9	53.8	36.8
165	0.52	39.0	50.9	25.9	53.7	36.7
166	0.51	38.5	50.8	25.8	53.7	36.7
167	0.50	38.0	50.8	25.8	53.6	36.6
168	0.49	37.6	50.8	25.8	53.5	36.5
169	0.48	37.1	50.7	25.7	53.4	36.4
170	0.48	36.7	50.7	25.7	53.4	36.4
171	0.47	36.3	50.7	25.7	53.3	36.3
172	0.46	35.8	50.7	25.7	53.2	36.2
173	0.45	35.4	50.6	25.6	53.2	36.2
174	0.44	35.0	50.6	25.6	53.1	36.1
175	0.44	34.6	50.6	25.6	53.0	36.0
176	0.43	34.2	50.5	25.5	53.0	36.0
177	0.42	33.8	50.5	25.5	52.9	35.9
178	0.42	33.5	50.5	25.5	52.8	35.8
179	0.41	33.1	50.5	25.5	52.8	35.8
180	0.40	32.7	50.4	25.4	52.7	35.7
181	0.40	32.3	50.4	25.4	52.6	35.6
182	0.39	32.0	50.4	25.4	52.6	35.6
183	0.38	31.6	50.3	25.3	52.5	35.5
184	0.38	31.3	50.3	25.3	52.4	35.4
185	0.37	31.0	50.3	25.3	52.4	35.4
186	0.36	30.6	50.3	25.3	52.3	35.3
187	0.36	30.3	50.2	25.2	52.2	35.2
188	0.35	30.0	50.2	25.2	52.2	35.2
189	0.35	29.7	50.2	25.2	52.1	35.1
190	0.34	29.3	50.2	25.2	52.0	35.0
191	0.34	29.0	50.1	25.1	52.0	35.0
192	0.33	28.7	50.1	25.1	51.9	34.9
193	0.33	28.4	50.1	25.1	51.9	34.9
194	0.32	28.1	50.1	25.1	51.8	34.8
195	0.32	27.8	50.0	25.0	51.7	34.7
196	0.31	27.6	50.0	25.0	51.7	34.7
197	0.31	27.3	50.0	25.0	51.6	34.6
198	0.30	27.0	50.0	25.0	51.6	34.6
199	0.30	26.7	49.9	24.9	51.5	34.5
200	0.29	26.5	49.9	24.9	51.4	34.4
201	0.29	26.2	49.9	24.9	51.4	34.4
202	0.29	25.9	49.9	24.9	51.3	34.3

203	0.28	25.7	49.8	24.8	51.3	34.3
204	0.28	25.4	49.8	24.8	51.2	34.2
205	0.27	25.2	49.8	24.8	51.2	34.2
206	0.27	24.9	49.8	24.8	51.1	34.1
207	0.27	24.7	49.7	24.7	51.0	34.0
208	0.26	24.5	49.7	24.7	51.0	34.0
209	0.26	24.2	49.7	24.7	50.9	33.9
210	0.25	24.0	49.7	24.7	50.9	33.9
211	0.25	23.8	49.6	24.6	50.8	33.8
212	0.25	23.5	49.6	24.6	50.8	33.8
213	0.24	23.3	49.6	24.6	50.7	33.7
214	0.24	23.1	49.6	24.6	50.7	33.7
215	0.24	22.9	49.5	24.5	50.6	33.6
216	0.23	22.7	49.5	24.5	50.6	33.6
217	0.23	22.5	49.5	24.5	50.5	33.5
218	0.23	22.3	49.5	24.5	50.5	33.5
219	0.22	22.1	49.5	24.5	50.4	33.4
220	0.22	21.9	49.4	24.4	50.4	33.4
221	0.22	21.7	49.4	24.4	50.3	33.3
222	0.22	21.5	49.4	24.4	50.3	33.3
223	0.21	21.3	49.4	24.4	50.2	33.2
224	0.21	21.1	49.3	24.3	50.2	33.2
225	0.21	20.9	49.3	24.3	50.1	33.1
226	0.20	20.7	49.3	24.3	50.1	33.1
227	0.20	20.5	49.3	24.3	50.0	33.0
228	0.20	20.3	49.3	24.3	50.0	33.0
229	0.20	20.2	49.2	24.2	49.9	32.9
230	0.19	20.0	49.2	24.2	49.9	32.9
231	0.19	19.8	49.2	24.2	49.8	32.8
232	0.19	19.6	49.2	24.2	49.8	32.8
233	0.19	19.5	49.1	24.1	49.7	32.7
234	0.18	19.3	49.1	24.1	49.7	32.7
235	0.18	19.1	49.1	24.1	49.6	32.6
236	0.18	19.0	49.1	24.1	49.6	32.6
237	0.18	18.8	49.1	24.1	49.5	32.5
238	0.18	18.7	49.0	24.0	49.5	32.5
239	0.17	18.5	49.0	24.0	49.4	32.4
240	0.17	18.3	49.0	24.0	49.4	32.4
241	0.17	18.2	49.0	24.0	49.3	32.3
242	0.17	18.0	49.0	24.0	49.3	32.3
243	0.16	17.9	48.9	23.9	49.2	32.2
244	0.16	17.7	48.9	23.9	49.2	32.2
245	0.16	17.6	48.9	23.9	49.2	32.2
246	0.16	17.5	48.9	23.9	49.1	32.1
247	0.16	17.3	48.9	23.9	49.1	32.1
248	0.16	17.2	48.8	23.8	49.0	32.0
249	0.15	17.0	48.8	23.8	49.0	32.0
250	0.15	16.9	48.8	23.8	48.9	31.9
251	0.15	16.8	48.8	23.8	48.9	31.9
252	0.15	16.6	48.8	23.8	48.8	31.8
253	0.15	16.5	48.7	23.7	48.8	31.8
254	0.14	16.4	48.7	23.7	48.8	31.8
255	0.14	16.2	48.7	23.7	48.7	31.7
256	0.14	16.1	48.7	23.7	48.7	31.7
257	0.14	16.0	48.7	23.7	48.6	31.6
258	0.14	15.9	48.6	23.6	48.6	31.6
259	0.14	15.7	48.6	23.6	48.5	31.5
260	0.13	15.6	48.6	23.6	48.5	31.5
261	0.13	15.5	48.6	23.6	48.5	31.5
262	0.13	15.4	48.6	23.6	48.4	31.4
263	0.13	15.3	48.5	23.5	48.4	31.4

264	0.13	15.2	48.5	23.5	48.3	31.3
265	0.13	15.0	48.5	23.5	48.3	31.3
266	0.13	14.9	48.5	23.5	48.3	31.3
267	0.12	14.8	48.5	23.5	48.2	31.2
268	0.12	14.7	48.5	23.5	48.2	31.2
269	0.12	14.6	48.4	23.4	48.1	31.1
270	0.12	14.5	48.4	23.4	48.1	31.1
271	0.12	14.4	48.4	23.4	48.1	31.1
272	0.12	14.3	48.4	23.4	48.0	31.0
273	0.12	14.2	48.4	23.4	48.0	31.0
274	0.12	14.1	48.3	23.3	47.9	30.9
275	0.11	14.0	48.3	23.3	47.9	30.9
276	0.11	13.9	48.3	23.3	47.9	30.9
277	0.11	13.8	48.3	23.3	47.8	30.8
278	0.11	13.7	48.3	23.3	47.8	30.8
279	0.11	13.6	48.3	23.3	47.8	30.8
280	0.11	13.5	48.2	23.2	47.7	30.7
281	0.11	13.4	48.2	23.2	47.7	30.7
282	0.11	13.3	48.2	23.2	47.6	30.6
283	0.10	13.2	48.2	23.2	47.6	30.6
284	0.10	13.1	48.2	23.2	47.6	30.6
285	0.10	13.0	48.1	23.1	47.5	30.5
286	0.10	12.9	48.1	23.1	47.5	30.5
287	0.10	12.8	48.1	23.1	47.5	30.5
288	0.10	12.7	48.1	23.1	47.4	30.4
289	0.10	12.6	48.1	23.1	47.4	30.4
290	0.10	12.5	48.1	23.1	47.3	30.3
291	0.10	12.5	48.0	23.0	47.3	30.3
292	0.10	12.4	48.0	23.0	47.3	30.3
293	0.09	12.3	48.0	23.0	47.2	30.2
294	0.09	12.2	48.0	23.0	47.2	30.2
295	0.09	12.1	48.0	23.0	47.2	30.2
296	0.09	12.0	48.0	23.0	47.1	30.1
297	0.09	12.0	47.9	22.9	47.1	30.1
298	0.09	11.9	47.9	22.9	47.1	30.1
299	0.09	11.8	47.9	22.9	47.0	30.0
300	0.09	11.7	47.9	22.9	47.0	30.0
301	0.09	11.6	47.9	22.9	47.0	30.0
302	0.09	11.6	47.9	22.9	46.9	29.9
303	0.09	11.5	47.8	22.8	46.9	29.9
304	0.09	11.4	47.8	22.8	46.9	29.9
305	0.08	11.3	47.8	22.8	46.8	29.8
306	0.08	11.3	47.8	22.8	46.8	29.8
307	0.08	11.2	47.8	22.8	46.7	29.7
308	0.08	11.1	47.8	22.8	46.7	29.7
309	0.08	11.0	47.7	22.7	46.7	29.7
310	0.08	11.0	47.7	22.7	46.6	29.6
311	0.08	10.9	47.7	22.7	46.6	29.6
312	0.08	10.8	47.7	22.7	46.6	29.6
313	0.08	10.8	47.7	22.7	46.5	29.5
314	0.08	10.7	47.7	22.7	46.5	29.5
315	0.08	10.6	47.6	22.6	46.5	29.5
316	0.08	10.6	47.6	22.6	46.4	29.4
317	0.08	10.5	47.6	22.6	46.4	29.4
318	0.07	10.4	47.6	22.6	46.4	29.4
319	0.07	10.4	47.6	22.6	46.4	29.4
320	0.07	10.3	47.6	22.6	46.3	29.3
321	0.07	10.2	47.6	22.6	46.3	29.3
322	0.07	10.2	47.5	22.5	46.3	29.3
323	0.07	10.1	47.5	22.5	46.2	29.2
324	0.07	10.0	47.5	22.5	46.2	29.2

325	0.07	10.0	47.5	22.5	46.2	29.2
326	0.07	9.9	47.5	22.5	46.1	29.1
327	0.07	9.9	47.5	22.5	46.1	29.1
328	0.07	9.8	47.4	22.4	46.1	29.1
329	0.07	9.7	47.4	22.4	46.0	29.0
330	0.07	9.7	47.4	22.4	46.0	29.0
331	0.07	9.6	47.4	22.4	46.0	29.0
332	0.07	9.6	47.4	22.4	45.9	28.9
333	0.07	9.5	47.4	22.4	45.9	28.9
334	0.06	9.5	47.4	22.4	45.9	28.9
335	0.06	9.4	47.3	22.3	45.9	28.9
336	0.06	9.3	47.3	22.3	45.8	28.8
337	0.06	9.3	47.3	22.3	45.8	28.8
338	0.06	9.2	47.3	22.3	45.8	28.8
339	0.06	9.2	47.3	22.3	45.7	28.7
340	0.06	9.1	47.3	22.3	45.7	28.7
341	0.06	9.1	47.3	22.3	45.7	28.7
342	0.06	9.0	47.2	22.2	45.6	28.6
343	0.06	9.0	47.2	22.2	45.6	28.6
344	0.06	8.9	47.2	22.2	45.6	28.6
345	0.06	8.9	47.2	22.2	45.6	28.6
346	0.06	8.8	47.2	22.2	45.5	28.5
347	0.06	8.8	47.2	22.2	45.5	28.5
348	0.06	8.7	47.2	22.2	45.5	28.5
349	0.06	8.7	47.1	22.1	45.4	28.4
350	0.06	8.6	47.1	22.1	45.4	28.4
351	0.06	8.6	47.1	22.1	45.4	28.4
352	0.06	8.5	47.1	22.1	45.4	28.4
353	0.05	8.5	47.1	22.1	45.3	28.3
354	0.05	8.4	47.1	22.1	45.3	28.3
355	0.05	8.4	47.1	22.1	45.3	28.3
356	0.05	8.3	47.0	22.0	45.2	28.2
357	0.05	8.3	47.0	22.0	45.2	28.2
358	0.05	8.2	47.0	22.0	45.2	28.2
359	0.05	8.2	47.0	22.0	45.2	28.2
360	0.05	8.1	47.0	22.0	45.1	28.1
361	0.05	8.1	47.0	22.0	45.1	28.1
362	0.05	8.0	47.0	22.0	45.1	28.1
363	0.05	8.0	46.9	21.9	45.0	28.0
364	0.05	8.0	46.9	21.9	45.0	28.0
365	0.05	7.9	46.9	21.9	45.0	28.0
366	0.05	7.9	46.9	21.9	45.0	28.0
367	0.05	7.8	46.9	21.9	44.9	27.9
368	0.05	7.8	46.9	21.9	44.9	27.9
369	0.05	7.7	46.9	21.9	44.9	27.9
370	0.05	7.7	46.9	21.9	44.9	27.9
371	0.05	7.7	46.8	21.8	44.8	27.8
372	0.05	7.6	46.8	21.8	44.8	27.8
373	0.05	7.6	46.8	21.8	44.8	27.8
374	0.05	7.5	46.8	21.8	44.7	27.7
375	0.05	7.5	46.8	21.8	44.7	27.7
376	0.05	7.5	46.8	21.8	44.7	27.7
377	0.05	7.4	46.8	21.8	44.7	27.7
378	0.05	7.4	46.7	21.7	44.6	27.6
379	0.04	7.3	46.7	21.7	44.6	27.6
380	0.04	7.3	46.7	21.7	44.6	27.6
381	0.04	7.3	46.7	21.7	44.6	27.6
382	0.04	7.2	46.7	21.7	44.5	27.5
383	0.04	7.2	46.7	21.7	44.5	27.5
384	0.04	7.1	46.7	21.7	44.5	27.5
385	0.04	7.1	46.7	21.7	44.5	27.5

386	0.04	7.1	46.6	21.6	44.4	27.4
387	0.04	7.0	46.6	21.6	44.4	27.4
388	0.04	7.0	46.6	21.6	44.4	27.4
389	0.04	7.0	46.6	21.6	44.4	27.4
390	0.04	6.9	46.6	21.6	44.3	27.3
391	0.04	6.9	46.6	21.6	44.3	27.3
392	0.04	6.9	46.6	21.6	44.3	27.3
393	0.04	6.8	46.6	21.6	44.3	27.3
394	0.04	6.8	46.5	21.5	44.2	27.2
395	0.04	6.8	46.5	21.5	44.2	27.2
396	0.04	6.7	46.5	21.5	44.2	27.2
397	0.04	6.7	46.5	21.5	44.2	27.2
398	0.04	6.7	46.5	21.5	44.1	27.1
399	0.04	6.6	46.5	21.5	44.1	27.1
400	0.04	6.6	46.5	21.5	44.1	27.1
401	0.04	6.6	46.5	21.5	44.1	27.1
402	0.04	6.5	46.4	21.4	44.0	27.0
403	0.04	6.5	46.4	21.4	44.0	27.0
404	0.04	6.5	46.4	21.4	44.0	27.0
405	0.04	6.4	46.4	21.4	44.0	27.0
406	0.04	6.4	46.4	21.4	43.9	26.9
407	0.04	6.4	46.4	21.4	43.9	26.9
408	0.04	6.3	46.4	21.4	43.9	26.9
409	0.04	6.3	46.4	21.4	43.9	26.9
410	0.04	6.3	46.3	21.3	43.8	26.8
411	0.04	6.2	46.3	21.3	43.8	26.8
412	0.04	6.2	46.3	21.3	43.8	26.8
413	0.03	6.2	46.3	21.3	43.8	26.8
414	0.03	6.1	46.3	21.3	43.7	26.7
415	0.03	6.1	46.3	21.3	43.7	26.7
416	0.03	6.1	46.3	21.3	43.7	26.7
417	0.03	6.1	46.3	21.3	43.7	26.7
418	0.03	6.0	46.2	21.2	43.7	26.7
419	0.03	6.0	46.2	21.2	43.6	26.6
420	0.03	6.0	46.2	21.2	43.6	26.6
421	0.03	5.9	46.2	21.2	43.6	26.6
422	0.03	5.9	46.2	21.2	43.6	26.6
423	0.03	5.9	46.2	21.2	43.5	26.5
424	0.03	5.9	46.2	21.2	43.5	26.5
425	0.03	5.8	46.2	21.2	43.5	26.5
426	0.03	5.8	46.2	21.2	43.5	26.5
427	0.03	5.8	46.1	21.1	43.4	26.4
428	0.03	5.7	46.1	21.1	43.4	26.4
429	0.03	5.7	46.1	21.1	43.4	26.4
430	0.03	5.7	46.1	21.1	43.4	26.4
431	0.03	5.7	46.1	21.1	43.4	26.4
432	0.03	5.6	46.1	21.1	43.3	26.3
433	0.03	5.6	46.1	21.1	43.3	26.3
434	0.03	5.6	46.1	21.1	43.3	26.3
435	0.03	5.6	46.0	21.0	43.3	26.3
436	0.03	5.5	46.0	21.0	43.2	26.2
437	0.03	5.5	46.0	21.0	43.2	26.2
438	0.03	5.5	46.0	21.0	43.2	26.2
439	0.03	5.5	46.0	21.0	43.2	26.2
440	0.03	5.4	46.0	21.0	43.2	26.2
441	0.03	5.4	46.0	21.0	43.1	26.1
442	0.03	5.4	46.0	21.0	43.1	26.1
443	0.03	5.4	46.0	21.0	43.1	26.1
444	0.03	5.3	45.9	20.9	43.1	26.1
445	0.03	5.3	45.9	20.9	43.0	26.0
446	0.03	5.3	45.9	20.9	43.0	26.0

447	0.03	5.3	45.9	20.9	43.0	26.0
448	0.03	5.2	45.9	20.9	43.0	26.0
449	0.03	5.2	45.9	20.9	43.0	26.0
450	0.03	5.2	45.9	20.9	42.9	25.9
451	0.03	5.2	45.9	20.9	42.9	25.9
452	0.03	5.2	45.9	20.9	42.9	25.9
453	0.03	5.1	45.8	20.8	42.9	25.9
454	0.03	5.1	45.8	20.8	42.9	25.9
455	0.03	5.1	45.8	20.8	42.8	25.8
456	0.03	5.1	45.8	20.8	42.8	25.8
457	0.03	5.0	45.8	20.8	42.8	25.8
458	0.03	5.0	45.8	20.8	42.8	25.8
459	0.03	5.0	45.8	20.8	42.7	25.7
460	0.03	5.0	45.8	20.8	42.7	25.7
461	0.03	5.0	45.8	20.8	42.7	25.7
462	0.03	4.9	45.7	20.7	42.7	25.7
463	0.03	4.9	45.7	20.7	42.7	25.7
464	0.02	4.9	45.7	20.7	42.6	25.6
465	0.02	4.9	45.7	20.7	42.6	25.6
466	0.02	4.8	45.7	20.7	42.6	25.6
467	0.02	4.8	45.7	20.7	42.6	25.6
468	0.02	4.8	45.7	20.7	42.6	25.6
469	0.02	4.8	45.7	20.7	42.5	25.5
470	0.02	4.8	45.7	20.7	42.5	25.5
471	0.02	4.7	45.7	20.7	42.5	25.5
472	0.02	4.7	45.6	20.6	42.5	25.5
473	0.02	4.7	45.6	20.6	42.5	25.5
474	0.02	4.7	45.6	20.6	42.4	25.4
475	0.02	4.7	45.6	20.6	42.4	25.4
476	0.02	4.6	45.6	20.6	42.4	25.4
477	0.02	4.6	45.6	20.6	42.4	25.4
478	0.02	4.6	45.6	20.6	42.4	25.4
479	0.02	4.6	45.6	20.6	42.3	25.3
480	0.02	4.6	45.6	20.6	42.3	25.3
481	0.02	4.6	45.5	20.5	42.3	25.3
482	0.02	4.5	45.5	20.5	42.3	25.3
483	0.02	4.5	45.5	20.5	42.3	25.3
484	0.02	4.5	45.5	20.5	42.2	25.2
485	0.02	4.5	45.5	20.5	42.2	25.2
486	0.02	4.5	45.5	20.5	42.2	25.2
487	0.02	4.4	45.5	20.5	42.2	25.2
488	0.02	4.4	45.5	20.5	42.2	25.2
489	0.02	4.4	45.5	20.5	42.1	25.1
490	0.02	4.4	45.5	20.5	42.1	25.1
491	0.02	4.4	45.4	20.4	42.1	25.1
492	0.02	4.3	45.4	20.4	42.1	25.1
493	0.02	4.3	45.4	20.4	42.1	25.1
494	0.02	4.3	45.4	20.4	42.0	25.0
495	0.02	4.3	45.4	20.4	42.0	25.0
496	0.02	4.3	45.4	20.4	42.0	25.0
497	0.02	4.3	45.4	20.4	42.0	25.0
498	0.02	4.2	45.4	20.4	42.0	25.0
499	0.02	4.2	45.4	20.4	41.9	24.9

Bundle	x-feet	y-feet	n cond	cond dia	spacing	l-n voltage	Phasing	Current	Ph-Ph Voltage
1	-19.50	27.00	1	1.107	0.00	139.4	0	1000	241.5
2	0.00	27.00	1	1.107	0.00	139.4	240	1000	241.5
3	19.50	27.00	1	1.107	0.00	139.4	120	1000	241.5
4	-9.75	41.50	1	0.375	0	0.0	0	0	0.0
5	9.75	41.50	1	0.375	0	0.0	0	0	0.0
6									
7									
8									
9									
10									
11									
12									

