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C. K. McCoy
Vice President, Nuclear
Vogtle Project

Georgia Power
the southern electric system

January 8, 1993

ELV-03975
002140

Docket Nos. 50-424
50-425

TAC 80515
80516

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

Gentlemen:

VOGTLE ELECTRIC GENERATING PLANT
DIFFERENTIAL SETTLEMENT OF BURIED PIPE

At a September 26, 1989, meeting with Georgia Power Company (GPC) at the Vogtle Electric Generating Plant (VEGP) site, the staff initiated the issue of differential settlement of buried pipes and requested additional information. Letters of March 19, 1990, and August 30, 1990, from Mr. W. G. Hairston, III to the NRC provided this additional information and supporting data relative to the differential settlements experienced by safety related buried piping at their interfaces between compacted backfill and Category I structures.

The August 23, 1991, letter from the NRC to Mr. W. G. Hairston, III transmitted the Safety Evaluation Report (SER) regarding the VEGP settlement monitoring program. In section 2.4 of the SER, "Differential Settlement of Buried Pipe," the staff questioned the validity of the piping analyses. This letter responds to the SER concern regarding the validity of the piping analyses by reporting the evaluation of all safety related buried piping.

The settlement monitoring program, as outlined in the VEGP Final Safety Analysis Report (FSAR) section 2.5.4.13.2.6, was established to monitor the settlement of the Category 1 structures to ensure that the interconnecting pipes have not exceeded design capacity. Currently, over 175 surveying markers are being monitored at either 60-day or 6-month intervals. Engineering reviews compare the actual differential settlement of adjacent buildings as seen by approximately 350 interconnecting pipes to the design differential settlement values.

By comparison, a total of only 38 safety related buried pipes interface between compacted backfill and Category 1 structures. (See attached sketch SK-A-SMP-002 for penetration details.) The differential settlement experienced by buried piping is not addressed by the VEGP settlement monitoring program; therefore, no survey points exist in the backfill free field for collecting data regarding changes in backfill elevations. In the absence of this data, GPC has taken the most conservative approach (assuming zero settlement of the backfill) in the evaluation of these 38 buried pipe lines to address the staff's concern regarding the validity of the piping analysis.

An evaluation of all these safety related buried pipes was conducted as indicated by the attached Settlement Monitoring Program Flow Chart. Table 1 (attached) summarizes the results of the evaluation which was conducted. The following are the assumptions used in the evaluation.

1. ACTUAL DIFFERENTIAL SETTLEMENTS

   A. Continued to conservatively assume zero settlement of the compacted backfill and the buried portions of the pipe.

   B. Determined the installation date of the pipe and/or support. The plant's construction data bases were re-examined for additional information on the welding of spool pieces and installation of supports to reconfirm the installation dates. Where additional information was found, the latest relevant modification dates were used for the installation dates.

      o Whenever the pipe penetrates a sleeve in the structure foundation, and movement is allowed, the differential settlement stresses were not induced in the pipe until the support was installed. The installation date used was that of the earliest installed support near the penetration.

      o Whenever the pipe is embedded in concrete or grout, the installation date used was that of the last spool piece weld connection of the buried pipe.

   C. The settlement of the structure, subsequent to the installation date of the pipe/support, was taken from the survey data of the marker in the area where the pipe enters the structure. A straight line method of interpolation between two actual survey reading dates (taken at either 60-day or 6-month intervals) was used to determine the "initial" elevation of the structure on the specific installation date of the pipe support or spool piece weld. This "initial" elevation was subtracted from the subsequent elevations of the structure to determine the actual settlement of the structure.

   D. The actual differential settlement of the buried pipe is the actual settlement of the structure (as discussed in C above) minus the settlement of the compacted backfill (assumed to equal zero as discussed in A above). In other words, the differential settlement between the pipe and the structure will equal the settlement of the structure from the date the pipe or support was installed.

      The only exceptions are where the buried pipe penetrates at a sleeve in the diesel fuel oil storage tank pumphouse (DFOST) footing. Since soil is adjacent to the footing both inside and outside of the structure, in these cases, the actual differential settlement of the buried pipe is the actual settlement of the structure (as discussed in C above) minus the settlement of the compacted backfill (assumed to equal zero as discussed in A above) minus the clearance between the pipe and sleeve at the time of piping installation.

2. ALLOWABLE DIFFERENTIAL SETTLEMENT

The allowable differential settlement is the maximum differential settlement that can be permitted without exceeding the applicable allowable stresses in the pipe or in the support structure. This value is always equal to, or greater than, the design differential settlement. The allowable differential settlement values are shown under either the pipe or support column of Table 1 to depict which is controlling.

In those cases where the support is controlling, more refined calculation evaluations were performed using the actual support qualification calculation to determine the controlling stresses resulting from the load combinations imposed on the piping system. These stresses were compared to the applicable code allowable stresses to determine the reserve load capacity. The allowable differential settlement values for supports were computed where appropriate to utilize this reserve capacity.

3. DESIGN DIFFERENTIAL SETTLEMENT

Table 7 of design criteria DC-1017 includes the maximum differential building settlements used in the original design. These were previously applicable to both non-safety related and safety related piping whether buried or exposed between structures. Because of inherent conservatism of these original values and our historical data of the actual settlement of buildings, we have established new design differential settlement values for safety related buried piping. Design criteria DC-1017 has been revised by change notice DMCN-1017-2 (attached) to reference design criteria DC-2144-B specifically for safety related buried piping. Change notice DMCN 2144-B-3 (attached) now includes the new values for each of the safety related buried pipe lines. These new design differential settlement values were established based on the following:

- The design differential settlement value is sufficiently greater than the actual differential settlement (25 percent where possible or more) to minimize any concern for additional future settlement.

