

Attachment 1  
60 Day Response to IE Bulletin No. 79-14  
Seismic Analysis for As-Built Safety Related Piping Systems  
R.E. Ginna Nuclear Power Plant, Unit No. 1  
Docket No. 50-244

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Ginna Station  
Piping and Piping Analysis  
Drawing List

Rochester Gas and Electric Corporation  
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Rochester, N.Y. 14649

EWR 2512

Revision 1

August 31, 1979

18003

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1.1 REACTOR COOLANT SYSTEM

Piping & Instrumentation Drawing

1 RGE 33013-424 Rev. D

Piping Drawings

1	GAI-D-304-601	Rev. VIII	Plans & Sects.
2	GAI-D-304-602	Rev. VIII	Press Relief & Spray Piping Plans
3	GAI-D-304-603	Rev. IX	Press Relief & Spray Piping Sections



1.2 MAIN STEAM SYSTEM

Piping & Instrumentation Drawing

1 RGE 33013-534 Rev. 1

Piping Drawings

1	GAI-D-304-014	Rev. V	Plan
2	GAI-D-304-015	Rev. VII	Plan & Sections
3	GAI-D-304-016	Rev. VII	Sections
4	GAI-D-304-023	Rev. III	Relief Valves





1.3 MAIN FEEDWATER

Piping & Instrumentation Drawing

1 RGE 33013-544 Rev. 4

Piping Drawings

1 GAI-D-304-083 Rev. V111 F.W. Pump Suct. & Disch. Plan

2 GAI-D-304-084 Rev. V F.W. Pump Suct. & Disch. Sections



1.4 SAFETY INJECTION

Piping & Instrumentation Drawing

- 1 RGE 33013-424 Rev. D
- 2 RGE 33013-425 Rev. C
- 3 RGE 33013-432 Rev. B

Piping Drawings

- 1 GAI-D-304-642 Rev VIII Plans Inside Cont.
- 2 GAI-D-304-643 Rev VII Sections Inside Cont.
- 3 GAI-D-304-644 Rev. XII Plans & Sects. (Aux Bldg)



1.5        RESIDUAL HEAT REMOVAL

Piping & Instrumentation Drawing

- 1        RGE 33013-425    Rev. C
- 2        RGE 33013-432    Rev. B
- 3        RGE 33013-436    Rev. D

Piping Drawings

- 1        GAI-D-304-611    Rev. VI        Plan (Inside Cont)
- 2        GAI-D-304-612    Rev. IV        Sections (Inside Cont)
- 3        GAI-D-304-615    Rev. VIII      Plan (Aux Bldg)
- 4        GAI-D-304-616    Rev. IX        Sections (Aux Bldg)



1.6           CONTAINMENT SPRAY

Piping & Instrumentation Drawing

- |   |               |        |
|---|---------------|--------|
| 1 | RGE 33013-425 | Rev. C |
| 2 | RGE 33013-432 | Rev. B |

Piping Drawings

- |   |               |           |                                    |
|---|---------------|-----------|------------------------------------|
| 1 | GAI-D-304-641 | Rev. VIII | Plans & Sections in<br>Containment |
| 2 | GAI-D-304-642 | Rev. VIII | Plan In Containment                |
| 3 | GAI-D-304-643 | Rev. VII  | Sections In Containment            |
| 4 | GAI-D-304-644 | Rev. XII  | Plans and Sections, Aux. Bldg.     |





1.7      CHEMICAL AND VOLUME CONTROL

Piping & Instrumentation Drawing

1	RGE 33013-426	Rev. 2
2	RGE 33013-427	Rev. B
3	RGE 33013-428	Rev. 1
4	RGE 33013-433	Rev. D
5	RGE 33013-434	Rev. 1

Piping Drawings

1	GAI-D-304-630	Rev. V	Plan & Sect. (Misc. in Cont.)
2	GAI-D-304-631	Rev. VIII	Plan (Mics. in Cont.)
3	GAI-D-304-632	Rev. VI	Sect. (Misc. in Cont.)
4	GAI-D-304-633	Rev. XI	Seal Water & Charging Line Plan & Sect. (In Cont.)