Line #	W RoW	E RoW
230kV H-Frame	-62.5	62.5
Drake		
1/2EHS		
OPGW		

230 kV Transmission Line voltage set at 5% overvoltage

Transmission Line-Neutral/Ground voltage set at 5% overvoltage for 230 kV line

A Phase	B Phase	C Phase
0	240	120

				Fields	Audible	Radio
			Sensor HT	3.28	5	3
			Altitude	5380	**Frequency**	1.0
Dist	**Emj kV/m**	**Bmaj mG**	**AN L50-Rn**	**AN L50-Fr**	**RI L50-Rn**	**RI L50-Fr**
-499.0	0.00	0.9	39.5	14.5	34.1	17.1
-498.0	0.00	0.9	39.5	14.5	34.2	17.2
-497.0	0.00	0.9	39.5	14.5	34.2	17.2
-496.0	0.00	0.9	39.6	14.6	34.2	17.2
-495.0	0.00	0.9	39.6	14.6	34.2	17.2
-494.0	0.00	0.9	39.6	14.6	34.2	17.2
-493.0	0.00	0.9	39.6	14.6	34.3	17.3
-492.0	0.00	0.9	39.6	14.6	34.3	17.3
-491.0	0.00	0.9	39.6	14.6	34.3	17.3
-490.0	0.00	0.9	39.6	14.6	34.3	17.3
-489.0	0.00	0.9	39.6	14.6	34.3	17.3
-488.0	0.00	0.9	39.6	14.6	34.3	17.3
-487.0	0.00	0.9	39.6	14.6	34.4	17.4
-486.0	0.00	0.9	39.7	14.7	34.4	17.4
-485.0	0.00	0.9	39.7	14.7	34.4	17.4
-484.0	0.00	0.9	39.7	14.7	34.4	17.4
-483.0	0.00	0.9	39.7	14.7	34.4	17.4
-482.0	0.00	1.0	39.7	14.7	34.5	17.5
-481.0	0.00	1.0	39.7	14.7	34.5	17.5
-480.0	0.00	1.0	39.7	14.7	34.5	17.5
-479.0	0.00	1.0	39.7	14.7	34.5	17.5
-478.0	0.00	1.0	39.7	14.7	34.5	17.5
-477.0	0.00	1.0	39.8	14.8	34.6	17.6
-476.0	0.00	1.0	39.8	14.8	34.6	17.6
-475.0	0.00	1.0	39.8	14.8	34.6	17.6
-474.0	0.00	1.0	39.8	14.8	34.6	17.6
-473.0	0.00	1.0	39.8	14.8	34.6	17.6
-472.0	0.00	1.0	39.8	14.8	34.7	17.7
-471.0	0.00	1.0	39.8	14.8	34.7	17.7
-470.0	0.00	1.0	39.8	14.8	34.7	17.7

	W RoW	E RoW	Max in Row
Location	-62.5	62.5	0
Bmaj Field (mG)	53.5	53.5	235.2
Location	-63	63	0
E Field (kV/m)	0.9	0.9	3.2
Location	-63	63	0
AN R-50	50	50	54
	25	25	29
Location	-63	63	0
RI R-50	61	61	77
	44	44	60

-469.0	0.00	1.0	39.8	14.8	34.7	17.7
-468.0	0.00	1.0	39.8	14.8	34.7	17.7
-467.0	0.00	1.0	39.9	14.9	34.8	17.8
-466.0	0.00	1.0	39.9	14.9	34.8	17.8
-465.0	0.00	1.0	39.9	14.9	34.8	17.8
-464.0	0.00	1.0	39.9	14.9	34.8	17.8
-463.0	0.00	1.0	39.9	14.9	34.9	17.9
-462.0	0.00	1.0	39.9	14.9	34.9	17.9
-461.0	0.00	1.0	39.9	14.9	34.9	17.9
-460.0	0.00	1.0	39.9	14.9	34.9	17.9
-459.0	0.00	1.1	39.9	14.9	34.9	17.9
-458.0	0.00	1.1	40.0	15.0	35.0	18.0
-457.0	0.00	1.1	40.0	15.0	35.0	18.0
-456.0	0.00	1.1	40.0	15.0	35.0	18.0
-455.0	0.00	1.1	40.0	15.0	35.0	18.0
-454.0	0.00	1.1	40.0	15.0	35.0	18.0
-453.0	0.00	1.1	40.0	15.0	35.1	18.1
-452.0	0.00	1.1	40.0	15.0	35.1	18.1
-451.0	0.00	1.1	40.0	15.0	35.1	18.1
-450.0	0.00	1.1	40.0	15.0	35.1	18.1
-449.0	0.00	1.1	40.1	15.1	35.1	18.1
-448.0	0.00	1.1	40.1	15.1	35.2	18.2
-447.0	0.00	1.1	40.1	15.1	35.2	18.2
-446.0	0.00	1.1	40.1	15.1	35.2	18.2
-445.0	0.00	1.1	40.1	15.1	35.2	18.2
-444.0	0.00	1.1	40.1	15.1	35.3	18.3
-443.0	0.00	1.1	40.1	15.1	35.3	18.3
-442.0	0.00	1.1	40.1	15.1	35.3	18.3
-441.0	0.00	1.1	40.1	15.1	35.3	18.3
-440.0	0.00	1.1	40.2	15.2	35.3	18.3
-439.0	0.00	1.1	40.2	15.2	35.4	18.4
-438.0	0.00	1.2	40.2	15.2	35.4	18.4
-437.0	0.00	1.2	40.2	15.2	35.4	18.4
-436.0	0.00	1.2	40.2	15.2	35.4	18.4
-435.0	0.00	1.2	40.2	15.2	35.5	18.5
-434.0	0.00	1.2	40.2	15.2	35.5	18.5
-433.0	0.00	1.2	40.2	15.2	35.5	18.5
-432.0	0.00	1.2	40.2	15.2	35.5	18.5
-431.0	0.00	1.2	40.3	15.3	35.5	18.5
-430.0	0.00	1.2	40.3	15.3	35.6	18.6
-429.0	0.00	1.2	40.3	15.3	35.6	18.6
-428.0	0.00	1.2	40.3	15.3	35.6	18.6
-427.0	0.00	1.2	40.3	15.3	35.6	18.6
-426.0	0.00	1.2	40.3	15.3	35.7	18.7
-425.0	0.00	1.2	40.3	15.3	35.7	18.7
-424.0	0.00	1.2	40.3	15.3	35.7	18.7
-423.0	0.00	1.2	40.3	15.3	35.7	18.7
-422.0	0.00	1.2	40.4	15.4	35.8	18.8
-421.0	0.00	1.2	40.4	15.4	35.8	18.8
-420.0	0.00	1.3	40.4	15.4	35.8	18.8
-419.0	0.00	1.3	40.4	15.4	35.8	18.8
-418.0	0.00	1.3	40.4	15.4	35.8	18.8
-417.0	0.00	1.3	40.4	15.4	35.9	18.9
-416.0	0.00	1.3	40.4	15.4	35.9	18.9
-415.0	0.00	1.3	40.4	15.4	35.9	18.9
-414.0	0.00	1.3	40.5	15.5	35.9	18.9
-413.0	0.00	1.3	40.5	15.5	36.0	19.0
-412.0	0.00	1.3	40.5	15.5	36.0	19.0
-411.0	0.00	1.3	40.5	15.5	36.0	19.0

-410.0	0.00	1.3	40.5	15.5	36.0	19.0
-409.0	0.00	1.3	40.5	15.5	36.1	19.1
-408.0	0.00	1.3	40.5	15.5	36.1	19.1
-407.0	0.00	1.3	40.5	15.5	36.1	19.1
-406.0	0.00	1.3	40.5	15.5	36.1	19.1
-405.0	0.00	1.4	40.6	15.6	36.2	19.2
-404.0	0.00	1.4	40.6	15.6	36.2	19.2
-403.0	0.00	1.4	40.6	15.6	36.2	19.2
-402.0	0.00	1.4	40.6	15.6	36.2	19.2
-401.0	0.00	1.4	40.6	15.6	36.3	19.3
-400.0	0.00	1.4	40.6	15.6	36.3	19.3
-399.0	0.00	1.4	40.6	15.6	36.3	19.3
-398.0	0.00	1.4	40.6	15.6	36.3	19.3
-397.0	0.01	1.4	40.7	15.7	36.4	19.4
-396.0	0.01	1.4	40.7	15.7	36.4	19.4
-395.0	0.01	1.4	40.7	15.7	36.4	19.4
-394.0	0.01	1.4	40.7	15.7	36.4	19.4
-393.0	0.01	1.4	40.7	15.7	36.5	19.5
-392.0	0.01	1.4	40.7	15.7	36.5	19.5
-391.0	0.01	1.4	40.7	15.7	36.5	19.5
-390.0	0.01	1.5	40.7	15.7	36.5	19.5
-389.0	0.01	1.5	40.8	15.8	36.6	19.6
-388.0	0.01	1.5	40.8	15.8	36.6	19.6
-387.0	0.01	1.5	40.8	15.8	36.6	19.6
-386.0	0.01	1.5	40.8	15.8	36.6	19.6
-385.0	0.01	1.5	40.8	15.8	36.7	19.7
-384.0	0.01	1.5	40.8	15.8	36.7	19.7
-383.0	0.01	1.5	40.8	15.8	36.7	19.7
-382.0	0.01	1.5	40.8	15.8	36.7	19.7
-381.0	0.01	1.5	40.9	15.9	36.8	19.8
-380.0	0.01	1.5	40.9	15.9	36.8	19.8
-379.0	0.01	1.5	40.9	15.9	36.8	19.8
-378.0	0.01	1.5	40.9	15.9	36.8	19.8
-377.0	0.01	1.6	40.9	15.9	36.9	19.9
-376.0	0.01	1.6	40.9	15.9	36.9	19.9
-375.0	0.01	1.6	40.9	15.9	36.9	19.9
-374.0	0.01	1.6	41.0	16.0	36.9	19.9
-373.0	0.01	1.6	41.0	16.0	37.0	20.0
-372.0	0.01	1.6	41.0	16.0	37.0	20.0
-371.0	0.01	1.6	41.0	16.0	37.0	20.0
-370.0	0.01	1.6	41.0	16.0	37.1	20.1
-369.0	0.01	1.6	41.0	16.0	37.1	20.1
-368.0	0.01	1.6	41.0	16.0	37.1	20.1
-367.0	0.01	1.6	41.0	16.0	37.1	20.1
-366.0	0.01	1.7	41.1	16.1	37.2	20.2
-365.0	0.01	1.7	41.1	16.1	37.2	20.2
-364.0	0.01	1.7	41.1	16.1	37.2	20.2
-363.0	0.01	1.7	41.1	16.1	37.2	20.2
-362.0	0.01	1.7	41.1	16.1	37.3	20.3
-361.0	0.01	1.7	41.1	16.1	37.3	20.3
-360.0	0.01	1.7	41.1	16.1	37.3	20.3
-359.0	0.01	1.7	41.2	16.2	37.4	20.4
-358.0	0.01	1.7	41.2	16.2	37.4	20.4
-357.0	0.01	1.7	41.2	16.2	37.4	20.4
-356.0	0.01	1.7	41.2	16.2	37.4	20.4
-355.0	0.01	1.8	41.2	16.2	37.5	20.5
-354.0	0.01	1.8	41.2	16.2	37.5	20.5
-353.0	0.01	1.8	41.2	16.2	37.5	20.5
-352.0	0.01	1.8	41.3	16.3	37.6	20.6

-351.0	0.01	1.8	41.3	16.3	37.6	20.6
-350.0	0.01	1.8	41.3	16.3	37.6	20.6
-349.0	0.01	1.8	41.3	16.3	37.6	20.6
-348.0	0.01	1.8	41.3	16.3	37.7	20.7
-347.0	0.01	1.8	41.3	16.3	37.7	20.7
-346.0	0.01	1.8	41.3	16.3	37.7	20.7
-345.0	0.01	1.9	41.4	16.4	37.8	20.8
-344.0	0.01	1.9	41.4	16.4	37.8	20.8
-343.0	0.01	1.9	41.4	16.4	37.8	20.8
-342.0	0.01	1.9	41.4	16.4	37.8	20.8
-341.0	0.01	1.9	41.4	16.4	37.9	20.9
-340.0	0.01	1.9	41.4	16.4	37.9	20.9
-339.0	0.01	1.9	41.4	16.4	37.9	20.9
-338.0	0.01	1.9	41.5	16.5	38.0	21.0
-337.0	0.01	1.9	41.5	16.5	38.0	21.0
-336.0	0.01	2.0	41.5	16.5	38.0	21.0
-335.0	0.01	2.0	41.5	16.5	38.1	21.1
-334.0	0.01	2.0	41.5	16.5	38.1	21.1
-333.0	0.01	2.0	41.5	16.5	38.1	21.1
-332.0	0.01	2.0	41.5	16.5	38.1	21.1
-331.0	0.01	2.0	41.6	16.6	38.2	21.2
-330.0	0.01	2.0	41.6	16.6	38.2	21.2
-329.0	0.01	2.0	41.6	16.6	38.2	21.2
-328.0	0.01	2.1	41.6	16.6	38.3	21.3
-327.0	0.01	2.1	41.6	16.6	38.3	21.3
-326.0	0.01	2.1	41.6	16.6	38.3	21.3
-325.0	0.01	2.1	41.6	16.6	38.4	21.4
-324.0	0.01	2.1	41.7	16.7	38.4	21.4
-323.0	0.01	2.1	41.7	16.7	38.4	21.4
-322.0	0.01	2.1	41.7	16.7	38.5	21.5
-321.0	0.01	2.1	41.7	16.7	38.5	21.5
-320.0	0.01	2.2	41.7	16.7	38.5	21.5
-319.0	0.01	2.2	41.7	16.7	38.6	21.6
-318.0	0.01	2.2	41.8	16.8	38.6	21.6
-317.0	0.01	2.2	41.8	16.8	38.6	21.6
-316.0	0.01	2.2	41.8	16.8	38.7	21.7
-315.0	0.01	2.2	41.8	16.8	38.7	21.7
-314.0	0.01	2.2	41.8	16.8	38.7	21.7
-313.0	0.01	2.3	41.8	16.8	38.8	21.8
-312.0	0.01	2.3	41.9	16.9	38.8	21.8
-311.0	0.01	2.3	41.9	16.9	38.8	21.8
-310.0	0.01	2.3	41.9	16.9	38.9	21.9
-309.0	0.01	2.3	41.9	16.9	38.9	21.9
-308.0	0.01	2.3	41.9	16.9	38.9	21.9
-307.0	0.01	2.3	41.9	16.9	39.0	22.0
-306.0	0.01	2.4	41.9	16.9	39.0	22.0
-305.0	0.01	2.4	42.0	17.0	39.0	22.0
-304.0	0.01	2.4	42.0	17.0	39.1	22.1
-303.0	0.01	2.4	42.0	17.0	39.1	22.1
-302.0	0.01	2.4	42.0	17.0	39.1	22.1
-301.0	0.01	2.4	42.0	17.0	39.2	22.2
-300.0	0.01	2.5	42.0	17.0	39.2	22.2
-299.0	0.01	2.5	42.1	17.1	39.2	22.2
-298.0	0.01	2.5	42.1	17.1	39.3	22.3
-297.0	0.01	2.5	42.1	17.1	39.3	22.3
-296.0	0.01	2.5	42.1	17.1	39.3	22.3
-295.0	0.01	2.5	42.1	17.1	39.4	22.4
-294.0	0.01	2.6	42.1	17.1	39.4	22.4
-293.0	0.01	2.6	42.2	17.2	39.5	22.5

-292.0	0.01	2.6	42.2	17.2	39.5	22.5
-291.0	0.01	2.6	42.2	17.2	39.5	22.5
-290.0	0.01	2.6	42.2	17.2	39.6	22.6
-289.0	0.01	2.6	42.2	17.2	39.6	22.6
-288.0	0.01	2.7	42.2	17.2	39.6	22.6
-287.0	0.01	2.7	42.3	17.3	39.7	22.7
-286.0	0.01	2.7	42.3	17.3	39.7	22.7
-285.0	0.01	2.7	42.3	17.3	39.7	22.7
-284.0	0.01	2.7	42.3	17.3	39.8	22.8
-283.0	0.01	2.8	42.3	17.3	39.8	22.8
-282.0	0.01	2.8	42.4	17.4	39.9	22.9
-281.0	0.01	2.8	42.4	17.4	39.9	22.9
-280.0	0.01	2.8	42.4	17.4	39.9	22.9
-279.0	0.01	2.8	42.4	17.4	40.0	23.0
-278.0	0.01	2.9	42.4	17.4	40.0	23.0
-277.0	0.01	2.9	42.4	17.4	40.0	23.0
-276.0	0.01	2.9	42.5	17.5	40.1	23.1
-275.0	0.01	2.9	42.5	17.5	40.1	23.1
-274.0	0.01	2.9	42.5	17.5	40.2	23.2
-273.0	0.01	3.0	42.5	17.5	40.2	23.2
-272.0	0.01	3.0	42.5	17.5	40.2	23.2
-271.0	0.01	3.0	42.5	17.5	40.3	23.3
-270.0	0.01	3.0	42.6	17.6	40.3	23.3
-269.0	0.01	3.1	42.6	17.6	40.4	23.4
-268.0	0.01	3.1	42.6	17.6	40.4	23.4
-267.0	0.01	3.1	42.6	17.6	40.4	23.4
-266.0	0.01	3.1	42.6	17.6	40.5	23.5
-265.0	0.01	3.2	42.7	17.7	40.5	23.5
-264.0	0.02	3.2	42.7	17.7	40.6	23.6
-263.0	0.02	3.2	42.7	17.7	40.6	23.6
-262.0	0.02	3.2	42.7	17.7	40.7	23.7
-261.0	0.02	3.2	42.7	17.7	40.7	23.7
-260.0	0.02	3.3	42.8	17.8	40.7	23.7
-259.0	0.02	3.3	42.8	17.8	40.8	23.8
-258.0	0.02	3.3	42.8	17.8	40.8	23.8
-257.0	0.02	3.3	42.8	17.8	40.9	23.9
-256.0	0.02	3.4	42.8	17.8	40.9	23.9
-255.0	0.02	3.4	42.8	17.8	40.9	23.9
-254.0	0.02	3.4	42.9	17.9	41.0	24.0
-253.0	0.02	3.5	42.9	17.9	41.0	24.0
-252.0	0.02	3.5	42.9	17.9	41.1	24.1
-251.0	0.02	3.5	42.9	17.9	41.1	24.1
-250.0	0.02	3.5	42.9	17.9	41.2	24.2
-249.0	0.02	3.6	43.0	18.0	41.2	24.2
-248.0	0.02	3.6	43.0	18.0	41.3	24.3
-247.0	0.02	3.6	43.0	18.0	41.3	24.3
-246.0	0.02	3.7	43.0	18.0	41.3	24.3
-245.0	0.02	3.7	43.0	18.0	41.4	24.4
-244.0	0.02	3.7	43.1	18.1	41.4	24.4
-243.0	0.02	3.7	43.1	18.1	41.5	24.5
-242.0	0.02	3.8	43.1	18.1	41.5	24.5
-241.0	0.02	3.8	43.1	18.1	41.6	24.6
-240.0	0.02	3.8	43.1	18.1	41.6	24.6
-239.0	0.02	3.9	43.2	18.2	41.7	24.7
-238.0	0.02	3.9	43.2	18.2	41.7	24.7
-237.0	0.02	3.9	43.2	18.2	41.8	24.8
-236.0	0.02	4.0	43.2	18.2	41.8	24.8
-235.0	0.02	4.0	43.3	18.3	41.9	24.9
-234.0	0.02	4.0	43.3	18.3	41.9	24.9

-233.0	0.02	4.1	43.3	18.3	42.0	25.0
-232.0	0.02	4.1	43.3	18.3	42.0	25.0
-231.0	0.02	4.1	43.3	18.3	42.1	25.1
-230.0	0.02	4.2	43.4	18.4	42.1	25.1
-229.0	0.02	4.2	43.4	18.4	42.1	25.1
-228.0	0.02	4.3	43.4	18.4	42.2	25.2
-227.0	0.02	4.3	43.4	18.4	42.2	25.2
-226.0	0.02	4.3	43.4	18.4	42.3	25.3
-225.0	0.02	4.4	43.5	18.5	42.3	25.3
-224.0	0.02	4.4	43.5	18.5	42.4	25.4
-223.0	0.02	4.4	43.5	18.5	42.5	25.5
-222.0	0.02	4.5	43.5	18.5	42.5	25.5
-221.0	0.02	4.5	43.6	18.6	42.6	25.6
-220.0	0.03	4.6	43.6	18.6	42.6	25.6
-219.0	0.03	4.6	43.6	18.6	42.7	25.7
-218.0	0.03	4.7	43.6	18.6	42.7	25.7
-217.0	0.03	4.7	43.6	18.6	42.8	25.8
-216.0	0.03	4.7	43.7	18.7	42.8	25.8
-215.0	0.03	4.8	43.7	18.7	42.9	25.9
-214.0	0.03	4.8	43.7	18.7	42.9	25.9
-213.0	0.03	4.9	43.7	18.7	43.0	26.0
-212.0	0.03	4.9	43.8	18.8	43.0	26.0
-211.0	0.03	5.0	43.8	18.8	43.1	26.1
-210.0	0.03	5.0	43.8	18.8	43.1	26.1
-209.0	0.03	5.1	43.8	18.8	43.2	26.2
-208.0	0.03	5.1	43.9	18.9	43.3	26.3
-207.0	0.03	5.2	43.9	18.9	43.3	26.3
-206.0	0.03	5.2	43.9	18.9	43.4	26.4
-205.0	0.03	5.3	43.9	18.9	43.4	26.4
-204.0	0.03	5.3	44.0	19.0	43.5	26.5
-203.0	0.03	5.4	44.0	19.0	43.5	26.5
-202.0	0.03	5.4	44.0	19.0	43.6	26.6
-201.0	0.03	5.5	44.0	19.0	43.7	26.7
-200.0	0.03	5.5	44.0	19.0	43.7	26.7
-199.0	0.03	5.6	44.1	19.1	43.8	26.8
-198.0	0.03	5.6	44.1	19.1	43.8	26.8
-197.0	0.03	5.7	44.1	19.1	43.9	26.9
-196.0	0.04	5.7	44.1	19.1	44.0	27.0
-195.0	0.04	5.8	44.2	19.2	44.0	27.0
-194.0	0.04	5.9	44.2	19.2	44.1	27.1
-193.0	0.04	5.9	44.2	19.2	44.1	27.1
-192.0	0.04	6.0	44.3	19.3	44.2	27.2
-191.0	0.04	6.1	44.3	19.3	44.3	27.3
-190.0	0.04	6.1	44.3	19.3	44.3	27.3
-189.0	0.04	6.2	44.3	19.3	44.4	27.4
-188.0	0.04	6.2	44.4	19.4	44.5	27.5
-187.0	0.04	6.3	44.4	19.4	44.5	27.5
-186.0	0.04	6.4	44.4	19.4	44.6	27.6
-185.0	0.04	6.5	44.4	19.4	44.6	27.6
-184.0	0.04	6.5	44.5	19.5	44.7	27.7
-183.0	0.04	6.6	44.5	19.5	44.8	27.8
-182.0	0.04	6.7	44.5	19.5	44.8	27.8
-181.0	0.04	6.7	44.5	19.5	44.9	27.9
-180.0	0.04	6.8	44.6	19.6	45.0	28.0
-179.0	0.05	6.9	44.6	19.6	45.1	28.1
-178.0	0.05	7.0	44.6	19.6	45.1	28.1
-177.0	0.05	7.0	44.7	19.7	45.2	28.2
-176.0	0.05	7.1	44.7	19.7	45.3	28.3
-175.0	0.05	7.2	44.7	19.7	45.3	28.3

