

**APPENDIX C**  
**FORMS**

The following forms incorporated for use in Chapter 62-330, F.A.C., (as identified by the Form number) are listed below.

<b>Form No.</b>	<b>Title</b>
Form 62-330.050(1)	“Request for Verification of an Exemption” <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-02468">[http://www.flrules.org/Gateway/reference.asp?No=Ref-02468]</a>
Form 62-330.0511(1)	“Notice of Intent to Construct a Minor Silvicultural System” <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02510">[https://www.flrules.org/Gateway/reference.asp?No=Ref-02510]</a>
Form 62-330.060(1)	Section A “Application for Individual and Conceptual Approval Environmental Resource Permit, State 404 Program Permit, and Authorization to Use State-Owned Submerged Lands” <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section B: For Single-Family Projects <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section C: Supplemental Information for Works or Other Activities In, On, Over Wetlands and/or Other Surface Waters <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section D: Supplemental Information For Works or Other Activities Within Surface Waters <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section E: Supplemental Information Required for Works or Other Activities Involving a Stormwater Management System (Other Than a Single-Family Project <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section F: Application For Authorization to Use State-Owned Submerged Lands <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section G: Supplemental Information Required for Mitigation Banks <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section H: Supplemental Information for Stormwater Management Systems for Mines <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Section I: Supplemental Information for State 404 Program Permits <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12036">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12036]</a> Attachments 1-3: Application Form Instructions, Agency Contacts, and Application Fees <a href="http://www.dep.state.fl.us/water/wetlands/erp/forms.htm">[http://www.dep.state.fl.us/water/wetlands/erp/forms.htm]</a>
Form 62-330.090(1)	“Recorded Notice of Environmental Resource Permit” <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-09362">[http://www.flrules.org/Gateway/reference.asp?No=Ref-09362]</a>
Form 62-330.201(1)	“Chapter 62-340, F.A.C., Data Form” <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12037">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12037]</a>
Form 62-330.201(2)	“Petition for a Formal Determination of the Landward Extent of Wetlands and Other Surface Waters” <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12038">[https://www.flrules.org/Gateway/reference.asp?No=Ref-12038]</a>
Form 62-330.301(1)	“Performance Bond To Demonstrate Financial Assurance for Mitigation” <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-02472">[http://www.flrules.org/Gateway/reference.asp?No=Ref-02472]</a>
Form 62-330.301(2)	“Irrevocable Letter of Credit to Demonstrate Financial Assurance for Mitigation” <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-02473">[http://www.flrules.org/Gateway/reference.asp?No=Ref-02473]</a>

- Form 62-330.301(3) “Standby Trust Fund Agreement to Demonstrate Financial Assurance for Mitigation”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02474>]
- Form 62-330.301(4) “Trust Fund Agreement to Demonstrate Financial Assurance for Mitigation”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02477>]
- Form 62-330.301(5) “Escrow Agreement”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02476>]
- Form 62-330.301(6) “Guarantee Bond To Demonstrate Financial Assurance for Mitigation”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02488>]
- Form 62-330.301(8) “Deed of Conservation Easement, Standard”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02489>]
- Form 62-330.301(9) “Deed of Conservation Easement, Standard, With Third Party Beneficiary Rights”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02490>]
- Form 62-330.301(10) “Deed of Conservation Easement – Passive Recreational Uses”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02491>]
- Form 62-330.301(11) “Deed of Conservation Easement – Riparian Uses”  
[<https://www.flrules.org/Gateway/reference.asp?No=Ref-02492>]
- Form 62-330.301(12) “Deed of Conservation Easement for Local Governments”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02493>]
- Form 62-330.301(13) “Deed of Conservation Easement with Third Party Beneficiary Rights to the U.S. Army Corps of Engineers”  
[<https://www.flrules.org/Gateway/reference.asp?No=Ref-02494>]
- Form 62-330.301(14) “Declaration of Restrictive Covenants”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-02495>]
- Form 62-330.301(15) “Declaration of Restrictive Covenants –Insert”  
[<https://www.flrules.org/Gateway/reference.asp?No=Ref-02496>]
- Form 62-330.301(16) “Temporary Easement for Construction Access”  
[<https://www.flrules.org/Gateway/reference.asp?No=Ref-02497>]
- Form 62-330.301(17) “Permanent Access Easement” [<https://www.flrules.org/Gateway/reference.asp?No=Ref-02498>]
- Form 62-330.301(18) “Joint Deed of Conservation Easement – Standard (within Broward County),”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-09377>]
- Form 62-330.301(19) “Joint Deed of Conservation Easement — Third Party Beneficiary Rights (within Broward County),” [<http://www.flrules.org/Gateway/reference.asp?No=Ref-09378>]
- Form 62-330.301(20) “Joint Deed of Conservation Easement — Passive Recreational Uses (within Broward County),” [<http://www.flrules.org/Gateway/reference.asp?No=Ref-09379>]
- Form 62-330.301(21) “Joint Deed of Conservation Easement — Riparian Uses (within Broward County),”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-09380>]
- Form 62-330.301(22) “Joint Deed of Conservation Easement — Local Governments (within Broward County),” [<http://www.flrules.org/Gateway/reference.asp?No=Ref-09381>]
- Form 62-330.301(23) “Joint Deed of Conservation Easement — Third Party Beneficiary Rights to the U.S. Army Corps of Engineers (within Broward County),”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-09382>]
- Form 62-330.301(24) “Deed of Conservation Easement for Mitigation Banks – Third Party Beneficiary Rights to the U.S. Army Corps of Engineers,”  
[<http://www.flrules.org/Gateway/reference.asp?No=Ref-09383>]

<u>Form 62-330.301(25)</u>	“Dam System Information” [ <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX">http://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX</a> ]
<u>Form 62-330.301(26)</u>	“Certification of Financial Capability for Perpetual Operations and Maintenance Entities” [ <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX">http://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX</a> ]
Form 62-330.310(1)	“As-Built Certification and Request for Conversion to Operation Phase” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02499">https://www.flrules.org/Gateway/reference.asp?No=Ref-02499</a> ]
Form 62-330.310(2)	“Request For Transfer of Environmental Resource Permit to the Perpetual Operation and Maintenance Entity” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02500">https://www.flrules.org/Gateway/reference.asp?No=Ref-02500</a> ]
Form 62-330.310(3)	“Construction Completion and Inspection Certification for Activities Associated With a Private Single-Family Dwelling Unit” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02501">https://www.flrules.org/Gateway/reference.asp?No=Ref-02501</a> ]
Form 62-330.311(1)	“Operation and Maintenance Inspection Certification” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02502">https://www.flrules.org/Gateway/reference.asp?No=Ref-02502</a> ]
Form 62-330.311(2)	“Regional Stormwater Management System Annual Report” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02503">https://www.flrules.org/Gateway/reference.asp?No=Ref-02503</a> ]
<u>Form 62-330.311(3)</u>	“Inspection Checklists” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX">https://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX</a> ]
<u>Form 62-330.311(4)</u>	“Condition Assessment Report” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX">https://www.flrules.org/Gateway/reference.asp?No=Ref-XXXXXX</a> ]
Form 62-330.340(1)	“Request to Transfer Environmental Resource Permit and/or State 404 Program Permit” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12039">https://www.flrules.org/Gateway/reference.asp?No=Ref-12039</a> ]
Form 62-330.350(1)	“Construction Commencement Notice” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02505">https://www.flrules.org/Gateway/reference.asp?No=Ref-02505</a> ]
Form 62-330.360(1)	“Emergency Field Authorization” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02506">https://www.flrules.org/Gateway/reference.asp?No=Ref-02506</a> ]
Form 62-330.402(1)	“Notice of Intent to Use an Environmental Resource and/or State 404 Program General Permit” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-12040">https://www.flrules.org/Gateway/reference.asp?No=Ref-12040</a> ]
Form 62-330.417(1)	“Agreement to Maintain Public Access” [ <a href="http://www.flrules.org/Gateway/reference.asp?No=Ref-02508">http://www.flrules.org/Gateway/reference.asp?No=Ref-02508</a> ]
Form 62-330.417(2)	“Agreement to Maintain Public Access and Operate Stormwater System” [ <a href="https://www.flrules.org/Gateway/reference.asp?No=Ref-02509">https://www.flrules.org/Gateway/reference.asp?No=Ref-02509</a> ]

All forms are listed by rule number, which is also the form number, and with the subject title and effective date. Copies of forms may be obtained from the above Internet links, or from any local district or branch office of the Agencies (see subsection 62-330.

## Appendix L

### Additional Criteria for Dam Systems

#### **1. Applicability**

This appendix contains the four criteria referenced in this Volume, subsection 8.4.5, *Dam Systems*. These criteria apply to proposed construction of new dams and alteration of existing dams, as defined in paragraph 2.0(a)27. in this Volume and meets the dam thresholds specified in the applicable Volume II. These criteria do not apply to a levee or levee system, as defined in paragraphs 2.0(a)66. and 67., respectively, in this Volume. The four criteria require: 1) providing dam system information, 2) establishing a Downstream Hazard Potential, 3) developing an Emergency Action Plan for a High Hazard Potential or Significant Hazard Potential dam, and 4) submitting a Condition Assessment Report for a High Hazard Potential or Significant Hazard Potential dam. These criteria and their requirements are described in detail below.

Applicants with such dam projects shall provide the required information to the permitting agency in the application submittal, and electronically submit this information to the Department at DamSafety@FloridaDEP.gov or mail it to the State Dam Safety Officer, Florida Department of Environmental Protection, 2600 Blair Stone Road, Mail Station 3595, Tallahassee, Florida 32399. Applicants are encouraged to contact the permitting agency to request a pre-application meeting to discuss the applicability of these criteria and best approaches to meet the requirements for their specific dam project.

#### **2. Dam System Information**

Form 62-330.301(25), “Dam System Information” shall be completed in accordance with the instructions on the form. This information will be maintained by the Department to provide a repository for these systems, and for dissemination where needed in the event of an emergency situation.

#### **3. Downstream Hazard Potential**

A Downstream Hazard Potential shall be determined for each dam based on probable loss of human life or adverse impacts on economic, environmental, and lifeline interests, and other concerns, such as water quality degradation, should the dam or appurtenant structures fail (e.g., breach) or are mis-operated (e.g., unscheduled release). Importantly, the Downstream Hazard Potential does not reflect the current safety, structural integrity, or flood routing capacity of a dam and its appurtenant structures. Also, the Downstream Hazard Potential may change over time (typically, it will increase as the downstream area is developed). Lastly, for dams in series, each upstream dam shall have a Downstream Hazard Potential equal to or greater than the next downstream dam.

##### (1) Classification

The Downstream Hazard Potential shall be classified as one of the three categories described below.

- a) High Hazard Potential (HHP) – Failure or mis-operation of the dam will probably cause the loss of human life. Economic, environmental, and lifeline losses may also occur, but are not necessary for this classification.
- b) Significant Hazard Potential (SHP) – Failure or mis-operation would result in no probable loss of human life, but may cause economic loss, environmental damage, disruption of lifeline interests, or impact other concerns, such as water quality degradation.
- c) Low Hazard Potential (LHP) – Failure or mis-operation is not expected to result in loss of human life and may result in low economic and/or environmental losses, that are largely limited to the owner’s property.

The table below shows the expected consequences for each Downstream Hazard Potential.

<b>Downstream Hazard Potential</b>	<b>Loss of Human Life</b>	<b>Economic, Environmental, &amp; Lifeline Losses</b>
<u>High</u>	Probable	Yes, but not necessary
<u>Significant</u>	None expected	Yes
<u>Low</u>	None expected	Low and generally limited to owner's property

(2) Evaluation

For each dam, the applicant shall provide the Downstream Hazard Potential and supporting information for its determination that is developed in a manner consistent with the following methodologies:

- a) Obvious LHP dams – The Photo-Based Mapping method may be used to provide inundation maps without an engineering analysis for dams less than or equal to 10 feet in dam height and less than or equal to 1,000 acre-feet maximum storage, with no downstream structures and roads at or below the elevation of the dam crest within the expected inundation area. The dam height and maximum storage definitions to use are provided in form 62-330.301(25), *Dam System Information*. Refer to *Emergency Action Plan Template For Florida Dams Instruction Manual* (DEP January 2023) on how to use Photo-Based Mapping to estimate conservative flood areas. The *Emergency Action Plan Template For Florida Dams Instruction Manual* is available at the [DEP website]. Submit an aerial map(s), elevation contour or digital elevation map(s), field survey (if available), dam geometry, reservoir capacity, locations and types of downstream structures, a depiction of the anticipated flood extent and a discussion of the expected consequences and Downstream Hazard Potential. The maps must be at legible scales to see structures and details. This method of classification, including the supporting information, do not need to be certified by a registered professional.
- b) Probable LHP dams – A Simplified Engineering Analysis may be used where there are few structures or roads below the dam crest and the downstream terrain is relatively flat and constant. The methodology to perform a Simplified Engineering Analysis is described in the *Emergency Action Plan Template For Florida Dams Instruction Manual* (DEP January 2023). Submit a report, including aerial map(s), elevation contour or digital elevation map(s), field survey (if available), dam and downstream geometry, reservoir capacity, locations and types of downstream structures, engineering calculations, and inundation maps, and evacuation maps, including peak flood wave depth, peak flood wave stage, and peak flood wave arrival times at the locations of interest downstream of the dam, a discussion of the study input and output parameters and expected consequences, and the Downstream Hazard Potential. If the Downstream Hazard Potential is not LHP, refer to paragraph 3.2.c below to perform an inundation study using hydrologic-hydrodynamic modeling. A registered professional must certify the Simplified Engineering Analysis and Downstream Hazard Potential designation.
- c) SHP and HHP dams. For dams that do not fit the descriptions above, the Downstream Hazard Potential shall be determined through an inundation study performed using hydrologic-hydrodynamic modeling software with two-dimensional unsteady state flow capability, preferably HEC-RAS 2D, version 6, or equivalent. The inundation report, including inundation and evacuation maps for an Emergency Action Plan, shall meet the *Federal Guidelines for Inundation Mapping of Flood Risks Associated with Dam Incidents and Failures* (FEMA P-946, July 2013), which is incorporated by reference in subsection 62-330.010(4). The Downstream Hazard Potential shall be

stated in the inundation report and certified by a registered professional qualified in the evaluation of dam systems.

#### **4. Emergency Action Plan**

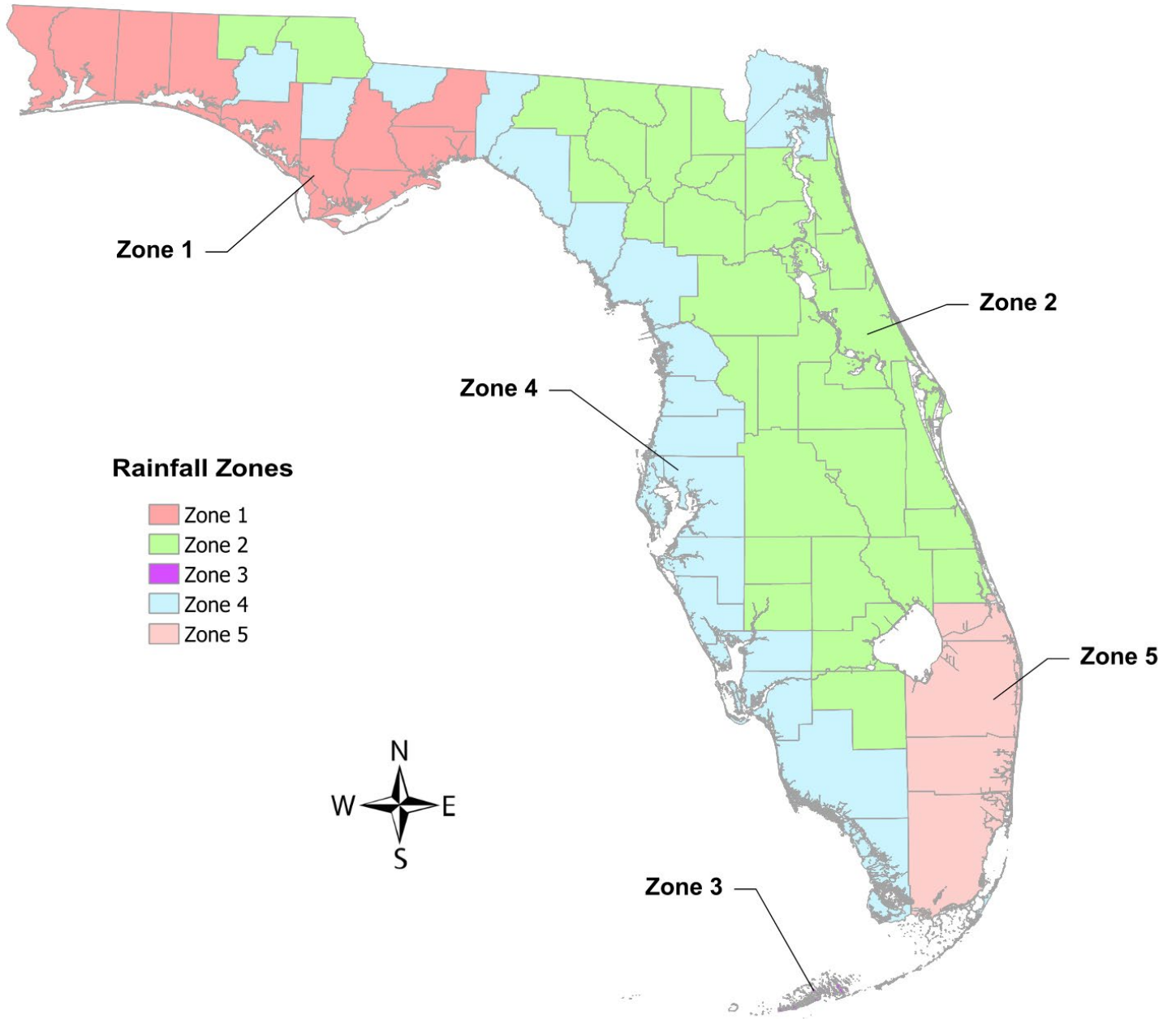
An emergency action plan (EAP), as defined in paragraph 2.0(a)44 in this Volume, shall be developed for each SHP and HHP dam. The EAP may include multiple dams that are owned by the same owner(s), if they are in close proximity with one another or in succession. An EAP provides the dam owner, the dam owner's engineer, emergency management officials, and other personnel and responders with clear instructions to take should an anomalous or emergency condition develop at a dam. The EAP format is not mandatory, but the EAP shall address six basic elements: 1) detection and classification, 2) roles and responsibilities, 3) notification flow charts and contact information, 4) response procedures, 5) inundation and evacuation maps, and 6) appendixes for training, exercises, and updates. The completed EAP shall be signed and dated by the applicant or an authorized representative.

The *Emergency Action Plan Template for Florida Dams* (DEP January 2023; EAP Template), and accompanying instruction manual, *Emergency Action Plan Template For Florida Dams Instruction Manual* (DEP January 2023), is available for use to facilitate EAP development, provide consistency, and reduce costs. The *Emergency Action Plan Template for Florida Dams* is available at the [DEP website]. Use of the EAP template is not required; however, the EAP shall characterize abnormal occurrences in three types of events: Unusual (a slowly developing event), Watch (a rapidly developing event), and Warning (an imminent or ongoing dam failure). The template may be modified to provide additional information, such as an alert system activation plan, cascading dam inundation maps, monitoring and operating plans, and multiple owners information.

#### **5. Condition Assessment**

A Condition Assessment Report (CAR) shall be provided for each existing SHP and HHP dam. The CAR shall include completed Form 62-330.311(4), *Condition Assessment Report for Florida Dams*, and required supporting information, if applicable, as described below. The information in this form may be completed through a combination of new and historical inspections performed within the past five years, as long as the data are still representative of the dam condition. Copies of the original inspection reports are to be included in the CAR. The current overall condition assessment of Satisfactory, Fair, Poor, or Unsatisfactory, as defined in the form, shall be designated for each dam and certified by a registered professional qualified in the evaluation of dam systems.

**Appendix M**  
**Rainfall Criteria**

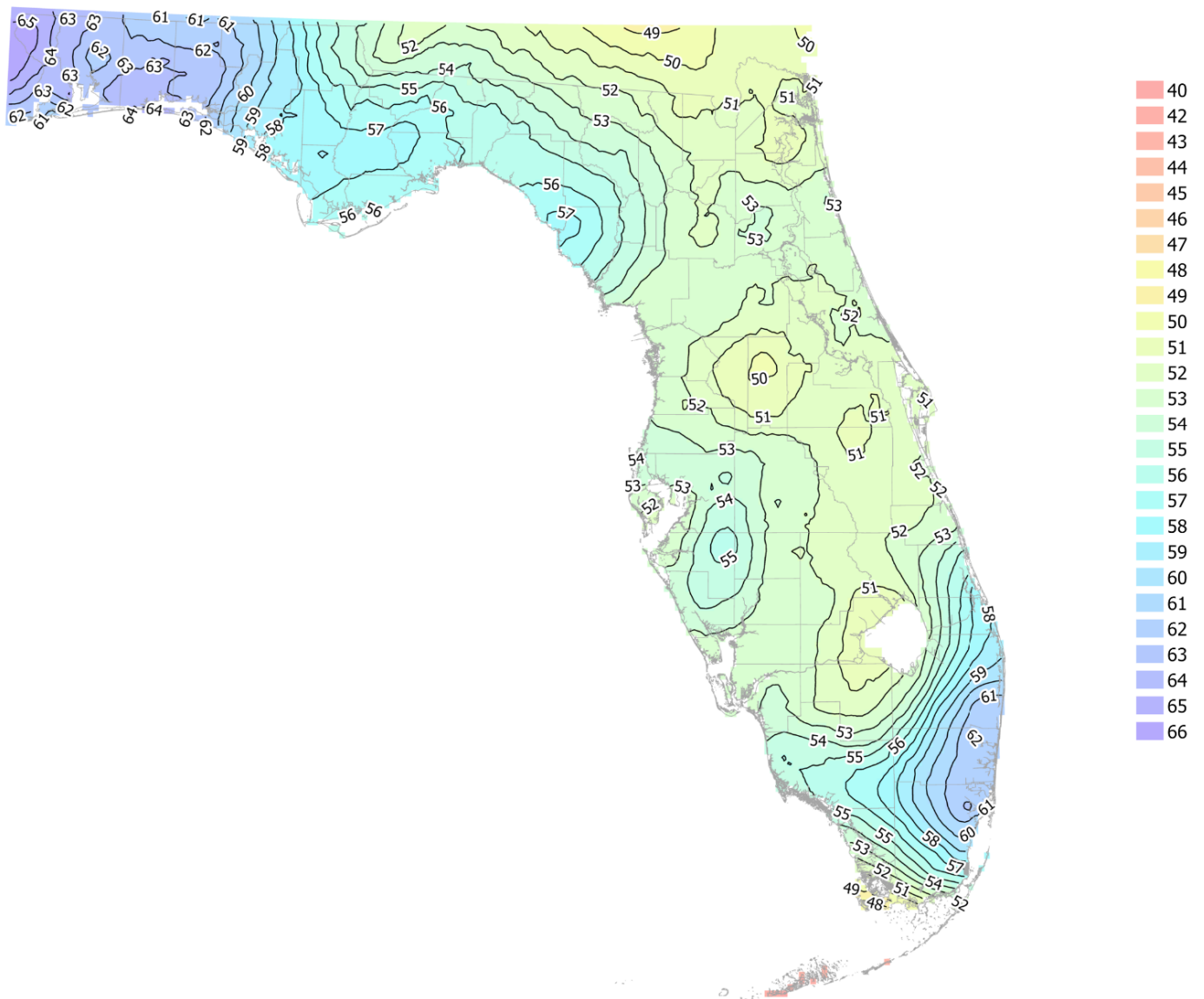


**Figure 1: Designated Meteorological Regions (Zones) in Florida**

**Table 1: Counties Included in the Designated Meteorological Zones**

<b><u>ZONE 1</u></b>	<b><u>ZONE 2</u></b>	<b><u>ZONE 3</u></b>	<b><u>ZONE 4</u></b>	<b><u>ZONE 5</u></b>
<b><u>Bay</u></b>	<b><u>Alachua</u></b>	<b><u>Monroe</u></b>	<b><u>Charlotte</u></b>	<b><u>Broward</u></b>
<b><u>Escambia</u></b>	<b><u>Baker</u></b>	<b><u>County -</u></b>	<b><u>Citrus</u></b>	<b><u>Miami-Dade</u></b>
<b><u>Franklin</u></b>	<b><u>Bradford</u></b>	<b><u>Florida Keys</u></b>	<b><u>Collier</u></b>	<b><u>Martin</u></b>
<b><u>Gulf</u></b>	<b><u>Brevard</u></b>	<b><u>from</u></b>	<b><u>Dixie</u></b>	<b><u>Palm Beach</u></b>
<b><u>Leon</u></b>	<b><u>Calhoun</u></b>	<b><u>Key Largo to</u></b>	<b><u>Duval</u></b>	
<b><u>Liberty</u></b>	<b><u>Clay</u></b>	<b><u>Key</u></b>	<b><u>Hernando</u></b>	
<b><u>Okaloosa</u></b>	<b><u>Columbia</u></b>	<b><u>West</u></b>	<b><u>Hillsborough</u></b>	
<b><u>Santa Rosa</u></b>	<b><u>Desoto</u></b>		<b><u>Jefferson</u></b>	
<b><u>Wakulla</u></b>	<b><u>Flagler</u></b>		<b><u>Lee</u></b>	
<b><u>Walton</u></b>	<b><u>Gadsden</u></b>		<b><u>Levy</u></b>	
	<b><u>Gilchrist</u></b>		<b><u>Manatee</u></b>	
	<b><u>Glades</u></b>		<b><u>Mainland</u></b>	
	<b><u>Hamilton</u></b>		<b><u>Monroe</u></b>	
	<b><u>Hardee</u></b>		<b><u>Nassau</u></b>	
	<b><u>Hendry</u></b>		<b><u>Pasco</u></b>	
	<b><u>Highlands</u></b>		<b><u>Pinellas</u></b>	
	<b><u>Holmes</u></b>		<b><u>Sarasota</u></b>	
	<b><u>Indian River</u></b>		<b><u>Taylor</u></b>	
	<b><u>Jackson</u></b>		<b><u>Washington</u></b>	
	<b><u>Lafayette</u></b>			
	<b><u>Lake</u></b>			
	<b><u>Madison</u></b>			
	<b><u>Marion</u></b>			
	<b><u>Okeechobee</u></b>			
	<b><u>Orange</u></b>			
	<b><u>Osceola</u></b>			
	<b><u>Polk</u></b>			
	<b><u>Putnam</u></b>			
	<b><u>Seminole</u></b>			
	<b><u>St. Johns</u></b>			
	<b><u>St. Lucie</u></b>			
	<b><u>Sumter</u></b>			
	<b><u>Suwannee</u></b>			
	<b><u>Union</u></b>			
	<b><u>Volusia</u></b>			





**Figure 2: Average Annual Rainfall Isopleth Map for Florida**

**Appendix N**  
**Mean Annual Runoff Coefficients (ROC Value) as a Function of DCIA Percentage and Non-DCIA Curve Number**

**ZONE 1**  
**Mean Annual Runoff Coefficients (ROC Value) as a Function**  
**of DCIA Percentage and Non-DCIA Curve Number**

<b>NDCIA CN</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>90</b>	<b>95</b>	<b>100</b>
	0.006	0.048	0.090	0.132	0.175	0.217	0.259	0.301	0.343	0.386	0.428	0.470	0.512	0.554	0.596	0.639	0.681	0.723	0.765	0.807	0.849
<b>35</b>	0.009	0.051	0.093	0.135	0.177	0.219	0.261	0.303	0.345	0.387	0.429	0.471	0.513	0.555	0.597	0.639	0.681	0.723	0.765	0.807	0.849
<b>40</b>	0.014	0.056	0.098	0.139	0.181	0.223	0.265	0.307	0.348	0.390	0.432	0.474	0.515	0.557	0.599	0.641	0.682	0.724	0.766	0.808	0.849
<b>45</b>	0.020	0.062	0.103	0.145	0.186	0.228	0.269	0.311	0.352	0.394	0.435	0.476	0.518	0.559	0.601	0.642	0.684	0.725	0.767	0.808	0.849
<b>50</b>	0.029	0.070	0.111	0.152	0.193	0.234	0.275	0.316	0.357	0.398	0.439	0.480	0.521	0.562	0.603	0.644	0.685	0.726	0.767	0.808	0.849
<b>55</b>	0.039	0.079	0.120	0.161	0.201	0.242	0.282	0.323	0.363	0.404	0.444	0.485	0.525	0.566	0.606	0.647	0.687	0.728	0.768	0.809	0.849
<b>60</b>	0.052	0.092	0.132	0.172	0.212	0.252	0.291	0.331	0.371	0.411	0.451	0.491	0.531	0.570	0.610	0.650	0.690	0.730	0.770	0.810	0.849
<b>65</b>	0.069	0.108	0.147	0.186	0.225	0.264	0.303	0.342	0.381	0.420	0.459	0.498	0.537	0.576	0.615	0.654	0.693	0.732	0.771	0.810	0.849
<b>70</b>	0.092	0.130	0.167	0.205	0.243	0.281	0.319	0.357	0.395	0.433	0.471	0.508	0.546	0.584	0.622	0.660	0.698	0.736	0.774	0.812	0.849
<b>75</b>	0.121	0.158	0.194	0.230	0.267	0.303	0.340	0.376	0.412	0.449	0.485	0.522	0.558	0.595	0.631	0.667	0.704	0.740	0.777	0.813	0.849
<b>80</b>	0.162	0.196	0.230	0.265	0.299	0.334	0.368	0.402	0.437	0.471	0.506	0.540	0.574	0.609	0.643	0.678	0.712	0.746	0.781	0.815	0.849
<b>85</b>	0.220	0.252	0.283	0.315	0.346	0.378	0.409	0.441	0.472	0.503	0.535	0.566	0.598	0.629	0.661	0.692	0.724	0.755	0.787	0.818	0.849
<b>90</b>	0.312	0.339	0.366	0.393	0.419	0.446	0.473	0.500	0.527	0.554	0.581	0.608	0.634	0.661	0.688	0.715	0.742	0.769	0.796	0.823	0.849
<b>95</b>	0.478	0.496	0.515	0.533	0.552	0.571	0.589	0.608	0.626	0.645	0.664	0.682	0.701	0.719	0.738	0.757	0.775	0.794	0.812	0.831	0.849
<b>98</b>	0.656	0.666	0.676	0.685	0.695	0.705	0.714	0.724	0.734	0.743	0.753	0.763	0.772	0.782	0.792	0.801	0.811	0.821	0.830	0.840	0.849

**ZONE 2**  
**Mean Annual Runoff Coefficients (ROC Value) as a Function**  
**of DCIA Percentage and Non-DCIA Curve Number**

