

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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FACIL:50-387 Susquehanna Steam Electric Station, Unit 1, Pennsylva 05000387
50-388 Susquehanna Steam Electric Station, Unit 2, Pennsylva 05000388
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KEISER,H.W. Pennsylvania Power & Light Co.
RECIP.NAME RECIPIENT AFFILIATION
Project Directorate I-2

SUBJECT: Forwards update to emergency response data sys (ERDS) implementation program plan.Dept procedures will be modified per Rev 1,Section 3.6 to NUREG-1394 to support implementation & operation of ERDS data link.

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Pennsylvania Power & Light Company

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Harold W. Keiser  
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October 24, 1991

OCT 24 1991

Director of Nuclear Reactor Regulation  
Attention: Mr. C. L. Miller, Project Director  
Project Directorate I-2  
Division of Reactor Projects  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

SUSQUEHANNA STEAM ELECTRIC STATION  
EMERGENCY RESPONSE DATA SYSTEM IMPLEMENTATION  
PROGRAM PLAN  
PLA -3672 FILE R41-1D, R41-2

DOCKET Nos. 50-387 and 50-388

Dear Mr. Miller:

Enclosed is an update of the Susquehanna SES Emergency Response Data System Implementation Program Plan. The information provided updates our response to the ERDS Survey provided November 19, 1990 under the voluntary ERDS implementation program. Our schedule for implementation is still under development and will be provided by December 31, 1991. We will modify our department procedures in accordance with the requirements of NUREG-1394, Revision 1, Section 3.6 in order to support implementation and operation of the ERDS Data Link.

Very truly yours,

H. W. Keiser  
Sr. V.P.-Nuclear

WWW/vjs

Enclosure

Copy: ~~NRC Document Control Desk (original)~~  
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**APPENDIX B**

**ERDS COMMUNICATIONS DESCRIPTION  
AND SURVEY QUESTIONNAIRE**

## I. Contacts

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RDAS: Same as "C" above

SPDS: Same as "C" above

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### III. Selection Of Data Feeders

**A. How many data feeders are there (six maximum)?**

There will be one data feeder which will be capable of establishing Unit 1 and Unit 2 ERDS links simultaneously. PP&L intends on using the Multiple Input (MI)/Multiple Output (MO) ERDS Send System developed by Halliburton NUS Environmental Corporation for the NRC as the data feeder system.

The data required by ERDS currently resides in 3 computer systems: the Plant Computer System (PCS), the Safety Parameter Display System (SPDS) and the Remote Data Analysis System (RDAS). PP&L intends on using the RDAS, located in the Emergency Operations Facility (EOF), as a data concentrator for both Unit 1 and Unit 2 ERDS data. PP&L intends that the required data that exists in the Unit 1 and Unit 2 PCSs be transmitted to RDAS over an existing computer-to-computer fiber optic data link between these systems. PP&L also plans to install a second SPDS computer in the EOF to be able to provide Unit 1 and Unit 2 data simultaneously. PP&L intends to establish new links between the two SPDSs and RDAS computer systems, transmitting the required data that exists within SPDS to RDAS. PP&L also plans to establish a new data link between the RDAS and the ERDS PC send system (i.e. the data feeder system).

**B. Identify the selected data feeders and provide the following for each:**

- (1) a short description of the categories of data points it will provide (e.g., met, rad, or plant data points, by unit) and

See the attached Table 1.

- (2) the rationale for selecting it if another system can also provide its categories of data points.

SPDS was chosen as the data source whenever a point existed in its database since it provides the most "qualified" data via its algorithms.

**C. Which data feeder is the site time determining feeder? This should be the feeder which is providing the majority of the data points.**

The RDAS computer system will determine site time. The RDAS receives its time through a satellite synchronized time code generator. The PCS also receives its time through a satellite time code generator. SPDS time is maintained by a battery backed up time clock which is manually set as needed based on the satellite time code generator in the EOF.