-174.0	0.05	7.3	44.7	19.7	45.4	28.4
-173.0	0.05	7.4	44.8	19.8	45.5	28.5
-172.0	0.05	7.5	44.8	19.8	45.5	28.5
-171.0	0.05	7.5	44.8	19.8	45.6	28.6
-170.0	0.05	7.6	44.9	19.9	45.7	28.7
-169.0	0.05	7.7	44.9	19.9	45.8	28.8
-168.0	0.05	7.8	44.9	19.9	45.8	28.8
-167.0	0.06	7.9	44.9	19.9	45.9	28.9
-166.0	0.06	8.0	45.0	20.0	46.0	29.0
-165.0	0.06	8.1	45.0	20.0	46.1	29.1
-164.0	0.06	8.2	45.0	20.0	46.1	29.1
-163.0	0.06	8.3	45.1	20.1	46.2	29.2
-162.0	0.06	8.4	45.1	20.1	46.3	29.3
-161.0	0.06	8.5	45.1	20.1	46.4	29.4
-160.0	0.06	8.6	45.2	20.2	46.4	29.4
-159.0	0.06	8.7	45.2	20.2	46.5	29.5
-158.0	0.07	8.8	45.2	20.2	46.6	29.6
-157.0	0.07	8.9	45.2	20.2	46.7	29.7
-156.0	0.07	9.1	45.3	20.3	46.8	29.8
-155.0	0.07	9.2	45.3	20.3	46.8	29.8
-154.0	0.07	9.3	45.3	20.3	46.9	29.9
-153.0	0.07	9.4	45.4	20.4	47.0	30.0
-152.0	0.07	9.5	45.4	20.4	47.1	30.1
-151.0	0.07	9.7	45.4	20.4	47.2	30.2
-150.0	0.08	9.8	45.5	20.5	47.3	30.3
-149.0	0.08	9.9	45.5	20.5	47.4	30.4
-148.0	0.08	10.1	45.5	20.5	47.4	30.4
-147.0	0.08	10.2	45.6	20.6	47.5	30.5
-146.0	0.08	10.3	45.6	20.6	47.6	30.6
-145.0	0.08	10.5	45.6	20.6	47.7	30.7
-144.0	0.09	10.6	45.7	20.7	47.8	30.8
-143.0	0.09	10.8	45.7	20.7	47.9	30.9
-142.0	0.09	10.9	45.7	20.7	48.0	31.0
-141.0	0.09	11.1	45.8	20.8	48.1	31.1
-140.0	0.09	11.2	45.8	20.8	48.2	31.2
-139.0	0.09	11.4	45.8	20.8	48.3	31.3
-138.0	0.10	11.6	45.9	20.9	48.3	31.3
-137.0	0.10	11.7	45.9	20.9	48.4	31.4
-136.0	0.10	11.9	46.0	21.0	48.5	31.5
-135.0	0.10	12.1	46.0	21.0	48.6	31.6
-134.0	0.10	12.2	46.0	21.0	48.7	31.7
-133.0	0.11	12.4	46.1	21.1	48.8	31.8
-132.0	0.11	12.6	46.1	21.1	48.9	31.9
-131.0	0.11	12.8	46.1	21.1	49.0	32.0
-130.0	0.11	13.0	46.2	21.2	49.1	32.1
-129.0	0.12	13.2	46.2	21.2	49.2	32.2
-128.0	0.12	13.4	46.2	21.2	49.3	32.3
-127.0	0.12	13.6	46.3	21.3	49.5	32.5
-126.0	0.12	13.8	46.3	21.3	49.6	32.6
-125.0	0.13	14.0	46.4	21.4	49.7	32.7
-124.0	0.13	14.3	46.4	21.4	49.8	32.8
-123.0	0.13	14.5	46.4	21.4	49.9	32.9
-122.0	0.14	14.7	46.5	21.5	50.0	33.0
-121.0	0.14	15.0	46.5	21.5	50.1	33.1
-120.0	0.14	15.2	46.6	21.6	50.2	33.2
-119.0	0.15	15.5	46.6	21.6	50.3	33.3
-118.0	0.15	15.7	46.6	21.6	50.4	33.4
-117.0	0.15	16.0	46.7	21.7	50.6	33.6
-116.0	0.16	16.3	46.7	21.7	50.7	33.7

-115.0	0.16	16.6	46.8	21.8	50.8	33.8
-114.0	0.17	16.9	46.8	21.8	50.9	33.9
-113.0	0.17	17.1	46.9	21.9	51.0	34.0
-112.0	0.17	17.4	46.9	21.9	51.2	34.2
-111.0	0.18	17.8	46.9	21.9	51.3	34.3
-110.0	0.18	18.1	47.0	22.0	51.4	34.4
-109.0	0.19	18.4	47.0	22.0	51.5	34.5
-108.0	0.19	18.7	47.1	22.1	51.7	34.7
-107.0	0.20	19.1	47.1	22.1	51.8	34.8
-106.0	0.20	19.4	47.2	22.2	51.9	34.9
-105.0	0.21	19.8	47.2	22.2	52.0	35.0
-104.0	0.22	20.2	47.3	22.3	52.2	35.2
-103.0	0.22	20.6	47.3	22.3	52.3	35.3
-102.0	0.23	21.0	47.4	22.4	52.5	35.5
-101.0	0.23	21.4	47.4	22.4	52.6	35.6
-100.0	0.24	21.8	47.5	22.5	52.7	35.7
-99.0	0.25	22.2	47.5	22.5	52.9	35.9
-98.0	0.26	22.7	47.6	22.6	53.0	36.0
-97.0	0.26	23.1	47.6	22.6	53.2	36.2
-96.0	0.27	23.6	47.7	22.7	53.4	36.4
-95.0	0.28	24.1	47.7	22.7	53.6	36.6
-94.0	0.29	24.6	47.8	22.8	53.8	36.8
-93.0	0.30	25.1	47.8	22.8	54.0	37.0
-92.0	0.30	25.7	47.9	22.9	54.2	37.2
-91.0	0.31	26.2	47.9	22.9	54.4	37.4
-90.0	0.32	26.8	48.0	23.0	54.6	37.6
-89.0	0.33	27.4	48.0	23.0	54.8	37.8
-88.0	0.35	28.0	48.1	23.1	55.0	38.0
-87.0	0.36	28.6	48.1	23.1	55.2	38.2
-86.0	0.37	29.2	48.2	23.2	55.4	38.4
-85.0	0.38	29.9	48.3	23.3	55.6	38.6
-84.0	0.39	30.6	48.3	23.3	55.8	38.8
-83.0	0.41	31.3	48.4	23.4	56.0	39.0
-82.0	0.42	32.1	48.4	23.4	56.3	39.3
-81.0	0.43	32.8	48.5	23.5	56.5	39.5
-80.0	0.45	33.6	48.5	23.5	56.7	39.7
-79.0	0.46	34.4	48.6	23.6	56.9	39.9
-78.0	0.48	35.3	48.7	23.7	57.2	40.2
-77.0	0.50	36.2	48.7	23.7	57.4	40.4
-76.0	0.52	37.1	48.8	23.8	57.7	40.7
-75.0	0.53	38.0	48.9	23.9	57.9	40.9
-74.5	0.54	38.5	48.9	23.9	58.0	41.0
-74.0	0.55	39.0	48.9	23.9	58.1	41.1
-73.5	0.56	39.5	49.0	24.0	58.3	41.3
-73.0	0.57	40.0	49.0	24.0	58.4	41.4
-72.5	0.58	40.6	49.0	24.0	58.5	41.5
-72.0	0.59	41.1	49.1	24.1	58.7	41.7
-71.5	0.61	41.6	49.1	24.1	58.8	41.8
-71.0	0.62	42.2	49.1	24.1	58.9	41.9
-70.5	0.63	42.8	49.2	24.2	59.0	42.0
-70.0	0.64	43.3	49.2	24.2	59.2	42.2
-69.5	0.65	43.9	49.2	24.2	59.3	42.3
-69.0	0.67	44.5	49.3	24.3	59.4	42.4
-68.5	0.68	45.1	49.3	24.3	59.6	42.6
-68.0	0.69	45.8	49.3	24.3	59.7	42.7
-67.5	0.70	46.4	49.4	24.4	59.9	42.9
-67.0	0.72	47.1	49.4	24.4	60.0	43.0
-66.5	0.73	47.7	49.4	24.4	60.1	43.1
-66.0	0.75	48.4	49.5	24.5	60.3	43.3

-65.5	0.76	49.1	49.5	24.5	60.4	43.4
-65.0	0.78	49.8	49.5	24.5	60.6	43.6
-64.5	0.79	50.5	49.6	24.6	60.7	43.7
-64.0	0.81	51.2	49.6	24.6	60.8	43.8
-63.5	0.82	52.0	49.6	24.6	61.0	44.0
-63.0	0.84	52.7	49.7	24.7	61.1	44.1
-62.5	0.86	53.5	49.7	24.7	61.3	44.3
-62.0	0.87	54.3	49.8	24.8	61.4	44.4
-61.5	0.89	55.1	49.8	24.8	61.6	44.6
-61.0	0.91	56.0	49.8	24.8	61.7	44.7
-60.5	0.93	56.8	49.9	24.9	61.9	44.9
-60.0	0.95	57.7	49.9	24.9	62.0	45.0
-59.5	0.97	58.5	50.0	25.0	62.2	45.2
-59.0	0.99	59.4	50.0	25.0	62.3	45.3
-58.5	1.01	60.4	50.0	25.0	62.5	45.5
-58.0	1.03	61.3	50.1	25.1	62.6	45.6
-57.5	1.05	62.3	50.1	25.1	62.8	45.8
-57.0	1.07	63.2	50.1	25.1	63.0	46.0
-56.5	1.09	64.2	50.2	25.2	63.1	46.1
-56.0	1.12	65.3	50.2	25.2	63.3	46.3
-55.5	1.14	66.3	50.3	25.3	63.4	46.4
-55.0	1.16	67.4	50.3	25.3	63.6	46.6
-54.5	1.19	68.5	50.4	25.4	63.8	46.8
-54.0	1.21	69.6	50.4	25.4	63.9	46.9
-53.5	1.24	70.7	50.4	25.4	64.1	47.1
-53.0	1.26	71.9	50.5	25.5	64.2	47.2
-52.5	1.29	73.1	50.5	25.5	64.4	47.4
-52.0	1.32	74.3	50.6	25.6	64.6	47.6
-51.5	1.35	75.5	50.6	25.6	64.8	47.8
-51.0	1.38	76.8	50.7	25.7	64.9	47.9
-50.5	1.41	78.1	50.7	25.7	65.1	48.1
-50.0	1.44	79.4	50.7	25.7	65.3	48.3
-49.5	1.47	80.8	50.8	25.8	65.4	48.4
-49.0	1.50	82.2	50.8	25.8	65.6	48.6
-48.5	1.53	83.6	50.9	25.9	65.8	48.8
-48.0	1.56	85.0	50.9	25.9	65.9	48.9
-47.5	1.60	86.5	51.0	26.0	66.1	49.1
-47.0	1.63	88.0	51.0	26.0	66.3	49.3
-46.5	1.66	89.6	51.1	26.1	66.5	49.5
-46.0	1.70	91.1	51.1	26.1	66.6	49.6
-45.5	1.74	92.7	51.1	26.1	66.8	49.8
-45.0	1.77	94.4	51.2	26.2	67.0	50.0
-44.5	1.81	96.1	51.2	26.2	67.2	50.2
-44.0	1.85	97.8	51.3	26.3	67.4	50.4
-43.5	1.89	99.5	51.3	26.3	67.5	50.5
-43.0	1.93	101.3	51.4	26.4	67.7	50.7
-42.5	1.96	103.1	51.4	26.4	67.9	50.9
-42.0	2.01	105.0	51.5	26.5	68.1	51.1
-41.5	2.05	106.9	51.5	26.5	68.2	51.2
-41.0	2.09	108.8	51.6	26.6	68.4	51.4
-40.5	2.13	110.8	51.6	26.6	68.6	51.6
-40.0	2.17	112.8	51.7	26.7	68.8	51.8
-39.5	2.21	114.8	51.7	26.7	68.9	51.9
-39.0	2.26	116.9	51.8	26.8	69.1	52.1
-38.5	2.30	119.0	51.8	26.8	69.3	52.3
-38.0	2.34	121.2	51.9	26.9	69.5	52.5
-37.5	2.39	123.4	51.9	26.9	69.6	52.6
-37.0	2.43	125.6	52.0	27.0	69.8	52.8
-36.5	2.47	127.8	52.0	27.0	70.0	53.0

-36.0	2.52	130.1	52.1	27.1	70.1	53.1
-35.5	2.56	132.5	52.1	27.1	70.3	53.3
-35.0	2.60	134.8	52.2	27.2	70.5	53.5
-34.5	2.65	137.2	52.2	27.2	70.6	53.6
-34.0	2.69	139.6	52.3	27.3	70.8	53.8
-33.5	2.73	142.1	52.3	27.3	70.9	53.9
-33.0	2.77	144.6	52.4	27.4	71.1	54.1
-32.5	2.81	147.1	52.4	27.4	71.2	54.2
-32.0	2.85	149.6	52.5	27.5	71.4	54.4
-31.5	2.89	152.1	52.5	27.5	71.5	54.5
-31.0	2.92	154.7	52.6	27.6	71.7	54.7
-30.5	2.96	157.3	52.6	27.6	71.8	54.8
-30.0	2.99	159.9	52.7	27.7	71.9	54.9
-29.5	3.02	162.5	52.7	27.7	72.1	55.1
-29.0	3.06	165.1	52.8	27.8	72.2	55.2
-28.5	3.08	167.7	52.8	27.8	72.3	55.3
-28.0	3.11	170.3	52.9	27.9	72.4	55.4
-27.5	3.13	172.9	52.9	27.9	72.5	55.5
-27.0	3.15	175.5	52.9	27.9	72.7	55.7
-26.5	3.17	178.1	53.0	28.0	72.8	55.8
-26.0	3.19	180.7	53.0	28.0	72.8	55.8
-25.5	3.20	183.2	53.1	28.1	72.9	55.9
-25.0	3.21	185.8	53.1	28.1	73.0	56.0
-24.5	3.22	188.2	53.2	28.2	73.1	56.1
-24.0	3.22	190.7	53.2	28.2	73.2	56.2
-23.5	3.22	193.1	53.3	28.3	73.2	56.2
-23.0	3.22	195.5	53.3	28.3	73.3	56.3
-22.5	3.21	197.8	53.3	28.3	73.3	56.3
-22.0	3.20	200.1	53.4	28.4	73.4	56.4
-21.5	3.19	202.3	53.4	28.4	73.4	56.4
-21.0	3.17	204.5	53.4	28.4	73.4	56.4
-20.5	3.15	206.6	53.5	28.5	73.4	56.4
-20.0	3.13	208.6	53.5	28.5	73.4	56.4
-19.5	3.10	210.6	53.6	28.6	73.5	56.5
-19.0	3.07	212.5	53.6	28.6	73.4	56.4
-18.5	3.04	214.3	53.6	28.6	73.4	56.4
-18.0	3.00	216.1	53.7	28.7	73.4	56.4
-17.5	2.96	217.7	53.7	28.7	73.4	56.4
-17.0	2.92	219.3	53.7	28.7	73.4	56.4
-16.5	2.87	220.8	53.8	28.8	73.3	56.3
-16.0	2.82	222.3	53.8	28.8	73.4	56.4
-15.5	2.77	223.6	53.8	28.8	73.6	56.6
-15.0	2.72	224.9	53.8	28.8	73.7	56.7
-14.5	2.67	226.0	53.9	28.9	73.9	56.9
-14.0	2.62	227.1	53.9	28.9	74.0	57.0
-13.5	2.56	228.1	53.9	28.9	74.2	57.2
-13.0	2.51	229.0	54.0	29.0	74.3	57.3
-12.5	2.45	229.9	54.0	29.0	74.5	57.5
-12.0	2.39	230.7	54.0	29.0	74.6	57.6
-11.5	2.34	231.4	54.0	29.0	74.8	57.8
-11.0	2.29	232.0	54.1	29.1	74.9	57.9
-10.5	2.23	232.5	54.1	29.1	75.0	58.0
-10.0	2.18	233.0	54.1	29.1	75.2	58.2
-9.5	2.13	233.5	54.1	29.1	75.3	58.3
-9.0	2.09	233.8	54.1	29.1	75.4	58.4
-8.5	2.04	234.1	54.2	29.2	75.5	58.5
-8.0	2.00	234.4	54.2	29.2	75.6	58.6
-7.5	1.97	234.6	54.2	29.2	75.8	58.8
-7.0	1.93	234.8	54.2	29.2	75.9	58.9

-6.5	1.90	234.9	54.2	29.2	75.9	58.9
-6.0	1.87	235.0	54.2	29.2	76.0	59.0
-5.5	1.85	235.1	54.3	29.3	76.1	59.1
-5.0	1.83	235.1	54.3	29.3	76.2	59.2
-4.5	1.81	235.1	54.3	29.3	76.3	59.3
-4.0	1.79	235.2	54.3	29.3	76.3	59.3
-3.5	1.78	235.2	54.3	29.3	76.4	59.4
-3.0	1.77	235.1	54.3	29.3	76.4	59.4
-2.5	1.76	235.1	54.3	29.3	76.5	59.5
-2.0	1.76	235.1	54.3	29.3	76.5	59.5
-1.5	1.75	235.1	54.3	29.3	76.5	59.5
-1.0	1.75	235.1	54.3	29.3	76.5	59.5
-0.5	1.75	235.1	54.3	29.3	76.5	59.5
0.0	1.75	235.1	54.3	29.3	76.6	59.6
0.5	1.75	235.1	54.3	29.3	76.5	59.5
1.0	1.75	235.1	54.3	29.3	76.5	59.5
1.5	1.75	235.1	54.3	29.3	76.5	59.5
2.0	1.76	235.1	54.3	29.3	76.5	59.5
2.5	1.76	235.1	54.3	29.3	76.5	59.5
3.0	1.77	235.1	54.3	29.3	76.4	59.4
3.5	1.78	235.2	54.3	29.3	76.4	59.4
4.0	1.79	235.2	54.3	29.3	76.3	59.3
4.5	1.81	235.1	54.3	29.3	76.3	59.3
5.0	1.83	235.1	54.3	29.3	76.2	59.2
5.5	1.85	235.1	54.3	29.3	76.1	59.1
6.0	1.87	235.0	54.2	29.2	76.0	59.0
6.5	1.90	234.9	54.2	29.2	75.9	58.9
7.0	1.93	234.8	54.2	29.2	75.9	58.9
7.5	1.97	234.6	54.2	29.2	75.8	58.8
8.0	2.00	234.4	54.2	29.2	75.6	58.6
8.5	2.04	234.1	54.2	29.2	75.5	58.5
9.0	2.09	233.8	54.1	29.1	75.4	58.4
9.5	2.13	233.5	54.1	29.1	75.3	58.3
10.0	2.18	233.0	54.1	29.1	75.2	58.2
10.5	2.23	232.5	54.1	29.1	75.0	58.0
11.0	2.29	232.0	54.1	29.1	74.9	57.9
11.5	2.34	231.4	54.0	29.0	74.8	57.8
12.0	2.39	230.7	54.0	29.0	74.6	57.6
12.5	2.45	229.9	54.0	29.0	74.5	57.5
13.0	2.51	229.0	54.0	29.0	74.3	57.3
13.5	2.56	228.1	53.9	28.9	74.2	57.2
14.0	2.62	227.1	53.9	28.9	74.0	57.0
14.5	2.67	226.0	53.9	28.9	73.9	56.9
15.0	2.72	224.9	53.8	28.8	73.7	56.7
15.5	2.77	223.6	53.8	28.8	73.6	56.6
16.0	2.82	222.3	53.8	28.8	73.4	56.4
16.5	2.87	220.8	53.8	28.8	73.3	56.3
17.0	2.92	219.3	53.7	28.7	73.4	56.4
17.5	2.96	217.7	53.7	28.7	73.4	56.4
18.0	3.00	216.1	53.7	28.7	73.4	56.4
18.5	3.04	214.3	53.6	28.6	73.4	56.4
19.0	3.07	212.5	53.6	28.6	73.4	56.4
19.5	3.10	210.6	53.6	28.6	73.5	56.5
20.0	3.13	208.6	53.5	28.5	73.4	56.4
20.5	3.15	206.6	53.5	28.5	73.4	56.4
21.0	3.17	204.5	53.4	28.4	73.4	56.4
21.5	3.19	202.3	53.4	28.4	73.4	56.4
22.0	3.20	200.1	53.4	28.4	73.4	56.4
22.5	3.21	197.8	53.3	28.3	73.3	56.3