<b><u>NDCIA</u></b> <b><u>CN</u></b>	<b><u>0</u></b>	<b><u>5</u></b>	<b><u>10</u></b>	<b><u>15</u></b>	<b><u>20</u></b>	<b><u>25</u></b>	<b><u>30</u></b>	<b><u>35</u></b>	<b><u>40</u></b>	<b><u>45</u></b>	<b><u>50</u></b>	<b><u>55</u></b>	<b><u>60</u></b>	<b><u>65</u></b>	<b><u>70</u></b>	<b><u>75</u></b>	<b><u>80</u></b>	<b><u>85</u></b>	<b><u>90</u></b>	<b><u>95</u></b>	<b><u>100</u></b>
	0.002	0.043	0.083	0.123	0.164	0.204	0.244	0.285	0.325	0.366	0.406	0.446	0.487	0.527	0.567	0.608	0.648	0.688	0.729	0.769	0.809
<b><u>35</u></b>	0.004	0.044	0.085	0.125	0.165	0.205	0.246	0.286	0.326	0.366	0.407	0.447	0.487	0.528	0.568	0.608	0.648	0.689	0.729	0.769	0.809
<b><u>40</u></b>	0.007	0.047	0.087	0.127	0.167	0.207	0.248	0.288	0.328	0.368	0.408	0.448	0.488	0.528	0.569	0.609	0.649	0.689	0.729	0.769	0.809
<b><u>45</u></b>	0.010	0.050	0.090	0.130	0.170	0.210	0.250	0.290	0.330	0.370	0.410	0.450	0.490	0.530	0.570	0.610	0.650	0.690	0.729	0.769	0.809
<b><u>50</u></b>	0.015	0.055	0.095	0.134	0.174	0.214	0.254	0.293	0.333	0.373	0.412	0.452	0.492	0.531	0.571	0.611	0.651	0.690	0.730	0.770	0.809
<b><u>55</u></b>	0.022	0.061	0.101	0.140	0.179	0.219	0.258	0.298	0.337	0.376	0.416	0.455	0.494	0.534	0.573	0.613	0.652	0.691	0.731	0.770	0.809
<b><u>60</u></b>	0.030	0.069	0.108	0.147	0.186	0.225	0.264	0.303	0.342	0.381	0.420	0.459	0.498	0.537	0.576	0.615	0.654	0.693	0.731	0.770	0.809
<b><u>65</u></b>	0.042	0.080	0.119	0.157	0.195	0.234	0.272	0.311	0.349	0.387	0.426	0.464	0.502	0.541	0.579	0.618	0.656	0.694	0.733	0.771	0.809
<b><u>70</u></b>	0.057	0.095	0.133	0.170	0.208	0.245	0.283	0.321	0.358	0.396	0.433	0.471	0.509	0.546	0.584	0.621	0.659	0.697	0.734	0.772	0.809
<b><u>75</u></b>	0.079	0.116	0.152	0.189	0.225	0.262	0.298	0.335	0.371	0.408	0.444	0.481	0.517	0.554	0.590	0.627	0.663	0.700	0.736	0.773	0.809
<b><u>80</u></b>	0.111	0.146	0.181	0.216	0.251	0.285	0.320	0.355	0.390	0.425	0.460	0.495	0.530	0.565	0.600	0.635	0.670	0.705	0.740	0.774	0.809
<b><u>85</u></b>	0.160	0.192	0.225	0.257	0.290	0.322	0.355	0.387	0.420	0.452	0.485	0.517	0.550	0.582	0.614	0.647	0.679	0.712	0.744	0.777	0.809
<b><u>90</u></b>	0.242	0.270	0.299	0.327	0.355	0.384	0.412	0.440	0.469	0.497	0.526	0.554	0.582	0.611	0.639	0.667	0.696	0.724	0.753	0.781	0.809
<b><u>95</u></b>	0.404	0.424	0.444	0.464	0.485	0.505	0.525	0.546	0.566	0.586	0.606	0.627	0.647	0.667	0.688	0.708	0.728	0.749	0.769	0.789	0.809
<b><u>98</u></b>	0.595	0.605	0.616	0.627	0.638	0.648	0.659	0.670	0.680	0.691	0.702	0.713	0.723	0.734	0.745	0.756	0.766	0.777	0.788	0.799	0.809

**ZONE 3**  
**Mean Annual Runoff Coefficients (ROC Value) as a Function**  
**of DCIA Percentage and Non-DCIA Curve Number**

<b>NDCIA CN</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>90</b>	<b>95</b>	<b>100</b>
	0.008	0.047	0.087	0.126	0.165	0.205	0.244	0.283	0.323	0.362	0.401	0.441	0.480	0.519	0.559	0.598	0.637	0.677	0.716	0.756	0.795
<b>35</b>	0.012	0.051	0.090	0.129	0.168	0.207	0.247	0.286	0.325	0.364	0.403	0.442	0.482	0.521	0.560	0.599	0.638	0.677	0.717	0.756	0.795
<b>40</b>	0.016	0.055	0.094	0.133	0.172	0.211	0.250	0.289	0.328	0.367	0.406	0.445	0.483	0.522	0.561	0.600	0.639	0.678	0.717	0.756	0.795
<b>45</b>	0.022	0.061	0.099	0.138	0.177	0.215	0.254	0.292	0.331	0.370	0.408	0.447	0.486	0.524	0.563	0.602	0.640	0.679	0.718	0.756	0.795
<b>50</b>	0.029	0.067	0.105	0.144	0.182	0.220	0.259	0.297	0.335	0.374	0.412	0.450	0.488	0.527	0.565	0.603	0.642	0.680	0.718	0.757	0.795
<b>55</b>	0.037	0.075	0.113	0.151	0.189	0.227	0.265	0.302	0.340	0.378	0.416	0.454	0.492	0.530	0.568	0.605	0.643	0.681	0.719	0.757	0.795
<b>60</b>	0.048	0.085	0.123	0.160	0.197	0.235	0.272	0.309	0.347	0.384	0.421	0.459	0.496	0.533	0.571	0.608	0.645	0.683	0.720	0.758	0.795
<b>65</b>	0.061	0.098	0.134	0.171	0.208	0.244	0.281	0.318	0.355	0.391	0.428	0.465	0.501	0.538	0.575	0.611	0.648	0.685	0.721	0.758	0.795
<b>70</b>	0.078	0.114	0.149	0.185	0.221	0.257	0.293	0.329	0.365	0.400	0.436	0.472	0.508	0.544	0.580	0.616	0.651	0.687	0.723	0.759	0.795
<b>75</b>	0.100	0.135	0.170	0.204	0.239	0.274	0.308	0.343	0.378	0.413	0.447	0.482	0.517	0.552	0.586	0.621	0.656	0.691	0.725	0.760	0.795
<b>80</b>	0.131	0.164	0.197	0.231	0.264	0.297	0.330	0.363	0.397	0.430	0.463	0.496	0.529	0.562	0.596	0.629	0.662	0.695	0.728	0.762	0.795
<b>85</b>	0.177	0.208	0.239	0.269	0.300	0.331	0.362	0.393	0.424	0.455	0.486	0.517	0.548	0.579	0.609	0.640	0.671	0.702	0.733	0.764	0.795
<b>90</b>	0.252	0.279	0.306	0.333	0.360	0.388	0.415	0.442	0.469	0.496	0.523	0.550	0.578	0.605	0.632	0.659	0.686	0.713	0.741	0.768	0.795
<b>95</b>	0.399	0.419	0.439	0.458	0.478	0.498	0.518	0.538	0.557	0.577	0.597	0.617	0.637	0.656	0.676	0.696	0.716	0.735	0.755	0.775	0.795
<b>98</b>	0.578	0.589	0.600	0.611	0.622	0.633	0.643	0.654	0.665	0.676	0.687	0.697	0.708	0.719	0.730	0.741	0.752	0.762	0.773	0.784	0.795

**ZONE 4**  
**Mean Annual Runoff Coefficients (ROC Value) as a Function**  
**of DCIA Percentage and Non-DCIA Curve Number**

<b>NDCIA CN</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>90</b>	<b>95</b>	<b>100</b>
	0.004	0.045	0.086	0.127	0.168	0.209	0.250	0.291	0.332	0.373	0.414	0.455	0.496	0.536	0.577	0.618	0.659	0.700	0.741	0.782	0.823
<b>35</b>	0.007	0.048	0.089	0.129	0.170	0.211	0.252	0.293	0.333	0.374	0.415	0.456	0.497	0.537	0.578	0.619	0.660	0.701	0.741	0.782	0.823
<b>40</b>	0.011	0.051	0.092	0.133	0.173	0.214	0.254	0.295	0.336	0.376	0.417	0.458	0.498	0.539	0.579	0.620	0.661	0.701	0.742	0.782	0.823
<b>45</b>	0.016	0.056	0.096	0.137	0.177	0.217	0.258	0.298	0.339	0.379	0.419	0.460	0.500	0.540	0.581	0.621	0.662	0.702	0.742	0.783	0.823
<b>50</b>	0.022	0.062	0.102	0.142	0.182	0.222	0.262	0.302	0.342	0.382	0.423	0.463	0.503	0.543	0.583	0.623	0.663	0.703	0.743	0.783	0.823
<b>55</b>	0.030	0.070	0.109	0.149	0.189	0.228	0.268	0.308	0.347	0.387	0.427	0.466	0.506	0.546	0.585	0.625	0.664	0.704	0.744	0.783	0.823
<b>60</b>	0.040	0.080	0.119	0.158	0.197	0.236	0.275	0.314	0.353	0.393	0.432	0.471	0.510	0.549	0.588	0.627	0.667	0.706	0.745	0.784	0.823
<b>65</b>	0.054	0.092	0.131	0.169	0.208	0.246	0.285	0.323	0.362	0.400	0.438	0.477	0.515	0.554	0.592	0.631	0.669	0.708	0.746	0.785	0.823
<b>70</b>	0.071	0.109	0.147	0.184	0.222	0.259	0.297	0.335	0.372	0.410	0.447	0.485	0.522	0.560	0.598	0.635	0.673	0.710	0.748	0.785	0.823
<b>75</b>	0.096	0.132	0.168	0.205	0.241	0.277	0.314	0.350	0.387	0.423	0.459	0.496	0.532	0.568	0.605	0.641	0.678	0.714	0.750	0.787	0.823
<b>80</b>	0.130	0.165	0.199	0.234	0.268	0.303	0.338	0.372	0.407	0.442	0.476	0.511	0.546	0.580	0.615	0.650	0.684	0.719	0.754	0.788	0.823
<b>85</b>	0.182	0.214	0.246	0.278	0.310	0.342	0.374	0.406	0.438	0.470	0.502	0.534	0.566	0.599	0.631	0.663	0.695	0.727	0.759	0.791	0.823
<b>90</b>	0.266	0.294	0.322	0.350	0.378	0.406	0.433	0.461	0.489	0.517	0.545	0.573	0.600	0.628	0.656	0.684	0.712	0.740	0.767	0.795	0.823
<b>95</b>	0.429	0.449	0.469	0.488	0.508	0.528	0.547	0.567	0.587	0.606	0.626	0.646	0.665	0.685	0.705	0.725	0.744	0.764	0.784	0.803	0.823
<b>98</b>	0.616	0.626	0.636	0.647	0.657	0.667	0.678	0.688	0.699	0.709	0.719	0.730	0.740	0.750	0.761	0.771	0.782	0.792	0.802	0.813	0.823

**ZONE 5**  
**Mean Annual Runoff Coefficients (ROC Value) as a Function**  
**of DCIA Percentage and Non-DCIA Curve Number**

<b>NDCIA CN</b>	<b>0</b>	<b>5</b>	<b>10</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>30</b>	<b>35</b>	<b>40</b>	<b>45</b>	<b>50</b>	<b>55</b>	<b>60</b>	<b>65</b>	<b>70</b>	<b>75</b>	<b>80</b>	<b>85</b>	<b>90</b>	<b>95</b>	<b>100</b>
	0.008	0.048	0.088	0.128	0.168	0.208	0.248	0.288	0.328	0.368	0.408	0.448	0.488	0.528	0.568	0.608	0.648	0.688	0.728	0.768	0.808
<b>35</b>	0.012	0.052	0.092	0.132	0.171	0.211	0.251	0.291	0.331	0.370	0.410	0.450	0.490	0.529	0.569	0.609	0.649	0.689	0.728	0.768	0.808
<b>40</b>	0.018	0.057	0.097	0.136	0.176	0.215	0.255	0.294	0.334	0.373	0.413	0.452	0.492	0.531	0.571	0.611	0.650	0.690	0.729	0.769	0.808
<b>45</b>	0.025	0.064	0.103	0.142	0.182	0.221	0.260	0.299	0.338	0.377	0.417	0.456	0.495	0.534	0.573	0.612	0.651	0.691	0.730	0.769	0.808
<b>50</b>	0.034	0.072	0.111	0.150	0.189	0.227	0.266	0.305	0.343	0.382	0.421	0.460	0.498	0.537	0.576	0.614	0.653	0.692	0.731	0.769	0.808
<b>55</b>	0.044	0.082	0.121	0.159	0.197	0.235	0.273	0.312	0.350	0.388	0.426	0.464	0.502	0.541	0.579	0.617	0.655	0.693	0.732	0.770	0.808
<b>60</b>	0.057	0.095	0.132	0.170	0.207	0.245	0.282	0.320	0.357	0.395	0.433	0.470	0.508	0.545	0.583	0.620	0.658	0.695	0.733	0.770	0.808
<b>65</b>	0.073	0.110	0.147	0.183	0.220	0.257	0.294	0.330	0.367	0.404	0.441	0.477	0.514	0.551	0.588	0.624	0.661	0.698	0.735	0.771	0.808
<b>70</b>	0.093	0.129	0.165	0.201	0.236	0.272	0.308	0.344	0.379	0.415	0.451	0.486	0.522	0.558	0.594	0.629	0.665	0.701	0.737	0.772	0.808
<b>75</b>	0.120	0.155	0.189	0.223	0.258	0.292	0.327	0.361	0.395	0.430	0.464	0.498	0.533	0.567	0.602	0.636	0.670	0.705	0.739	0.774	0.808
<b>80</b>	0.157	0.189	0.222	0.254	0.287	0.319	0.352	0.385	0.417	0.450	0.482	0.515	0.547	0.580	0.613	0.645	0.678	0.710	0.743	0.775	0.808
<b>85</b>	0.209	0.239	0.269	0.299	0.329	0.359	0.389	0.419	0.449	0.479	0.509	0.538	0.568	0.598	0.628	0.658	0.688	0.718	0.748	0.778	0.808
<b>90</b>	0.292	0.318	0.343	0.369	0.395	0.421	0.447	0.472	0.498	0.524	0.550	0.576	0.602	0.627	0.653	0.679	0.705	0.731	0.756	0.782	0.808
<b>95</b>	0.445	0.464	0.482	0.500	0.518	0.536	0.554	0.572	0.590	0.609	0.627	0.645	0.663	0.681	0.699	0.717	0.736	0.754	0.772	0.790	0.808
<b>98</b>	0.614	0.624	0.633	0.643	0.653	0.662	0.672	0.682	0.692	0.701	0.711	0.721	0.730	0.740	0.750	0.760	0.769	0.779	0.789	0.798	0.808

## Appendix O

### Traditional BMP Treatment Efficiencies

#### Directions for use

This listing of BMPs defines the treatment efficiencies for total phosphorous (TP) and total nitrogen (TN) for traditional BMPs. Applicants will determine the predicted pollutant loading from their post development site the treatment efficiency required as described in applicant’s Handbook Volume I. Treatment efficiencies for traditional BMPs alone are listed in the table. Some BMPs do not have a static efficiency and the applicant will have to refer to the formulas or tables provided to calculate the BMP’s efficiency. Applicants will design their system so that their BMP’s Efficiency, either by itself or in series with others, matches the required efficiency set forth in AH Vol I. BMPs designed in series will have their treatment efficiencies calculated by the formula listed in the BMP Treatment Train section.

All BMPs are required to meet all the design requirements outlined in the applicable Applicant’s Handbook Volume II.

Table 1: of BMP Efficiencies

<u>BMP</u>	<u>TP Reduction</u>	<u>TN Reduction</u>	<u>Data Source</u>
<a href="#"><u>Retention Pond and Retention Systems</u></a>	Based on percent reduction using project’s percent directly connected impervious area (DCIA), non-DCIA curve number (CN), and rainfall zone	Based on percent reduction using project’s percent directly connected impervious area (DCIA), non-DCIA curve number (CN), and rainfall zone	Evaluation of current stormwater design criteria within the state of Florida, Harper and Baker 2007
<a href="#"><u>Wet detention ponds</u></a>	<a href="#"><u>Formula based on Average Annual Residence Time for Removal Efficiency of Total Phosphorus</u></a>	<a href="#"><u>Formula based on Average Annual Residence Time Removal Efficiency of Total Nitrogen</u></a>	Evaluation of current stormwater design criteria within the state of Florida, Harper and Baker 2007
<a href="#"><u>Baffle boxes (gravity-based separators)—First generation</u></a>	<a href="#"><u>2.30%</u></a>	<a href="#"><u>0.50%</u></a>	<a href="#"><u>Final report, Contract S0236, Effectiveness of baffle boxes plus media filter, by GPI Southeast 2010; Demonstration bio media for ultra-urban stormwater treatment, by University of Central Florida (UCF) for Florida Department of Transportation (FDOT); and Final report, Contract S0497, Baffle box with media filtration installation and effectiveness evaluation by City of Casselberry,</u></a>
<a href="#"><u>Baffle boxes (gravity-based separators)—Second generation</u></a>	<a href="#"><u>15.50%</u></a>	<a href="#"><u>19.05%</u></a>	
<a href="#"><u>Baffle boxes (gravity-based separators)—Second generation plus media filter</u></a>	<a href="#"><u>Media Mix Efficiency</u></a>	<a href="#"><u>Media Mix Efficiency</u></a>	

<b><u>BMP</u></b>	<b><u>TP Reduction</u></b>	<b><u>TN Reduction</u></b>	<b><u>Data Source</u></b>
<u>Hydrodynamic separators (including vortex and continuous deflector separators [CDS] units)</u>	<u>10%</u>	<u>N/A</u>	<u>Final Report, Contract S0095, Sanford Stormceptor Project, 2008; Final Report, Contract WM793, Broadway Outfall Project, 2006</u>
<u>Catch basin inserts/inlet filter cleanout (drainage features and units with no specific water quality treatment mechanism), including the following: • Curb inlets. • Area catch basins. • Pavement catch basins. • Projects serving drainage and conveyance functions.</u>	<u>Determine annual average dry weight/volume of material collected over a period of 3 years (or representative period of current effort) and enter values into the Florida Stormwater Association (FSA) University of Florida (UF) Municipal Separate Storm Sewer (MS4) BMP Toolkit (FINAL MS4 Load Reduction Tool 2019 or newer version) for estimated TP reduction</u>	<u>Determine annual average dry weight/volume of material collected over a period of 3 years (or representative period of current effort) and enter values into the Florida Stormwater Association (FSA) University of Florida (UF) Municipal Separate Storm Sewer (MS4) BMP Toolkit (FINAL MS4 Load Reduction Tool 2019 or newer version) for estimated TN reduction</u>	<u>2019 Final Report (or newer version), FSA UF MS4 BMP Project</u>
<u>Green Stormwater Infrastructure Efforts Including: Green Roofs, Rain gardens, Swales with blocks, Bioswales, Tree boxes, Tree wells, Vegetated Natural Buffers, Vegetated filter strip, Pervious Pavement Systems</u>	<u>Use appropriate retention or detention calculation for volume captured then add an additional removal based on plant, soil and media selections in a treatment train configuration.</u>	<u>Use appropriate retention or detention calculation for volume captured then add an additional removal based on plant, soil and media selections in a treatment train configuration.</u>	<u>Evaluation of current stormwater design criteria within the state of Florida, Harper and Baker 2007</u>
<u>Floating islands/managed aquatic plant systems (MAPS)</u>	<u>12% removal with 5 % pond coverage based on harvesting at least every 12 months.</u>	<u>12% removal with 5 % pond coverage based on harvesting at least every 12 months.</u>	<u>Floating Wetland Systems for Nutrient Removal in Stormwater Ponds Wanielista and Chang 2012</u>



<b><u>BMP</u></b>	<b><u>TP Reduction</u></b>	<b><u>TN Reduction</u></b>	<b><u>Data Source</u></b>
<u>Littoral Zone</u>	<u>Maximum 10% removal with a minimum littoral zone area as described in AH Volume II.</u>	<u>Maximum 10% removal with a minimum littoral zone area as described in AH Volume II.</u>	<u>Nutrient Removal From Urban Strom Urban Stormwater Using Floating Stormwater Using Floating Treatment Wetland System</u> Kamrul Islam 2011  <u>Quantifying the Effect of a Vegetated Littoral Zone on Wet Detention Pond Pollutant Load Reduction</u> DB Environmental, Inc. (2005)
<u>Stormwater harvesting</u>	<u>Estimate annual load of stormwater (and percentage of total if not 100 %) not discharged because used for irrigation</u>	<u>Estimate annual load of stormwater (and percentage of total if not 100 %) not discharged because used for irrigation</u>	<u>Evaluated on case-by-case basis (to estimate volume of stormwater reuse, use the rate-efficiency-volume [REV] curve methodology used by DEP. Based on 1991 Wanielista, M., Y. Yousef, G. Harper, and L. Dansereau, Design Curves for the Reuse of Stormwater and 1992 Wanielista, M. and J. Bradner, Maintaining the Balance)</u>
<u>Stormwater alum injection systems</u>	<u>Based on dosage determined in jar testing</u>	<u>Based on dosage determined in jar testing</u>	<u>Harper, H., and J. Herr 1998 study for DEP – Alum treatment of stormwater: The first ten years</u>

### **Treatment Train**

BMPs can be implemented in combination or in conjunction with one another in a series called a best management practice treatment train. If used, BMP treatment train efficiencies must account for the reduced loading transferred to subsequent downstream treatment devices. As stormwater pollutant concentrations are reduced in each BMP in the treatment train, the ability of a BMP treatment train to further reduce stormwater pollutant concentrations and loads is diminished. This is shown in Equation 9-5. This equation assumes each BMP acts independently of upstream BMPs and that upstream BMPs do not impact performance of downstream BMPs. If the BMP acts in combination with the upstream BMP, the designer will consider the use of another methodology to determine the resultant efficiency of the BMP treatment train.

Equation 9-5: Overall Treatment Train Efficiency for systems in series

#### Overall Treatment Train Efficiency

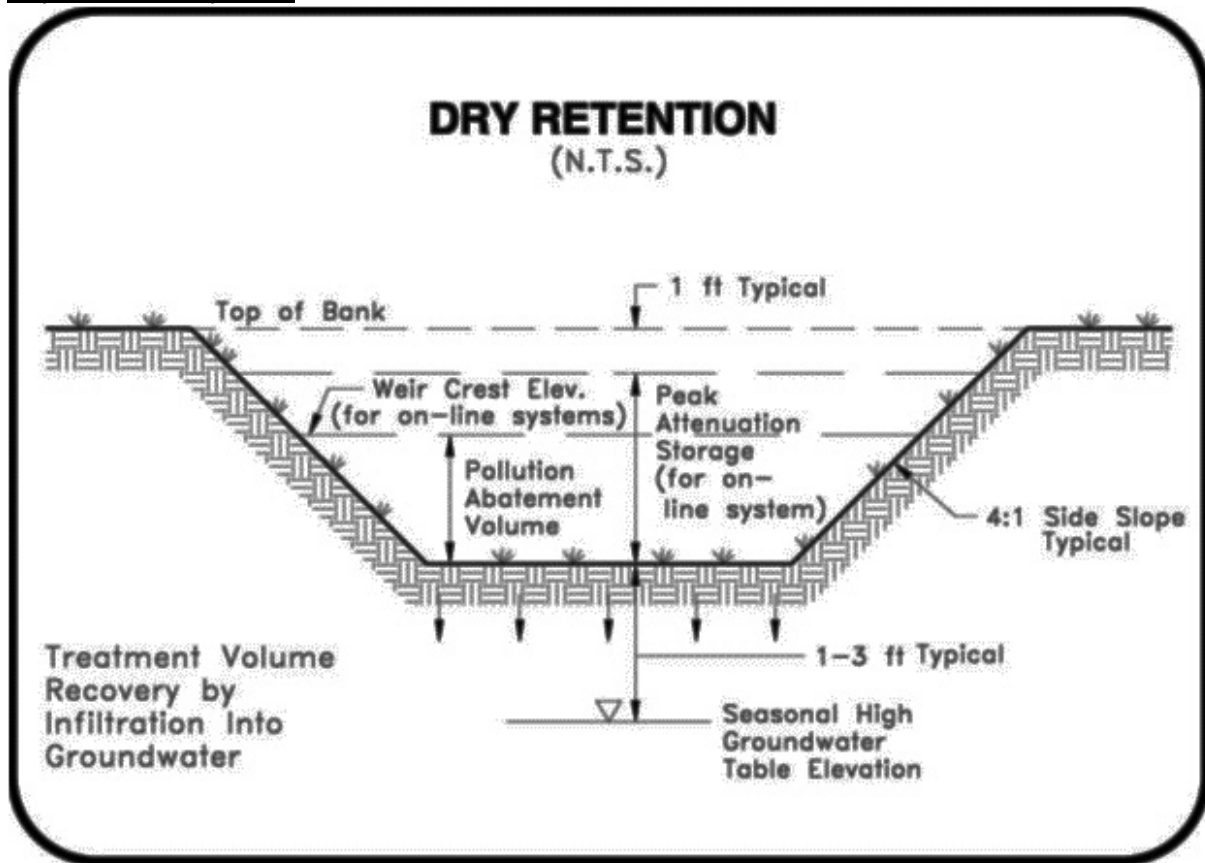
$$= \text{Eff1} + [(1 - \text{Eff1}) \times \text{Eff2}] + [((1 - \text{Eff1}) - ((1 - \text{Eff1}) \times \text{Eff2})) \times \text{Eff3}]$$

Eff1 = efficiency of initial treatment system

Eff2 = efficiency of second treatment system

Eff3 = efficiency of third treatment system

## Dry Retention Systems



The average annual effectiveness is calculated using an event maximum runoff volume that can be captured in the retention system. This maximum volume is expressed as inches over the catchment area and is called the design volume. It is adjusted for the Curve Number (CN) applied to the non-directly connected impervious area (NDCIA) and the directly connected impervious area (DCIA).

Recovery of the required treatment volume must be achieved within 72 hours or less, equivalent to the volume recovery period utilized for generation of the performance efficiency summarized in the tables. Ability of the pond to achieve this recovery rate must be certified by a registered geotechnical engineer. All side slopes and bottom areas of the pond must be seeded or sodded with water-tolerant grass species grown on sandy soils. If sod is used as the vegetative cover on the bottom of the pond, changes in permeability of the basin resulting from the sod must be included in evaluation of the recovery period for the pond. Inlets and outlets must be located as far apart as possible to prevent short-circuiting. Oil and grease skimmers must be provided at all outfall structures. Other requirements related to side slopes, fencing, maintenance berms, and access will adhere to applicable local agency criteria.

There are 80 tables reflecting design retention depths for five rainfall regions. Each region has a table for 17 different design retention depths. For DCIA and CN other than increments of 5, linear interpolation between the values is performed.

**Mean Annual Mass Removal Efficiencies for 0.25-inches of Retention for Zone 1 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	86.2	81.3	73.3	65.5	58.7	53.0	48.3	44.2	40.8	37.9	35.3	33.1	31.1	29.4	27.8	26.4	25.1	24.0	22.9	21.9
35	81.6	78.7	71.7	64.5	58.0	52.5	47.9	44.0	40.6	37.7	35.2	33.0	31.0	29.3	27.8	26.4	25.1	23.9	22.9	21.9
40	76.4	75.5	69.6	63.1	57.1	51.9	47.4	43.6	40.3	37.5	35.0	32.9	30.9	29.2	27.7	26.3	25.1	23.9	22.9	21.9
45	70.7	71.7	67.2	61.4	55.9	51.0	46.8	43.1	40.0	37.2	34.8	32.7	30.8	29.1	27.6	26.3	25.0	23.9	22.9	21.9
50	64.7	67.5	64.2	59.4	54.5	50.0	46.0	42.6	39.5	36.9	34.6	32.5	30.7	29.0	27.5	26.2	25.0	23.9	22.9	21.9
55	58.6	62.8	60.9	57.0	52.7	48.7	45.1	41.8	39.0	36.5	34.2	32.3	30.5	28.9	27.4	26.1	24.9	23.9	22.9	21.9
60	52.8	57.8	57.1	54.2	50.7	47.1	43.9	40.9	38.3	35.9	33.8	31.9	30.2	28.7	27.3	26.0	24.9	23.8	22.8	21.9
65	47.3	52.6	53.0	51.1	48.3	45.3	42.5	39.8	37.4	35.3	33.3	31.5	29.9	28.4	27.1	25.9	24.8	23.8	22.8	21.9
70	42.2	47.3	48.6	47.6	45.6	43.2	40.8	38.5	36.4	34.4	32.6	31.0	29.5	28.1	26.9	25.7	24.7	23.7	22.8	21.9
75	37.8	42.2	43.9	43.7	42.4	40.7	38.8	36.9	35.1	33.4	31.8	30.4	29.0	27.8	26.6	25.5	24.5	23.6	22.7	21.9
80	34.0	37.5	39.1	39.4	38.8	37.7	36.4	34.9	33.5	32.1	30.8	29.5	28.3	27.2	26.2	25.2	24.3	23.5	22.7	21.9
85	30.8	33.1	34.3	34.8	34.7	34.2	33.4	32.5	31.4	30.4	29.4	28.4	27.4	26.5	25.7	24.8	24.1	23.3	22.6	21.9
90	27.9	29.2	29.9	30.3	30.3	30.2	29.8	29.3	28.8	28.2	27.5	26.8	26.2	25.5	24.9	24.2	23.6	23.0	22.5	21.9
95	25.3	25.6	25.8	25.9	26.0	25.9	25.8	25.6	25.4	25.2	24.9	24.6	24.3	24.0	23.6	23.3	23.0	22.6	22.3	21.9
98	23.8	23.8	23.8	23.7	23.7	23.6	23.5	23.4	23.3	23.2	23.1	23.0	22.9	22.8	22.6	22.5	22.4	22.2	22.1	21.9

**Mean Annual Mass Removal Efficiencies for 0.50-inches of Retention for Zone 1 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	91.8	91.5	88.3	84.0	79.5	75.0	70.7	66.6	62.9	59.6	56.5	53.6	51.1	48.7	46.6	44.6	42.8	41.1	39.6	38.1
35	88.2	89.1	86.6	82.8	78.6	74.3	70.1	66.2	62.6	59.3	56.3	53.5	51.0	48.7	46.5	44.6	42.8	41.1	39.6	38.1
40	84.0	86.3	84.4	81.2	77.4	73.4	69.4	65.7	62.2	59.0	56.0	53.3	50.8	48.5	46.4	44.5	42.7	41.1	39.6	38.1
45	79.6	82.9	81.9	79.3	75.9	72.2	68.5	65.0	61.7	58.6	55.7	53.0	50.6	48.4	46.3	44.4	42.7	41.0	39.5	38.1
50	74.8	79.1	79.0	77.0	74.1	70.8	67.4	64.1	61.0	58.0	55.3	52.7	50.4	48.2	46.2	44.3	42.6	41.0	39.5	38.1
55	70.1	74.9	75.6	74.2	71.9	69.1	66.1	63.0	60.1	57.3	54.7	52.3	50.0	47.9	46.0	44.2	42.5	40.9	39.5	38.1
60	65.5	70.4	71.7	71.1	69.4	67.0	64.4	61.7	59.1	56.5	54.1	51.8	49.6	47.6	45.8	44.0	42.4	40.9	39.5	38.1
65	61.0	65.8	67.5	67.6	66.4	64.7	62.5	60.2	57.8	55.5	53.3	51.1	49.1	47.2	45.5	43.8	42.3	40.8	39.4	38.1
70	56.7	61.1	63.1	63.6	63.1	61.9	60.2	58.3	56.3	54.3	52.3	50.3	48.5	46.8	45.1	43.5	42.1	40.7	39.4	38.1
75	52.7	56.6	58.6	59.3	59.3	58.6	57.5	56.0	54.4	52.7	51.0	49.3	47.7	46.1	44.6	43.2	41.8	40.5	39.3	38.1
80	49.1	52.2	54.1	55.0	55.2	54.9	54.2	53.2	52.1	50.8	49.4	48.0	46.6	45.3	44.0	42.7	41.5	40.3	39.2	38.1
85	46.1	48.3	49.7	50.5	50.8	50.8	50.5	49.9	49.2	48.3	47.3	46.3	45.2	44.2	43.1	42.1	41.0	40.0	39.1	38.1
90	43.5	44.8	45.6	46.1	46.4	46.5	46.4	46.1	45.7	45.2	44.6	44.0	43.3	42.6	41.9	41.1	40.4	39.6	38.9	38.1
95	41.1	41.5	41.8	41.9	42.0	42.1	42.0	41.9	41.8	41.6	41.3	41.1	40.8	40.4	40.1	39.7	39.3	38.9	38.5	38.1
98	39.8	39.8	39.8	39.8	39.8	39.7	39.7	39.6	39.5	39.4	39.3	39.2	39.1	39.0	38.9	38.7	38.6	38.4	38.3	38.1

