U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INVESTIGATION
DALLAS FIELD OFFICE

REPORT OF INQUIRY

August 2, 1982

SUBJECT: INVESTIGATION OF ALLEGED B&R TERMINATION IN VIOLATION OF SECTION 210, ENERGY REORGANIZATION ACT, AT CPSES
(Investigation No. Q4-82-011)

1. On June 25, 1982, [redacted] telephonically advised the reporting investigator that [redacted], a Brown & Root, Inc. (B&R) Quality Control Inspector at CPSES was terminated for attempting to submit an NCR regarding improper Hilti bolt installation.

2. On July 6, 1982, Mr. Robert J. Fortman, Assistant Area Director, U. S. Department of Labor, Fort Worth, Texas, advised that [redacted] had filed a complaint with DOL under the provisions of the Energy Reorganization Act. A copy of the DOL letter acknowledging this complaint is attached as Attachment 1.

3. On July 9, 1982 [redacted] was telephonically contacted by the reporting investigator regarding his complaint. [redacted] stated he worked as a QC inspector on the night shift at CPSES. He stated his supervisor, Mr. Eddie Holland, had refused to allow him to submit an NCR on June 17, 1982. [redacted] stated that an argument with Holland had ensued, subsequent to which he [redacted] was terminated. [redacted] stated Holland wanted to informally apprise the craft supervisor of the defect in order that corrective action could be taken. [redacted] agreed to come to the NRC Region IV office for further interview. The week of July 12, 1982, he cancelled two appointments and failed to arrive for another. No further contact was made with [redacted]

4. On July 21, 1982, the reporting investigator accompanied Mr. Robert J. Fortman to CPSES to investigate circumstances relating to [redacted] complaint. The following persons were interviewed by Mr. Fortman, DOL, with the reporting investigator present:

Randall Smith, non-ASME Mechanical QC Lead, B&R
Don Mantz, Pipe Hanger General Foreman, B&R
Edward Holland, Night Shift non-ASME QC Superintendent, B&R
James Ragan, Night Shift ASME QC Supervisor, B&R
Cecelia Payne, Night Shift non-ASME QC Inspector, B&R

Interviews of the aforementioned personnel disclosed that [redacted] had been reassigned to the night shift non-ASME QC staff in about early June 1982. Smith, Holland, Ragan, and Payne stated [redacted] had not wanted to work on the night shift. Holland, Ragan, and Payne stated [redacted] was difficult to communicate with and that he had displayed a very poor attitude with other

persons working that shift. With regard to the situation that allegedly resulted in [redacted] termination, Mantz, Holland, Ragan, and Payne stated the problem was not one which required an NCR and that [redacted] had agreed with the corrective action taken at that time. Holland and Ragan related that the termination of [redacted] resulted from another matter which occurred on June 17, 1982, subsequent to which Holland had discussed with [redacted] his performance. During this discussion, [redacted] made the statement "fire me now or fire me later."

(Investigator's note: During the 7/9/82 telephonic interview of Stinson, he commented that he made this statement to Holland.)

Holland stated this comment was the reason he terminated [redacted] Holland stated this statement was interpreted as a display of [redacted] disrespect and his failure to understand that his performance should improve.

5. On July 29, 1982, Mr. Robert Fortman advised the reporting investigator that his determination, relating to [redacted] complaint, was that evidence did not verify that discrimination was a factor in the actions which resulted in his [redacted] termination. A copy of the DOL letter to [redacted] concerning this decision is attached as Attachment 2.

D. D. Driskill, Investigator

Attachments:
1. Attachment 1 - DOL letter dtd 7/8/82
2. Attachment 2 - DOL letter dtd 7/27/82

cc: J. Collins, RIV
J. Gagliardo, RIV

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TEXAS 76011

OFFICE OF INVESTIGATIONS

DATE: November 23, 1982

REPORT OF INVESTIGATION

TITLE: Comanche Peak Steam Electric Station
Alleged Electrical Deficiencies

SUPPLEMENTAL: DN 50-445/50-446

CASE NUMBER: 4-82-012

CONTROL OFFICE: REGION IV STATUS: CLOSED

PERIOD OF INVESTIGATION: August 4 - September 17, 1982

REPORTING INVESTIGATOR:

Richard K. Herr, Acting Director
OI Field Office, Region IV

PARTICIPATING PERSONNEL: Lawrence E. Martin, Reactor Inspector
Reactor Project, Section B, Region IV

William D. Kelley,
Senior Resident Reactor Inspector
Reactor Project, Section A, Region IV

REVIEWED BY:

Roger A. Fortuna, Acting Deputy Director
Office of Investigations

APPROVED BY:

James A. Fitzgerald, Acting Director
Office of Investigations

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SUMMARY

Investigation of alleged electrical deficiencies that occured from August, 1979 to January, 1980 in the construction phase of the Comanche Peak Nuclear Power Plant at Glen Rose, Texas, included an interview of the contractor's electrical Superintendent, the review of numerous electrical records, and the inspection by NRC personnel of identified alleged electrical "deficiencies." Investigation disclosed that three of the four basic alleged "deficiencies" were in the areas of non-safety wiring. During August and September, 1982 all alleged deficiencies were examined and no irregularities were found. Review of nonconformance report records did identify similar deficiencies discovered in the December 1979 through January/February 1980 time frame; however, these deficiencies were properly addressed in 1980.