23.0	3.22	195.5	53.3	28.3	73.3	56.3
23.5	3.22	193.1	53.3	28.3	73.2	56.2
24.0	3.22	190.7	53.2	28.2	73.2	56.2
24.5	3.22	188.2	53.2	28.2	73.1	56.1
25.0	3.21	185.8	53.1	28.1	73.0	56.0
25.5	3.20	183.2	53.1	28.1	72.9	55.9
26.0	3.19	180.7	53.0	28.0	72.8	55.8
26.5	3.17	178.1	53.0	28.0	72.8	55.8
27.0	3.15	175.5	52.9	27.9	72.7	55.7
27.5	3.13	172.9	52.9	27.9	72.5	55.5
28.0	3.11	170.3	52.9	27.9	72.4	55.4
28.5	3.08	167.7	52.8	27.8	72.3	55.3
29.0	3.06	165.1	52.8	27.8	72.2	55.2
29.5	3.02	162.5	52.7	27.7	72.1	55.1
30.0	2.99	159.9	52.7	27.7	71.9	54.9
30.5	2.96	157.3	52.6	27.6	71.8	54.8
31.0	2.92	154.7	52.6	27.6	71.7	54.7
31.5	2.89	152.1	52.5	27.5	71.5	54.5
32.0	2.85	149.6	52.5	27.5	71.4	54.4
32.5	2.81	147.1	52.4	27.4	71.2	54.2
33.0	2.77	144.6	52.4	27.4	71.1	54.1
33.5	2.73	142.1	52.3	27.3	70.9	53.9
34.0	2.69	139.6	52.3	27.3	70.8	53.8
34.5	2.65	137.2	52.2	27.2	70.6	53.6
35.0	2.60	134.8	52.2	27.2	70.5	53.5
35.5	2.56	132.5	52.1	27.1	70.3	53.3
36.0	2.52	130.1	52.1	27.1	70.1	53.1
36.5	2.47	127.8	52.0	27.0	70.0	53.0
37.0	2.43	125.6	52.0	27.0	69.8	52.8
37.5	2.39	123.4	51.9	26.9	69.6	52.6
38.0	2.34	121.2	51.9	26.9	69.5	52.5
38.5	2.30	119.0	51.8	26.8	69.3	52.3
39.0	2.26	116.9	51.8	26.8	69.1	52.1
39.5	2.21	114.8	51.7	26.7	68.9	51.9
40.0	2.17	112.8	51.7	26.7	68.8	51.8
40.5	2.13	110.8	51.6	26.6	68.6	51.6
41.0	2.09	108.8	51.6	26.6	68.4	51.4
41.5	2.05	106.9	51.5	26.5	68.2	51.2
42.0	2.01	105.0	51.5	26.5	68.1	51.1
42.5	1.96	103.1	51.4	26.4	67.9	50.9
43.0	1.93	101.3	51.4	26.4	67.7	50.7
43.5	1.89	99.5	51.3	26.3	67.5	50.5
44.0	1.85	97.8	51.3	26.3	67.4	50.4
44.5	1.81	96.1	51.2	26.2	67.2	50.2
45.0	1.77	94.4	51.2	26.2	67.0	50.0
45.5	1.74	92.7	51.1	26.1	66.8	49.8
46.0	1.70	91.1	51.1	26.1	66.6	49.6
46.5	1.66	89.6	51.1	26.1	66.5	49.5
47.0	1.63	88.0	51.0	26.0	66.3	49.3
47.5	1.60	86.5	51.0	26.0	66.1	49.1
48.0	1.56	85.0	50.9	25.9	65.9	48.9
48.5	1.53	83.6	50.9	25.9	65.8	48.8
49.0	1.50	82.2	50.8	25.8	65.6	48.6
49.5	1.47	80.8	50.8	25.8	65.4	48.4
50.0	1.44	79.4	50.7	25.7	65.3	48.3
50.5	1.41	78.1	50.7	25.7	65.1	48.1
51.0	1.38	76.8	50.7	25.7	64.9	47.9
51.5	1.35	75.5	50.6	25.6	64.8	47.8
52.0	1.32	74.3	50.6	25.6	64.6	47.6

52.5	1.29	73.1	50.5	25.5	64.4	47.4
53.0	1.26	71.9	50.5	25.5	64.2	47.2
53.5	1.24	70.7	50.4	25.4	64.1	47.1
54.0	1.21	69.6	50.4	25.4	63.9	46.9
54.5	1.19	68.5	50.4	25.4	63.8	46.8
55.0	1.16	67.4	50.3	25.3	63.6	46.6
55.5	1.14	66.3	50.3	25.3	63.4	46.4
56.0	1.12	65.3	50.2	25.2	63.3	46.3
56.5	1.09	64.2	50.2	25.2	63.1	46.1
57.0	1.07	63.2	50.1	25.1	63.0	46.0
57.5	1.05	62.3	50.1	25.1	62.8	45.8
58.0	1.03	61.3	50.1	25.1	62.6	45.6
58.5	1.01	60.4	50.0	25.0	62.5	45.5
59.0	0.99	59.4	50.0	25.0	62.3	45.3
59.5	0.97	58.5	50.0	25.0	62.2	45.2
60.0	0.95	57.7	49.9	24.9	62.0	45.0
60.5	0.93	56.8	49.9	24.9	61.9	44.9
61.0	0.91	56.0	49.8	24.8	61.7	44.7
61.5	0.89	55.1	49.8	24.8	61.6	44.6
62.0	0.87	54.3	49.8	24.8	61.4	44.4
62.5	0.86	53.5	49.7	24.7	61.3	44.3
63.0	0.84	52.7	49.7	24.7	61.1	44.1
63.5	0.82	52.0	49.6	24.6	61.0	44.0
64.0	0.81	51.2	49.6	24.6	60.8	43.8
64.5	0.79	50.5	49.6	24.6	60.7	43.7
65.0	0.78	49.8	49.5	24.5	60.6	43.6
65.5	0.76	49.1	49.5	24.5	60.4	43.4
66.0	0.75	48.4	49.5	24.5	60.3	43.3
66.5	0.73	47.7	49.4	24.4	60.1	43.1
67.0	0.72	47.1	49.4	24.4	60.0	43.0
67.5	0.70	46.4	49.4	24.4	59.9	42.9
68.0	0.69	45.8	49.3	24.3	59.7	42.7
68.5	0.68	45.1	49.3	24.3	59.6	42.6
69.0	0.67	44.5	49.3	24.3	59.4	42.4
69.5	0.65	43.9	49.2	24.2	59.3	42.3
70.0	0.64	43.3	49.2	24.2	59.2	42.2
70.5	0.63	42.8	49.2	24.2	59.0	42.0
71.0	0.62	42.2	49.1	24.1	58.9	41.9
71.5	0.61	41.6	49.1	24.1	58.8	41.8
72.0	0.59	41.1	49.1	24.1	58.7	41.7
72.5	0.58	40.6	49.0	24.0	58.5	41.5
73.0	0.57	40.0	49.0	24.0	58.4	41.4
73.5	0.56	39.5	49.0	24.0	58.3	41.3
74.0	0.55	39.0	48.9	23.9	58.1	41.1
74.5	0.54	38.5	48.9	23.9	58.0	41.0
75.0	0.53	38.0	48.9	23.9	57.9	40.9
76.0	0.52	37.1	48.8	23.8	57.7	40.7
77.0	0.50	36.2	48.7	23.7	57.4	40.4
78.0	0.48	35.3	48.7	23.7	57.2	40.2
79.0	0.46	34.4	48.6	23.6	56.9	39.9
80.0	0.45	33.6	48.5	23.5	56.7	39.7
81.0	0.43	32.8	48.5	23.5	56.5	39.5
82.0	0.42	32.1	48.4	23.4	56.3	39.3
83.0	0.41	31.3	48.4	23.4	56.0	39.0
84.0	0.39	30.6	48.3	23.3	55.8	38.8
85.0	0.38	29.9	48.3	23.3	55.6	38.6
86.0	0.37	29.2	48.2	23.2	55.4	38.4
87.0	0.36	28.6	48.1	23.1	55.2	38.2
88.0	0.35	28.0	48.1	23.1	55.0	38.0

89.0	0.33	27.4	48.0	23.0	54.8	37.8
90.0	0.32	26.8	48.0	23.0	54.6	37.6
91.0	0.31	26.2	47.9	22.9	54.4	37.4
92.0	0.30	25.7	47.9	22.9	54.2	37.2
93.0	0.30	25.1	47.8	22.8	54.0	37.0
94.0	0.29	24.6	47.8	22.8	53.8	36.8
95.0	0.28	24.1	47.7	22.7	53.6	36.6
96.0	0.27	23.6	47.7	22.7	53.4	36.4
97.0	0.26	23.1	47.6	22.6	53.2	36.2
98.0	0.26	22.7	47.6	22.6	53.0	36.0
99.0	0.25	22.2	47.5	22.5	52.9	35.9
100.0	0.24	21.8	47.5	22.5	52.7	35.7
101.0	0.23	21.4	47.4	22.4	52.6	35.6
102.0	0.23	21.0	47.4	22.4	52.5	35.5
103.0	0.22	20.6	47.3	22.3	52.3	35.3
104.0	0.22	20.2	47.3	22.3	52.2	35.2
105.0	0.21	19.8	47.2	22.2	52.0	35.0
106.0	0.20	19.4	47.2	22.2	51.9	34.9
107.0	0.20	19.1	47.1	22.1	51.8	34.8
108.0	0.19	18.7	47.1	22.1	51.7	34.7
109.0	0.19	18.4	47.0	22.0	51.5	34.5
110.0	0.18	18.1	47.0	22.0	51.4	34.4
111.0	0.18	17.8	46.9	21.9	51.3	34.3
112.0	0.17	17.4	46.9	21.9	51.2	34.2
113.0	0.17	17.1	46.9	21.9	51.0	34.0
114.0	0.17	16.9	46.8	21.8	50.9	33.9
115.0	0.16	16.6	46.8	21.8	50.8	33.8
116.0	0.16	16.3	46.7	21.7	50.7	33.7
117.0	0.15	16.0	46.7	21.7	50.6	33.6
118.0	0.15	15.7	46.6	21.6	50.4	33.4
119.0	0.15	15.5	46.6	21.6	50.3	33.3
120.0	0.14	15.2	46.6	21.6	50.2	33.2
121.0	0.14	15.0	46.5	21.5	50.1	33.1
122.0	0.14	14.7	46.5	21.5	50.0	33.0
123.0	0.13	14.5	46.4	21.4	49.9	32.9
124.0	0.13	14.3	46.4	21.4	49.8	32.8
125.0	0.13	14.0	46.4	21.4	49.7	32.7
126.0	0.12	13.8	46.3	21.3	49.6	32.6
127.0	0.12	13.6	46.3	21.3	49.5	32.5
128.0	0.12	13.4	46.2	21.2	49.3	32.3
129.0	0.12	13.2	46.2	21.2	49.2	32.2
130.0	0.11	13.0	46.2	21.2	49.1	32.1
131.0	0.11	12.8	46.1	21.1	49.0	32.0
132.0	0.11	12.6	46.1	21.1	48.9	31.9
133.0	0.11	12.4	46.1	21.1	48.8	31.8
134.0	0.10	12.2	46.0	21.0	48.7	31.7
135.0	0.10	12.1	46.0	21.0	48.6	31.6
136.0	0.10	11.9	46.0	21.0	48.5	31.5
137.0	0.10	11.7	45.9	20.9	48.4	31.4
138.0	0.10	11.6	45.9	20.9	48.3	31.3
139.0	0.09	11.4	45.8	20.8	48.3	31.3
140.0	0.09	11.2	45.8	20.8	48.2	31.2
141.0	0.09	11.1	45.8	20.8	48.1	31.1
142.0	0.09	10.9	45.7	20.7	48.0	31.0
143.0	0.09	10.8	45.7	20.7	47.9	30.9
144.0	0.09	10.6	45.7	20.7	47.8	30.8
145.0	0.08	10.5	45.6	20.6	47.7	30.7
146.0	0.08	10.3	45.6	20.6	47.6	30.6
147.0	0.08	10.2	45.6	20.6	47.5	30.5

148.0	0.08	10.1	45.5	20.5	47.4	30.4
149.0	0.08	9.9	45.5	20.5	47.4	30.4
150.0	0.08	9.8	45.5	20.5	47.3	30.3
151.0	0.07	9.7	45.4	20.4	47.2	30.2
152.0	0.07	9.5	45.4	20.4	47.1	30.1
153.0	0.07	9.4	45.4	20.4	47.0	30.0
154.0	0.07	9.3	45.3	20.3	46.9	29.9
155.0	0.07	9.2	45.3	20.3	46.8	29.8
156.0	0.07	9.1	45.3	20.3	46.8	29.8
157.0	0.07	8.9	45.2	20.2	46.7	29.7
158.0	0.07	8.8	45.2	20.2	46.6	29.6
159.0	0.06	8.7	45.2	20.2	46.5	29.5
160.0	0.06	8.6	45.2	20.2	46.4	29.4
161.0	0.06	8.5	45.1	20.1	46.4	29.4
162.0	0.06	8.4	45.1	20.1	46.3	29.3
163.0	0.06	8.3	45.1	20.1	46.2	29.2
164.0	0.06	8.2	45.0	20.0	46.1	29.1
165.0	0.06	8.1	45.0	20.0	46.1	29.1
166.0	0.06	8.0	45.0	20.0	46.0	29.0
167.0	0.06	7.9	44.9	19.9	45.9	28.9
168.0	0.05	7.8	44.9	19.9	45.8	28.8
169.0	0.05	7.7	44.9	19.9	45.8	28.8
170.0	0.05	7.6	44.9	19.9	45.7	28.7
171.0	0.05	7.5	44.8	19.8	45.6	28.6
172.0	0.05	7.5	44.8	19.8	45.5	28.5
173.0	0.05	7.4	44.8	19.8	45.5	28.5
174.0	0.05	7.3	44.7	19.7	45.4	28.4
175.0	0.05	7.2	44.7	19.7	45.3	28.3
176.0	0.05	7.1	44.7	19.7	45.3	28.3
177.0	0.05	7.0	44.7	19.7	45.2	28.2
178.0	0.05	7.0	44.6	19.6	45.1	28.1
179.0	0.05	6.9	44.6	19.6	45.1	28.1
180.0	0.04	6.8	44.6	19.6	45.0	28.0
181.0	0.04	6.7	44.5	19.5	44.9	27.9
182.0	0.04	6.7	44.5	19.5	44.8	27.8
183.0	0.04	6.6	44.5	19.5	44.8	27.8
184.0	0.04	6.5	44.5	19.5	44.7	27.7
185.0	0.04	6.5	44.4	19.4	44.6	27.6
186.0	0.04	6.4	44.4	19.4	44.6	27.6
187.0	0.04	6.3	44.4	19.4	44.5	27.5
188.0	0.04	6.2	44.4	19.4	44.5	27.5
189.0	0.04	6.2	44.3	19.3	44.4	27.4
190.0	0.04	6.1	44.3	19.3	44.3	27.3
191.0	0.04	6.1	44.3	19.3	44.3	27.3
192.0	0.04	6.0	44.3	19.3	44.2	27.2
193.0	0.04	5.9	44.2	19.2	44.1	27.1
194.0	0.04	5.9	44.2	19.2	44.1	27.1
195.0	0.04	5.8	44.2	19.2	44.0	27.0
196.0	0.04	5.7	44.1	19.1	44.0	27.0
197.0	0.03	5.7	44.1	19.1	43.9	26.9
198.0	0.03	5.6	44.1	19.1	43.8	26.8
199.0	0.03	5.6	44.1	19.1	43.8	26.8
200.0	0.03	5.5	44.0	19.0	43.7	26.7
201.0	0.03	5.5	44.0	19.0	43.7	26.7
202.0	0.03	5.4	44.0	19.0	43.6	26.6
203.0	0.03	5.4	44.0	19.0	43.5	26.5
204.0	0.03	5.3	44.0	19.0	43.5	26.5
205.0	0.03	5.3	43.9	18.9	43.4	26.4
206.0	0.03	5.2	43.9	18.9	43.4	26.4

207.0	0.03	5.2	43.9	18.9	43.3	26.3
208.0	0.03	5.1	43.9	18.9	43.3	26.3
209.0	0.03	5.1	43.8	18.8	43.2	26.2
210.0	0.03	5.0	43.8	18.8	43.1	26.1
211.0	0.03	5.0	43.8	18.8	43.1	26.1
212.0	0.03	4.9	43.8	18.8	43.0	26.0
213.0	0.03	4.9	43.7	18.7	43.0	26.0
214.0	0.03	4.8	43.7	18.7	42.9	25.9
215.0	0.03	4.8	43.7	18.7	42.9	25.9
216.0	0.03	4.7	43.7	18.7	42.8	25.8
217.0	0.03	4.7	43.6	18.6	42.8	25.8
218.0	0.03	4.7	43.6	18.6	42.7	25.7
219.0	0.03	4.6	43.6	18.6	42.7	25.7
220.0	0.03	4.6	43.6	18.6	42.6	25.6
221.0	0.02	4.5	43.6	18.6	42.6	25.6
222.0	0.02	4.5	43.5	18.5	42.5	25.5
223.0	0.02	4.4	43.5	18.5	42.5	25.5
224.0	0.02	4.4	43.5	18.5	42.4	25.4
225.0	0.02	4.4	43.5	18.5	42.3	25.3
226.0	0.02	4.3	43.4	18.4	42.3	25.3
227.0	0.02	4.3	43.4	18.4	42.2	25.2
228.0	0.02	4.3	43.4	18.4	42.2	25.2
229.0	0.02	4.2	43.4	18.4	42.1	25.1
230.0	0.02	4.2	43.4	18.4	42.1	25.1
231.0	0.02	4.1	43.3	18.3	42.1	25.1
232.0	0.02	4.1	43.3	18.3	42.0	25.0
233.0	0.02	4.1	43.3	18.3	42.0	25.0
234.0	0.02	4.0	43.3	18.3	41.9	24.9
235.0	0.02	4.0	43.3	18.3	41.9	24.9
236.0	0.02	4.0	43.2	18.2	41.8	24.8
237.0	0.02	3.9	43.2	18.2	41.8	24.8
238.0	0.02	3.9	43.2	18.2	41.7	24.7
239.0	0.02	3.9	43.2	18.2	41.7	24.7
240.0	0.02	3.8	43.1	18.1	41.6	24.6
241.0	0.02	3.8	43.1	18.1	41.6	24.6
242.0	0.02	3.8	43.1	18.1	41.5	24.5
243.0	0.02	3.7	43.1	18.1	41.5	24.5
244.0	0.02	3.7	43.1	18.1	41.4	24.4
245.0	0.02	3.7	43.0	18.0	41.4	24.4
246.0	0.02	3.7	43.0	18.0	41.3	24.3
247.0	0.02	3.6	43.0	18.0	41.3	24.3
248.0	0.02	3.6	43.0	18.0	41.3	24.3
249.0	0.02	3.6	43.0	18.0	41.2	24.2
250.0	0.02	3.5	42.9	17.9	41.2	24.2
251.0	0.02	3.5	42.9	17.9	41.1	24.1
252.0	0.02	3.5	42.9	17.9	41.1	24.1
253.0	0.02	3.5	42.9	17.9	41.0	24.0
254.0	0.02	3.4	42.9	17.9	41.0	24.0
255.0	0.02	3.4	42.8	17.8	40.9	23.9
256.0	0.02	3.4	42.8	17.8	40.9	23.9
257.0	0.02	3.3	42.8	17.8	40.9	23.9
258.0	0.02	3.3	42.8	17.8	40.8	23.8
259.0	0.02	3.3	42.8	17.8	40.8	23.8
260.0	0.02	3.3	42.8	17.8	40.7	23.7
261.0	0.02	3.2	42.7	17.7	40.7	23.7
262.0	0.02	3.2	42.7	17.7	40.7	23.7
263.0	0.02	3.2	42.7	17.7	40.6	23.6
264.0	0.02	3.2	42.7	17.7	40.6	23.6
265.0	0.01	3.2	42.7	17.7	40.5	23.5

266.0	0.01	3.1	42.6	17.6	40.5	23.5
267.0	0.01	3.1	42.6	17.6	40.4	23.4
268.0	0.01	3.1	42.6	17.6	40.4	23.4
269.0	0.01	3.1	42.6	17.6	40.4	23.4
270.0	0.01	3.0	42.6	17.6	40.3	23.3
271.0	0.01	3.0	42.5	17.5	40.3	23.3
272.0	0.01	3.0	42.5	17.5	40.2	23.2
273.0	0.01	3.0	42.5	17.5	40.2	23.2
274.0	0.01	2.9	42.5	17.5	40.2	23.2
275.0	0.01	2.9	42.5	17.5	40.1	23.1
276.0	0.01	2.9	42.5	17.5	40.1	23.1
277.0	0.01	2.9	42.4	17.4	40.0	23.0
278.0	0.01	2.9	42.4	17.4	40.0	23.0
279.0	0.01	2.8	42.4	17.4	40.0	23.0
280.0	0.01	2.8	42.4	17.4	39.9	22.9
281.0	0.01	2.8	42.4	17.4	39.9	22.9
282.0	0.01	2.8	42.4	17.4	39.9	22.9
283.0	0.01	2.8	42.3	17.3	39.8	22.8
284.0	0.01	2.7	42.3	17.3	39.8	22.8
285.0	0.01	2.7	42.3	17.3	39.7	22.7
286.0	0.01	2.7	42.3	17.3	39.7	22.7
287.0	0.01	2.7	42.3	17.3	39.7	22.7
288.0	0.01	2.7	42.2	17.2	39.6	22.6
289.0	0.01	2.6	42.2	17.2	39.6	22.6
290.0	0.01	2.6	42.2	17.2	39.6	22.6
291.0	0.01	2.6	42.2	17.2	39.5	22.5
292.0	0.01	2.6	42.2	17.2	39.5	22.5
293.0	0.01	2.6	42.2	17.2	39.5	22.5
294.0	0.01	2.6	42.1	17.1	39.4	22.4
295.0	0.01	2.5	42.1	17.1	39.4	22.4
296.0	0.01	2.5	42.1	17.1	39.3	22.3
297.0	0.01	2.5	42.1	17.1	39.3	22.3
298.0	0.01	2.5	42.1	17.1	39.3	22.3
299.0	0.01	2.5	42.1	17.1	39.2	22.2
300.0	0.01	2.5	42.0	17.0	39.2	22.2
301.0	0.01	2.4	42.0	17.0	39.2	22.2
302.0	0.01	2.4	42.0	17.0	39.1	22.1
303.0	0.01	2.4	42.0	17.0	39.1	22.1
304.0	0.01	2.4	42.0	17.0	39.1	22.1
305.0	0.01	2.4	42.0	17.0	39.0	22.0
306.0	0.01	2.4	41.9	16.9	39.0	22.0
307.0	0.01	2.3	41.9	16.9	39.0	22.0
308.0	0.01	2.3	41.9	16.9	38.9	21.9
309.0	0.01	2.3	41.9	16.9	38.9	21.9
310.0	0.01	2.3	41.9	16.9	38.9	21.9
311.0	0.01	2.3	41.9	16.9	38.8	21.8
312.0	0.01	2.3	41.9	16.9	38.8	21.8
313.0	0.01	2.3	41.8	16.8	38.8	21.8
314.0	0.01	2.2	41.8	16.8	38.7	21.7
315.0	0.01	2.2	41.8	16.8	38.7	21.7
316.0	0.01	2.2	41.8	16.8	38.7	21.7
317.0	0.01	2.2	41.8	16.8	38.6	21.6
318.0	0.01	2.2	41.8	16.8	38.6	21.6
319.0	0.01	2.2	41.7	16.7	38.6	21.6
320.0	0.01	2.2	41.7	16.7	38.5	21.5
321.0	0.01	2.1	41.7	16.7	38.5	21.5
322.0	0.01	2.1	41.7	16.7	38.5	21.5
323.0	0.01	2.1	41.7	16.7	38.4	21.4
324.0	0.01	2.1	41.7	16.7	38.4	21.4