**Mean Annual Mass Removal Efficiencies for 0.75-inches of Retention for Zone 1 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.0	94.9	93.4	91.0	88.1	85.0	81.8	78.7	75.5	72.6	69.7	67.0	64.5	62.1	59.8	57.7	55.7	53.8	52.1	50.5
35	91.2	93.0	91.9	89.8	87.2	84.2	81.2	78.2	75.2	72.3	69.5	66.8	64.3	62.0	59.7	57.6	55.7	53.8	52.1	50.5
40	88.1	90.5	90.1	88.3	86.0	83.3	80.5	77.6	74.7	71.9	69.2	66.6	64.1	61.8	59.6	57.6	55.6	53.8	52.1	50.5
45	84.5	87.7	87.9	86.5	84.5	82.1	79.5	76.8	74.0	71.4	68.8	66.3	63.9	61.6	59.5	57.5	55.5	53.7	52.0	50.5
50	80.8	84.6	85.2	84.4	82.8	80.7	78.3	75.8	73.3	70.7	68.3	65.9	63.6	61.4	59.3	57.3	55.5	53.7	52.0	50.5
55	77.1	81.1	82.2	81.9	80.7	79.0	76.9	74.6	72.3	70.0	67.6	65.4	63.2	61.1	59.1	57.2	55.3	53.6	52.0	50.5
60	73.2	77.5	79.0	79.1	78.3	76.9	75.2	73.2	71.1	69.0	66.9	64.7	62.7	60.7	58.8	56.9	55.2	53.5	51.9	50.5
65	69.6	73.8	75.4	75.8	75.5	74.5	73.2	71.5	69.7	67.8	65.9	63.9	62.0	60.2	58.4	56.7	55.0	53.4	51.9	50.5
70	66.1	69.9	71.7	72.3	72.3	71.7	70.8	69.5	68.0	66.4	64.7	63.0	61.3	59.6	57.9	56.3	54.8	53.3	51.8	50.5
75	62.7	66.0	67.8	68.6	68.8	68.5	67.9	67.1	65.9	64.7	63.3	61.8	60.3	58.8	57.3	55.9	54.5	53.1	51.7	50.5
80	59.6	62.2	63.8	64.7	65.1	65.1	64.8	64.2	63.4	62.5	61.4	60.3	59.1	57.8	56.6	55.3	54.0	52.8	51.6	50.5
85	56.8	58.7	60.0	60.8	61.2	61.4	61.3	61.0	60.5	59.9	59.1	58.3	57.4	56.5	55.5	54.5	53.5	52.5	51.4	50.5
90	54.5	55.6	56.4	57.0	57.3	57.5	57.5	57.4	57.2	56.8	56.4	55.9	55.4	54.7	54.1	53.4	52.7	51.9	51.2	50.5
95	52.5	52.9	53.2	53.3	53.5	53.6	53.6	53.6	53.5	53.4	53.2	53.0	52.8	52.5	52.2	51.9	51.6	51.2	50.8	50.5
98	51.7	51.7	51.7	51.7	51.7	51.7	51.7	51.6	51.6	51.5	51.4	51.3	51.3	51.2	51.1	51.0	50.8	50.7	50.6	50.5

**Mean Annual Mass Removal Efficiencies for 1.00-inches of Retention for Zone 1 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.3	96.5	95.9	94.4	92.5	90.3	87.9	85.5	83.1	80.6	78.2	75.8	73.6	71.4	69.2	67.2	65.3	63.4	61.6	60.0
35	93.1	94.9	94.6	93.3	91.6	89.5	87.3	85.0	82.7	80.3	77.9	75.6	73.4	71.2	69.1	67.1	65.2	63.4	61.6	60.0
40	90.7	93.0	93.0	92.0	90.5	88.6	86.6	84.4	82.1	79.9	77.6	75.4	73.2	71.1	69.0	67.0	65.2	63.3	61.6	60.0
45	88.0	90.7	91.0	90.5	89.2	87.5	85.6	83.6	81.5	79.3	77.2	75.0	72.9	70.9	68.8	66.9	65.1	63.3	61.6	60.0
50	85.0	88.0	88.8	88.6	87.6	86.2	84.5	82.7	80.7	78.7	76.6	74.6	72.6	70.6	68.6	66.8	65.0	63.2	61.6	60.0
55	81.8	85.3	86.4	86.3	85.7	84.6	83.2	81.5	79.8	77.9	75.9	74.0	72.1	70.2	68.4	66.6	64.8	63.1	61.5	60.0
60	78.7	82.3	83.6	83.9	83.5	82.7	81.5	80.1	78.6	76.9	75.1	73.4	71.6	69.8	68.0	66.3	64.7	63.0	61.5	60.0
65	75.6	79.1	80.6	81.2	81.0	80.5	79.6	78.5	77.2	75.7	74.1	72.5	70.9	69.3	67.6	66.0	64.4	62.9	61.4	60.0
70	72.7	75.9	77.5	78.2	78.3	78.0	77.4	76.5	75.5	74.2	72.9	71.5	70.1	68.6	67.1	65.6	64.2	62.7	61.3	60.0
75	69.9	72.7	74.2	75.0	75.3	75.2	74.8	74.2	73.4	72.5	71.4	70.3	69.1	67.8	66.5	65.1	63.8	62.5	61.2	60.0
80	67.2	69.5	70.8	71.7	72.1	72.1	72.0	71.6	71.1	70.4	69.6	68.7	67.8	66.7	65.6	64.5	63.4	62.2	61.1	60.0
85	64.8	66.5	67.6	68.3	68.7	68.9	68.9	68.7	68.4	68.0	67.5	66.8	66.1	65.4	64.5	63.7	62.8	61.8	60.9	60.0
90	62.7	63.7	64.4	65.0	65.3	65.5	65.6	65.6	65.5	65.2	65.0	64.6	64.2	63.7	63.1	62.6	61.9	61.3	60.6	60.0
95	61.1	61.5	61.8	62.0	62.1	62.2	62.3	62.3	62.3	62.2	62.1	62.0	61.8	61.6	61.4	61.2	60.9	60.6	60.3	60.0
98	60.7	60.7	60.7	60.8	60.8	60.8	60.8	60.8	60.7	60.7	60.7	60.6	60.6	60.5	60.4	60.3	60.3	60.2	60.1	60.0

**Mean Annual Mass Removal Efficiencies for 1.25-inches of Retention for Zone 1 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	96.1	97.3	97.2	96.3	94.9	93.4	91.6	89.7	87.8	85.8	83.8	81.8	79.9	77.9	76.0	74.2	72.4	70.6	68.9	67.3
35	94.5	96.1	96.2	95.4	94.1	92.7	91.0	89.2	87.4	85.5	83.5	81.6	79.7	77.8	75.9	74.1	72.3	70.6	68.9	67.3
40	92.5	94.5	94.8	94.2	93.2	91.9	90.3	88.6	86.9	85.0	83.2	81.3	79.5	77.6	75.8	74.0	72.3	70.6	68.9	67.3
45	90.4	92.7	93.2	92.8	92.0	90.9	89.4	87.9	86.3	84.5	82.8	81.0	79.2	77.4	75.6	73.9	72.2	70.5	68.9	67.3
50	88.0	90.6	91.3	91.2	90.6	89.7	88.4	87.0	85.5	83.9	82.2	80.5	78.8	77.1	75.4	73.7	72.1	70.4	68.9	67.3
55	85.4	88.2	89.2	89.3	88.9	88.2	87.2	86.0	84.6	83.1	81.6	80.0	78.4	76.7	75.1	73.5	71.9	70.3	68.8	67.3
60	82.7	85.7	86.9	87.2	87.0	86.5	85.7	84.7	83.5	82.2	80.8	79.3	77.8	76.3	74.8	73.2	71.7	70.2	68.8	67.3
65	80.1	83.1	84.4	84.9	84.9	84.5	83.9	83.1	82.1	81.0	79.8	78.5	77.1	75.7	74.3	72.9	71.5	70.1	68.7	67.3
70	77.6	80.3	81.7	82.4	82.5	82.4	81.9	81.3	80.6	79.7	78.6	77.5	76.3	75.1	73.8	72.5	71.2	69.9	68.6	67.3
75	75.2	77.6	79.0	79.7	80.0	79.9	79.7	79.3	78.7	78.0	77.2	76.3	75.3	74.2	73.1	72.0	70.9	69.7	68.5	67.3
80	73.0	74.9	76.1	76.8	77.2	77.3	77.3	77.0	76.6	76.1	75.5	74.8	74.0	73.2	72.3	71.4	70.4	69.4	68.4	67.3
85	70.9	72.3	73.3	73.9	74.3	74.5	74.6	74.5	74.3	73.9	73.5	73.1	72.5	71.9	71.2	70.5	69.8	69.0	68.2	67.3
90	69.2	70.0	70.6	71.1	71.4	71.6	71.7	71.7	71.7	71.5	71.3	71.1	70.7	70.4	70.0	69.5	69.0	68.5	67.9	67.3
95	67.8	68.1	68.4	68.6	68.7	68.9	68.9	69.0	69.0	69.0	68.9	68.9	68.7	68.6	68.5	68.3	68.1	67.8	67.6	67.3
98	67.7	67.7	67.7	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.8	67.7	67.7	67.6	67.6	67.5	67.5	67.4	67.3

**Mean Annual Mass Removal Efficiencies for 1.50-inches of Retention for Zone 1**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	96.8	97.8	98.0	97.5	96.5	95.3	94.0	92.5	90.9	89.3	87.7	86.0	84.3	82.7	81.0	79.3	77.7	76.1	74.6	73.1
35	95.5	96.9	97.1	96.7	95.8	94.7	93.5	92.1	90.6	89.0	87.4	85.8	84.1	82.5	80.9	79.3	77.7	76.1	74.6	73.1
40	93.9	95.6	96.0	95.7	95.0	94.0	92.8	91.5	90.1	88.6	87.1	85.5	83.9	82.3	80.7	79.2	77.6	76.1	74.6	73.1
45	92.1	94.2	94.7	94.5	93.9	93.1	92.0	90.8	89.5	88.1	86.6	85.1	83.6	82.1	80.6	79.0	77.5	76.0	74.5	73.1
50	90.3	92.5	93.1	93.1	92.7	92.0	91.1	90.0	88.8	87.5	86.1	84.7	83.3	81.8	80.3	78.9	77.4	75.9	74.5	73.1
55	88.2	90.5	91.3	91.4	91.2	90.7	89.9	89.0	87.9	86.8	85.5	84.2	82.8	81.5	80.1	78.6	77.2	75.8	74.4	73.1
60	85.9	88.3	89.3	89.6	89.6	89.2	88.6	87.8	86.9	85.9	84.7	83.5	82.3	81.0	79.7	78.4	77.0	75.7	74.4	73.1
65	83.5	86.0	87.2	87.7	87.7	87.5	87.0	86.4	85.7	84.8	83.8	82.8	81.7	80.5	79.3	78.1	76.8	75.6	74.3	73.1
70	81.4	83.7	85.0	85.5	85.7	85.6	85.3	84.8	84.2	83.5	82.7	81.8	80.9	79.9	78.8	77.7	76.5	75.4	74.2	73.1
75	79.4	81.4	82.5	83.2	83.5	83.5	83.3	83.0	82.6	82.1	81.4	80.7	79.9	79.1	78.1	77.2	76.2	75.2	74.1	73.1
80	77.4	79.1	80.1	80.8	81.1	81.2	81.2	81.0	80.8	80.4	79.9	79.4	78.8	78.1	77.3	76.5	75.7	74.9	74.0	73.1
85	75.7	76.9	77.7	78.3	78.6	78.8	78.9	78.9	78.7	78.5	78.2	77.8	77.4	76.9	76.3	75.8	75.1	74.5	73.8	73.1
90	74.2	74.9	75.4	75.9	76.2	76.4	76.5	76.5	76.5	76.4	76.3	76.1	75.8	75.5	75.2	74.8	74.4	74.0	73.6	73.1
95	73.1	73.3	73.6	73.8	73.9	74.0	74.1	74.2	74.2	74.2	74.2	74.2	74.1	74.0	73.9	73.8	73.6	73.5	73.3	73.1
98	73.1	73.1	73.2	73.2	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.3	73.2	73.2	73.2	73.1	73.1















**Mean Annual Mass Removal Efficiencies for 0.25-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.4	90.4	83.0	75.1	68.0	61.9	56.6	52.1	48.3	44.9	42.0	39.4	37.2	35.1	33.3	31.7	30.2	28.8	27.6	26.4
35	91.8	88.8	82.0	74.5	67.6	61.5	56.4	51.9	48.1	44.8	41.9	39.4	37.1	35.1	33.3	31.7	30.2	28.8	27.6	26.4
40	88.2	86.6	80.6	73.5	66.9	61.1	56.0	51.7	47.9	44.7	41.8	39.3	37.1	35.0	33.2	31.6	30.2	28.8	27.6	26.4
45	83.9	83.8	78.7	72.3	66.1	60.4	55.6	51.4	47.7	44.5	41.7	39.2	37.0	35.0	33.2	31.6	30.1	28.8	27.6	26.4
50	78.8	80.4	76.4	70.7	64.9	59.6	55.0	50.9	47.3	44.2	41.5	39.0	36.8	34.9	33.1	31.5	30.1	28.8	27.6	26.4
55	73.2	76.4	73.6	68.7	63.5	58.6	54.2	50.3	46.9	43.9	41.2	38.8	36.7	34.8	33.0	31.5	30.1	28.7	27.5	26.4
60	67.4	71.8	70.2	66.3	61.7	57.3	53.2	49.6	46.3	43.4	40.8	38.6	36.5	34.6	32.9	31.4	30.0	28.7	27.5	26.4
65	61.4	66.7	66.3	63.4	59.5	55.6	51.9	48.6	45.5	42.9	40.4	38.2	36.2	34.4	32.8	31.3	29.9	28.7	27.5	26.4
70	55.7	61.1	61.8	59.8	56.8	53.5	50.4	47.3	44.6	42.1	39.8	37.7	35.9	34.1	32.6	31.1	29.8	28.6	27.5	26.4
75	50.1	55.2	56.5	55.6	53.5	50.9	48.3	45.7	43.3	41.1	39.0	37.1	35.4	33.8	32.3	30.9	29.7	28.5	27.4	26.4
80	45.0	49.1	50.7	50.6	49.4	47.6	45.6	43.6	41.6	39.7	37.9	36.2	34.7	33.2	31.9	30.7	29.5	28.4	27.4	26.4
85	40.3	43.2	44.5	44.8	44.3	43.4	42.1	40.7	39.2	37.8	36.3	35.0	33.7	32.5	31.3	30.2	29.2	28.2	27.3	26.4
90	36.0	37.5	38.3	38.6	38.5	38.1	37.5	36.7	35.9	35.0	34.0	33.1	32.2	31.3	30.4	29.5	28.7	27.9	27.2	26.4
95	31.7	32.1	32.3	32.4	32.3	32.2	32.0	31.7	31.4	31.0	30.6	30.2	29.7	29.3	28.8	28.3	27.9	27.4	26.9	26.4
98	29.3	29.3	29.2	29.1	29.0	28.9	28.8	28.6	28.5	28.3	28.2	28.0	27.8	27.7	27.5	27.3	27.1	26.9	26.6	26.4

**Mean Annual Mass Removal Efficiencies for 0.50-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	97.0	96.7	94.8	91.7	87.9	83.8	79.7	75.7	71.9	68.4	65.2	62.1	59.4	56.9	54.5	52.3	50.3	48.4	46.7	45.1
35	95.2	95.5	93.8	90.9	87.3	83.4	79.3	75.4	71.7	68.3	65.0	62.1	59.3	56.8	54.4	52.3	50.3	48.4	46.7	45.1
40	92.9	94.0	92.5	89.9	86.5	82.7	78.9	75.1	71.4	68.0	64.9	61.9	59.2	56.7	54.4	52.2	50.2	48.4	46.7	45.1
45	90.2	91.9	90.9	88.6	85.5	81.9	78.2	74.6	71.1	67.7	64.6	61.7	59.1	56.6	54.3	52.2	50.2	48.4	46.7	45.1
50	86.7	89.2	88.9	87.0	84.2	80.9	77.4	73.9	70.5	67.3	64.3	61.5	58.9	56.5	54.2	52.1	50.2	48.3	46.6	45.1
55	82.7	86.1	86.4	84.9	82.6	79.6	76.4	73.1	69.9	66.8	63.9	61.2	58.6	56.3	54.1	52.0	50.1	48.3	46.6	45.1
60	78.5	82.6	83.4	82.5	80.6	78.0	75.1	72.1	69.1	66.1	63.4	60.8	58.3	56.0	53.9	51.9	50.0	48.2	46.6	45.1
65	74.2	78.6	79.8	79.5	78.1	76.0	73.5	70.7	68.0	65.3	62.7	60.2	57.9	55.7	53.6	51.7	49.9	48.2	46.6	45.1
70	69.8	74.2	75.8	76.0	75.2	73.5	71.4	69.1	66.6	64.2	61.8	59.5	57.3	55.3	53.3	51.4	49.7	48.1	46.5	45.1
75	65.4	69.6	71.4	71.9	71.5	70.4	68.8	66.9	64.9	62.7	60.6	58.6	56.6	54.7	52.8	51.1	49.5	47.9	46.5	45.1
80	61.4	64.9	66.6	67.3	67.2	66.5	65.5	64.1	62.5	60.8	59.0	57.3	55.5	53.9	52.2	50.7	49.2	47.7	46.4	45.1
85	57.6	60.1	61.6	62.2	62.3	62.0	61.3	60.4	59.3	58.1	56.8	55.4	54.0	52.7	51.3	50.0	48.7	47.4	46.2	45.1
90	54.1	55.4	56.2	56.7	56.8	56.7	56.4	55.9	55.2	54.5	53.6	52.8	51.8	50.9	49.9	48.9	47.9	46.9	46.0	45.1
95	50.1	50.5	50.7	50.8	50.8	50.8	50.6	50.4	50.2	49.9	49.5	49.1	48.7	48.2	47.7	47.2	46.7	46.1	45.6	45.1
98	47.8	47.7	47.7	47.6	47.6	47.5	47.4	47.2	47.1	46.9	46.8	46.6	46.5	46.3	46.1	45.9	45.7	45.5	45.3	45.1

**Mean Annual Mass Removal Efficiencies for 0.75-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	97.9	98.2	97.5	96.2	94.4	92.1	89.6	86.9	84.1	81.3	78.5	75.9	73.3	70.9	68.5	66.3	64.2	62.2	60.4	58.6
35	96.7	97.3	96.8	95.6	93.8	91.7	89.2	86.6	83.8	81.1	78.4	75.7	73.2	70.8	68.5	66.3	64.2	62.2	60.4	58.6
40	95.0	96.1	95.9	94.8	93.1	91.1	88.7	86.2	83.5	80.8	78.2	75.6	73.1	70.7	68.4	66.2	64.2	62.2	60.4	58.6
45	93.0	94.7	94.6	93.7	92.2	90.3	88.1	85.6	83.1	80.5	77.9	75.4	72.9	70.6	68.3	66.2	64.1	62.2	60.4	58.6
50	90.7	92.8	93.1	92.4	91.1	89.3	87.3	85.0	82.5	80.0	77.5	75.1	72.7	70.4	68.2	66.1	64.0	62.1	60.3	58.6
55	88.0	90.6	91.1	90.7	89.7	88.1	86.3	84.1	81.8	79.4	77.0	74.7	72.4	70.1	68.0	65.9	64.0	62.1	60.3	58.6
60	84.8	87.9	88.8	88.7	88.0	86.7	85.0	83.0	80.9	78.7	76.5	74.2	72.0	69.8	67.8	65.8	63.8	62.0	60.3	58.6
65	81.5	84.9	86.2	86.3	85.8	84.8	83.4	81.7	79.8	77.8	75.7	73.6	71.5	69.5	67.5	65.5	63.7	61.9	60.2	58.6
70	78.1	81.7	83.1	83.5	83.2	82.5	81.4	80.0	78.4	76.6	74.7	72.8	70.9	68.9	67.1	65.2	63.5	61.8	60.2	58.6
75	74.9	78.1	79.6	80.2	80.2	79.8	79.0	77.9	76.5	75.0	73.4	71.7	70.0	68.3	66.5	64.8	63.2	61.6	60.1	58.6
80	71.6	74.3	75.8	76.5	76.7	76.5	76.0	75.2	74.1	73.0	71.7	70.3	68.8	67.3	65.8	64.3	62.8	61.4	60.0	58.6
85	68.6	70.6	71.8	72.5	72.8	72.7	72.4	71.9	71.2	70.3	69.3	68.3	67.1	65.9	64.7	63.5	62.2	61.0	59.8	58.6
90	65.7	66.9	67.7	68.1	68.3	68.3	68.2	67.9	67.5	66.9	66.3	65.6	64.9	64.0	63.2	62.3	61.4	60.5	59.5	58.6
95	62.7	63.0	63.2	63.3	63.4	63.4	63.3	63.2	63.0	62.8	62.5	62.2	61.8	61.4	61.0	60.5	60.1	59.6	59.1	58.6
98	60.8	60.8	60.8	60.7	60.7	60.6	60.5	60.4	60.3	60.2	60.1	59.9	59.8	59.6	59.5	59.3	59.2	59.0	58.8	58.6

**Mean Annual Mass Removal Efficiencies for 1.00-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.5	98.8	98.5	97.9	96.9	95.6	94.1	92.3	90.4	88.4	86.3	84.2	82.1	80.0	77.9	75.9	74.0	72.2	70.3	68.6
35	97.5	98.2	98.0	97.4	96.5	95.3	93.7	92.0	90.2	88.2	86.2	84.1	82.0	79.9	77.9	75.9	74.0	72.1	70.3	68.6
40	96.4	97.3	97.2	96.8	95.9	94.8	93.3	91.7	89.9	87.9	85.9	83.9	81.8	79.8	77.8	75.8	73.9	72.1	70.3	68.6
45	94.8	96.1	96.3	96.0	95.2	94.1	92.7	91.2	89.4	87.6	85.6	83.6	81.6	79.6	77.7	75.8	73.9	72.1	70.3	68.6
50	93.0	94.8	95.2	94.9	94.3	93.3	92.0	90.5	88.9	87.1	85.3	83.3	81.4	79.5	77.5	75.6	73.8	72.0	70.3	68.6
55	91.0	93.2	93.7	93.6	93.1	92.3	91.1	89.8	88.2	86.6	84.8	82.9	81.1	79.2	77.3	75.5	73.7	72.0	70.2	68.6
60	88.8	91.2	92.0	92.0	91.7	91.0	90.0	88.8	87.4	85.9	84.2	82.4	80.7	78.9	77.1	75.3	73.6	71.9	70.2	68.6
65	86.2	88.9	89.9	90.2	90.0	89.5	88.7	87.6	86.4	85.0	83.4	81.8	80.2	78.5	76.8	75.1	73.4	71.8	70.2	68.6
70	83.6	86.4	87.5	88.0	88.0	87.6	86.9	86.1	85.1	83.8	82.5	81.0	79.5	77.9	76.4	74.8	73.2	71.6	70.1	68.6
75	81.0	83.6	84.9	85.5	85.6	85.3	84.9	84.2	83.4	82.4	81.2	80.0	78.6	77.2	75.8	74.3	72.9	71.5	70.0	68.6
80	78.6	80.8	82.0	82.5	82.8	82.7	82.4	81.9	81.3	80.5	79.6	78.5	77.4	76.3	75.0	73.8	72.5	71.2	69.9	68.6
85	76.1	77.7	78.7	79.3	79.6	79.7	79.5	79.2	78.8	78.2	77.5	76.7	75.9	74.9	74.0	72.9	71.9	70.8	69.7	68.6
90	73.9	74.8	75.5	75.9	76.1	76.2	76.2	76.0	75.7	75.3	74.9	74.4	73.8	73.2	72.5	71.8	71.0	70.3	69.4	68.6
95	71.5	71.8	72.0	72.1	72.2	72.2	72.2	72.1	72.0	71.9	71.7	71.4	71.2	70.9	70.6	70.2	69.9	69.5	69.0	68.6
98	70.2	70.2	70.2	70.2	70.1	70.1	70.1	70.0	69.9	69.8	69.7	69.7	69.6	69.4	69.3	69.2	69.0	68.9	68.8	68.6

**Mean Annual Mass Removal Efficiencies for 1.25-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.9	99.1	99.0	98.7	98.1	97.3	96.4	95.2	93.9	92.4	90.9	89.3	87.7	86.0	84.3	82.6	80.9	79.2	77.6	76.0
35	98.1	98.6	98.6	98.3	97.7	97.0	96.1	94.9	93.7	92.3	90.8	89.2	87.6	85.9	84.2	82.5	80.9	79.2	77.6	76.0
40	97.2	98.0	98.0	97.8	97.3	96.6	95.7	94.6	93.4	92.0	90.5	89.0	87.4	85.8	84.1	82.5	80.8	79.2	77.6	76.0
45	96.1	97.1	97.3	97.1	96.7	96.1	95.2	94.2	93.0	91.7	90.3	88.8	87.2	85.6	84.0	82.4	80.7	79.1	77.6	76.0
50	94.7	96.0	96.4	96.3	96.0	95.4	94.6	93.6	92.5	91.3	89.9	88.5	87.0	85.4	83.8	82.2	80.7	79.1	77.5	76.0
55	93.0	94.8	95.3	95.3	95.1	94.6	93.9	93.0	91.9	90.8	89.5	88.1	86.7	85.2	83.6	82.1	80.6	79.0	77.5	76.0
60	91.3	93.3	94.0	94.1	94.0	93.6	92.9	92.2	91.2	90.1	88.9	87.7	86.3	84.9	83.4	81.9	80.4	78.9	77.5	76.0
65	89.4	91.6	92.4	92.7	92.6	92.3	91.8	91.1	90.3	89.3	88.3	87.1	85.8	84.5	83.1	81.7	80.3	78.8	77.4	76.0
70	87.5	89.6	90.6	91.0	91.0	90.8	90.4	89.8	89.1	88.3	87.4	86.3	85.2	83.9	82.7	81.4	80.0	78.7	77.3	76.0
75	85.4	87.4	88.5	89.0	89.1	89.0	88.7	88.3	87.7	87.0	86.2	85.3	84.3	83.3	82.1	80.9	79.7	78.5	77.3	76.0
80	83.4	85.2	86.2	86.7	86.9	86.9	86.7	86.4	86.0	85.5	84.8	84.1	83.3	82.3	81.4	80.4	79.3	78.2	77.1	76.0
85	81.6	82.9	83.7	84.2	84.4	84.5	84.4	84.2	84.0	83.6	83.1	82.5	81.9	81.2	80.4	79.6	78.8	77.9	76.9	76.0
90	79.7	80.5	81.0	81.4	81.6	81.7	81.7	81.7	81.5	81.3	80.9	80.6	80.1	79.7	79.1	78.6	78.0	77.4	76.7	76.0
95	77.9	78.2	78.4	78.5	78.6	78.7	78.7	78.6	78.6	78.4	78.3	78.2	78.0	77.8	77.5	77.3	77.0	76.7	76.3	76.0
98	77.1	77.1	77.1	77.1	77.1	77.1	77.0	77.0	76.9	76.9	76.8	76.8	76.7	76.6	76.5	76.4	76.3	76.2	76.1	76.0

**Mean Annual Mass Removal Efficiencies for 1.50-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.2	99.4	99.3	99.1	98.7	98.2	97.6	96.8	95.9	94.9	93.7	92.5	91.3	89.9	88.6	87.2	85.7	84.3	82.9	81.5
35	98.6	99.0	99.0	98.8	98.5	98.0	97.4	96.6	95.7	94.7	93.6	92.4	91.2	89.8	88.5	87.1	85.7	84.3	82.9	81.5
40	97.8	98.4	98.5	98.4	98.1	97.6	97.1	96.3	95.5	94.5	93.4	92.2	91.0	89.7	88.4	87.1	85.7	84.3	82.9	81.5
45	96.9	97.8	98.0	97.9	97.6	97.2	96.7	96.0	95.1	94.2	93.1	92.0	90.8	89.6	88.3	87.0	85.6	84.2	82.9	81.5
50	95.9	96.9	97.2	97.2	97.0	96.7	96.2	95.5	94.7	93.8	92.8	91.8	90.6	89.4	88.2	86.9	85.5	84.2	82.8	81.5
55	94.6	95.9	96.3	96.4	96.3	96.0	95.6	95.0	94.2	93.4	92.4	91.4	90.3	89.2	88.0	86.7	85.4	84.1	82.8	81.5
60	93.1	94.7	95.3	95.5	95.4	95.2	94.8	94.3	93.6	92.8	92.0	91.0	90.0	88.9	87.7	86.5	85.3	84.0	82.8	81.5
65	91.7	93.4	94.1	94.4	94.4	94.2	93.9	93.4	92.8	92.1	91.3	90.5	89.5	88.5	87.4	86.3	85.1	83.9	82.7	81.5
70	90.1	91.9	92.7	93.0	93.1	93.0	92.7	92.3	91.9	91.2	90.6	89.8	88.9	88.0	87.0	86.0	84.9	83.8	82.6	81.5
75	88.5	90.2	91.0	91.5	91.6	91.6	91.4	91.1	90.7	90.2	89.6	88.9	88.2	87.4	86.5	85.6	84.6	83.6	82.6	81.5
80	86.9	88.4	89.2	89.6	89.9	89.9	89.8	89.6	89.3	88.9	88.4	87.9	87.3	86.6	85.9	85.1	84.2	83.3	82.4	81.5
85	85.4	86.5	87.2	87.6	87.9	88.0	87.9	87.8	87.6	87.3	87.0	86.6	86.1	85.6	85.0	84.4	83.7	83.0	82.3	81.5
90	84.1	84.7	85.1	85.4	85.6	85.7	85.8	85.7	85.6	85.5	85.3	85.0	84.7	84.4	84.0	83.5	83.1	82.6	82.0	81.5
95	82.7	82.9	83.1	83.2	83.3	83.3	83.4	83.4	83.4	83.3	83.2	83.1	83.0	82.8	82.6	82.4	82.2	82.0	81.8	81.5
98	82.2	82.2	82.2	82.2	82.2	82.2	82.2	82.2	82.1	82.1	82.1	82.0	82.0	81.9	81.9	81.8	81.7	81.7	81.6	81.5

**Mean Annual Mass Removal Efficiencies for 1.75-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.4	99.5	99.5	99.4	99.1	98.8	98.3	97.8	97.2	96.4	95.6	94.6	93.6	92.6	91.5	90.4	89.2	88.0	86.8	85.6
35	98.9	99.2	99.2	99.1	98.9	98.6	98.1	97.6	97.0	96.3	95.4	94.5	93.5	92.5	91.4	90.3	89.2	88.0	86.8	85.6
40	98.3	98.8	98.9	98.8	98.6	98.3	97.9	97.4	96.8	96.1	95.3	94.4	93.4	92.4	91.4	90.3	89.1	88.0	86.8	85.6
45	97.5	98.3	98.4	98.4	98.2	97.9	97.5	97.1	96.5	95.8	95.0	94.2	93.2	92.3	91.2	90.2	89.1	87.9	86.8	85.6
50	96.7	97.6	97.8	97.8	97.7	97.5	97.1	96.7	96.2	95.5	94.8	93.9	93.0	92.1	91.1	90.1	89.0	87.9	86.7	85.6
55	95.7	96.8	97.1	97.2	97.1	96.9	96.6	96.2	95.7	95.1	94.4	93.6	92.8	91.9	90.9	89.9	88.9	87.8	86.7	85.6
60	94.5	95.8	96.3	96.4	96.4	96.3	96.0	95.7	95.2	94.6	94.0	93.3	92.5	91.6	90.7	89.8	88.8	87.7	86.7	85.6
65	93.3	94.7	95.3	95.5	95.6	95.5	95.3	95.0	94.5	94.0	93.4	92.8	92.1	91.3	90.4	89.5	88.6	87.6	86.6	85.6
70	92.0	93.5	94.2	94.5	94.6	94.5	94.4	94.1	93.7	93.3	92.8	92.2	91.5	90.8	90.1	89.3	88.4	87.5	86.6	85.6
75	90.8	92.1	92.9	93.2	93.4	93.4	93.3	93.1	92.8	92.4	92.0	91.5	90.9	90.3	89.6	88.9	88.2	87.3	86.5	85.6
80	89.6	90.7	91.4	91.8	92.0	92.0	92.0	91.9	91.6	91.3	91.0	90.6	90.1	89.6	89.1	88.5	87.8	87.1	86.4	85.6
85	88.4	89.2	89.8	90.2	90.4	90.5	90.5	90.4	90.3	90.1	89.8	89.5	89.2	88.8	88.4	87.9	87.4	86.8	86.2	85.6
90	87.3	87.8	88.2	88.4	88.6	88.7	88.8	88.7	88.7	88.6	88.4	88.2	88.0	87.8	87.5	87.2	86.8	86.4	86.0	85.6
95	86.2	86.4	86.6	86.7	86.8	86.8	86.9	86.9	86.9	86.8	86.8	86.7	86.7	86.6	86.4	86.3	86.1	86.0	85.8	85.6
98	86.0	86.0	86.0	86.0	86.1	86.1	86.1	86.0	86.0	86.0	86.0	86.0	85.9	85.9	85.9	85.8	85.8	85.7	85.6	85.6

