

**Robert G. Byram**  
Senior Vice President and  
Chief Nuclear Officer

**PPL Susquehanna, LLC**  
Two North Ninth Street  
Allentown, PA 18101-1179  
Tel. 610.774.7502 Fax 610.774.5019  
rgbyram@pplweb.com



**AUG 31 2001**

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

**SUSQUEHANNA STEAM ELECTRIC STATION  
FINAL SAFETY ANALYSIS REPORT  
REVISION 55  
PLA-5348**

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**Docket Nos. 50-387  
and 50-388**

The purpose of this letter is to submit Revision 55 of the Final Safety Analysis Report (FSAR). One copy of this revision is being submitted on a CD-ROM in accordance with NRC Regulatory Issue Summary 2001-05 titled "Guidance on Submitting Documents to the NRC by Electronic Information Exchange or on CD-ROM." The CD-ROM contains a complete copy of the FSAR. A summary of the revisions made in Revision 55 are described in Attachment 1 to this letter. Attachment 2 is a copy of the "Read This File First.txt" file that is contained on the CD-ROM which explains the steps that need to be taken to read the CD-ROM.

Revision 55 does not represent the required revision pursuant to USNRC letter dated May 9, 1997, titled "Issuance of Exemption from 10CFR50.71(e)(4), Susquehanna Steam Electric Station," but is being submitted to provide the NRC with an updated FSAR on a CD-ROM prior to issuance of the required submittal in October 2001.


The following information is being provided to assist in reading the CD-ROM.

Format: TIFF  
Version: group 4  
Filename: #.tif  
Contact Individual: Mark R. Breiner  
Contact Individual Phone Number: 610-774-7691  
Contact Individuals Address: Two North Ninth St., Allentown, PA 18101  
Contact Individual E-Mail Address: mrbreiner@pplweb.com

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Please contact Mr. R. D. Kichline at (610) 774-7705 if there are any questions concerning this submittal.

Sincerely,



R. G. Byram

Attachments/Enclosure CD-ROM

copy: NRC Region I	w/o CD-ROM
Mr. S. Hansell, NRC Sr. Resident Inspector	w/o CD-ROM
Mr. R. Schaaf, NRC Project Manager	w/o CD-ROM

**BEFORE THE  
UNITED STATES NUCLEAR REGULATORY COMMISSION**

In the Matter of \_\_\_\_\_ :

PPL Susquehanna, LLC:

Docket No. 50-387  
and 50-388

**REVISION 55 OF THE FINAL SAFETY ANALYSIS REPORT  
UNITS 1 & 2**

Licensee, PPL Susquehanna, LLC, hereby files Revision 55 of the Final Safety Analysis Report for the Susquehanna Steam Electric Station, Units 1 and 2.

PPL Susquehanna, LLC

By:



R. G. Byram

Sr. Vice-President and Chief Nuclear Officer

Sworn to and subscribed before me  
this 31<sup>st</sup> day of August, 2001.

