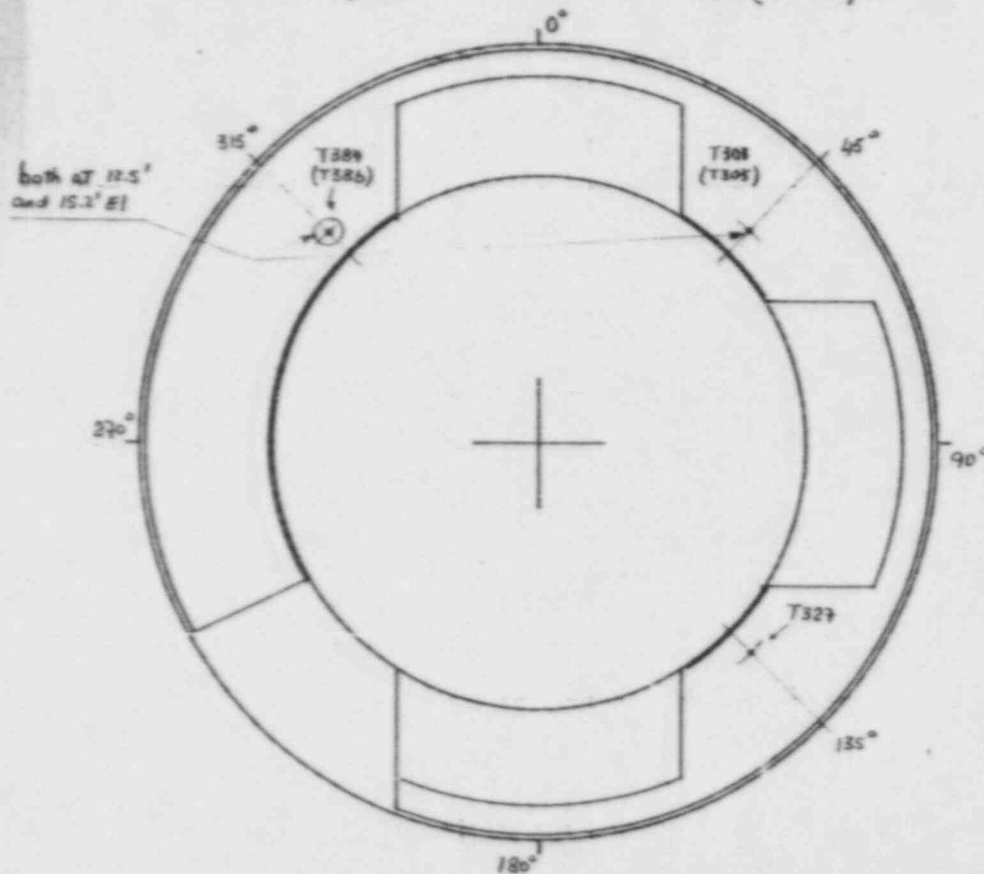


Instrument list:

• Gas Thermocouples 3+2

Grand Gulf Layout

Elevation 12.5 (& 15.2) ft.



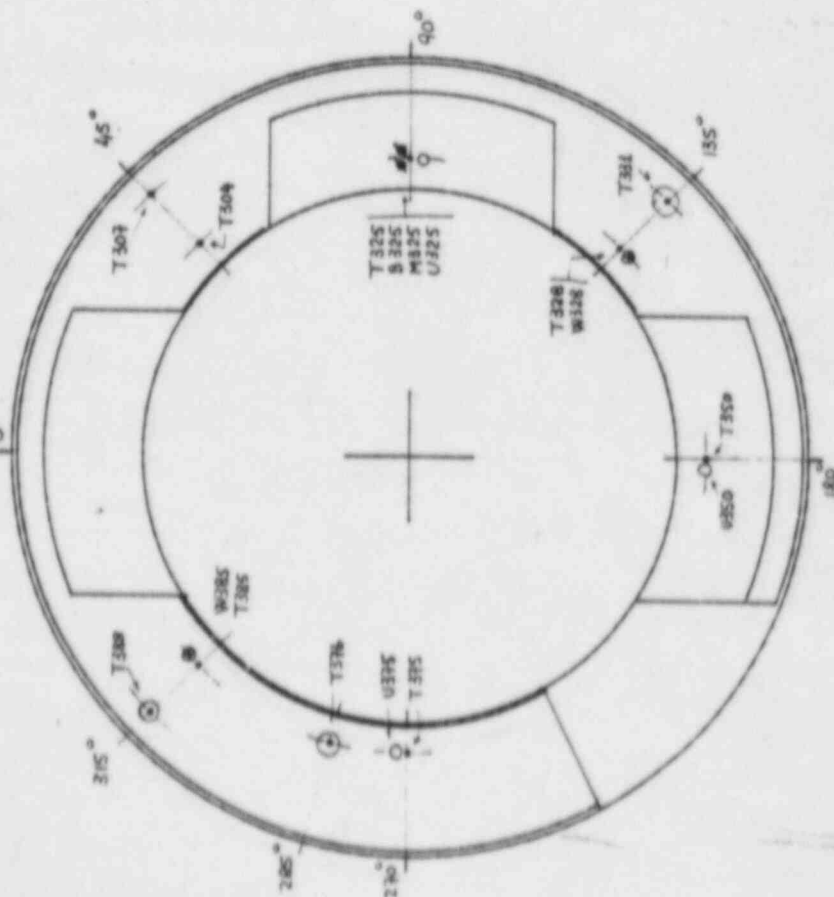
8506050048 850306
PDR FOIA
HIATT84-940 PDR

1 Added Tags + changes		T	9/24/84	By	Date	App'd	Date
No. REVISION							
TOLERANCES							
Linear							
Angular							
PRELIMINARY		RELEASED FOR FABRICATION					
Not for fabrication		By		6T/T		Date 9/26/84	
Date		By		Approved		Date	
FACTORY MUTUAL RESEARCH							
NEW SECTION - PRELIMINARY DRAWING, NON-COMMERCIAL USE ONLY							
INSTRUMENTATION LAYOUT							
SCALE 1"=5'		APPROVED BY			DRAWN BY		
DATE 9/24/84		James Tammann			J.T.		
		4/24/84			SHEET 5		
					OF 10		
Design		Checked		DATE		DRAWING NUMBER	
Date 9/19/84		9-24-84		9-24-84		DR40924-01	

Instrument List:

- Gas Thermocouples 7+3
- Calorimeters 2
- Horizontal velocity 3
- Vertical velocity 2
- TO NOT INITIALLY CONNECTED TO NEFF