DETAILS

Purpose of Investigation

The purpose of this investigation was to investigate allegations of electrical "deficiencies" during the 1979/1980 construction phase of the Comanche Peak Steam Electric Station, Glen Rose, Texas.

Background

On August 4, 1982, Mrs. Juanita Ellis, President, Citizens Association for Sound Energy (CASE), met with NRC Investigator R. K. Herr at the NRC offices in Arlington, Texas. Mrs. Ellis provided reporting investigator a copy of a statement executed on June 14, 1982 by [redacted] Attachment (1)

Mrs. Ellis explained that [redacted] worked at the Comanche Peak construction site in the Electrical Department

Mrs. Ellis remarked that Chandler alleged "electrical faults of construction" at the Comanche Peak site located in Glen Rose, Texas.

Interview of CHARLES BRETT

On August 31, 1982, Charles Brett, Superintendent of the Electrical Department, Brown and Root, contractors for Comanche Peak construction, was interviewed by NRC Investigator R. K. Herr at the construction site located in Glen Rose, Texas. Brett explained that he was present during the 1979 time frame, and in December 1979, the electrical department created a "termination crew." Brett stated that this crew would check out all electrical (safety and non-safety) wiring to ensure that work had been accomplished and that the work was done satisfactorily. Brett remarked that the men assigned to the work crews would submit handwritten reports to show what work was done, where the work was done, and the status of the work. Brett emphasized that this crew checked the electrical wiring before the Quality Control Inspectors were advised that the electrical wiring was ready for inspection. Brett explained that the termination crew conducted a preinspection review of all electrical work. Brett also pointed out that, if a deficiency was noticed and reported, the deficiency would be addressed before the Quality Control Inspector would conduct his inspection. Brett explained that this extra "check out" by the electrical personnel was used as a management tool to show the electrician where problems arose and to point out various potential deficiencies. Brett stated that the Quality Control Inspector could still find various deficiencies, and that the practice of utilizing "termination crews" to check the electrical wiring is no longer being used. Brett remarked that "termination crews" were not a requirement in the Brown and Root procedure or instructions, but were merely an extra check for the electrical department itself, and therefore, none of the handwritten reports or status sheets were kept.

The Review of [redacted] Daily Time Sheet

On August 31, 1982, a review of [redacted] Daily Time Sheet, [redacted] by NRC Investigator R. K. Herr at the Comanche Peak Construction Site, Glen Rose, Texas was accomplished. This review disclosed that [redacted] worked for Brown and Root (contractors) from [redacted]. The records further disclosed that from [redacted] worked on non-safety related wiring. According to the records, [redacted] worked for the "termination crew" from [redacted]

Interview of [redacted]

On [redacted] a former electrician employed at the Comanche Peak construction project, Glen Rose, Texas, was interviewed by NRC Investigator R. K. Herr and NRC Inspector L. E. Martin [redacted] executed a signed sworn statement, Attachment (2), wherein he identified four areas of alleged "deficiencies" and drew a map depicting the exact location of these deficiencies. [redacted] further described these deficiencies as follows:

(1) Motor control center located in the circulation water system: use of 1000 MCM cable, using 750 MCM lug that was drilled to accept larger cable.

(2) Auxiliary Building, Reactor No. 1: lug designed for an approximate screw size of 3/8 inch was used on a terminal block designed for #10 screws.

(3) Switch Gear Room, Reactor No. 1, black cable: lug designed for ¼ inch screws were used on terminal blocks designed for #10 screws.

(4) Annunciator logic panels, Control Room, Reactor No. 1, black cable: improper cable splicing and wiring to the wrong side of lugs.

[redacted] other general allegations of deficiencies identified in his previous statement of June 14, 1982, were addressed in the following manner. [redacted] expressed concern with the improper installation and check-out of Cannon type plugs. [redacted] was provided NRC Inspection Report 50-445/80-13, dated May 21, 1980. [redacted] stated that after reading the NRC Inspection Report, the report answered all his concerns in this area. [redacted] had also expressed concern regarding the patching/repairing of damaged cable, faulty grounding, and wiring not protected from abrasions. [redacted] was provided eight nonconformance reports covering the above general allegations that were issued from December 20, 1979 to March 18, 1980 and subsequently corrected. [redacted] after reviewing the nonconformance reports, stated that the deficiencies identified in the nonconformance reports and subsequent corrections appeared to address the concerns that he identified in his previous statement of June 14, 1982.