  
Notary Public

**Notarial Seal**  
Nancy J. Lannen, Notary Public  
Allentown, Lehigh County  
My Commission Expires June 14, 2004

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
1.1; 4.1; 4.2; 4.3; 4.4; 5.2; 15.1; 15.1; 15.4; 15.7; 15.8		1.6-4; 4.2-14; 4.3-2; 5.2- 9; 5.2-10; 15.8-1; 15.8- 3; 15.8-5; 15.8-7; 15.8-9; 15.8-11	4.3-1; 4.3-8-1; 4.3-8-3;4.3-8-4;4.3-9-2; 4.3-9-4; 4.3-9-5; 4.3-9-17; 4.3-9-18; 5.2-13; 15C.0-1; 15C.1.2-1-1; 15C.1.2-1-2; 15C.1.2-1-3; 15C.1.2-1-4; 15C.1.2-1-5; 15C.2.2-1-1; 15C.2.2-1-2; 15C.2.2-1-3; 15C.2.2-1-4; 15C.2.2-1-5; 15C.3.3-1; 15C.3.3-2; 15C.4.5-1-1 ;15C.4.5-1-2 ; 15C.4.5-1-3; 15C.4.5-1-4 ; 15C.4.5-1-5; 15E.5.1-1	Revised to reflect the design and results from licensing and accident analyses of the UIC12 reload core.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
1.1; 4.1; 4.2; 4.3; 4.4; 5.2; 6.3; 15.0; 15.3; 15.7; 15.8		1.6-1; 1.6-4; 4.2-14; 4.3-3; 5.2-9; 6.3-3B; 15.5-1; 15.8-2, 15.8-4, 15.8-6, 15.8-8, 15.8-10, 15.8-12; 15D.0-1, 15D.0-1A, 15D.0-2, 15D.0-3, 15D.0-4, 15D.0-5, 15D.1.1-1, 15D.1.2-1, 15D.1.3-1, 15D.2.2-1, 15D.3.3-1, 15D.3.3-2, 15D.3.3-3, 15D.3.3-5, 15D.3.3-7, 15D.3.3-8 15D.4.2-1, 15D.4.5-1, 15D.4.7-1, 15D.4.9-1 thru 15D.4.9-8	4.2-15A; 4.2-22; 4.3-2, 4.3-8-4, 4.3-8-7, 4.3-9-8, 4.3-9-9, 4.3-9-19, 4.3-9-20, 4.3-9-21, 4.3-9-22; 5.2-14 6.3-84; 15.5-1; 15C.0-1; 15D.0-1, 15D.1.2-1-1 thru 15D1.2-1-5, 15D2.2-1-1 thru 15D2.2-1-5, 15D.3.3-1, 15D.3.3-2, 15D.4.5-1-1 thru 15D.4.5-1-5	Revised to reflect the design and results from licensing and accident analyses of the U2C11 reload core.
1.2; 9.4; 12.5		9.4-7; 11.3-4; 11.4-2; 12.2-38	1.2-10; 2.1-12; 12.3-15	Revised to add a new Tool Room Facility and associated fire protection and ventilation system. Also revised to remove the downstream HEPA filters from the Unit 1 and Unit 2-turbine building filtered exhaust system.
			1.2-28	Revised to reflect that security doors 106 and 106A were relocated.
		1.8-1		Revised definitions, now only references the Technical Specification definitions.
2.3				Revised SSES Meteorological Monitoring Program references to be consistent.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
2.4		2.4-13	2.4-25	Revised to correctly identify the centerline elevation of the orifice to the ESSW spray pond blowdown line as 674.75 feet rather than 676.9 feet. Also, revised to address increased flow rates through the blowdown line.
3.1				Revised to reflect minor administrative and/or editorial changes.
3.1				Revised wording, to reflect the wording in the Technical Specification for reporting requirements.
		3.2-1; 6.3		Revised to reflect minor administrative and/or editorial changes.
3.5; 7.1; 18.1	130.05; 130.06; 130.07; 130.08; 130.09	3.2-1	6.4-1-A; 9.3.6-8; 9.3.6-9; 9.3.6-9a	Revised to reflect minor administrative and/or editorial changes.
			3.7B-94	Revised to reflect minor administrative and/or editorial changes.
3.9				Revised to reflect minor administrative and/or editorial changes.
3.9				Revised wording to address current licensing commitments and regulatory requirements for various ASME code components.
		3.9-2g		Revised to add clarity to the Table.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
		3.9-2s		Revised to add the following statements: "The calculated stresses are conservative since they are based on the original fuel assembly type which has the greatest mass of all fuel assemblies in use or in storage at SSES." and, "The calculated stresses are conservative since they are based on the original fuel assembly type which has the greatest mass of all fuel assemblies in use or in storage at SSES."
		3.10a-1; 7.3-3; 7.3-4	7.3-9-1; 7.3-10-1; 7.3-10-2; 7.3-19-5	Revised to reflect the correct vendor and/or model for some of the reactor pressure instrumentation.
3.11		3.11-7		Revised to add reactor water and suppression pool water to condensate as suitable media for flushing the shutdown portions of the RHR System prior to operation in the shutdown cooling mode.
3.13; 7.1; 8.1; 9.1; 12.5				Revised to reflect minor administrative and/or editorial changes.
3.13				Revised commitment to Regulatory Guide 1.70, "Standard Format and Content of Safety Analysis Reports for Nuclear Power Plants-LWR Edition (Rev. 2, September 1975)" to only show FSAR revision bars and the FSAR revision number on changed pages.
4.2				Revised to reflect the ability of the SPC 9x9-2 fuel assembly to achieve a maximum exposure of 46 GWD/MTU.
4.6				Revised to reflect minor administrative and/or editorial changes.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
5.2; 7.3; 7.6		5.2-8; 6.2-12; 7.1-5; 7.3-5		Revised to delete the automatic isolation of RHR Shutdown cooling valves on high ambient differential temperature in Unit 1 RHR Rooms.
5.3				Revised to reflect the as installed configuration with the design basis documents for the reactor vessel to head nozzles.
5.4			4.6-6; 5.4-10; 6.3-2	Revised to reflect the modified CRD Process Flow Diagram, to correct the statement that the RCIC Process Flow Diagram applies to pre-power Uprate requirements, to correct the RCIC Process Flow Diagram, and to correct the HPCI Process Flow Diagram.
5.4; 9.2			1.2-21; 4.6-5A; 5.4-16-1; 5.4-16-3;	Revised to reflect that the RWCU Pump Purge Supply was relocated from the purge supply skid to a purge supply from the CRD Hydraulics System.
5.4; 6.3; TOC-5.0			5.4-15A; 5.4-15B; 6.3-5; 6.3-118	Revised to update the RWCU Process Flow Diagram, and Process Flow Data Tables. Also, revised to clarify that the <u>original</u> Core Spray Process Flow Diagram was used in the development of the system's piping specifications, and to update the Core Spray Process Flow Diagram to the latest revision.



SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
5.4; 6.3 TOC 6.0	211.215; 211.296			Revised to more accurately characterize the conservative level assumed for the HPCI operation from the CST. Also revised to reflect the temperature used in the NPSHa analysis for Mode "C-2" is being changed from 200°F to 203°F, and the temperature used in the NPSHa analysis for Mode "E" is being changed from 200°F to 203°F.
5.4		3.2-1		Revised to provide clarification and/or establish consistency between different sections of the FSAR for various reactor coolant components.
5.4			5.4-2B-1	Revised to remove vent line from HV-1F031A and HV-1F031B.
5.4	211.59; 211.53		5.4-13-2; 5.4-13-4	Revised to prohibit the throttling of HV-151-F047A/B valves as a means of shutdown cooling (SDC) temperature control. HV-151-KF003A/B will be used for SDC temperature control. Also reflects that Residual Heat Removal heat exchanger outlet valves HV-151-F003A/B are connected to existing position indicators on Reactor Core Cooling Bench board 1C601.
			5.4-4A; 5.4-4B	Revised to reflect new RHR strainer design.
			5.4-16-1; 7.7-11	Revised to eliminate high vibration alarms VAH-14479A,B,A3,B3.
6.2		6.2-13	6.2-49; 6.2-50; 6.2-51	Revised the containment post LOCA hydrogen generation calculations to reflect the current Atrium 10x10-fuel bundle designs.
		6.2-15		Revised to add two potential Secondary Containment Bypass Leakage (SCBL) pathways.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
6.2		6.2-15		Revised the description of the Nitrogen Supply Line to indicate that the spectacle flange may be open during reactor power operations provided the leakage through the CIVs for these penetrations is less than the secondary containment bypass leakage (SCBL) limit when combined with the leakage from the other SCBL pathways.
		6.2-12		Revised the closure times shown for HV-18782A1, A2, B1, B2 (from 6 to 12 sec) and HV-18792A1, A2, B1, B2 (from 4 to 8 sec).
			6.2-55A	Revised to add note for interlocks between HV-15722 and HV-15725.
			6.2-72	Revised to correct Guide Tube Valve Assembly Ball Valve Solenoid Operator details (i.e.: location of circuit components and correction of typographical errors).
6.3				Revised to clarify how the LPCI injection line is tested to verify that there are no obstructions.
6.3				Revised to reflect minor administrative and/or editorial changes.
6.3; 7.4; 10.4; 18.1		3.9-13; 5.4-4	5.1-3A-2; 6.2-44	Revised to reflect modifications to valves HV-24107 A/B.
		6.5-4		Revised the description for mitigating actions for a failed open Recirculation Damper.
7.3; 9.4				Revised to correct a discrepancy in the bypass Indication System (BIS) between the FSAR and the as-built plant conditions.
		7.3-3		Revised to change the instrument range for the core spray pump discharge minimum flow function to "0-1782 gpm" from "0-2000 gpm."

