

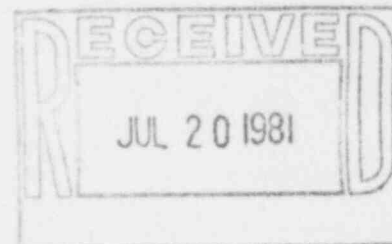
The Light company

Houston Lighting & Power P.O. Box 1700 Houston, Texas 77001 (713) 398-9211

July 17, 1981
ST-HL-AE-700
SFN: V-0530



Mr. Karl Seyfrit
Director, Region IV
Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012



Dear Mr. Seyfrit:

South Texas Project
Units 1 & 2
Docket Nos. STN 50-498, STN 50-499
Final Report Concerning HILTI Industries
QA Program

On April 10, 1981, pursuant to 10CFR50.55(e), Houston Lighting & Power Company notified your office of an item concerning HILTI Industries QA Program. Our final report is attached.

If there are any questions, please contact Mr. Michael E. Powell at (713) 676-8592.

Very truly yours,

G. W. Oprea, Jr.

G. W. Oprea, Jr.
Executive Vice President

MEP/syt
Attachment

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Revision Date 7-2-81

FINAL REPORT CONCERNING
HILTI INDUSTRIES QA PROGRAM

I. Summary:

HILTI Industries is a supplier of concrete expansion anchor bolts for Seismic Category I applications. Revisions were made by the supplier to their QA program which were not submitted to Brown & Root for approval as required by the STP QA program. Thus, the adequacy of the bolts supplied under the revised program was considered suspect until further investigation could be made. The investigation centered on the adequacy of the manufacturing process, quality control records, material test records and quality control procedures. The conclusion of the investigation is that the bolts supplied by HILTI are satisfactory. On this basis, HL&P has concluded that this item of concern does not meet the reportability requirement of 10CFR50.55(e) and is not a safety hazard.

II. DESCRIPTION OF INCIDENT:

HILTI Industries, Inc. is a supplier of concrete expansion anchor bolts (Kwik-Bolts) which have been used at STP in Seismic Category I applications. HILTI was approved by pre-award survey on November 6, 1979. This survey included review and approval by Brown & Root of the HILTI QA Program, consistent with the QA requirements contained within the applicable procurement documents.

In November, 1980, during routine preparation for an annual audit of HILTI Industries, it was discovered that they had changed their QA Manual in January, 1980 and further revised it in June, 1980. HILTI was immediately asked to provide their current QA Manual to Brown & Root for review and approval prior to any audit. The manual was reviewed by B&R and found to be "Incomplete; Disapproved". HILTI was notified of this action on December 8, 1980, and was subsequently removed from the project's Approved Vendors List. In December, 1980, a hold on the installation of permanent concrete expansion anchor bolts was initiated on the South Texas Project.

Approximately 136,000 concrete expansion anchor bolts had been supplied to STP by HILTI Industries since January, 1980. A relatively small number of these bolts have been installed in Seismic Category I areas to date.

III. CORRECTIVE ACTION:

When Brown & Root became aware that HILTI Industries was operating to a QA Manual that was not reviewed and approved by Brown & Root, HILTI was removed from the South Texas Project's Approved Vendor's List. All expansion anchor bolts to be used for permanent installations at STP were placed on "Hold" on December 12, 1980. After a number of meetings with HILTI's representatives pertaining to their QA Manual, the HILTI QA Manual was "conditionally approved" on April 14, 1981, pending satisfactory completion of an audit of HILTI's facility in Tulsa,

Oklahoma. On April 15 and 16, 1981 a team comprised of B&R Quality Assurance Auditing, B&R Engineering and HL&P personnel visited HILTI's Tulsa, Oklahoma facility. The purpose of this visit was to (1) audit HILTI to their present manual (Revision 4/1/81) and (2) to evaluate HILTI's performance as it would have related to their previously accepted QA Manual (approved November 1979) for the period of January 2, 1980 to date, and hence, the quality of the bolts supplied to STP during this period. The results of this visit are (1) HILTI's QA Program failed to satisfy the STP QA requirements as stated in the procurement documents, and (2) HILTI failed to satisfy Brown & Root that adequate program implementation was in effect since January, 1980. Five Audit Deficiency Reports resulted from this April 15 and 16 audit of HILTI. HILTI's proposed corrective actions were reviewed and approved. Therefore on May 22, 1981 B&R notified HILTI that their QA program was now acceptable.

