APPENDIX I

Methodology for Compilation of the Master Funding Database

In support of the ARC project, a Master Funding Database (MFDB) was developed that documents the source and the destination of all public funding for water and wastewater infrastructure in the thirteen Appalachian states over a four-year period (2000–2003). The data originate from forty-eight sources.

The database structure loosely parallels the EFC/ARC contacts database, which identifies each program by name, contact, and two identification numbers (fund and program). There are eight types of funds (subdivided by each state) and sixty-three types of programs, with some overlap.

The funding sources chosen were based a number of criteria and consulted resources, including previous water and wastewater infrastructure funding analyses and reports, if the program allocated greater than $1 million annually, Internet research, inquiries with funding personnel, and EFC personnel experiences. Data requests were submitted to fund managers, fund directors, and database personnel via e-mail, telephone, and Freedom of Information Act letters. The requests were for information that described the amount of funding allocated to each municipality or county in the state from January 1, 2000, through December 31, 2003, for projects related to drinking water and wastewater (refer to Table I-1: MFDB Data Sources).

All original raw data have been retained. The data were received, analyzed, and translated into the MFDB format based on fund (name and identification number), program (name and identification number), applicant name, and amount. Spatial information included state, EPA region, county name, county Federal Information Processing Standard (FIPS) number, county population (from the 2000 Census), county area, municipality name, and municipality FIPS

number. (Although the database has fields for further analysis of municipalities, most data provided did not include this level of detail.) The year the funding was allocated is based on a commitment date, an award date, or an "unidentified" date. (Refer to Table I-2: MFDB Column Titles and Descriptions.)

Descriptive data for each record were tracked if provided by the original data source. Descriptive data included the subject (e.g. water line extension), a use designation (clean water, drinking water, mix, or not identified), and funding type (grant, loan, or mix). A loan interest rate and repayment period were tracked if provided. Additional fields included an ARC region confirmation (yes/no), the data source, and miscellaneous UNCEFC notes. Finally, a unique MFDB code for each funding record was applied (by which the data are sorted by fund identification, then program identification, and then applicant name).

Some data records indicated that a funding quantity was applied to multiple counties. In these situations the funding amount was divided equally by UNCEFC among the counties. For example, for a $400,000 loan provided to a utility system that serviced four counties, UNCEFC replaced the single $400,000 record with four separate records of $100,000 to each county the utility serviced.

Some of the programs included in this analysis provide funding for many aspects of economic development. For these programs a record-by-record review of the subject description was required, and professional judgment was used to confirm that the funding use was for water or wastewater infrastructure. Records that were not for water or wastewater infrastructure projects were not included in this analysis.

A per capita analysis was conducted through the development of a second database with 1,101 records (correlating to all 1,101 counties in the thirteen ARC states—not just the ARC region itself). This database has 194 possible fields for each of the 1,101 counties. The fields fall into four broad categories (total

funding, average annual funding, total funding per capita over four years, and average annual funding per capita for each county) for each funding program. Virginia has both counties and independent cities. The spreadsheets track the independent cities as counties.

Data access is via Microsoft Excel. The MFDB database is most easily accessible via the pivot table function. To maintain database integrity, the pivot tables are not saved, but the resulting graphs and charts are saved as separate files.

There are a number of database limitations:

- The resolution is at the county (not the municipality or the state) level.
- Extensive reliance has been placed on the source data, and on communications with the funding personnel.
- Temporal issues arise from different fiscal years and from some programs trying to allocate lots of funding over a short time period. The MFDB uses a four-year calendar timeline to try to standardize time across programs. In addition, the year the funding was allocated is based on a commitment date, an award date, or an "unidentified" date.
- A portion of the HUD–CDBG funding data (from the Non-Entitlement Cities program) did not provide the name of the county, the community, and/or the municipality that received the funds—only the state. As a result, the county is not identified for these data and is not included in most analyses. This limitation applies only to four states (Maryland, Mississippi, New York, and Pennsylvania) and accounts for about 5 percent of the total CDBG funds in the 1,101-county region, 11 percent of the total CDBG funds in the ARC region.
- The CWSRF and DWSRF data for non–ARC New York counties were not available and are not included in this analysis.

- Data for calendar year 2003 from the Georgia Regional Assistance Program were not available and are not included in this analysis.
- Funding data from the U.S. Army Corps of Engineers were not researched. However, there are five Army Corps of Engineers records in the MFDB because it was determined that these were significant enough to be included (refer to the database for specific projects).

Data were verified throughout the data manipulation process by careful review and rechecking of manipulated and keyed-in data. In the final stages of database development, input from selected state funding personnel was used to confirm that the quantities looked appropriate. Each record that was split by UNCEFC into separate counties was checked and rechecked to confirm that the arithmetic was correct. The largest and smallest financial allocations were reviewed and confirmed based on the raw data received.

Future database management includes appropriate access (via pivot tables and charts saved as separate files). Annual updates from each program would be required to keep the database current.