## IV. Data Feeder Information

Note: A new Section IV must be filled out for each feeder system selected.

### General Questions

#### 1. Identification of Data Feeder

- a. What is the name in local parlance given to this data feeder (e.g., Emergency Response Information System)? Please give both the acronym and the words forming it.

The data concentrator will be the Remote Data Analysis System (RDAS). The data feeder will be the Multiple Input/Multiple Output ERDS Send System.

- b. Is this the site time determining feeder?

RDAS is the site time determining feeder for the ERDS interface.

- c. How often will this feeder transmit an update set to the ERDS (in seconds)?

The update frequency of the data RDAS receives varies based on the source of data.

SPDS scans all of its inputs once a second. However, the SPDS data will be transmitted to RDAS once every 60 seconds.

The PCS is made up of multiple computers which scan their inputs at several different rates. The Display Control System (DCS) computers scan points every 0.20 seconds, while the Balance Of Plant (BOP) computer scans its points once a second and the Nuclear Steam Supply (NSS) computer scans its points every 5 seconds. Data is transmitted from PCS to RDAS once every 60 seconds.

RDAS will send the data to the ERDS Send System once every 60 seconds.

The ERDS Send System therefore will transmit the data once every 60 seconds.

## 2. Hardware/Software Environment

- a. Identify the manufacturer and model number of the data feeder hardware.

The hardware PP&L plans to use to implement the ERDS Send System will meet the requirements of Section 5.1 HARDWARE of the Multiple Input/Multiple Output ERDS Send System Specification, dated June 20, 1991, prepared for the United States Nuclear Regulatory Commission by Halliburton NUS Environmental Corporation.

- b. Identify the operating system.

The operating system PP&L plans to use to implement the ERDS Send System will meet the software requirements of Section 5.2 SOFTWARE of the Multiple Input/Multiple Output ERDS Send System specification referenced in 2.a. above.

- c. What method of timekeeping is implemented on this feeder system (Daylight Savings, Standard, Greenwich)?

RDAS, which will be the site time determining feeder for the ERDS Send System, uses Daylight Savings time.

- d. In what time zone is this feeder located?

The Susquehanna Steam Electric Station is located in the Eastern Time Zone.



### 3. Data Communication Details

- a. Can this data feeder provide asynchronous serial data communication (RS232-C) with full-modem control?

Yes

- b. Will this feeder transmit in ASCII or EBCDIC?

The RDAS data concentrator will provide data to the ERDS Send System in ASCII. The ERDS Send System will transmit in ASCII.

- c. Can this feeder transmit at a serial baud rate of 2400 bps? If not, at what baud rate can it transmit?

Yes

- d. Does the operating system support XON/XOFF flow control?

Yes

1. Are any problems foreseen with the NRC using XON/XOFF to control the transmission of data?

No.

- e. If it is not feasible to reconfigure a serial port for the ERDS linkup (i.e., change the baud rate, parity, etc.), please explain why.

N/A

- f. Do any ports currently exist for the ERDS linkup?

No, RDAS as the data concentrator does not currently have any spare unallocated ports to support transmitting data to the ERDS Send System.

1. If not, is it possible to add additional ports?

Yes, additional ports will be added to the RDAS computers by installing new asynchronous serial interface cards.

2. If yes, will the port be used solely by the ERDS or shared with other non-emergency-time users? Give details.

The ports will be dedicated for use solely to provide data to the ERDS Send System.

4. Data Feeder Physical Environment and Management

- a. Where is the data feeder located in terms of the TSC, EOF, and control room?

The ERDS Send System will be located in the EOF.

- b. Is the data feeder protected from loss of supply of electricity?

The ERDS Send System will be powered from the same source as the RDAS computers located in the EOF computer room. The power for the RDAS computers is provided by an UPS with diesel generator backup.

- c. Is there a human operator for this data feeder?

