



Tennessee Valley Authority, 1101 Market Street, LP 5A, Chattanooga, Tennessee 37402-2801

February 12, 2010

10 CFR 52.79

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

In the Matter of)
Tennessee Valley Authority)

Docket No. 52-014 and 52-015

BELLEFONTE UNITS 3 AND 4, COMBINED LICENSE APPLICATION - RESPONSE TO
REQUEST FOR ADDITIONAL INFORMATION - HYDROLOGY PROBABLE MAXIMUM
FLOOD LEVEL CALCULATIONS

- References: (1) Letter from Joseph Sebrosky (NRC) to Andrea Sterdis (TVA), Request for Additional Information Letter No. 158 Related to SRP Section 2.4.3 for the Bellefonte Units 3 and 4 Combined License Application, dated May 12, 2009.
- (2) Letter from Jack A. Bailey (TVA) to Document Control Desk(NRC), Bellefonte Combined License Application-Periodic Update-Hydrology, dated February 2, 2010.
- (3) Letter from Jack A. Bailey (TVA) to Document Control Desk(NRC), Bellefonte Combined License Application-Periodic Update-Hydrology, dated February 3, 2010.
- (4) Letter from Andrea L. Sterdis (TVA) to Document Control Desk(NRC), Bellefonte Combined License Application-Periodic Update-Hydrology, dated February 11, 2010.¹
- (5) Letter from Andrea L. Sterdis (TVA) to Document Control Desk(NRC), Bellefonte Combined License Application-Periodic Update-Hydrology, dated February 8, 2010.

This letter provides the Tennessee Valley Authority's (TVA) supplemental response to the Nuclear Regulatory Commission's (NRC) request for additional information (RAI) items included in Reference 1. This response supplements TVA's previous responses provided in References 2, 3, 4 and 5. This supplement completes TVA's response to this RAI 158.


¹ RAI 158 Supplement 2(Reference (4)) was resent to NRC Document Control Desk on 02/11/2010.

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NRC

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If you should have any questions, please contact Tom Ryan at 1101 Market Street, LP5A, Chattanooga, Tennessee 37402-2801, by telephone at (423) 751-2596, or via email at wtryan@tva.gov.

I declare under penalty of perjury that the foregoing is true and correct.
Executed on this 12th day of Feb, 2010.



Andrea L. Sterdis
Manager, New Nuclear Licensing and Industry Affairs
Nuclear Generation Development

Enclosure
cc: See Page 3

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cc: (w/ Enclosures)

S. Frantz, Morgan Lewis
A. Monroe, Scana
A. Bhatnagar, TVA
C. Pierce, Southern Co.
G. Zonke, Entergy
P. Hinnenkamp, Entergy
M. Comar, NRC
L. Reyes, NRC
M. Hood, NRC
M. Kray, Exelon
M. Gettler, FPL
P. Hastings, Duke Energy
R. Grumbir, ExcelServices
R. Kitchen, PGN

cc: (w/o Enclosure)

G. Arent
J. Bailey
A. Sterdis
E. Viglucci
C. Chandler
S. Vance
W. Ryan
T. Spink
P. Willingham
C. Haynes
S. McCrary

Enclosure
 TVA letter dated February 12, 2010
 RAI Response

Responses to NRC Request for Additional Information letter No. 158 dated May 12, 2009
 (3 pages, including this list)
 Subject: Hydrology Probable Maximum Flood Level Calculations

RAI Number Date of TVA Response
 02.04.03-08 February 2, 2010; Supplemented by this letter – see following pages

<u>Associated Additional Attachments / Enclosures</u>		<u>Pages Included</u>
Attachment 02.04.03-08A	RAI 158 Supplement 4 Calculation List	27 pages
Attachment 02.04.03-08B	SOCH Model Calibration, Fort Loudon-Tellico CDQ000020080036	329 pages
Attachment 02.04.03-08C	SOCH Model Calibration, Watts Bar CDQ000020080037	157 pages
Attachment 02.04.03-08D	SOCH Model Calibration, Melton Hill CDQ000020080038	1458 pages
Attachment 02.04.03-08E	SOCH Model Calibration, Chickamauga CDQ000020080039	126 pages
Attachment 02.04.03-08F	SOCH Model Calibration, Nickajack CDQ000020080040	178 pages
Attachment 02.04.03-08G	SOCH Model Calibration, Guntersville CDQ000020080041	1512 pages

NRC Letter Dated: May 12, 2009

NRC Review of Final Safety Analysis Report

NRC RAI NUMBER: 02.04.03-08

TVA presents calculation of the probable maximum flood (PMF) height at the Bellefonte COL Site in Section 2.4.3 of the FSAR. These calculations address regulatory requirements associated with General Design Criterion 2 and 10 CFR 100.20(c). TVA has continued to develop its analysis since the FSAR was submitted, and has developed additional calculation packages/documents associated with computation of the PMF height. The specifics of this

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analysis were discussed during a March 30, 2009 public meeting held at NRC Headquarters (see ML091180052 and ML0911204490). The NRC staff requests that TVA provide the following input deliverables:

- (a) V&V Docs (16 docs; April 2009)1
- (b) UH Calcs – Rev 0 (17 calcs; April 2009)
- (c) UH Calcs – Rev 1 (5 calcs; June 2009)
- (d) Dam Rating Curves (20 calcs; March 2009)
- (e) SOCH Calibrations (6 calcs; July 2009)
- (f) Other Input Calcs (3 calcs; April 2009)

The titles of these input deliverables follow the naming convention used by TVA on Slide 10 of its March 30, 2009 presentation (see ML091180052). The number of calculations/documents and the anticipated TVA completion date are shown in parenthesis. This information also originates from Slide 10 of the presentation.

Enclosure

1) TVA can provide the information in item (a) above on the docket or provide the information in reading rooms to which NRC and its' contractors have access.

BLN RAI ID: 2778

BLN RESPONSE:

TVA is providing BLN Hydrology Calculation List to support the information requested in the associated RAI request. See attached Attachment 02.04.03-08A, "BLN Hydrology Project Calculation List" for the documents and disks that are associated with this submittal.

This response is PLANT-SPECIFIC.

ASSOCIATED BLN COL APPLICATION REVISIONS:

None

ASSOCIATED ATTACHMENTS/ENCLOSURES:

Attachment 02.04.03-08A	BLN Hydrology Project	RAI 158 Supplement 4 Calculation List
Attachment 02.04.03-08B	CDQ000020080036	SOCH Model Calibration, Fort Loudon-Tellico CDQ000020080036

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Attachment 02.04.03-08C	CDQ000020080037	SOCH Model Calibration, Watts Bar CDQ000020080037
Attachment 02.04.03-08D	CDQ000020080038	SOCH Model Calibration, Melton Hill CDQ000020080038
Attachment 02.04.03-08E	CDQ000020080039	SOCH Model Calibration, Chickamauga CDQ000020080039
Attachment 02.04.03-08F	CDQ000020080040	SOCH Model Calibration, Nickajack CDQ000020080040
Attachment 02.04.03-08G	CDQ000020080041	SOCH Model Calibration, Guntersville

Attachment 02.04.03-08A
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ASSOCIATED ATTACHMENTS/ENCLOSURES:

Attachment 02.04.03-8A: BLN Hydrology Project RAI 158 Supplement 4 Calculation List

(27 Pages including Cover Sheet)

Calculation **CDQ000020080036, Rev. 1**

Title **SOCH Model Calibration, Fort Loudoun-Tellico**

EDMS Number: **L58 091230 008**

Summary

Total Hard Copy Pages:	<u>328</u>
Total Electronic Files on DVD:	<u>164</u>

File Inventory for NRC Documentation Submittal

	<u>Type</u>	<u>Pages</u>	<u>NRC ADAMS Form</u>
Calculation Main Body	pdf	152	Paper
<u>Electronic Attachments</u>			
Appendix A_Final Manning's n, SOCH Geometry, and Calibration Graphs.pdf	pdf	1	Paper
49XS_LittleTNSOCH_100Kto600K_SteadyState_Profiles.xls	xls	NA	File
Canal Rev1.geo	geo	NA	File
FrBroadHEC_RAS_SteadyState_Profiles.xls	xls	NA	File
FrBroadSOCH_SteadyState_Profiles.xls	xls	NA	File
French Broad Rev 2.geo	geo	NA	File
FtLoudoun Rev3.geo	geo	NA	File
FtLoudoun_FinalManningsn.xls	xls	NA	File
FtLoudoun_SOCH_SteadyState_Profiles.xls	xls	NA	File
FtLoudounHEC_RAS_SteadyState_Profiles.xls	xls	NA	File
Holston Rev3.geo	geo	NA	File
HolstonHEC_RAS_SteadyState_Profiles.xls	xls	NA	File
HolstonSOCH_SteadyState_Profiles.xls	xls	NA	File
LittleTNHEC_RAS_SteadyState_Profiles.xls	xls	NA	File
Observed vs. SOCH Mar 1973 Hydrographs.xls	xls	NA	File
Remove7_45Observed vs. SOCH May 2003 Hydrographs.xls	xls	NA	File
Tellico Rev4.geo	geo	NA	File