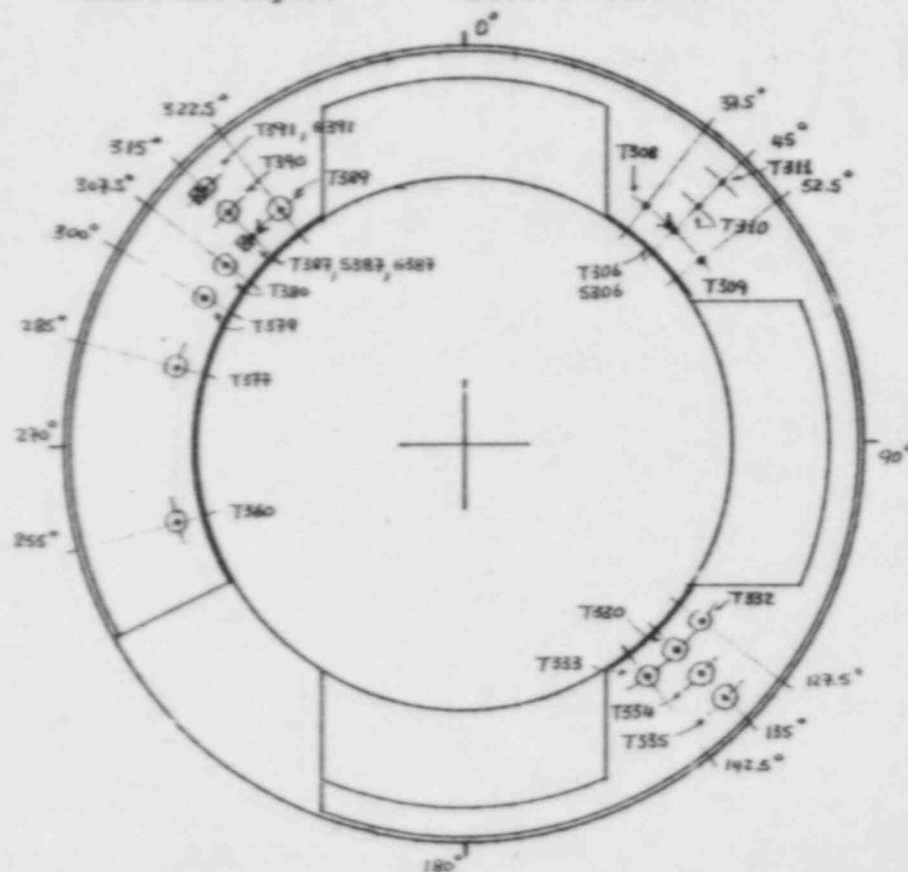
Grand Gulf Layout Elevation 13.9 ft



TOLERANCES		RELEASED FOR FABRICATION	
Linear	Angular	By	Date
PRELIMINARY		By	Date
Not for fabrication		By	Date
Date		By	Date
Date		By	Date
FACTORY MUTUAL RESEARCH			
INSTRUMENTATION LAYOUT			
DESIGN	DATE	CHECKED	DATE
9/19/84	9/24/84	9/24/84	9/24/84
SHEET 6		OF 10	
DESIGN NO. 1640914-01		DATE 9-24-84	

Grand Gulf Layout

Elevation 16.6 ft.



Instrument list :

- Gas Thermocouples 6 + (12)
- Surface thermocouples 2
- Gas sampling (mult.) 2
- ③ NOT CONNECTED TO ALTEF

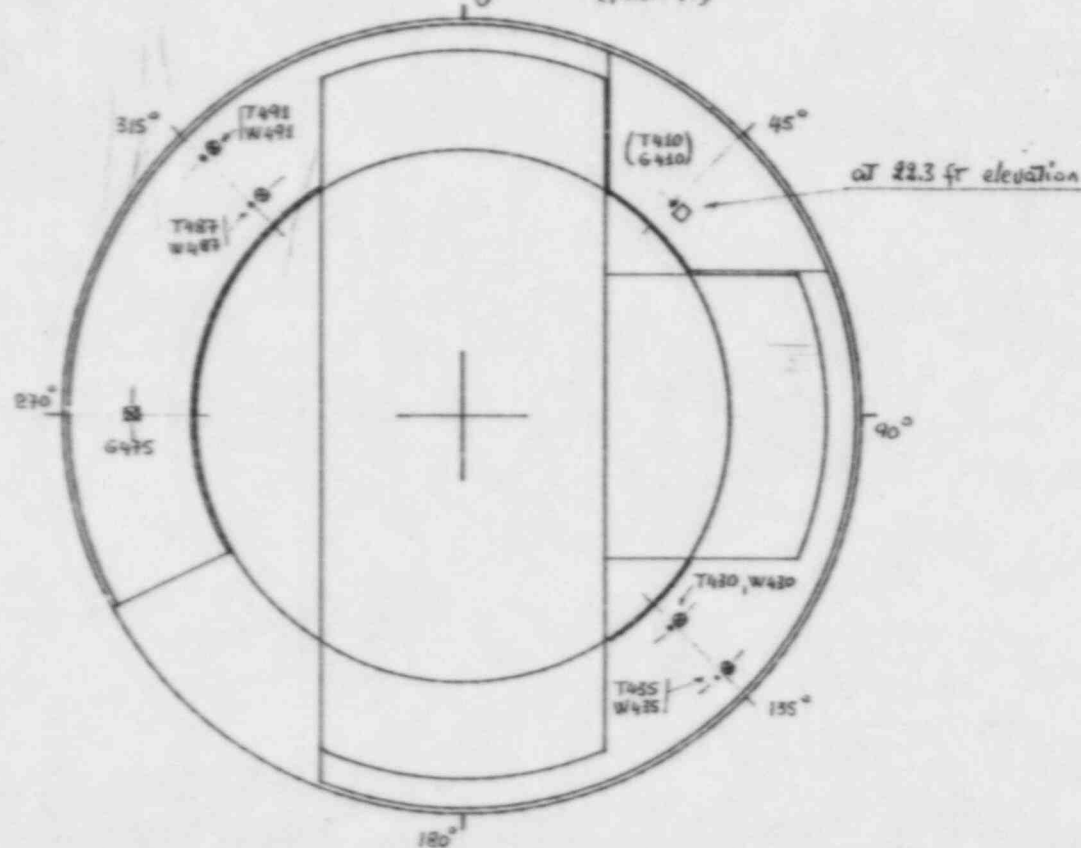
No. REVISION		By	Date	App'd Date
TOLERANCES Linear: Angular:				
PRELIMINARY Not for fabrication Date: By:		RELEASED FOR FABRICATION By: <i>St. Lt.</i> Date: 4/16/84		
FACTORY MUTUAL RESEARCH				
NO. 100000-1000000-1000000-1000000				
INSTRUMENTATION LAYOUT				
DATE: 3-5-84	DESIGNED BY: <i>James T. ...</i>	DRAWN BY: <i>St. Lt.</i>		
DATE: 4/24/84	DATE: 4/24/84	SHEET: 7 OF 10		
Design: <i>St. Lt.</i>	Checked: <i>St. Lt.</i>	DRAWING NUMBER: D840424-01		
Date: 4/19/84	Date: 4-24-84			