- The design differential settlement value must be less than or equal to the allowable differential settlement.

All of the lines have been reanalyzed by performing pipe stress calculations using the new design differential settlement values. Also, the affected supports have been reanalyzed by performing calculations to confirm adequacy using the loads associated with the new design differential settlement values.

The results of the reanalyses reaffirm the design integrity of these safety related buried pipe lines and that none are overstressed. This addresses the concern expressed in the SER of August 23, 1991, regarding the validity of the piping analyses.

Should you have additional questions please inquire.

Sincerely,

C. K. McCoy

CKM/JLL/gmb

Enclosures

xc: Georgia Power Company
Mr. W. B. Shipman
Mr. M. Sheibani
NORMS

U. S. Nuclear Regulatory Commission
Mr. S. D. Ebneter, Regional Administrator
Mr. D. S. Hood, Licensing Project Manager, NRR
Mr. B. R. Bonser, Senior Resident Inspector, Vogtle

TYPE 1

LINE NUMBER	ISOMETRIC NUMBER	CIVIL DWG.	PIPE SLEEVE SIZE	LOCATION	NOTES
1-2403-043-4"	1XS-2403-043-01	1X2031C001	8"	DIESEL FUEL OIL STORAGE TANK PUMPHOUSE (WEST WALL)	DEVIATION REPORT 02-0367
1-2403-044-4"	1XS-2403-044-01		8"		
1-2403-051-2"	1XS-2403-051-02		4"		
1-2403-053-2"	1XS-2403-053-02		4"		
1-2403-068-3"	1XS-2403-058-01		6"		
1-2403-088-3"	1XS-2403-088-01		6"		
1-2403-084-2"	1XS-2403-253-01		4"		
2-2403-043-4"	2XS-2403-043-01	2X2031C001	8"	DIESEL FUEL OIL STORAGE TANK PUMPHOUSE (EAST WALL)	2X2DR4C028 DETAIL 1
2-2403-044-4"	2XS-2403-044-01		8"		
2-2403-051-2"	2XS-2403-051-01		4"		
2-2403-053-2"	2XS-2403-053-01		4"		
2-2403-068-3"	2XS-2403-258-01		6"		
2-2403-088-3"	2XS-2403-057-01		6"		
2-2403-084-2"	2XS-2403-081-02		4"		
1-1202-029-6"	1XS-1202-029-06	1X2010C005	10"	NSCW VALVE HOUSE 1A	
1-1202-030-6"	1XS-1202-030-06		10"	NSCW VALVE HOUSE 1A	
1-1202-029-6"	1XS-1202-029-06	1X2044C012	10"	TUNNEL 1T29	
1-1202-030-6"	1XS-1202-030-06		10"	TUNNEL 1T28	

TYPE 2

LINE NUMBER	ISOMETRIC NUMBER	CIVIL DWG.	EMBED/GUARD PIPE	LOCATION	NOTES
2-2403-044-4"	2XS-2403-044-02	2X2207A001	YES	UNIT 2 DIESEL GEN. BLDG SOUTH WALL @ COL D3 & D5	W-FIRE-18525
2-2403-053-2"	2XS-2403-053-01		YES		
2-2403-068-3"	2XS-2403-068-01		YES		

TYPE 3

LINE NUMBER	ISOMETRIC NUMBER	CIVIL DWG.	EMBED/GUARD PIPE	LOCATION	NOTES
1-2403-053-4"	1XS-2403-043-02	1X2001A001	YES	UNIT 1 DIESEL GEN. BLDG SOUTH WALL @ COL D8 & D9	X-FIRE-21346
1-2403-044-4"	1XS-2403-044-02		YES	UNIT 1 DIESEL GEN. BLDG SOUTH WALL @ COL D8 & D9	
1-2403-051-2"	1XS-2403-051-01		YES	UNIT 1 DIESEL GEN. BLDG SOUTH WALL @ COL D8 & D9	
1-2403-053-2"	1XS-2403-253-01		YES	UNIT 1 DIESEL GEN. BLDG SOUTH WALL @ COL D8 & D9	
1-2403-068-3"	1XS-2403-068-01		YES	UNIT 1 DIESEL GEN. BLDG SOUTH WALL @ COL D8 & D9	
1-2403-084-2"	1XS-2403-084-02		YES	UNIT 1 DIESEL GEN. BLDG SOUTH WALL @ COL D8 & D9	

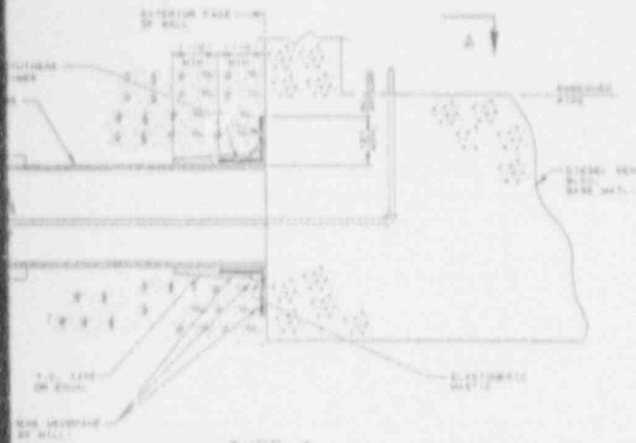
TYPE 4

LINE NUMBER	ISOMETRIC NUMBER	CIVIL DWG.	EMBED/GUARD PIPE	LOCATION	NOTES
2-2403-043-4"	2XS-2403-043-01	2X2007A001	YES	UNIT 2 DIESEL GEN. BLDG WEST WALL @ COL D1	W-FIRE-18524
2-2403-051-2"	2XS-2403-051-02		YES		
2-2403-088-3"	2XS-2403-057-01		YES		