Appendix B_Unit_Hydrograph_Modifications.pdf	pdf	11	Paper
DistHyd_FBroad1973.bnd	bnd	NA	File
DistHyd_FBroad1973.dat	dat	NA	File
DistHyd_FBroad1973.loc	loc	NA	File
DistHyd_FBroad1973.out	out	NA	File
DistHyd_FBroad1973.prt	prt	NA	File
DistHyd_FBroad1973.run	run	NA	File
DistHyd_FBroad1973.sto	sto	NA	File
DistHyd_Holston_1973.bnd	bnd	NA	File
DistHyd_Holston_1973.dat	dat	NA	File
DistHyd_Holston_1973.loc	loc	NA	File
DistHyd_Holston_1973.out	out	NA	File
DistHyd_Holston_1973.prt	prt	NA	File
DistHyd_Holston_1973.run	run	NA	File
DistHyd_Holston_1973.sto	sto	NA	File
DistHydDevelopment_Holston_1973_BuildSOCHdata.xls	xls	NA	File
DistLocalHyd_FrenchBroadOnly_1973_BuildSOCHdata.xls	xls	NA	File
Distributed_vs_Point_Local_Graphs.xls	xls	NA	File
DistributedHydrographs.xls	xls	NA	File
DistributedLocalHydrographGraph.xls	xls	NA	File
HolstonFlood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
PointHyd_FBroad1973.bnd	bnd	NA	File
PointHyd_FBroad1973.dat	dat	NA	File
PointHyd_FBroad1973.loc	loc	NA	File
PointHyd_FBroad1973.out	out	NA	File
PointHyd_FBroad1973.prt	prt	NA	File
PointHyd_FBroad1973.run	run	NA	File
PointHyd_FBroad1973.sto	sto	NA	File
PointHyd_Holston_1973.bnd	bnd	NA	File
PointHyd_Holston_1973.dat	dat	NA	File
PointHyd_Holston_1973.loc	loc	NA	File
PointHyd_Holston_1973.out	out	NA	File

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PointHyd_Holston_1973.prt	prt	NA	File
PointHyd_Holston_1973.run	run	NA	File
PointHyd_Holston_1973.sto	sto	NA	File
PointHydDevelopment_Holston_1973_BuildSOCHdata.xls	xls	NA	File
PointLocalHyd_FrenchBroadOnly_1973_BuildSOCHdata.xls	xls	NA	File
PointLocalHydrographGraph.xls	xls	NA	File
Appendix C_Cross-Section_Modifications.pdf	pdf	22	Paper
Appendix D_SOCH Input Files, Steady-State.pdf	pdf	1	Paper
1footslices_FB and Holston 100Kto1400K-59 Cross-sections.bnd	bnd	NA	File
1footslices_FtLoudoun_Calibrate_100Kto1400K-59 Cross-sections.dat	dat	NA	File
1ftsections_49XS_Douglas65Kto845K.bnd	bnd	NA	File
1ftsections_49XS_FrenchBroad_Calibrate_65Kto845K.dat	dat	NA	File
49XS_Chilhowee100Kto600K.bnd	bnd	NA	File
49XS_LittleTN_Calibrate_100Kto600K.dat	dat	NA	File
Cherokee35Kto490K.bnd	bnd	NA	File
Holston_Calibrate_35Kto490K.dat	dat	NA	File
Appendix E_SOCH Input Files, March 1973.pdf	pdf	1	Paper
FtLoudoun_Holston_FBroad1973.bnd	bnd	NA	File
FtLoudoun_Holston_FBroad1973.dat	dat	NA	File
FtLoudoun_Holston_FBroad1973.loc	loc	NA	File
Appendix F_SOCH Input Files, May 2003.pdf	pdf	1	Paper
DistLocalRemove7_45_FtLoudoun_EL_LittleT_Q_2003.bnd	bnd	NA	File
DistLocalRemove7_45_FtLoudoun_EL_LittleT_Q_2003.dat	dat	NA	File
DistLocalRemove7_45_FtLoudoun_EL_LittleT_Q_2003.loc	loc	NA	File
Appendix G_SOCH Output Files, Steady State.pdf	pdf	1	Paper
1footslices_FtLoudoun_Calibrate_100Kto1400K-59 Cross-sections.out	out	NA	File
1ftsections_49XS_FrenchBroad_Calibrate_65Kto845K.out	out	NA	File
49XS_LittleTN_Calibrate_100Kto600K.out	out	NA	File
Holston_Calibrate_35Kto490K.out	out	NA	File
Appendix H_SOCH Output Files, March 1973.pdf	pdf	1	Paper

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FtLoudoun_Holston_FBroad1973.out	out	NA	File
FtLoudoun_Holston_FBroad1973.prt	prt	NA	File
Appendix I_SOCH Output Files, May 2003.pdf	pdf	1	Paper
DistLocalRemove7_45_FtLoudoun_EL_LittleT_Q_2003.out	out	NA	File
DistLocalRemove7_45_FtLoudoun_EL_LittleT_Q_2003.prt	prt	NA	File
Appendix J_Calibrated Steady-State HEC-RAS Model.pdf	pdf	1	Paper
Fort Loudoun100K.f06	f06	NA	File
Fort Loudoun100K.f08	f08	NA	File
Fort Loudoun100K.g12	g12	NA	File
Fort Loudoun100K.p60	p60	NA	File
Fort Loudoun100K.prj	prj	NA	File
FrBroadR.f02	f02	NA	File
FrBroadR.f03	f03	NA	File
FrBroadR.g17	g17	NA	File
FrBroadR.p63	p63	NA	File
FBroadR.prj	prj	NA	File
Holston.f02	f02	NA	File
Holston.f03	f03	NA	File
Holston.f04	f04	NA	File
Holston.g06	g06	NA	File
Holston.p42	p42	NA	File
Holston.prj	prj	NA	File
LittleTNRiver.f04	f04	NA	File
LittleTNRiver.f05	f05	NA	File
LittleTNRiver.f06	f06	NA	File
LittleTNRiver.g06	g06	NA	File
LittleTNRiver.p22	p22	NA	File
LittleTNRiver.prj	prj	NA	File
Appendix K- Convey Files and SOCH Geometry Files.pdf	pdf	1	Paper
Canal Rev1.geo	geo	NA	File
Canal20090713.geo	geo	NA	File
Fort Loudoun100K.g10	g10	NA	File

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FrBroadR.g16	g16	NA	File
French Broad CONVEY20090721cal a.dat	dat	NA	File
French Broad CONVEY20090721cal a.out	out	NA	File
French Broad CONVEY20090721cal a.prt	prt	NA	File
French Broad CONVEY20090721cal b.dat	dat	NA	File
French Broad CONVEY20090721cal b.out	out	NA	File
French Broad CONVEY20090721cal b.prt	prt	NA	File
French Broad CONVEY20090721.xls	xls	NA	File
French Broad Rev2.geo	geo	NA	File
FrenchBroad20090720.geo	geo	NA	File
FtLoudoun Combined Merge 20090803cal.xls	xls	NA	File
FtLoudoun CONVEY 20090803cal A.dat	dat	NA	File
FtLoudoun CONVEY 20090803cal A.out	out	NA	File
FtLoudoun CONVEY 20090803cal A.prt	prt	NA	File
FtLoudoun CONVEY 20090803cal B.dat	dat	NA	File
FtLoudoun CONVEY 20090803cal B.out	out	NA	File
FtLoudoun CONVEY 20090803cal B.prt	prt	NA	File
FtLoudoun CONVEY 20090803cal.xls	xls	NA	File
FtLoudoun Rev3.geo	geo	NA	File
FtLoudoun20090720.geo	geo	NA	File
Holston CONVEY 200900723.dat	dat	NA	File
Holston CONVEY 200900723.out	out	NA	File
Holston CONVEY 200900723.prt	prt	NA	File
Holston CONVEY 200900723.xls	xls	NA	File
Holston Merge 20090811.xls	xls	NA	File
Holston Rev3.geo	geo	NA	File
Holston20090720.geo	geo	NA	File
Tellico CONVEY20090723.dat	dat	NA	File
Tellico CONVEY20090723.out	out	NA	File
Tellico CONVEY20090723.prt	prt	NA	File
Tellico CONVEY20090723.xls	xls	NA	File
Tellico Merge 20090811.xls	xls	NA	File

