ORGANIZATION: COMSIP, INC.
INSTRUMENT AND CONTROL SYSTEMS
WHITTIER, CALIFORNIA

REPORT NO.: 99900734/82-02	INSPECTION DATES: 4/13-14/82	INSPECTION ON-SITE HOURS: 32

CORRESPONDENCE ADDRESS: Compsip, Inc.
Instrument and Control Systems
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Vice President and Technical Director
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ORGANIZATION CONTACT: Mr. A. D. Robinson
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PRINCIPAL PRODUCT: Hydrogen Analyzers

NUCLEAR INDUSTRY ACTIVITY: Comsip, Inc., at the Whittier, California, facility has a force of approximately 45 employees. Their principal product is a hydrogen analyzer (HA) which comprises approximately 75% of their volume of work: 100% of the HA's are for the nuclear industry. The remainder of the products is fabrication of instrument panels. These HA's have been purchased by 41 utility companies for approximately 68 nuclear units.

ASSIGNED INSPECTOR: J. R. Agee, Equipment Qualification Section (EQS) — 8/10/82 Date

OTHER INSPECTOR: A. L. Smith, EQS

APPROVED BY: for H. S. Phillips, Chief, EQS — 8/13/82 Date

INSPECTION BASES AND SCOPE:

A. BASES: 10 CFR Part 50, Appendix B

B. SCOPE: This inspection was made as a result of an allegation received by the NRC Region V office on October 26, 1981. The allegation concerned inadequate qualification of the Delphi Containment Air Analyzer Model No. K-3 and K-4.

PLANT APPLICABILITY: Not identified.

DESIGNATED ORIGINAL
Certified By Rheanne Fouts

ORGANIZATION: COMSIP, INC.
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REPORT: NO.: 99900734/82-02	INSPECTION RESULTS:	PAGE 2 of 4

A. VIOLATIONS:

None

B. NONCONFORMANCES:

None

C. UNRESOLVED ITEMS:

None

D. OTHER FINDINGS OR COMMENTS:

1. Background

An allegation was submitted to Region V by telephone on October 26, 1981, by an anonymous caller who stated that the "defective" product was manufactured by a competitor of his company and was being provided as a safety-related component to nuclear power plants. The caller initially refused to specifically identify the product, but in a second phone call (approximately one hour after the first phone call) a second individual identified the Containment Hydrogen Monitor or Containment Air Analyzer Model No. K-3 and K-4, manufactured by Delphi Instruments Division of Comsip, Inc., Whittier, California. The caller stated: "The instrument has not been properly qualified, and will, most likely, not operate when required due to poisoning of the catalyst. Page 7 of NUREG 0588, requires qualification tests of the equipment. Delphi has not performed these qualification tests. One test calls for caustic sprays with boric acid (a catalyst poison). If they had done this test, they would probably find that the catalyst in the instrument will not properly function and the instrument will be functionally inoperative or reflect a large degree of error. There are numerous other catalyst poisons which must also be considered and Delphi did not consider these; e.g., silicon oil spray. Delphi certified that these components have been properly tested and qualified, yet to my knowledge this was not done."

2. Allegation No. 1

The Delphi hydrogen analyzer has not been properly qualified, and will, most likely, not operate when required due to poisoning of the catalyst.

Engineering Analysis and Test Company (EA&T), Inc., Test Report, "IEEE-323-1974 Qualification of Delphi IV Hydrogen Analyzer," Project: 1035-1, dated December 1980, contains data that demonstrated that the analyzer was tested and met the test criteria of IEEE Standard 323-1974 concerning thermal and radiation aging, mechanical cycling, seismic vibration and simulated post loss of coolant accident (LOCA) conditions. The test represented postulated conditions the analyzer might be subjected to following a LOCA. In conjunction with the above testing, the analyzer was calibrated by the test facility with a calibration gas containing a composition of approximately 9% Hydrogen (H_2) and 91% Nitrogen (N_2). The analyzer was then tested with a sample gas of known composition consisting of 5% H_2 and 95% N_2. The analyzer output signal corresponded proportionately to the known percentage of H_2 in the sample gas.