On June 12, 1981, a meeting was held between HL&P/B&R Engineering and Quality Assurance to develop a method for resolving the indeterminate quality of the HILTI "Kwik-Bolt" concrete expansion anchors supplied to the South Texas Project during the period from January 1980 through November 1980. In place of the previously envisioned "user's test" B&R Materials Engineering, Quality Engineering and HL&P Engineering would conduct an investigation of HILTI Industries to evaluate the manufacturing process, quality control records, material test records and quality control procedures for the period from January 1980 through November 1980. The investigation would be distinct from the previous audit's purpose of evaluating their QA program.

Accordingly, on June 18, 1981, an investigative team consisting of B&R Materials and Quality Engineering accompanied by a HL&P Engineering representative investigated HILTI Industries at Tulsa, Oklahoma. HILTI was represented by their QA Director, Chief Metallurgist and Vendor Quality Supervisor.

The investigation team reviewed in an organized fashion, manufacturing capability and continuity of process, as well as inspection, quality control and test records, over the last 1 1/2 years. The following is a summary of the major observations of the HILTI investigation:

1. The HILTI manufacturing process is essentially automated and continuous. It was the same process line over the last 1 1/2 years.
2. Actual quality control (as distinct from the QA Manual) was conducted in accordance with inspection Checklists and part drawings which are controlled and distributed to each working group including Quality Control. The part drawings which prescribe the acceptance criteria for all important attributes have been continuous since the early 1970's. The drawings are additionally posted on each production machine and area, and are used by production for preliminary checks and by QC for final inspections.

3. Quality Control records such as Receiving Inspection Reports, in-process Inspection Records and Laboratory Test Records were reviewed. Records exist for the same period in question and were documented through 1980 - 1981.
4. Deviations are documented in a non-conformance report called a "Diverted Material Report". Accept, Reject and Hold tags and forms were compatible over the last 1 1/2 years. Engineering reviews deviations, except where manufacturing finds a deviation in preliminary checks and chooses to reject or sort the product prior to presentation for inspection. Even in such cases, the deviation is documented and is subject to statistical QC analysis. QC records are summarized in standard forms and analyzed statistically. A development group from Corporate Headquarters is involved in review of non-conformances and problems.
5. The materials test laboratory maintained adequate records of regular sampling-type tests as well as problem analysis over the last 1 1/2 years.
6. Several internal audits were conducted by Corporate QA as well as Company Management over the last 1 1/2 years. These audits concentrated more on the effectiveness of process and QC control than on the nuclear QA Manual. However, numerous client audits based on the nuclear QA Manual were conducted in 1980 -1981 and no rejections were reported. The records of several AE audits in HILTI's files indicated HILTI was an acceptable supplier.

Based upon the results of this investigation, it has been concluded by HL&P that the manufacturing quality control, of the subject HILTI concrete expansion anchors during the time period in question, was sufficient to allow their use in safety related applications.

IV. RECURRENCE CONTROL:

HILTI Industries has been re-informed of the South Texas Project requirements to submit any changes to their Quality Assurance Program for B&R review and approval prior to implementation of such changes.

V. SAFETY EVALUATION:

Based upon the results of the investigation, HL&P has concluded that the concrete expansion anchor bolts supplied by HILTI Industries were adequate for the period in question. Therefore the initial item of concern does not represent a significant safety hazard if left uncorrected.