Instrument list :

- Gas thermocouples 4 + 1
- ☒ Gas sampling (mult.) 1
- ⊙ Vertical velocity 4
- Gas sampling (cont.) 1

Grand Gulf Layout

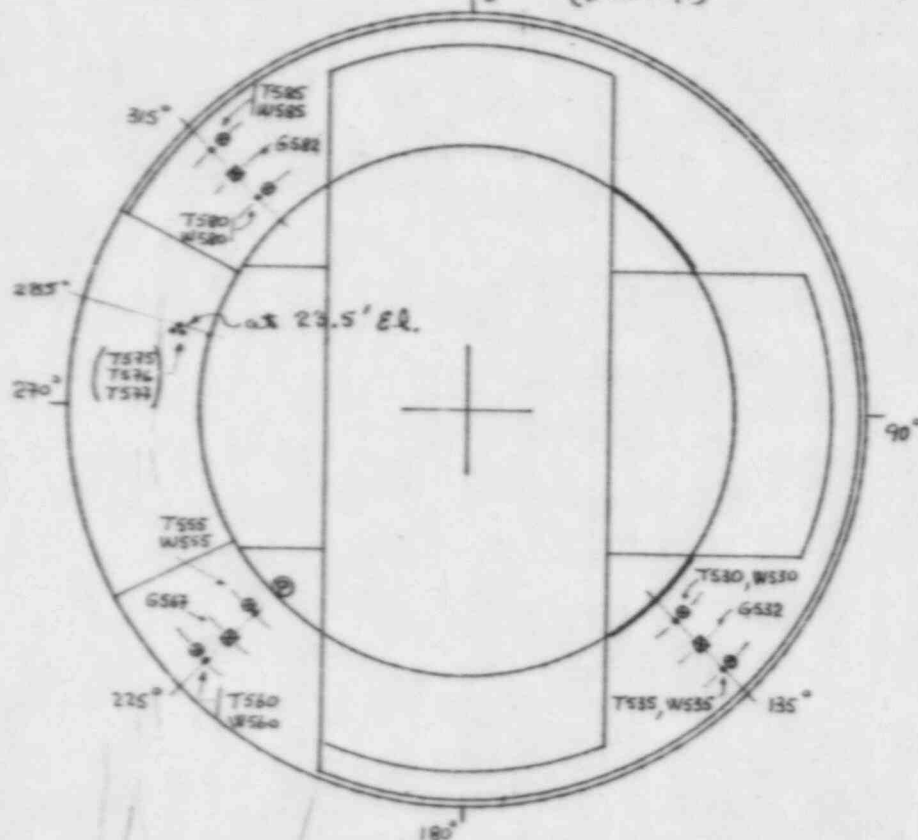
Elevation 20.0 ft
(#22.3 ft)



1 (Added Page changes)		By Date App Date	
No. REVISION		By Date App Date	
TOLERANCES			
Linear:			
Angular:			
PRELIMINARY		RELEASED FOR FABRICATION	
Not for fabrication		By Date	
Date By		Approved By Date	
FACTORY MUTUAL RESEARCH			
NO PARTS - PROVIDE TEMPLATES, WORKS, DATA BOOK			
INSTRUMENTATION LAYOUT			
SCALE 1"=5'	APPROVED BY	DRAWN BY	
DATE 9/24/84	frank T. [signature]	J.T.	
DESIGN		SHEET 8	
Date 9/14/84		OF 10	
Checked [signature]		DATE 9-24-84	
Date 9/14/84		DR40924-01	

Grand Gulf Layout

Elevation 28.4 ft
0° (# 25.5 ft)



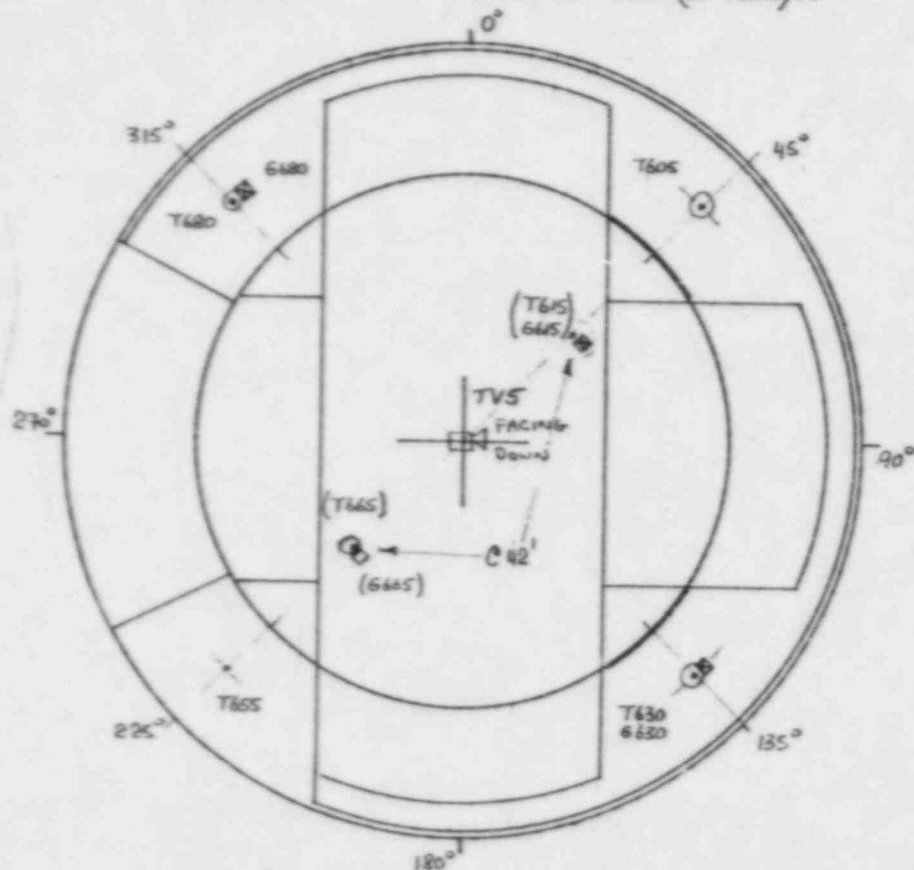
Instrument list :

- Gas thermocouples 9
- Vertical velocity 6
- Gas sampling (mult.) 3
- Total pressure 1

1 Added TDS + changes		By	Date	App. Date
No	REVISION	By	Date	App. Date
TOLERANCES				
Linear:				
Angular:				
PRELIMINARY		RELEASED FOR FABRICATION		
Not for fabrication		By		
Date		Date		
FACTORY MUTUAL RESEARCH				
NO PARTS - PRECISION TURNING, GRINDING, MACHINING, ETC.				
INSTRUMENTATION LAYOUT				
DATE	APPROVED BY	DESIGNED BY	REVIEWED	
4/24/84	James J. Sullivan	4/24/84	4/24/84	
Design		Checked		DRAWING NUMBER
Date 4/19/84		Date 4-24-84		DR40924-01