TYPE 5

LINE NUMBER	ISOMETRIC NUMBER	CIVIL DWG.	CORE DRILL / PIPE SLEEVE SIZE	CORE DRILL LOCATION	NOTES
2-1202-029-6"	2XS-1202-029-03	2X2009C005	10"	NSCW VALVE HOUSE 2A	DEVIATION REPORT 02-0212
2-1202-030-6"	2XS-1202-030-03		10"	NSCW VALVE HOUSE 2A	
2-1202-029-6"	2XS-1202-029-03	2X2044C013	10"	TUNNEL 2T38	
2-1202-030-6"	2XS-1202-030-03		10"	TUNNEL 2T28	

8 7 6



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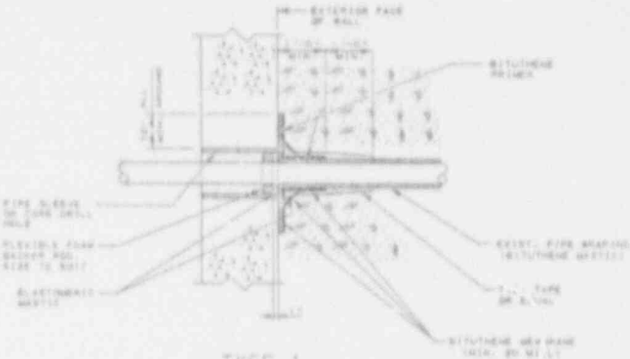
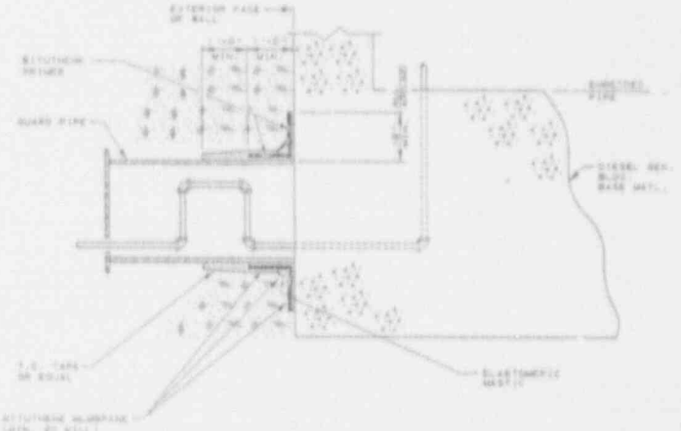


TYPE 1

VIEW A-A



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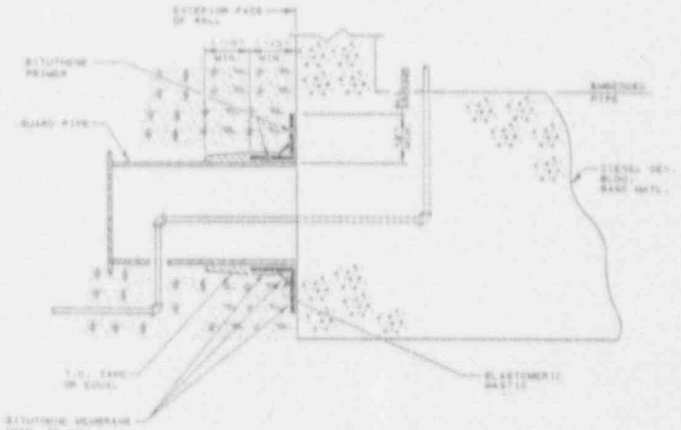

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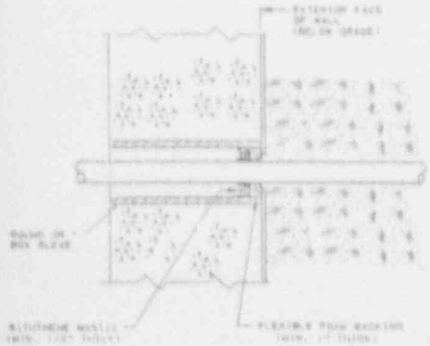