**Mean Annual Mass Removal Efficiencies for 2.00-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.5	99.7	99.6	99.6	99.4	99.1	98.8	98.4	97.9	97.4	96.8	96.1	95.3	94.4	93.6	92.6	91.7	90.7	89.7	88.7
35	99.2	99.4	99.4	99.4	99.2	99.0	98.6	98.2	97.8	97.3	96.6	95.9	95.2	94.4	93.5	92.6	91.6	90.7	89.7	88.7
40	98.6	99.0	99.1	99.1	98.9	98.7	98.4	98.0	97.6	97.1	96.5	95.8	95.1	94.3	93.4	92.5	91.6	90.6	89.7	88.7
45	98.0	98.6	98.8	98.7	98.6	98.4	98.1	97.8	97.4	96.9	96.3	95.6	94.9	94.1	93.3	92.5	91.5	90.6	89.6	88.7
50	97.3	98.1	98.3	98.3	98.2	98.0	97.8	97.5	97.1	96.6	96.1	95.4	94.7	94.0	93.2	92.4	91.5	90.6	89.6	88.7
55	96.6	97.4	97.7	97.8	97.7	97.6	97.4	97.1	96.7	96.3	95.8	95.2	94.5	93.8	93.0	92.2	91.4	90.5	89.6	88.7
60	95.6	96.6	97.0	97.1	97.1	97.0	96.9	96.6	96.3	95.9	95.4	94.9	94.2	93.6	92.8	92.1	91.3	90.4	89.6	88.7
65	94.5	95.7	96.2	96.4	96.5	96.4	96.3	96.0	95.7	95.4	94.9	94.4	93.9	93.3	92.6	91.9	91.1	90.3	89.5	88.7
70	93.5	94.7	95.3	95.5	95.7	95.6	95.5	95.3	95.1	94.8	94.4	93.9	93.4	92.9	92.3	91.6	90.9	90.2	89.5	88.7
75	92.5	93.6	94.2	94.5	94.7	94.7	94.7	94.5	94.3	94.0	93.7	93.3	92.9	92.4	91.9	91.3	90.7	90.1	89.4	88.7
80	91.5	92.5	93.1	93.4	93.6	93.7	93.6	93.5	93.4	93.2	92.9	92.6	92.2	91.8	91.4	90.9	90.4	89.9	89.3	88.7
85	90.6	91.3	91.8	92.1	92.3	92.4	92.4	92.4	92.3	92.1	91.9	91.7	91.4	91.1	90.8	90.4	90.0	89.6	89.2	88.7
90	89.7	90.1	90.5	90.7	90.9	91.0	91.0	91.0	91.0	90.9	90.8	90.6	90.5	90.3	90.1	89.9	89.6	89.3	89.0	88.7
95	88.9	89.1	89.2	89.3	89.4	89.5	89.5	89.5	89.5	89.5	89.5	89.4	89.4	89.3	89.2	89.2	89.0	88.9	88.8	88.7
98	88.8	88.8	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.9	88.8	88.8	88.8	88.8	88.7	88.7	88.7



**Mean Annual Mass Removal Efficiencies for 2.25-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.7	99.7	99.7	99.7	99.6	99.4	99.1	98.8	98.5	98.1	97.6	97.0	96.4	95.8	95.0	94.3	93.5	92.7	91.8	91.0
35	99.3	99.5	99.6	99.5	99.4	99.2	99.0	98.7	98.3	97.9	97.5	96.9	96.3	95.7	95.0	94.3	93.5	92.7	91.8	91.0
40	99.0	99.2	99.3	99.3	99.2	99.0	98.8	98.5	98.2	97.8	97.3	96.8	96.2	95.6	94.9	94.2	93.4	92.6	91.8	91.0
45	98.4	98.9	99.0	99.0	98.9	98.8	98.6	98.3	98.0	97.6	97.2	96.7	96.1	95.5	94.8	94.1	93.4	92.6	91.8	91.0
50	97.8	98.5	98.6	98.7	98.6	98.5	98.3	98.0	97.7	97.4	97.0	96.5	95.9	95.4	94.7	94.0	93.3	92.5	91.8	91.0
55	97.2	97.9	98.2	98.2	98.2	98.1	97.9	97.7	97.4	97.1	96.7	96.3	95.8	95.2	94.6	93.9	93.2	92.5	91.7	91.0
60	96.5	97.3	97.6	97.7	97.7	97.6	97.5	97.3	97.0	96.8	96.4	96.0	95.5	95.0	94.4	93.8	93.1	92.4	91.7	91.0
65	95.6	96.5	96.9	97.1	97.1	97.1	97.0	96.8	96.6	96.3	96.0	95.6	95.2	94.7	94.2	93.6	93.0	92.3	91.7	91.0
70	94.6	95.6	96.1	96.3	96.4	96.4	96.4	96.3	96.1	95.8	95.5	95.2	94.8	94.4	93.9	93.4	92.8	92.2	91.6	91.0
75	93.8	94.7	95.2	95.5	95.7	95.7	95.7	95.6	95.4	95.2	95.0	94.7	94.4	94.0	93.6	93.1	92.6	92.1	91.5	91.0
80	93.0	93.8	94.3	94.6	94.8	94.9	94.9	94.8	94.7	94.5	94.3	94.1	93.8	93.5	93.1	92.8	92.4	91.9	91.4	91.0
85	92.3	92.9	93.3	93.6	93.7	93.8	93.9	93.8	93.8	93.7	93.5	93.4	93.1	92.9	92.6	92.4	92.0	91.7	91.3	91.0
90	91.6	92.0	92.3	92.5	92.6	92.7	92.7	92.7	92.7	92.7	92.6	92.5	92.4	92.2	92.1	91.9	91.7	91.5	91.2	91.0
95	91.0	91.2	91.3	91.4	91.4	91.5	91.5	91.5	91.6	91.5	91.5	91.5	91.5	91.4	91.4	91.3	91.2	91.1	91.1	91.0
98	91.0	91.0	91.0	91.0	91.1	91.1	91.1	91.1	91.1	91.1	91.1	91.1	91.1	91.1	91.0	91.0	91.0	91.0	91.0	91.0

**Mean Annual Mass Removal Efficiencies for 2.50-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.7	99.8	99.8	99.8	99.7	99.6	99.4	99.1	98.8	98.5	98.1	97.7	97.2	96.7	96.1	95.5	94.9	94.2	93.5	92.7
35	99.5	99.6	99.7	99.6	99.6	99.4	99.3	99.0	98.7	98.4	98.0	97.6	97.2	96.6	96.1	95.5	94.8	94.2	93.4	92.7
40	99.2	99.4	99.5	99.5	99.4	99.3	99.1	98.9	98.6	98.3	97.9	97.5	97.1	96.6	96.0	95.4	94.8	94.1	93.4	92.7
45	98.7	99.1	99.2	99.2	99.2	99.0	98.9	98.7	98.4	98.1	97.8	97.4	97.0	96.5	95.9	95.4	94.7	94.1	93.4	92.7
50	98.2	98.8	98.9	98.9	98.9	98.8	98.6	98.4	98.2	97.9	97.6	97.2	96.8	96.4	95.8	95.3	94.7	94.1	93.4	92.7
55	97.7	98.3	98.5	98.6	98.5	98.5	98.3	98.1	97.9	97.7	97.4	97.0	96.6	96.2	95.7	95.2	94.6	94.0	93.4	92.7
60	97.1	97.8	98.0	98.1	98.1	98.1	97.9	97.8	97.6	97.4	97.1	96.8	96.4	96.0	95.6	95.1	94.5	93.9	93.3	92.7
65	96.4	97.1	97.5	97.6	97.6	97.6	97.5	97.4	97.2	97.0	96.8	96.5	96.2	95.8	95.4	94.9	94.4	93.9	93.3	92.7
70	95.6	96.4	96.8	97.0	97.1	97.1	97.0	96.9	96.8	96.6	96.4	96.1	95.8	95.5	95.1	94.7	94.2	93.8	93.3	92.7
75	94.8	95.6	96.0	96.3	96.4	96.5	96.4	96.4	96.3	96.1	95.9	95.7	95.5	95.2	94.8	94.5	94.1	93.6	93.2	92.7
80	94.1	94.8	95.3	95.5	95.7	95.8	95.8	95.7	95.7	95.5	95.4	95.2	95.0	94.8	94.5	94.2	93.8	93.5	93.1	92.7
85	93.6	94.1	94.4	94.7	94.8	94.9	95.0	95.0	94.9	94.9	94.7	94.6	94.5	94.3	94.1	93.8	93.6	93.3	93.0	92.7
90	93.1	93.4	93.6	93.8	93.9	94.0	94.1	94.1	94.1	94.0	94.0	93.9	93.8	93.7	93.6	93.4	93.3	93.1	92.9	92.7
95	92.7	92.8	92.9	93.0	93.0	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.1	93.0	93.0	92.9	92.9	92.8	92.7
98	92.7	92.7	92.7	92.7	92.7	92.8	92.8	92.8	92.8	92.8	92.8	92.8	92.8	92.8	92.8	92.8	92.7	92.7	92.7	92.7





**Mean Annual Mass Removal Efficiencies for 3.25-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.9	99.9	99.9	99.9	99.9	99.8	99.8	99.6	99.5	99.3	99.1	98.9	98.6	98.3	98.0	97.7	97.3	96.9	96.4	96.0
35	99.8	99.8	99.9	99.8	99.8	99.8	99.7	99.6	99.4	99.2	99.0	98.8	98.5	98.3	98.0	97.6	97.3	96.9	96.4	96.0
40	99.6	99.7	99.7	99.7	99.7	99.7	99.6	99.5	99.3	99.1	99.0	98.7	98.5	98.2	97.9	97.6	97.2	96.8	96.4	96.0
45	99.4	99.5	99.6	99.6	99.6	99.5	99.4	99.3	99.2	99.0	98.8	98.6	98.4	98.2	97.9	97.5	97.2	96.8	96.4	96.0
50	99.1	99.3	99.4	99.4	99.4	99.4	99.3	99.2	99.1	98.9	98.7	98.5	98.3	98.1	97.8	97.5	97.2	96.8	96.4	96.0
55	98.7	99.1	99.2	99.2	99.2	99.2	99.1	99.0	98.9	98.7	98.6	98.4	98.2	98.0	97.7	97.4	97.1	96.8	96.4	96.0
60	98.4	98.8	98.9	99.0	99.0	98.9	98.9	98.8	98.7	98.5	98.4	98.2	98.0	97.8	97.6	97.3	97.0	96.7	96.4	96.0
65	98.0	98.4	98.6	98.6	98.7	98.6	98.6	98.5	98.4	98.3	98.2	98.0	97.9	97.7	97.5	97.2	96.9	96.7	96.3	96.0
70	97.5	97.9	98.2	98.3	98.3	98.3	98.3	98.2	98.2	98.1	98.0	97.8	97.7	97.5	97.3	97.1	96.8	96.6	96.3	96.0
75	97.0	97.4	97.7	97.8	97.9	97.9	97.9	97.9	97.8	97.8	97.7	97.6	97.4	97.3	97.1	96.9	96.7	96.5	96.3	96.0
80	96.5	96.9	97.2	97.3	97.4	97.5	97.5	97.5	97.5	97.4	97.4	97.3	97.2	97.1	96.9	96.8	96.6	96.4	96.2	96.0
85	96.1	96.4	96.7	96.8	96.9	97.0	97.0	97.1	97.1	97.0	97.0	96.9	96.9	96.8	96.7	96.6	96.4	96.3	96.1	96.0
90	95.9	96.1	96.2	96.3	96.4	96.5	96.5	96.6	96.6	96.6	96.6	96.6	96.5	96.5	96.4	96.3	96.3	96.2	96.1	96.0
95	95.8	95.8	95.9	96.0	96.0	96.0	96.1	96.1	96.1	96.1	96.1	96.1	96.1	96.1	96.1	96.1	96.1	96.0	96.0	96.0
98	95.9	95.9	95.9	95.9	95.9	95.9	95.9	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0	96.0

**Mean Annual Mass Removal Efficiencies for 3.50-inches of Retention in Zone 2 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.9	99.9	99.9	99.9	99.9	99.9	99.8	99.7	99.6	99.5	99.3	99.1	98.9	98.6	98.4	98.1	97.8	97.4	97.0	96.7
35	99.8	99.9	99.9	99.9	99.8	99.8	99.8	99.7	99.5	99.4	99.2	99.0	98.8	98.6	98.3	98.0	97.7	97.4	97.0	96.7
40	99.7	99.8	99.8	99.8	99.8	99.7	99.7	99.6	99.5	99.3	99.2	99.0	98.8	98.5	98.3	98.0	97.7	97.4	97.0	96.7
45	99.5	99.7	99.7	99.7	99.7	99.6	99.6	99.5	99.4	99.2	99.1	98.9	98.7	98.5	98.2	98.0	97.7	97.4	97.0	96.7
50	99.3	99.5	99.5	99.5	99.5	99.5	99.4	99.3	99.2	99.1	98.9	98.8	98.6	98.4	98.2	97.9	97.6	97.3	97.0	96.7
55	98.9	99.2	99.3	99.4	99.4	99.3	99.3	99.2	99.1	99.0	98.8	98.7	98.5	98.3	98.1	97.9	97.6	97.3	97.0	96.7
60	98.6	99.0	99.1	99.2	99.2	99.1	99.1	99.0	98.9	98.8	98.7	98.5	98.4	98.2	98.0	97.8	97.5	97.3	97.0	96.7
65	98.3	98.7	98.8	98.9	98.9	98.9	98.8	98.8	98.7	98.6	98.5	98.4	98.2	98.1	97.9	97.7	97.5	97.2	96.9	96.7
70	97.9	98.3	98.5	98.5	98.6	98.6	98.6	98.5	98.4	98.4	98.3	98.2	98.0	97.9	97.7	97.6	97.4	97.2	96.9	96.7
75	97.5	97.8	98.1	98.2	98.2	98.3	98.2	98.2	98.2	98.1	98.0	97.9	97.8	97.7	97.6	97.4	97.3	97.1	96.9	96.7
80	97.1	97.4	97.6	97.7	97.8	97.9	97.9	97.9	97.9	97.8	97.8	97.7	97.6	97.5	97.4	97.3	97.2	97.0	96.8	96.7
85	96.7	97.0	97.1	97.3	97.4	97.4	97.5	97.5	97.5	97.5	97.5	97.4	97.4	97.3	97.2	97.1	97.0	96.9	96.8	96.7
90	96.5	96.6	96.8	96.9	97.0	97.0	97.1	97.1	97.1	97.1	97.1	97.1	97.1	97.0	97.0	96.9	96.9	96.8	96.7	96.7
95	96.4	96.5	96.5	96.6	96.6	96.7	96.7	96.7	96.7	96.7	96.8	96.8	96.8	96.8	96.7	96.7	96.7	96.7	96.7	96.7
98	96.5	96.5	96.5	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.6	96.7	96.7	96.7	96.7



**Mean Annual Mass Removal Efficiencies for 0.25-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	82.7	81.2	75.5	69.3	63.6	58.6	54.2	50.4	47.0	44.1	41.4	39.1	37.1	35.2	33.5	32.0	30.6	29.3	28.1	27.0
35	77.8	78.2	73.6	68.0	62.7	58.0	53.7	50.0	46.8	43.9	41.3	39.0	37.0	35.1	33.4	31.9	30.5	29.2	28.1	27.0
40	72.7	74.9	71.5	66.6	61.7	57.2	53.2	49.6	46.4	43.6	41.1	38.9	36.8	35.0	33.4	31.9	30.5	29.2	28.1	27.0
45	67.3	71.3	69.0	64.9	60.5	56.3	52.5	49.1	46.0	43.3	40.9	38.7	36.7	34.9	33.3	31.8	30.5	29.2	28.1	27.0
50	61.8	67.4	66.3	62.9	59.1	55.3	51.7	48.5	45.6	42.9	40.6	38.5	36.5	34.8	33.2	31.7	30.4	29.2	28.0	27.0
55	56.5	63.2	63.2	60.7	57.4	54.0	50.8	47.8	45.0	42.5	40.2	38.2	36.3	34.6	33.1	31.7	30.4	29.1	28.0	27.0
60	51.5	58.8	59.9	58.2	55.5	52.6	49.7	46.9	44.3	42.0	39.8	37.9	36.1	34.4	32.9	31.6	30.3	29.1	28.0	27.0
65	46.7	54.3	56.2	55.4	53.4	50.9	48.3	45.9	43.5	41.3	39.3	37.5	35.8	34.2	32.8	31.4	30.2	29.0	28.0	27.0
70	42.4	49.7	52.3	52.2	50.8	48.9	46.8	44.6	42.5	40.5	38.7	37.0	35.4	33.9	32.5	31.3	30.1	29.0	28.0	27.0
75	38.8	45.1	48.0	48.6	47.9	46.5	44.8	43.1	41.3	39.5	37.9	36.3	34.9	33.5	32.2	31.1	29.9	28.9	27.9	27.0
80	35.5	40.7	43.4	44.5	44.4	43.7	42.5	41.1	39.7	38.3	36.9	35.5	34.2	33.0	31.9	30.8	29.7	28.8	27.9	27.0
85	32.7	36.5	38.7	39.9	40.3	40.1	39.5	38.6	37.6	36.5	35.4	34.4	33.3	32.3	31.3	30.4	29.5	28.6	27.8	27.0
90	30.6	32.8	34.3	35.2	35.7	35.8	35.6	35.2	34.7	34.1	33.4	32.7	31.9	31.2	30.4	29.7	29.0	28.3	27.6	27.0
95	29.1	29.8	30.3	30.7	30.9	31.0	31.0	31.0	30.8	30.6	30.3	30.0	29.7	29.4	29.0	28.6	28.2	27.8	27.4	27.0
98	28.5	28.5	28.6	28.6	28.6	28.6	28.6	28.5	28.5	28.4	28.3	28.2	28.0	27.9	27.8	27.6	27.5	27.3	27.2	27.0

**Mean Annual Mass Removal Efficiencies for 0.50-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	87.6	89.1	87.6	84.8	81.5	77.8	74.3	70.9	67.8	64.9	62.1	59.6	57.2	55.0	52.9	51.0	49.2	47.6	46.0	44.5
35	83.5	86.5	85.6	83.4	80.4	77.0	73.6	70.4	67.4	64.5	61.9	59.4	57.0	54.9	52.8	51.0	49.2	47.5	46.0	44.5
40	79.3	83.5	83.4	81.7	79.1	76.0	72.9	69.8	66.9	64.2	61.6	59.1	56.9	54.7	52.7	50.9	49.1	47.5	46.0	44.5
45	74.9	80.3	80.9	79.7	77.6	74.9	72.0	69.1	66.4	63.7	61.2	58.9	56.6	54.6	52.6	50.8	49.1	47.5	45.9	44.5
50	70.5	76.7	78.1	77.6	75.9	73.5	70.9	68.3	65.7	63.2	60.8	58.5	56.4	54.4	52.5	50.7	49.0	47.4	45.9	44.5
55	66.3	72.9	75.0	75.1	73.9	71.9	69.6	67.3	64.9	62.6	60.3	58.1	56.1	54.1	52.3	50.6	48.9	47.4	45.9	44.5
60	62.1	68.9	71.7	72.4	71.6	70.1	68.2	66.1	64.0	61.8	59.7	57.7	55.7	53.8	52.1	50.4	48.8	47.3	45.9	44.5
65	58.0	64.9	68.1	69.3	69.1	68.0	66.5	64.7	62.8	60.9	59.0	57.1	55.2	53.5	51.8	50.2	48.7	47.2	45.8	44.5
70	54.4	60.9	64.2	65.8	66.2	65.6	64.5	63.0	61.5	59.8	58.1	56.3	54.6	53.0	51.4	49.9	48.5	47.1	45.8	44.5
75	51.1	57.0	60.4	62.2	62.9	62.7	62.1	61.0	59.8	58.4	56.9	55.4	53.9	52.4	51.0	49.6	48.3	47.0	45.7	44.5
80	48.5	53.5	56.5	58.3	59.1	59.3	59.1	58.5	57.6	56.6	55.4	54.2	52.9	51.6	50.4	49.2	47.9	46.8	45.6	44.5
85	46.7	50.3	52.7	54.2	55.1	55.5	55.6	55.3	54.9	54.2	53.4	52.6	51.6	50.6	49.6	48.5	47.5	46.5	45.5	44.5
90	45.4	47.6	49.1	50.2	51.0	51.4	51.7	51.7	51.5	51.2	50.8	50.3	49.7	49.0	48.3	47.6	46.8	46.1	45.3	44.5
95	44.8	45.6	46.2	46.7	47.1	47.3	47.5	47.6	47.6	47.5	47.4	47.2	47.0	46.7	46.4	46.1	45.7	45.3	44.9	44.5
98	45.2	45.3	45.4	45.4	45.5	45.5	45.5	45.6	45.5	45.5	45.5	45.4	45.3	45.3	45.2	45.0	44.9	44.8	44.7	44.5

**Mean Annual Mass Removal Efficiencies for 0.75-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	89.7	92.3	91.6	90.3	88.4	86.2	83.8	81.3	78.7	76.2	73.8	71.5	69.3	67.3	65.3	63.4	61.6	59.9	58.3	56.7
35	86.6	89.8	89.8	88.9	87.2	85.3	83.1	80.7	78.2	75.8	73.5	71.3	69.2	67.1	65.2	63.3	61.6	59.9	58.3	56.7
40	82.9	87.1	87.9	87.3	85.9	84.2	82.2	80.0	77.7	75.4	73.2	71.0	69.0	67.0	65.1	63.2	61.5	59.8	58.2	56.7
45	79.3	84.4	85.7	85.5	84.5	83.0	81.2	79.2	77.1	74.9	72.8	70.7	68.7	66.8	64.9	63.1	61.4	59.8	58.2	56.7
50	75.8	81.4	83.2	83.5	82.8	81.6	80.1	78.3	76.3	74.3	72.3	70.3	68.4	66.5	64.7	63.0	61.3	59.7	58.2	56.7
55	72.2	78.3	80.5	81.2	80.9	80.1	78.8	77.2	75.4	73.5	71.7	69.8	68.0	66.2	64.5	62.8	61.2	59.7	58.2	56.7
60	69.0	75.0	77.6	78.6	78.7	78.3	77.3	75.9	74.3	72.7	71.0	69.2	67.5	65.9	64.2	62.6	61.1	59.6	58.1	56.7
65	65.7	71.6	74.4	75.8	76.3	76.2	75.5	74.4	73.1	71.7	70.1	68.6	67.0	65.4	63.9	62.4	60.9	59.5	58.1	56.7
70	62.5	68.2	71.2	72.8	73.6	73.8	73.4	72.7	71.6	70.4	69.1	67.7	66.3	64.9	63.5	62.1	60.7	59.3	58.0	56.7
75	59.8	64.9	67.9	69.7	70.6	71.1	71.0	70.6	69.8	68.9	67.8	66.7	65.5	64.2	62.9	61.7	60.4	59.2	57.9	56.7
80	57.5	61.8	64.6	66.4	67.5	68.1	68.2	68.0	67.6	67.0	66.2	65.3	64.3	63.3	62.2	61.2	60.0	58.9	57.8	56.7
85	56.0	59.3	61.6	63.1	64.2	64.8	65.1	65.1	64.9	64.6	64.1	63.5	62.8	62.1	61.3	60.4	59.5	58.6	57.7	56.7
90	55.4	57.4	58.9	60.0	60.8	61.3	61.7	61.9	61.9	61.8	61.6	61.3	60.9	60.5	59.9	59.4	58.8	58.1	57.4	56.7
95	55.5	56.2	56.8	57.3	57.7	58.1	58.3	58.5	58.6	58.7	58.7	58.6	58.5	58.4	58.2	57.9	57.7	57.4	57.1	56.7
98	56.5	56.6	56.8	56.9	57.0	57.1	57.1	57.2	57.2	57.2	57.2	57.2	57.2	57.2	57.1	57.1	57.0	56.9	56.8	56.7

**Mean Annual Mass Removal Efficiencies for 1.00-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	91.1	93.7	94.0	92.9	91.7	90.3	88.6	86.8	85.0	83.1	81.1	79.1	77.2	75.3	73.5	71.8	70.1	68.5	67.0	65.5
35	88.6	91.8	92.2	91.6	90.7	89.5	87.9	86.3	84.5	82.7	80.8	78.9	77.0	75.2	73.4	71.7	70.1	68.5	67.0	65.5
40	85.9	89.4	90.4	90.3	89.6	88.5	87.1	85.6	83.9	82.2	80.4	78.6	76.8	75.0	73.3	71.6	70.0	68.5	66.9	65.5
45	82.5	86.9	88.5	88.7	88.2	87.3	86.1	84.8	83.3	81.7	80.0	78.2	76.5	74.8	73.1	71.5	69.9	68.4	66.9	65.5
50	79.4	84.4	86.4	86.9	86.7	86.0	85.0	83.9	82.5	81.0	79.4	77.8	76.1	74.5	72.9	71.3	69.8	68.3	66.9	65.5
55	76.6	81.9	84.0	84.9	85.0	84.5	83.7	82.8	81.6	80.3	78.8	77.3	75.7	74.2	72.7	71.2	69.7	68.3	66.9	65.5
60	73.8	79.1	81.6	82.7	83.0	82.8	82.3	81.6	80.6	79.4	78.1	76.7	75.2	73.8	72.4	70.9	69.5	68.2	66.8	65.5
65	71.1	76.4	78.9	80.3	80.8	80.9	80.6	80.1	79.4	78.4	77.2	75.9	74.6	73.3	72.0	70.7	69.4	68.0	66.8	65.5
70	68.6	73.5	76.2	77.6	78.4	78.8	78.7	78.5	77.9	77.1	76.2	75.1	73.9	72.8	71.5	70.3	69.1	67.9	66.7	65.5
75	66.3	70.6	73.3	74.9	75.9	76.4	76.6	76.5	76.1	75.6	74.9	74.0	73.0	72.0	71.0	69.9	68.8	67.7	66.6	65.5
80	64.3	68.0	70.5	72.1	73.2	73.9	74.2	74.3	74.1	73.8	73.3	72.6	71.9	71.1	70.2	69.3	68.4	67.5	66.5	65.5
85	63.1	65.9	67.9	69.4	70.4	71.2	71.6	71.8	71.8	71.6	71.3	70.9	70.5	69.9	69.3	68.6	67.9	67.1	66.3	65.5
90	62.7	64.5	65.9	67.0	67.8	68.4	68.8	69.1	69.2	69.2	69.1	68.9	68.7	68.4	68.0	67.6	67.1	66.6	66.1	65.5
95	63.3	64.0	64.6	65.1	65.5	65.8	66.1	66.3	66.4	66.5	66.6	66.6	66.6	66.5	66.4	66.3	66.1	66.0	65.7	65.5
98	64.7	64.8	65.0	65.1	65.2	65.3	65.4	65.5	65.5	65.6	65.6	65.6	65.6	65.7	65.7	65.6	65.6	65.6	65.5	65.5

**Mean Annual Mass Removal Efficiencies for 1.25-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	92.1	94.5	95.2	94.8	93.7	92.7	91.5	90.2	88.7	87.3	85.7	84.2	82.6	81.0	79.4	77.8	76.3	74.8	73.4	72.0
35	90.0	92.9	93.9	93.5	92.7	91.9	90.8	89.6	88.2	86.9	85.4	83.9	82.4	80.8	79.3	77.7	76.2	74.8	73.4	72.0
40	87.8	91.2	92.2	92.2	91.7	91.0	90.1	89.0	87.7	86.4	85.0	83.6	82.1	80.6	79.1	77.6	76.2	74.7	73.3	72.0
45	85.4	89.0	90.3	90.7	90.5	90.0	89.2	88.2	87.0	85.9	84.6	83.2	81.8	80.4	78.9	77.5	76.1	74.7	73.3	72.0
50	82.3	86.7	88.4	89.2	89.2	88.9	88.2	87.3	86.3	85.2	84.1	82.8	81.5	80.1	78.7	77.3	75.9	74.6	73.3	72.0
55	79.7	84.4	86.6	87.4	87.6	87.5	87.0	86.3	85.4	84.5	83.5	82.3	81.1	79.8	78.4	77.1	75.8	74.5	73.2	72.0
60	77.4	82.3	84.4	85.5	85.9	86.0	85.7	85.1	84.4	83.7	82.8	81.7	80.6	79.4	78.1	76.9	75.6	74.4	73.2	72.0
65	75.3	79.8	82.2	83.4	84.1	84.2	84.1	83.8	83.3	82.7	81.9	81.0	80.0	78.9	77.8	76.6	75.4	74.3	73.1	72.0
70	73.1	77.5	79.9	81.3	82.0	82.3	82.4	82.3	82.0	81.5	80.9	80.1	79.3	78.3	77.3	76.3	75.2	74.1	73.1	72.0
75	71.2	75.1	77.4	78.9	79.7	80.3	80.5	80.6	80.4	80.1	79.7	79.1	78.4	77.6	76.7	75.8	74.9	73.9	73.0	72.0
80	69.6	72.8	75.0	76.4	77.4	78.1	78.5	78.7	78.7	78.5	78.2	77.8	77.3	76.7	76.0	75.2	74.5	73.7	72.8	72.0
85	68.5	71.0	72.9	74.2	75.1	75.8	76.3	76.6	76.7	76.7	76.6	76.3	76.0	75.5	75.1	74.5	73.9	73.3	72.7	72.0
90	68.4	69.9	71.2	72.2	73.0	73.6	74.0	74.3	74.5	74.6	74.6	74.6	74.4	74.2	73.9	73.6	73.3	72.9	72.4	72.0
95	69.3	70.0	70.5	71.0	71.4	71.7	72.0	72.2	72.4	72.5	72.6	72.6	72.6	72.6	72.6	72.5	72.4	72.3	72.2	72.0
98	70.9	71.0	71.2	71.3	71.4	71.5	71.6	71.7	71.8	71.8	71.9	71.9	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0

**Mean Annual Mass Removal Efficiencies for 1.50-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	92.8	95.2	95.9	95.9	95.3	94.3	93.3	92.3	91.2	90.1	88.8	87.6	86.3	84.9	83.6	82.3	80.9	79.6	78.2	77.0
35	91.0	93.8	94.7	94.9	94.3	93.5	92.7	91.8	90.8	89.7	88.5	87.3	86.0	84.8	83.5	82.2	80.8	79.5	78.2	77.0
40	89.1	92.3	93.5	93.6	93.3	92.7	92.0	91.2	90.3	89.2	88.1	87.0	85.8	84.6	83.3	82.0	80.8	79.5	78.2	77.0
45	87.2	90.7	91.9	92.2	92.1	91.8	91.2	90.5	89.7	88.7	87.7	86.6	85.5	84.3	83.1	81.9	80.7	79.4	78.2	77.0
50	85.1	88.6	90.1	90.7	90.9	90.7	90.4	89.7	89.0	88.1	87.1	86.2	85.1	84.0	82.9	81.7	80.5	79.3	78.1	77.0
55	82.4	86.5	88.3	89.2	89.6	89.6	89.3	88.8	88.2	87.4	86.6	85.7	84.7	83.7	82.7	81.5	80.4	79.2	78.1	77.0
60	80.2	84.5	86.6	87.7	88.1	88.2	88.1	87.7	87.2	86.6	85.9	85.1	84.3	83.3	82.4	81.3	80.2	79.1	78.0	77.0
65	78.4	82.6	84.7	85.9	86.5	86.7	86.7	86.5	86.1	85.6	85.1	84.4	83.7	82.9	82.0	81.0	80.0	79.0	78.0	77.0
70	76.7	80.6	82.7	84.0	84.7	85.1	85.2	85.1	84.9	84.6	84.1	83.6	83.0	82.3	81.5	80.7	79.8	78.8	77.9	77.0
75	75.1	78.5	80.7	82.0	82.8	83.3	83.5	83.6	83.5	83.3	83.1	82.7	82.2	81.6	81.0	80.3	79.5	78.6	77.8	77.0
80	73.8	76.7	78.6	79.9	80.7	81.3	81.7	81.9	82.0	82.0	81.8	81.6	81.2	80.8	80.3	79.7	79.1	78.4	77.7	77.0
85	72.9	75.1	76.7	77.9	78.8	79.4	79.9	80.2	80.3	80.4	80.4	80.3	80.1	79.8	79.5	79.0	78.6	78.1	77.5	77.0
90	72.9	74.3	75.4	76.3	77.0	77.6	78.0	78.4	78.6	78.7	78.8	78.8	78.8	78.6	78.5	78.2	78.0	77.7	77.3	77.0
95	74.0	74.6	75.1	75.5	75.9	76.2	76.5	76.8	77.0	77.1	77.2	77.3	77.3	77.3	77.3	77.3	77.2	77.2	77.1	77.0
98	75.8	75.9	76.0	76.2	76.3	76.4	76.4	76.5	76.6	76.7	76.7	76.8	76.8	76.9	76.9	76.9	76.9	76.9	77.0	77.0