Grand Gulf Layout

Elevation 35.0 (& 42.0) ft



Instrument list :

- Gas thermocouples 2+ (4)
- Gas sampling (cont) 1
- ☒ Gas sampling (mult) 3
- ☐ TV cameras 1
- ⊙ TC NOT CONNECTED TO NEFF

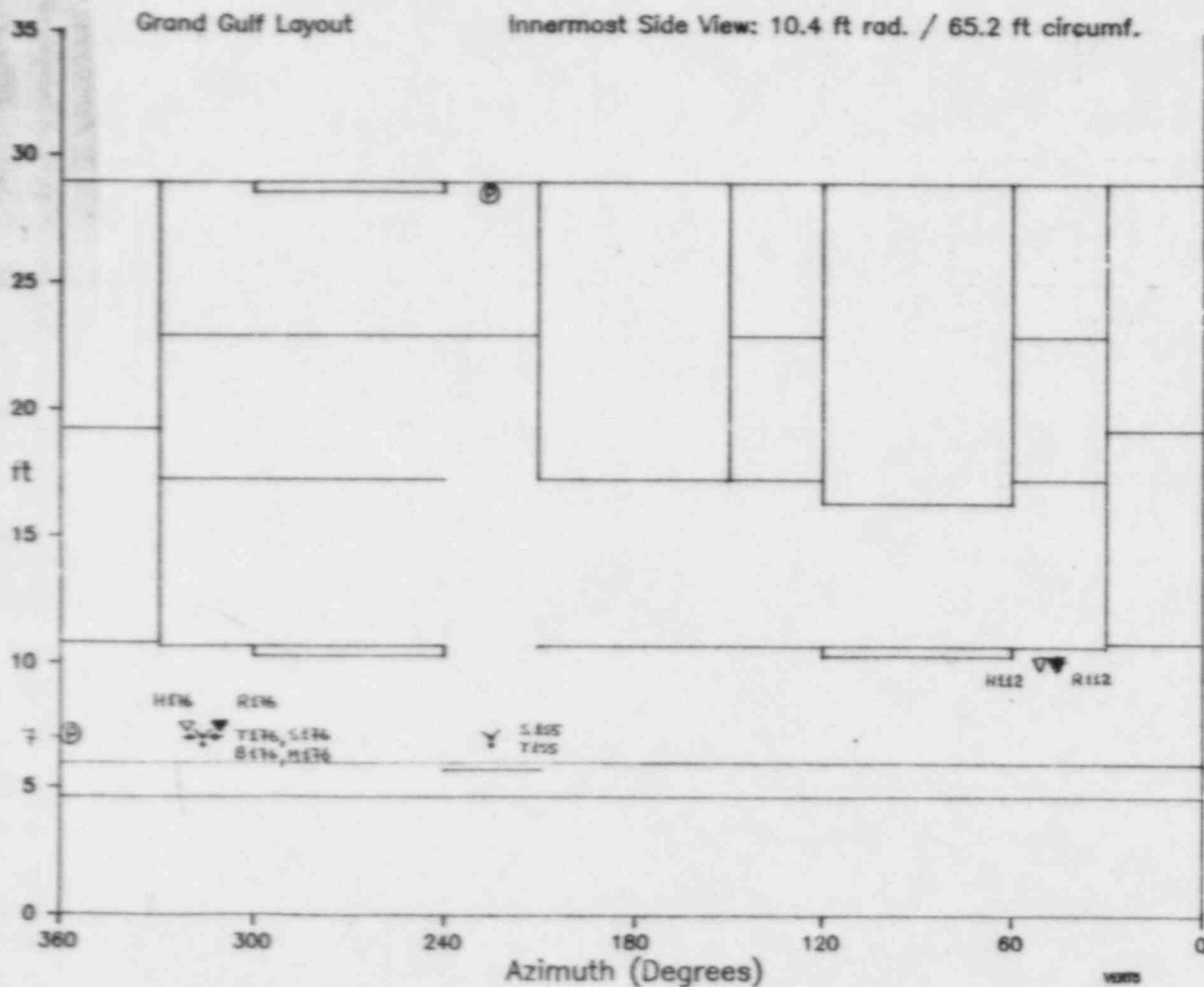
No. REVISION		By		Date		Appr		Date	
TOLERANCES									
Linear:									
Angular:									
PRELIMINARY					RELEASED FOR FABRICATION				
Not for fabrication					By: <i>BT/ST</i> Date: 4/16/84				
Date:					Date:				
FACTORY MUTUAL RESEARCH									
INSTRUMENTATION LAYOUT									
DATE: 4/24/84		DRAWN BY: <i>James C. ...</i>		CHECKED BY: <i>ST</i>		DATE: 4/24/84		SHEET: 10	
DATE: 4/19/84		CHECKED: <i>ST</i>		DATE: 4-24-84		DRAWING NUMBER: 0840974-01		OF: 10	

G445 T645
 @ 6' rad.