325.0	0.01	2.1	41.6	16.6	38.4	21.4
326.0	0.01	2.1	41.6	16.6	38.3	21.3
327.0	0.01	2.1	41.6	16.6	38.3	21.3
328.0	0.01	2.1	41.6	16.6	38.3	21.3
329.0	0.01	2.0	41.6	16.6	38.2	21.2
330.0	0.01	2.0	41.6	16.6	38.2	21.2
331.0	0.01	2.0	41.6	16.6	38.2	21.2
332.0	0.01	2.0	41.5	16.5	38.1	21.1
333.0	0.01	2.0	41.5	16.5	38.1	21.1
334.0	0.01	2.0	41.5	16.5	38.1	21.1
335.0	0.01	2.0	41.5	16.5	38.1	21.1
336.0	0.01	2.0	41.5	16.5	38.0	21.0
337.0	0.01	1.9	41.5	16.5	38.0	21.0
338.0	0.01	1.9	41.5	16.5	38.0	21.0
339.0	0.01	1.9	41.4	16.4	37.9	20.9
340.0	0.01	1.9	41.4	16.4	37.9	20.9
341.0	0.01	1.9	41.4	16.4	37.9	20.9
342.0	0.01	1.9	41.4	16.4	37.8	20.8
343.0	0.01	1.9	41.4	16.4	37.8	20.8
344.0	0.01	1.9	41.4	16.4	37.8	20.8
345.0	0.01	1.9	41.4	16.4	37.8	20.8
346.0	0.01	1.8	41.3	16.3	37.7	20.7
347.0	0.01	1.8	41.3	16.3	37.7	20.7
348.0	0.01	1.8	41.3	16.3	37.7	20.7
349.0	0.01	1.8	41.3	16.3	37.6	20.6
350.0	0.01	1.8	41.3	16.3	37.6	20.6
351.0	0.01	1.8	41.3	16.3	37.6	20.6
352.0	0.01	1.8	41.3	16.3	37.6	20.6
353.0	0.01	1.8	41.2	16.2	37.5	20.5
354.0	0.01	1.8	41.2	16.2	37.5	20.5
355.0	0.01	1.8	41.2	16.2	37.5	20.5
356.0	0.01	1.7	41.2	16.2	37.4	20.4
357.0	0.01	1.7	41.2	16.2	37.4	20.4
358.0	0.01	1.7	41.2	16.2	37.4	20.4
359.0	0.01	1.7	41.2	16.2	37.4	20.4
360.0	0.01	1.7	41.1	16.1	37.3	20.3
361.0	0.01	1.7	41.1	16.1	37.3	20.3
362.0	0.01	1.7	41.1	16.1	37.3	20.3
363.0	0.01	1.7	41.1	16.1	37.2	20.2
364.0	0.01	1.7	41.1	16.1	37.2	20.2
365.0	0.01	1.7	41.1	16.1	37.2	20.2
366.0	0.01	1.7	41.1	16.1	37.2	20.2
367.0	0.01	1.6	41.0	16.0	37.1	20.1
368.0	0.01	1.6	41.0	16.0	37.1	20.1
369.0	0.01	1.6	41.0	16.0	37.1	20.1
370.0	0.01	1.6	41.0	16.0	37.1	20.1
371.0	0.01	1.6	41.0	16.0	37.0	20.0
372.0	0.01	1.6	41.0	16.0	37.0	20.0
373.0	0.01	1.6	41.0	16.0	37.0	20.0
374.0	0.01	1.6	41.0	16.0	36.9	19.9
375.0	0.01	1.6	40.9	15.9	36.9	19.9
376.0	0.01	1.6	40.9	15.9	36.9	19.9
377.0	0.01	1.6	40.9	15.9	36.9	19.9
378.0	0.01	1.5	40.9	15.9	36.8	19.8
379.0	0.01	1.5	40.9	15.9	36.8	19.8
380.0	0.01	1.5	40.9	15.9	36.8	19.8
381.0	0.01	1.5	40.9	15.9	36.8	19.8
382.0	0.01	1.5	40.8	15.8	36.7	19.7
383.0	0.01	1.5	40.8	15.8	36.7	19.7

384.0	0.01	1.5	40.8	15.8	36.7	19.7
385.0	0.01	1.5	40.8	15.8	36.7	19.7
386.0	0.01	1.5	40.8	15.8	36.6	19.6
387.0	0.01	1.5	40.8	15.8	36.6	19.6
388.0	0.01	1.5	40.8	15.8	36.6	19.6
389.0	0.01	1.5	40.8	15.8	36.6	19.6
390.0	0.01	1.5	40.7	15.7	36.5	19.5
391.0	0.01	1.4	40.7	15.7	36.5	19.5
392.0	0.01	1.4	40.7	15.7	36.5	19.5
393.0	0.01	1.4	40.7	15.7	36.5	19.5
394.0	0.01	1.4	40.7	15.7	36.4	19.4
395.0	0.01	1.4	40.7	15.7	36.4	19.4
396.0	0.01	1.4	40.7	15.7	36.4	19.4
397.0	0.01	1.4	40.7	15.7	36.4	19.4
398.0	0.00	1.4	40.6	15.6	36.3	19.3
399.0	0.00	1.4	40.6	15.6	36.3	19.3
400.0	0.00	1.4	40.6	15.6	36.3	19.3
401.0	0.00	1.4	40.6	15.6	36.3	19.3
402.0	0.00	1.4	40.6	15.6	36.2	19.2
403.0	0.00	1.4	40.6	15.6	36.2	19.2
404.0	0.00	1.4	40.6	15.6	36.2	19.2
405.0	0.00	1.4	40.6	15.6	36.2	19.2
406.0	0.00	1.3	40.5	15.5	36.1	19.1
407.0	0.00	1.3	40.5	15.5	36.1	19.1
408.0	0.00	1.3	40.5	15.5	36.1	19.1
409.0	0.00	1.3	40.5	15.5	36.1	19.1
410.0	0.00	1.3	40.5	15.5	36.0	19.0
411.0	0.00	1.3	40.5	15.5	36.0	19.0
412.0	0.00	1.3	40.5	15.5	36.0	19.0
413.0	0.00	1.3	40.5	15.5	36.0	19.0
414.0	0.00	1.3	40.5	15.5	35.9	18.9
415.0	0.00	1.3	40.4	15.4	35.9	18.9
416.0	0.00	1.3	40.4	15.4	35.9	18.9
417.0	0.00	1.3	40.4	15.4	35.9	18.9
418.0	0.00	1.3	40.4	15.4	35.8	18.8
419.0	0.00	1.3	40.4	15.4	35.8	18.8
420.0	0.00	1.3	40.4	15.4	35.8	18.8
421.0	0.00	1.2	40.4	15.4	35.8	18.8
422.0	0.00	1.2	40.4	15.4	35.8	18.8
423.0	0.00	1.2	40.3	15.3	35.7	18.7
424.0	0.00	1.2	40.3	15.3	35.7	18.7
425.0	0.00	1.2	40.3	15.3	35.7	18.7
426.0	0.00	1.2	40.3	15.3	35.7	18.7
427.0	0.00	1.2	40.3	15.3	35.6	18.6
428.0	0.00	1.2	40.3	15.3	35.6	18.6
429.0	0.00	1.2	40.3	15.3	35.6	18.6
430.0	0.00	1.2	40.3	15.3	35.6	18.6
431.0	0.00	1.2	40.3	15.3	35.5	18.5
432.0	0.00	1.2	40.2	15.2	35.5	18.5
433.0	0.00	1.2	40.2	15.2	35.5	18.5
434.0	0.00	1.2	40.2	15.2	35.5	18.5
435.0	0.00	1.2	40.2	15.2	35.5	18.5
436.0	0.00	1.2	40.2	15.2	35.4	18.4
437.0	0.00	1.2	40.2	15.2	35.4	18.4
438.0	0.00	1.2	40.2	15.2	35.4	18.4
439.0	0.00	1.1	40.2	15.2	35.4	18.4
440.0	0.00	1.1	40.2	15.2	35.3	18.3
441.0	0.00	1.1	40.1	15.1	35.3	18.3
442.0	0.00	1.1	40.1	15.1	35.3	18.3

443.0	0.00	1.1	40.1	15.1	35.3	18.3
444.0	0.00	1.1	40.1	15.1	35.3	18.3
445.0	0.00	1.1	40.1	15.1	35.2	18.2
446.0	0.00	1.1	40.1	15.1	35.2	18.2
447.0	0.00	1.1	40.1	15.1	35.2	18.2
448.0	0.00	1.1	40.1	15.1	35.2	18.2
449.0	0.00	1.1	40.1	15.1	35.1	18.1
450.0	0.00	1.1	40.0	15.0	35.1	18.1
451.0	0.00	1.1	40.0	15.0	35.1	18.1
452.0	0.00	1.1	40.0	15.0	35.1	18.1
453.0	0.00	1.1	40.0	15.0	35.1	18.1
454.0	0.00	1.1	40.0	15.0	35.0	18.0
455.0	0.00	1.1	40.0	15.0	35.0	18.0
456.0	0.00	1.1	40.0	15.0	35.0	18.0
457.0	0.00	1.1	40.0	15.0	35.0	18.0
458.0	0.00	1.1	40.0	15.0	35.0	18.0
459.0	0.00	1.1	39.9	14.9	34.9	17.9
460.0	0.00	1.0	39.9	14.9	34.9	17.9
461.0	0.00	1.0	39.9	14.9	34.9	17.9
462.0	0.00	1.0	39.9	14.9	34.9	17.9
463.0	0.00	1.0	39.9	14.9	34.9	17.9
464.0	0.00	1.0	39.9	14.9	34.8	17.8
465.0	0.00	1.0	39.9	14.9	34.8	17.8
466.0	0.00	1.0	39.9	14.9	34.8	17.8
467.0	0.00	1.0	39.9	14.9	34.8	17.8
468.0	0.00	1.0	39.8	14.8	34.7	17.7
469.0	0.00	1.0	39.8	14.8	34.7	17.7
470.0	0.00	1.0	39.8	14.8	34.7	17.7
471.0	0.00	1.0	39.8	14.8	34.7	17.7
472.0	0.00	1.0	39.8	14.8	34.7	17.7
473.0	0.00	1.0	39.8	14.8	34.6	17.6
474.0	0.00	1.0	39.8	14.8	34.6	17.6
475.0	0.00	1.0	39.8	14.8	34.6	17.6
476.0	0.00	1.0	39.8	14.8	34.6	17.6
477.0	0.00	1.0	39.8	14.8	34.6	17.6
478.0	0.00	1.0	39.7	14.7	34.5	17.5
479.0	0.00	1.0	39.7	14.7	34.5	17.5
480.0	0.00	1.0	39.7	14.7	34.5	17.5
481.0	0.00	1.0	39.7	14.7	34.5	17.5
482.0	0.00	1.0	39.7	14.7	34.5	17.5
483.0	0.00	0.9	39.7	14.7	34.4	17.4
484.0	0.00	0.9	39.7	14.7	34.4	17.4
485.0	0.00	0.9	39.7	14.7	34.4	17.4
486.0	0.00	0.9	39.7	14.7	34.4	17.4
487.0	0.00	0.9	39.6	14.6	34.4	17.4
488.0	0.00	0.9	39.6	14.6	34.3	17.3
489.0	0.00	0.9	39.6	14.6	34.3	17.3
490.0	0.00	0.9	39.6	14.6	34.3	17.3
491.0	0.00	0.9	39.6	14.6	34.3	17.3
492.0	0.00	0.9	39.6	14.6	34.3	17.3
493.0	0.00	0.9	39.6	14.6	34.3	17.3
494.0	0.00	0.9	39.6	14.6	34.2	17.2
495.0	0.00	0.9	39.6	14.6	34.2	17.2
496.0	0.00	0.9	39.6	14.6	34.2	17.2
497.0	0.00	0.9	39.5	14.5	34.2	17.2
498.0	0.00	0.9	39.5	14.5	34.2	17.2
499.0	0.00	0.9	39.5	14.5	34.1	17.1

Bundle	x-feet	y-feet	n cond	cond dia	spacing	l-n voltage	Phasing	Current	Ph-Ph Voltage	Line VDblCirc W	RoW	E	RoW
1	-5.00	34.03	1	0.783	0.0	83.7	0	625	138.0	Ibis	-50		50
2	-5.00	40.03	1	0.783	0.0	83.7	240	625	138.0				
3	-5.00	46.03	1	0.783	0.0	83.7	120	625	138.0				
4	5.00	46.02	1	0.563	0.0	41.8	0	275	69.0	Penquin			
5	5.00	40.02	1	0.563	0.0	41.8	240	275	69.0				
6	5.00	34.02	1	0.563	0.0	41.8	120	275	69.0				
7	0.50	54.11	1	0.375	0.0	0.0	0	0	0.0	3/8 EHS			
8													
9													
10													
11													
12													

138/69 kV Transmission Line voltage set at 5% overvoltage

Phasing	138 / 69
C	A
B	B
A	C

Transmission Line-Neutral/Ground voltage set at 5% overvoltage for 138kV and 69kV line

A Phase	B Phase	C Phase
0	240	120

				Fields	Audible	Radio
			Sensor HT	3.28	5	3
			Altitude	5380	**Frequency**	1.0
Dist	**E kV/m**	**Bmaj mG**	**AN L50-Rn**	**AN L50-Fr**	**RI L50-Rn**	**RI L50-Fr**
-499	0.00	0.1	30.2	5.2	30.3	13.3
-498	0.00	0.1	30.2	5.2	30.4	13.4
-497	0.00	0.1	30.2	5.2	30.4	13.4
-496	0.00	0.1	30.2	5.2	30.4	13.4
-495	0.00	0.1	30.2	5.2	30.4	13.4
-494	0.00	0.1	30.2	5.2	30.4	13.4
-493	0.00	0.1	30.2	5.2	30.5	13.5
-492	0.00	0.1	30.2	5.2	30.5	13.5
-491	0.00	0.1	30.3	5.3	30.5	13.5
-490	0.00	0.1	30.3	5.3	30.5	13.5
-489	0.00	0.1	30.3	5.3	30.5	13.5
-488	0.00	0.1	30.3	5.3	30.6	13.6
-487	0.00	0.1	30.3	5.3	30.6	13.6
-486	0.00	0.1	30.3	5.3	30.6	13.6
-485	0.00	0.1	30.3	5.3	30.6	13.6
-484	0.00	0.1	30.3	5.3	30.6	13.6
-483	0.00	0.1	30.3	5.3	30.7	13.7
-482	0.00	0.1	30.3	5.3	30.7	13.7
-481	0.00	0.1	30.4	5.4	30.7	13.7
-480	0.00	0.1	30.4	5.4	30.7	13.7
-479	0.00	0.1	30.4	5.4	30.7	13.7
-478	0.00	0.1	30.4	5.4	30.8	13.8
-477	0.00	0.1	30.4	5.4	30.8	13.8
-476	0.00	0.1	30.4	5.4	30.8	13.8
-475	0.00	0.1	30.4	5.4	30.8	13.8
-474	0.00	0.1	30.4	5.4	30.8	13.8
-473	0.00	0.1	30.4	5.4	30.9	13.9
-472	0.00	0.1	30.4	5.4	30.9	13.9
-471	0.00	0.1	30.5	5.5	30.9	13.9
-470	0.00	0.1	30.5	5.5	30.9	13.9
-469	0.00	0.1	30.5	5.5	30.9	13.9
-468	0.00	0.1	30.5	5.5	31.0	14.0

	W RoW	E RoW	Max in Row
Location	-50	50	-7
Bmaj Field (mG)	8.5	4.4	22.5
Location	-50	50	-8
E Field (kV/m)	0.1	0.1	0.5
Location	-50	50	-5
AN R-50	41	40	43
	16	15	18
Location	-50	50	-5
RI R-50	58	56	65
	41	39	48

-467	0.00	0.1	30.5	5.5	31.0	14.0
-466	0.00	0.1	30.5	5.5	31.0	14.0
-465	0.00	0.1	30.5	5.5	31.0	14.0
-464	0.00	0.1	30.5	5.5	31.0	14.0
-463	0.00	0.1	30.5	5.5	31.1	14.1
-462	0.00	0.1	30.6	5.6	31.1	14.1
-461	0.00	0.1	30.6	5.6	31.1	14.1
-460	0.00	0.1	30.6	5.6	31.1	14.1
-459	0.00	0.1	30.6	5.6	31.2	14.2
-458	0.00	0.1	30.6	5.6	31.2	14.2
-457	0.00	0.1	30.6	5.6	31.2	14.2
-456	0.00	0.1	30.6	5.6	31.2	14.2
-455	0.00	0.1	30.6	5.6	31.2	14.2
-454	0.00	0.1	30.6	5.6	31.3	14.3
-453	0.00	0.1	30.7	5.7	31.3	14.3
-452	0.00	0.1	30.7	5.7	31.3	14.3
-451	0.00	0.1	30.7	5.7	31.3	14.3
-450	0.00	0.1	30.7	5.7	31.3	14.3
-449	0.00	0.1	30.7	5.7	31.4	14.4
-448	0.00	0.1	30.7	5.7	31.4	14.4
-447	0.00	0.1	30.7	5.7	31.4	14.4
-446	0.00	0.1	30.7	5.7	31.4	14.4
-445	0.00	0.1	30.7	5.7	31.5	14.5
-444	0.00	0.1	30.8	5.8	31.5	14.5
-443	0.00	0.1	30.8	5.8	31.5	14.5
-442	0.00	0.1	30.8	5.8	31.5	14.5
-441	0.00	0.1	30.8	5.8	31.5	14.5
-440	0.00	0.1	30.8	5.8	31.6	14.6
-439	0.00	0.1	30.8	5.8	31.6	14.6
-438	0.00	0.1	30.8	5.8	31.6	14.6
-437	0.00	0.1	30.8	5.8	31.6	14.6
-436	0.00	0.1	30.8	5.8	31.7	14.7
-435	0.00	0.1	30.9	5.9	31.7	14.7
-434	0.00	0.1	30.9	5.9	31.7	14.7
-433	0.00	0.1	30.9	5.9	31.7	14.7
-432	0.00	0.1	30.9	5.9	31.7	14.7
-431	0.00	0.1	30.9	5.9	31.8	14.8
-430	0.00	0.1	30.9	5.9	31.8	14.8
-429	0.00	0.1	30.9	5.9	31.8	14.8
-428	0.00	0.1	30.9	5.9	31.8	14.8
-427	0.00	0.1	30.9	5.9	31.9	14.9
-426	0.00	0.1	31.0	6.0	31.9	14.9
-425	0.00	0.1	31.0	6.0	31.9	14.9
-424	0.00	0.1	31.0	6.0	31.9	14.9
-423	0.00	0.1	31.0	6.0	31.9	14.9
-422	0.00	0.1	31.0	6.0	32.0	15.0
-421	0.00	0.1	31.0	6.0	32.0	15.0
-420	0.00	0.1	31.0	6.0	32.0	15.0
-419	0.00	0.1	31.0	6.0	32.0	15.0
-418	0.00	0.1	31.1	6.1	32.1	15.1
-417	0.00	0.1	31.1	6.1	32.1	15.1
-416	0.00	0.1	31.1	6.1	32.1	15.1
-415	0.00	0.1	31.1	6.1	32.1	15.1
-414	0.00	0.1	31.1	6.1	32.2	15.2
-413	0.00	0.1	31.1	6.1	32.2	15.2
-412	0.00	0.1	31.1	6.1	32.2	15.2
-411	0.00	0.1	31.1	6.1	32.2	15.2
-410	0.00	0.1	31.1	6.1	32.3	15.3
-409	0.00	0.2	31.2	6.2	32.3	15.3
-408	0.00	0.2	31.2	6.2	32.3	15.3
-407	0.00	0.2	31.2	6.2	32.3	15.3
-406	0.00	0.2	31.2	6.2	32.4	15.4

-405	0.00	0.2	31.2	6.2	32.4	15.4
-404	0.00	0.2	31.2	6.2	32.4	15.4
-403	0.00	0.2	31.2	6.2	32.4	15.4
-402	0.00	0.2	31.2	6.2	32.5	15.5
-401	0.00	0.2	31.3	6.3	32.5	15.5
-400	0.00	0.2	31.3	6.3	32.5	15.5
-399	0.00	0.2	31.3	6.3	32.5	15.5
-398	0.00	0.2	31.3	6.3	32.6	15.6
-397	0.00	0.2	31.3	6.3	32.6	15.6
-396	0.00	0.2	31.3	6.3	32.6	15.6
-395	0.00	0.2	31.3	6.3	32.6	15.6
-394	0.00	0.2	31.3	6.3	32.7	15.7
-393	0.00	0.2	31.4	6.4	32.7	15.7
-392	0.00	0.2	31.4	6.4	32.7	15.7
-391	0.00	0.2	31.4	6.4	32.7	15.7
-390	0.00	0.2	31.4	6.4	32.8	15.8
-389	0.00	0.2	31.4	6.4	32.8	15.8
-388	0.00	0.2	31.4	6.4	32.8	15.8
-387	0.00	0.2	31.4	6.4	32.8	15.8
-386	0.00	0.2	31.4	6.4	32.9	15.9
-385	0.00	0.2	31.5	6.5	32.9	15.9
-384	0.00	0.2	31.5	6.5	32.9	15.9
-383	0.00	0.2	31.5	6.5	32.9	15.9
-382	0.00	0.2	31.5	6.5	33.0	16.0
-381	0.00	0.2	31.5	6.5	33.0	16.0
-380	0.00	0.2	31.5	6.5	33.0	16.0
-379	0.00	0.2	31.5	6.5	33.0	16.0
-378	0.00	0.2	31.6	6.6	33.1	16.1
-377	0.00	0.2	31.6	6.6	33.1	16.1
-376	0.00	0.2	31.6	6.6	33.1	16.1
-375	0.00	0.2	31.6	6.6	33.1	16.1
-374	0.00	0.2	31.6	6.6	33.2	16.2
-373	0.00	0.2	31.6	6.6	33.2	16.2
-372	0.00	0.2	31.6	6.6	33.2	16.2
-371	0.00	0.2	31.6	6.6	33.3	16.3
-370	0.00	0.2	31.7	6.7	33.3	16.3
-369	0.00	0.2	31.7	6.7	33.3	16.3
-368	0.00	0.2	31.7	6.7	33.3	16.3
-367	0.00	0.2	31.7	6.7	33.4	16.4
-366	0.00	0.2	31.7	6.7	33.4	16.4
-365	0.00	0.2	31.7	6.7	33.4	16.4
-364	0.00	0.2	31.7	6.7	33.5	16.5
-363	0.00	0.2	31.8	6.8	33.5	16.5
-362	0.00	0.2	31.8	6.8	33.5	16.5
-361	0.00	0.2	31.8	6.8	33.5	16.5
-360	0.00	0.2	31.8	6.8	33.6	16.6
-359	0.00	0.2	31.8	6.8	33.6	16.6
-358	0.00	0.2	31.8	6.8	33.6	16.6
-357	0.00	0.2	31.8	6.8	33.6	16.6
-356	0.00	0.2	31.9	6.9	33.7	16.7
-355	0.00	0.2	31.9	6.9	33.7	16.7
-354	0.00	0.2	31.9	6.9	33.7	16.7
-353	0.00	0.2	31.9	6.9	33.8	16.8
-352	0.00	0.2	31.9	6.9	33.8	16.8
-351	0.00	0.2	31.9	6.9	33.8	16.8
-350	0.00	0.2	31.9	6.9	33.9	16.9
-349	0.00	0.2	31.9	6.9	33.9	16.9
-348	0.00	0.2	32.0	7.0	33.9	16.9
-347	0.00	0.2	32.0	7.0	33.9	16.9
-346	0.00	0.2	32.0	7.0	34.0	17.0
-345	0.00	0.2	32.0	7.0	34.0	17.0
-344	0.00	0.2	32.0	7.0	34.0	17.0