TYPE 5

9301210154-01

SOUTHERN COMPANY SERVICES, INC.
BIRMINGHAM, ALABAMA

GEORGIA POWER COMPANY
ALVIN W. VOGTLE NUCLEAR PLANT

PENETRATION DETAILS OF
SAFETY RELATED BURIED PIPING
ENTERING CATEGORY 1 STRUCTURES

SCALE: NONE	DRAWING NO.	
JOB NO. 10675	SK-A-SAP-002	A

c:\dgn\wc1002.dgn JUL 23 1992 15:37:55 JLH

SETTLEMENT MONITORING PROGRAM

FLOW CHART

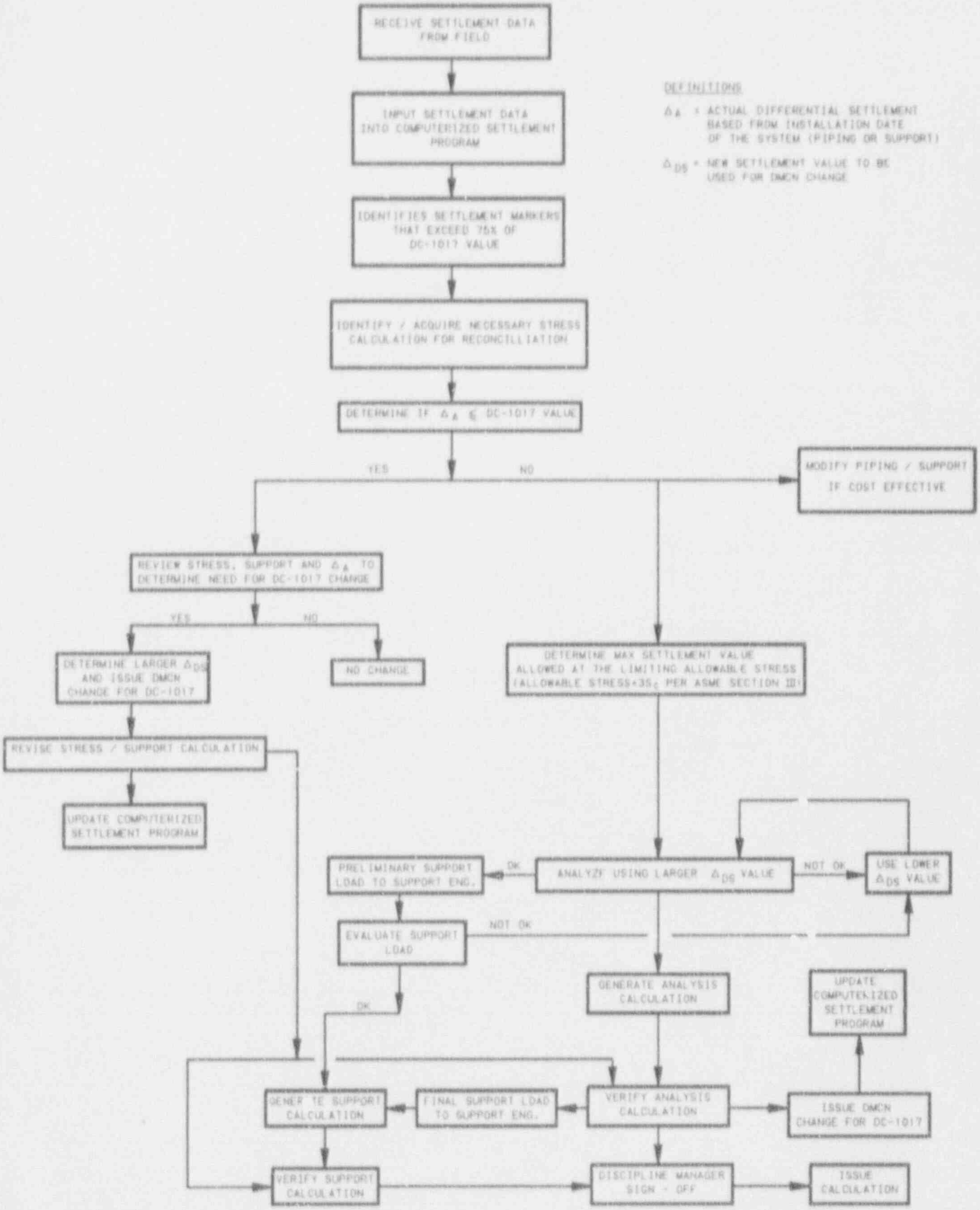

TABLE 1

DIFFERENTIAL SETTLEMENT FOR
SAFETY RELATED BURIED PIPES INTERFACING
WITH CATEGORY 1 STRUCTURES
UNITS 1 AND 2

PIPE IDENTIFICATION NUMBER	SYSTEM INSTALLATION DATES		MARKER DATA		DESIGN DIFFERENTIAL SETTLEMENT PER DC-1017 TABLE 7 (DMCM NO. 1017-2)	ACTUAL DIFFERENTIAL SETTLEMENT (INCHES)		ALLOWABLE DIFFERENTIAL SETTLEMENT (INCHES)	
	PIPE	SUPPORT	MARKER NUMBER	BUILDING LOCATION	DIFFERENTIAL SETTELEMENT (INCHES)	PIPE	SUPPORT	PIPE	SUPPORT
1-1202-029-6"	N/A(2)	4-10-86	153-R	NSCW-1	0.50	N/A(2)	0.10	N/A	0.60
1-1202-030-6"	N/A(2)	4-13-86	153-R	NSCW-1	0.30	N/A(2)	0.11	N/A	0.35
1-1202-029-6"	N/A(2)	1-13-85	196	TUNNEL	0.50	N/A(2)	0.37	N/A	0.60
1-1202-030-6"	N/A(2)	5-28-86	196	TUNNEL	0.50	N/A(2)	0.08	N/A	0.50
1-2403-044-4"	3-11-84	N/A(1)	132-R	DG-1	0.80	0.54	N/A(1)	0.85	N/A
1-2403-066-3"	1-27-85 (3)	N/A(1)	132-R	DG-1	0.80	0.30	N/A(1)	1.05	N/A
1-2403-053-2"	10-14-84	N/A(1)	132-R	DG-1	0.80	0.35	N/A(1)	1.46	N/A
1-2403-051-2"	1-13 [illegible]	N/A(1)	132-R	DG-1	0.44	0.30	N/A(1)	0.59	N/A
1-2403-068-3"	2-3-85	N/A(1)	132-R	DG-1	0.44	0.29	N/A(1)	0.58	N/A
1-2403-043-4"	1-27-85 (3)	N/A(1)	132-R	DG-1	0.41	0.30	N/A(1)	0.[illegible]	N/A