**Mean Annual Mass Removal Efficiencies for 1.75-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	93.3	95.6	96.4	96.6	96.3	95.6	94.7	93.8	92.9	92.0	91.0	89.9	88.8	87.8	86.6	85.5	84.3	83.2	82.0	80.8
35	91.8	94.4	95.4	95.7	95.5	94.8	94.1	93.3	92.5	91.6	90.7	89.7	88.6	87.6	86.5	85.4	84.3	83.1	82.0	80.8
40	90.2	93.1	94.3	94.7	94.5	94.0	93.4	92.7	92.0	91.2	90.4	89.4	88.4	87.4	86.3	85.3	84.2	83.1	82.0	80.8
45	88.6	91.8	93.1	93.5	93.4	93.1	92.6	92.1	91.5	90.8	89.9	89.0	88.1	87.1	86.2	85.1	84.1	83.0	81.9	80.8
50	86.9	90.3	91.6	92.1	92.2	92.1	91.8	91.4	90.9	90.2	89.5	88.6	87.7	86.9	85.9	85.0	84.0	82.9	81.9	80.8
55	84.9	88.3	89.9	90.6	91.0	91.1	90.9	90.6	90.2	89.6	88.9	88.1	87.4	86.6	85.7	84.8	83.8	82.9	81.9	80.8
60	82.7	86.4	88.2	89.2	89.7	89.9	89.9	89.7	89.3	88.8	88.2	87.6	86.9	86.2	85.4	84.6	83.7	82.8	81.8	80.8
65	80.9	84.6	86.7	87.7	88.4	88.6	88.7	88.6	88.3	87.9	87.5	86.9	86.4	85.7	85.0	84.3	83.5	82.6	81.8	80.8
70	79.6	83.0	85.0	86.2	86.8	87.2	87.4	87.4	87.2	87.0	86.6	86.2	85.7	85.2	84.6	84.0	83.2	82.5	81.7	80.8
75	78.3	81.4	83.2	84.4	85.2	85.7	85.9	86.0	86.0	85.8	85.6	85.3	85.0	84.6	84.1	83.5	82.9	82.3	81.6	80.8
80	77.2	79.8	81.5	82.7	83.5	84.0	84.3	84.5	84.6	84.6	84.5	84.4	84.1	83.8	83.5	83.1	82.6	82.0	81.5	80.8
85	76.6	78.5	79.9	80.9	81.7	82.2	82.7	83.0	83.2	83.3	83.3	83.3	83.2	83.0	82.8	82.5	82.1	81.7	81.3	80.8
90	76.4	77.7	78.7	79.5	80.2	80.7	81.1	81.4	81.7	81.9	82.0	82.1	82.1	82.0	81.9	81.8	81.6	81.4	81.1	80.8
95	77.6	78.1	78.6	79.0	79.4	79.7	80.0	80.3	80.5	80.6	80.8	80.9	80.9	81.0	81.0	81.0	81.0	81.0	80.9	80.8
98	79.5	79.7	79.8	79.9	80.0	80.1	80.2	80.3	80.4	80.5	80.5	80.6	80.6	80.7	80.7	80.8	80.8	80.8	80.8	80.8

**Mean Annual Mass Removal Efficiencies for 2.00-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	93.8	95.9	96.7	97.0	97.0	96.6	95.8	95.0	94.2	93.4	92.6	91.7	90.8	89.8	88.9	87.9	86.9	85.9	84.9	83.9
35	92.4	94.9	95.8	96.2	96.3	95.9	95.2	94.5	93.8	93.1	92.3	91.5	90.6	89.7	88.7	87.8	86.8	85.9	84.9	83.9
40	91.0	93.8	94.9	95.4	95.4	95.1	94.5	93.9	93.3	92.7	92.0	91.2	90.4	89.5	88.6	87.7	86.8	85.8	84.8	83.9
45	89.7	92.7	93.9	94.5	94.4	94.2	93.8	93.3	92.8	92.3	91.6	90.9	90.1	89.2	88.4	87.6	86.7	85.8	84.8	83.9
50	88.2	91.4	92.8	93.3	93.3	93.3	93.0	92.7	92.3	91.8	91.2	90.5	89.8	89.0	88.2	87.4	86.6	85.7	84.8	83.9
55	86.9	90.0	91.3	91.9	92.2	92.2	92.2	91.9	91.6	91.2	90.7	90.1	89.4	88.7	87.9	87.2	86.4	85.6	84.7	83.9
60	85.0	88.2	89.7	90.6	91.0	91.2	91.2	91.1	90.9	90.5	90.1	89.6	88.9	88.3	87.7	87.0	86.3	85.5	84.7	83.9
65	83.2	86.4	88.2	89.2	89.8	90.1	90.2	90.2	90.0	89.7	89.4	88.9	88.4	87.9	87.3	86.7	86.1	85.4	84.6	83.9
70	81.7	85.0	86.7	87.8	88.5	88.9	89.1	89.1	89.1	88.8	88.6	88.2	87.8	87.4	86.9	86.4	85.8	85.2	84.6	83.9
75	80.8	83.5	85.3	86.4	87.1	87.6	87.9	88.0	87.9	87.9	87.7	87.4	87.1	86.8	86.4	86.0	85.6	85.0	84.5	83.9
80	80.0	82.3	83.8	84.9	85.6	86.2	86.5	86.6	86.7	86.8	86.7	86.6	86.4	86.2	85.9	85.6	85.2	84.8	84.4	83.9
85	79.5	81.2	82.5	83.4	84.1	84.6	85.0	85.3	85.5	85.6	85.6	85.6	85.5	85.4	85.3	85.1	84.9	84.6	84.2	83.9
90	79.5	80.6	81.5	82.2	82.8	83.3	83.6	83.9	84.2	84.3	84.5	84.6	84.6	84.6	84.6	84.5	84.4	84.3	84.1	83.9
95	80.6	81.1	81.5	81.9	82.2	82.5	82.8	83.0	83.2	83.4	83.5	83.6	83.7	83.8	83.9	83.9	83.9	83.9	83.9	83.9
98	82.4	82.6	82.7	82.8	82.9	83.1	83.2	83.2	83.3	83.4	83.5	83.5	83.6	83.7	83.7	83.7	83.8	83.8	83.9	83.9



**Mean Annual Mass Removal Efficiencies for 2.25-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.1	96.2	97.0	97.3	97.4	97.2	96.7	96.0	95.2	94.5	93.8	93.0	92.3	91.5	90.6	89.8	88.9	88.0	87.1	86.2
35	92.9	95.3	96.2	96.6	96.8	96.6	96.1	95.5	94.8	94.2	93.5	92.8	92.1	91.3	90.5	89.7	88.8	88.0	87.1	86.2
40	91.7	94.3	95.4	95.9	96.1	95.9	95.5	95.0	94.4	93.8	93.2	92.5	91.9	91.1	90.4	89.5	88.7	87.9	87.1	86.2
45	90.6	93.3	94.6	95.1	95.3	95.1	94.8	94.4	93.9	93.4	92.8	92.2	91.6	90.9	90.2	89.4	88.6	87.9	87.1	86.2
50	89.4	92.3	93.6	94.2	94.3	94.2	94.0	93.7	93.3	92.9	92.5	91.9	91.3	90.7	90.0	89.3	88.5	87.8	87.0	86.2
55	88.2	91.2	92.5	93.1	93.3	93.3	93.2	93.0	92.7	92.4	92.0	91.5	91.0	90.4	89.7	89.1	88.4	87.7	87.0	86.2
60	87.0	89.7	91.1	91.8	92.1	92.3	92.3	92.2	92.0	91.8	91.5	91.0	90.6	90.1	89.5	88.9	88.2	87.6	86.9	86.2
65	85.3	88.1	89.6	90.5	91.0	91.3	91.4	91.4	91.3	91.1	90.9	90.5	90.1	89.7	89.1	88.6	88.1	87.5	86.9	86.2
70	83.8	86.6	88.2	89.2	89.8	90.2	90.4	90.5	90.5	90.4	90.2	89.9	89.6	89.2	88.8	88.3	87.9	87.4	86.8	86.2
75	82.9	85.3	86.9	87.9	88.6	89.1	89.3	89.5	89.6	89.5	89.4	89.2	89.0	88.7	88.3	88.0	87.6	87.2	86.7	86.2
80	82.2	84.3	85.7	86.7	87.4	87.9	88.2	88.4	88.5	88.5	88.5	88.4	88.3	88.1	87.8	87.6	87.3	87.0	86.6	86.2
85	81.9	83.4	84.6	85.5	86.1	86.6	86.9	87.2	87.4	87.5	87.5	87.5	87.5	87.4	87.3	87.1	87.0	86.8	86.5	86.2
90	82.1	83.0	83.8	84.5	85.0	85.4	85.7	86.0	86.2	86.4	86.5	86.6	86.7	86.7	86.7	86.7	86.6	86.5	86.4	86.2
95	83.0	83.5	83.9	84.2	84.5	84.8	85.0	85.2	85.4	85.6	85.7	85.8	85.9	86.0	86.1	86.2	86.2	86.2	86.3	86.2
98	84.8	84.9	85.0	85.1	85.3	85.4	85.5	85.6	85.6	85.7	85.8	85.9	85.9	86.0	86.0	86.1	86.1	86.2	86.2	86.2

**Mean Annual Mass Removal Efficiencies for 2.50-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.3	96.4	97.2	97.5	97.6	97.6	97.3	96.8	96.1	95.4	94.7	94.1	93.4	92.7	92.0	91.3	90.5	89.7	88.9	88.1
35	93.3	95.6	96.5	96.9	97.1	97.1	96.8	96.3	95.7	95.1	94.5	93.9	93.2	92.6	91.9	91.2	90.4	89.7	88.9	88.1
40	92.3	94.7	95.8	96.3	96.5	96.5	96.3	95.8	95.3	94.7	94.2	93.6	93.0	92.4	91.7	91.1	90.3	89.6	88.9	88.1
45	91.2	93.9	95.0	95.6	95.9	95.9	95.6	95.2	94.8	94.3	93.8	93.3	92.8	92.2	91.6	90.9	90.2	89.5	88.8	88.1
50	90.3	93.0	94.2	94.9	95.1	95.1	94.9	94.6	94.3	93.8	93.4	93.0	92.5	92.0	91.4	90.8	90.1	89.5	88.8	88.1
55	89.3	92.1	93.4	94.0	94.2	94.2	94.1	93.9	93.7	93.3	93.0	92.6	92.2	91.7	91.2	90.6	90.0	89.4	88.8	88.1
60	88.4	91.0	92.2	92.9	93.1	93.3	93.3	93.2	93.0	92.8	92.5	92.2	91.8	91.4	90.9	90.4	89.9	89.3	88.7	88.1
65	87.2	89.6	90.9	91.6	92.1	92.3	92.4	92.4	92.3	92.2	92.0	91.7	91.4	91.0	90.7	90.2	89.7	89.2	88.7	88.1
70	85.8	88.2	89.5	90.5	91.0	91.3	91.5	91.6	91.6	91.5	91.4	91.2	90.9	90.6	90.3	89.9	89.5	89.0	88.6	88.1
75	84.7	87.0	88.3	89.2	89.9	90.3	90.6	90.7	90.8	90.8	90.7	90.6	90.4	90.2	89.9	89.6	89.2	88.9	88.5	88.1
80	84.0	85.9	87.2	88.1	88.8	89.2	89.6	89.8	89.9	90.0	90.0	89.9	89.8	89.7	89.5	89.2	89.0	88.7	88.4	88.1
85	83.8	85.3	86.3	87.1	87.7	88.2	88.5	88.8	89.0	89.1	89.1	89.1	89.1	89.1	89.0	88.8	88.7	88.5	88.3	88.1
90	84.1	85.0	85.8	86.4	86.8	87.2	87.5	87.8	88.0	88.1	88.3	88.3	88.4	88.4	88.4	88.4	88.3	88.3	88.2	88.1
95	85.1	85.5	85.9	86.2	86.5	86.7	86.9	87.1	87.3	87.4	87.5	87.7	87.8	87.8	87.9	88.0	88.0	88.1	88.1	88.1
98	86.7	86.8	86.9	87.0	87.1	87.2	87.3	87.4	87.5	87.6	87.6	87.7	87.8	87.8	87.9	87.9	88.0	88.0	88.1	88.1

**Mean Annual Mass Removal Efficiencies for 2.75-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.6	96.5	97.3	97.7	97.8	97.9	97.7	97.4	96.8	96.2	95.6	94.9	94.4	93.7	93.1	92.4	91.8	91.1	90.4	89.6
35	93.6	95.9	96.7	97.1	97.3	97.4	97.3	97.0	96.5	95.9	95.3	94.7	94.2	93.6	93.0	92.4	91.7	91.0	90.3	89.6
40	92.8	95.1	96.1	96.6	96.8	97.0	96.8	96.5	96.0	95.5	95.0	94.5	94.0	93.4	92.8	92.2	91.6	91.0	90.3	89.6
45	91.8	94.3	95.4	96.0	96.3	96.4	96.3	96.0	95.6	95.1	94.7	94.2	93.7	93.2	92.7	92.1	91.6	90.9	90.3	89.6
50	91.0	93.6	94.8	95.4	95.7	95.8	95.6	95.4	95.0	94.7	94.3	93.9	93.5	93.0	92.5	92.0	91.5	90.9	90.3	89.6
55	90.2	92.8	94.0	94.7	95.0	95.0	94.9	94.7	94.5	94.2	93.9	93.5	93.2	92.8	92.3	91.8	91.3	90.8	90.2	89.6
60	89.4	92.0	93.2	93.8	94.0	94.1	94.2	94.0	93.9	93.7	93.4	93.1	92.9	92.5	92.1	91.7	91.2	90.7	90.2	89.6
65	88.7	90.9	92.0	92.7	93.1	93.3	93.3	93.3	93.2	93.1	92.9	92.7	92.5	92.2	91.8	91.4	91.1	90.6	90.1	89.6
70	87.5	89.6	90.8	91.6	92.1	92.3	92.5	92.5	92.5	92.5	92.4	92.2	92.0	91.8	91.5	91.2	90.9	90.5	90.1	89.6
75	86.4	88.4	89.7	90.4	91.0	91.3	91.6	91.7	91.8	91.8	91.8	91.7	91.6	91.4	91.2	90.9	90.7	90.3	90.0	89.6
80	85.8	87.4	88.6	89.4	90.0	90.4	90.7	90.9	91.0	91.1	91.1	91.1	91.0	90.9	90.8	90.6	90.4	90.2	89.9	89.6
85	85.5	86.8	87.7	88.5	89.0	89.4	89.8	90.0	90.2	90.3	90.4	90.4	90.4	90.4	90.4	90.3	90.1	90.0	89.8	89.6
90	85.8	86.6	87.3	87.9	88.3	88.7	89.0	89.2	89.4	89.6	89.7	89.8	89.8	89.9	89.9	89.9	89.8	89.8	89.7	89.6
95	86.9	87.2	87.6	87.8	88.1	88.3	88.5	88.7	88.9	89.0	89.1	89.2	89.3	89.4	89.5	89.5	89.5	89.6	89.6	89.6
98	88.4	88.5	88.6	88.7	88.8	88.9	88.9	89.0	89.1	89.1	89.2	89.3	89.3	89.4	89.4	89.5	89.5	89.6	89.6	89.6

**Mean Annual Mass Removal Efficiencies for 3.00-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.9	96.7	97.4	97.8	98.0	98.0	98.0	97.8	97.4	96.9	96.3	95.7	95.1	94.6	94.0	93.4	92.8	92.2	91.6	90.9
35	93.9	96.0	96.9	97.3	97.5	97.6	97.7	97.4	97.1	96.6	96.0	95.5	94.9	94.4	93.9	93.3	92.7	92.2	91.6	90.9
40	93.1	95.4	96.3	96.8	97.1	97.2	97.2	97.1	96.7	96.2	95.7	95.2	94.7	94.3	93.7	93.2	92.7	92.1	91.5	90.9
45	92.4	94.7	95.7	96.3	96.6	96.8	96.8	96.6	96.2	95.8	95.4	95.0	94.5	94.1	93.6	93.1	92.6	92.1	91.5	90.9
50	91.6	94.0	95.2	95.8	96.1	96.3	96.2	96.0	95.8	95.4	95.1	94.7	94.3	93.9	93.4	93.0	92.5	92.0	91.5	90.9
55	91.0	93.4	94.6	95.2	95.6	95.7	95.6	95.4	95.2	94.9	94.6	94.3	94.0	93.6	93.3	92.8	92.4	91.9	91.4	90.9
60	90.4	92.7	93.9	94.6	94.8	94.9	94.9	94.8	94.6	94.4	94.2	93.9	93.7	93.4	93.0	92.7	92.3	91.9	91.4	90.9
65	89.8	92.0	93.0	93.6	93.9	94.1	94.2	94.1	94.0	93.9	93.7	93.5	93.3	93.1	92.8	92.5	92.1	91.8	91.4	90.9
70	89.0	90.9	91.9	92.6	93.0	93.2	93.3	93.4	93.4	93.3	93.2	93.1	92.9	92.8	92.5	92.2	92.0	91.6	91.3	90.9
75	88.0	89.7	90.8	91.6	92.0	92.3	92.5	92.6	92.7	92.7	92.7	92.6	92.5	92.4	92.2	92.0	91.8	91.5	91.2	90.9
80	87.3	88.8	89.8	90.5	91.0	91.4	91.7	91.8	92.0	92.0	92.1	92.1	92.1	92.0	91.8	91.7	91.6	91.4	91.2	90.9
85	87.0	88.1	89.0	89.7	90.1	90.5	90.8	91.1	91.3	91.4	91.5	91.5	91.5	91.5	91.5	91.4	91.3	91.2	91.1	90.9
90	87.2	88.0	88.6	89.1	89.5	89.9	90.2	90.4	90.6	90.7	90.8	90.9	91.0	91.0	91.1	91.1	91.1	91.0	91.0	90.9
95	88.3	88.7	88.9	89.2	89.4	89.6	89.8	90.0	90.1	90.2	90.4	90.5	90.6	90.7	90.7	90.8	90.8	90.9	90.9	90.9
98	89.7	89.8	89.9	90.0	90.1	90.2	90.3	90.3	90.4	90.5	90.5	90.6	90.6	90.7	90.7	90.8	90.8	90.9	90.9	90.9



**Mean Annual Mass Removal Efficiencies for 3.25-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.2	96.9	97.5	97.9	98.1	98.2	98.2	98.1	97.8	97.5	96.9	96.4	95.8	95.3	94.7	94.2	93.7	93.1	92.6	92.0
35	94.1	96.2	97.0	97.5	97.7	97.8	97.9	97.8	97.5	97.2	96.7	96.2	95.6	95.1	94.6	94.1	93.6	93.1	92.5	92.0
40	93.4	95.6	96.6	97.0	97.3	97.5	97.5	97.4	97.2	96.8	96.4	95.9	95.4	95.0	94.5	94.0	93.5	93.0	92.5	92.0
45	92.8	95.0	96.0	96.6	96.9	97.1	97.1	97.1	96.8	96.5	96.1	95.7	95.2	94.8	94.4	93.9	93.5	93.0	92.5	92.0
50	92.1	94.4	95.5	96.1	96.5	96.7	96.7	96.6	96.3	96.1	95.7	95.4	95.0	94.6	94.2	93.8	93.4	92.9	92.5	92.0
55	91.5	93.8	95.0	95.6	96.0	96.2	96.2	96.0	95.9	95.6	95.3	95.0	94.7	94.4	94.0	93.7	93.3	92.9	92.4	92.0
60	91.1	93.3	94.4	95.1	95.5	95.6	95.5	95.5	95.3	95.1	94.9	94.7	94.4	94.1	93.8	93.5	93.2	92.8	92.4	92.0
65	90.7	92.7	93.8	94.4	94.7	94.8	94.9	94.9	94.8	94.6	94.5	94.3	94.0	93.8	93.6	93.3	93.0	92.7	92.4	92.0
70	90.3	92.0	92.9	93.4	93.8	94.0	94.2	94.2	94.1	94.1	94.0	93.8	93.7	93.5	93.4	93.1	92.9	92.6	92.3	92.0
75	89.4	90.9	91.8	92.5	93.0	93.2	93.4	93.5	93.5	93.5	93.4	93.4	93.3	93.2	93.1	92.9	92.7	92.5	92.2	92.0
80	88.7	90.1	91.0	91.6	92.0	92.3	92.6	92.7	92.8	92.9	92.9	92.9	92.9	92.9	92.8	92.6	92.5	92.3	92.2	92.0
85	88.4	89.4	90.2	90.7	91.2	91.5	91.8	92.0	92.1	92.3	92.4	92.4	92.5	92.5	92.4	92.4	92.3	92.2	92.1	92.0
90	88.5	89.2	89.7	90.2	90.6	90.9	91.2	91.4	91.6	91.7	91.9	91.9	92.0	92.0	92.0	92.1	92.1	92.1	92.0	92.0
95	89.6	89.9	90.1	90.4	90.6	90.8	90.9	91.1	91.2	91.3	91.4	91.5	91.6	91.7	91.8	91.8	91.9	91.9	92.0	92.0
98	90.8	90.9	91.0	91.1	91.2	91.2	91.3	91.4	91.4	91.5	91.6	91.6	91.7	91.7	91.8	91.8	91.9	91.9	92.0	92.0

**Mean Annual Mass Removal Efficiencies for 3.50-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.5	97.0	97.6	98.0	98.2	98.3	98.3	98.3	98.1	97.9	97.5	96.9	96.4	95.9	95.4	94.9	94.4	93.9	93.4	92.9
35	94.4	96.3	97.2	97.6	97.9	98.0	98.0	98.0	97.9	97.6	97.2	96.7	96.3	95.8	95.3	94.8	94.4	93.9	93.4	92.9
40	93.6	95.8	96.8	97.2	97.5	97.6	97.7	97.7	97.6	97.3	96.9	96.5	96.1	95.6	95.2	94.7	94.3	93.8	93.4	92.9
45	93.2	95.3	96.3	96.8	97.1	97.3	97.4	97.4	97.3	97.0	96.6	96.3	95.9	95.4	95.0	94.6	94.2	93.8	93.3	92.9
50	92.6	94.7	95.8	96.4	96.7	97.0	97.1	97.0	96.9	96.6	96.3	96.0	95.6	95.2	94.9	94.5	94.1	93.7	93.3	92.9
55	92.1	94.2	95.3	96.0	96.4	96.6	96.7	96.6	96.4	96.2	95.9	95.6	95.3	95.0	94.7	94.4	94.0	93.7	93.3	92.9
60	91.7	93.8	94.9	95.5	95.9	96.1	96.1	96.0	95.9	95.8	95.5	95.3	95.0	94.8	94.5	94.2	93.9	93.6	93.2	92.9
65	91.4	93.3	94.4	95.0	95.4	95.5	95.5	95.5	95.4	95.3	95.1	94.9	94.7	94.5	94.3	94.0	93.8	93.5	93.2	92.9
70	91.2	92.9	93.8	94.3	94.5	94.7	94.8	94.9	94.8	94.8	94.7	94.5	94.4	94.2	94.0	93.9	93.7	93.4	93.1	92.9
75	90.7	92.0	92.8	93.3	93.7	94.0	94.1	94.2	94.2	94.2	94.2	94.1	94.0	93.9	93.8	93.7	93.5	93.3	93.1	92.9
80	89.9	91.1	91.9	92.5	92.9	93.2	93.4	93.5	93.6	93.6	93.7	93.6	93.6	93.6	93.5	93.4	93.3	93.2	93.0	92.9
85	89.7	90.5	91.2	91.7	92.1	92.4	92.7	92.8	93.0	93.0	93.1	93.2	93.2	93.2	93.2	93.2	93.1	93.1	93.0	92.9
90	89.7	90.3	90.8	91.2	91.5	91.8	92.0	92.2	92.4	92.5	92.7	92.8	92.8	92.9	92.9	92.9	92.9	92.9	92.9	92.9
95	90.6	90.9	91.1	91.3	91.5	91.7	91.9	92.0	92.2	92.3	92.4	92.4	92.4	92.5	92.6	92.7	92.7	92.8	92.8	92.9
98	91.8	91.9	92.0	92.0	92.1	92.2	92.2	92.3	92.4	92.4	92.5	92.5	92.6	92.6	92.7	92.7	92.8	92.8	92.8	92.9

**Mean Annual Mass Removal Efficiencies for 3.75-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.8	97.2	97.8	98.1	98.2	98.4	98.4	98.4	98.3	98.2	97.9	97.5	97.0	96.5	96.0	95.5	95.0	94.6	94.1	93.6
35	94.7	96.5	97.3	97.7	98.0	98.1	98.2	98.2	98.1	97.9	97.7	97.3	96.8	96.3	95.9	95.4	95.0	94.5	94.1	93.6
40	93.9	95.9	96.9	97.4	97.7	97.8	97.9	97.9	97.9	97.7	97.4	97.0	96.6	96.2	95.8	95.3	94.9	94.5	94.1	93.6
45	93.4	95.5	96.5	97.0	97.3	97.5	97.6	97.7	97.6	97.4	97.1	96.8	96.4	96.0	95.6	95.2	94.8	94.5	94.1	93.6
50	93.1	95.1	96.0	96.6	97.0	97.2	97.3	97.4	97.3	97.1	96.8	96.5	96.2	95.8	95.5	95.1	94.8	94.4	94.0	93.6
55	92.5	94.6	95.6	96.2	96.6	96.9	97.0	97.0	96.9	96.7	96.5	96.2	95.9	95.6	95.3	95.0	94.7	94.3	94.0	93.6
60	92.2	94.1	95.2	95.9	96.3	96.5	96.6	96.6	96.4	96.3	96.1	95.9	95.6	95.4	95.1	94.8	94.6	94.3	94.0	93.6
65	92.0	93.8	94.8	95.5	95.9	96.1	96.1	96.0	96.0	95.9	95.7	95.5	95.3	95.1	94.9	94.7	94.4	94.2	93.9	93.6
70	91.9	93.5	94.4	95.0	95.3	95.4	95.4	95.5	95.5	95.4	95.3	95.2	95.0	94.8	94.7	94.5	94.3	94.1	93.9	93.6
75	91.8	93.0	93.7	94.1	94.4	94.7	94.8	94.9	94.9	94.9	94.8	94.7	94.7	94.5	94.4	94.3	94.2	94.0	93.8	93.6
80	91.1	92.1	92.8	93.3	93.7	94.0	94.1	94.2	94.3	94.3	94.3	94.3	94.3	94.2	94.2	94.1	94.0	93.9	93.8	93.6
85	90.7	91.6	92.2	92.6	93.0	93.2	93.4	93.6	93.7	93.8	93.8	93.9	93.9	93.9	93.9	93.9	93.8	93.8	93.7	93.6
90	90.8	91.3	91.8	92.1	92.4	92.7	92.9	93.0	93.2	93.3	93.4	93.5	93.5	93.6	93.6	93.7	93.7	93.7	93.7	93.6
95	91.5	91.7	92.0	92.2	92.3	92.5	92.7	92.8	92.9	93.0	93.1	93.2	93.3	93.4	93.4	93.5	93.5	93.6	93.6	93.6
98	92.6	92.7	92.8	92.9	92.9	93.0	93.1	93.1	93.2	93.2	93.3	93.3	93.4	93.4	93.4	93.5	93.5	93.6	93.6	93.6

**Mean Annual Mass Removal Efficiencies for 4.00-inches of Retention for Zone 3 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	96.1	97.4	97.9	98.1	98.3	98.4	98.5	98.5	98.5	98.4	98.2	97.9	97.4	97.0	96.5	96.1	95.6	95.2	94.7	94.3
35	95.0	96.7	97.4	97.8	98.0	98.2	98.3	98.3	98.3	98.2	98.0	97.7	97.3	96.9	96.4	96.0	95.5	95.1	94.7	94.3
40	94.1	96.1	97.0	97.5	97.8	97.9	98.0	98.1	98.1	98.0	97.8	97.5	97.1	96.7	96.3	95.9	95.5	95.1	94.7	94.3
45	93.6	95.7	96.7	97.2	97.5	97.7	97.8	97.8	97.8	97.7	97.5	97.3	96.9	96.5	96.2	95.8	95.4	95.0	94.7	94.3
50	93.3	95.4	96.3	96.8	97.1	97.4	97.5	97.6	97.6	97.5	97.3	97.0	96.7	96.4	96.0	95.7	95.3	95.0	94.6	94.3
55	93.0	94.9	95.9	96.4	96.8	97.1	97.3	97.3	97.3	97.1	96.9	96.7	96.4	96.1	95.9	95.5	95.2	94.9	94.6	94.3
60	92.7	94.5	95.5	96.1	96.5	96.8	97.0	97.0	96.9	96.8	96.6	96.4	96.2	95.9	95.7	95.4	95.1	94.9	94.6	94.3
65	92.4	94.2	95.2	95.8	96.2	96.5	96.6	96.6	96.5	96.4	96.2	96.1	95.9	95.7	95.5	95.2	95.0	94.8	94.6	94.3
70	92.5	94.0	94.9	95.5	95.8	96.0	96.0	96.0	96.0	95.9	95.8	95.7	95.6	95.4	95.2	95.1	94.9	94.7	94.5	94.3
75	92.5	93.7	94.5	94.9	95.1	95.3	95.4	95.5	95.5	95.5	95.4	95.3	95.3	95.1	95.0	94.9	94.8	94.6	94.5	94.3
80	92.2	93.1	93.7	94.1	94.4	94.6	94.8	94.9	94.9	95.0	95.0	94.9	94.9	94.8	94.8	94.7	94.6	94.5	94.4	94.3
85	91.7	92.5	93.0	93.4	93.7	94.0	94.1	94.3	94.4	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.5	94.4	94.4	94.3
90	91.7	92.2	92.6	92.9	93.2	93.4	93.6	93.7	93.9	94.0	94.0	94.1	94.2	94.2	94.3	94.3	94.3	94.3	94.3	94.3
95	92.4	92.6	92.8	92.9	93.1	93.2	93.4	93.5	93.6	93.7	93.8	93.9	93.9	94.0	94.1	94.1	94.2	94.2	94.3	94.3
98	93.3	93.4	93.5	93.6	93.6	93.7	93.7	93.8	93.8	93.9	93.9	94.0	94.0	94.1	94.1	94.2	94.2	94.2	94.3	94.3

**Mean Annual Mass Removal Efficiencies for 0.25-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	90.1	86.6	79.2	71.4	64.5	58.6	53.5	49.2	45.5	42.3	39.5	37.1	34.9	33.0	31.3	29.7	28.3	27.1	25.9	24.8
35	86.2	84.3	77.8	70.5	63.9	58.2	53.2	49.0	45.3	42.2	39.4	37.0	34.9	33.0	31.2	29.7	28.3	27.0	25.9	24.8
40	81.6	81.5	75.9	69.3	63.1	57.6	52.8	48.7	45.1	42.0	39.3	36.9	34.8	32.9	31.2	29.7	28.3	27.0	25.9	24.8
45	76.5	78.1	73.7	67.8	62.0	56.8	52.2	48.2	44.8	41.8	39.1	36.8	34.7	32.8	31.1	29.6	28.3	27.0	25.9	24.8
50	71.0	74.2	71.0	65.9	60.7	55.8	51.5	47.7	44.4	41.4	38.9	36.6	34.5	32.7	31.1	29.6	28.2	27.0	25.9	24.8
55	65.3	69.9	67.9	63.7	59.1	54.7	50.6	47.0	43.8	41.1	38.5	36.3	34.4	32.6	31.0	29.5	28.2	27.0	25.8	24.8
60	59.7	65.2	64.4	61.2	57.2	53.2	49.6	46.2	43.2	40.6	38.2	36.1	34.1	32.4	30.8	29.4	28.1	26.9	25.8	24.8
65	54.2	60.2	60.5	58.2	55.0	51.5	48.2	45.2	42.4	39.9	37.7	35.7	33.8	32.2	30.7	29.3	28.0	26.9	25.8	24.8
70	49.1	54.9	56.1	54.7	52.3	49.4	46.6	43.9	41.4	39.2	37.1	35.2	33.5	31.9	30.5	29.1	27.9	26.8	25.8	24.8
75	44.3	49.4	51.1	50.7	49.1	46.9	44.6	42.3	40.1	38.1	36.3	34.6	33.0	31.5	30.2	28.9	27.8	26.7	25.7	24.8
80	40.0	44.1	45.8	46.0	45.2	43.7	42.0	40.2	38.5	36.8	35.2	33.7	32.3	31.0	29.8	28.7	27.6	26.6	25.7	24.8
85	36.2	38.9	40.4	40.8	40.6	39.8	38.8	37.5	36.3	35.0	33.7	32.5	31.4	30.2	29.2	28.2	27.3	26.4	25.6	24.8
90	32.8	34.2	35.0	35.4	35.4	35.1	34.6	33.9	33.2	32.4	31.6	30.8	29.9	29.1	28.3	27.6	26.9	26.1	25.5	24.8
95	29.3	29.7	29.9	30.0	29.9	29.8	29.7	29.4	29.1	28.8	28.5	28.1	27.7	27.3	26.9	26.5	26.1	25.6	25.2	24.8
98	27.2	27.2	27.2	27.1	27.0	27.0	26.8	26.7	26.6	26.5	26.3	26.2	26.0	25.9	25.7	25.5	25.4	25.2	25.0	24.8