[redacted] explained [redacted] he was not in a position to determine if his concerns were addressed properly, pointing out that he did not have access to the nonconformance reports or NRC inspection reports. Further, [redacted] remarked that most of his work was with non-safety cable. However, he stated that between January 2 and January 11, 1980 he was assigned to the Electrical Department "termination check-out crew" that went around to ensure that all work was done properly, and that some of the items he checked could have been safety related.

[redacted] stated that he was unaware of QA/QC activities or procedures that took place subsequent to the check-out crew activities on all safey-related activities. [redacted] also expressed concern that when cad-welding was done, welders only protected an area of about 3 feet; however, [redacted] had not inspected any of these to determine if any cables had been damaged and could not identify any specific areas for follow-up by NRC.

Inspection of Alleged Deficiencies

On August 31, 1982, Dennis L. Kelley, NRC Senior Resident Reactor Inspector (SRI), assigned to Comanche Peak, Glen Rose, Texas, met with NRC Investigator R. K. Herr to review the allegations set forth by [redacted]

Allegation Number 1: Kelley was able to physically locate the motor control center (MCC) located in the circulating water system, as described in the allegation concerning the use of 1000 MCM cable with a 750 MCM lug. Kelley stated that he inspected the area in question and found no 1000 MCM cable in the motor control center. Kelley reported that he did find one 750 MCM cable in MCC XB3-2 that is matched up to the proper lugs. He also found that the MCC 1B3-2 contained paired 350 MCM cables properly terminated. Kelley remarked that as of August 31, 1982, no improper wiring was evident in the MCC's of the circulating water system.

On September 17, 1982, Kelley advised that the areas of the alleged deficiencies that were identified by [redacted] in his statement of September 2, 1982 (see below), were located with the assistance of the maps drawn by [redacted]

Allegation Number 2, Auxiliary Building, Reactor No. 1, improper screw size for lugs: Kelley stated that he physically located this area utilizing Map No. 1, and found that there were no washer/screws in panel 5 or 6. However, he did discover a number of screws with attached washers. Kelley explained that upon close examination he found that the washer attached to the screws is an intricate part of the screw (manufactured together) and it not an add-on as it may appear at first glance. Kelley stated that some screws contained brass plate and some contained chrome plate. Kelley remarked that the chrome plate gives the appearance of a steel washer and could easily be mistaken for steel. Kelley concluded that as of September 1982, there was no improper wiring in this area.

Allegation Number 3, Swith Gear Room, Reactor No. 1, improper screw size for lugs: Kelley stated he physically located this area utilizing Map No. 2 and found that the same conditions existed as per Allegation No. 2, above. Kelley added that as of September 1982, when he inspected Switch Gear Room, Reactor No. 1, no improper wiring was observed.

Allegation Number 4, Control Room, Reactor No. 1, splicing and cable termination to wrong side of fuse block with some shaving of the lugs: Kelley stated he physically located this area, using Map No. 3, and found no evidence of shaving or erroneous termination of cable. Kelley further stated that he checked the section in question as well two other sections in the control panel and found that there was no evidence of lugs being shaved and added that blocks were of such a nature that it makes no difference which side accepts power leads. Kelley remarked that there were three blocks located in this area at the time of his examination. He did not find any improper wiring. Kelley confirmed Chandler's statement that the wiring in this area is black cable wiring, and is non-safety.

Kelley stated that during his inspection effort, he also examined safety and non-safety cable in the location of [redacted] concern, utilizing Map No. 4, to determine if any cables were pulled too tight. Kelley explained that the cables are tied off with tie wraps and anchored with adhesive clips to hold wires down and stated he found adequate slack in these cables. Kelley pointed out that these conditions are in existence at the present time. However, he could not comment on the conditions as they existed in January 1980.

Status of Investigation

The status of this investigation is CLOSED.

Attachments

Attachment 1 - [redacted] signed statement 6-14-82 COPY ALL

Attachment 2 - [redacted] signed sworn statement 9-06-82 ORIG OI:RIV/CY

STATEMENT OF [redacted]

My name is [redacted] I was working at the Comanche Peak nuclear power plant construction site [redacted]

I can personally attest to and will be supported by documented records of several faults in the electrical phase of construction at Comanche Peak as of January 11, 1980. Having been employed as a journeyman electrician by Brown & Root, Inc. during the latter part of [redacted] at Comanche Peak, I worked in the electrical "termination crew" doing the actual physical termination of the wiring and later on the "checkout crew". This latter crew checks the wiring done by the termination crew as to accuracy and proper termination technique. I was required to turn in a written and signed report on each cable checked by me. Some, if not all of these faults can be verified and located through these reports. These faults include improper lug sizing and actual physical alteration of lugs, splicing of cable, patching of damaged cables, improper pin setting on "canon" type plugs, faulty grounding, wiring not properly protected from abrasion, wire tension too high, and improper protection of cables during thermal welding.