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TABLE 1 (CONT'D)

DIFFERENTIAL SETTLEMENT FOR
SAFETY RELATED BURIED PIPES INTERFACING
WITH CATEGORY 1 STRUCTURES
UNITS 1 AND 2

PIPE IDENTIFICATION NUMBER	SYSTEM INSTALLATION DATES		MARKER DATA		DESIGN DIFFERENTIAL SETTLEMENT PER DC-1017 TABLE 7 (DMCN NO. 1017-2)	ACTUAL DIFFERENTIAL SETTLEMENT (INCHES)		ALLOWABLE DIFFERENTIAL SETTLEMENT (INCHES)	
	PIPE	SUPPORT	MARKER NUMBER	BUILDING LOCATION	DIFFERENTIAL SETTELEMENT (INCHES)	PIPE	SUPPORT	PIPE	SUPPORT
1-2403-044-4"	N/A(2)	8-18-86	145-R	DFOST-1	0.70	N/A(2)	0.11	N/A	0.70
1-2403-044-4"	3-18-84	N/A(4)	145-R	DFOST-1 FOOTING	0.50	0.00(5)	N/A(4)	0.50	N/A
1-2403-066-3"	N/A(2)	2-03-85	145-R	DFOST-1	0.50	N/A(2)	0.34	N/A	0.58
1-2403-053-2"	N/A(2)	6-25-86 (3)	145-R	DFOST-1	0.60	N/A(2)	0.10	N/A	0.64
1-2403-069-2"	2-03-85	N/A(4)	145-R	DFOST-1	0.50	0.34	N/A(4)	0.60	N/A
1-2403-069-2"	2-03-85	N/A(4)	145-R	DFOST-1 FOOTING	0.50	0.34	N/A(4)	0.77	N/A
1-2403-051-2"	N/A(2)	2-04-85	145-R	DFOST-1	0.60	N/A(2)	0.30	N/A	0.76
1-2403-068-3"	N/A(2)	9-14-86	145-R	DFOST-1	0.50	N/A(2)	0.11	N/A	0.53
1-2403-043-4"	N/A(2)	12-16-84	145-R	DFOST-1	0.50	N/A(2)	0.35	N/A	0.50

026032

TABLE 1 (CONT'D)

DIFFERENTIAL SETTLEMENT FOR
SAFETY RELATED BURIED PIPES INTERFACING
WITH CATEGORY 1 STRUCTURES
UNITS 1 AND 2

PIPE IDENTIFICATION NUMBER	SYSTEM INSTALLATION DATES		MARKER DATA		DESIGN DIFFERENTIAL SETTLEMENT PER DC-1017 TABLE 7 (DMCN NO. 1017-2)	ACTUAL DIFFERENTIAL SETTLEMENT (INCHES)		ALLOWABLE DIFFERENTIAL SETTLEMENT (INCHES)	
	PIPE	SUPPORT	MARKER NUMBER	BUILDING LOCATION	DIFFERENTIAL SETTELEMENT (INCHES)	PIPE	SUPPORT	PIPE	SUPPORT
2-1202-029-6"	N/A(2)	12-9-86	260-R	NSCW-2	0.60	N/A(2)	0.29	N/A	0.60
2-1202-030-6"	N/A(2)	2-01-87	260-R	NSCW-2	0.30	N/A(2)	0.23	N/A	0.30
2-1202-029-6"	N/A(2)	5-07-86	292	TUNNEL	0.80	N/A(2)	0.46	N/A	0.80
2-1202-030-6"	N/A(2)	5-05-86	292	TUNNEL	0.80	N/A(2)	0.46	N/A	0.80
2-2403-044-4"	1-29-87	N/A(1)	249-R	DG-2	0.44	0.22	N/A(1)	0.55	N/A
2-2403-066-3"	2-5-87	N/A(1)	249-R	DG-2	0.44	0.22	N/A(1)	0.58	N/A
2-2403-053-2"	1-21-87 (3)	N/A(1)	249-R	DG-2	0.44	0.23	N/A(1)	0.64	N/A
2-2403-051-2"	8-10-86	N/A(1)	252-R	DG-2	0.70	0.30	N/A(1)	1.90	N/A
2-2403-068-3"	9-6-85 (3)	N/A(1)	252-R	DG-2	1.20	0.67	N/A(1)	1.95	N/A
2-2403-043-4"	5-25-86 (3)	N/A(1)	252-R	DG-2	1.00	0.40	N/A(1)	1.93	N/A

TABLE 1 (CONT'D)