**Mean Annual Mass Removal Efficiencies for 0.50-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	94.0	94.2	92.1	88.8	84.8	80.5	76.3	72.4	68.6	65.2	62.0	59.1	56.4	53.9	51.7	49.5	47.6	45.8	44.1	42.6
35	91.1	92.3	90.7	87.7	84.0	79.9	75.9	72.0	68.4	65.0	61.9	59.0	56.3	53.9	51.6	49.5	47.6	45.8	44.1	42.6
40	87.8	90.0	88.9	86.4	82.9	79.1	75.3	71.5	68.0	64.7	61.6	58.8	56.2	53.8	51.5	49.4	47.5	45.7	44.1	42.6
45	84.0	87.2	86.8	84.7	81.6	78.1	74.5	70.9	67.5	64.3	61.3	58.6	56.0	53.6	51.4	49.4	47.5	45.7	44.1	42.6
50	79.9	84.0	84.3	82.7	80.1	76.9	73.5	70.2	66.9	63.9	61.0	58.3	55.8	53.5	51.3	49.3	47.4	45.7	44.1	42.6
55	75.6	80.4	81.4	80.4	78.2	75.4	72.3	69.2	66.2	63.3	60.5	57.9	55.5	53.2	51.1	49.2	47.3	45.6	44.0	42.6
60	71.3	76.5	78.1	77.6	75.9	73.6	70.9	68.0	65.2	62.5	59.9	57.4	55.1	53.0	50.9	49.0	47.2	45.6	44.0	42.6
65	67.1	72.4	74.4	74.5	73.3	71.4	69.1	66.6	64.1	61.6	59.2	56.9	54.7	52.6	50.6	48.8	47.1	45.5	44.0	42.6
70	63.0	68.1	70.3	70.8	70.2	68.9	67.0	64.9	62.7	60.5	58.3	56.1	54.1	52.1	50.3	48.6	46.9	45.4	43.9	42.6
75	59.2	63.7	65.9	66.7	66.6	65.7	64.4	62.7	60.9	59.0	57.1	55.2	53.3	51.5	49.8	48.2	46.7	45.2	43.8	42.6
80	55.8	59.4	61.4	62.3	62.4	61.9	61.1	59.9	58.6	57.1	55.5	53.9	52.3	50.7	49.2	47.8	46.4	45.0	43.8	42.6
85	52.7	55.2	56.7	57.5	57.7	57.6	57.1	56.4	55.5	54.5	53.3	52.1	50.8	49.6	48.3	47.1	45.9	44.7	43.6	42.6
90	49.7	51.1	52.0	52.5	52.8	52.8	52.6	52.2	51.7	51.1	50.3	49.6	48.7	47.9	47.0	46.1	45.2	44.3	43.4	42.6
95	46.7	47.1	47.4	47.5	47.6	47.6	47.5	47.3	47.1	46.8	46.5	46.2	45.8	45.4	44.9	44.5	44.0	43.5	43.0	42.6
98	44.9	44.9	44.8	44.8	44.7	44.7	44.6	44.5	44.3	44.2	44.1	44.0	43.8	43.6	43.5	43.3	43.1	42.9	42.7	42.6

**Mean Annual Mass Removal Efficiencies for 0.75-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.6	96.4	95.6	94.1	92.1	89.6	86.8	83.9	81.0	78.1	75.3	72.7	70.1	67.7	65.4	63.3	61.2	59.3	57.4	55.7
35	93.5	94.9	94.5	93.2	91.3	89.0	86.3	83.5	80.7	77.9	75.1	72.5	70.0	67.6	65.4	63.2	61.2	59.3	57.4	55.7
40	91.0	93.1	93.0	92.0	90.3	88.1	85.7	83.0	80.2	77.5	74.9	72.3	69.8	67.5	65.3	63.1	61.1	59.2	57.4	55.7
45	88.1	90.9	91.3	90.5	89.1	87.1	84.8	82.3	79.7	77.1	74.5	72.0	69.6	67.3	65.1	63.0	61.1	59.2	57.4	55.7
50	85.0	88.4	89.2	88.8	87.6	85.9	83.8	81.5	79.0	76.5	74.1	71.7	69.3	67.1	65.0	62.9	61.0	59.1	57.4	55.7
55	81.7	85.7	86.8	86.8	85.9	84.5	82.6	80.5	78.2	75.9	73.5	71.2	69.0	66.8	64.8	62.8	60.9	59.1	57.4	55.7
60	78.4	82.6	84.1	84.4	83.9	82.7	81.1	79.2	77.2	75.0	72.8	70.7	68.6	66.5	64.5	62.6	60.8	59.0	57.3	55.7
65	75.0	79.3	81.1	81.7	81.5	80.7	79.4	77.8	76.0	74.0	72.0	70.0	68.0	66.1	64.2	62.3	60.6	58.9	57.3	55.7
70	71.7	75.9	77.9	78.7	78.7	78.2	77.3	76.0	74.4	72.7	71.0	69.1	67.3	65.5	63.8	62.0	60.4	58.8	57.2	55.7
75	68.7	72.5	74.4	75.4	75.6	75.3	74.7	73.7	72.5	71.1	69.6	68.0	66.4	64.8	63.2	61.6	60.1	58.6	57.1	55.7
80	65.9	69.0	70.8	71.7	72.1	72.1	71.7	71.0	70.1	69.0	67.8	66.6	65.2	63.9	62.5	61.1	59.7	58.3	57.0	55.7
85	63.5	65.7	67.1	67.9	68.3	68.3	68.1	67.7	67.1	66.4	65.5	64.6	63.6	62.5	61.4	60.3	59.1	58.0	56.8	55.7
90	61.2	62.4	63.2	63.8	64.1	64.2	64.1	63.9	63.6	63.2	62.7	62.1	61.4	60.7	59.9	59.1	58.3	57.4	56.6	55.7
95	58.7	59.1	59.4	59.6	59.7	59.7	59.7	59.7	59.5	59.4	59.1	58.9	58.6	58.2	57.9	57.5	57.1	56.6	56.2	55.7
98	57.5	57.5	57.5	57.5	57.5	57.4	57.4	57.3	57.2	57.1	57.0	56.9	56.8	56.6	56.5	56.4	56.2	56.0	55.9	55.7

**Mean Annual Mass Removal Efficiencies for 1.00-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	96.6	97.5	97.2	96.4	95.2	93.7	91.9	90.0	87.9	85.7	83.5	81.2	79.0	76.9	74.8	72.8	70.9	69.1	67.3	65.6
35	95.0	96.3	96.2	95.6	94.5	93.1	91.4	89.6	87.5	85.4	83.2	81.1	78.9	76.8	74.8	72.8	70.9	69.0	67.2	65.6
40	93.0	94.9	95.1	94.6	93.6	92.4	90.8	89.0	87.1	85.1	82.9	80.8	78.7	76.7	74.7	72.7	70.8	69.0	67.2	65.6
45	90.8	93.1	93.6	93.4	92.6	91.5	90.0	88.4	86.5	84.6	82.6	80.5	78.5	76.5	74.5	72.6	70.7	68.9	67.2	65.6
50	88.3	91.1	92.0	91.9	91.4	90.4	89.1	87.6	85.9	84.0	82.1	80.1	78.2	76.2	74.3	72.5	70.6	68.9	67.2	65.6
55	85.7	89.0	90.1	90.2	89.9	89.1	88.0	86.6	85.1	83.4	81.5	79.7	77.8	75.9	74.1	72.3	70.5	68.8	67.1	65.6
60	83.1	86.6	87.9	88.3	88.1	87.6	86.7	85.5	84.1	82.5	80.8	79.1	77.3	75.6	73.8	72.1	70.4	68.7	67.1	65.6
65	80.4	83.9	85.5	86.1	86.1	85.8	85.1	84.1	82.9	81.5	80.0	78.4	76.8	75.1	73.5	71.8	70.2	68.6	67.1	65.6
70	77.7	81.2	82.8	83.6	83.9	83.7	83.2	82.4	81.4	80.3	78.9	77.5	76.0	74.5	73.0	71.5	70.0	68.5	67.0	65.6
75	75.2	78.4	80.1	81.0	81.3	81.3	81.0	80.4	79.6	78.7	77.6	76.4	75.1	73.8	72.4	71.0	69.6	68.3	66.9	65.6
80	73.0	75.6	77.2	78.1	78.5	78.6	78.4	78.1	77.5	76.8	75.9	74.9	73.9	72.8	71.6	70.4	69.2	68.0	66.8	65.6
85	71.1	73.0	74.2	75.0	75.4	75.6	75.5	75.3	74.9	74.4	73.8	73.1	72.3	71.4	70.5	69.6	68.6	67.6	66.6	65.6
90	69.4	70.5	71.2	71.7	72.0	72.2	72.2	72.1	71.9	71.6	71.2	70.8	70.3	69.7	69.1	68.5	67.8	67.1	66.3	65.6
95	67.6	67.9	68.1	68.3	68.4	68.5	68.5	68.5	68.4	68.3	68.2	68.0	67.8	67.6	67.3	67.0	66.7	66.3	65.9	65.6
98	66.7	66.8	66.8	66.8	66.8	66.7	66.7	66.7	66.6	66.6	66.5	66.4	66.3	66.3	66.1	66.0	65.9	65.8	65.7	65.6

**Mean Annual Mass Removal Efficiencies for 1.25-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	97.3	98.0	98.0	97.5	96.8	95.8	94.6	93.3	91.8	90.2	88.5	86.8	85.0	83.2	81.4	79.6	77.9	76.2	74.5	72.9
35	95.9	97.2	97.3	96.9	96.2	95.3	94.2	92.9	91.5	89.9	88.3	86.6	84.8	83.0	81.3	79.5	77.8	76.2	74.5	72.9
40	94.5	96.0	96.3	96.1	95.5	94.6	93.6	92.4	91.1	89.6	88.0	86.3	84.6	82.9	81.2	79.5	77.8	76.1	74.5	72.9
45	92.7	94.6	95.1	95.0	94.6	93.9	93.0	91.8	90.6	89.1	87.6	86.0	84.4	82.7	81.0	79.3	77.7	76.1	74.5	72.9
50	90.7	93.1	93.8	93.8	93.6	93.0	92.1	91.1	89.9	88.6	87.2	85.7	84.1	82.4	80.8	79.2	77.6	76.0	74.5	72.9
55	88.6	91.3	92.2	92.5	92.3	91.9	91.2	90.3	89.2	88.0	86.6	85.2	83.7	82.1	80.6	79.0	77.5	75.9	74.4	72.9
60	86.4	89.3	90.5	90.9	90.9	90.6	90.0	89.2	88.3	87.2	86.0	84.6	83.2	81.8	80.3	78.8	77.3	75.8	74.4	72.9
65	84.3	87.2	88.5	89.1	89.2	89.0	88.6	88.0	87.2	86.3	85.2	84.0	82.7	81.3	79.9	78.5	77.1	75.7	74.3	72.9
70	82.1	85.0	86.4	87.1	87.4	87.3	87.0	86.6	85.9	85.1	84.2	83.1	82.0	80.7	79.5	78.2	76.9	75.6	74.3	72.9
75	80.1	82.7	84.1	84.9	85.3	85.4	85.2	84.9	84.4	83.7	82.9	82.0	81.1	80.0	78.9	77.7	76.6	75.4	74.2	72.9
80	78.2	80.4	81.7	82.5	83.0	83.2	83.1	82.9	82.5	82.0	81.4	80.7	79.9	79.1	78.1	77.1	76.1	75.1	74.0	72.9
85	76.7	78.3	79.3	80.1	80.5	80.7	80.7	80.6	80.4	80.1	79.6	79.1	78.5	77.8	77.1	76.4	75.5	74.7	73.8	72.9
90	75.4	76.3	77.0	77.5	77.8	78.0	78.1	78.0	77.9	77.7	77.5	77.1	76.8	76.3	75.9	75.3	74.8	74.2	73.6	72.9
95	74.2	74.5	74.7	74.9	75.0	75.1	75.1	75.1	75.1	75.0	74.9	74.8	74.6	74.5	74.3	74.0	73.8	73.5	73.3	72.9
98	73.7	73.7	73.7	73.7	73.7	73.7	73.7	73.7	73.7	73.6	73.6	73.6	73.5	73.4	73.4	73.3	73.2	73.1	73.0	72.9

**Mean Annual Mass Removal Efficiencies for 1.50-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	97.8	98.4	98.5	98.2	97.7	97.1	96.2	95.3	94.2	93.0	91.7	90.4	89.0	87.5	86.0	84.5	83.0	81.5	80.0	78.5
35	96.7	97.7	97.9	97.7	97.3	96.6	95.8	94.9	93.9	92.8	91.5	90.2	88.8	87.4	85.9	84.4	82.9	81.4	80.0	78.5
40	95.5	96.8	97.1	97.0	96.6	96.1	95.4	94.5	93.5	92.4	91.2	89.9	88.6	87.2	85.8	84.3	82.9	81.4	80.0	78.5
45	94.1	95.7	96.2	96.2	95.9	95.4	94.8	94.0	93.1	92.0	90.9	89.7	88.4	87.0	85.6	84.2	82.8	81.3	79.9	78.5
50	92.5	94.4	95.1	95.2	95.0	94.6	94.1	93.3	92.5	91.5	90.5	89.3	88.1	86.8	85.4	84.1	82.7	81.3	79.9	78.5
55	90.8	93.0	93.8	94.0	94.0	93.7	93.2	92.6	91.8	91.0	90.0	88.9	87.7	86.5	85.2	83.9	82.5	81.2	79.9	78.5
60	88.9	91.3	92.3	92.7	92.8	92.6	92.2	91.7	91.0	90.3	89.4	88.4	87.3	86.1	84.9	83.7	82.4	81.1	79.8	78.5
65	87.1	89.6	90.7	91.3	91.4	91.3	91.1	90.6	90.1	89.4	88.6	87.7	86.8	85.7	84.6	83.4	82.2	81.0	79.8	78.5
70	85.4	87.8	89.0	89.6	89.9	89.9	89.7	89.4	89.0	88.4	87.7	87.0	86.1	85.1	84.1	83.1	82.0	80.8	79.7	78.5
75	83.8	85.9	87.1	87.8	88.2	88.3	88.2	88.0	87.7	87.2	86.7	86.0	85.3	84.4	83.6	82.6	81.6	80.6	79.6	78.5
80	82.2	84.0	85.2	85.9	86.3	86.4	86.5	86.4	86.2	85.8	85.4	84.9	84.3	83.6	82.9	82.1	81.2	80.4	79.5	78.5
85	81.0	82.3	83.2	83.8	84.2	84.4	84.5	84.5	84.4	84.2	83.9	83.5	83.0	82.5	82.0	81.4	80.7	80.0	79.3	78.5
90	80.0	80.7	81.3	81.8	82.1	82.3	82.4	82.4	82.4	82.2	82.1	81.8	81.6	81.2	80.9	80.5	80.0	79.6	79.1	78.5
95	79.1	79.4	79.6	79.8	79.9	80.0	80.1	80.1	80.1	80.1	80.0	79.9	79.8	79.7	79.6	79.4	79.2	79.0	78.8	78.5
98	79.0	79.0	79.0	79.1	79.1	79.1	79.1	79.1	79.0	79.0	79.0	79.0	78.9	78.9	78.8	78.8	78.7	78.7	78.6	78.5

**Mean Annual Mass Removal Efficiencies for 1.75-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.2	98.7	98.8	98.7	98.4	97.9	97.3	96.5	95.7	94.8	93.8	92.8	91.7	90.5	89.3	88.0	86.7	85.4	84.1	82.8
35	97.3	98.1	98.3	98.2	97.9	97.5	96.9	96.2	95.5	94.6	93.6	92.6	91.5	90.4	89.2	87.9	86.7	85.4	84.1	82.8
40	96.2	97.4	97.7	97.7	97.4	97.0	96.5	95.9	95.1	94.3	93.4	92.4	91.3	90.2	89.0	87.8	86.6	85.4	84.1	82.8
45	95.1	96.5	96.9	97.0	96.8	96.5	96.0	95.4	94.7	93.9	93.1	92.1	91.1	90.0	88.9	87.7	86.5	85.3	84.1	82.8
50	93.9	95.5	96.0	96.1	96.0	95.8	95.4	94.8	94.2	93.5	92.7	91.8	90.8	89.8	88.7	87.6	86.4	85.2	84.0	82.8
55	92.4	94.3	95.0	95.2	95.2	95.0	94.6	94.2	93.6	93.0	92.2	91.4	90.5	89.5	88.5	87.4	86.3	85.2	84.0	82.8
60	90.9	92.9	93.7	94.1	94.2	94.0	93.8	93.4	92.9	92.4	91.7	90.9	90.1	89.2	88.2	87.2	86.2	85.1	83.9	82.8
65	89.4	91.4	92.4	92.9	93.0	93.0	92.8	92.5	92.1	91.6	91.0	90.4	89.6	88.8	87.9	87.0	86.0	84.9	83.9	82.8
70	87.9	89.9	90.9	91.5	91.7	91.8	91.7	91.5	91.2	90.7	90.3	89.7	89.0	88.3	87.5	86.6	85.7	84.8	83.8	82.8
75	86.5	88.4	89.4	90.0	90.3	90.5	90.4	90.3	90.1	89.7	89.3	88.9	88.3	87.7	87.0	86.2	85.4	84.6	83.7	82.8
80	85.3	86.8	87.8	88.4	88.8	88.9	89.0	88.9	88.8	88.6	88.3	87.9	87.4	86.9	86.4	85.7	85.1	84.4	83.6	82.8
85	84.3	85.4	86.2	86.7	87.1	87.3	87.4	87.4	87.3	87.2	87.0	86.7	86.4	86.0	85.6	85.1	84.6	84.0	83.4	82.8
90	83.5	84.1	84.7	85.0	85.3	85.5	85.7	85.7	85.7	85.6	85.5	85.4	85.2	84.9	84.7	84.4	84.0	83.7	83.3	82.8
95	82.9	83.2	83.4	83.6	83.7	83.8	83.9	83.9	83.9	83.9	83.9	83.8	83.8	83.7	83.6	83.5	83.3	83.2	83.0	82.8
98	83.0	83.1	83.1	83.1	83.1	83.1	83.2	83.2	83.2	83.1	83.1	83.1	83.1	83.1	83.0	83.0	83.0	82.9	82.9	82.8

**Mean Annual Mass Removal Efficiencies for 2.00-inches of Retention for Zone 4 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.5	99.0	99.1	99.0	98.7	98.4	98.0	97.4	96.8	96.1	95.3	94.5	93.6	92.6	91.6	90.6	89.5	88.4	87.3	86.1
35	97.8	98.5	98.6	98.6	98.4	98.1	97.7	97.1	96.5	95.9	95.1	94.3	93.4	92.5	91.5	90.5	89.4	88.4	87.3	86.1
40	96.9	97.8	98.1	98.1	98.0	97.7	97.3	96.8	96.2	95.6	94.9	94.1	93.3	92.4	91.4	90.4	89.4	88.3	87.2	86.1
45	95.9	97.1	97.5	97.6	97.5	97.2	96.8	96.4	95.9	95.3	94.6	93.8	93.0	92.2	91.3	90.3	89.3	88.3	87.2	86.1
50	94.9	96.3	96.7	96.9	96.8	96.6	96.3	95.9	95.4	94.9	94.2	93.6	92.8	92.0	91.1	90.2	89.2	88.2	87.2	86.1
55	93.7	95.3	95.9	96.1	96.1	95.9	95.7	95.3	94.9	94.4	93.8	93.2	92.5	91.7	90.9	90.0	89.1	88.1	87.1	86.1
60	92.5	94.1	94.9	95.1	95.2	95.1	95.0	94.7	94.3	93.9	93.4	92.8	92.1	91.4	90.6	89.8	88.9	88.0	87.1	86.1
65	91.2	92.9	93.7	94.1	94.3	94.3	94.1	93.9	93.6	93.2	92.8	92.3	91.7	91.0	90.3	89.6	88.8	87.9	87.1	86.1
70	89.9	91.6	92.5	92.9	93.2	93.2	93.2	93.0	92.8	92.5	92.1	91.7	91.2	90.6	90.0	89.3	88.6	87.8	87.0	86.1
75	88.7	90.2	91.2	91.7	92.0	92.1	92.1	92.0	91.9	91.6	91.3	91.0	90.5	90.1	89.5	88.9	88.3	87.6	86.9	86.1
80	87.7	89.0	89.8	90.3	90.7	90.9	90.9	90.9	90.8	90.6	90.4	90.1	89.8	89.4	89.0	88.5	88.0	87.4	86.8	86.1
85	86.9	87.8	88.5	89.0	89.3	89.5	89.6	89.6	89.6	89.5	89.4	89.2	88.9	88.7	88.3	88.0	87.6	87.1	86.6	86.1
90	86.3	86.8	87.3	87.6	87.9	88.0	88.2	88.2	88.3	88.2	88.2	88.1	87.9	87.8	87.6	87.3	87.1	86.8	86.5	86.1
95	85.9	86.1	86.3	86.5	86.6	86.7	86.8	86.8	86.8	86.9	86.9	86.8	86.8	86.8	86.7	86.6	86.5	86.4	86.3	86.1
98	86.1	86.2	86.2	86.2	86.3	86.3	86.3	86.3	86.3	86.3	86.3	86.3	86.3	86.3	86.3	86.2	86.2	86.2	86.2	86.1













**Mean Annual Mass Removal Efficiencies for 0.25-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	83.0	80.8	74.1	67.0	60.7	55.3	50.7	46.8	43.4	40.4	37.8	35.5	33.5	31.7	30.1	28.6	27.3	26.1	25.0	24.0
35	77.3	77.4	72.0	65.6	59.8	54.7	50.2	46.4	43.1	40.2	37.6	35.4	33.4	31.6	30.0	28.6	27.3	26.1	25.0	24.0
40	71.3	73.5	69.4	63.9	58.6	53.8	49.6	45.9	42.7	39.9	37.4	35.2	33.3	31.5	30.0	28.5	27.3	26.1	25.0	24.0
45	65.3	69.3	66.5	61.9	57.2	52.8	48.8	45.3	42.3	39.6	37.1	35.0	33.1	31.4	29.9	28.5	27.2	26.0	25.0	24.0
50	59.6	64.8	63.4	59.6	55.5	51.6	47.9	44.7	41.7	39.2	36.8	34.8	32.9	31.3	29.8	28.4	27.2	26.0	25.0	24.0
55	54.0	60.2	59.9	57.1	53.7	50.2	46.9	43.9	41.1	38.7	36.5	34.5	32.7	31.1	29.6	28.3	27.1	26.0	24.9	24.0
60	49.0	55.7	56.3	54.4	51.6	48.6	45.6	42.9	40.4	38.1	36.0	34.1	32.4	30.9	29.5	28.2	27.0	25.9	24.9	24.0
65	44.5	51.0	52.5	51.4	49.3	46.8	44.2	41.8	39.5	37.4	35.5	33.7	32.1	30.6	29.3	28.1	26.9	25.9	24.9	24.0
70	40.5	46.5	48.5	48.1	46.6	44.7	42.6	40.5	38.4	36.6	34.8	33.2	31.7	30.3	29.1	27.9	26.8	25.8	24.9	24.0
75	37.0	42.0	44.2	44.5	43.7	42.2	40.6	38.9	37.2	35.5	34.0	32.5	31.2	29.9	28.8	27.7	26.7	25.7	24.8	24.0
80	33.9	37.8	39.8	40.5	40.2	39.4	38.2	36.9	35.6	34.2	32.9	31.7	30.5	29.4	28.4	27.4	26.5	25.6	24.8	24.0
85	31.1	33.8	35.4	36.1	36.3	35.9	35.3	34.5	33.5	32.5	31.5	30.5	29.6	28.7	27.8	27.0	26.2	25.4	24.7	24.0
90	28.7	30.2	31.2	31.8	32.0	32.0	31.7	31.3	30.8	30.2	29.6	29.0	28.3	27.6	27.0	26.4	25.7	25.1	24.6	24.0
95	26.6	27.0	27.4	27.6	27.7	27.7	27.7	27.6	27.4	27.2	26.9	26.6	26.3	26.0	25.7	25.4	25.0	24.7	24.3	24.0
98	25.7	25.7	25.7	25.7	25.7	25.6	25.6	25.5	25.4	25.3	25.2	25.1	25.0	24.8	24.7	24.6	24.4	24.3	24.1	24.0

**Mean Annual Mass Removal Efficiencies for 0.50-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	88.6	89.9	87.9	84.5	80.5	76.4	72.3	68.5	65.1	61.9	58.9	56.2	53.7	51.4	49.3	47.3	45.5	43.8	42.2	40.8
35	84.1	86.8	85.6	82.8	79.3	75.4	71.6	68.0	64.6	61.5	58.7	56.0	53.6	51.3	49.2	47.3	45.5	43.8	42.2	40.8
40	79.3	83.3	82.9	80.8	77.8	74.3	70.7	67.3	64.1	61.1	58.3	55.8	53.4	51.1	49.1	47.2	45.4	43.8	42.2	40.8
45	74.4	79.5	80.0	78.5	76.0	72.9	69.6	66.5	63.4	60.6	57.9	55.4	53.1	51.0	48.9	47.1	45.3	43.7	42.2	40.8
50	69.7	75.5	76.8	76.0	73.9	71.3	68.4	65.5	62.6	60.0	57.4	55.0	52.8	50.7	48.8	47.0	45.3	43.7	42.2	40.8
55	65.2	71.4	73.4	73.1	71.7	69.5	66.9	64.3	61.7	59.2	56.9	54.6	52.5	50.4	48.6	46.8	45.2	43.6	42.1	40.8
60	61.0	67.2	69.7	70.1	69.2	67.4	65.3	63.0	60.6	58.4	56.2	54.0	52.0	50.1	48.3	46.6	45.0	43.5	42.1	40.8
65	57.1	63.1	65.9	66.8	66.4	65.1	63.3	61.4	59.4	57.3	55.3	53.4	51.5	49.7	48.0	46.4	44.9	43.4	42.1	40.8
70	53.6	59.2	62.0	63.2	63.3	62.5	61.2	59.6	57.9	56.1	54.3	52.6	50.9	49.2	47.6	46.1	44.7	43.3	42.0	40.8
75	50.7	55.5	58.1	59.5	59.8	59.4	58.6	57.4	56.1	54.6	53.1	51.6	50.1	48.6	47.1	45.8	44.4	43.2	41.9	40.8
80	48.3	52.0	54.3	55.5	56.0	56.0	55.6	54.8	53.9	52.8	51.6	50.3	49.0	47.8	46.5	45.3	44.1	43.0	41.8	40.8
85	46.2	48.7	50.5	51.5	52.0	52.2	52.1	51.7	51.1	50.4	49.6	48.6	47.6	46.7	45.6	44.6	43.7	42.7	41.7	40.8
90	44.2	45.6	46.7	47.4	47.9	48.1	48.2	48.1	47.8	47.4	46.9	46.4	45.7	45.1	44.4	43.7	43.0	42.2	41.5	40.8
95	42.5	43.0	43.4	43.7	43.9	44.0	44.1	44.1	44.0	43.9	43.7	43.5	43.2	43.0	42.7	42.3	42.0	41.6	41.2	40.8
98	42.1	42.2	42.2	42.2	42.2	42.2	42.2	42.1	42.1	42.0	41.9	41.8	41.7	41.6	41.5	41.4	41.2	41.1	40.9	40.8

**Mean Annual Mass Removal Efficiencies for 0.75-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	91.4	93.0	92.4	90.8	88.5	85.9	83.0	80.1	77.2	74.4	71.6	69.1	66.7	64.4	62.3	60.2	58.3	56.5	54.8	53.2
35	87.7	90.5	90.4	89.2	87.2	84.8	82.2	79.5	76.7	73.9	71.3	68.8	66.5	64.2	62.1	60.2	58.3	56.5	54.8	53.2
40	83.8	87.6	88.1	87.2	85.7	83.6	81.2	78.7	76.0	73.4	70.9	68.5	66.2	64.1	62.0	60.0	58.2	56.4	54.8	53.2
45	80.0	84.4	85.6	85.1	83.9	82.2	80.0	77.7	75.3	72.8	70.4	68.1	65.9	63.8	61.8	59.9	58.1	56.4	54.7	53.2
50	76.0	81.1	82.7	82.8	82.0	80.5	78.7	76.6	74.4	72.1	69.8	67.7	65.6	63.5	61.6	59.8	58.0	56.3	54.7	53.2
55	72.3	77.7	79.7	80.2	79.8	78.7	77.2	75.3	73.3	71.2	69.2	67.1	65.1	63.2	61.3	59.6	57.9	56.2	54.7	53.2
60	68.9	74.2	76.5	77.4	77.4	76.6	75.4	73.9	72.1	70.2	68.3	66.4	64.6	62.8	61.0	59.3	57.7	56.1	54.6	53.2
65	65.5	70.7	73.3	74.5	74.7	74.4	73.5	72.2	70.7	69.1	67.4	65.7	64.0	62.3	60.7	59.1	57.5	56.0	54.6	53.2
70	62.6	67.4	70.0	71.3	71.9	71.8	71.2	70.3	69.1	67.7	66.3	64.7	63.2	61.7	60.2	58.7	57.3	55.9	54.5	53.2
75	60.1	64.2	66.7	68.1	68.8	68.9	68.7	68.0	67.1	66.1	64.9	63.6	62.3	60.9	59.6	58.3	57.0	55.7	54.4	53.2
80	58.0	61.3	63.5	64.8	65.5	65.9	65.8	65.4	64.8	64.0	63.1	62.1	61.1	60.0	58.9	57.7	56.6	55.4	54.3	53.2
85	56.4	58.8	60.4	61.5	62.2	62.5	62.6	62.4	62.0	61.6	61.0	60.3	59.5	58.7	57.9	57.0	56.0	55.1	54.1	53.2
90	55.1	56.4	57.4	58.1	58.6	58.9	59.0	59.0	58.9	58.7	58.4	58.0	57.6	57.1	56.5	55.9	55.3	54.6	53.9	53.2
95	53.7	54.2	54.6	54.9	55.2	55.4	55.5	55.6	55.6	55.5	55.5	55.3	55.2	55.0	54.7	54.5	54.2	53.9	53.5	53.2
98	53.9	54.0	54.0	54.1	54.1	54.1	54.1	54.1	54.1	54.0	54.0	53.9	53.9	53.8	53.7	53.6	53.5	53.4	53.3	53.2

**Mean Annual Mass Removal Efficiencies for 1.00-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	93.5	94.8	94.6	93.7	92.3	90.6	88.7	86.5	84.3	82.1	79.8	77.6	75.4	73.3	71.3	69.4	67.5	65.8	64.1	62.5
35	90.2	92.6	92.9	92.3	91.1	89.6	87.8	85.9	83.8	81.6	79.5	77.3	75.2	73.1	71.2	69.3	67.5	65.7	64.0	62.5
40	87.0	90.2	91.0	90.7	89.7	88.4	86.8	85.0	83.1	81.1	79.0	77.0	74.9	72.9	71.0	69.1	67.4	65.7	64.0	62.5
45	83.7	87.6	88.8	88.8	88.1	87.1	85.7	84.1	82.3	80.4	78.5	76.5	74.6	72.7	70.8	69.0	67.3	65.6	64.0	62.5
50	80.5	84.8	86.4	86.8	86.4	85.5	84.4	83.0	81.4	79.7	77.9	76.0	74.2	72.3	70.5	68.8	67.1	65.5	64.0	62.5
55	77.3	82.0	83.9	84.5	84.4	83.9	83.0	81.8	80.3	78.8	77.1	75.4	73.7	72.0	70.3	68.6	67.0	65.4	63.9	62.5
60	74.4	79.1	81.1	82.0	82.2	82.0	81.3	80.3	79.2	77.8	76.3	74.7	73.1	71.5	69.9	68.3	66.8	65.3	63.9	62.5
65	71.8	76.1	78.3	79.5	79.9	79.9	79.5	78.7	77.8	76.6	75.3	73.9	72.4	71.0	69.5	68.0	66.6	65.2	63.8	62.5
70	69.2	73.2	75.5	76.8	77.4	77.6	77.4	76.9	76.2	75.3	74.2	72.9	71.6	70.3	69.0	67.7	66.3	65.0	63.7	62.5
75	67.0	70.6	72.8	74.1	74.8	75.1	75.1	74.8	74.3	73.6	72.7	71.7	70.7	69.5	68.4	67.2	66.0	64.8	63.6	62.5
80	65.3	68.1	70.0	71.3	72.1	72.5	72.6	72.5	72.2	71.7	71.0	70.3	69.4	68.5	67.6	66.6	65.6	64.5	63.5	62.5
85	63.9	66.0	67.5	68.6	69.3	69.7	69.9	69.9	69.8	69.5	69.0	68.5	67.9	67.2	66.5	65.8	65.0	64.2	63.3	62.5
90	63.0	64.3	65.2	65.9	66.4	66.8	67.0	67.1	67.0	66.9	66.7	66.4	66.1	65.7	65.2	64.7	64.2	63.6	63.1	62.5
95	62.3	62.8	63.1	63.4	63.6	63.8	63.9	64.0	64.1	64.1	64.1	64.0	63.9	63.8	63.6	63.4	63.2	63.0	62.7	62.5
98	62.6	62.7	62.8	62.8	62.9	62.9	62.9	62.9	62.9	62.9	62.9	62.9	62.9	62.8	62.8	62.7	62.7	62.6	62.5	62.5