Attachment 02.04.03-08A
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Tellico Rev4.geo	geo	NA	File
Tellico20090716.geo	geo	NA	File
Appendix L - Flow Distribution for Fort Loudoun-Tellico.pdf	pdf	1	Paper
FinalFtLoudoun_FB_Holston_TellicoFlowDist.xls	xls	NA	File
Attachment_01_SOCH Geometry.pdf	pdf	59	Paper
Canal20090713.geo	geo	NA	File
FrenchBroad20090720.geo	geo	NA	File
FtLoudoun20090720.geo	geo	NA	File
Holston20090720.geo	geo	NA	File
Tellico20090716.geo	geo	NA	File
Attachment_02_Tailwater_Rating_Curves.pdf	pdf	1	Paper
Cherokee Dam Rating Curves, Rev 1.xls	xls	NA	File
Chilhowee DRC.pdf	pdf	1	Paper
Douglas Dam Rating Curves, Rev 2.xls	xls	NA	File
Attachment_03_Headwater_Rating_Curves.pdf	pdf	1	Paper
Fort Loudoun DRC.xls	xls	NA	File
Tellico Dam Rating Curve Rev 0 Attachment.xls	xls	NA	File
Attachment_04_1973 Elevations and Discharges.pdf	pdf	4	Paper
All Fort Loudoun Flows and Elevations.xls	xls	NA	File
Attachment_05_2003 Elevations and Discharges.pdf	pdf	22	Paper
All Fort Loudoun Flows and Elevations2003.xls	xls	NA	File
All_Tellico_Flows_&_Elevations_May2003_rev0.xls	xls	NA	File
Attachment_06_Local Inflows for Basins 8, 16, 17, 18 and 24.pdf	pdf	1	Paper
Att 1-1_Fort Loudoun-Tellico (8, 16, 17, 18, & 24) hydrographs.xls	xls	NA	File
Attachment_07_Local Inflows for Little Pigeon River.pdf	pdf	1	Paper
1973 Local Inflow for Little Pigeon River.pdf	pdf	4	Paper
LittlePigeonAtSevierville_rev0.xls	xls	NA	File
Attachment_08_Flood Insurance Studies.pdf	pdf	1	Paper
Jefferson Co.pdf	pdf	7	Paper
Knox Co.pdf	pdf	14	Paper
Loudon Co.pdf	pdf	4	Paper

Attachment 02.04.03-08A
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Sevier Co.pdf	pdf	6	Paper
Attachment_09_FIS HEC Files.pdf	pdf	1	Paper
FrBroadR.f01	f01	NA	File
FrBroadR.g13	g13	NA	File
FrBroadR.p15	p15	NA	File
FrBroadR.prj	prj	NA	File
hot2000.dat	dat	NA	File
ltnr97.dat	dat	NA	File
Attachment_10_Composite Rating Curve for Fort Loudoun.pdf	pdf	1	Paper
Composite Rating Curve for Ft Loudoun.xls	xls	NA	File
Attachment_11_SOCH Input Preprocessor-Steady State.pdf	pdf	1	Paper
49XS_1ftsections_FrenchBroad65Kto845KBuildSOCHdata1.xls	xls	NA	File
49XS_LittleTennBuildSOCHdata.xls	xls	NA	File
FtLoudoun100Kto1400KBuildSOCHdata59sections.xls	xls	NA	File
Holston35Kto490KBuildSOCHdata.xls	xls	NA	File
Attachment_12_SOCH Input Preprocessor-March 1973.pdf	pdf	1	Paper
FtLoudoun_Holston_FB_1973BuildSOCHdata.xls	xls	NA	File
Attachment_13_SOCH Input Preprocessor-May 2003.pdf	pdf	1	Paper
DistLocalsRemove7_45FtLoudoun_EL_Tellico_Q_2003_BuildSOCHdata.xls	xls	NA	File
Attachment_14_Macro File for SOCH Input Preprocessor.pdf	pdf	1	Paper
SOCH_Macros.xls	xls	NA	File
Attachment_15_Macro File for Extraction of SOCH Output.pdf	pdf	1	Paper
Remove7_45Flood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
CDQ000020080036_Rev_1.doc (NOT SUBMITTED)	NA	NA	NA

Calculation: **CDQ000020080037, Rev. 1**
Title **SOCH Model Calibration, Watts Bar**

EDMS Number: **L58 091230 009**

Summary

Total Hard Copy Pages:	<u>156</u>
Total Electronic Files on DVD:	<u>67</u>

File Inventory for NRC Documentation Submittal

	<u>Type</u>	<u>Pages</u>	<u>NRC ADAMS Form</u>
Calculation Main Body	pdf	68	Paper
<u>Electronic Attachments</u>			
Appendix A - Final Manning's N, Final SOCH Geometry, Profiles and Calibration Graphs.pdf	pdf	1	Paper
Clinch_HEC_RAS_SteadyState_Profiles.xls	xls	NA	File
Clinch_HECRAS_SOCH_SteadyState_Profiles.xls	xls	NA	File
LLT20090610cal.geo	geo	NA	File
LowerClinch060109.geo	geo	NA	File
Observed vs. SOCH Mar 1973 Hydrographs.xls	xls	NA	File
Observed vs. SOCH May 2003 Hydrographs.xls	xls	NA	File
Watts Bar HEC_RAS_SteadyState_Profiles.xls	xls	NA	File
Watts Bar_HECRAS_SOCH_SteadyState_Profiles.xls	xls	NA	File
WattsBar_FinalManningsn.xls	xls	NA	File
WattsBar060109.geo	geo	NA	File
Appendix B - SOCH Input Files, Steady State (.dat, .bnd).pdf	pdf	1	Paper
Clinch_Calibrate_100Kto800K.dat	dat	NA	File
MeltonHill100Kto800K.bnd	bnd	NA	File
Watts Bar_Calibrate_Step.dat	dat	NA	File
WattsBarCal.bnd	bnd	NA	File
Appendix C - SOCH Input Files, March 1973 Flood (.dat, .loc).pdf	pdf	1	Paper
Mar 1973LocalInflowHydrograph_WattsBar.loc	loc	NA	File
WattsBar_Calibrate_Mar1973.dat	dat	NA	File
Appendix D - SOCH Input File May 2003 Flood (.dat, .loc).pdf	pdf	1	Paper
May 2003LocalInflowHydrograph_Watts Bar.loc	loc	NA	File
Watts Bar_Calibrate_May2003.dat	dat	NA	File
Appendix E - SOCH Output Files, Steady-State (.out).pdf	pdf	1	Paper
Clinch_Calibrate_100Kto800K.out	out	NA	File
Watts Bar_Calibrate_Step.out	out	NA	File
Appendix F - SOCH Output Files, March 1973 (.out, .prt).pdf	pdf	1	Paper
WattsBar_Calibrate_Mar1973.out	out	NA	File
WattsBar_Calibrate_Mar1973.prt	prt	NA	File

Attachment 02.04.03-08A
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Appendix G - SOCH Output Files, May 2003 (.out, .prt).pdf	pdf	1	Paper
Watts Bar_Calibrate_May2003.out	out	NA	File
Watts Bar_Calibrate_May2003.prt	prt	NA	File
Appendix H - Calibrated and Steady State HEC-RAS Models.pdf	pdf	1	Paper
L_Clinch.f02	f02	NA	File
L_Clinch.g01	g01	NA	File
L_Clinch.p02	p02	NA	File
L_Clinch.prj	prj	NA	File
WattsBar061709.f01	f01	NA	File
WattsBar061709.g03	g03	NA	File
WattsBar061709.p03	p03	NA	File
WattsBar061709.prj	prj	NA	File
Appendix I - Convey and SOCH Geometry Files.pdf	pdf	1	Paper
LowerClinch20090528.geo	geo	NA	File
LowerClinchCONVEY20090601.dat	dat	NA	File
LowerClinchCONVEY20090601.out	out	NA	File
LowerClinchCONVEY20090601.xls	xls	NA	File
Watts Bar Merge 20090528.xls	xls	NA	File
WattsBar20090528.geo	geo	NA	File
WattsBarCONVEY20090528.dat	dat	NA	File
WattsBarCONVEY20090528.out	out	NA	File
WattsBarCONVEY20090528.prt	prt	NA	File
WattsBarCONVEY20090528.xls	xls	NA	File
Appendix J - Drainage Areas for Streams in the Tennessee River Basin.pdf	pdf	1	Paper
DistributionRev4 031209.xls	xls	NA	File
DrainageAreasTR.pdf	pdf	3	Paper
Attachment 1 - HEC-RAS Geometry Files.pdf	pdf	1	Paper
LowerClinch042209.g02.pdf	pdf	4	Paper
WattsBar052209.g03.pdf	pdf	11	Paper
Attachment 10 - SOCH Input Preprocessor, March 1973 Flood.pdf	pdf	1	Paper
Watts Bar_Mar1973_BuildSOCHdata.xls	xls	NA	File
Attachment 11 - SOCH Input Preprocessor, May 2003 Flood.pdf	pdf	1	Paper
Watts Bar_May2003_BuildSOCHdata.xls	xls	NA	File
Attachment 12 - Excel Macro File for SOCH Input Preprocessor.pdf	pdf	1	Paper
SOCH_Macros.xls	xls	NA	File
Attachment 13 - Excel Macro Files for Extraction of SOCH Output.pdf	pdf	1	Paper
1973	xls	NA	File