Lugs are a wiring device that attach to the ends of wires or cables as an aid to termination and come in a variety of styles and sizes. The "ring type" used at Comanche Peak has a hole in its tongue to accept screws from terminal blocks. These holes can be of varying size dependent upon what diameter or stud size screw the terminal block is engineered for. A stud size six is smaller in diameter in both the threaded portion and the head of the screw than a stud size 8 or 10. The lugs for these, in order to fit the different terminal blocks and screw size and at the same time maintain the amperage capacity they are rated for, are manufactured with a different shaped tongue. For example, #12 copper wire has an amperage rating of 20 amps, and a lug designed to accept the wire must have the same or larger ampacity. The rating of the wire is determined by the diameter of the copper conductor. The rating of a lug is determined by the size and shape of the tongue. It must have a specific area of its surface in contact with the terminal block or its ampacity will be lessened. A lug with its tongue designed for a #10 screw has a hole in its tongue that is larger than the hole in one designed for a #6 or #8 screw. The tongue is also wider and thinner. If a lug designed for a #10 screw is used on a terminal block designed for use with #8 screws, its ampacity is lessened because a #8 screw having a smaller head size only applies pressure to the inner ring of the lug tongue causing a "balling" effect. It causes the outer edges of the tongue to curl outward, also less area under the screw head is in contact with the terminal block because of its larger hole. There are many instances where this has happened at Comanche Peak. Some of these are:

1. Auxiliary Building Reactor #1---Lug designed for an approximate screw size of 3/8" was used on a terminal block designed for #10 screws. This was done with the aid of a steel washer without the use of contact aid to prevent electrolysis between the two dissimilar metals.

8. Switchgear Room. Several lugs designed for 1/4" screws were used on terminal blocks designed for #10 screws.

These two instances stand out in my mind but there are many more in particular concerning the circulating water system and fire control; however without reference materials I cannot be more specific. However, there is at least one instance I can recall--in fact for which I am at least partially responsible. This is the termination of a 1000 MCM cable with the use of a 750 MCM lug that was drilled to accept the larger cable size. It was done after pretest by both myself and Dennis Heaves, another journeyman working as my partner on the termination crew. Drilling the lug affected its ampacity in two manners: one, it reduced the amount of metal to conduct electricity and it was a bolt type mechanical lug, meaning that the lug was secured to the cable by means of a bolt or set screw in its body. Drilling the lug body had the effect of lessening the number of threads to not more than three or four for the set screw to be screwed into. This was in a Motor Control Center in the Circulating Water system. Any failure in the circulating water system which provides coolant water for the reactor could possibly cause very serious problems.

At least one cable in the Annunciator Logic Panels in the control room for Reactor #1 was spliced in the annunciator panel itself and covered over with other wires to hide it from sight. The cable was too large (it was assumed) to terminate on the fuse block to which it was designated. Upon examination of the fuse block I found the cable terminated to the wrong side of it. Had it been terminated on the correct side the original cable would have fit. The splice was made on the orders of Frank Platt, the General Foreman over termination. Also in the Annunciator panels there were several "Canon" type plugs in which the pins were not seated properly. This can cause the connector pins to be pushed back into the body of the plug causing the pin or pins to have poor contact. The Annunciator Logic Panels give the alarm if any part of the system malfunctions. Any malfunction in the annunciator system can cause no alarm to be given in any emergency to which the plant may be subject.

Portions of the grounding system for the cable trays in the Spreader Room were damaged either by an employee collecting copper or deliberate vandalism. Strands were cut from the cables in several places. The conductors were never cut entirely in two but the removal of a strand of no matter what length reduces the capacity of the conductor.

In the Control Center for Reactor #1 literally hundreds and possibly thousands of wires were brought out of their metal raceway and pulled sharply over their sharp, unprotected edges, making them particularly vulnerable to abrasion and vibration. Every portion of every system in the plant could be adversely affected by this faulty procedure.

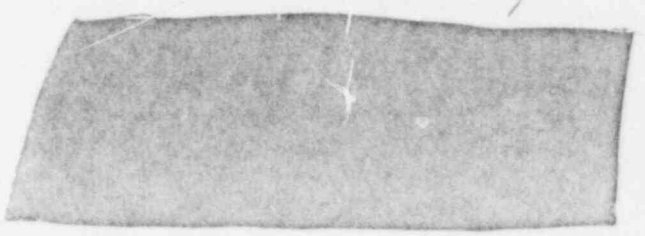
At least one cable in the Switchgear Room was damaged while being pulled. Its insulation was nicked in several places and patched with heat shrink tubing instead of being replaced.