DIFFERENTIAL SETTLEMENT FOR
SAFETY RELATED BURIED PIPES INTERFACING
WITH CATEGORY 1 STRUCTURES
UNITS 1 AND 2

PIPE IDENTIFICATION NUMBER	SYSTEM INSTALLATION DATES		MARKER DATA		DESIGN DIFFERENTIAL SETTLEMENT PER DC-1017 TABLE 7 (DMCN NO. 1017-Z)	ACTUAL DIFFERENTIAL SETTLEMENT (INCHES)		ALLOWABLE DIFFERENTIAL SETTLEMENT (INCHES)	
	PIPE	SUPPORT	MARKER NUMBER	BUILDING LOCATION	DIFFERENTIAL SETTELEMENT (INCHES)	PIPE	SUPPORT	PIPE	SUPPORT
2-2403-044-4"	N/A(2)	4-13-87	296-R	DFOST-2	0.50	N/A(2)	0.08	N/A	0.50
2-2403-044-4"	9-16-85	N/A(4)	296-R	DFOST-2 FOOTING	0.50	0.08(5)	N/A(4)	0.50	N/A
2-2403-066-3"	N/A(2)	4-22-87	296-R	DFOST-2	0.45	N/A(2)	0.08	N/A	1.11
2-2403-053-2"	N/A(2)	6-23-87	296-R	DFOST-2	0.50	N/A(2)	0.06	N/A	0.50
2-2403-069-2"	8-24-86 (3)	N/A	296-R	DFOST-2	0.60	0.24	N/A	N/A(4)	N/A
2-2403-069-2"	8-24-86	N/A(4)	296-R	DFOST-2 FOOTING	0.60	0.24	N/A(4)	0.77	N/A
2-2403-051-2"	N/A(2)	6-09-87	254-R	DFOST-2	0.60	N/A(2)	0.07	N/A	0.73
2-2403-068-3"	N/A(2)	4-28-87	254-R	DFOST-2	0.40	N/A(2)	0.08	N/A	0.45
2-2403-043-4"	N/A(2)	9-15-87	296-R	DFOST-2	0.50	N/A(2)	0.06	N/A	0.63

NOTES: 1) PIPE IS EMBEDDED IN BUILDING SLAB.
2) PIPE PENETRATES A SLEEVE.
3) REVISED INSTALLATION DATES BASED ON RE-EXAMINATION OF PLANT'S CONSTRUCTION DATABASES.
4) NO SUPPORTS ARE AFFECTED.
5) AT THIS INTERFACE, NO SUPPORTS ARE INVOLVED PLUS THE PIPE PENETRATES A SLEEVE ALLOWING MOVEMENT. IN CALCULATING THE ACTUAL DIFFERENTIAL SETTLEMENT FOR THE PIPE, THE MINIMUM CLEARANCE BETWEEN THE PIPE AND THE SLEEVE (AS REQUIRED BY CONSTRUCTION SPECIFICATION X4AZ01 SECTION P4.7.3.A.4.a) WAS DEDUCTED FROM THE ACTUAL SETTLEMENT OF THE STRUCTURE. THIS IS DUE TO THE FACT THAT NO DIFFERENTIAL SETTLEMENT STRESSES WILL BE INDUCED INTO THE PIPE UNTIL CONTACT IS MADE BY THE SLEEVE.
6) AT THIS INTERFACE LOCATION THE LINE IS NOT ATTACHED TO THE STRUCTURE. SINCE THE "AS-BUILT" GAP SHOWN ON DESIGN DRAWING 2RS-2403-051-02 IS GREATER THAN THE DESIGN DIFFERENTIAL SETTLEMENT VALUE, NO STRESSES ARE INDUCED INTO THE PIPE BY DIFFERENTIAL SETTLEMENT.

N/A: NOT APPLICABLE

ALVIN W. VOGTLE NUCLEAR PLANT

DESIGN MANUAL CHANGE NOTICE (DMCN)

DMCN NO. 1017-2
DATE 6/17/92

INSERT THIS CHANGE NOTICE FOLLOWING THE COVER PAGE OF THE APPLICABLE DESIGN CRITERIA OR SECTION AND RETAIN UNTIL CHANGE NOTICE IS REPLACED BY A REVISION

DM SECTION
OR DC NO. DC-1017 TITLE Pipe Stress and Pipe Supports
REV. NO. 6

PRINCIPAL RESPONSIBILITY: Civil Q LIST: (X)YES ( )NO

SYSTEM CLASSIFICATION: (X)SAFETY RELATED ( )SAFETY IMPACT ( )OTHER

CHANGE REQUESTED BY: ( )CLIENT (X)ENGINEERING ( )SUPPLIER/CONTRACTOR

REASON FOR CHANGE:

Maximum differential settlement values for items 14, 18, 33, and 38 in Table 7 have been revised as a result of REA VC-2002.

DESCRIPTION OF CHANGE:

Revise Table 7 to add Items 14a, 18a, 33a, and 38a.

APPROVAL SIGNATURES - SCS ENGINEERING		DATE
ORIGINATOR		6-17-92
INTERDISCIPLINE REVIEW:	PT 6/19/92 CDM/DATE; EDM/DATE 6-18-92; MDM/DATE 6/19/92	
OTHER	N/A	N/A
**SAR CHANGE	( )REQUIRED (X)NOT REQUIRED	
NUCLEAR SAFETY ENGINEER		6-17-92
PROJECT QUALITY ENGINEER		6-18-92
PROJECT DESIGN MGR.		6-21-92
PROJECT ENGINEERING MGR.		6/22/91

**COMPLETED BY NUCLEAR SAFETY ENGINEER

000094

VP04-92

Add the following items to Table 7, "Maximum Differential Building Settlement".