This allegation was not substantiated as the subject equipment had been environmentally qualification tested in accordance with IEEE-323-1974 and NUREG 0588 requirements.

3. Allegation No. 2

The analyzer will not properly function in the presence of certain catalyst poisons and Delphi failed to consider poisons such as boron spray and silicon oils.

Tests performed by Delphi indicate the analyzer, due to its unique design of having an order of magnitude more catalyst coating on the probe than is necessary, will not be significantly affected when exposed to the poisons mentioned.

The NRC inspector determined that Delphi had considered boron spray, silicon oils, and catalyst poisons, such as iodine, borated water, and phosphate esters and had concluded that:

(a) Iodine poisoning is not possible for thermodynamic reasons.

(b) Phosphate esters in combination with steam and silicon oils have an insignificant effect on the catalyst.

(c) Boric acid would not be transported to an installed analyzer in a sample line controlled above the saturation temperature of the sample. In addition, the flow controlling capillary of the analyzer is protected by a ceramic wool fiber and the catalyst bed is protected by a sintered stainless steel diffusion barrier. Therefore, the sensing probe would not detect the boric acid.

(d) Water as a liquid, is separted from the sample in the H_2 analyzer, as proven in the qualification test.

This allegation was not substantiated since Delphi considered catalytic poisons as described above.

PERSONS CONTACTED

Company Comsip Inc

Dates April 13-14, 1982

Docket/Report No. 99900734/82-01

Inspector J.R. Agee

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NAME(Please Print)	TITLE(Please Print)	ORGANIZATION(Please Print)
A. D. Robinson	Vice President & Technical Director	Comsip Inc.

Inspector J.R. Agee

Scop/Module Reactive Inspection to an Allegation

DOCUMENTS EXAMINED

Docket No. 99900734

Report No. 82-01

1	2	TITLE/SUBJECT	3	4
1	8	Engineering Analysis & Test Co., Inc., Test Plan, IEEE 323-1974 Qualification of Delphi IV Hydrogen Analyzer.	11/79	2/3
2	2	SP-611-4549-00, Specification Post Loca H_2 Analyzer, Perry Nuclear Power Station Plant, Units 1&2, Gilbert Associates	9/3/80	IV
3	2	SP-706-4549-00, Attachment Specification. Manufacturing Quality Assurance Program Requirements - Quality Level I - Electrical for Safety Related Equipment Vendors Perry Nuclear Power Plant - Units 1&2, Gilbert Associates	5/3/74	—
4	9	EA&T Seismic Qualification to IEEE 344-1975 of K-IV Remote Control Panel	9/80	1
5	5	SP-611-4549-00, Cleveland Electric Illuminating Co., P.O.# P-1734-G	—	—
6	10	EA&T Test Report, IEEE 323-74 Prototype Qualification for H_2 Analyzer Systems - K III & K-IV as manufactured	9/81	1

Document Types:
1. Drawing
2. Specification
3. Procedure
4. QA Manual
5. Purchase Order
6. Internal Memo
7. Letter
8. Other (Specify-if necessary)
   Test Plan
9. Qualification Report
10. Test Report

Column Nos.
1. Sequential Item No.
2. Type of Document
3. Date of Document
4. Revision No., if applicable

Inspector J.R. Agee

Scop/Module Reactive Inspection to an Allegation

DOCUMENTS EXAMINED

Docket No. 99900734

Report No. 82-01

1	2	continued from page 1 TITLE/SUBJECT	3	4
6	10	by Comsip, Inc., Project 1035-1		
7	10	Addendum to Report No. 1035-1, IEEE 323-1974, Prototype Qualification for Delphi H_2 Analyzer Systems K-III & K-IV. Final Inspection and Operational Tests	—	1
8	9	EAST Seismic Qualification to IEEE 344-1975 of Delphi IV Hydrogen Analyzer as manufactured by Comsip-Delphi, Inc., Project 1035-2	7/80	1
9	8	Test Plan, IEEE 323-1974 Qualification Supplementary Test of Delphi IV Hydrogen Analyzer Sample Pump, Project 1035-8	9/81	3

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