Table I-1. MFDB Data Sources (Major Water and Wastewater Funding Programs in the Appalachian Region)

Program Name
Federal Programs
SRF—Clean Water Program
USDA—RUS Water and Wastewater Disposal Loans and Grants
SRF—Drinking Water Program
HUD–CDBG
STAG
ARC—Area Development, Economic Development, and Grant Programs
EDA—Public Works Program (Approx. 5% of EDA funds were not used in this analysis)
State-Specific Programs
West Virginia Infrastructure & Jobs Development Loan Program
Pennsylvania State Revolving Fund (Clean Water and Drinking Water—State Source)
West Virginia Water Development Authority
Georgia Fund Loan Program
West Virginia Infrastructure & Jobs Development Grant Program

Program Name
Tennessee Municipal Bond Fund
Ohio Water Development Authority
Ohio OPWC State Capital Improvements Program
New York Clean Water/Clean Air Bond Act—Safe DW Portion
Kentucky Coal and Tobacco Development Fund Program
North Carolina Revolving Loan & Grant Program: High Unit Cost Grants; Clean Water
Kentucky Wastewater Construction
Kentucky 2020 Water Services Account Program
Kentucky Single County Coal Program
North Carolina Revolving Loan & Grant Program: High Unit Cost Fund; Drinking Water
Virginia Pooled Financing Program
Kentucky Coal Severance Tax Receipts (KIA portion only)
Kentucky Flexible Term Finance Program
North Carolina Supplemental Grants Program
North Carolina Unsewered Communities Grants Program
North Carolina Clean Water Management Trust Fund
South Carolina Water and Wastewater Infrastructure Fund
Maryland Supplemental Assistance Program
Kentucky Infrastructure Revolving Loan (Fund B)
Maryland Drinking Water Supply Assistance Program
South Carolina Budget and Control Board Grant Program
New York Financial Assistance to Business—Water Program
Georgia Equity Fund Program
Mississippi Capital Improvements Revolving Loan Program
North Carolina Capacity Building Grants Program
US Army Corps of Engineers (only includes select records)
Georgia Regional Assistance Program (2003 data not included)

Table I-2. MFDB Column Titles and Descriptions

Col-umn	Column Title	Example	Description
A	MFDB ID	21234	A unique ID number for each record (based sorting first by Fund Keyword ID, then Program ID, then Applicant Name)
B	Fund Keyword ID	24	There are 8 different fund types, subdivided by each state; parallels the ARC Contacts Database
C	Fund Name	State Specific	There are 8 different fund types, subdivided by each state; parallels the ARC Contacts Database
D	Program ID	59	There are 63 different program types; parallels the ARC Contacts Database
E	Program Name	North Carolina Capacity Building Grants Program	There are 63 different program types; parallels the ARC Contacts Database

Col-umn	Column Title	Example	Description
F	Applicant Name	Nettleton	The destination of funds. Generated from original data source, (there are many inconsistencies with this field between programs)
G	Year	2003	The year the funding was allocated. Generated from original data source
H	Year (C)ommitted, (A)warded, (U)nknown	C	A qualifier for the year. Generated from original data source
I	ST	MD	Generated from original data source
J	Region	III	EPA Region
K	County	Washington	Generated from original data source, some manipulation may have been needed (refer to either 'EFC_Notes' and/or the original raw data files)
L	FIPS_txt	37100	County FIPS Number in text (not number) format
M	ARC Y/N	N	Determination if the county is within the ARC (based on ARC FY 2004 map)
N	PlaceName	Nettleton	The destination of funds. Generated from original data source, (there are many inconsistencies with this field between programs)
O	PlaceFIPS	100124	The Place FIPS Number, this field is pending for most records
P	All Programs ($)	40,000	Sum of SRF-CW, SRF-DW, EDA, USDA-Grant, USDA-Loan, CDBG, ARC, STAG & State Specific Columns
Q	All Progs Per Capita by Co.	3.09	Amount of Funding provided by All Programs divided by the county population (This field was NOT used for the County analysis, refer to MFDB by County.xls)
R	SRF-CW	10,000	Amount from SRF Clean Water records
S	SRF-DW	10,000	Amount from SRF Drinking Water records
T	EDA	10,000	Amount from EDA records
U	USDA-Grant	10,000	Amount from USDA Grant records
V	USDA-Loan	10,000	Amount from USDA Loan records
W	CDBG	10,000	Amount from CDBG records
X	ARC	10,000	Amount from ARC records
Y	STAG	10,000	Amount from STAG records
Z	State Specific Program ($)	40,000	Amount from the State Specific program records
AA	State Specific Program Name	North Carolina Capacity Building Grants Program	There are 63 different program types; parallels the ARC Contacts Database
AB	State Specific Program ID	59	There are 63 different program types; parallels the ARC Contacts Database
AC	Description_Subj	Install 800 LF	If provided by the original data source, included

Col-umn	Column Title	Example	Description
	ect	of 4 inch main on North Madison St.	these descriptions
AD	Description (CW, DW, Not ID'd)	Not Identified	If provided in the original data source (for drinking water versus clean water analyses)
AE	Description (Loan, Grant, Mix)	Grant	If provided in the original data source (for loan versus grant analyses)
AF	Loan Interest Rate	0.0464	From the original data source (Jeff H had strong opinions about NOT using this data)
AG	Loan Repayment Period (Years)	20	From the original data source (Jeff H had strong opinions about NOT using this data)
AH	EFC's DataSource	Mr. B. McClintock, Financial Analyst, New York State Environmental Facilities Corporation	Source of record
AI	Dataset includes All COs in State (Y/N)	Y	To identify a data qualifier used database QA/QC non-ARC counties analyses
AJ	EFC_Notes	Funding associated with this record originally applied to 2 counties. The funding was split evenly between the 2 counties.	Miscellaneous notes by EFC personnel
AK	CDBG_ENTITLEMENT_CITY	Non-Entitlement City	Applies only to the CDBG records, identifies from which CDBG funding sources the money originated from
AL	Co_Pop_2000	12934	County Population data from 2000 Census Long Form
AM	Co_AREA	321.8493	County Area Data in square miles; from 2000 Census Long Form

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