In at least two instances wires or cables were too short by only a matter of inches for proper termination. These were pulled very tightly and terminated. They were pulled tight enough that there is the possibility of their being pulled from their lugs. One of these is in the Spreader Room; another is in a Motor Control Center in the Circulating Water System.

"Cad welding" or thermal weld in of the grounding conductors on the cable trays was done after many cables had already been pulled through them. I could not inspect for damage, but the only protection used on the cables was an asbestos blanket that protected only the cables in the immediate vicinity of the weld.

I am necessarily vague on which particular cabinet or panel or even system to which I refer due to time elapsed and the large number of systems on which I worked. With reference materials the location of these faults could be much more closely identified as could others not mentioned specifically herein.

Signed this 14TH day of June 1982 a[redacted]



PLACE: [redacted]

DATE: [redacted]

I, [redacted], hereby make the following voluntary statement to Mr. R. K. Herr, who has identified himself to me as an Investigator with the U. S. Nuclear Regulatory Commission. I make this statement freely with no threats or promise reward having been made to me.

I worked at the Comanche Peak Construction site for Brown & Root as an electrician from August 21, 1979 to January 11, 1980. I worked about 3 months on the termination crews and from January 2, 1980 to January 11, 1980 I worked on the termination check out crew.

On June 14, 1982,I prepared a statement covering areas of concern that I had with various practices that the electrical department was doing. I prepared my statement upon the request of a friend of mine, Lawrence Pope, who ask me if I had any problems or concerns with the electrical department and told me that these concerns would be made known through the upcoming hearings on the Glen Rose Comanche Peak Nuclear Power site at Ft. Worth, Tex.

Mr. Herr and Mr. L. Martin of the NRC have gone over with me the concerns that I mentioned in my statement.

I would like to point out that most of my concerns deal with Black Cable that is non-safety.

In my June 14, 1982, statement I mentioned signed reports that could identify faults. These reports that I refer to are cable termination cards and cable pull cards. These cards have sign off blocks for the craft, their supervisor and Q. C., also ~~h~~ there is an area for comments. Any comment that I may have made on these cards would have to be addressed by Q. C. and/or corrected before Q. C. sign off, however, I was not present to observe all of the corrective action. To the best of my knowledge I documented all of my concerns on the above cards. However, most of my work was in non-safety related areas.

I have drawn a map of the Auxiliary Building Reactor #1 and located the area of my concern. This area or control panel has both safety and non-safety wiring. Mr. Herr stated he would contact me later and report the results of the NRC inspection in this area.

I have also drawn a map of the Switchroom area and have located my concern in Reactor Building #1, Gould Level, just left to the door entrance. I worked with black cable and I recall that Black Cable is non-safety related.

I have also drawn a map of the Annunciator Logic Panels, in the control room, Reactor #1 and have located my area of concern. I worked with Black Cable and I understand that this area is also non-safety related.

Mr. Herr and Mr. Martin discussed my area of concern in the Motor Control Center in the Circulating Water System. In my statement I said that 1000MCM cable was present in the Motor Control Center, however, upon re-this this could have been 750 mcm. I am not sure. Mr. Kerr told me as of August 30, 1982, this area was inspected by the NRC and the lugs and wire were found to be correct. Apparently my concerns were identified and corrected after I left in January 1980.

My concerns with improper installation and checkout of cannon type plugs was

subsequently notified by the NRC documented in NRC inspection report 50-445/80-13 that I have read today (September 2, 1982) and addressed to my satisfactions.

As to the rest of my concerns regarding damage, cable by sharp edges, and/or other means, Mr. Herr has shown me a number of Non-Conformance Reports (NCR) that address these concerns. Most of these NCR were discovered and corrected after I left the site.

My concern about the repair/patch of cable damage have been addressed by a procedure that was published in October 1980, that outlines the repair procedure requirement. I did not know about this procedure because it was published after I left, however I have read the procedure (EE1-13 Rev. 2) and have no further concerns.

I cannot locate the exact area where cables were too short and were pulled tight for termination however I realize that on safety-related cable, Quality Control checks and pre-requisite testing would have identified and corrected my concerns. In the MCC Rm, BLK Cable, CCW (1 cable too tight). In the Spreader Rm, either BLK or orange as per the map I gave to Mr. Herr. I would like to clarify a statement I made on cadwelds. I said that I could not check for damage but what I meant to say is that I did not check for damage. My concern is that the asbestos covering was only for an area of three feet and believed it should have covered an area of six feet.

I now realize that subsequent megger tests and Q. C. Surveillance would have identified damaged cable.

Mr. Herr has asked me if I have any other concern or area of concern that I wish to convey and I have no other concerns except as identified on my June 14, 1980, statement and in this statement.