-343	0.00	0.2	32.0	7.0	34.1	17.1
-342	0.00	0.2	32.1	7.1	34.1	17.1
-341	0.00	0.2	32.1	7.1	34.1	17.1
-340	0.00	0.2	32.1	7.1	34.1	17.1
-339	0.00	0.2	32.1	7.1	34.2	17.2
-338	0.00	0.2	32.1	7.1	34.2	17.2
-337	0.00	0.2	32.1	7.1	34.2	17.2
-336	0.00	0.2	32.1	7.1	34.3	17.3
-335	0.00	0.2	32.2	7.2	34.3	17.3
-334	0.00	0.2	32.2	7.2	34.3	17.3
-333	0.00	0.2	32.2	7.2	34.4	17.4
-332	0.00	0.2	32.2	7.2	34.4	17.4
-331	0.00	0.2	32.2	7.2	34.4	17.4
-330	0.00	0.2	32.2	7.2	34.5	17.5
-329	0.00	0.2	32.2	7.2	34.5	17.5
-328	0.00	0.2	32.3	7.3	34.5	17.5
-327	0.00	0.2	32.3	7.3	34.6	17.6
-326	0.00	0.2	32.3	7.3	34.6	17.6
-325	0.00	0.2	32.3	7.3	34.6	17.6
-324	0.00	0.2	32.3	7.3	34.6	17.6
-323	0.00	0.2	32.3	7.3	34.7	17.7
-322	0.00	0.2	32.3	7.3	34.7	17.7
-321	0.00	0.2	32.4	7.4	34.7	17.7
-320	0.00	0.2	32.4	7.4	34.8	17.8
-319	0.00	0.2	32.4	7.4	34.8	17.8
-318	0.00	0.3	32.4	7.4	34.8	17.8
-317	0.00	0.3	32.4	7.4	34.9	17.9
-316	0.00	0.3	32.4	7.4	34.9	17.9
-315	0.00	0.3	32.5	7.5	34.9	17.9
-314	0.00	0.3	32.5	7.5	35.0	18.0
-313	0.00	0.3	32.5	7.5	35.0	18.0
-312	0.00	0.3	32.5	7.5	35.0	18.0
-311	0.00	0.3	32.5	7.5	35.1	18.1
-310	0.00	0.3	32.5	7.5	35.1	18.1
-309	0.00	0.3	32.6	7.6	35.1	18.1
-308	0.00	0.3	32.6	7.6	35.2	18.2
-307	0.00	0.3	32.6	7.6	35.2	18.2
-306	0.00	0.3	32.6	7.6	35.2	18.2
-305	0.00	0.3	32.6	7.6	35.3	18.3
-304	0.00	0.3	32.6	7.6	35.3	18.3
-303	0.00	0.3	32.7	7.7	35.4	18.4
-302	0.00	0.3	32.7	7.7	35.4	18.4
-301	0.00	0.3	32.7	7.7	35.4	18.4
-300	0.00	0.3	32.7	7.7	35.5	18.5
-299	0.00	0.3	32.7	7.7	35.5	18.5
-298	0.00	0.3	32.7	7.7	35.5	18.5
-297	0.00	0.3	32.8	7.8	35.6	18.6
-296	0.00	0.3	32.8	7.8	35.6	18.6
-295	0.00	0.3	32.8	7.8	35.6	18.6
-294	0.00	0.3	32.8	7.8	35.7	18.7
-293	0.00	0.3	32.8	7.8	35.7	18.7
-292	0.00	0.3	32.8	7.8	35.7	18.7
-291	0.00	0.3	32.9	7.9	35.8	18.8
-290	0.00	0.3	32.9	7.9	35.8	18.8
-289	0.00	0.3	32.9	7.9	35.9	18.9
-288	0.00	0.3	32.9	7.9	35.9	18.9
-287	0.00	0.3	32.9	7.9	35.9	18.9
-286	0.00	0.3	32.9	7.9	36.0	19.0
-285	0.00	0.3	33.0	8.0	36.0	19.0
-284	0.00	0.3	33.0	8.0	36.0	19.0
-283	0.01	0.3	33.0	8.0	36.1	19.1
-282	0.01	0.3	33.0	8.0	36.1	19.1

-281	0.01	0.3	33.0	8.0	36.2	19.2
-280	0.01	0.3	33.0	8.0	36.2	19.2
-279	0.01	0.3	33.1	8.1	36.2	19.2
-278	0.01	0.3	33.1	8.1	36.3	19.3
-277	0.01	0.3	33.1	8.1	36.3	19.3
-276	0.01	0.3	33.1	8.1	36.4	19.4
-275	0.01	0.3	33.1	8.1	36.4	19.4
-274	0.01	0.3	33.2	8.2	36.4	19.4
-273	0.01	0.3	33.2	8.2	36.5	19.5
-272	0.01	0.3	33.2	8.2	36.5	19.5
-271	0.01	0.3	33.2	8.2	36.6	19.6
-270	0.01	0.4	33.2	8.2	36.6	19.6
-269	0.01	0.4	33.2	8.2	36.6	19.6
-268	0.01	0.4	33.3	8.3	36.7	19.7
-267	0.01	0.4	33.3	8.3	36.7	19.7
-266	0.01	0.4	33.3	8.3	36.8	19.8
-265	0.01	0.4	33.3	8.3	36.8	19.8
-264	0.01	0.4	33.3	8.3	36.8	19.8
-263	0.01	0.4	33.4	8.4	36.9	19.9
-262	0.01	0.4	33.4	8.4	36.9	19.9
-261	0.01	0.4	33.4	8.4	37.0	20.0
-260	0.01	0.4	33.4	8.4	37.0	20.0
-259	0.01	0.4	33.4	8.4	37.1	20.1
-258	0.01	0.4	33.4	8.4	37.1	20.1
-257	0.01	0.4	33.5	8.5	37.1	20.1
-256	0.01	0.4	33.5	8.5	37.2	20.2
-255	0.01	0.4	33.5	8.5	37.2	20.2
-254	0.01	0.4	33.5	8.5	37.3	20.3
-253	0.01	0.4	33.5	8.5	37.3	20.3
-252	0.01	0.4	33.6	8.6	37.4	20.4
-251	0.01	0.4	33.6	8.6	37.4	20.4
-250	0.01	0.4	33.6	8.6	37.4	20.4
-249	0.01	0.4	33.6	8.6	37.5	20.5
-248	0.01	0.4	33.6	8.6	37.5	20.5
-247	0.01	0.4	33.7	8.7	37.6	20.6
-246	0.01	0.4	33.7	8.7	37.6	20.6
-245	0.01	0.4	33.7	8.7	37.7	20.7
-244	0.01	0.4	33.7	8.7	37.7	20.7
-243	0.01	0.4	33.7	8.7	37.8	20.8
-242	0.01	0.4	33.8	8.8	37.8	20.8
-241	0.01	0.4	33.8	8.8	37.9	20.9
-240	0.01	0.4	33.8	8.8	37.9	20.9
-239	0.01	0.5	33.8	8.8	38.0	21.0
-238	0.01	0.5	33.8	8.8	38.0	21.0
-237	0.01	0.5	33.9	8.9	38.0	21.0
-236	0.01	0.5	33.9	8.9	38.1	21.1
-235	0.01	0.5	33.9	8.9	38.1	21.1
-234	0.01	0.5	33.9	8.9	38.2	21.2
-233	0.01	0.5	34.0	9.0	38.2	21.2
-232	0.01	0.5	34.0	9.0	38.3	21.3
-231	0.01	0.5	34.0	9.0	38.3	21.3
-230	0.01	0.5	34.0	9.0	38.4	21.4
-229	0.01	0.5	34.0	9.0	38.4	21.4
-228	0.01	0.5	34.1	9.1	38.5	21.5
-227	0.01	0.5	34.1	9.1	38.5	21.5
-226	0.01	0.5	34.1	9.1	38.6	21.6
-225	0.01	0.5	34.1	9.1	38.6	21.6
-224	0.01	0.5	34.1	9.1	38.7	21.7
-223	0.01	0.5	34.2	9.2	38.7	21.7
-222	0.01	0.5	34.2	9.2	38.8	21.8
-221	0.01	0.5	34.2	9.2	38.8	21.8
-220	0.01	0.5	34.2	9.2	38.9	21.9

-219	0.01	0.5	34.3	9.3	39.0	22.0
-218	0.01	0.5	34.3	9.3	39.0	22.0
-217	0.01	0.5	34.3	9.3	39.1	22.1
-216	0.01	0.6	34.3	9.3	39.1	22.1
-215	0.01	0.6	34.3	9.3	39.2	22.2
-214	0.01	0.6	34.4	9.4	39.2	22.2
-213	0.01	0.6	34.4	9.4	39.3	22.3
-212	0.01	0.6	34.4	9.4	39.3	22.3
-211	0.01	0.6	34.4	9.4	39.4	22.4
-210	0.01	0.6	34.5	9.5	39.4	22.4
-209	0.01	0.6	34.5	9.5	39.5	22.5
-208	0.01	0.6	34.5	9.5	39.6	22.6
-207	0.01	0.6	34.5	9.5	39.6	22.6
-206	0.01	0.6	34.6	9.6	39.7	22.7
-205	0.01	0.6	34.6	9.6	39.7	22.7
-204	0.01	0.6	34.6	9.6	39.8	22.8
-203	0.01	0.6	34.6	9.6	39.8	22.8
-202	0.01	0.6	34.7	9.7	39.9	22.9
-201	0.01	0.6	34.7	9.7	40.0	23.0
-200	0.01	0.6	34.7	9.7	40.0	23.0
-199	0.01	0.7	34.7	9.7	40.1	23.1
-198	0.01	0.7	34.8	9.8	40.1	23.1
-197	0.01	0.7	34.8	9.8	40.2	23.2
-196	0.01	0.7	34.8	9.8	40.3	23.3
-195	0.01	0.7	34.8	9.8	40.3	23.3
-194	0.01	0.7	34.9	9.9	40.4	23.4
-193	0.01	0.7	34.9	9.9	40.4	23.4
-192	0.01	0.7	34.9	9.9	40.5	23.5
-191	0.01	0.7	34.9	9.9	40.6	23.6
-190	0.01	0.7	35.0	10.0	40.6	23.6
-189	0.01	0.7	35.0	10.0	40.7	23.7
-188	0.01	0.7	35.0	10.0	40.8	23.8
-187	0.01	0.7	35.0	10.0	40.8	23.8
-186	0.01	0.8	35.1	10.1	40.9	23.9
-185	0.01	0.8	35.1	10.1	41.0	24.0
-184	0.01	0.8	35.1	10.1	41.0	24.0
-183	0.01	0.8	35.1	10.1	41.1	24.1
-182	0.01	0.8	35.2	10.2	41.2	24.2
-181	0.01	0.8	35.2	10.2	41.2	24.2
-180	0.01	0.8	35.2	10.2	41.3	24.3
-179	0.01	0.8	35.2	10.2	41.4	24.4
-178	0.01	0.8	35.3	10.3	41.4	24.4
-177	0.01	0.8	35.3	10.3	41.5	24.5
-176	0.01	0.8	35.3	10.3	41.6	24.6
-175	0.01	0.9	35.4	10.4	41.6	24.6
-174	0.01	0.9	35.4	10.4	41.7	24.7
-173	0.01	0.9	35.4	10.4	41.8	24.8
-172	0.01	0.9	35.4	10.4	41.9	24.9
-171	0.01	0.9	35.5	10.5	41.9	24.9
-170	0.01	0.9	35.5	10.5	42.0	25.0
-169	0.01	0.9	35.5	10.5	42.1	25.1
-168	0.01	0.9	35.6	10.6	42.2	25.2
-167	0.01	0.9	35.6	10.6	42.2	25.2
-166	0.01	0.9	35.6	10.6	42.3	25.3
-165	0.01	1.0	35.6	10.6	42.4	25.4
-164	0.01	1.0	35.7	10.7	42.5	25.5
-163	0.01	1.0	35.7	10.7	42.5	25.5
-162	0.01	1.0	35.7	10.7	42.6	25.6
-161	0.01	1.0	35.8	10.8	42.7	25.7
-160	0.01	1.0	35.8	10.8	42.8	25.8
-159	0.01	1.0	35.8	10.8	42.8	25.8
-158	0.01	1.0	35.9	10.9	42.9	25.9

-157	0.02	1.1	35.9	10.9	43.0	26.0
-156	0.02	1.1	35.9	10.9	43.1	26.1
-155	0.02	1.1	36.0	11.0	43.2	26.2
-154	0.02	1.1	36.0	11.0	43.3	26.3
-153	0.02	1.1	36.0	11.0	43.3	26.3
-152	0.02	1.1	36.0	11.0	43.4	26.4
-151	0.02	1.1	36.1	11.1	43.5	26.5
-150	0.02	1.2	36.1	11.1	43.6	26.6
-149	0.02	1.2	36.1	11.1	43.7	26.7
-148	0.02	1.2	36.2	11.2	43.8	26.8
-147	0.02	1.2	36.2	11.2	43.9	26.9
-146	0.02	1.2	36.2	11.2	43.9	26.9
-145	0.02	1.2	36.3	11.3	44.0	27.0
-144	0.02	1.3	36.3	11.3	44.1	27.1
-143	0.02	1.3	36.3	11.3	44.2	27.2
-142	0.02	1.3	36.4	11.4	44.3	27.3
-141	0.02	1.3	36.4	11.4	44.4	27.4
-140	0.02	1.3	36.4	11.4	44.5	27.5
-139	0.02	1.4	36.5	11.5	44.6	27.6
-138	0.02	1.4	36.5	11.5	44.7	27.7
-137	0.02	1.4	36.5	11.5	44.8	27.8
-136	0.02	1.4	36.6	11.6	44.9	27.9
-135	0.02	1.4	36.6	11.6	45.0	28.0
-134	0.02	1.5	36.7	11.7	45.1	28.1
-133	0.02	1.5	36.7	11.7	45.2	28.2
-132	0.02	1.5	36.7	11.7	45.3	28.3
-131	0.02	1.5	36.8	11.8	45.4	28.4
-130	0.02	1.6	36.8	11.8	45.5	28.5
-129	0.02	1.6	36.8	11.8	45.6	28.6
-128	0.02	1.6	36.9	11.9	45.7	28.7
-127	0.02	1.6	36.9	11.9	45.8	28.8
-126	0.02	1.7	36.9	11.9	45.9	28.9
-125	0.02	1.7	37.0	12.0	46.0	29.0
-124	0.02	1.7	37.0	12.0	46.1	29.1
-123	0.02	1.7	37.1	12.1	46.2	29.2
-122	0.02	1.8	37.1	12.1	46.3	29.3
-121	0.02	1.8	37.1	12.1	46.4	29.4
-120	0.02	1.8	37.2	12.2	46.5	29.5
-119	0.02	1.8	37.2	12.2	46.6	29.6
-118	0.02	1.9	37.3	12.3	46.7	29.7
-117	0.02	1.9	37.3	12.3	46.9	29.9
-116	0.02	1.9	37.3	12.3	47.0	30.0
-115	0.02	2.0	37.4	12.4	47.1	30.1
-114	0.02	2.0	37.4	12.4	47.2	30.2
-113	0.02	2.0	37.5	12.5	47.3	30.3
-112	0.03	2.1	37.5	12.5	47.5	30.5
-111	0.03	2.1	37.5	12.5	47.6	30.6
-110	0.03	2.2	37.6	12.6	47.7	30.7
-109	0.03	2.2	37.6	12.6	47.8	30.8
-108	0.03	2.2	37.7	12.7	47.9	30.9
-107	0.03	2.3	37.7	12.7	48.1	31.1
-106	0.03	2.3	37.8	12.8	48.2	31.2
-105	0.03	2.4	37.8	12.8	48.3	31.3
-104	0.03	2.4	37.8	12.8	48.5	31.5
-103	0.03	2.4	37.9	12.9	48.6	31.6
-102	0.03	2.5	37.9	12.9	48.7	31.7
-101	0.03	2.5	38.0	13.0	48.8	31.8
-100	0.03	2.6	38.0	13.0	49.0	32.0
-99	0.03	2.6	38.1	13.1	49.1	32.1
-98	0.03	2.7	38.1	13.1	49.3	32.3
-97	0.03	2.7	38.2	13.2	49.4	32.4
-96	0.03	2.8	38.2	13.2	49.5	32.5

-95	0.03	2.9	38.3	13.3	49.7	32.7
-94	0.03	2.9	38.3	13.3	49.8	32.8
-93	0.03	3.0	38.4	13.4	50.0	33.0
-92	0.03	3.0	38.4	13.4	50.1	33.1
-91	0.03	3.1	38.5	13.5	50.3	33.3
-90	0.03	3.2	38.5	13.5	50.4	33.4
-89	0.03	3.2	38.6	13.6	50.6	33.6
-88	0.03	3.3	38.6	13.6	50.7	33.7
-87	0.03	3.4	38.7	13.7	50.9	33.9
-86	0.03	3.4	38.7	13.7	51.0	34.0
-85	0.03	3.5	38.8	13.8	51.2	34.2
-84	0.03	3.6	38.8	13.8	51.3	34.3
-83	0.03	3.7	38.9	13.9	51.5	34.5
-82	0.03	3.8	38.9	13.9	51.6	34.6
-81	0.03	3.8	39.0	14.0	51.8	34.8
-80	0.03	3.9	39.0	14.0	52.0	35.0
-79	0.03	4.0	39.1	14.1	52.1	35.1
-78	0.03	4.1	39.1	14.1	52.3	35.3
-77	0.04	4.2	39.2	14.2	52.5	35.5
-76	0.04	4.3	39.2	14.2	52.7	35.7
-75	0.04	4.4	39.3	14.3	52.8	35.8
-74	0.04	4.5	39.4	14.4	53.0	36.0
-73	0.04	4.6	39.4	14.4	53.2	36.2
-72	0.04	4.7	39.5	14.5	53.4	36.4
-71	0.04	4.8	39.5	14.5	53.5	36.5
-70	0.04	5.0	39.6	14.6	53.7	36.7
-69	0.04	5.1	39.6	14.6	53.9	36.9
-68	0.04	5.2	39.7	14.7	54.1	37.1
-67	0.04	5.4	39.8	14.8	54.3	37.3
-66	0.04	5.5	39.8	14.8	54.5	37.5
-65	0.04	5.6	39.9	14.9	54.7	37.7
-64	0.04	5.8	40.0	15.0	54.9	37.9
-63	0.04	5.9	40.0	15.0	55.0	38.0
-62	0.04	6.1	40.1	15.1	55.2	38.2
-61	0.04	6.2	40.1	15.1	55.4	38.4
-60	0.04	6.4	40.2	15.2	55.6	38.6
-59	0.04	6.6	40.3	15.3	55.8	38.8
-58	0.05	6.8	40.3	15.3	56.0	39.0
-57	0.05	7.0	40.4	15.4	56.3	39.3
-56	0.05	7.1	40.5	15.5	56.5	39.5
-55	0.05	7.3	40.5	15.5	56.7	39.7
-54	0.05	7.6	40.6	15.6	56.9	39.9
-53	0.06	7.8	40.7	15.7	57.1	40.1
-52	0.06	8.0	40.7	15.7	57.3	40.3
-51	0.06	8.2	40.8	15.8	57.5	40.5
-50	0.07	8.5	40.9	15.9	57.7	40.7
-49	0.07	8.7	40.9	15.9	57.9	40.9
-48	0.07	8.9	41.0	16.0	58.2	41.2
-47	0.08	9.2	41.1	16.1	58.4	41.4
-46	0.09	9.5	41.2	16.2	58.6	41.6
-45	0.09	9.8	41.2	16.2	58.8	41.8
-44	0.10	10.0	41.3	16.3	59.0	42.0
-43	0.11	10.3	41.4	16.4	59.3	42.3
-42	0.11	10.6	41.4	16.4	59.5	42.5
-41	0.12	11.0	41.5	16.5	59.7	42.7
-40	0.13	11.3	41.6	16.6	59.9	42.9
-39	0.14	11.6	41.7	16.7	60.2	43.2
-38	0.15	12.0	41.7	16.7	60.4	43.4
-37	0.16	12.3	41.8	16.8	60.6	43.6
-36	0.17	12.7	41.9	16.9	60.8	43.8
-35	0.18	13.1	41.9	16.9	61.0	44.0
-34	0.20	13.4	42.0	17.0	61.3	44.3