1.8 COMPONENT COOLING

Piping & Instrumentation Drawing

- 1 RGE 33013-435 Rev. B
- 2 RGE 33013-436 Rev. D

Piping Drawings

- 1 GAI-D-304-618 Rev. X Clg. to RV Supports/RCP's
- 2 GAI-D-304-619 Rev. IX Clg. to RV Supports/RCP's
- 3 GAI-D-304-621 Rev. VIII Plans, Aux. Bldg. 235-8
- 4 GAI-D-304-622 Rev. VII Plans, Aux. Bldg. 253-0
- 5 GAI-D-304-623 Rev. III Plans, Aux. Bldg. 271-0
- 6 GAI-D-304-625 Rev. II To Sample Coolers



11/1

1.9

SERVICE WATER

Piping & Instrumentation Drawing

1 RGE 33013-529 Rev. F

Piping Drawings

1	GAI-D-304-691	Rev VI	Cooling to Cont Recirc Cooling Units - Plan
2	GAI-D-304-692	Rev III	Cooling to Cont Recirc Cooling Units - Sect.
3	GAI-D-304-693	Rev IX	Plans (Int. Bldg.)
4	GAI-D-304-694	Rev IX	Sections (Int. Bldg.)
5	GAI-D-304-695	Rev VIII	Plans (Aux Bldg.)
6	GAI-D-304-696	Rev VII	Sections (Aux. Bldg.)
7	GAI-D-304-697	Rev II	Plan Above El. 253-8 & Sections Misc. (Aux Bldg.)
8	GAI-D-304-698	Rev IV	Cooling Water to Air Recirc. Motors Plan & Sect. (Cont.)



1.10 STEAM GENERATOR BLOWDOWN

Piping & Instrumentation Drawing

1 GAI D-302-121 Rev. IX

Piping Drawings

1 GAI-D-302-121 Rev. XVI Plans, Containment

2 GAI-D-381-050 Rev. 3 Piping Reroute, Int. Bldg.





1.11 AUXILIARY FEEDWATER

Piping & Instrumentation Drawing

1 RGE 33013-544 Rev. 4

Piping Drawings

1	GAI-D-304-085	Rev.	Cond. To Pump Suctions
2	GAI-D-304-086	Rev.	Plans and Sections, Int. Bldg.
3	GAI-D-381-046	Rev. 4	New crossover, Int. Bldg.



1.12 BORIC ACID

Piping & Instrumentation Drawing

- 1 RGE 33013-425 Rev. C
- 2 RGE 33013-426 Rev. 2

Piping Drawings

- 1 RGE-33013-627 Rev. 5 Plans and Sections, Aux. Bldg.
- 2 GAI-D-304-644 Rev. Plans and Sections, Aux. Bldg.



2.1        STANDBY AUXILIARY FEEDWATER

Piping & Instrumentation Drawing

1        GAI D-302-071   Rev. E

Piping Drawings

1	GAI-D-381-023   Rev. 1	Cond. Suction to Pump
2	GAI-D-381-033   Rev. 4	Plans in Containment
3	GAI-D-381-034   Rev. 2	Plans in Aux. Bldg. (253-0)
4	GAI-D-381-035   Rev. 3	Plans in Aux. Bldg. (271-0)
5	GAI-D-381-036   Rev. 4	Plans in Aux. Bldg. Add.
6	GAI-D-381-038   Rev. 0	Misc. Sections, Aux. Bldg. Add.
7	GAI-D-381-039   Rev. 2	Details, Auxl. Bldg. Add.

Analysis Isometric Drawings

1	GAI-C-381-026   Rev. 1	Cond. Tk to Pump Suctions
2	GAI-C-381-040   Rev. D	Pen. 119 to SGA
3	GAI-C-381-041   Rev. A	Pen. 123 to SGB
4	GAI-C-381-042-1   Rev. A	Pen. 119 to Pump
5	GAI-C-381-042-2   Rev. A	Pen. 119 to Pump
6	GAI-C-381-042-3   Rev. A	Pen. 119 to Pump
7	GAI-C-381-042-4   Rev. A	Pen. 119 to Pump
8	GAI-C-381-042-5   Rev. A	Pen. 119 to Pump
9	GAI-C-381-043-1   Rev. A	Pen. 123 to Pump
10	GAI-C-381-043-2   Rev. A	Pen. 123 to Pump
11	GAI-C-381-043-3   Rev. A	Pen. 123 to Pump
12	GAI-C-381-043-4   Rev. A	Pen. 123 to Pump
13	GAI-C-381-043-5   Rev. A	Pen. 123 to Pump



## 2.2 CHEMICAL AND VOLUME CONTROL

### Piping & Instrumentation Drawing

1	RGE 33013-426	Rev. 2
2	RGE 33013-427	Rev. B
3	RGE 33013-428	Rev. 1
4	RGE 33013-433	Rev. D
5	RGE 33013-434	Rev. 1

### Piping Drawings

1	GAI-D-304-630	Rev. V	Plan & Sect. (Misc. in Cont.)
2	GAI-D-304-631	Rev. VIII	Plan (Mics. in Cont.)
3	GAI-D-304-632	Rev. VI	Sect. (Misc. in Cont.)
4	GAI-D-304-633	Rev. XI	Seal Water & Charging Line Plan & Sect. (In Cont.)
5	RGE 33013-708	Rev. 2	A RCP #1 Seal Bypass
6	RGE 33013-709	Rev. 2	B RCP #1 Seal Bypass