I have read the foregoing statement consisting of 2 typewritten/handwritten pages. I have made any necessary corrections and have initialed them. I have signed my name in the margin of each page. This statement is the truth to the best of my knowledge and belief. I declare under penalty of perjury that the foregoing is true and correct.
Executed on SEPT. 2, 1982 (Date) at 1:05 PM (Time)

[redacted]
Signature

Subscribed and sworn to before me at 1306, this 2nd Day of SEPT, 1982 at [redacted]

WITNESS: Lawrence E. Martin

Richard K. Herr

Richard K. Herr, NRC Investigator
AUTH: Sec. 161c AEA 1954 as amended

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF INVESTIGATIONS FIELD OFFICE REGION IV

611 RYAN PLAZA DRIVE, SUITE 1000
ARLINGTON, TEXAS 76011

U.S. NRC
1983 MAY 23 AM 11:43
OFFICE OF INVESTIGATIONS
HEADQUARTERS

ASSISTANCE TO INSPECTION REPORT

May 20, 1983

SUBJECT: COMANCHE PEAK
ALLEGED IMPROPER CONSTRUCTION PRACTICES

REPORT NUMBER: A4-83-005

1. On February 3, 1983, Robert L. MESSERLY provided an affidavit to the Citizens Association for Sound Energy (CASE), an intervenor that included three allegations regarding improper construction practices by Brown & Root personnel a the Comanche Peak Steam Electric Station. MESSERLY alleged the following:

   a. That Brown & Root employees drilled undocumented unauthorized holes throu rebar, and such cutting of rebar was done at the direction of supervisors

   b. That the main steam line pipe in Unit I was moved using the polar crane, thereby placing the pipe under unsafe tension.

   c. That a Brown & Root employee used a cutting torch on hanger materia in violation of procedure.

2. On April 6, 1983, MESSERLY was contacted by the reporting investigator, and a meeting was arranged with MESSERLY for the following day. MESSERLY contacted reporting investigator on April 7, 1983, and requested the meeting be changed to April 8, 1983.

3. On April 8, 1983, NRC OIFO Director R.K. HERR and the reporting investigator met MESSERLY at a restaurant in Fort Worth, Texas. MESSERLY was accompanied by Ms. Juanita ELLIS, a CASE representative, and Ms. ELLIS husband. Ms. ELLIS wished to record the meeting; however, OIFO:RIV was not previously informed of her intended presence nor of her desire to record the interview. OIFO did not have a recorder, and in accordance with OI's policy, the meeting was rescheduled. On April 10, 1983, arrangements were made to use a room at the U. S. Attorney's office, Fort Worth, Texas, and for a court reporter to transcribe the interview of MESSERLY.

4. On April 14, 1983, MESSERLY was interviewed at the U.S. Attorney's office with Ms. ELLIS present. MESSERLY's testimony was taken under oath, Attachment (1), and Ms. ELLIS made her own personal recording of the interview. In his testimony, MESSERLY expanded in detail on his original allegations. MESSERLY named Brown & Root employees responsible for the alleged improprieties and those who could substantiate his allegations. MESSERLY also identified numerous employees by title, and agreed to later provide the corresponding names when he was able to refresh his memory with his personal records located at his residence. MESSERLY also provided the NRC with a copy of a log. MESSERLY explained that he maintained this log to document the cutting of rebar at Comanche Peak. (Note: MESSERLY did not allege that all the entries in the log documented unauthorized cuts through rebar, but rather that some of the entries in the log may have been for holes drilled through rebar that may not have had the appropriate accompanying authorizations.) During this interview, MESSERLY made a fourth allegation regarding instances of

Brown & Root welders failing to purge stainless steel pipes during welding.

5. On April 21, 1983, a copy of the recorded testimony was mailed to MESSERLY at his residence. On April 27, 1983, MESSERLY was contacted by HERR, and acknowledged receipt of the transcript, but postponed giving the names of the Brown & Root employees he had identified by title in the transcript. MESSERLY stated he had not as yet had an opportunity to read his entire testimony. On April 29, 1983, MESSERLY was again contacted by HERR, but he again postponed providing the names, explaining he was very busy. On May 1, 1983, the reporting investigator telephoned MESSERLY at his residence, and MESSERLY provided twelve, additional names of Brown & Root employees at Comanche Peak he alleged had knowledge of unauthorized cuts through rebar.

6. On May 3, 1983, interviews were initiated at the Comanche Peak site addressing the four allegations. MESSERLY identified 38 individuals allegedly responsible for, or having knowledge of, the allegations. Review of employment records determined that eighteen individuals were no longer employed at Comanche Peak.

7. Between May 3, 1983 and May 10, 1983, 19 Brown & Root employees and 1 Dravo Constructors Inc. employee (formerly employed by Gibbs & Hill) named by MESSERLY were interviewed, and signed, sworn statements were taken from 19 of them. One Brown and Root employee interviewed left on vacation before a signed, sworn statement was obtained from him, and his testimony was recorded in the form of a Results of Interview. One Piping Design Services Inc. engineer was identified by the reporting investigator as responsible for the movement of the main steam line. This engineer was interviewed, and executed a signed, sworn statement.