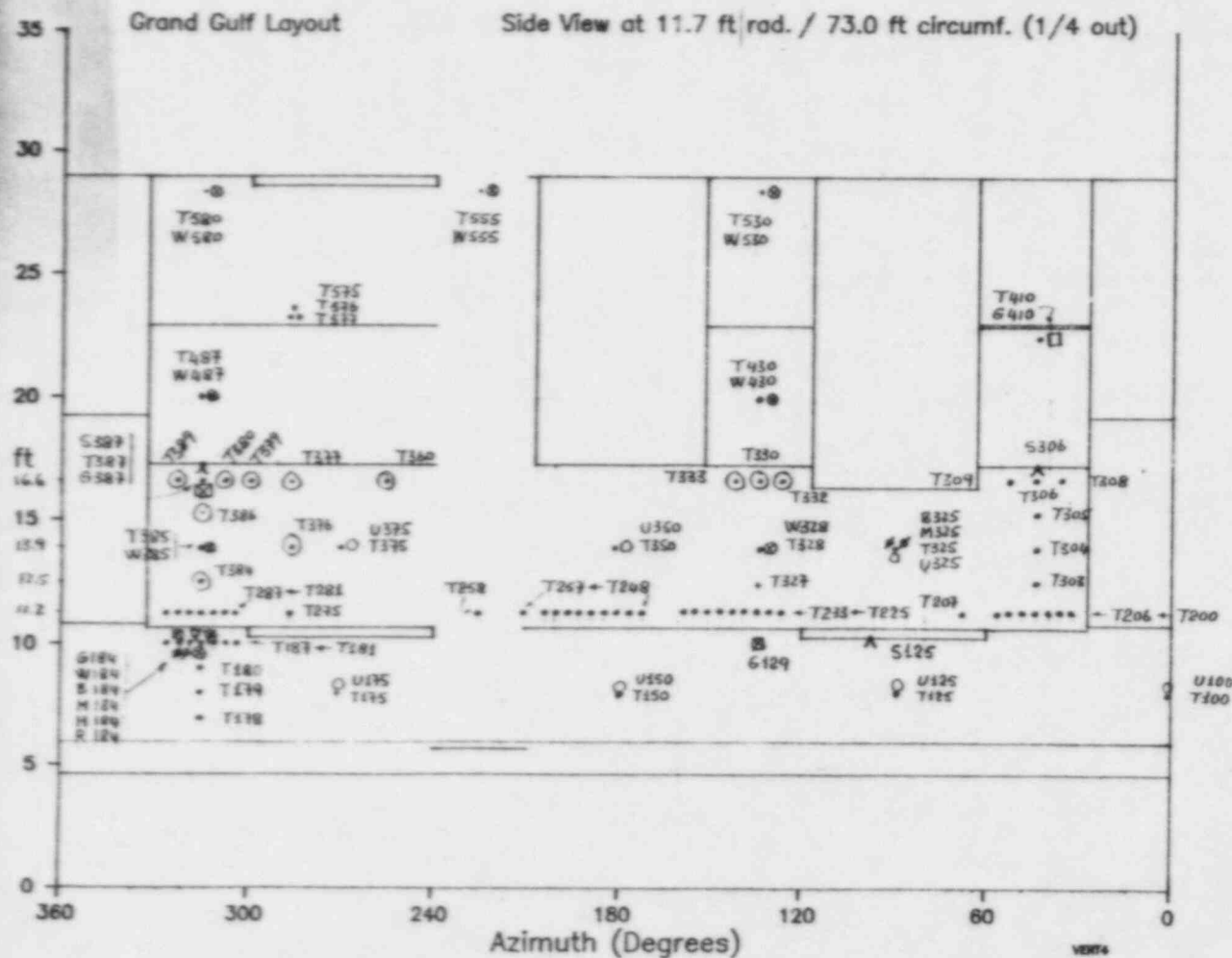
G615 T615
 @ 6' rad.

Instrument List:

- Gas thermocouples 4
- Surface thermocouples 2
- ▼ Radiometers 2
- ▽ Total heat flux gages 2
- ⊙ Pressure Transducers 2
- Calorimeters 2
- Cont. gas Conc. 1
- ⊠ Multiplexed gas Conc. 1
- ⊙ TC NOT LOGGED



No. REVISION		By	Date	Appr. Date
TOLERANCES				
Linear				
Angular				
PRELIMINARY		RELEASED FOR FABRICATION		
Not for fabrication		By: T. T. Date: 9/20/84		
Date: By:		Approved: T. T. Date: 9/20/84		
FACTORY MUTUAL RESEARCH				
NO REVISION - PREVIOUS REVISION, APPROVAL, ORIGIN				
INSTRUMENTATION LAYOUT				
DATE: 9/20/84		DRAWN BY: T. T.		REVIEWED
DATE: 9/20/84		DATE: 9/20/84		SHEET: 1
DATE: 9/20/84		DATE: 9/20/84		OF: 5
Design: T. T.		Checked: T. T.		DRYING NUMBER
Date: 9/19/84		Date: 9/20/84		DB40924-02

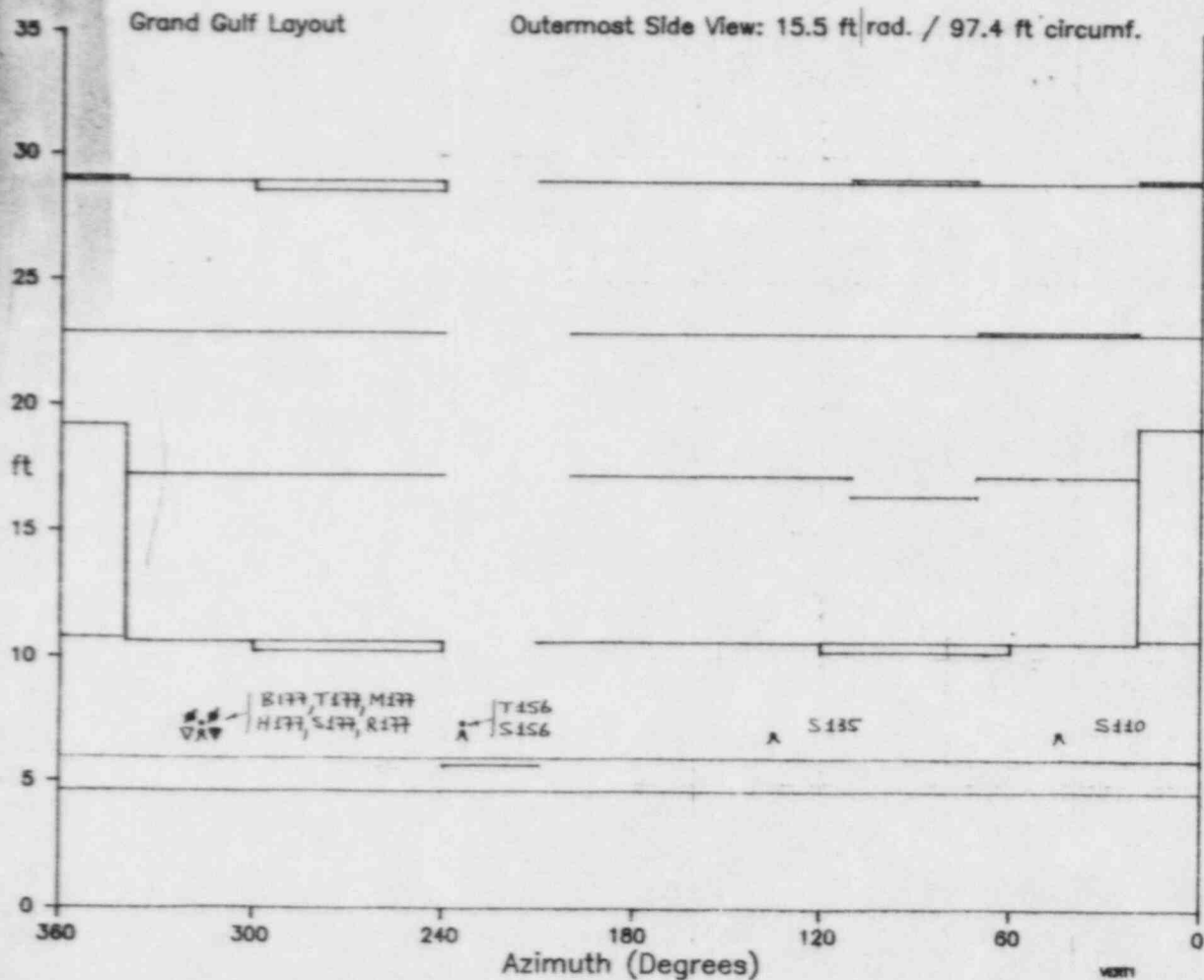


Instrument List:

• Gas Thermocouples	74 + ⑤
◀ Surface Thermocouples	3
♦ Radiometers	1
▽ Total Heat Flux	1
• Calorimeters	4
○ Horiz. Velocity Probes	7
⊙ Vertical Velocity Probes	8
⊠ Multiplexed Gas Conc.	3
□ Continuous Gas Conc.	1

⊙ Indicates Thermocouples not logged for Perry configured


No. REVISION		By	Date	Appr.	Date
TOLERANCES					
PRELIMINARY		RELEASED FOR FABRICATION			
Not for fabrication		By		Date	
Date		By		Date	
FACTORY MUTUAL RESEARCH					
INSTRUMENTATION LAYOUT					
DESIGNED BY	APPROVED BY	DRAWN BY			
DATE	DATE	DATE			
SHEET		SHEET			
OF		OF			
DESIGNED		CHECKED		DRAWING NUMBER	
DATE		DATE		DATE	



Instrument List:

• Gas thermocouples	2
✕ Surface Thermocouples	4
▽ Total heat heat flux gages	1
▼ Radiometers	1
✱ Calorimeters	2

No. REVISION		By	Date	App'd	Date
TOLERANCES					
Linear					
Angular					
PRELIMINARY		RELEASED FOR FABRICATION			
Not for fabrication		By		Date	
Date		By		Date	
FACTORY MUTUAL RESEARCH					
100 SOUTH PROSPECT STREET, BIRMINGHAM, ALA. 35205					
INSTRUMENTATION LAYOUT					
SCALE 1" = 5' vertical		APPROVED BY		DRAWN BY	
DATE 9/24/84		J. T. [Signature]		J. T. [Signature]	
				SHEET 5	
				OF 5	
Design: J. T.		Checked: J. T.		DRAWING NUMBER	
Date: 9/19/84		Date: 9/24/84		0840924-02	

TVS  FROM TOP OF DOME

Instrument List:

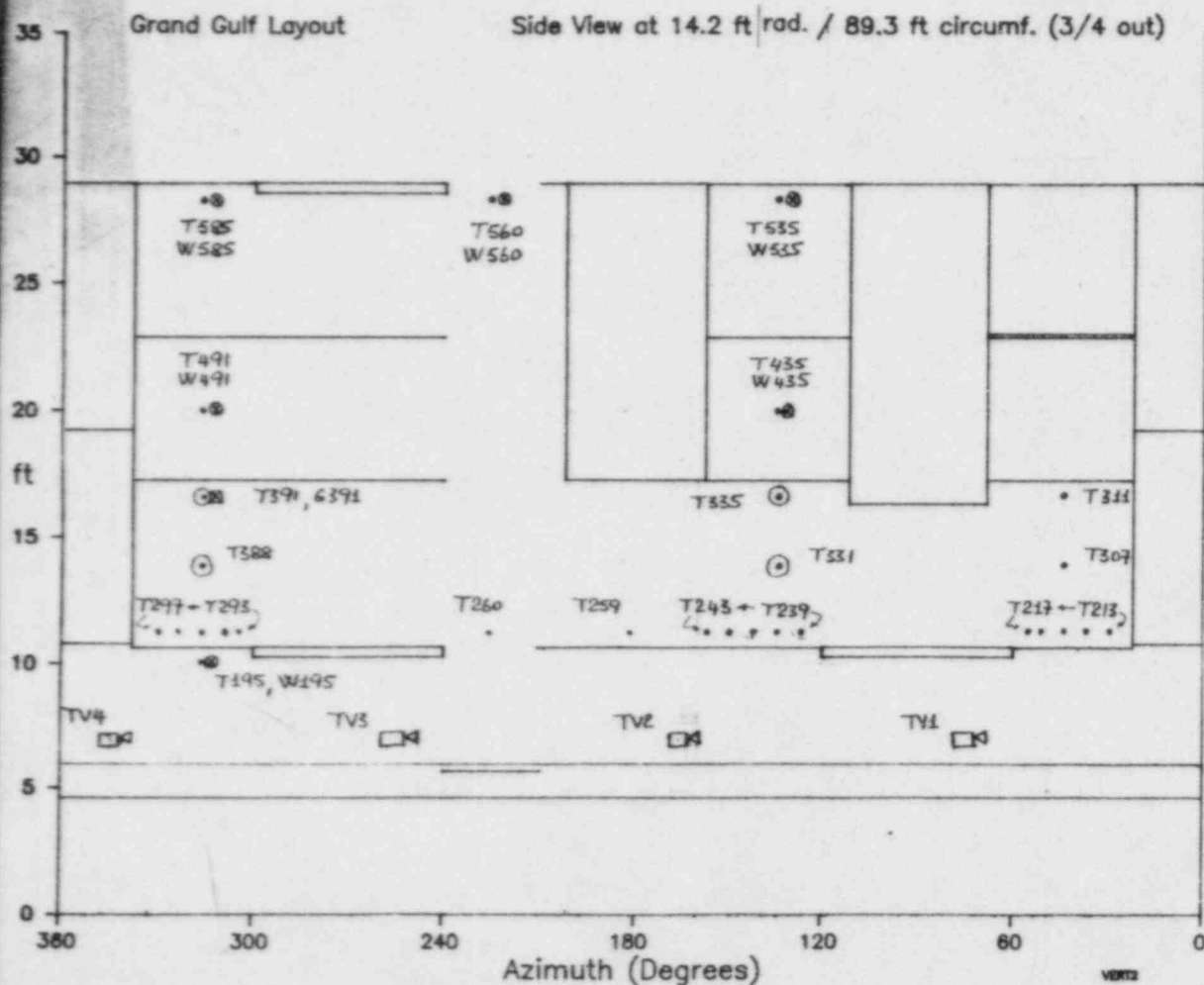
- Gas Thermocouples 2Q + ⑦

• Vertical Velocity 6

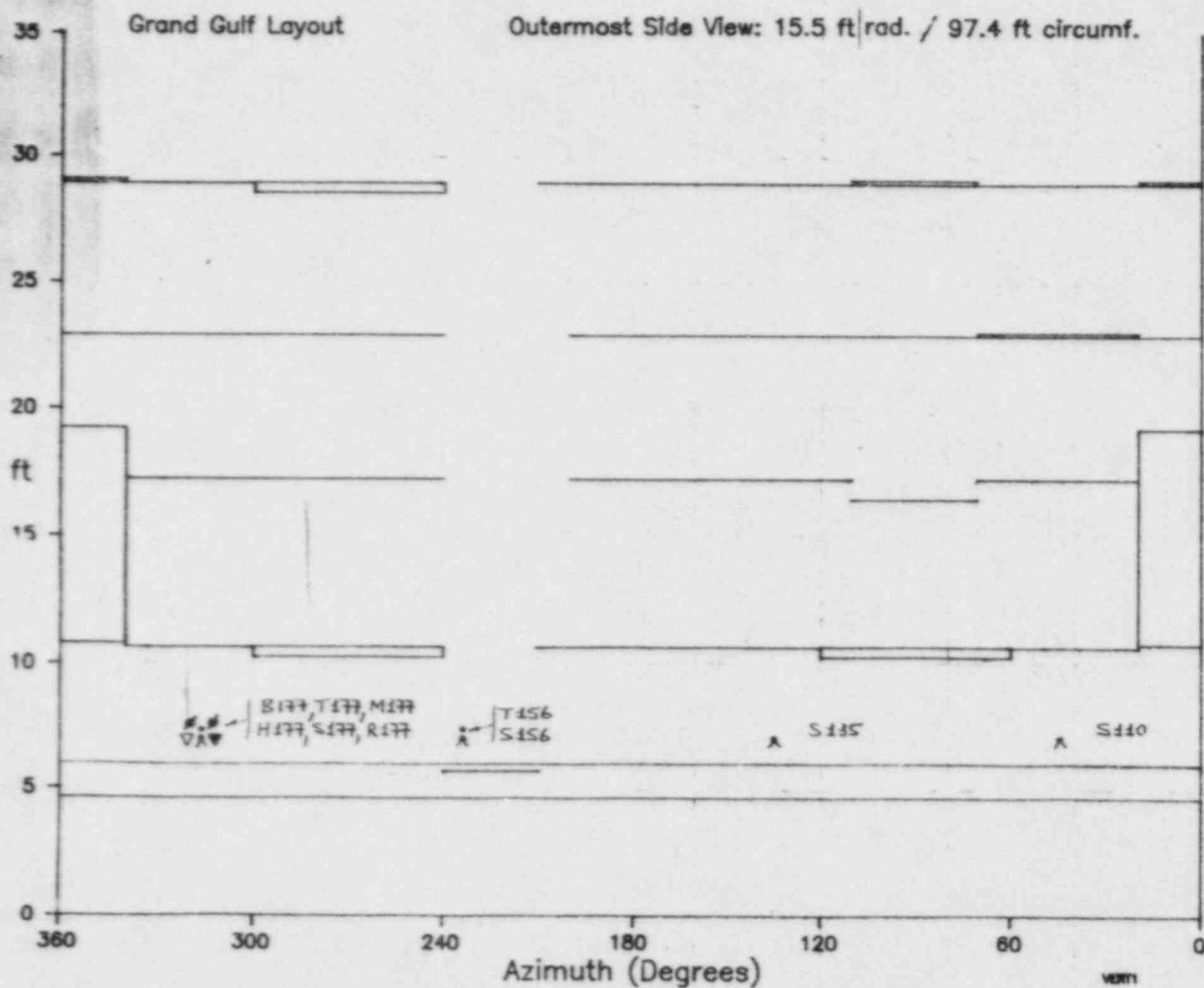
DA Multiplexed Gas Conc. 1

□ TV Cameras	5
--------------	---

⊙ Indicates thermocouples not logged for Perry configuration



I	Added Pages + changes						J.T.	8/19/84	8/17/84
No.	REVISION						By	Date	Good Date
TOLERANCES Linear: Angular:									
PRELIMINARY Not for fabrication Date: By:					RELEASED FOR FABRICATION By: J.T. Approved: J.T. Date: 8/16/84				
FACTORY MUTUAL RESEARCH									
NO INJECTION - PREVIOUSLY THERMOFORMED, HARNICK, NASH DESIGN									
INSTRUMENTATION LAYOUT									
SCALE: 1" = 5' Vertical	APPROVED BY: [Signature]				DRAWING NO. [Number]				
DATE: 8/24/84					SHEET: 4 OF 5				
Design: [Initials]	Checked: J.T.				Drawing Number: DR40924-02				
Date: 8/19/84	Date: 8/24/84								



Instrument List:

- Gas thermocouples 2
- ✧ Surface thermocouples 4
- ▽ Total heat flux gages 1
- ▼ Radiometers 1
- ✱ Calorimeters 2

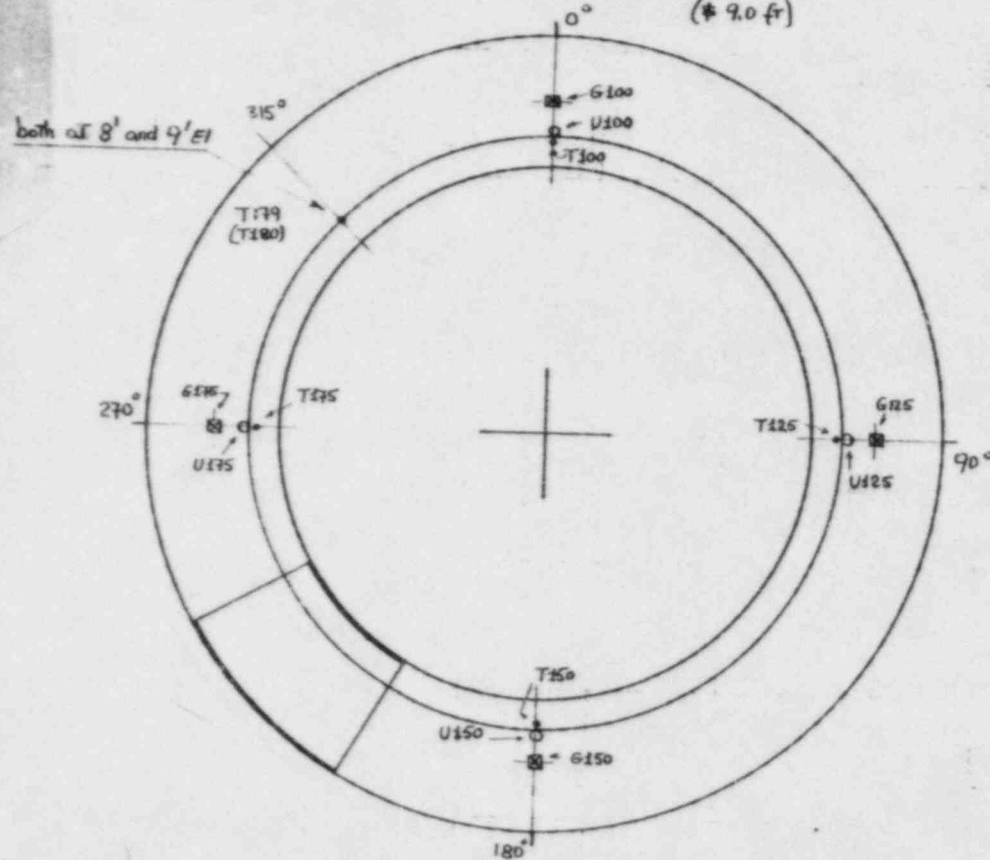
1 Added target changes		By	Date	Appr	Date
No REVISION		By	Date	Appr	Date
TOLERANCES					
Linear					
Angular					
PRELIMINARY			RELEASED FOR FABRICATION		
Not for fabrication			By		
Date			Date		
By			Date		
FACTORY MUTUAL RESEARCH					
100 SOUTH PROVIDENCE TOWNSHIP, HUNTSVILLE, ALA 35894					
INSTRUMENTATION LAYOUT					
15.5 rad. view		APPROVED BY		DRAWN BY	
DATE 9/24/84		DATE 9/24/84		DATE 9/24/84	
DESIGN				CHECKED	
DATE 9/19/84				DATE 9/24/84	
SHEET 5				OF 5	
DRAWING NUMBER				0840924-02	