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
7.5; 7.7; 18.1				Revised to delete references to specific computer architecture details unique to the former Plant Computer System. The revised sections are based on the functions of the Plant Integrated Computer System.
7.6; 10.4				Revised to add electrochemical corrosion protection (ECP)/local power range monitors (LPRM) Assembly to Section 7.6.1a.5.5.1, and ECP Monitoring to Section 10.4.7.5.
8.3		8.3-23	8.3-6	Revised to add transfer switches to the U2 24vdc battery chargers to provide alternate 1E 120vac source.
8.3				Revised wording regarding guidance for running diesel at low loads to reflect current manufacturer recommendations to prevent combustion product buildup.
		8.3-1; 8.3-1a; 8.3-1c; 8.3-2; 8.3-2a; 8.3-3; 8.3-3a; 8.3-4; 8.3-4a; 8.3-5; 8.3-5a		Revised Diesel Loading Tables.
		8.3-7B; 8.3-7E		Revise to assure battery profile is consistent with design calculation.
			8.3-1-1	Revised the rating of transformer 2X101A, and the overall rating of the Unit 2 transformer bank.
9.1		9.1-5		Revised to address the fuel rod storage basket, which is currently in the SSES spent fuel storage pool.
9.2		9.2-14; 9.2-16; 9.2-17; 9.2-18		Revised Chiller Water System subsections and tables to be more consistent with the design intent.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
9.2; 9.3; 9.4; 10.1; 10.4; TOC 1.0				Revised to address the addition of the Condensate Filtration System.
9.2			9.2-10	Revised to show the current sewage treatment plant configuration.
			9.2-5A; 9.2-5C; 9.2-6	Revised to show Biocide Injection subsystem.
9.3		3.2-1		Revised to correct minor discrepancies related to the Process Sampling System.
		9.4-1; 9.4-2; 9.4-3; 9.4-6; 9.4-7		Revised to address the current standard used for laboratory testing of charcoal filters.
			9.4-2	Revised to add a hand switch on each of the CREOASS local panels OC889A/B.
9.5			9.5-19	Revised to address modifications to the diesel generator fuel oil system to allow for the diesel oil fill activities without requiring a confined space entry into the diesel fuel oil vaults.
			9.5-14; 9.5-32	Revised to reflect minor administrative and/or editorial changes.
			9.5-16C; 9.5-16E	Revised to show additional jack plates.
			9.5-19; 9.5-19A; 9.5-26B; 9.5-28; 9.5-29; 9.5-30A; 9.5-39; 9.5-43-1	Revised to reflect the installation of a water removal, oil sampling and oil filtration panel (OC5101) and associated piping.
			9.5-19; 9.5-19A	Revised emergency diesel generator storage tank capacity from actual capacity to nominal capacity.
			9.5-20	Revised to reflect the modification to replace oil day tank level transmitter and add a siphon break to assist in the replacement of oil.
			9.5-32, 9.5-33, 9.5-35, 9.5-36	Revised to address the addition and /or relocation of fire detectors.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
10.4			10.4-2-1	Revised to reflect change to Unit 1 Figure for the condensate demineralizer.
			11.2-9-2	Revised to reflect the addition of vent and isolation valve 062824 to radwaste mist eliminator OT319 drain trap vents.
			11.3.3-1	Revised figure to make sensor identification consistent with the section.
13.1; 17.2		13.1-1; 13.1-2; 17.2-1; 17.2-2	13.1-1; 13.1-2; 13.1-3; 17.2-2; 17.2-3; 17.2-4	Revised to reflect organizational changes and to address the revised definition for the biennial review of procedures.
13.4				Revised to correct the responsibility for approval of functional unit procedures that do not require a 10 CFR 50.59 Safety Evaluation, from the General Manager-SSES to the responsible managers and supervisors.
13.4				Revised Operational Quality Assurance program description of PORC to clarify requirements for designation of Substitute Chairs and to define the PORC Chair as the plant manager or individual appointed by the plant manager.
15.4		7.1-3		Revised Table 7.1-3 to remove the refueling interlocks from the table. Also, revised Section 15.4.1.1 to replace "safety system interlocks" with "refueling interlocks".
15.4				Revised the wording used to describe the frequency classification for the Misplaced Bundle Accident.