8. Nine individuals alleged to have knowledge of improper, unauthorized cutting of rebar were interviewed and provided sworn statements. These individuals denied having knowledge of rebar that was cut without proper authorization. A 10th individual responsible for issuing the Component Modification Cards (CMC), authorizing cuts through rebar, was interviewed and provided a signed, sworn statement denying knowledge of any procedural violations. Testimony identified instances where rebar was accidentally cut, but this testimony also established that in these instances, CMC's were obtained after the cuts were reported to the engineers. There was no testimony received indicating that holes were drilled or rebar was cut without proper documentation, and no evidence was found to contradict the testimony of these individuals.

9. Three Brown & Root employees alleged to have knowledge concerning the use of the polar crane to move a portion of the main steam line in Unit 1 were interviewed and provided signed, sworn statements. A Piping Design Services Inc. engineer responsible for relocating the steam line, provided testimony of his evaluation and direction of the relocation of the line. The testimony taken from these four witnesses indicated that the relocation of the main steam line was done under the direction of engineers, and was accomplished to remove stress on the line and to return it to its designed location. No testimony was recieved to indicate that the line was "cold sprung" or installed under stress.

10. Eight Brown & Root employees alleged to have knowledge concerning the improper use of cutting torches on hanger material were interviewed. Two witnesses stated they remembered an instance during the redesign of a hanger in which a piece of tube steel was discovered to have had the bolt holes enlarged using a torch, which was a procedural violation. The testimony of the two witnesses indicated that this hanger was scrapped because of the procedural violation, and was replaced with new material. The other six had no knowledge of improper use of cutting torches or hangers.

11. Two Brown & Root employees were interviewed concerning their alleged knowledge of lugs improperly welded onto stainless steel pipe without purging the pipe. Both executed signed, sworn statements, and indicated that they did not know of any instances where welding was done on stainless steel pipe which required purging by procedure unless a "purge deletion" was received from the engineers.

12. All of the employees mentioned by MESSERLY in his affidavit who were still employed or available for interview denied the allegations made by MESSERLY. No evidence was uncovered during these inquiries which indicated deception on the part of the witnesses. The witnesses ranged from pipe fitter helpers to Brown & Root superintendents. A Piping Design Services Inc. engineer and the Dravo Constructors Inc. project manager also provided testimony which contradicted the allegations.

13. The signed, sworn statements are maintained in OIFO:RIV. No further inquiries are anticipated unless staff inspections identify additional pertinent information that would tend to substantiate the allegations or discredit the interviewees.

Attachments:

(1) Testimony of MESSERLY - dated 4-14-83

(2) List of Interviewees

(3) List of terminated employees identified in Attachment (1)

REPORTED BY: _____
J. E. Griffin, Investigator
OI Field Office, Region IV

APPROVED BY: _____
Richard K. Herr, Director
OI Field Office, Region IV

cc: ✓ R. Ward, OI:DFO - w/attachments
J. Collins, RIV - w/attachments
E. Johnson, RIV - w/o attachments

IN THE MATTER OF:

SWORN STATEMENT OF ROBERT MESSERLY

- - - -

PRESENT AT THE TAKING OF STATEMENT:
MR. ROBERT MESSERLY, Witness;

MR. B. BROOKS GRIFFIN;

MR. RICHARD K. HERR, Interrogators;

MS. JUANITA ELLIS

MR. DAVID COGBURN, Court Reporter,

SWORN ORAL STATEMENT IN QUESTION AND ANSWER FORM of ROBERT MESSERLY, taken before David Cogb a Court Reporter in and for the State of Texas a the United States Federal Courthouse in the City of Fort Worth, County of Tarrant on the 14th day of April, 1983 at 2:00 p.m., at which time the following proceedings were had:

~~D4103 10125~~

ATTACHMENT

86 pp.

P R O C E E D I N G S

MS. ELLIS: For the record, we sho indicate that we have handed the NRC officia an April 13th letter from CASE addressed to Edward Markey regarding this matter, and als copy of an affidavit of J.R. Dillingham, D-i-l-l-i-n-g-h-a-m. And I believe Mr. Messerly has a copy of some documentation wh he will be providing also to the NRC.

MR. GRIFFIN: Anything else, Ms. Ellis?

E X A M I N A T I O N

BY MR. GRIFFIN:

Q Mr. Messerly, this investigation is bei taken pursuant to the rules of the Nuclear Regulatory Commission and we are at the U.S. Feder Courthouse, a part of the U.S. Attorney's Office, Room 524 in Fort Worth, Texas. This is Thursday, April the 14th, 1983 and we're commencing this, it looks like, at 2:01 p.m. Present for the NRC is Richard K. Herr, the director of office of investigations and myself, H. Brooks Griffin.