The ERDS Send System link-up with the NRC ERDS will need to be manually initiated. PP&L intends to have Emergency Plan personnel who report to the EOF activate the ERDS link.

1. If so, how many hours a day is the feeder attended?

The Emergency Plan personnel who will activate the ERDS link are on call and will be able to initiate the link-up with the NRC ERDS within the required one hour time period following the declaration of an Alert or higher emergency classification.

Table 1'  
**CRITICAL SAFETY FUNCTION PARAMETERS-ERDS DATA FEEDER**

<u>PARAMETER DESCRIPTION</u>	<u>UNITS</u>	<u>SOURCE</u>	<u>POINT ID</u>
<u>REACTIVITY CONTROL</u>			
NI POWER RNG    Nuclear Instr., Power Range	%	SPDS	PWR
NI INTER RNG    Nuclear Instr., Intermediate Range	%	PCS	NM602
NI SOURCE RNG    Nuclear Instr., Source Range	%	PCS	NN109
	CPS	SPDS	NN1001Z
	CPS	SPDS	NN1002Z
	CPS	SPDS	NN1003Z
	CPS	SPDS	NN1004Z
<u>CORE COOLING</u>			
REAC VES LEV    Reactor Vessel Water Level	INCHES	SPDS	RWL
MAIN FD FLOW    Feedwater Flow into the Reactor System	MLB/HR	PCS	NFF52
	MLB/HR	PCS	NFF53
	MLB/HR	PCS	NFF54
RCIC FLOW       Reactor Core Isolation Cooling Flow	GPM	PCS	NIF01
<u>RCS INTEGRITY</u>			
RCS PRESSURE    Reactor Coolant System Pressure	PSIG	SPDS	RXPR
HPCI FLOW       High Pressure Coolant Injection Flow	GPM	PCS	NGF01
LPCI FLOW       Low Pressure Coolant Injection Flow	GPM	PCS	NHF01
	GPM	PCS	NHF02
CR SPRAY FL     Core Spray Cooling System Flow	GPM	SPDS	LPCS
DW FD SHP LV    Drywell Floor Drain Sump Level	%	SPDS	RLL004Z
	%	SPDS	RLL005Z
<u>RADIOACTIVITY CONTROL</u>			
EFF GAS RAD     Radioactivity of Released Gasses	UCI/M	SPDS	NGTOTL
EFF LIQ RAD     Radioactivity of Released Liquids	UCI/M	SPDS	VDR001Z
CND A/E RAD     Condenser Air Ejector Radioactivity	NOT AVAILABLE		
DW RAD           Radiation Level in the Drywell	R/HR	SPDS	PCA
MN STEAM RAD    Radiation Level of the Main Steam Line	HR/HR	PCS	NAR01
	MR/HR	PCS	NAR02
	MR/HR	PCS	NAR03
	MR/HR	PCS	NAR04
<u>CONTAINMENT CONDITIONS</u>			
DW PRESS        Drywell Pressure	PSIG	SPDS	DWPR
DW TEMP         Drywell Temperature	DEGF	SPDS	DWT
SP TEMP         Suppression Pool Temperature	DEGF	SPDS	SPT
SP LEVEL        Suppression Pool Water Level	FEET	SPDS	SPWL
H2 CONC         Drywell Hydrogen Concentration	%	SPDS	HYDGN
O2 CONC         Drywell Oxygen Concentration	%	SPDS	OXYGN
<u>MISCELLANEOUS PARAMETERS</u>			
CST LEVEL       Condensate Storage Tank Level	%	PCS	CSL01
	%	PCS	CSL02
WIND SPEED      Wind Speed at the Reactor Site	MPH	RDAS	SPD
WIND DIR        Wind Direction at the Reactor Site	DEGFR	RDAS	DIR
STAB CLASS      Air Stability at the Reactor Site		RDAS	STAB

Notes: 1 - This Table applies to both Unit 1 and Unit 2 data.