**Mean Annual Mass Removal Efficiencies for 1.25-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	95.1	96.1	96.0	95.4	94.5	93.3	91.9	90.4	88.7	86.9	85.1	83.3	81.5	79.7	77.8	76.1	74.4	72.7	71.1	69.5
35	92.3	94.2	94.5	94.2	93.4	92.4	91.1	89.7	88.2	86.5	84.8	83.0	81.2	79.5	77.7	76.0	74.3	72.6	71.1	69.5
40	89.3	92.0	92.8	92.8	92.2	91.3	90.2	88.9	87.5	85.9	84.3	82.6	80.9	79.2	77.5	75.8	74.2	72.6	71.0	69.5
45	86.5	89.8	90.9	91.2	90.9	90.1	89.2	88.0	86.7	85.3	83.8	82.2	80.6	78.9	77.3	75.7	74.1	72.5	71.0	69.5
50	83.8	87.5	88.9	89.5	89.3	88.8	88.0	87.0	85.8	84.5	83.1	81.7	80.2	78.6	77.0	75.5	73.9	72.4	71.0	69.5
55	81.2	85.1	86.8	87.5	87.5	87.2	86.6	85.8	84.8	83.7	82.4	81.1	79.7	78.2	76.7	75.3	73.8	72.3	70.9	69.5
60	78.6	82.7	84.6	85.4	85.6	85.5	85.1	84.5	83.7	82.7	81.6	80.4	79.1	77.8	76.4	75.0	73.6	72.2	70.9	69.5
65	76.4	80.3	82.2	83.1	83.6	83.7	83.5	83.1	82.4	81.6	80.7	79.6	78.5	77.2	76.0	74.7	73.4	72.1	70.8	69.5
70	74.3	77.7	79.7	80.8	81.5	81.7	81.7	81.4	80.9	80.3	79.5	78.7	77.7	76.6	75.4	74.3	73.1	71.9	70.7	69.5
75	72.4	75.4	77.3	78.5	79.2	79.6	79.7	79.6	79.3	78.8	78.2	77.5	76.7	75.8	74.8	73.8	72.7	71.7	70.6	69.5
80	70.8	73.3	75.1	76.2	76.9	77.4	77.6	77.6	77.4	77.1	76.7	76.2	75.5	74.8	74.0	73.2	72.3	71.4	70.5	69.5
85	69.8	71.6	72.9	73.9	74.6	75.0	75.3	75.4	75.4	75.2	75.0	74.6	74.1	73.6	73.0	72.4	71.7	71.0	70.3	69.5
90	69.2	70.3	71.1	71.8	72.3	72.6	72.9	73.0	73.1	73.1	72.9	72.7	72.5	72.2	71.8	71.4	71.0	70.5	70.0	69.5
95	68.9	69.3	69.7	70.0	70.2	70.4	70.5	70.6	70.7	70.7	70.7	70.7	70.6	70.5	70.4	70.3	70.1	69.9	69.7	69.5
98	69.4	69.5	69.6	69.6	69.7	69.7	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.8	69.7	69.7	69.7	69.6	69.6	69.5

**Mean Annual Mass Removal Efficiencies for 1.50-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	96.3	97.1	97.0	96.5	95.9	95.0	93.9	92.8	91.5	90.2	88.7	87.2	85.7	84.1	82.6	81.1	79.5	78.0	76.5	75.1
35	93.9	95.4	95.6	95.4	95.0	94.2	93.2	92.2	91.0	89.7	88.3	86.9	85.4	83.9	82.4	81.0	79.5	78.0	76.5	75.1
40	91.3	93.5	94.1	94.2	93.9	93.3	92.4	91.5	90.4	89.2	87.9	86.5	85.1	83.7	82.3	80.8	79.4	77.9	76.5	75.1
45	88.8	91.5	92.5	92.8	92.7	92.2	91.5	90.6	89.6	88.6	87.4	86.1	84.8	83.4	82.0	80.6	79.2	77.8	76.4	75.1
50	86.4	89.6	90.8	91.3	91.4	91.0	90.4	89.7	88.8	87.9	86.8	85.6	84.4	83.1	81.8	80.4	79.1	77.7	76.4	75.1
55	84.2	87.5	89.0	89.7	89.8	89.6	89.2	88.6	87.9	87.1	86.1	85.0	83.9	82.7	81.5	80.2	78.9	77.6	76.3	75.1
60	81.9	85.4	87.1	87.9	88.2	88.1	87.9	87.4	86.9	86.2	85.3	84.4	83.3	82.2	81.1	79.9	78.7	77.5	76.3	75.1
65	80.0	83.4	85.1	86.0	86.4	86.5	86.4	86.1	85.7	85.1	84.4	83.6	82.7	81.7	80.7	79.6	78.5	77.4	76.2	75.1
70	78.3	81.3	83.0	84.0	84.5	84.8	84.8	84.7	84.4	83.9	83.4	82.7	81.9	81.1	80.2	79.3	78.2	77.2	76.1	75.1
75	76.6	79.3	80.9	81.9	82.6	83.0	83.1	83.1	82.9	82.6	82.2	81.6	81.0	80.4	79.6	78.8	77.9	77.0	76.0	75.1
80	75.3	77.4	78.9	79.9	80.6	81.1	81.3	81.4	81.3	81.1	80.8	80.4	80.0	79.5	78.9	78.2	77.5	76.7	75.9	75.1
85	74.4	76.0	77.2	78.0	78.7	79.1	79.4	79.5	79.5	79.5	79.3	79.1	78.8	78.4	78.0	77.5	76.9	76.3	75.7	75.1
90	73.9	74.9	75.7	76.3	76.8	77.1	77.4	77.6	77.7	77.7	77.7	77.6	77.4	77.2	76.9	76.6	76.3	75.9	75.5	75.1
95	74.0	74.4	74.7	75.0	75.2	75.4	75.6	75.7	75.8	75.9	75.9	75.9	75.9	75.8	75.7	75.6	75.5	75.4	75.2	75.1
98	74.8	74.9	75.0	75.0	75.1	75.1	75.1	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.2	75.1	75.1	75.1



**Mean Annual Mass Removal Efficiencies for 1.75-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	97.2	97.7	97.7	97.4	96.8	96.2	95.4	94.4	93.5	92.4	91.2	90.0	88.7	87.4	86.1	84.8	83.4	82.1	80.8	79.4
35	95.1	96.3	96.6	96.4	96.0	95.5	94.7	93.9	93.0	91.9	90.8	89.7	88.5	87.2	85.9	84.6	83.3	82.0	80.7	79.4
40	92.9	94.7	95.2	95.2	95.0	94.6	94.0	93.2	92.4	91.4	90.4	89.3	88.2	87.0	85.7	84.5	83.2	82.0	80.7	79.4
45	90.7	93.0	93.7	94.0	94.0	93.7	93.2	92.5	91.7	90.9	89.9	88.9	87.8	86.7	85.5	84.3	83.1	81.9	80.7	79.4
50	88.5	91.2	92.2	92.7	92.8	92.6	92.2	91.7	91.0	90.2	89.4	88.4	87.4	86.4	85.3	84.1	83.0	81.8	80.6	79.4
55	86.5	89.4	90.7	91.3	91.5	91.5	91.2	90.7	90.2	89.5	88.7	87.9	87.0	86.0	85.0	83.9	82.8	81.7	80.6	79.4
60	84.6	87.5	89.0	89.8	90.2	90.2	90.0	89.6	89.2	88.6	88.0	87.3	86.4	85.6	84.6	83.6	82.6	81.6	80.5	79.4
65	82.9	85.8	87.4	88.3	88.6	88.7	88.7	88.5	88.1	87.7	87.2	86.6	85.8	85.1	84.2	83.3	82.4	81.4	80.5	79.4
70	81.4	84.1	85.6	86.5	87.0	87.2	87.2	87.2	87.0	86.6	86.2	85.7	85.1	84.5	83.7	83.0	82.1	81.3	80.4	79.4
75	80.2	82.4	83.8	84.7	85.2	85.6	85.8	85.8	85.7	85.5	85.2	84.8	84.3	83.8	83.2	82.5	81.8	81.1	80.3	79.4
80	78.9	80.8	82.0	82.9	83.5	84.0	84.2	84.3	84.3	84.2	84.0	83.7	83.4	83.0	82.5	82.0	81.4	80.8	80.1	79.4
85	78.1	79.5	80.5	81.3	81.9	82.3	82.6	82.8	82.8	82.8	82.7	82.5	82.3	82.1	81.7	81.4	81.0	80.5	80.0	79.4
90	77.8	78.6	79.3	79.9	80.4	80.7	80.9	81.1	81.2	81.3	81.3	81.2	81.1	81.0	80.9	80.6	80.4	80.1	79.8	79.4
95	78.0	78.4	78.7	78.9	79.1	79.3	79.5	79.6	79.7	79.8	79.9	79.9	79.9	79.9	79.9	79.8	79.8	79.7	79.6	79.4
98	79.0	79.0	79.1	79.2	79.2	79.3	79.3	79.4	79.4	79.4	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.5	79.4

**Mean Annual Mass Removal Efficiencies for 2.00-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	97.8	98.3	98.3	98.0	97.5	97.0	96.4	95.6	94.8	93.9	93.0	92.0	91.0	89.9	88.7	87.6	86.4	85.2	84.0	82.9
35	96.2	97.1	97.3	97.1	96.8	96.3	95.8	95.1	94.4	93.6	92.7	91.7	90.7	89.7	88.6	87.4	86.3	85.2	84.0	82.9
40	94.3	95.7	96.1	96.1	95.9	95.6	95.2	94.5	93.8	93.1	92.3	91.4	90.4	89.4	88.4	87.3	86.2	85.1	84.0	82.9
45	92.3	94.2	94.8	95.0	94.9	94.8	94.4	93.9	93.3	92.6	91.8	91.0	90.1	89.2	88.2	87.1	86.1	85.0	83.9	82.9
50	90.3	92.5	93.4	93.8	93.9	93.8	93.6	93.1	92.6	92.0	91.3	90.5	89.7	88.8	87.9	87.0	86.0	84.9	83.9	82.9
55	88.4	90.9	92.0	92.6	92.8	92.8	92.6	92.3	91.8	91.3	90.7	90.0	89.3	88.5	87.6	86.7	85.8	84.8	83.9	82.9
60	86.8	89.3	90.6	91.3	91.6	91.7	91.6	91.3	91.0	90.6	90.0	89.4	88.8	88.1	87.3	86.5	85.6	84.7	83.8	82.9
65	85.3	87.7	89.1	90.0	90.4	90.5	90.5	90.3	90.0	89.7	89.3	88.8	88.2	87.6	86.9	86.2	85.4	84.6	83.7	82.9
70	83.9	86.3	87.7	88.5	88.9	89.2	89.2	89.1	89.0	88.8	88.4	88.0	87.6	87.1	86.5	85.8	85.1	84.4	83.7	82.9
75	82.9	84.9	86.2	87.0	87.4	87.7	87.9	87.9	87.9	87.7	87.5	87.2	86.9	86.4	86.0	85.4	84.8	84.2	83.6	82.9
80	81.9	83.5	84.6	85.4	85.9	86.3	86.5	86.7	86.7	86.6	86.5	86.3	86.1	85.7	85.4	84.9	84.5	84.0	83.4	82.9
85	81.1	82.3	83.3	84.0	84.5	84.9	85.1	85.3	85.4	85.4	85.4	85.3	85.1	84.9	84.7	84.4	84.1	83.7	83.3	82.9
90	80.9	81.7	82.3	82.8	83.2	83.5	83.8	84.0	84.1	84.2	84.2	84.2	84.1	84.0	83.9	83.8	83.6	83.4	83.1	82.9
95	81.3	81.6	81.9	82.1	82.3	82.5	82.6	82.8	82.9	83.0	83.0	83.1	83.1	83.1	83.1	83.1	83.1	83.0	82.9	82.9
98	82.3	82.3	82.4	82.5	82.5	82.6	82.6	82.7	82.7	82.7	82.8	82.8	82.8	82.8	82.9	82.9	82.9	82.9	82.9	82.9



**Mean Annual Mass Removal Efficiencies for 2.25-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.2	98.7	98.6	98.5	98.1	97.6	97.1	96.5	95.9	95.1	94.3	93.5	92.6	91.7	90.7	89.7	88.7	87.7	86.6	85.6
35	97.0	97.7	97.8	97.7	97.5	97.0	96.6	96.1	95.4	94.7	94.0	93.2	92.4	91.5	90.6	89.6	88.6	87.6	86.6	85.6
40	95.3	96.5	96.9	96.8	96.6	96.3	96.0	95.5	95.0	94.3	93.6	92.9	92.1	91.3	90.4	89.5	88.5	87.6	86.6	85.6
45	93.6	95.2	95.7	95.8	95.7	95.6	95.3	94.9	94.4	93.9	93.2	92.6	91.8	91.0	90.2	89.3	88.4	87.5	86.5	85.6
50	91.9	93.7	94.5	94.7	94.8	94.8	94.6	94.3	93.8	93.3	92.8	92.1	91.5	90.7	90.0	89.1	88.3	87.4	86.5	85.6
55	90.1	92.2	93.2	93.6	93.8	93.9	93.8	93.5	93.2	92.7	92.2	91.7	91.1	90.4	89.7	88.9	88.1	87.3	86.5	85.6
60	88.6	90.8	91.9	92.5	92.8	92.9	92.9	92.7	92.4	92.0	91.6	91.1	90.6	90.0	89.4	88.7	88.0	87.2	86.4	85.6
65	87.2	89.4	90.6	91.3	91.7	91.9	91.9	91.8	91.6	91.3	90.9	90.6	90.1	89.6	89.0	88.4	87.8	87.1	86.3	85.6
70	86.0	88.1	89.3	90.1	90.6	90.8	90.8	90.8	90.6	90.4	90.2	89.9	89.5	89.1	88.6	88.1	87.5	86.9	86.3	85.6
75	85.1	87.0	88.1	88.8	89.3	89.5	89.6	89.7	89.6	89.6	89.4	89.1	88.9	88.5	88.2	87.7	87.2	86.7	86.2	85.6
80	84.5	85.8	86.8	87.5	87.9	88.2	88.4	88.6	88.6	88.6	88.5	88.3	88.1	87.9	87.6	87.3	86.9	86.5	86.1	85.6
85	83.8	84.8	85.6	86.1	86.6	87.0	87.2	87.4	87.5	87.5	87.5	87.5	87.4	87.2	87.0	86.8	86.5	86.3	85.9	85.6
90	83.5	84.2	84.7	85.2	85.6	85.8	86.1	86.2	86.4	86.5	86.5	86.5	86.5	86.5	86.4	86.3	86.1	86.0	85.8	85.6
95	83.9	84.2	84.5	84.7	84.9	85.1	85.2	85.3	85.4	85.5	85.6	85.6	85.7	85.7	85.7	85.7	85.7	85.7	85.6	85.6
98	84.9	85.0	85.1	85.1	85.2	85.2	85.3	85.3	85.4	85.4	85.4	85.5	85.5	85.5	85.5	85.5	85.6	85.6	85.6	85.6

**Mean Annual Mass Removal Efficiencies for 2.50-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.6	98.9	98.9	98.8	98.6	98.2	97.7	97.2	96.7	96.0	95.3	94.6	93.9	93.1	92.3	91.4	90.6	89.6	88.7	87.8
35	97.6	98.1	98.3	98.2	98.0	97.6	97.2	96.8	96.3	95.7	95.0	94.4	93.7	92.9	92.1	91.3	90.5	89.6	88.7	87.8
40	96.2	97.1	97.4	97.4	97.3	97.0	96.7	96.3	95.9	95.3	94.7	94.1	93.4	92.7	92.0	91.2	90.4	89.5	88.7	87.8
45	94.7	96.0	96.5	96.5	96.5	96.3	96.0	95.8	95.4	94.9	94.3	93.8	93.2	92.5	91.8	91.0	90.3	89.5	88.6	87.8
50	93.2	94.8	95.3	95.6	95.6	95.5	95.4	95.2	94.8	94.4	93.9	93.4	92.8	92.2	91.6	90.9	90.1	89.4	88.6	87.8
55	91.6	93.4	94.2	94.5	94.7	94.7	94.7	94.5	94.2	93.9	93.4	93.0	92.5	91.9	91.3	90.7	90.0	89.3	88.5	87.8
60	90.1	92.0	93.0	93.5	93.8	93.9	93.9	93.8	93.5	93.2	92.9	92.5	92.0	91.6	91.0	90.4	89.8	89.2	88.5	87.8
65	88.9	90.8	91.8	92.4	92.8	93.0	93.1	93.0	92.8	92.6	92.3	92.0	91.6	91.2	90.7	90.2	89.6	89.1	88.4	87.8
70	87.8	89.6	90.7	91.4	91.8	92.1	92.1	92.1	92.0	91.8	91.6	91.4	91.1	90.7	90.3	89.9	89.4	88.9	88.4	87.8
75	86.9	88.6	89.6	90.3	90.8	91.0	91.1	91.1	91.1	91.0	90.9	90.7	90.5	90.2	89.9	89.5	89.2	88.7	88.3	87.8
80	86.4	87.7	88.6	89.2	89.6	89.9	90.0	90.1	90.2	90.2	90.1	90.0	89.8	89.7	89.4	89.2	88.9	88.5	88.2	87.8
85	85.9	86.9	87.5	88.0	88.4	88.7	88.9	89.1	89.2	89.3	89.3	89.2	89.2	89.1	88.9	88.8	88.6	88.3	88.1	87.8
90	85.6	86.2	86.7	87.1	87.5	87.8	88.0	88.1	88.3	88.4	88.4	88.4	88.4	88.4	88.4	88.3	88.2	88.1	87.9	87.8
95	86.1	86.4	86.6	86.8	87.0	87.1	87.3	87.4	87.5	87.6	87.7	87.7	87.8	87.8	87.8	87.8	87.8	87.8	87.8	87.8
98	87.1	87.2	87.2	87.3	87.3	87.4	87.4	87.5	87.5	87.6	87.6	87.6	87.7	87.7	87.7	87.7	87.7	87.8	87.8	87.8

**Mean Annual Mass Removal Efficiencies for 2.75-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	98.9	99.1	99.1	99.1	98.9	98.6	98.2	97.8	97.3	96.7	96.2	95.5	94.9	94.2	93.5	92.8	92.0	91.2	90.4	89.6
35	98.1	98.5	98.6	98.6	98.4	98.1	97.7	97.4	96.9	96.4	95.9	95.3	94.7	94.1	93.4	92.7	91.9	91.2	90.4	89.6
40	97.0	97.7	97.9	97.9	97.8	97.5	97.2	96.9	96.5	96.1	95.6	95.0	94.5	93.9	93.2	92.5	91.8	91.1	90.3	89.6
45	95.6	96.7	97.1	97.1	97.1	96.9	96.6	96.4	96.1	95.7	95.2	94.7	94.2	93.6	93.0	92.4	91.7	91.0	90.3	89.6
50	94.3	95.6	96.1	96.3	96.3	96.2	96.0	95.8	95.6	95.3	94.9	94.4	93.9	93.4	92.8	92.2	91.6	91.0	90.3	89.6
55	92.9	94.4	95.0	95.3	95.4	95.4	95.4	95.3	95.1	94.8	94.4	94.0	93.6	93.1	92.6	92.1	91.5	90.9	90.2	89.6
60	91.6	93.2	93.9	94.3	94.6	94.7	94.7	94.6	94.5	94.2	93.9	93.6	93.2	92.8	92.3	91.8	91.3	90.8	90.2	89.6
65	90.3	92.0	92.8	93.4	93.7	93.9	94.0	93.9	93.8	93.6	93.4	93.1	92.8	92.4	92.0	91.6	91.1	90.6	90.1	89.6
70	89.3	90.9	91.8	92.4	92.8	93.1	93.2	93.2	93.1	93.0	92.8	92.6	92.3	92.0	91.7	91.3	90.9	90.5	90.1	89.6
75	88.5	89.9	90.9	91.5	91.9	92.2	92.3	92.4	92.3	92.2	92.1	92.0	91.8	91.6	91.3	91.0	90.7	90.4	90.0	89.6
80	88.1	89.2	90.0	90.6	91.0	91.2	91.4	91.5	91.5	91.5	91.4	91.4	91.3	91.1	90.9	90.7	90.5	90.2	89.9	89.6
85	87.8	88.6	89.2	89.6	90.0	90.2	90.4	90.5	90.6	90.7	90.7	90.7	90.7	90.6	90.5	90.3	90.2	90.0	89.8	89.6
90	87.5	88.0	88.4	88.8	89.1	89.3	89.5	89.7	89.8	89.9	90.0	90.0	90.0	90.0	90.0	89.9	89.9	89.8	89.7	89.6
95	87.9	88.2	88.4	88.6	88.7	88.9	89.0	89.1	89.2	89.3	89.4	89.4	89.5	89.5	89.5	89.6	89.6	89.6	89.6	89.6
98	88.9	88.9	89.0	89.0	89.1	89.1	89.2	89.2	89.3	89.3	89.4	89.4	89.4	89.5	89.5	89.5	89.5	89.5	89.6	89.6

**Mean Annual Mass Removal Efficiencies for 3.00-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.1	99.3	99.3	99.2	99.1	98.9	98.6	98.2	97.8	97.3	96.8	96.3	95.7	95.1	94.5	93.8	93.2	92.5	91.8	91.0
35	98.4	98.8	98.9	98.8	98.7	98.5	98.2	97.8	97.5	97.0	96.6	96.1	95.5	94.9	94.4	93.7	93.1	92.4	91.7	91.0
40	97.5	98.1	98.3	98.3	98.2	98.0	97.7	97.4	97.1	96.7	96.3	95.8	95.3	94.8	94.2	93.6	93.0	92.4	91.7	91.0
45	96.4	97.3	97.6	97.6	97.6	97.4	97.2	96.9	96.7	96.4	96.0	95.5	95.1	94.6	94.0	93.5	92.9	92.3	91.7	91.0
50	95.2	96.3	96.7	96.9	96.9	96.8	96.6	96.4	96.2	96.0	95.6	95.2	94.8	94.3	93.9	93.4	92.8	92.2	91.6	91.0
55	94.0	95.3	95.8	96.0	96.1	96.1	96.0	95.9	95.7	95.5	95.2	94.9	94.5	94.1	93.6	93.2	92.7	92.2	91.6	91.0
60	92.8	94.1	94.8	95.1	95.3	95.4	95.4	95.3	95.2	95.0	94.8	94.5	94.1	93.8	93.4	93.0	92.5	92.1	91.6	91.0
65	91.7	93.0	93.8	94.2	94.5	94.6	94.7	94.7	94.6	94.5	94.3	94.0	93.8	93.5	93.1	92.8	92.4	91.9	91.5	91.0
70	90.7	92.0	92.8	93.3	93.7	93.9	94.0	94.1	94.0	93.9	93.8	93.6	93.3	93.1	92.8	92.5	92.2	91.8	91.4	91.0
75	89.9	91.1	91.9	92.5	92.9	93.2	93.3	93.3	93.3	93.3	93.2	93.0	92.9	92.7	92.5	92.3	92.0	91.7	91.4	91.0
80	89.4	90.5	91.2	91.7	92.1	92.3	92.5	92.6	92.6	92.6	92.5	92.5	92.4	92.3	92.1	92.0	91.8	91.5	91.3	91.0
85	89.3	90.0	90.5	90.9	91.3	91.5	91.6	91.8	91.8	91.9	91.9	91.9	91.9	91.8	91.7	91.6	91.5	91.4	91.2	91.0
90	89.1	89.6	89.9	90.2	90.5	90.7	90.9	91.0	91.1	91.2	91.3	91.3	91.3	91.4	91.3	91.3	91.3	91.2	91.1	91.0
95	89.5	89.7	89.9	90.0	90.2	90.3	90.4	90.5	90.6	90.7	90.8	90.8	90.9	90.9	91.0	91.0	91.0	91.0	91.0	91.0
98	90.3	90.4	90.5	90.5	90.6	90.6	90.6	90.7	90.7	90.8	90.8	90.8	90.9	90.9	90.9	90.9	91.0	91.0	91.0	91.0

**Mean Annual Mass Removal Efficiencies for 3.25-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.3	99.4	99.5	99.4	99.3	99.1	98.9	98.6	98.2	97.8	97.4	96.9	96.4	95.8	95.3	94.7	94.1	93.5	92.9	92.2
35	98.7	99.0	99.1	99.0	99.0	98.8	98.5	98.2	97.9	97.5	97.1	96.7	96.2	95.7	95.2	94.6	94.1	93.5	92.9	92.2
40	98.0	98.4	98.6	98.6	98.5	98.4	98.1	97.8	97.5	97.2	96.9	96.5	96.0	95.5	95.0	94.5	94.0	93.4	92.8	92.2
45	97.0	97.7	98.0	98.0	98.0	97.8	97.7	97.4	97.1	96.9	96.6	96.2	95.8	95.3	94.9	94.4	93.9	93.4	92.8	92.2
50	96.0	96.9	97.3	97.4	97.4	97.3	97.1	96.9	96.7	96.5	96.3	95.9	95.5	95.1	94.7	94.3	93.8	93.3	92.8	92.2
55	94.9	96.0	96.4	96.6	96.7	96.7	96.6	96.4	96.3	96.1	95.9	95.6	95.3	94.9	94.5	94.1	93.7	93.2	92.7	92.2
60	93.9	95.0	95.5	95.8	96.0	96.0	96.0	95.9	95.8	95.7	95.5	95.2	94.9	94.6	94.3	93.9	93.5	93.1	92.7	92.2
65	92.8	94.0	94.6	95.0	95.2	95.3	95.4	95.4	95.3	95.2	95.0	94.8	94.6	94.3	94.0	93.7	93.4	93.0	92.6	92.2
70	91.9	93.0	93.7	94.1	94.4	94.6	94.8	94.8	94.8	94.7	94.6	94.4	94.2	94.0	93.8	93.5	93.2	92.9	92.6	92.2
75	91.1	92.2	92.9	93.4	93.7	94.0	94.1	94.2	94.2	94.1	94.1	94.0	93.8	93.6	93.5	93.3	93.0	92.8	92.5	92.2
80	90.6	91.5	92.2	92.7	93.0	93.3	93.4	93.5	93.5	93.6	93.5	93.4	93.4	93.3	93.2	93.0	92.8	92.6	92.4	92.2
85	90.5	91.2	91.7	92.0	92.3	92.5	92.7	92.8	92.9	92.9	92.9	92.9	92.9	92.9	92.8	92.7	92.6	92.5	92.4	92.2
90	90.5	90.9	91.2	91.5	91.7	91.9	92.0	92.1	92.2	92.3	92.4	92.4	92.4	92.5	92.4	92.4	92.4	92.3	92.3	92.2
95	90.7	90.9	91.1	91.2	91.4	91.5	91.6	91.7	91.8	91.9	92.0	92.0	92.1	92.1	92.1	92.2	92.2	92.2	92.2	92.2
98	91.6	91.6	91.7	91.7	91.8	91.8	91.8	91.9	91.9	92.0	92.0	92.0	92.1	92.1	92.1	92.1	92.2	92.2	92.2	92.2

**Mean Annual Mass Removal Efficiencies for 3.50-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.5	99.6	99.6	99.5	99.4	99.3	99.1	98.9	98.5	98.2	97.8	97.4	96.9	96.5	96.0	95.4	94.9	94.4	93.8	93.2
35	98.9	99.2	99.2	99.2	99.1	99.0	98.8	98.6	98.3	97.9	97.6	97.2	96.8	96.3	95.8	95.4	94.9	94.3	93.8	93.2
40	98.3	98.7	98.8	98.8	98.8	98.7	98.5	98.2	97.9	97.6	97.3	97.0	96.6	96.2	95.7	95.3	94.8	94.3	93.8	93.2
45	97.5	98.1	98.3	98.4	98.3	98.2	98.0	97.8	97.6	97.3	97.1	96.8	96.4	96.0	95.6	95.1	94.7	94.2	93.7	93.2
50	96.6	97.4	97.7	97.8	97.8	97.7	97.6	97.4	97.2	97.0	96.7	96.5	96.1	95.8	95.4	95.0	94.6	94.2	93.7	93.2
55	95.7	96.6	97.0	97.2	97.2	97.2	97.1	96.9	96.8	96.6	96.4	96.2	95.9	95.6	95.2	94.9	94.5	94.1	93.7	93.2
60	94.8	95.8	96.2	96.4	96.5	96.5	96.5	96.4	96.3	96.2	96.1	95.9	95.6	95.3	95.0	94.7	94.4	94.0	93.6	93.2
65	93.8	94.8	95.4	95.7	95.8	95.9	95.9	95.9	95.9	95.8	95.7	95.5	95.3	95.1	94.8	94.5	94.2	93.9	93.6	93.2
70	93.0	94.0	94.5	94.9	95.1	95.3	95.4	95.4	95.4	95.4	95.3	95.1	95.0	94.8	94.5	94.3	94.1	93.8	93.5	93.2
75	92.2	93.1	93.7	94.1	94.4	94.7	94.8	94.9	94.9	94.9	94.8	94.7	94.6	94.4	94.3	94.1	93.9	93.7	93.5	93.2
80	91.7	92.5	93.1	93.5	93.8	94.1	94.2	94.3	94.3	94.3	94.3	94.3	94.2	94.1	94.0	93.9	93.7	93.6	93.4	93.2
85	91.5	92.1	92.6	93.0	93.2	93.4	93.6	93.7	93.7	93.8	93.8	93.8	93.8	93.7	93.7	93.6	93.6	93.5	93.3	93.2
90	91.6	91.9	92.2	92.5	92.7	92.9	93.0	93.1	93.2	93.2	93.3	93.3	93.4	93.4	93.4	93.4	93.4	93.3	93.3	93.2
95	91.9	92.0	92.2	92.3	92.4	92.5	92.6	92.7	92.8	92.9	92.9	93.0	93.1	93.1	93.1	93.2	93.2	93.2	93.2	93.2
98	92.6	92.6	92.7	92.7	92.8	92.8	92.9	92.9	92.9	93.0	93.0	93.0	93.1	93.1	93.1	93.1	93.2	93.2	93.2	93.2