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Flood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
2003_Flood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
Attachment 14 - Clinch River Flood Insurance Study.pdf	pdf	1	Paper
Clinch.f01	f01	NA	File
Clinch.g02	g02	NA	File
Clinch.O02	O02	NA	File
Clinch.p02	p02	NA	File
Clinch.prj	prj	NA	File
Clinch.r02	r02	NA	File
FIS_Roane_Cover.pdf	pdf	1	Paper
FIS_Roane_Flows.pdf	pdf	1	Paper
FIS_Roane_Profiles.pdf	pdf	1	Paper
Attachment 15 - SOCH Model Geometry Configuration.pdf	pdf	1	Paper
SOCHGeometryFinal.jpg	jpg	NA	File
Attachment 16 - Chilhowee 1973 Flood Routing.pdf	pdf	1	Paper
Little T 1973 Local.xls	xls	NA	File
Attachment 2 - Ft. Loudon Dam Rating Curve.pdf	pdf	1	Paper
Fort Loudoun DRC.xls	xls	NA	File
Attachment 3 - Melton Hill Dam Rating Curve.pdf	pdf	1	Paper
Melton Hill Rating Curve (Turbines Added).xls	xls	NA	File
Attachment 4 - Watts Bar Dam Rating Curve.pdf	pdf	1	Paper
Watts Bar Rating Curves.xls	xls	NA	File
Attachment 5 - March 1973 Flood Elevations and Flows.pdf	pdf	1	Paper
All_Watts_Bar_Flows_&_Elevations_Mar1973_rev0.xls	xls	NA	File
Chilhowee_Total_Discharges_March_1973_Rev.0.xls	xls	NA	File
Emory@Oakdale_Mar 1973 bihourly stream.pdf	pdf	2	Paper
Attachment 6 - May 2003 Flood Elevations and Flows.pdf	pdf	1	Paper
All_Watts_Bar_Flows_&_Elevations_May2003_rev1.xls	xls	NA	File
EmoryAtOakdale_rev0.xls	xls	NA	File
Attachment 7 - Local Inflows Developed from Unit Hydrographs.pdf	pdf	1	Paper
Fort Loudoun-Tellico (8, 16, 17, 18, & 24) hydrographs.xls	xls	NA	File
Watts Bar Reservoir Locals (Basins 25, 33, 34, 36, and 37).xls	xls	NA	File
Attachment 8 - SOCH Geometry.pdf	pdf	1	Paper
LLT20090610.pdf	pdf	19	Paper
LowerClinch20090528.pdf	pdf	5	Paper
WattsBar20090528.pdf	pdf	15	Paper
Attachment 9 - SOCH Input Preprocessor, Steady State.pdf	pdf	1	Paper
Clinch_100Ksteps_BuildSOCHdata.xls	xls	NA	File
Watts Bar_StepCalibrate_BuildSOCHdata.xls	xls	NA	File

CDQ000020080037_Rev_1.doc (NOT SUBMITTED) NA NA NA

Calculation **CDQ000020080038, Rev. 1**
Title **SOCH Model Calibration, Melton Hill**
EDMS Number: **L58 091230 010**

Summary

Total Hard Copy Pages:	<u>1457</u>
Total Electronic Files on DVD:	<u>43</u>

File Inventory for NRC Documentation Submittal

	<u>Type</u>	<u>Pages</u>	<u>NRC ADAMS Form</u>
Calculation Main Body	pdf	49	Paper
<u>Electronic Attachments</u>			
Appendix A_Final Manning's n, Final SOCH Geometry, Profiles and Calibration Graphs_.pdf	pdf	1	Paper
Final 5 secTS_Melton Hill			
SOCH_SteadyState_100Kto600K_Profiles.xls	xls	NA	File
Melton Hill HEC_RAS_SteadyState_FEMA_Profiles.xls	xls	NA	File
Melton Hill Rev4.geo	geo	NA	File
Melton Hill_FinalManningsn.xls	xls	NA	File
Observed vs. SOCH Mar 1973 Hydrographs.xls	xls	NA	File
Observed vs. SOCH May 2003 Hydrographs.xls	xls	NA	File
Appendix B_SOCH_Input Files, Steady-State.pdf	pdf	2	Paper
Final_MeltonHill_Calibrate_100Kto600K-61SOCHInterp.dat	dat	NA	File
Final_Norris100Kto600K-61SOCHInterp.bnd	bnd	NA	File
Appendix C_SOCH Input Files, March 1973.pdf	pdf	5	Paper
Mar 1973LocalInflowHydrograph_Melton Hill-61 sections.loc	loc	NA	File
Melton Hill_Calibrate_Mar 1973-61sections.dat	dat	NA	File
Appendix D_SOCH Input Files, May 2003.pdf	pdf	7	Paper
May2003LocalInflowHydrograph_Melton Hill-61sections.loc	loc	NA	File
Melton Hill_Calibrate_May2003-61 sections.dat	dat	NA	File
Appendix E_SOCH Output File Steady-State.pdf	pdf	665	Paper
Final_MeltonHill/Calibrate_100Kto600K-61SOCHInterp.out	out	NA	File
Appendix F_SOCH Output Files, March 1973.pdf	pdf	240	Paper
Melton Hill_Calibrate_Mar1973-61sections.out	out	NA	File

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Melton Hill_Calibrate_Mar1973-61sections.prt	prt	NA	File
Appendix G_SOCH Output Files, May 2003.pdf	pdf	409	Paper
Melton Hill_Calibrate_May2003-61 sections.out	out	NA	File
Melton Hill_Calibrate_May2003-61 sections.prt	prt	NA	File
Appendix H_Calibrated Steady-State HEC-RAS Model.pdf	pdf	1	Paper
MH031809FEMA.f02	f02	NA	File
MH031809FEMA.g11	g11	NA	File
MH031809FEMA.p34	p34	NA	File
MH031809FEMA.prj	prj	NA	File
Appendix I- Convey and SOCH Geometry.pdf	pdf	1	Paper
Melton Hill CONVEY 20090710.xls	xls	NA	File
Melton Hill CONVEY.dat	dat	NA	File
Melton Hill CONVEY.out	out	NA	File
Melton Hill CONVEY.prt	prt	NA	File
Melton Hill Merge 20090710.xls	xls	NA	File
Melton Hill Rev4.geo	geo	NA	File
MeltonHill20090624.geo	geo	NA	File
Appendix J_Cross-Section_Modifications.pdf	pdf	10	Paper
Modified Cross-Sections.xls	xls	NA	File
Appendix K_Dam_Rating_Curve_Extrapolation.pdf	pdf	1	Paper
Dam Rating Curve Extrapolation.xls	xls	NA	File
Attachment_01_Original HEC-RAS Geometry.pdf	pdf	10	Paper
MeltonHill.g04	g04	NA	File
Attachment_02_CDQ000020080013_Dam_Rating_Curve_Melton Hill_Rev1_10FEB09.pdf	pdf	1	Paper
Melton Hill Rating Curve (Turbines Added).xls	xls	NA	File
Attachment_03_CDQ000020080015_Dam_Rating_Curve_Norris_Rev0_10FEB09.pdf	pdf	1	Paper
Norris Rating Curve.xls	xls	NA	File
Attachment_04_All Melton Hill Flows and Elevations1973.pdf	pdf	4	Paper
Attachment_05_All Melton Hill Flows and Elevations2003.pdf	pdf	9	Paper
All Melton Hill Flows and Elevations2003.xls	xls	NA	File
Attachment_06_Total Local Hydrograph Development.pdf	pdf	1	Paper
Total Local Hydrograph Development.xls	xls	NA	File
Attachment_07_Original_SOCH Geometry.pdf	pdf	15	Paper
MeltonHill20090624.geo	geo	NA	File
Attachment_08_SOCH Input Preprocessor, Steady-State.pdf	pdf	1	Paper
Final_MeltonHill100Kto600KBuildSOCHdata61sections.xls	xls	NA	File
Attachment_09_SOCH Input Preprocessor, March 1973.pdf	pdf	1	Paper