Item	Description	Differential Settlement (Inches)
14(a)	DG bldg/buried FO piping (Category 1 piping)	See DC-2144-B
18(a)	DFOS tank pumphouse/ buried FO piping (Category 1 piping)	See DC-2144-B
33(a)	Tunnel 1T2B/buried NSCW transfer lines (Category 1 piping)	See DC-2144-B
38(a)	NSCW valve house train A/ buried piping (Category 1 piping)	See DC-2144-B

ALVIN W. VOGTLE NUCLEAR PLANT

DESIGN MANUAL CHANGE NOTICE (DMCN)

DMCN NO. 2144-B-3
DATE 9/03/92

INSERT THIS CHANGE NOTICE FOLLOWING THE COVER PAGE OF THE APPLICABLE DESIGN CRITERIA OR SECTION AND RETAIN UNTIL CHANGE NOTICE IS REPLACED BY A REVISION

DM SECTION
OR DC NO. DC-2144-B TITLE Seismic Category 1 Buried Pipe
REV. NO. 3

PRINCIPAL RESPONSIBILITY: Civil Q LIST: (X)YES ( )NO

SYSTEM CLASSIFICATION: (X)SAFETY RELATED ( )SAFETY IMPACT ( )OTHER

CHANGE REQUESTED BY: ( )CLIENT (X)ENGINEERING ( )SUPPLIER/CONTRACTOR

REASON FOR CHANGE:

Maximum differential settlement values for category 1 buried pipe are required as a result of REA VC-2002.

DESCRIPTION OF CHANGE:

Revise Table 1, "Maximum Differential Settlement Category 1 Buried Piping".
NOTE: This table was added by DMCN 2144-B-1 and revised by DMCN 2144-B-2.

APPROVAL SIGNATURES - SCS ENGINEERING		DATE
ORIGINATOR	[signature]	9-3-92
INTERDISCIPLINE REVIEW: CDM/DATE	PT 9/3/92	
EDM/DATE	9-3-92	
MDM/DATE	RBP 9/3/92	
OTHER	N/A	N/A
**SAR CHANGE	( )REQUIRED (X)NOT REQUIRED	
NUCLEAR SAFETY ENGINEER	[signature]	9-3-92
PROJECT QUALITY ENGINEER	[signature]	9/3/92
PROJECT DESIGN MGR.	C.R. Myer Jr by PT	9/3/92
PROJECT ENGINEERING MGR.	Wm C Rowsey Jr	9/3/92

**COMPLETED BY NUCLEAR SAFETY ENGINEER

VP04-92

Revise Table 1 as follows:

TABLE 1
MAXIMUM DIFFERENTIAL SETTLEMENT
CATEGORY 1 BURIED PIPING

Line No.	Interface	Design Differential Settlement (Inches)
1-1202-029-6"	NSCW Valvehouse Train A	0.50
1-1202-030-6"	NSCW Valvehouse Train A	0.30
1-1202-029-6"	Tunnel 1T2B	0.50
1-1202-030-6"	Tunnel 1T2B	0.50
1-2403-044-4"	Diesel Generator Building	0.80
1-2403-066-3"	Diesel Generator Building	0.80
1-2403-053-2"	Diesel Generator Building	0.80
1-2403-051-2"	Diesel Generator Building	0.44
1-2403-068-3"	Diesel Generator Building	0.44
1-2403-043-4"	Diesel Generator Building	0.41
1-2403-044-4"	DFOST Pumphouse	0.70
1-2403-044-4"	DFOST Pumphouse Footing (See note 1)	0.50 |
1-2403-066-3"	DFOST Pumphouse	0.50
1-2403-053-2"	DFOST Pumphouse	0.60
1-2403-069-2"	DFOST Pumphouse	0.50
1-2403-069-2"	DFOST Pumphouse Footing (See note 1)	0.50 |
1-2403-051-2"	DFOST Pumphouse	0.60
1-2403-068-3"	DFOST Pumphouse	0.50
1-2403-043-4"	DFOST Pumphouse	0.50
2-1202-029-6"	NSCW Valvehouse Train A	0.60
2-1202-030-6"	NSCW Valvehouse Train A	0.30
2-1202-029-6"	Tunnel 2T2B	0.80
2-1202-030-6"	Tunnel 2T2B	0.80
2-2403-044-4"	Diesel Generator Building	0.44
2-2403-066-3"	Diesel Generator Building	0.44
2-2403-053-2"	Diesel Generator Building	0.44
2-2403-051-2"	Diesel Generator Building	0.70
2-2403-068-3"	Diesel Generator Building	1.20
2-2403-043-4"	Diesel Generator Building	1.00
2-2403-044-4"	DFOST Pumphouse	0.50
2-2403-044-4"	DFOST Pumphouse Footing (See note 1)	0.50 |
2-2403-066-3"	DFOST Pumphouse	0.45
2-2403-053-2"	DFOST Pumphouse	0.50
2-2403-069-2"	DFOST Pumphouse	0.60
2-2403-069-2"	DFOST Pumphouse Footing (See note 1)	0.60 |
2-2403-051-2"	DFOST Pumphouse	0.60
2-2403-068-3"	DFOST Pumphouse	0.40
2-2403-043-4"	DFOST Pumphouse	0.50

Notes: 1. This interface is at the DFOST Pumphouse Footing and has soil adjacent to the footing both inside and outside of the structure. |

MIDWEST
INSPECTION SERVICES

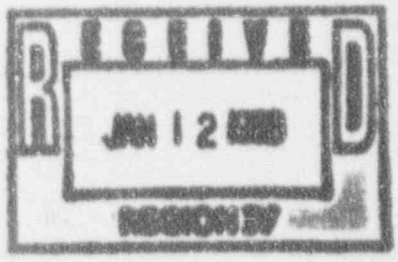
Raymond Ezzell, Owner
P.O. Box 1229
Perryton, TX 79070
806-435-4043

Skip Glen
2116 W. 20th
Elk City, OK 73644
405-225-2108

January 8, 1993

United States Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Ste. 1000
Arlington, TX. 76011

Attn: L. J. Callan, Director
Division of Radiation Safety and Safeguards



RE: License No.: 35-27005-01
Docket No. : 30-31327
Reply to a Notice of Violation

This letter is in response to the violations identified during an NRC inspection conducted on December 2-3, 1992.