### Analysis Isometric Drawings

1	GAI-C-381-076	Rev. 0	From 10" AC to Pen 112
2	GAI-C-381-077	Rev. 0	Valves 200 A, B and 202
3	GAI-C-381-078	Rev. 0	Regen. Hx. to Isolation
4	GAI-C-381-079	Rev. 0	8" R.C. Line to Isolation
5	RGE SK447-201	Rev. 0	A RCP Seal Bypass
6	RGE SK447-202	Rev. 0	B RCP Seal Bypass





2.3 SERVICE WATER

Piping & Instrumentation Drawing

1 RGE 33013-529 Rev. F

Piping Drawings

1	GAI-D-304-691	Rev VI	Cooling to Cont Recirc Cooling Units - Plan
2	GAI-D-304-692	Rev III	Cooling to Cont Recirc Cooling Units - Sect.
3	GAI-D-304-693	Rev IX	Plans (Int. Bldg.)
4	GAI-D-304-694	Rev IX	Sections (Int. Bldg.)
5	GAI-D-304-695	Rev VIII	Plans (Aux Bldg.)
6	GAI-D-304-696	Rev VII	Sections (Aux. Bldg.)
7	GAI-D-304-697	Rev II	Plan Above El. 253-8 & Sections Misc. (Aux Bldg.)
8	GAI-D-304-698	Rev IV	Cooling Water to Air Recirc. Motors Plan & Sect. (Cont.)

Analysis Isometric Drawings

1	GAI-C-381-024-1	Rev. B	SW suction to SAFW Pump A
2	GAI-C-381-024-2	Rev. B	SW suction to SAFW Pump A
3	GAI-C-381-024-3	Rev. B	SW suction to SAFW Pump A
4	GAI-C-381-025-1	Rev. A	SW suction to SAFW Pump B
5	GAI-C-381-025-2	Rev. B	SW suction to SAFW Pump B
6	GAI-C-381-025-3	Rev. B	SW suction to SAFW Pump B
7	GAI-C-381-025-4	Rev. B	SW suction to SAFW Pump B



2.4 . STEAM GENERATOR BLOWDOWN

Piping & Instrumentation Drawing

1 GAI D-302-121 Rev. IX

Piping Drawings

1 GAI-D-302-121 Rev. XVI Plans, Containment

2 GAI-D-381-050 Rev. 3 Piping Reroute, Int. Bldg. .

Analysis Isometric Drawings

1 GAI-C-381-086 Rev. 1 Pen. 322 to Iso. Valve



2.5      AUXILIARY FEEDWATER

Piping & Instrumentation Drawing

1      RGE 33013-544   Rev. 4

Piping Drawings

1	GAI-D-304-085   Rev.	Cond. To Pump Suctions
2	GAI-D-304-086   Rev.	Plans and Sections, Int. Bldg.
3	GAI-D-381-046   Rev. 4	New crossover, Int. Bldg.

Analysis Isometric Drawings

1	GAI-D-381-044   Rev. D	New crossover, Int. Bldg.
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2.6

BORIC ACID

Piping & Instrumentation Drawing

1 RGE 33013-425 Rev. C

2 RGE 33013-426 Rev. 2

Piping Drawings

1 RGE-33013-627 Rev. 5 Plans and Sections, Aux. Bldg.

2 GAI-D-304-644 Rev. Plans and Sections, Aux. Bldg.

Analysis Isometric Drawing

1 RGE-33013-625 Rev. 0 B.A. Tanks to M.O.V's





2.7 RCS OVERPRESSURE PROTECTION

Piping & Instrumentation Drawings

- 1 Catalytic A-202 Rev. 0
- 2 RGE 21489-253 Rev. 1

Piping Drawings

- 1 Catalytic A-13501 Rev. 3 Plan
- 2 Catalytic A-13502 Rev. 3 Details

Analysis Isometric Drawings

- 1 Catalytic SK 725-501-00 Rev. 0
- 2 Catalytic SK 725-502-01 Rev. 1
- 3 Catalytic SK 725-502A-00 Rev. 0
- 4 Catalytic SK 725-506-01 Rev. 1
- 5 Catalytic SK 725-507-01 Rev. 2
- 6 Catalytic SK 725-505-02 Rev. 2