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MeltonHill_Mar1973_BuildSOCHdata-61sections.xls	xls	NA	File
Attachment_10_SOCH Input Preprocessor, May 2003.pdf	pdf	1	Paper
MeltonHill_May2003_BuildSOCHdata-61sections.xls	xls	NA	File
Attachment_11_Macro File for SOCH Input Preprocessor.pdf	pdf	1	Paper
SOCH_Macros.xls	xls	NA	File
Attachment_12_Macro File for Extraction of SOCH Output.pdf	pdf	1	Paper
Flood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
Attachment_13_Clinch_River_FIS_HEC2_File.pdf	pdf	6	Paper
MHCLINCH.dat	dat	NA	File
Attachment_14_Anderson Co TN FIS.pdf	pdf	6	Paper
Attachment_15_Loudon Co TN FIS.pdf	pdf	5	Paper
Attachment_16_FinalFlowDistribution.pdf	pdf	3	Paper
FinalFlowDistribution.xls	xls	NA	File
CDQ000020080038_Rev_1.doc (NOT SUBMITTED)	NA	NA	NA

Calculation **CDQ000020080039, Rev. 1**

Title **SOCH Model Calibration, Chickamauga**

EDMS Number: **L58 091230 011**

Summary

Total Hard Copy Pages:	<u>125</u>
Total Electronic Files on DVD:	<u>82</u>

File Inventory for NRC Documentation Submittal

	<u>Type</u>	<u>Pages</u>	NRC ADAM S Form
Calculation Main Body	pdf	74	Paper
<u>Electronic Attachments</u>			
Appendix_A_Final Manning's n, SOCH Geometry and Calibration Graphs.pdf	pdf	1	Paper
Chick_Observed vs SOCH Mar1973 Hydrographs 072109.xls	xls	NA	File
Chick_Observed vs SOCH May2003 Hydrographs 072109.xls	xls	NA	File
Chickamauga_HECRAS_SOCH_SS_Profiles 072109.xls	xls	NA	File
ChickamaugaHEC_RAS_SteadyState_Profiles_071309.xls	xls	NA	File
ChickamaugaRev1.1.geo	geo	NA	File
DallasBayRev1.0.geo	geo	NA	File

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Final_Mannings_n.xls	xls	NA	File
Hiwassee_HECRAS_SOCH_SS_Profiles_072109.xls	xls	NA	File
HiwasseeHEC_RAS_Profiles_071609.xls	xls	NA	File
HiwasseeRev1.1.geo	geo	NA	File
Appendix_B_May 2003 Flood Flows, Hiwassee River.pdf	pdf	1	Paper
Flows_Hiwassee_at_Charleston_May2003.xls	xls	NA	File
Appendix_C_Drainage Areas for Streams in Tennessee River Basin.pdf	pdf	2	Paper
Appendix_D_SOCH Input Files, Steady State.pdf	pdf	1	Paper
CharlestonGage100Kto1300K.bnd	bnd	NA	File
Chickamauga_Calibrate_100Kto1300K.dat	dat	NA	File
Hiwassee_Calibrate_100Kto1300K.dat	dat	NA	File
WattsBar100Kto1300K.bnd	bnd	NA	File
Appendix_E_SOCH Input Files, March 1973.pdf	pdf	1	Paper
Chickamauga_Calibrate_Mar1973.bnd	bnd	NA	File
Chickamauga_Calibrate_Mar1973.dat	dat	NA	File
Mar1973LocalInflowHydrograph_Chickamauga.loc	loc	NA	File
Appendix_F_SOCH Input Files, May 2003.pdf	pdf	1	Paper
Chickamauga_Calibrate_May2003.bnd	bnd	NA	File
Chickamauga_Calibrate_May2003.dat	dat	NA	File
May2003LocalInflowHydrograph_Chickamauga.loc	loc	NA	File
Appendix_G_SOCH Output Files, Steady State.pdf	pdf	1	Paper
Chickamauga_Calibrate_100Kto1300K.out	out	NA	File
Hiwassee_Calibrate_100Kto1300K.out	out	NA	File
Appendix_H_SOCH Output Files, March 1973.pdf	pdf	1	Paper
Chickamauga_Calibrate_Mar1973.out	out	NA	File
Chickamauga_Calibrate_Mar1973.prt	prt	NA	File
Appendix_I_SOCH Output Files, May 2003.pdf	pdf	1	Paper
Chickamauga_Calibrate_May2003.out	out	NA	File
Chickamauga_Calibrate_May2003.prt	prt	NA	File
Appendix_J_Calibrated Steady-State HEC-RAS Model.pdf	pdf	1	Paper
Chickamauga100K.f01	f01	NA	File
Chickamauga100K.f02	f02	NA	File
Chickamauga100K.f03	f03	NA	File
Chickamauga100K.g01	g01	NA	File
Chickamauga100K.p01	p01	NA	File
Chickamauga100K.p02	p02	NA	File
Chickamauga100K.p03	p03	NA	File
Chickamauga100K.prj	prj	NA	File
Hiwassee.f01	f01	NA	File
Hiwassee.f02	f02	NA	File
Hiwassee.g01	g01	NA	File

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Hiwassee.p01	p01	NA	File
Hiwassee.p02	p02	NA	File
Hiwassee.prj	prj	NA	File
Appendix_K_CONVEY Files and SOCH Geometry Files.pdf	pdf	1	Paper
Chickamauga CONVEY 20090721.dat	dat	NA	File
Chickamauga CONVEY 20090721.out	out	NA	File
Chickamauga CONVEY 20090721.prt	prt	NA	File
Chickamauga CONVEY 20090721.xls	xls	NA	File
Chickamauga Merge 20090721.xls	xls	NA	File
Chickamauga100K.g01	g01	NA	File
ChickamaugaRev1.0.geo	geo	NA	File
ChickDallasBay.g02	g02	NA	File
Dallas Bay CONVEY 20090629.dat	dat	NA	File
Dallas Bay CONVEY 20090629.out	out	NA	File
Dallas Bay CONVEY 20090629.prt	prt	NA	File
Dallas Bay CONVEY 20090629.xls	xls	NA	File
DallasBayRev1.0.geo	geo	NA	File
Hiwassee CONVEY 20090721.dat	dat	NA	File
Hiwassee CONVEY 20090721.out	out	NA	File
Hiwassee CONVEY 20090721.prt	prt	NA	File
Hiwassee CONVEY 20090721.xls	xls	NA	File
Hiwassee.g01	g01	NA	File
HiwasseeRev1.0.geo	geo	NA	File
Attachment_01_Initial Geometry Files.pdf	pdf	1	Paper
Chickamauga CONVEY 20090528.xls	xls	NA	File
Chickamauga Merge 20090625.xls	xls	NA	File
Chickamauga20090520.g01	g01	NA	File
Chickamauga20090625.geo	geo	NA	File
ChickDallasBay20090423.g01	g01	NA	File
Dallas Bay CONVEY 20090602.xls	xls	NA	File
DallasBay20090625.geo	geo	NA	File
Hiwassee CONVEY 20090512.xls	xls	NA	File
Hiwassee20090409.g01	g01	NA	File
Hiwassee20090625.geo	geo	NA	File
Attachment_02_HEC-Hydraulic Reference Manual.pdf	pdf	13	Paper
Attachment_03_Chickamauga Dam Headwater Rating Curve.pdf	pdf	1	Paper
Spreadsheet Calculations - Old Lock .xls	xls	NA	File
Attachment_04_Watts Bar Tailwater Rating Curve.pdf	pdf	1	Paper
Watts Bar Rating Curves.xls	xls	NA	File
Attachment_05_March 1973 Flood Elevations and Flows, Tennessee River.pdf	pdf	1	Paper