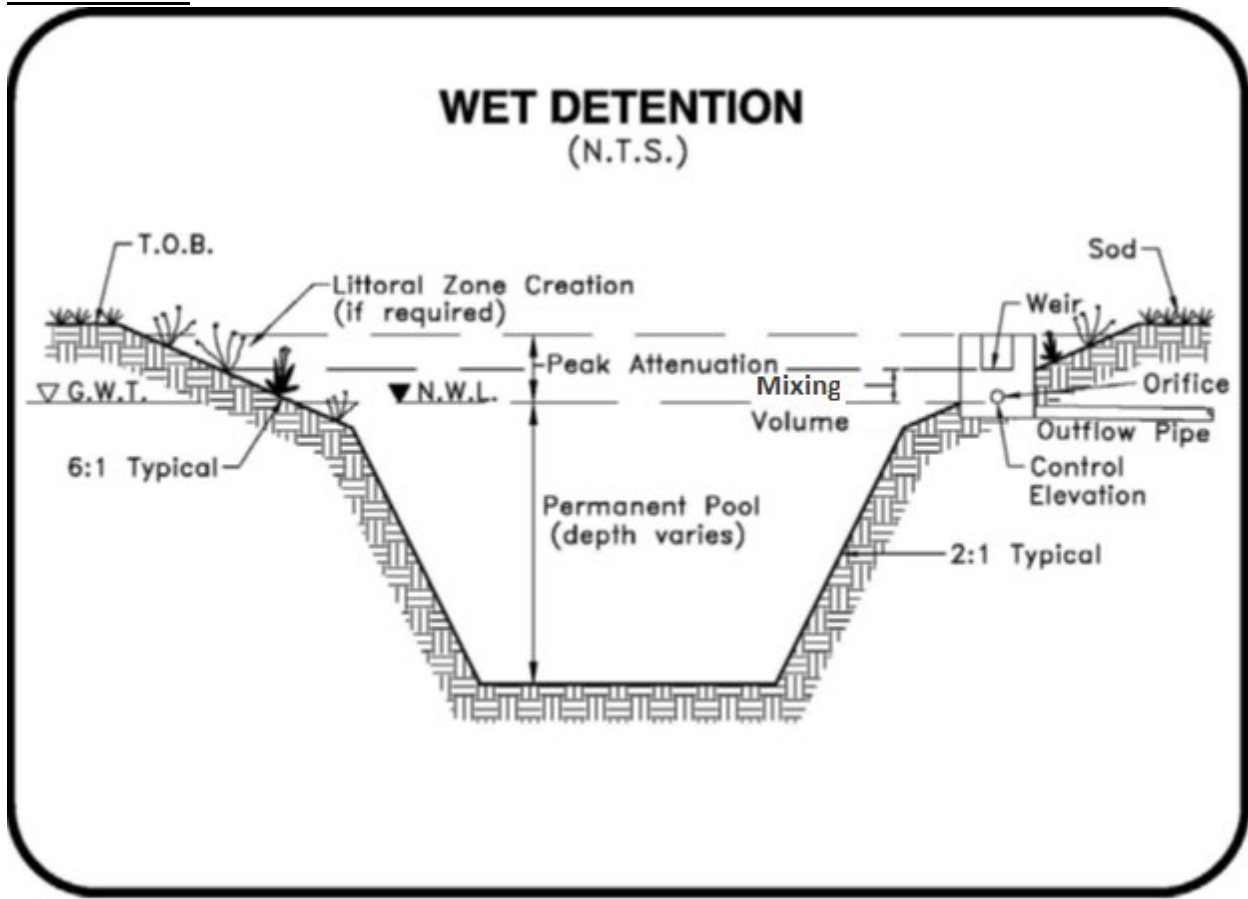
**Mean Annual Mass Removal Efficiencies for 3.75-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.7	99.7	99.7	99.6	99.5	99.4	99.3	99.1	98.8	98.5	98.2	97.8	97.4	97.0	96.5	96.1	95.6	95.1	94.6	94.1
35	99.1	99.3	99.4	99.3	99.3	99.2	99.0	98.8	98.6	98.3	98.0	97.6	97.3	96.9	96.4	96.0	95.5	95.1	94.6	94.1
40	98.6	98.9	99.0	99.0	99.0	98.9	98.7	98.5	98.3	98.0	97.7	97.4	97.1	96.7	96.3	95.9	95.4	95.0	94.5	94.1
45	97.9	98.4	98.6	98.6	98.6	98.5	98.4	98.2	98.0	97.7	97.5	97.2	96.9	96.5	96.2	95.8	95.4	95.0	94.5	94.1
50	97.1	97.8	98.1	98.2	98.2	98.1	98.0	97.8	97.6	97.4	97.2	96.9	96.7	96.4	96.0	95.7	95.3	94.9	94.5	94.1
55	96.4	97.1	97.5	97.6	97.6	97.6	97.5	97.4	97.2	97.0	96.9	96.7	96.4	96.2	95.9	95.5	95.2	94.8	94.5	94.1
60	95.5	96.4	96.8	96.9	97.0	97.0	97.0	96.9	96.8	96.7	96.6	96.4	96.2	95.9	95.7	95.4	95.1	94.7	94.4	94.1
65	94.7	95.5	96.0	96.3	96.4	96.5	96.4	96.4	96.4	96.3	96.2	96.1	95.9	95.7	95.5	95.2	94.9	94.7	94.4	94.1
70	93.9	94.7	95.3	95.5	95.7	95.8	95.9	95.9	95.9	95.9	95.9	95.7	95.6	95.4	95.2	95.0	94.8	94.6	94.3	94.1
75	93.2	94.0	94.5	94.8	95.1	95.2	95.4	95.5	95.5	95.5	95.4	95.4	95.3	95.1	95.0	94.8	94.7	94.5	94.3	94.1
80	92.6	93.3	93.8	94.2	94.5	94.7	94.9	95.0	95.0	95.0	95.0	95.0	94.9	94.8	94.7	94.6	94.5	94.4	94.2	94.1
85	92.5	93.0	93.4	93.8	94.0	94.2	94.3	94.4	94.5	94.5	94.5	94.6	94.5	94.5	94.4	94.4	94.3	94.3	94.2	94.1
90	92.6	92.9	93.1	93.3	93.5	93.7	93.8	93.9	94.0	94.1	94.1	94.1	94.2	94.2	94.2	94.2	94.2	94.1	94.1	94.1
95	92.9	93.0	93.1	93.2	93.3	93.4	93.5	93.6	93.7	93.7	93.8	93.8	93.9	93.9	94.0	94.0	94.0	94.0	94.0	94.1
98	93.5	93.5	93.6	93.6	93.6	93.7	93.7	93.8	93.8	93.8	93.9	93.9	93.9	93.9	94.0	94.0	94.0	94.0	94.0	94.1

**Mean Annual Mass Removal Efficiencies for 4.00-inches of Retention for Zone 5 by Percent DCIA**

Non DCIA CN	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
30	99.8	99.8	99.7	99.7	99.6	99.5	99.4	99.2	99.0	98.8	98.5	98.1	97.8	97.4	97.0	96.6	96.2	95.7	95.2	94.8
35	99.3	99.5	99.5	99.5	99.4	99.3	99.2	99.0	98.8	98.6	98.3	98.0	97.7	97.3	96.9	96.5	96.1	95.7	95.2	94.8
40	98.8	99.1	99.2	99.2	99.1	99.1	99.0	98.8	98.6	98.3	98.1	97.8	97.5	97.2	96.8	96.4	96.0	95.6	95.2	94.8
45	98.3	98.6	98.8	98.8	98.8	98.8	98.6	98.5	98.3	98.1	97.8	97.6	97.3	97.0	96.7	96.3	96.0	95.6	95.2	94.8
50	97.6	98.1	98.4	98.4	98.5	98.4	98.3	98.1	98.0	97.8	97.5	97.3	97.1	96.8	96.5	96.2	95.9	95.5	95.1	94.8
55	96.9	97.6	97.8	98.0	98.0	97.9	97.9	97.7	97.6	97.4	97.3	97.1	96.9	96.7	96.4	96.1	95.8	95.4	95.1	94.8
60	96.2	96.9	97.2	97.4	97.5	97.5	97.4	97.3	97.2	97.1	97.0	96.8	96.7	96.4	96.2	96.0	95.7	95.4	95.1	94.8
65	95.5	96.2	96.6	96.8	96.9	96.9	96.9	96.9	96.8	96.8	96.7	96.6	96.4	96.2	96.0	95.8	95.6	95.3	95.0	94.8
70	94.7	95.4	95.9	96.2	96.3	96.4	96.4	96.4	96.4	96.4	96.3	96.3	96.1	96.0	95.8	95.6	95.4	95.2	95.0	94.8
75	94.1	94.8	95.2	95.5	95.7	95.8	95.9	96.0	96.0	96.0	96.0	95.9	95.8	95.7	95.6	95.5	95.3	95.1	95.0	94.8
80	93.5	94.1	94.5	94.9	95.1	95.3	95.4	95.5	95.6	95.6	95.6	95.6	95.5	95.4	95.4	95.3	95.1	95.0	94.9	94.8
85	93.3	93.8	94.1	94.4	94.7	94.8	95.0	95.1	95.1	95.2	95.2	95.2	95.2	95.2	95.1	95.1	95.0	94.9	94.9	94.8
90	93.4	93.7	93.9	94.1	94.3	94.4	94.5	94.6	94.7	94.8	94.8	94.8	94.8	94.9	94.9	94.9	94.8	94.8	94.8	94.8
95	93.7	93.8	93.9	94.0	94.1	94.2	94.3	94.3	94.4	94.5	94.5	94.6	94.6	94.6	94.7	94.7	94.7	94.7	94.8	94.8
98	94.2	94.3	94.3	94.3	94.4	94.4	94.4	94.5	94.5	94.6	94.6	94.6	94.6	94.6	94.7	94.7	94.7	94.7	94.8	94.8

## Wet Detention



The most significant factor impacting the performance efficiency of a wet detention pond is the residence time within the system - specifically, the volume of the permanent pool with respect to the volume of runoff entering the pond. Since the specified treatment volumes are negligible in comparison to the permanent pool volume contained within the wet detention pond, the treatment volume criteria primarily regulates the drawdown characteristics of the wet detention pond and has little impact on the overall water quality performance efficiency of the system.

Residence time within a wet detention pond is determined by the relationship between the permanent pool volume and the annual runoff inputs, as follows:

$$\text{Average Annual Detention Time, } t_d (\text{days}) = \frac{PPV}{RO} \times \frac{365 \text{ days}}{\text{year}}$$

where:

PPV = permanent pool volume (ac-ft)

RO = annual runoff inputs (ac-ft/yr)

For purposes of this calculation, the permanent pool volume is considered to include the total volume of water within the pond below the control elevation.

TP percent removal equation

$$\text{Percent TP Removal} = 40.13 + 6.372 * \ln(t_d) + 0.213 * (\ln(t_d))^2$$

$$t_d = \text{Average Annual Residence Time (days)}$$

TN percent removal equation

$$\text{Percent TN Removal} = \frac{43.75 * t_d}{(4.38 + t_d)}$$

$$t_d = \text{Average Annual Residence Time (days)}$$

Limits to Average Annual Residence Time throughout the State

Maximum Average Annual Residence Time: 200 Days

Maximum Treatment Efficiency for TP at 200 days: 79.9

Maximum Treatment Efficiency for TN at 200 days: 42.8

Designers may use a longer maximum residence time if they provide evidence to support it.

### **Detention with Engineered Media and Filtration**

The treatment efficiency for these systems is calculated based on the following equation:

$$\begin{aligned} & \textit{Treatment efficiency for Detention Pond with Filtration} \\ & = \textit{(Detention efficiency for Volume of the water Detained in the system )} \\ & + \textit{(Volume of water filtered and not detained} \\ & * \textit{Treatment Efficency of Media)} \end{aligned}$$

### **Green Stormwater Infrastructure**

GSI and LID reduces pollution and treats stormwater by retaining rainfall near its source instead of directing it to a centralized pond or treatment system. When applied early in the design process, low impact design techniques can reduce stormwater runoff volume and pollutants generated from project sites. Thus, the use of GSI and LID may reduce stormwater treatment BMP size requirements. GSI and LID, depending on the technology, can also treat stormwater similar to a traditional BMP by treating TN and TP as a retention system.

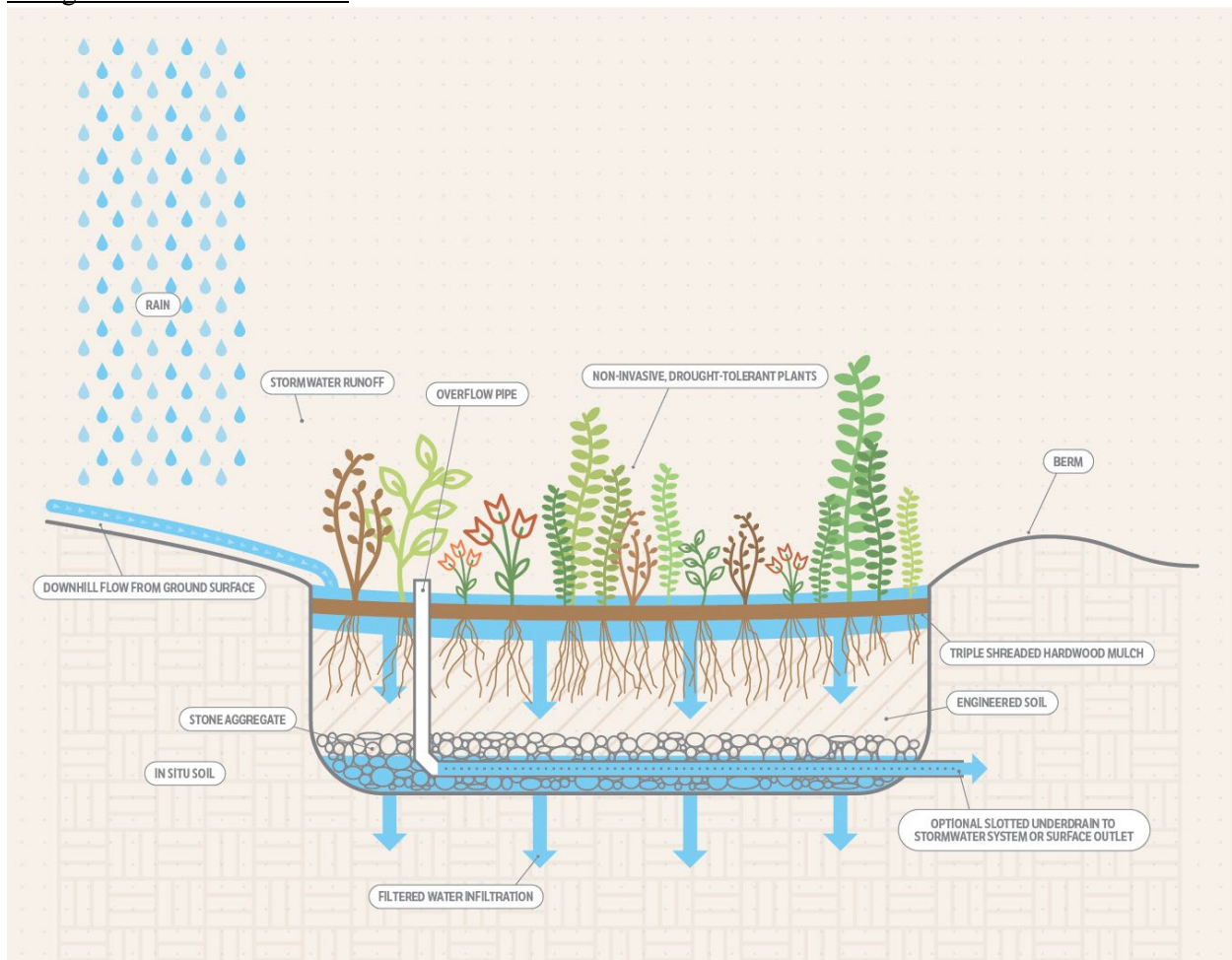
#### Swale

Swales are defined in Chapter 403.803(14), Florida Statutes, as follows: “Swale means a manmade trench which:

1. Has a top width to depth ratio of the cross-section equal to or greater than 6:1, or side slopes equal to or flatter than 3 feet horizontal to 1-foot vertical;
2. Contains contiguous areas of standing or flowing water only following a rainfall event;
3. Is planted with or has stabilized vegetation suitable for soil stabilization, stormwater treatment, and nutrient uptake; and
4. Is designed to take into account the soil erodibility, soil percolation, slope, slope length, and drainage area so as to prevent erosion and reduce pollutant concentration of any discharge.”
1. Swales are online retention systems and their treatment effectiveness is directly related to the amount of the annual stormwater volume that is infiltrated. Swales designed for stormwater treatment can be classified into two categories:
  - Swales with swale blocks or raised driveway culverts
  - Swales without swale blocks or raised driveway culverts
2. The nutrient reduction capability of these systems can be calculated in the same way as [Dry Retention System](#).



## Raingarden/Bioretention Cell

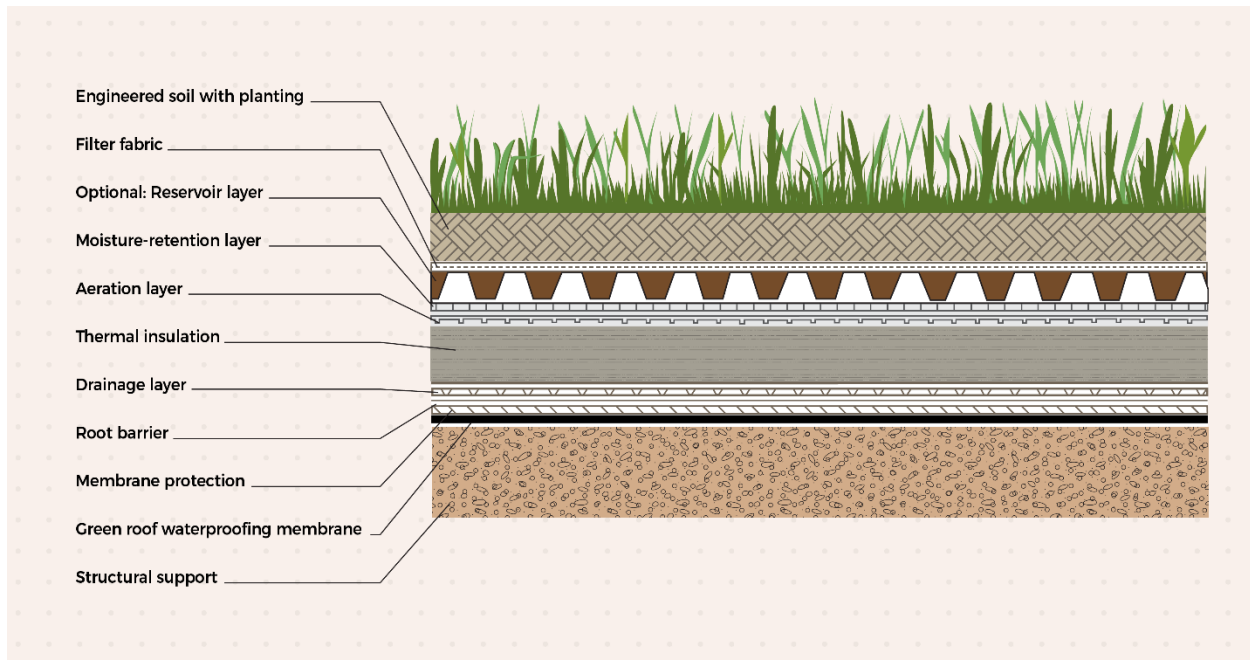


Bioretention cells, or commonly referred to as rain gardens, are shallow depressions with resilient plants that can handle temporary inundation/flooding and periods of drought. They allow stormwater to collect and soak directly into the soil.

Rain gardens vary in size and complexity. They can be planted to provide a food source for butterflies and other wildlife and can make a beautiful addition to the landscape.

The nutrient reduction capability of these systems can be calculated in the same way as [Dry Retention System](#).

## Green Roof

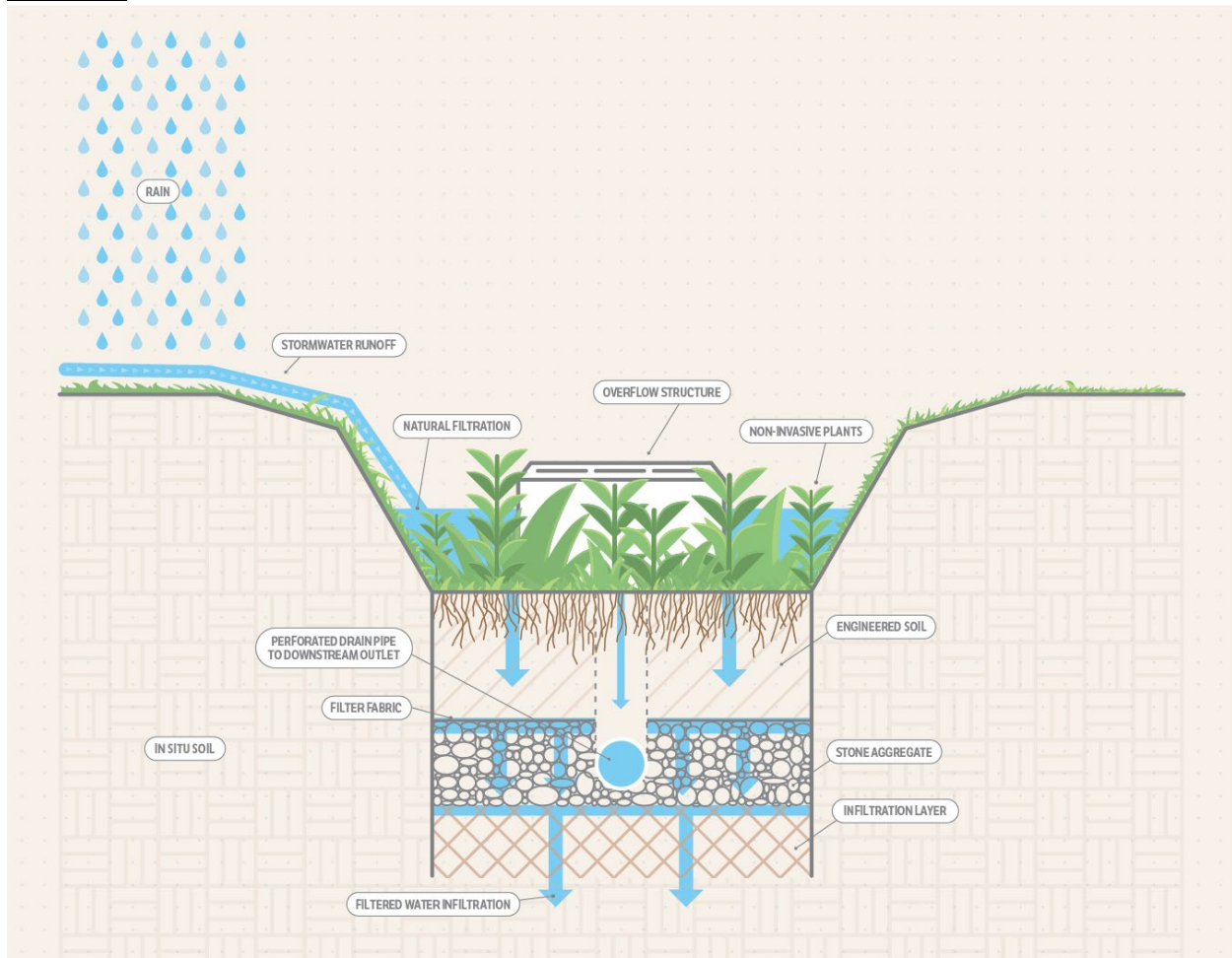


A green roof is a vegetated roof system where rainwater is taken up by plants and transpired into the air to reduce rainwater runoff from the roof. Green roofs provide an extra layer of insulation that reduces heating and cooling costs and are likely to extend the life of the roof by up to 10-20 years. Green roof vegetation enhances the building’s appearance, improves air quality and reduces the urban heat island effect.

Well-designed green roofs include subsystems for drainage, plant nourishment and support, and protect underlying waterproofing systems. Green roofs maintain growing conditions and manage heavy rainfall without sustaining damage from high winds, erosion or pooling water. Green roof engineered soil meets specific requirements, including grain-size, air spaces and moisture retention to store rainfall and support plants that meet site-specific “right plant-right place” requirements.

The nutrient reduction capability of these systems can be calculated in the same way as [Dry Retention System](#).

## Bio Swale



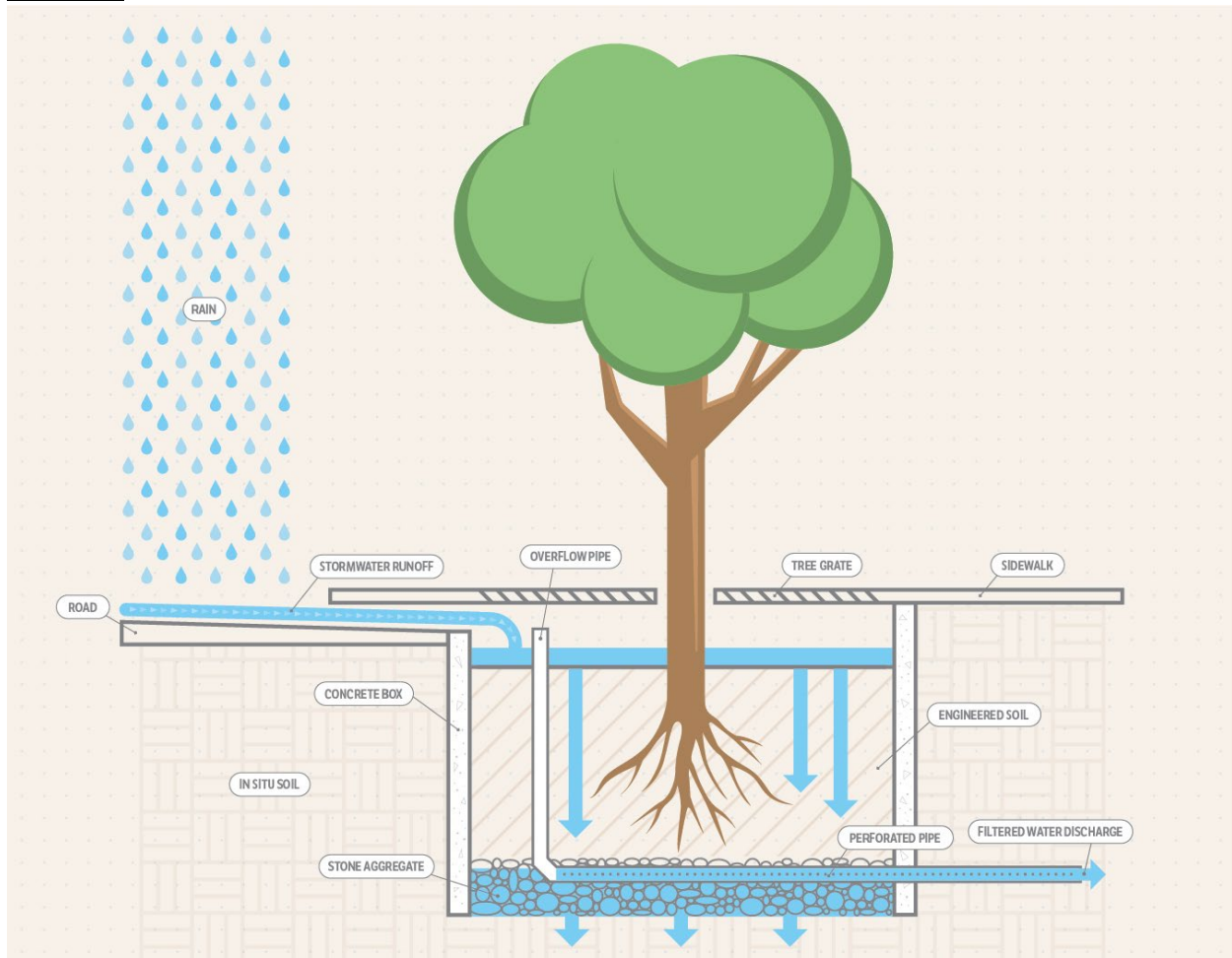
A Bioswale is an alternative to concrete gutters and storm sewers for directing stormwater away from roadways or structures. They use vegetated low-lying areas and specialized soil mixes to treat, absorb and convey lower volumes of stormwater runoff to larger treatment systems.

In many ways, bioswales imitate the function of small natural creeks or streams. Because they are linear, bioswales are effective when placed along streets and within parking lots. Essentially a shallow trench or ditch, bioswales can be cost-effective to implement and can help slow foot traffic near businesses.

Bioswales provide landscaping that, depending on the plant species chosen, may create habitats for birds, butterflies and local wildlife.

The nutrient reduction capability of these systems can be calculated in the same way as [Dry Retention System](#).

## Tree Well



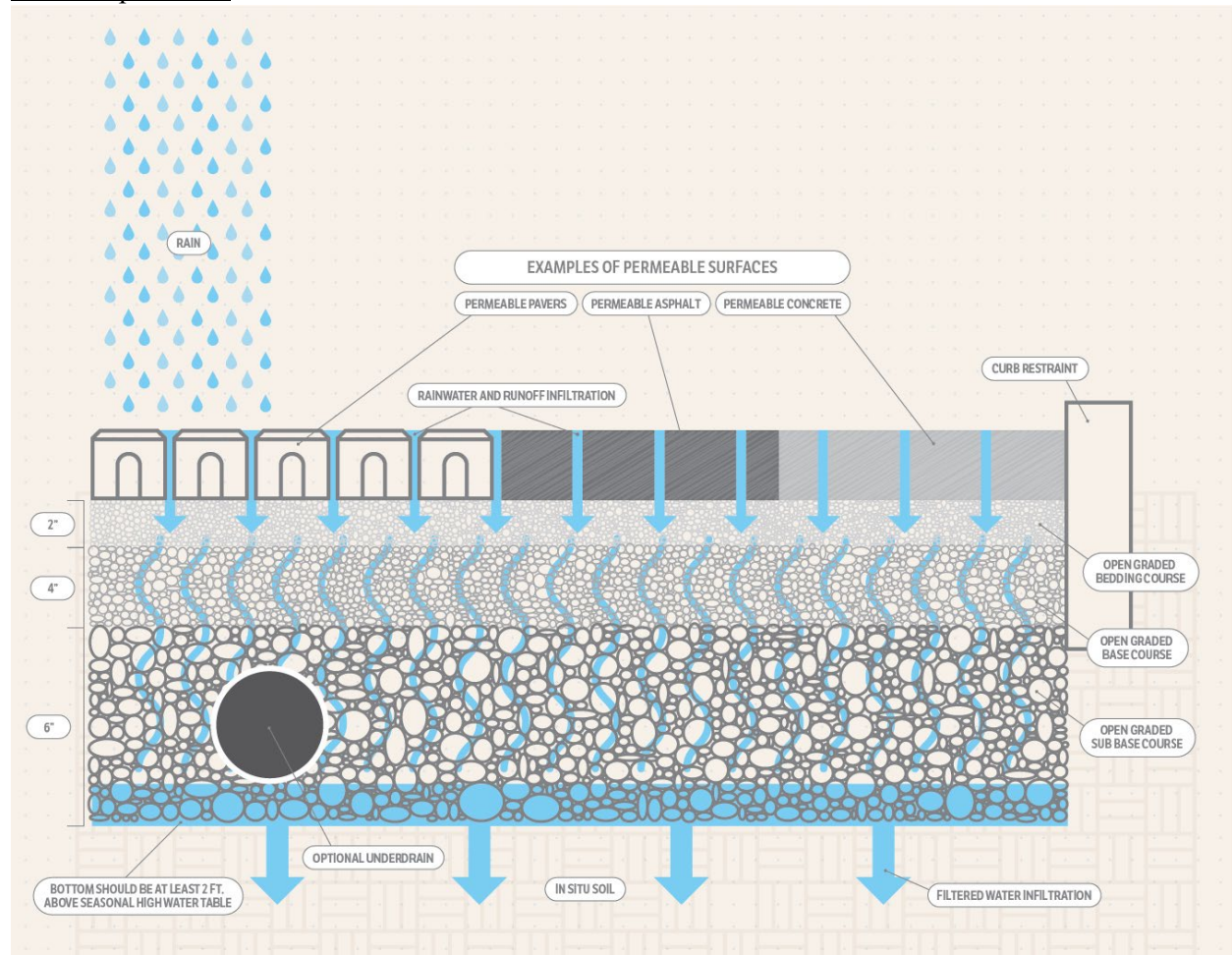
Tree boxes provide direct filtration of runoff while also intercepting rain as it falls onto the leaves and branches of the non-invasive plant life. Tree boxes also reduce the urban heat island effect, offer shady relief from the sun and draw foot traffic to nearby business based on their aesthetically pleasing nature.

The boxes are typically installed on the street side of sidewalks, with long, narrow storage volumes below the pavement. Runoff is eliminated through a combination of trees taking up water (and nutrients), percolating into the ground and discharging to stormwater systems. Pollutants are removed as they pass through the soil media in the “box” and as trees absorb and filter pollutants.

The nutrient reduction capability of these systems can be calculated in the same way as [Dry Retention System](#).



## Pervious pavement



Permeable pavement, which can be composed of pervious concrete, porous asphalt or interlocking pavers, quickly percolate rainwater where it falls as well as runoff from adjacent areas, allowing it to slowly soak into ground.

Parking lots, which make up a substantial portion of developed land areas, can be retrofitted or built with pervious surfaces from the start to significantly reduce runoff volumes.

Pervious pavement can be constructed to be similar in appearance to conventional asphalt surfacing, while pavers can be used to create intricate pavement designs. The implementation of pervious pavement of all types is often particularly cost-effective in places with high land values and recurrent nuisance flooding.

The nutrient reduction capability of these systems can be calculated in the same way as [Dry Retention System](#).