2.8        DEMINERALIZED WATER

Piping & Instrumentation Drawings

1        RGE 03021-62   Rev. 2

Piping Drawings

1        Catalytic A-13201   Rev. 2        Pen. 324

Analysis Isometric Drawings

1        Catalytic SK 722-101-00   Rev. 0

2        Catalytic SK 722-102-00   Rev. 0



2.9 CHARCOAL FILTER DOUSING

Piping & Instrumentation Drawings

1 RGE 33013-432 Rev. B

Piping Drawings

1 Catalytic B-13210 Rev. 2

Analysis Isometric Drawings

1 Catalytic SK 272-001-02 Rev. 2

2 Catalytic SK 272-002-02 Rev. 2



Attachment 2  
60 Day Response to IE Bulletin No. 79-14  
Seismic Analysis for As-Built Safety Related Piping Systems  
R.E. Ginna Nuclear Power Plant, Unit No. 1  
Docket No. 50-244

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Methods Used for Inspection, Evaluation, and Nonconformance  
Control for Seismic Category I Piping Systems Inside Containment

1. Introduction

- a) The inspection of piping systems inside containment was completed prior to the August 15, 1979 issuance of the Supplement IE Bulletin 79-14. This attachment describes the inspection and evaluation methods used at Ginna Station.
- b) Different inspection and evaluation methods were used for piping which was originally qualified by equivalent static analyses and for piping which has been qualified by dynamic analysis. These are presented separately.

2. Reactor Coolant System and Category I Piping 2½ Inch Nominal Pipe Size and Larger Seismically Qualified by Equivalent Static Analyses

2.1 Methods

- a) Data and dimensions were obtained by field teams to prepare as-built piping and support drawings. The information obtained by field teams included pipe size and geometry; insulation thickness; valve locations, type and orientation; support locations; and penetration clearances. Detailed as-built pipe support sketches were prepared noting support geometry, component sizes and lengths, and weld sizes and lengths.
- b) The dimensions, data and the as-built sketches were compared to the original design drawing by engineers performing the evaluations. Field inspection by the engineers was also performed as necessary.
- c) Discrepancies were compared to established acceptance criteria and appropriate action taken for discrepancies which did not meet the criteria. Discrepancies which could not be compared to the established criteria were handled on a case-by-case basis.





d) Discrepancies requiring action were handled in three ways.

1. For minor deficiencies in support construction which did not affect the function of the support, e.g. loose nuts, missing lock nuts, etc. maintenance trouble cards were issued and repairs made.
2. For significant deficiencies, e.g., missing supports, immediate evaluation or repair was made during the outage controlled by nonconformance reports.
3. For other deficiencies which were judged by the engineer not to affect operability, but requiring additional evaluation, the deficiency was noted and further evaluated after the outage. These are documented on nonconformance reports as appropriate.

e) As-built piping and support drawings are being prepared.

## 2.2 Acceptance Criteria

a) Pipe geometry, valve location and support location\*

<u>Pipe Size</u>	<u>Tolerance</u>
to 6"	$\pm 8"$
8" to 18"	$\pm 12"$
20" to 36"	$\pm 18"$

\* For supports, this tolerance may not be projected through or around fittings.

b) Angular Tolerance

For linear type hangers or valve orientations, the acceptable deviation is  $\pm 4^\circ$  from the as designed position.

c) Pipe Support Configuration

When the as-built configuration of a support differs from the design drawing, e.g. a box guide replacing a U-bolt, a nonconformance is not recorded if the as-built support performs the same function and is built of equal or better materials than those required by the design drawing.



d) Support Materials

Material sizes listed on the design drawings are considered as design minimums. Material size increases are acceptable except in the case of engineered components, i.e. springs, constant supports and snubbers. Where information plates are illegible or missing on standard components, i.e. snubbers, springs, constants, dimensions of the component are made. If the physical dimensions agree with the catalog dimensions of the design drawing component, it is assumed the installed component is correct. No deviation is acceptable on standard components.

e) Pipe to Support Clearance

The sum of the gaps on both sides of a pipe may deviate + 1/16" from design. For pipes having a temperature less than 120°F, a tight fit is permissible. For pipes of temperatures greater than 120°F, the sum may deviate 1/16" from design.

Any deviations which exceed the tolerances listed above are recorded.

3. Piping Systems, or Portions of Systems, Seismically Qualified By Dynamic Analysis

- a) Recent piping modifications and additions at Ginna Station have in general been qualified by dynamic analysis. The control and authorization of changes to the installation drawings is significantly improved from original plant construction. For this reason, a general inspection of piping and pipe supports was performed since detailed inspections were recently performed.
- b) A comparison of the installation drawings and as-built piping and supports was made.
- c) A comparison between the original analysis isometric input data and the installation drawings was made and discrepancies noted.
- d) Discrepancies were controlled in the same manner as described in item 2.1 c) above.
- e) Drawing changes will be made as required.