Attachment 02.04.03-08A
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RFI_018_All_Chickamauga_Flows_&_Elevations_Mar 1973_rev0.xls	xls	NA	File
Attachment_06_Chickamauga Flows & Elevations May 2003.pdf	pdf	1	Paper
All_Watts_Bar_Flows_&_Elevations_May2003_rev1.x ls	xls	NA	File
RFI_018_All_Chickamauga_Flows_&_Elevations_May 2003_rev0.xls	xls	NA	File
Attachment_07_March 1973 Flood Elevations and Flows, Hiwassee River.pdf	pdf	6	Paper
Attachment_08_Local Inflows Developed From Unit Hydrographs.pdf	pdf	1	Paper
Att 1-1_Subbasins 44B-45 Hydrographs for SOCH.xls	xls	NA	File
Attachment_09_Flood Insurance Study_Bradley County_Tennessee.pdf	pdf	5	Paper
Attachment_10_SOCH Input Preprocessor, Steady State.pdf	pdf	1	Paper
Chickamauga_100Ksteps_BuildSOCHdata.xls	xls	NA	File
Hiwassee_100Ksteps_BuildSOCHdata.xls	xls	NA	File
Attachment_11_SOCH Input Preprocessor March 1973 Flood.pdf	pdf	1	Paper
Mar1973_BuildSOCHdata072109.xls	xls	NA	File
Attachment_12_SOCH Input Preprocessor May 2003 Flood.pdf	pdf	1	Paper
Chickamauga_May2003_BuildSOCHdata072109.xls	xls	NA	File
Attachment_13_Macro File for SOCH Preprocessor.pdf	pdf	1	Paper
SOCH_Macros.xls	xls	NA	File
Attachment_14_Macro File for SOCH Output.pdf	pdf	1	Paper
Flood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
Attachment_15_Flood_Insurance_Study_Meigs_County_ Tennessee.pdf	pdf	4	Paper
CDQ000020080039_Rev_1.doc (NOT SUBMITTED)	NA	NA	NA

Calculation **CDQ000020080040, Rev. 1**
Title **SOCH Model Calibration, Nickajack**
EDMS Number: **L58 091230 012**

Summary

Total Hard Copy Pages:	<u>177</u>
Total Electronic Files on DVD:	<u>182</u>

File Inventory for NRC Documentation Submittal

	<u>Type</u>	<u>Pages</u>	<u>NRC ADAMS Form</u>
Calculation Main Body	pdf	87	Paper
<u>Electronic Attachments</u>			
Appendix L-Lick Branch and NorthChick Unsteady State Modeling.pdf	pdf	10	Paper
Appendix L-A_NC and LB Extend Cross Sections.pdf	pdf	1	Paper
Lick Branch and North Chick Cross Sections.xls	xls	NA	File
Appendix L-B_NC and LB HEC-RAS Files.pdf	pdf	1	Paper
LBNCUnsteady112009.c02	c02	NA	File
LBNCUnsteady112009.f01	f01	NA	File
LBNCUnsteady112009.f02	f02	NA	File
LBNCUnsteady112009.f03	f03	NA	File
LBNCUnsteady112009.f04	f04	NA	File
LBNCUnsteady112009.f05	f05	NA	File
LBNCUnsteady112009.f06	f06	NA	File
LBNCUnsteady112009.g02	g02	NA	File
LBNCUnsteady112009.O01	O01	NA	File
LBNCUnsteady112009.O02	O02	NA	File
LBNCUnsteady112009.O03	O03	NA	File
LBNCUnsteady112009.O04	O04	NA	File
LBNCUnsteady112009.O05	O05	NA	File
LBNCUnsteady112009.O06	O06	NA	File
LBNCUnsteady112009.O07	O07	NA	File
LBNCUnsteady112009.p01	p01	NA	File
LBNCUnsteady112009.p02	p02	NA	File
LBNCUnsteady112009.p03	p03	NA	File
LBNCUnsteady112009.p04	p04	NA	File
LBNCUnsteady112009.p05	p05	NA	File
LBNCUnsteady112009.p06	p06	NA	File
LBNCUnsteady112009.p07	p07	NA	File
LBNCUnsteady112009.prj	prj	NA	File
LBNCUnsteady112009.u01	u01	NA	File
LBNCUnsteady112009.u02	u02	NA	File
LBNCUnsteady112009.u03	u03	NA	File
LBNCUnsteady112009.x02	x02	NA	File
Appendix L-C_NC and LB SOCH Files.pdf	pdf	1	Paper
LBandNC.geo	geo	NA	File
LB-NC-Unsteady.bnd	bnd	NA	File
LB-NC-Unsteady.loc	loc	NA	File

Attachment 02.04.03-08A
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LickBranch20091031calOB.geo	geo	NA	File
LickBranch-NorthChick.dat	dat	NA	File
LickBranch-NorthChick.out	out	NA	File
LickBranch-NorthChick.prt	prt	NA	File
LickBranch-NorthChick.run	run	NA	File
LickBranch-NorthChick.sto	sto	NA	File
LickBranch-NorthChick-SOCHdata.xlsm	xlsm	NA	File
NChick20091031cal.geo	geo	NA	File
Seg2_7980JUN_Ant_ElbowRec1_20090901.sln	sln	NA	File
Attachment_L-1_Preliminary PMF Inflows for NC and LB.pdf	pdf	1	Paper
NC-LC HEC-RAS PMF Boundary Conditions and Inflows.xlsx	xlsx	NA	File
NC-LC SOCH PMF Boundary Conditions and Inflows.xlsx	xlsx	NA	File
Appendix_A_Final Manning's n, SOCH Geometry and Calibration Graphs.pdf	pdf	1	Paper
Final_Mannings_n.xls	xls	NA	File
LickBranch20091031calOB.geo	geo	NA	File
LickBranch-DallasBayHEC_RAS_SteadyState_Profiles.xlsm	m	NA	File
LickBranchSOCH_SteadyState_Profiles11-19-09.xlsm	m	NA	File
NChickCreek20090727cal.geo	geo	NA	File
NChickCreekHEC_RAS_SteadyState_Profiles.xlsm	m	NA	File
NChickCreekSOCH_SteadyState_Profiles11-19-09.xlsm	m	NA	File
Nickajack_HECRAS_SOCH_SteadyState_Profiles (1).xls	xls	NA	File
Nickajack20090728cal.geo	geo	NA	File
NickajackHEC_RAS_SteadyState_Profiles06-16-09.xls	xls	NA	File
Observed vs. SOCH Mar 2003 Hydrographs.xlsm	m	NA	File
Observed vs. SOCH Unsteady State Mar 1973 Hydrographs.xlsm	m	NA	File
Appendix_B_March 1973 Flows, South Chickamauga.pdf	pdf	1	Paper
1973 Estimated Flows_South Chick.xls	xls	NA	File
Appendix_C_Drainage Areas for Streams in Tennessee River Basin.pdf	pdf	2	Paper
Appendix_D_SOCH Input Files, Steady State.pdf	pdf	1	Paper
LickBranch_Calibrate_5Kto120K.dat	dat	NA	File
LickBranch5Kto1200K.bnd	bnd	NA	File
NChick_Calibrate_500to200K.dat	dat	NA	File
NChick500Kto200K.bnd	bnd	NA	File

Attachment 02.04.03-08A
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Nickajack100Kto1300K.bnd	bnd	NA	File
Nickajack100Kto1300K.dat	dat	NA	File
Appendix_E_SOCH Input Files, March 1973.pdf	pdf	1	Paper
NickajackCombined1973.bnd	bnd	NA	File
NickajackCombined1973.dat	dat	NA	File
NickajackCombined1973.loc	loc	NA	File
Appendix_F_SOCH Input Files, May 2003.pdf	pdf	1	Paper
NickajackCombined2003.bnd	bnd	NA	File
NickajackCombined2003.dat	dat	NA	File
NickajackCombined2003.loc	loc	NA	File
Appendix_G_SOCH Output Files, Steady State.pdf	pdf	1	Paper
LickBranch_Calibrate_5Kto120K.out	out	NA	File
NChick_Calibrate_500to200K.out	out	NA	File
Nickajack100Kto1300K.out	out	NA	File
Appendix_H_SOCH Output Files, March 1973.pdf	pdf	1	Paper
NickajackCombined1973.out	out	NA	File
NickajackCombined1973.prt	prt	NA	File
Appendix_I_SOCH Output Files, May 2003.pdf	pdf	1	Paper
NickajackCombined2003.out	out	NA	File
NickajackCombined2003.prt	prt	NA	File
Appendix_J_Calibrated Steady-State HEC-RAS Model.pdf	pdf	1	Paper
LickBranchMod.c01	c01	NA	File
LickBranchMod.f01	f01	NA	File
LickBranchMod.g01	g01	NA	File
LickBranchMod.g02	g02	NA	File
	00		
LickBranchMod.O01	1	NA	File
	00		
LickBranchMod.O02	2	NA	File
	00		
LickBranchMod.O03	3	NA	File
LickBranchMod.p01	p01	NA	File
LickBranchMod.p02	p02	NA	File
LickBranchMod.p03	p03	NA	File
LickBranchMod.prj	prj	NA	File
LickBranchMod.r03	r03	NA	File
LickBranchMod.t01	t01	NA	File
NChickCreek51409.f01	f01	NA	File
NChickCreek51409.g02	g02	NA	File
	00		
NChickCreek51409.O01	1	NA	File
	00		
NChickCreek51409.O02	2	NA	File