SECTION	QUESTION	TABLE	FIGURE	DESCRIPTION OF CHANGE
15.6				Revised to change secondary containment isolation valve closure times from 3-5 seconds to 10 seconds.
		15C.0-1, 15C.0-4, 15C.3.3-1, 15C.3.3-2; 15D.0-1, 15D.0-4, 15D.3.3-1, 15D.3.3-2	15C.3.3-1; 15C.3.3-2; 15D.3.3-1, 15D.3.3-2	Revised to update U1C12 and U2C10 Pump Seizure Analysis results based on SPC re-analyses.
18.1; 18.2				Revised to reflect minor administrative and/or editorial changes.

## **Read This File First.txt**

### Read This File First!

This CD contains a set of images containing all the pages of the current revision of the Final Safety Analysis Report (FSAR) for Susquehanna Units 1 and 2. The images are labeled with unique document ID's assigned numerically as the original pages of the FSAR were scanned into a document management system. The numerical order of the image labels does not correspond to the ordering of the pages in the FSAR.

In order to 'read' the FSAR, a search engine must be used to provide indexing information to order the images in the correct sequence. This CD contains a royalty-free search engine coupled with a viewer to make it possible to read the FSAR.

This 'reader' must be installed on the viewing PC by the recipient to enable 'reading' of this electronic copy of the FSAR.

### Reader Installation

There is one executable file on this CD, named CDSetup.exe. Executing this file will install the MaxCD-Lite (tm) reader on your PC. This reader will work on Windows 95, 98 and NT workstations. It may also work on Windows 2000 and later operating system versions, but this has not been tested.

As few other applications as possible should be running when CDSetup is executed. After the setup program for MaxCD-Lite (tm) has completed, the user will be asked to reboot the PC to complete program installation in the Windows registry. Once this reboot has been accomplished, MaxCD-Lite (tm) can be run to view the contents of the CD.

Installation Note: In some network environments, some versions of MaxCD-Lite (tm) can experience startup errors (Error 3078/Runtime Error 3265) on the first use of the program. If this occurs, open the file MaxCD.ini with a text editor (e.g. NotePad.exe). The file MaxCD.ini can be found in the installation directory for MaxCD-Lite (tm). Find the line 'SKIP ='. On this line, after the equals sign, put a capital letter corresponding to any network drives, separating each letter by a comma. For example, if you have network drives F through K in use, the line should be edited to read SKIP = F, G, H, I, J, K. Then File Save

## Basic Reader Usage

The MaxCD-Lite (tm) reader is started from the START-Programs-MaxCD for FileNet - Reader selection in Windows. When started, the database for the index information will be read and a basic skeleton 'data tree' outline of the data on the CD will be presented on the left hand side of the program window.

Above this skeleton are two pull-down boxes containing available sort criteria for the images. A suggested starting point is to make the selections 'FSAR\_Type' and 'Section' in these two windows. The user should left-click on the '+' symbol to the left of the blue-green octagonal symbol on the data-tree. At that the database is being searched and loaded.

When loading is complete, the tree view will show the contents of the FSAR, sorted primarily by FIGURE, QUESTION, TABLE and TEXT categories. To view any of these items, double-click on the item and it will be displayed in the view window. If the document selected is a multi-page image, thumbnails of the images in the file will be placed on the far right side of the view window for easier page selection.

## Basic Searching

From the view menu, select Query Local Database. A query window will appear. To enter the query conditions, click the drop-down arrow of the Search Field box and select your criteria. In the condition box, select your match condition. In the blank field to the far right of the query window, type search data that matches the Search Field and Condition specified to the left. Click Build to start the query. Click Run Query to complete the query and see results.

To highlight the selected documents in the Three View area, click MARK. Those documents turn red in the tree view. Note: If the documents aren't currently showing in the tree view, you will have to scroll through the tree view to find the marked documents. Click exit to return to the main viewing window.



### Quick Keys

Ctrl+T	Thumbnails on/off
Ctrl+C	Copy
Ctrl+G	Gray Scale
Ctrl+O	Colors
Ctrl+R	Rotate Right
Ctrl+L	Rotate Left
Ctrl+D	Rotate Document
Ctrl+N	Next Page
Ctrl+P	Previous Page
Ctrl+F	Flip
Ctrl+Z	Zoom
F5	Refresh Tree View

### Further Help

More documentation for the reader is available through the HELP menu in the application.

### Questions

Inquiries on this product should be directed to the Nuclear Records operation of PPL Susquehanna LLC at (610) 774-7691.

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