-33	0.21	13.8	42.1	17.1	61.5	44.5
-32	0.22	14.2	42.1	17.1	61.7	44.7
-31	0.24	14.6	42.2	17.2	61.9	44.9
-30	0.25	15.1	42.3	17.3	62.1	45.1
-29	0.27	15.5	42.4	17.4	62.3	45.3
-28	0.29	15.9	42.4	17.4	62.5	45.5
-27	0.30	16.3	42.5	17.5	62.7	45.7
-26	0.32	16.8	42.6	17.6	62.9	45.9
-25	0.34	17.2	42.6	17.6	63.1	46.1
-24	0.35	17.6	42.7	17.7	63.3	46.3
-23	0.37	18.0	42.7	17.7	63.5	46.5
-22	0.39	18.5	42.8	17.8	63.7	46.7
-21	0.41	18.9	42.9	17.9	63.8	46.8
-20	0.42	19.3	42.9	17.9	64.0	47.0
-19	0.44	19.7	43.0	18.0	64.2	47.2
-18	0.46	20.1	43.0	18.0	64.3	47.3
-17	0.47	20.4	43.1	18.1	64.4	47.4
-16	0.49	20.8	43.1	18.1	64.6	47.6
-15	0.50	21.1	43.2	18.2	64.7	47.7
-14	0.51	21.4	43.2	18.2	64.8	47.8
-13	0.52	21.7	43.2	18.2	64.9	47.9
-12	0.53	21.9	43.3	18.3	65.0	48.0
-11	0.53	22.1	43.3	18.3	65.1	48.1
-10	0.54	22.3	43.3	18.3	65.1	48.1
-9	0.54	22.4	43.3	18.3	65.2	48.2
-8	0.54	22.5	43.3	18.3	65.2	48.2
-7	0.54	22.5	43.4	18.4	65.3	48.3
-6	0.54	22.5	43.4	18.4	65.3	48.3
-5	0.53	22.5	43.4	18.4	65.3	48.3
-4	0.52	22.4	43.4	18.4	65.3	48.3
-3	0.51	22.2	43.4	18.4	65.3	48.3
-2	0.50	22.0	43.3	18.3	65.2	48.2
-1	0.48	21.8	43.3	18.3	65.2	48.2
0	0.47	21.5	43.3	18.3	65.1	48.1
1	0.45	21.2	43.3	18.3	65.1	48.1
2	0.43	20.8	43.3	18.3	65.0	48.0
3	0.42	20.5	43.2	18.2	64.9	47.9
4	0.40	20.0	43.2	18.2	64.8	47.8
5	0.38	19.6	43.2	18.2	64.7	47.7
6	0.36	19.1	43.1	18.1	64.6	47.6
7	0.34	18.6	43.1	18.1	64.4	47.4
8	0.32	18.1	43.0	18.0	64.3	47.3
9	0.31	17.6	43.0	18.0	64.2	47.2
10	0.29	17.1	42.9	17.9	64.0	47.0
11	0.27	16.6	42.9	17.9	63.8	46.8
12	0.26	16.0	42.8	17.8	63.7	46.7
13	0.24	15.5	42.7	17.7	63.5	46.5
14	0.23	15.0	42.7	17.7	63.3	46.3
15	0.22	14.5	42.6	17.6	63.1	46.1
16	0.20	14.0	42.6	17.6	62.9	45.9
17	0.19	13.5	42.5	17.5	62.7	45.7
18	0.18	13.0	42.4	17.4	62.5	45.5
19	0.17	12.5	42.4	17.4	62.3	45.3
20	0.16	12.0	42.3	17.3	62.1	45.1
21	0.15	11.6	42.2	17.2	61.9	44.9
22	0.15	11.2	42.2	17.2	61.7	44.7
23	0.14	10.7	42.1	17.1	61.5	44.5
24	0.13	10.3	42.0	17.0	61.3	44.3
25	0.13	10.0	41.9	16.9	61.0	44.0
26	0.12	9.6	41.9	16.9	60.8	43.8
27	0.12	9.2	41.8	16.8	60.6	43.6
28	0.11	8.9	41.7	16.7	60.4	43.4

29	0.11	8.6	41.7	16.7	60.2	43.2
30	0.10	8.3	41.6	16.6	59.9	42.9
31	0.10	8.0	41.5	16.5	59.7	42.7
32	0.09	7.7	41.4	16.4	59.5	42.5
33	0.09	7.5	41.4	16.4	59.3	42.3
34	0.09	7.2	41.3	16.3	59.0	42.0
35	0.08	7.0	41.2	16.2	58.8	41.8
36	0.08	6.7	41.2	16.2	58.6	41.6
37	0.08	6.5	41.1	16.1	58.4	41.4
38	0.07	6.3	41.0	16.0	58.2	41.2
39	0.07	6.1	40.9	15.9	57.9	40.9
40	0.07	5.9	40.9	15.9	57.7	40.7
41	0.07	5.7	40.8	15.8	57.5	40.5
42	0.06	5.6	40.7	15.7	57.3	40.3
43	0.06	5.4	40.7	15.7	57.1	40.1
44	0.06	5.2	40.6	15.6	56.9	39.9
45	0.06	5.1	40.5	15.5	56.7	39.7
46	0.06	5.0	40.5	15.5	56.5	39.5
47	0.06	4.8	40.4	15.4	56.3	39.3
48	0.05	4.7	40.3	15.3	56.0	39.0
49	0.05	4.6	40.3	15.3	55.8	38.8
50	0.05	4.4	40.2	15.2	55.6	38.6
51	0.05	4.3	40.1	15.1	55.4	38.4
52	0.05	4.2	40.1	15.1	55.2	38.2
53	0.05	4.1	40.0	15.0	55.0	38.0
54	0.05	4.0	40.0	15.0	54.9	37.9
55	0.04	3.9	39.9	14.9	54.7	37.7
56	0.04	3.8	39.8	14.8	54.5	37.5
57	0.04	3.7	39.8	14.8	54.3	37.3
58	0.04	3.6	39.7	14.7	54.1	37.1
59	0.04	3.6	39.7	14.7	53.9	36.9
60	0.04	3.5	39.6	14.6	53.7	36.7
61	0.04	3.4	39.5	14.5	53.5	36.5
62	0.04	3.3	39.5	14.5	53.4	36.4
63	0.04	3.2	39.4	14.4	53.2	36.2
64	0.04	3.2	39.4	14.4	53.0	36.0
65	0.04	3.1	39.3	14.3	52.8	35.8
66	0.04	3.0	39.2	14.2	52.7	35.7
67	0.03	3.0	39.2	14.2	52.5	35.5
68	0.03	2.9	39.1	14.1	52.3	35.3
69	0.03	2.9	39.1	14.1	52.1	35.1
70	0.03	2.8	39.0	14.0	52.0	35.0
71	0.03	2.7	39.0	14.0	51.8	34.8
72	0.03	2.7	38.9	13.9	51.6	34.6
73	0.03	2.6	38.9	13.9	51.5	34.5
74	0.03	2.6	38.8	13.8	51.3	34.3
75	0.03	2.5	38.8	13.8	51.2	34.2
76	0.03	2.5	38.7	13.7	51.0	34.0
77	0.03	2.4	38.7	13.7	50.9	33.9
78	0.03	2.4	38.6	13.6	50.7	33.7
79	0.03	2.3	38.6	13.6	50.6	33.6
80	0.03	2.3	38.5	13.5	50.4	33.4
81	0.03	2.3	38.5	13.5	50.3	33.3
82	0.03	2.2	38.4	13.4	50.1	33.1
83	0.03	2.2	38.4	13.4	50.0	33.0
84	0.03	2.1	38.3	13.3	49.8	32.8
85	0.03	2.1	38.3	13.3	49.7	32.7
86	0.03	2.1	38.2	13.2	49.5	32.5
87	0.02	2.0	38.2	13.2	49.4	32.4
88	0.02	2.0	38.1	13.1	49.3	32.3
89	0.02	2.0	38.1	13.1	49.1	32.1
90	0.02	1.9	38.0	13.0	49.0	32.0

91	0.02	1.9	38.0	13.0	48.8	31.8
92	0.02	1.9	37.9	12.9	48.7	31.7
93	0.02	1.8	37.9	12.9	48.6	31.6
94	0.02	1.8	37.8	12.8	48.5	31.5
95	0.02	1.8	37.8	12.8	48.3	31.3
96	0.02	1.8	37.8	12.8	48.2	31.2
97	0.02	1.7	37.7	12.7	48.1	31.1
98	0.02	1.7	37.7	12.7	47.9	30.9
99	0.02	1.7	37.6	12.6	47.8	30.8
100	0.02	1.6	37.6	12.6	47.7	30.7
101	0.02	1.6	37.5	12.5	47.6	30.6
102	0.02	1.6	37.5	12.5	47.5	30.5
103	0.02	1.6	37.5	12.5	47.3	30.3
104	0.02	1.5	37.4	12.4	47.2	30.2
105	0.02	1.5	37.4	12.4	47.1	30.1
106	0.02	1.5	37.3	12.3	47.0	30.0
107	0.02	1.5	37.3	12.3	46.9	29.9
108	0.02	1.5	37.3	12.3	46.7	29.7
109	0.02	1.4	37.2	12.2	46.6	29.6
110	0.02	1.4	37.2	12.2	46.5	29.5
111	0.02	1.4	37.1	12.1	46.4	29.4
112	0.02	1.4	37.1	12.1	46.3	29.3
113	0.02	1.4	37.1	12.1	46.2	29.2
114	0.02	1.3	37.0	12.0	46.1	29.1
115	0.02	1.3	37.0	12.0	46.0	29.0
116	0.02	1.3	36.9	11.9	45.9	28.9
117	0.02	1.3	36.9	11.9	45.8	28.8
118	0.02	1.3	36.9	11.9	45.7	28.7
119	0.02	1.2	36.8	11.8	45.6	28.6
120	0.02	1.2	36.8	11.8	45.5	28.5
121	0.02	1.2	36.8	11.8	45.4	28.4
122	0.02	1.2	36.7	11.7	45.3	28.3
123	0.02	1.2	36.7	11.7	45.2	28.2
124	0.02	1.2	36.7	11.7	45.1	28.1
125	0.02	1.1	36.6	11.6	45.0	28.0
126	0.02	1.1	36.6	11.6	44.9	27.9
127	0.01	1.1	36.5	11.5	44.8	27.8
128	0.01	1.1	36.5	11.5	44.7	27.7
129	0.01	1.1	36.5	11.5	44.6	27.6
130	0.01	1.1	36.4	11.4	44.5	27.5
131	0.01	1.1	36.4	11.4	44.4	27.4
132	0.01	1.0	36.4	11.4	44.3	27.3
133	0.01	1.0	36.3	11.3	44.2	27.2
134	0.01	1.0	36.3	11.3	44.1	27.1
135	0.01	1.0	36.3	11.3	44.0	27.0
136	0.01	1.0	36.2	11.2	43.9	26.9
137	0.01	1.0	36.2	11.2	43.9	26.9
138	0.01	1.0	36.2	11.2	43.8	26.8
139	0.01	1.0	36.1	11.1	43.7	26.7
140	0.01	0.9	36.1	11.1	43.6	26.6
141	0.01	0.9	36.1	11.1	43.5	26.5
142	0.01	0.9	36.0	11.0	43.4	26.4
143	0.01	0.9	36.0	11.0	43.3	26.3
144	0.01	0.9	36.0	11.0	43.3	26.3
145	0.01	0.9	36.0	11.0	43.2	26.2
146	0.01	0.9	35.9	10.9	43.1	26.1
147	0.01	0.9	35.9	10.9	43.0	26.0
148	0.01	0.9	35.9	10.9	42.9	25.9
149	0.01	0.9	35.8	10.8	42.8	25.8
150	0.01	0.8	35.8	10.8	42.8	25.8
151	0.01	0.8	35.8	10.8	42.7	25.7
152	0.01	0.8	35.7	10.7	42.6	25.6

153	0.01	0.8	35.7	10.7	42.5	25.5
154	0.01	0.8	35.7	10.7	42.5	25.5
155	0.01	0.8	35.6	10.6	42.4	25.4
156	0.01	0.8	35.6	10.6	42.3	25.3
157	0.01	0.8	35.6	10.6	42.2	25.2
158	0.01	0.8	35.6	10.6	42.2	25.2
159	0.01	0.8	35.5	10.5	42.1	25.1
160	0.01	0.8	35.5	10.5	42.0	25.0
161	0.01	0.7	35.5	10.5	41.9	24.9
162	0.01	0.7	35.4	10.4	41.9	24.9
163	0.01	0.7	35.4	10.4	41.8	24.8
164	0.01	0.7	35.4	10.4	41.7	24.7
165	0.01	0.7	35.4	10.4	41.6	24.6
166	0.01	0.7	35.3	10.3	41.6	24.6
167	0.01	0.7	35.3	10.3	41.5	24.5
168	0.01	0.7	35.3	10.3	41.4	24.4
169	0.01	0.7	35.3	10.3	41.4	24.4
170	0.01	0.7	35.2	10.2	41.3	24.3
171	0.01	0.7	35.2	10.2	41.2	24.2
172	0.01	0.7	35.2	10.2	41.2	24.2
173	0.01	0.7	35.1	10.1	41.1	24.1
174	0.01	0.6	35.1	10.1	41.0	24.0
175	0.01	0.6	35.1	10.1	41.0	24.0
176	0.01	0.6	35.1	10.1	40.9	23.9
177	0.01	0.6	35.0	10.0	40.8	23.8
178	0.01	0.6	35.0	10.0	40.8	23.8
179	0.01	0.6	35.0	10.0	40.7	23.7
180	0.01	0.6	35.0	10.0	40.6	23.6
181	0.01	0.6	34.9	9.9	40.6	23.6
182	0.01	0.6	34.9	9.9	40.5	23.5
183	0.01	0.6	34.9	9.9	40.4	23.4
184	0.01	0.6	34.9	9.9	40.4	23.4
185	0.01	0.6	34.8	9.8	40.3	23.3
186	0.01	0.6	34.8	9.8	40.3	23.3
187	0.01	0.6	34.8	9.8	40.2	23.2
188	0.01	0.6	34.8	9.8	40.1	23.1
189	0.01	0.6	34.7	9.7	40.1	23.1
190	0.01	0.6	34.7	9.7	40.0	23.0
191	0.01	0.5	34.7	9.7	40.0	23.0
192	0.01	0.5	34.7	9.7	39.9	22.9
193	0.01	0.5	34.6	9.6	39.8	22.8
194	0.01	0.5	34.6	9.6	39.8	22.8
195	0.01	0.5	34.6	9.6	39.7	22.7
196	0.01	0.5	34.6	9.6	39.7	22.7
197	0.01	0.5	34.5	9.5	39.6	22.6
198	0.01	0.5	34.5	9.5	39.6	22.6
199	0.01	0.5	34.5	9.5	39.5	22.5
200	0.01	0.5	34.5	9.5	39.4	22.4
201	0.01	0.5	34.4	9.4	39.4	22.4
202	0.01	0.5	34.4	9.4	39.3	22.3
203	0.01	0.5	34.4	9.4	39.3	22.3
204	0.01	0.5	34.4	9.4	39.2	22.2
205	0.01	0.5	34.4	9.4	39.2	22.2
206	0.01	0.5	34.3	9.3	39.1	22.1
207	0.01	0.5	34.3	9.3	39.1	22.1
208	0.01	0.5	34.3	9.3	39.0	22.0
209	0.01	0.5	34.3	9.3	39.0	22.0
210	0.01	0.5	34.2	9.2	38.9	21.9
211	0.01	0.5	34.2	9.2	38.8	21.8
212	0.01	0.5	34.2	9.2	38.8	21.8
213	0.01	0.5	34.2	9.2	38.7	21.7
214	0.01	0.4	34.1	9.1	38.7	21.7

215	0.01	0.4	34.1	9.1	38.6	21.6
216	0.01	0.4	34.1	9.1	38.6	21.6
217	0.01	0.4	34.1	9.1	38.5	21.5
218	0.01	0.4	34.1	9.1	38.5	21.5
219	0.01	0.4	34.0	9.0	38.4	21.4
220	0.01	0.4	34.0	9.0	38.4	21.4
221	0.01	0.4	34.0	9.0	38.3	21.3
222	0.01	0.4	34.0	9.0	38.3	21.3
223	0.01	0.4	34.0	9.0	38.2	21.2
224	0.01	0.4	33.9	8.9	38.2	21.2
225	0.01	0.4	33.9	8.9	38.1	21.1
226	0.01	0.4	33.9	8.9	38.1	21.1
227	0.01	0.4	33.9	8.9	38.0	21.0
228	0.01	0.4	33.8	8.8	38.0	21.0
229	0.01	0.4	33.8	8.8	38.0	21.0
230	0.01	0.4	33.8	8.8	37.9	20.9
231	0.01	0.4	33.8	8.8	37.9	20.9
232	0.01	0.4	33.8	8.8	37.8	20.8
233	0.01	0.4	33.7	8.7	37.8	20.8
234	0.01	0.4	33.7	8.7	37.7	20.7
235	0.01	0.4	33.7	8.7	37.7	20.7
236	0.01	0.4	33.7	8.7	37.6	20.6
237	0.01	0.4	33.7	8.7	37.6	20.6
238	0.01	0.4	33.6	8.6	37.5	20.5
239	0.01	0.4	33.6	8.6	37.5	20.5
240	0.01	0.4	33.6	8.6	37.4	20.4
241	0.01	0.4	33.6	8.6	37.4	20.4
242	0.01	0.4	33.6	8.6	37.4	20.4
243	0.01	0.4	33.5	8.5	37.3	20.3
244	0.01	0.4	33.5	8.5	37.3	20.3
245	0.01	0.3	33.5	8.5	37.2	20.2
246	0.01	0.3	33.5	8.5	37.2	20.2
247	0.01	0.3	33.5	8.5	37.1	20.1
248	0.01	0.3	33.4	8.4	37.1	20.1
249	0.01	0.3	33.4	8.4	37.1	20.1
250	0.01	0.3	33.4	8.4	37.0	20.0
251	0.00	0.3	33.4	8.4	37.0	20.0
252	0.00	0.3	33.4	8.4	36.9	19.9
253	0.00	0.3	33.4	8.4	36.9	19.9
254	0.00	0.3	33.3	8.3	36.8	19.8
255	0.00	0.3	33.3	8.3	36.8	19.8
256	0.00	0.3	33.3	8.3	36.8	19.8
257	0.00	0.3	33.3	8.3	36.7	19.7
258	0.00	0.3	33.3	8.3	36.7	19.7
259	0.00	0.3	33.2	8.2	36.6	19.6
260	0.00	0.3	33.2	8.2	36.6	19.6
261	0.00	0.3	33.2	8.2	36.6	19.6
262	0.00	0.3	33.2	8.2	36.5	19.5
263	0.00	0.3	33.2	8.2	36.5	19.5
264	0.00	0.3	33.2	8.2	36.4	19.4
265	0.00	0.3	33.1	8.1	36.4	19.4
266	0.00	0.3	33.1	8.1	36.4	19.4
267	0.00	0.3	33.1	8.1	36.3	19.3
268	0.00	0.3	33.1	8.1	36.3	19.3
269	0.00	0.3	33.1	8.1	36.2	19.2
270	0.00	0.3	33.0	8.0	36.2	19.2
271	0.00	0.3	33.0	8.0	36.2	19.2
272	0.00	0.3	33.0	8.0	36.1	19.1
273	0.00	0.3	33.0	8.0	36.1	19.1
274	0.00	0.3	33.0	8.0	36.0	19.0
275	0.00	0.3	33.0	8.0	36.0	19.0
276	0.00	0.3	32.9	7.9	36.0	19.0

277	0.00	0.3	32.9	7.9	35.9	18.9
278	0.00	0.3	32.9	7.9	35.9	18.9
279	0.00	0.3	32.9	7.9	35.9	18.9
280	0.00	0.3	32.9	7.9	35.8	18.8
281	0.00	0.3	32.9	7.9	35.8	18.8
282	0.00	0.3	32.8	7.8	35.7	18.7
283	0.00	0.3	32.8	7.8	35.7	18.7
284	0.00	0.3	32.8	7.8	35.7	18.7
285	0.00	0.3	32.8	7.8	35.6	18.6
286	0.00	0.3	32.8	7.8	35.6	18.6
287	0.00	0.3	32.8	7.8	35.6	18.6
288	0.00	0.3	32.7	7.7	35.5	18.5
289	0.00	0.3	32.7	7.7	35.5	18.5
290	0.00	0.3	32.7	7.7	35.5	18.5
291	0.00	0.3	32.7	7.7	35.4	18.4
292	0.00	0.3	32.7	7.7	35.4	18.4
293	0.00	0.3	32.7	7.7	35.4	18.4
294	0.00	0.2	32.6	7.6	35.3	18.3
295	0.00	0.2	32.6	7.6	35.3	18.3
296	0.00	0.2	32.6	7.6	35.2	18.2
297	0.00	0.2	32.6	7.6	35.2	18.2
298	0.00	0.2	32.6	7.6	35.2	18.2
299	0.00	0.2	32.6	7.6	35.1	18.1
300	0.00	0.2	32.5	7.5	35.1	18.1
301	0.00	0.2	32.5	7.5	35.1	18.1
302	0.00	0.2	32.5	7.5	35.0	18.0
303	0.00	0.2	32.5	7.5	35.0	18.0
304	0.00	0.2	32.5	7.5	35.0	18.0
305	0.00	0.2	32.5	7.5	34.9	17.9
306	0.00	0.2	32.4	7.4	34.9	17.9
307	0.00	0.2	32.4	7.4	34.9	17.9
308	0.00	0.2	32.4	7.4	34.8	17.8
309	0.00	0.2	32.4	7.4	34.8	17.8
310	0.00	0.2	32.4	7.4	34.8	17.8
311	0.00	0.2	32.4	7.4	34.7	17.7
312	0.00	0.2	32.3	7.3	34.7	17.7
313	0.00	0.2	32.3	7.3	34.7	17.7
314	0.00	0.2	32.3	7.3	34.6	17.6
315	0.00	0.2	32.3	7.3	34.6	17.6
316	0.00	0.2	32.3	7.3	34.6	17.6
317	0.00	0.2	32.3	7.3	34.6	17.6
318	0.00	0.2	32.3	7.3	34.5	17.5
319	0.00	0.2	32.2	7.2	34.5	17.5
320	0.00	0.2	32.2	7.2	34.5	17.5
321	0.00	0.2	32.2	7.2	34.4	17.4
322	0.00	0.2	32.2	7.2	34.4	17.4
323	0.00	0.2	32.2	7.2	34.4	17.4
324	0.00	0.2	32.2	7.2	34.3	17.3
325	0.00	0.2	32.2	7.2	34.3	17.3
326	0.00	0.2	32.1	7.1	34.3	17.3
327	0.00	0.2	32.1	7.1	34.2	17.2
328	0.00	0.2	32.1	7.1	34.2	17.2
329	0.00	0.2	32.1	7.1	34.2	17.2
330	0.00	0.2	32.1	7.1	34.1	17.1
331	0.00	0.2	32.1	7.1	34.1	17.1
332	0.00	0.2	32.1	7.1	34.1	17.1
333	0.00	0.2	32.0	7.0	34.1	17.1
334	0.00	0.2	32.0	7.0	34.0	17.0
335	0.00	0.2	32.0	7.0	34.0	17.0
336	0.00	0.2	32.0	7.0	34.0	17.0
337	0.00	0.2	32.0	7.0	33.9	16.9
338	0.00	0.2	32.0	7.0	33.9	16.9