Attachment 02.04.03-08A
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NChickCreek51409.p01	p01	NA	File
NChickCreek51409.p02	p02	NA	File
NChickCreek51409.prj	prj	NA	File
NChickCreek51409.r01	r01	NA	File
NChickCreek51409.r02	r02	NA	File
Nickajack051209.c02	c02	NA	File
Nickajack051209.f02	f02	NA	File
Nickajack051209.g02	g02	NA	File
	O0		
Nickajack051209.O02	2	NA	File
Nickajack051209.p02	p02	NA	File
Nickajack051209.prj	prj	NA	File
Nickajack051209.r02	r02	NA	File
Nickajack051209.t02	t02	NA	File
Nickajack051209.x02	x02	NA	File
Appendix_K_CONVEY Files and SOCH Geometry Files.pdf	pdf	2	Paper
Convey Cross Section Steps Nickajack jdk.xls	xls	NA	File
Lick Branch CONVEY 20090607.dat	dat	NA	File
Lick Branch CONVEY 20090607.out	out	NA	File
Lick Branch CONVEY 20090607.prt	prt	NA	File
Lick Branch CONVEY 20090607.xls	xls	NA	File
Lick Branch CONVEY 20090727cal A.dat	dat	NA	File
Lick Branch CONVEY 20090727cal A.out	out	NA	File
Lick Branch CONVEY 20090727cal A.prt	prt	NA	File
Lick Branch CONVEY 20090727cal B.dat	dat	NA	File
Lick Branch CONVEY 20090727cal B.out	out	NA	File
Lick Branch CONVEY 20090727cal B.prt	prt	NA	File
Lick Branch CONVEY 20090727cal.xls	xls	NA	File
Lick Branch Merge 20090727cal.geo	geo	NA	File
Lick Branch Merge 20090727cal.xls	xls	NA	File
Lick Branch Wwidth 20090607.dat	dat	NA	File
Lick Branch Wwidth 20090607.out	out	NA	File
Lick Branch Wwidth 20090609.dat	dat	NA	File
Lick Branch Wwidth 20090609.out	out	NA	File
Lick Branch Wwidth 20090609.xls	xls	NA	File
LickBranch20090727cal.geo	geo	NA	File
N Chick Merge 20090727cal.xls	xls	NA	File
NChick CONVEY 20090727cal A.dat	dat	NA	File
NChick CONVEY 20090727cal A.out	out	NA	File
NChick CONVEY 20090727cal A.prt	prt	NA	File
NChick CONVEY 20090727cal B.dat	dat	NA	File
NChick CONVEY 20090727cal B.out	out	NA	File

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NChick CONVEY 20090727cal B.prt	prt	NA	File
NChick CONVEY 20090727cal.xls	xls	NA	File
NChickCreek Wwidth 20090607.dat	dat	NA	File
NChickCreek Wwidth 20090607.out	out	NA	File
NChickCreek Wwidth 20090607.xls	xls	NA	File
NChickCreek20090727cal.geo	geo	NA	File
Nickajack 1 WWIDTH200900724.dat	dat	NA	File
Nickajack 1 WWIDTH200900724.out	out	NA	File
Nickajack 2 WWIDTH200900724.dat	dat	NA	File
Nickajack 2 WWIDTH200900724.out	out	NA	File
Nickajack 3 WWIDTH200900724.dat	dat	NA	File
Nickajack 3 WWIDTH200900724.out	out	NA	File
Nickajack 4 WWIDTH200900724.dat	dat	NA	File
Nickajack 4 WWIDTH200900724.out	out	NA	File
Nickajack CONVEY 20090727cal A.dat	dat	NA	File
Nickajack CONVEY 20090727cal A.out	out	NA	File
Nickajack CONVEY 20090727cal A.prt	prt	NA	File
Nickajack CONVEY 20090727cal B.dat	dat	NA	File
Nickajack CONVEY 20090727cal B.out	out	NA	File
Nickajack CONVEY 20090727cal B.prt	prt	NA	File
Nickajack CONVEY 20090727cal C.dat	dat	NA	File
Nickajack CONVEY 20090727cal C.out	out	NA	File
Nickajack CONVEY 20090727cal C.prt	prt	NA	File
Nickajack CONVEY 20090727cal.xls	xls	NA	File
Nickajack Merge 20090727cal.xls	xls	NA	File
Nickajack20090727cal.geo	geo	NA	File
NickajackWWIDTH200900724.xls	xls	NA	File
NK Reservoir Areas and Volumes.pdf	pdf	1	Paper
Attachment_01_Initial Geometry Files.pdf	pdf	1	Paper
DBREV3.g01	g01	NA	File
Lick Branch CONVEY 20090607.xls	xls	NA	File
LickBranch20090626.geo	geo	NA	File
NChickCr_Rev4.g01	g01	NA	File
NChickCreek CONVEY 20090607.xls	xls	NA	File
NChickCreek20090626.geo	geo	NA	File
Nickajack Combined Merge 20090721.xls	xls	NA	File
Nickajack CONVEY 20090710.xls	xls	NA	File
Nickajack.g02	g02	NA	File
Nickajack20090721.geo	geo	NA	File
Attachment_02_HEC-Hydraulic Reference Manual.pdf	pdf	13	Paper
Attachment_03_South Chick USGS Gage Data.pdf	pdf	5	Paper
Attachment_04_Nickajack Dam Rating Curves.pdf	pdf	1	Paper

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Nickajack Rating Curves.xls	xls	NA	File
Attachment_05_Chickamauga Dam Tailwater Rating Curves.pdf	pdf	1	Paper
Spreadsheet Calculations - Old Lock .xls	xls	NA	File
Attachment_06_March 1973 Flood Elevations and Flows, Tennessee River.pdf	pdf	1	Paper
All Nickajack Flows & Elevations_Mar 1973_rev1.xls	xls	NA	File
Microfilmed Hourly Observed Records, 1973.xls	xls	NA	File
Attachment_07_March 2003 Flood Elevations and Flows, Tennessee River.pdf	pdf	1	Paper
All_Nickajack_Flows_&_Elevations_May2003_rev0.xls	xls	NA	File
Attachment_08_Flood Insurance Study, Hamilton County, Tennessee.pdf	pdf	16	Paper
Attachment_09_Local Inflows Developed from Unit Hydrographs.pdf	pdf	1	Paper
Att 1-1 SChickNrChickamauga.xls	xls	NA	File
Attachment_1-13_Initial_Flood_Hydrographs.xls	xls	NA	File
Attachment_10_SOCH Input Preprocessor, Steady-State.pdf	pdf	1	Paper
LickBranch_BuildSOCHdata (1).xls	xls	NA	File
NChick_10Ksteps_BuildSOCHdata (1).xls	xls	NA	File
Nickajack_100Ksteps_BuildSOCHdata (1).xls	xls	NA	File
Attachment_11_SOCH Input Preprocessor, March 1973 Flood.pdf	pdf	1	Paper
	xls		
Nickajack_Mar1973_BuildSOCHdata.xlsm	m	NA	File
Attachment_12_SOCH Input Preprocessor, May 2003 Flood.pdf	pdf	1	Paper
	xls		
Nickajack_May2003_BuildSOCHdata.xlsm	m	NA	File
Attachment_13_Macro File for SOCH Input Preprocessor.pdf	pdf	1	Paper
SOCH_Macros.xls	xls	NA	File
Attachment_14_Macro File for Extraction of SOCH Output.pdf	pdf	1	Paper
Macro File for Extraction of SOCH Output.xls	xls	NA	File
Attachment_15_Nickajack and Chickamauga Hourly Water Records.pdf	pdf	1	Paper
Attachment_15-1_Chickamauga Observed Hourly Discharge.pdf	pdf	8	Paper
Attachment_15-2_Nickajack Observed Hourly Headwater.pdf	pdf	8	Paper
Attachment 16 Native Word File for CDQ000020080040_Rev_1[1].docx	NA	NA	NA
(Attachment 16 - NOT SUBMITTED)			