Instrument list:

- Gas Thermocouple 5+1
- Horizontal velocity 4
- Gas sampling (mult.) 4

Grand Gulf Layout

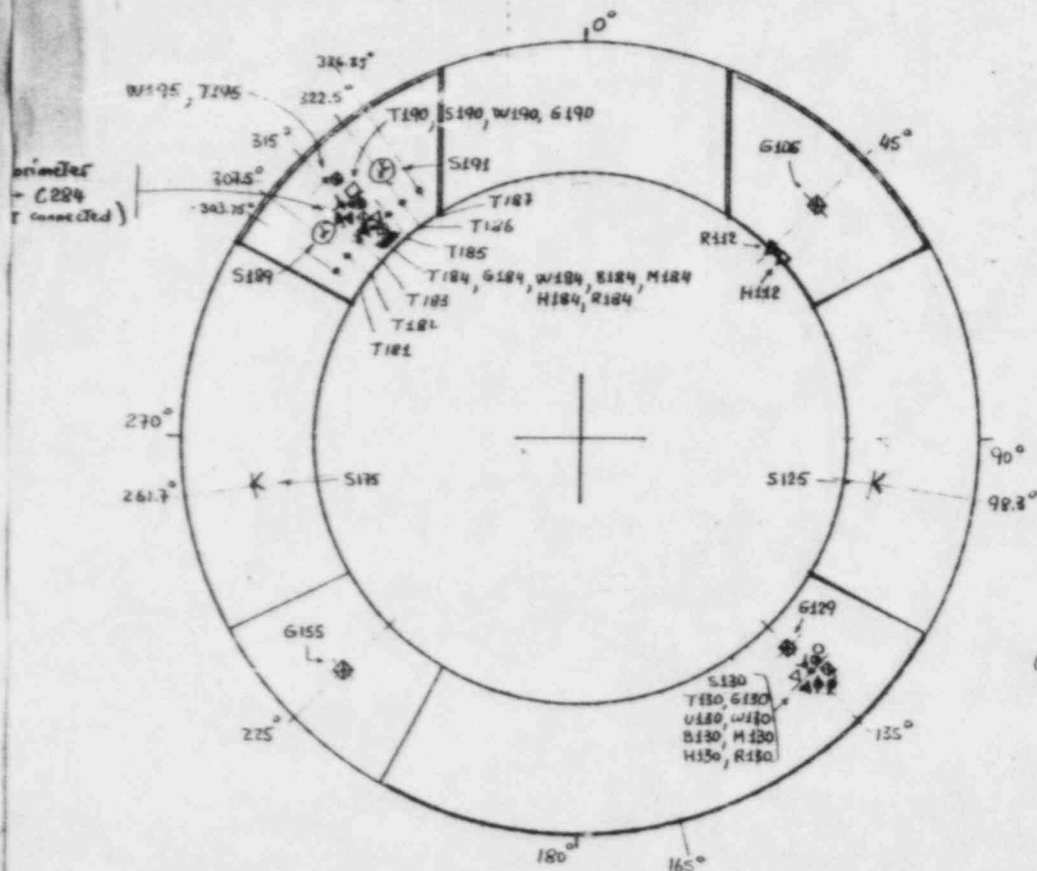
Elevation 8.0 ft
(# 9.0 ft)



1 Added Taps + changes		By	Date	App'd Date
No. REVISION		By	Date	App'd Date
TOLERANCES				
Linear				
Angular				
PRELIMINARY		RELEASED FOR FABRICATION		
Not for fabrication		By: <i>J.T.</i> Date: 9/16/84		
Date		By: <i>J.T.</i> Date: 9/16/84		
FACTORY MUTUAL RESEARCH				
101 SOUTH PROVIDENCE TURNPIKE, NORFOLK, MASS 01061				
INSTRUMENTATION LAYOUT				
SCALE 1" = 5'	APPROVED BY <i>James T. Sullivan</i>	DRAWN BY <i>J.T.</i>		
DATE 9/24/84	DATE 9/24/84	REVISED		
Design: <i>J.T.</i>		SHEET 2 OF 10		
Date: 9/19/84	Checked: <i>J.T.</i>	DRAWING NUMBER 0840924-01		
Date: 9-24-84	Date: 9-24-84			

Grand Gulf Layout

Elevation 10.0 ft



Instrument list:

- GAL thermocouples 10
- > Surface thermocouples 4 + (2)
- ▽ Total heat flux gages 3
- ▼ Radiometers 3
- ◆ Calorimeters 4
- Horizontal velocity 1
- ⊙ Vertical velocity 4
- Gas sampling (cont.) 1
- Gas sampling (mult.) 5
- ✦ 3-D Calorimeter 10 + (11)

⊙ Indicates thermocouples not logged for Perry configuration.

1. Added Tags + changes		By: <i>[Signature]</i> Date: 9/24/84	
No. REVISION		By: <i>[Signature]</i> Date: 9/26/84	
TOLERANCES Linear: Angular:			
PRELIMINARY Not for fabrication Date: <i>[Signature]</i> By: <i>[Signature]</i>		RELEASED FOR FABRICATION By: <i>[Signature]</i> Date: 9/26/84 Approved: <i>[Signature]</i> Date: <i>[Signature]</i>	
FACTORY MUTUAL RESEARCH 300 SOUTH THUNDERBOLT TURNPIKE, NEWNAN, GA 30568			
INSTRUMENTATION LAYOUT			
SCALE: 1" = 5'	APPROVED BY: <i>[Signature]</i> DATE: 9/24/84	DESIGNED BY: <i>[Signature]</i> DATE: 9/20/84	REVIEWED: <i>[Signature]</i> DATE: <i>[Signature]</i>
Design: <i>[Signature]</i> Date: 9/19/84		Checked: <i>[Signature]</i> Date: 9-24-84	
DRAWING NUMBER: 0840924-01		SHEET: 3 OF: 10	