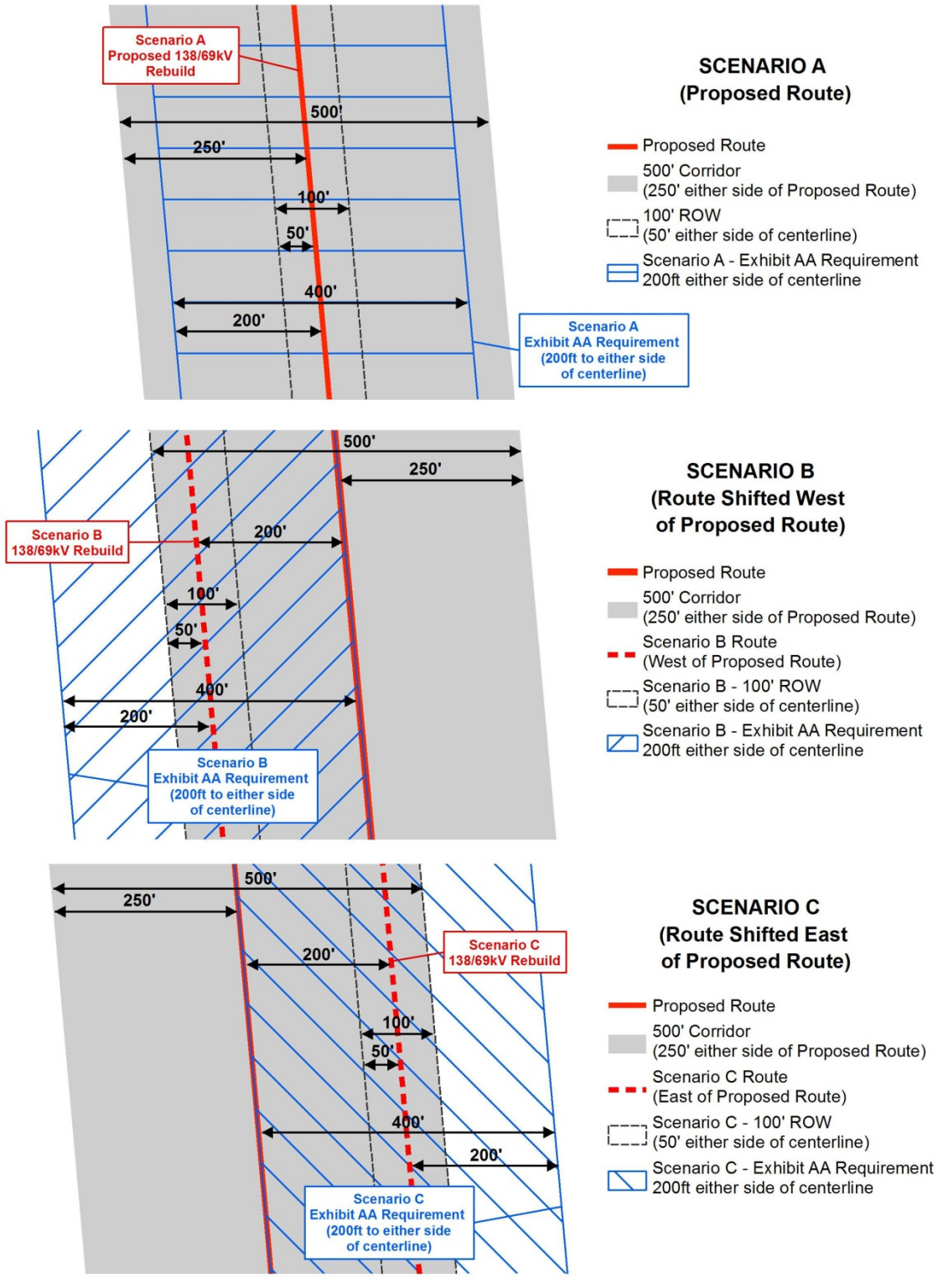
339	0.00	0.2	31.9	6.9	33.9	16.9
340	0.00	0.2	31.9	6.9	33.9	16.9
341	0.00	0.2	31.9	6.9	33.8	16.8
342	0.00	0.2	31.9	6.9	33.8	16.8
343	0.00	0.2	31.9	6.9	33.8	16.8
344	0.00	0.2	31.9	6.9	33.7	16.7
345	0.00	0.2	31.9	6.9	33.7	16.7
346	0.00	0.2	31.9	6.9	33.7	16.7
347	0.00	0.2	31.8	6.8	33.6	16.6
348	0.00	0.2	31.8	6.8	33.6	16.6
349	0.00	0.2	31.8	6.8	33.6	16.6
350	0.00	0.2	31.8	6.8	33.6	16.6
351	0.00	0.2	31.8	6.8	33.5	16.5
352	0.00	0.2	31.8	6.8	33.5	16.5
353	0.00	0.2	31.8	6.8	33.5	16.5
354	0.00	0.2	31.7	6.7	33.5	16.5
355	0.00	0.2	31.7	6.7	33.4	16.4
356	0.00	0.2	31.7	6.7	33.4	16.4
357	0.00	0.2	31.7	6.7	33.4	16.4
358	0.00	0.2	31.7	6.7	33.3	16.3
359	0.00	0.2	31.7	6.7	33.3	16.3
360	0.00	0.2	31.7	6.7	33.3	16.3
361	0.00	0.2	31.6	6.6	33.3	16.3
362	0.00	0.2	31.6	6.6	33.2	16.2
363	0.00	0.2	31.6	6.6	33.2	16.2
364	0.00	0.2	31.6	6.6	33.2	16.2
365	0.00	0.2	31.6	6.6	33.1	16.1
366	0.00	0.2	31.6	6.6	33.1	16.1
367	0.00	0.2	31.6	6.6	33.1	16.1
368	0.00	0.2	31.6	6.6	33.1	16.1
369	0.00	0.2	31.5	6.5	33.0	16.0
370	0.00	0.2	31.5	6.5	33.0	16.0
371	0.00	0.2	31.5	6.5	33.0	16.0
372	0.00	0.2	31.5	6.5	33.0	16.0
373	0.00	0.2	31.5	6.5	32.9	15.9
374	0.00	0.2	31.5	6.5	32.9	15.9
375	0.00	0.2	31.5	6.5	32.9	15.9
376	0.00	0.2	31.4	6.4	32.9	15.9
377	0.00	0.2	31.4	6.4	32.8	15.8
378	0.00	0.2	31.4	6.4	32.8	15.8
379	0.00	0.2	31.4	6.4	32.8	15.8
380	0.00	0.2	31.4	6.4	32.8	15.8
381	0.00	0.2	31.4	6.4	32.7	15.7
382	0.00	0.2	31.4	6.4	32.7	15.7
383	0.00	0.2	31.4	6.4	32.7	15.7
384	0.00	0.1	31.3	6.3	32.7	15.7
385	0.00	0.1	31.3	6.3	32.6	15.6
386	0.00	0.1	31.3	6.3	32.6	15.6
387	0.00	0.1	31.3	6.3	32.6	15.6
388	0.00	0.1	31.3	6.3	32.6	15.6
389	0.00	0.1	31.3	6.3	32.5	15.5
390	0.00	0.1	31.3	6.3	32.5	15.5
391	0.00	0.1	31.3	6.3	32.5	15.5
392	0.00	0.1	31.2	6.2	32.5	15.5
393	0.00	0.1	31.2	6.2	32.4	15.4
394	0.00	0.1	31.2	6.2	32.4	15.4
395	0.00	0.1	31.2	6.2	32.4	15.4
396	0.00	0.1	31.2	6.2	32.4	15.4
397	0.00	0.1	31.2	6.2	32.3	15.3
398	0.00	0.1	31.2	6.2	32.3	15.3
399	0.00	0.1	31.2	6.2	32.3	15.3
400	0.00	0.1	31.1	6.1	32.3	15.3

401	0.00	0.1	31.1	6.1	32.2	15.2
402	0.00	0.1	31.1	6.1	32.2	15.2
403	0.00	0.1	31.1	6.1	32.2	15.2
404	0.00	0.1	31.1	6.1	32.2	15.2
405	0.00	0.1	31.1	6.1	32.1	15.1
406	0.00	0.1	31.1	6.1	32.1	15.1
407	0.00	0.1	31.1	6.1	32.1	15.1
408	0.00	0.1	31.1	6.1	32.1	15.1
409	0.00	0.1	31.0	6.0	32.0	15.0
410	0.00	0.1	31.0	6.0	32.0	15.0
411	0.00	0.1	31.0	6.0	32.0	15.0
412	0.00	0.1	31.0	6.0	32.0	15.0
413	0.00	0.1	31.0	6.0	31.9	14.9
414	0.00	0.1	31.0	6.0	31.9	14.9
415	0.00	0.1	31.0	6.0	31.9	14.9
416	0.00	0.1	31.0	6.0	31.9	14.9
417	0.00	0.1	30.9	5.9	31.9	14.9
418	0.00	0.1	30.9	5.9	31.8	14.8
419	0.00	0.1	30.9	5.9	31.8	14.8
420	0.00	0.1	30.9	5.9	31.8	14.8
421	0.00	0.1	30.9	5.9	31.8	14.8
422	0.00	0.1	30.9	5.9	31.7	14.7
423	0.00	0.1	30.9	5.9	31.7	14.7
424	0.00	0.1	30.9	5.9	31.7	14.7
425	0.00	0.1	30.9	5.9	31.7	14.7
426	0.00	0.1	30.8	5.8	31.7	14.7
427	0.00	0.1	30.8	5.8	31.6	14.6
428	0.00	0.1	30.8	5.8	31.6	14.6
429	0.00	0.1	30.8	5.8	31.6	14.6
430	0.00	0.1	30.8	5.8	31.6	14.6
431	0.00	0.1	30.8	5.8	31.5	14.5
432	0.00	0.1	30.8	5.8	31.5	14.5
433	0.00	0.1	30.8	5.8	31.5	14.5
434	0.00	0.1	30.8	5.8	31.5	14.5
435	0.00	0.1	30.7	5.7	31.5	14.5
436	0.00	0.1	30.7	5.7	31.4	14.4
437	0.00	0.1	30.7	5.7	31.4	14.4
438	0.00	0.1	30.7	5.7	31.4	14.4
439	0.00	0.1	30.7	5.7	31.4	14.4
440	0.00	0.1	30.7	5.7	31.3	14.3
441	0.00	0.1	30.7	5.7	31.3	14.3
442	0.00	0.1	30.7	5.7	31.3	14.3
443	0.00	0.1	30.7	5.7	31.3	14.3
444	0.00	0.1	30.6	5.6	31.3	14.3
445	0.00	0.1	30.6	5.6	31.2	14.2
446	0.00	0.1	30.6	5.6	31.2	14.2
447	0.00	0.1	30.6	5.6	31.2	14.2
448	0.00	0.1	30.6	5.6	31.2	14.2
449	0.00	0.1	30.6	5.6	31.2	14.2
450	0.00	0.1	30.6	5.6	31.1	14.1
451	0.00	0.1	30.6	5.6	31.1	14.1
452	0.00	0.1	30.6	5.6	31.1	14.1
453	0.00	0.1	30.5	5.5	31.1	14.1
454	0.00	0.1	30.5	5.5	31.0	14.0
455	0.00	0.1	30.5	5.5	31.0	14.0
456	0.00	0.1	30.5	5.5	31.0	14.0
457	0.00	0.1	30.5	5.5	31.0	14.0
458	0.00	0.1	30.5	5.5	31.0	14.0
459	0.00	0.1	30.5	5.5	30.9	13.9
460	0.00	0.1	30.5	5.5	30.9	13.9
461	0.00	0.1	30.5	5.5	30.9	13.9
462	0.00	0.1	30.4	5.4	30.9	13.9

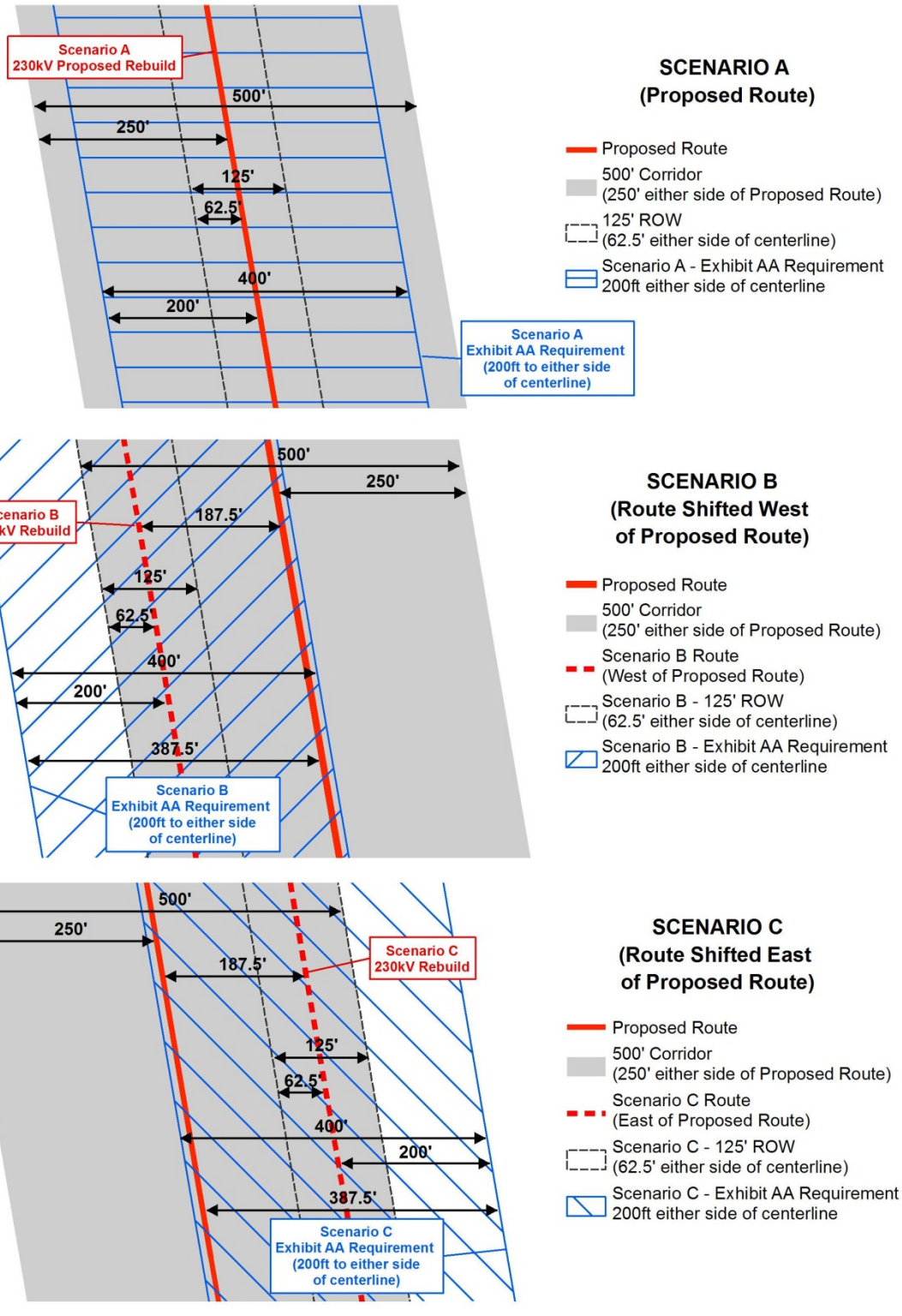
463	0.00	0.1	30.4	5.4	30.9	13.9
464	0.00	0.1	30.4	5.4	30.8	13.8
465	0.00	0.1	30.4	5.4	30.8	13.8
466	0.00	0.1	30.4	5.4	30.8	13.8
467	0.00	0.1	30.4	5.4	30.8	13.8
468	0.00	0.1	30.4	5.4	30.8	13.8
469	0.00	0.1	30.4	5.4	30.7	13.7
470	0.00	0.1	30.4	5.4	30.7	13.7
471	0.00	0.1	30.4	5.4	30.7	13.7
472	0.00	0.1	30.3	5.3	30.7	13.7
473	0.00	0.1	30.3	5.3	30.7	13.7
474	0.00	0.1	30.3	5.3	30.6	13.6
475	0.00	0.1	30.3	5.3	30.6	13.6
476	0.00	0.1	30.3	5.3	30.6	13.6
477	0.00	0.1	30.3	5.3	30.6	13.6
478	0.00	0.1	30.3	5.3	30.6	13.6
479	0.00	0.1	30.3	5.3	30.5	13.5
480	0.00	0.1	30.3	5.3	30.5	13.5
481	0.00	0.1	30.3	5.3	30.5	13.5
482	0.00	0.1	30.2	5.2	30.5	13.5
483	0.00	0.1	30.2	5.2	30.5	13.5
484	0.00	0.1	30.2	5.2	30.4	13.4
485	0.00	0.1	30.2	5.2	30.4	13.4
486	0.00	0.1	30.2	5.2	30.4	13.4
487	0.00	0.1	30.2	5.2	30.4	13.4
488	0.00	0.1	30.2	5.2	30.4	13.4
489	0.00	0.1	30.2	5.2	30.3	13.3
490	0.00	0.1	30.2	5.2	30.3	13.3
491	0.00	0.1	30.2	5.2	30.3	13.3
492	0.00	0.1	30.1	5.1	30.3	13.3
493	0.00	0.1	30.1	5.1	30.3	13.3
494	0.00	0.1	30.1	5.1	30.2	13.2
495	0.00	0.1	30.1	5.1	30.2	13.2
496	0.00	0.1	30.1	5.1	30.2	13.2
497	0.00	0.1	30.1	5.1	30.2	13.2
498	0.00	0.1	30.1	5.1	30.2	13.2
499	0.00	0.1	30.1	5.1	30.2	13.2

ATTACHMENT AA-2
CENTERLINE SCENARIOS

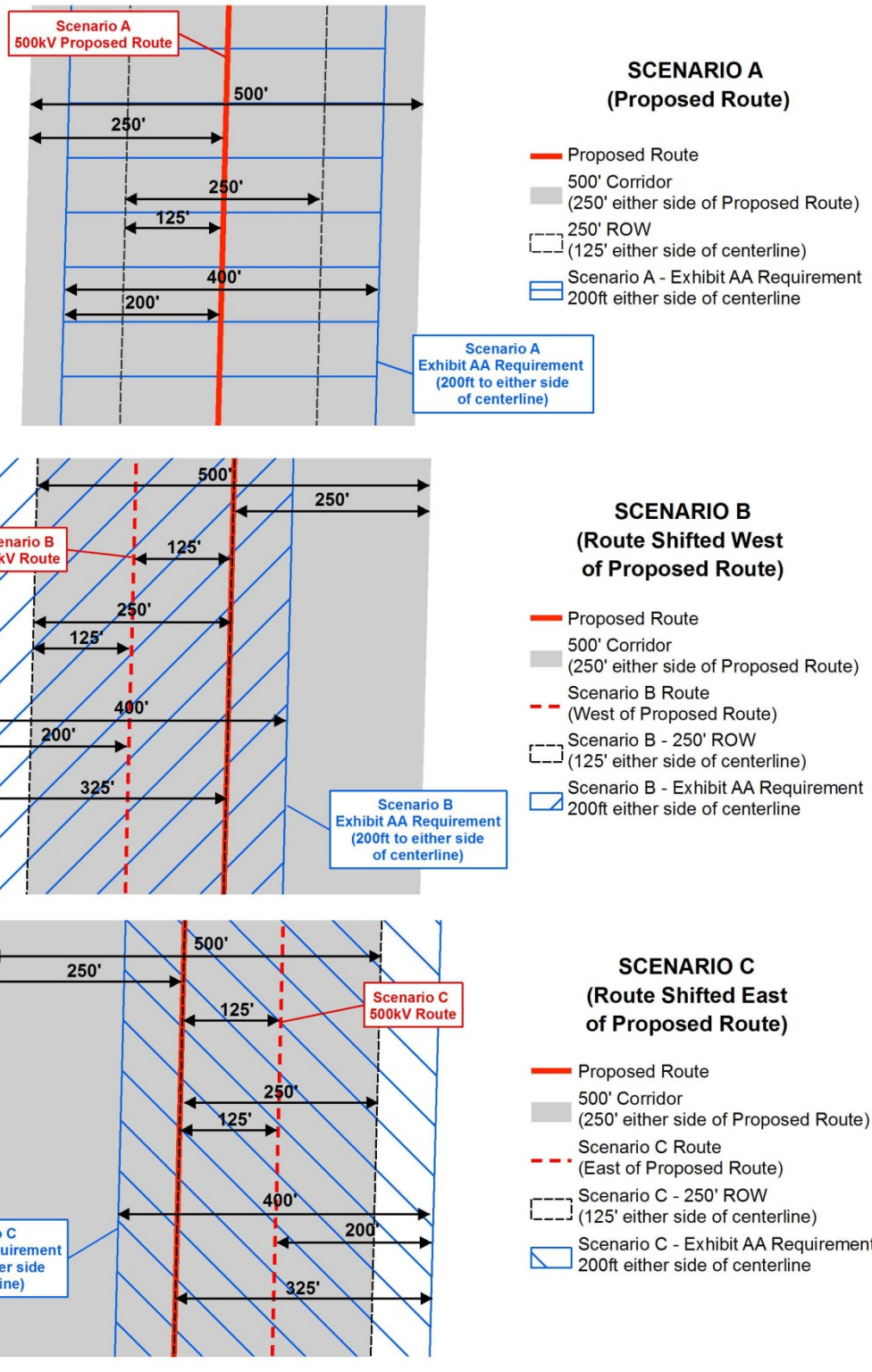
138/69kV Rebuild Scenarios



230kV Rebuild Scenarios



500kV Scenarios



ATTACHMENT AA-3
INVENTORY OF OCCUPIED STRUCTURES

INVENTORY OF OCCUPIED STRUCTURES[3]

Table AA-3-1. Land Use Features within 325 Feet of Proposed/Alternate 500-kV Corridors

Route Name	County	Closest Mile Post	Receptor ID	Land Use Feature	Occupied Structure	Distance from Route (feet)	Direction from Route
Proposed Corridor	Morrow	9.3	171	Outbuilding	No	211	W
		21.8	159	Barn	No	171	N
	Baker	148.1	250	Silo	No	265	W
		183.0	62	Outbuilding	No	237	NE
		190.7	558	Gravel Pit/Mine/Quarry	No	159	E
	Malheur	261.7	201	Water Feature	No	2	E
		268.0	550	Gravel Pit/Mine/Quarry	No	86	W
Longhorn Alternate Corridor Segment	Morrow	8.5	620	Building(Non-Residence)	No	259	E
		8.9	641	Outbuilding	No	237	W
		9.4	643	Outbuilding	No	299	NE
Flagstaff Alternate Corridor Segment	Baker	2.4	237	Barn	No	116	W

Table AA-3-2. Land Use Features within 400 feet of Proposed 138/69-kV Rebuild

Route Name	County	Closest Mile Post	Receptor ID	Land Use Feature	Occupied Structure	Distance from Route (feet)	Direction from Route
Proposed 138/69kV Rebuild	Baker	0.2	47	DOT Rest Area Facility	No	243	W
			216	DOT Rest Area Facility	No	334	W
		2.6	42	Campground Facility	Yes	181	E
			575	Campground Facility	Yes	174	E
		2.7	41	Campground Facility	Yes	82	E
			457	Campground Facility	Yes	123	E
		2.8	40	Campground Facility	Yes	29	W
		4.6	35	Outbuilding	No	336	W

[3] There are no land use features within 387.5 feet of the 230-kV rebuild portion of the Flagstaff Alternate.