Calculation **CDQ000020080041, Rev. 1**
Title **SOCH Model Calibration, Guntersville**
EDMS Number: **L58 091230 013**

Summary

Total Hard Copy Pages:	<u>1511</u>
Total Electronic Files on DVD:	<u>75</u>

File Inventory for NRC Documentation Submittal

	<u>Type</u>	<u>Pages</u>	<u>NRC ADAMS Form</u>
Calculation Main Body	pdf	56	Paper
<u>Electronic Attachments</u>			
Appendix A_Final Manning's n, Final Geometry, Profiles and Calibration Graphs.pdf	pdf	1	Paper
Guntersville_FinalManningsn.xls	xls	NA	File
Guntersville_HECRAS_SOCH_SteadyState_Profiles (5).xls	xls	NA	File
GuntersvilleHEC_RAS_SteadyState_Profiles (4).xls	xls	NA	File
GuntersvilleRev4.1.geo	geo	NA	File
Observed vs. SOCH Mar 1973 Hydrographs (5).xls	xls	NA	File
Observed vs. SOCH May 2003 Hydrographs (5).xls	xls	NA	File
Appendix B_March 1973 Flood Flows, Sequatchie River.pdf	pdf	3	Paper
Sequatchie73.xls	xls	NA	File
Appendix C_May 2003 Flood Flows, Sequatchie River.pdf	pdf	6	Paper
03-Sequatchie.xls	xls	NA	File
Appendix D_Drainage Areas for Streams in TN River Basin.pdf	pdf	2	Paper
Appendix E_Lag Time of Sequatchie River at Whitwell.pdf	pdf	2	Paper
Appendix F_SOCH Input Files, Steady-State.pdf	pdf	1	Paper
Guntersville_Calibrate_100Kto1300K.dat	dat	NA	File
Nickajack100Kto1300K.bnd	bnd	NA	File
Appendix G_SOCH Input Files, March 1973 Flood.pdf	pdf	7	Paper
Guntersville_Calibrate_Mar1973.dat	dat	NA	File
Mar1973LocalInflowHydrograph_Guntersville.loc	loc	NA	File
Appendix H_SOCH Input Files, May 2003 Flood.pdf	pdf	8	Paper
Guntersville_Calibrate_May2003.dat	dat	NA	File
May2003LocalInflowHydrograph_Guntersville.loc	loc	NA	File

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Appendix I_SOCH Output Files, Steady-State.pdf	pdf	690	Paper
Guntersville_Calibrate_100Kto1300K.out	out	NA	File
Appendix J_SOCH Output Files, March 1973.pdf	pdf	269	Paper
Guntersville_Calibrate_Mar1973.out	out	NA	File
Guntersville_Calibrate_Mar1973.prt	prt	NA	File
Appendix K_SOCH Output Files, May 2003.pdf	pdf	338	Paper
Guntersville_Calibrate_May2003.out	out	NA	File
Guntersville_Calibrate_May2003.prt	prt	NA	File
Appendix L_Verification of HEC-RAS Model.pdf	pdf	15	Paper
Appendix M_Confirmatory Analysis of SOCH to HEC-RAS in Unsteady-State.pdf	pdf	12	Paper
03Gunt042409.g05	g05	NA	File
03Gunt042409.p05	p05	NA	File
03Gunt042409.prj	prj	NA	File
03Gunt042409.u09	u09	NA	File
73Gunt042409.g03	g03	NA	File
73Gunt042409.p05	p05	NA	File
73Gunt042409.prj	prj	NA	File
73Gunt042409.u01	u01	NA	File
Guntersville_Reservoir_Surface_Areas_for Map.xls	xls	NA	File
Mar 1973 Hydrographs with HEC rev 3 050509.xls	xls	NA	File
May 2003 Hydrographs with HEC Rev 3 050609.xls	xls	NA	File
Appendix N_Confirmatory Analysis of SOCH to HEC-RAS in Steady State.pdf	pdf	7	Paper
Guntersville_HECRAS_SOCH_SS_Comparison.xls	xls	NA	File
GuntersvilleSteadyState.f01	f01	NA	File
GuntersvilleSteadyState.g01	g01	NA	File
	00		
GuntersvilleSteadyState.O01	1	NA	File
GuntersvilleSteadyState.p01	p01	NA	File
GuntersvilleSteadyState.prj	prj	NA	File
GuntersvilleSteadyState.r01	r01	NA	File
Appendix O_Evaluation of Sensitivity of Manning's n in Conveyance Term.pdf	pdf	8	Paper
AppendixO.g01	g01	NA	File
Building Guntersville SOCH GeometryAppenO.xls	xls	NA	File
Guntersville_AppendixO.dat	dat	NA	File
Guntersville_AppendixO.out	out	NA	File
Guntersville_AppendixO.run	run	NA	File
Guntersville_AppendixO.sto	sto	NA	File
Guntersville_SOCH_SS_Profiles_AppenO.xls	xls	NA	File
GuntersvilleAppenO.dat	dat	NA	File
GuntersvilleAppenO.geo	geo	NA	File

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GuntersvilleAppenO.out	out	NA	File
GuntersvilleAppenO.prt	prt	NA	File
GuntersvilleHECRASToCONVEYAppenO.xls	xls	NA	File
Nickajack100Kto1300K.bnd	bn d	NA	File
Appendix P_Calibrated Steady-State HEC-RAS Model.pdf	pdf	1	Paper
Guntersville.f01	f01	NA	File
Guntersville.f02	f02	NA	File
Guntersville.g01	g01	NA	File
Guntersville.p01	p01	NA	File
Guntersville.p02	p02	NA	File
Guntersville.prj	prj	NA	File
Appendix Q_Convey and SOCH Geometry.pdf	pdf	1	Paper
Building Guntersville SOCH GeometryRev4.0.xls	xls	NA	File
GuntersvilleHECRASToCONVEYREV3.0.xls	xls	NA	File
GuntersvilleREV3.0.dat	dat	NA	File
GuntersvilleREV3.0.out	out	NA	File
GuntersvilleREV3.0.prt	prt	NA	File
GuntersvilleRev4.0.geo	geo	NA	File
GuntersvilleRev4.1.geo	geo	NA	File
Attachment_01_Initial HEC-RAS Geometry.pdf	pdf	16	Paper
Guntersville.g03	g03	NA	File
Attachment_02_HEC-Hydraulic Reference Manual.pdf	pdf	13	Paper
Attachment_03_Guntersville Rating Curve.pdf	pdf	1	Paper
Guntersville Rating Curves.xls	xls	NA	File
Attachment_04_Nickajack Rating Curve.pdf	pdf	2	Paper
Nickajack Rating Curves.xls	xls	NA	File
Attachment_05_March 1973 Flood Elevations and Flows, Tennessee River.pdf	pdf	9	Paper
All Guntersville Flows & Elevations_Mar 1973_rev0.xls	xls	NA	File
Attachment_06_May 2003 Flood Elevations and Flows, Tennessee River.pdf	pdf	20	Paper
All Guntersville Flows and Elevations.xls	xls	NA	File
Attachment_07_Guntersville Total Local Inflow Hydrographs.pdf	pdf	1	Paper
Guntersville (SB 49 & 50) Total Local Inflow Hydrographs 1973 & 2003 Rev E (15Apr2009).xls	xls	NA	File
Attachment_08_Initial SOCH Geometry.pdf	pdf	17	Paper
GuntersvilleRev3.4.geo	geo	NA	File
Attachment_09_SOCH Input Preprocessor, Steady- State.pdf	pdf	1	Paper
Guntersville_100Ksteps_BuildSOCHdata (5).xls	xls	NA	File
Attachment_10_SOCH Input Preprocessor, March 1973	pdf	1	Paper

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Flood.pdf

Guntersville_Mar1973_BuildSOCHdata (5).xls	xls	NA	File
Attachment_11_SOCH Input Preprocessor, May 2003 Flood.pdf	pdf	1	Paper
Guntersville_May2003_BuildSOCHdata (5).xls	xls	NA	File
Attachment_12_Macro File for SOCH Input Preprocessor.pdf	pdf	1	Paper
SOCH_Macros.xls	xls	NA	File
Attachment_13_Macro File for Extraction of SOCH Output.pdf	pdf	1	Paper
Flood_ExtractSelectedSOCHOutputHydrographs.xls	xls	NA	File
Attachment 14 Native Word File for CDQ000020080041_Rev_1.docx	NA	NA	NA
(Attachment 14 - NOT SUBMITTED)			