Violation A. Recharging of Pocket Dosimeters

Radiographers pocket dosimeters were not always being recharged on a daily basis. This is evident from the beginning dosimeter readings on the daily job sheets. All the radiographers have been trained that recharging their dosimeters daily is mandatory. Apparently in the day to day routine of completing their paperwork some of them became lax in this area. I also had become lax in my duties as I had not been reviewing each daily job sheet. If I had done this, the problem would have been corrected prior to the inspection. In order to correct this violation, I had a meeting immediately after the inspection with the radiographers and reiterated the requirement that pocket dosimeters be recharged daily and that no beginning readings were to exceed 10 mr/hr. Another person in our company has also been assigned the responsibility of reviewing the daily job sheets in the event I may not be available. Full compliance was achieved on December 4, 1992. A review of all daily job sheets for the remainder of December shows no violations.

Violation B. Field Examination Records

Records of Field Examinations for Radiographers has been maintained by Item 8, Examination No. 3 (copy attached). However this examination has not been required in our policy and procedures for Radiographer Assistants. A statement on the first page of Item 8, Examination No. 1, (copy attached), certifies

93-0545

DMB
IE-07

MIDWEST
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2116 W. 20th
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405-225-2108

that the individual has demonstrated his competence to use the sources of radiation, related handling tools, and radiation survey instruments. This Examination No. 1 is given to all Radiographer Assistants and is maintained in their file. Field examinations are given to each Radiographer Assistant to assure they know how to use the equipment. In order to assure the requirements to maintain a record of field examinations is fulfilled, Examination No. 3 will also be given to Radiographer Assistants. Full compliance was achieved on December 4, 1992 with the implementation of Examination No. 3 in the radiographer assistants training requirements.

I trust that by taking the corrective actions listed, we are now in compliance with the Nuclear Regulatory Commissions rules and regulations.

Radiation Safety Officer

Skip Glenn

Skip Glenn

cc: US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC. 20555

DATE _____

INDUSTRIAL RADIOGRAPHERS

PERFORMANCE DEMONSTRATION CHECKLIST

COMPANY _____

RADIOGRAPHER _____

This demonstration performance test should consist of one or more actual film exposures performed by the individual being tested without the assistance of any other radiographer.

1.	Film badge and dosimeter being used and dosimeter recharged and recorded.	0 1 2 3 4 5 6 7
2.	Removal of camera from storage vault and signing it out on utlilzation log.	0 1 2 3 4 5 6 7
3.	Surveying camera to insure source is in a safe position. Making sure that survey meter is working, calibrated and reading radiation.	0 1 2 3 4 5 6 7
4.	Performed a daily inspection of camera and related handling equipment, and truck survey.	0 1 2 3 4 5 6
5.	Calculation of restricted area and posting of barriers and warning signs.	0 1 2 3 4 5 6 7
6.	Proper assembly of source to crankout.	0 1 2 3 4 5 6
7.	Survey of the perimeter of the restricted area.	0 1 2 3 4 5 6 7
8.	Survey of the camera and source tube after each exposure.	0 1 2 3 4 5 6 7
9.	Exposure device locked after each exposure and before being moved.	0 1 2 3 4 5 6 7
10.	Use of available shielding if present and collimator if available.	0 1 2 3 4 5 6
11.	Removing crankouts and source tube and replacing dust covers and safety plugs.	0 1 2 3 4 5 6
12.	Storage vault secured and locked after returning camera to storage.	0 1 2 3 4 5 6

13. Utilization Log properly completed.	0	1	2	3	4	5	6	7
14, Daily job sheet properly completed.	0	1	2	3	4	5	6	7
15. Dosimeter Read and Recorded.	0	1	2	3	4	5	6	7

EXAMINATION NUMBER 1

COMPANY _____ RADIOGRAPHER _____

DATE _____ RADIOGRAPHER ASSISTANT _____

REFRESHER COURSE _____

This is to certify that _____ on this _____ day of _____ has received instructions in the Operating and Emergency Procedures and Regulations for Radiation Control as detailed below and has proved his understanding thereof by means of a written test. Furthermore, he has demonstrated his competence to use, under the personal supervision of the Radiographer, the sources of radiation, related handling tools and radiation survey instruments. The following subjects are included in the Operating and Emergency Procedures:

1. The safe handling and use of the sources of radiation employed by the licensee.
2. Use of the radiation survey meters and methods and occasions for conducting surveys.
3. Methods for controlling access to radiographic areas.
4. Methods and occasions for locking and securing sources of radiations.
5. Personnel monitoring and use of personnel monitoring equipment (film badges and dosimeters).
6. Transportation to field locations, including packing and posting of vehicles and control sources.
7. Minimizing exposure of persons in the event of an accident.
8. Procedure of notifying proper persons in the event of an accident.
9. Record keeping.