I understand, Mr. Messerly, that you are former employee of Brown & Root and were employed Comanche Peak Steam Electric Station in Glen Rose,

Texas. Is that correct?

A Yes I was, uh-huh (affirmative).

Q And present with you is Ms. Juanita Ellis.

MR. GRIFFIN: Ms. Ellis, if I migh ask you, what is your role in relation to Mr Messerly?

MS. ELLIS: All right. Mr. Messer is one of the individuals which we had plann to call in hearings which have been postpone for the time being, at least, in the Comanch Peak operating license proceedings.

MR. GRIFFIN: All right. And you here in his behalf?

MS. ELLIS: Well, yes. He asked t I come and join him so that he would have someone here that he felt comfortable with. felt that he would feel a little more comfortable with someone else here.

MR. GRIFFIN: Do you represent him any way other other than just an associate o in the manner you have already described?

MS. ELLIS: In the hearings -- I'm not an attorney first of all. In the hearin though I am CASE's primary representative an

as such do what an attorney, I should say, would do for CASE. And so to that extent I guess sort of a quasi representative status.

Q All right. Our purpose here today is ask Mr. Messerly questions concerning an earlier statement that I believe he made to you in which identified a number of issues that are of concern the NRC, and we would like to find out more speci details about these issues. So my questions will directed to you, Mr. Messerly.

A Okay.

Q The first issue I would like to go int is the use of a rebar drill or a drill at Comanche Peak that I believe you have indicated was used, that you used in your job and was also used to dr through cement and rebar; is that correct?

A That's correct.

Q Would you mind telling me in more deta what this drill is?

A Well, it's like it says. They call it rebar eater, it's made by Drilco manufacturer who out of Miami, Florida and it's a -- well, they hav a diamond tip on them or they have a real hard ste tip on them that cuts through other steel, concret anything else that gets in its way. And they are

operated by anywhere from a half to a three-quar
horse electric motor.

Q Okay. And did you use this machine i
your capacity as an employee of Brown & Root?

A Well, I was foreman over the crew tha
used this machine.

Q All right. Did the use of this machi
require documentation from --

A It did.

Q -- from engineers?

A It did.

Q And these were Brown & Root engineers?

A Right. Not Brown & Root, they were G
and Hill. They are the ones that first started
when they first come on the job.

Q All right.

A A guy named Dean Fellinger is the one
you want his name.

Q He was the one that issued --

A He was the one that started out with m
on the rebar drilling, and later it changed into
fourteen different people if you want to know the
truth about it.

Q What was his last name?

A Fellinger. He is still with Gibbs and

Hill and he is out of the Dallas office now.

MS. ELLIS: I believe that's F-e-l-l-i-n-g-e-r. I have seen his name.

THE WITNESS: Do you know who I'm talking about?

Q During the time that members of your c used rebar eater, did they make sure they had thi documentation?

A Most of the time yes, but there are ti that I was ordered by my superiors, a guy named M Sanders, to order or go out the gate, as I stated my affidavit before.

Q Are you saying he asked you or told yo or ordered you to drill holes or use this drill i the manner in which it was to be used without documentation as required by procedure?

A I am saying that.

Q How many instances did this occur?

A I wouldn't -- I mean, just to give you number, I couldn't do it. Many times.

Q Okay --

A As far as number, you're going to say more than this or less than this, I can't give you number. I won't give you a number because I don't have that much -- well, how can I say it, I'm just

not there. The drill -- I was ordered to loan th drill out at times. I was ordered to loan a guy drill bit that he would go get a motor, a drill motor out of the tool room and I'd never see thes three, four, five, six bits again. Now, how many holes were drilled with it there's no telling how much rebar was cut.

A man comes up and says, I want you to give so and so six drills, he's got a pipe hanger that has to go down or a cable tray that has to g down - a cable tray support - and we have got thr holes in it and we need the fourth one bad. And went to my general foreman at that time who was P Mason, and I told Pete, I said Pete, Mike keeps giving me these orders to get this drill out, loa it out to drill holes that are not authorized. I haven't got the paperwork from Dean Fellinger. I said, what can I do? He said, man, he's my boss, what do you want me to do?

Q Do you know for sure that the people t you loaned this drill to did not acquire the documentation that they needed to stay within procedure and use this drill?

A I'm positive they did not get the procedure, because any time the procedure paperwo

came through it came directly to me from Dean Fellinger and I handed it to my men and seen that the job was done. Because there were areas out there that there was -- strictly was illegal at a to drill any kind of rebar or cut any kind of reb Reactor One was one of them. No rebar of any kin was allowed to be cut in that building anywhere.

Q Is this the containment building?

A Containment building, Reactor One.

Q What the NRC would like to know in thi instance is the specific locations where holes wer drilled without proper documentation. Is there a way that this information or these locations can b determined, reconstructed or anyplace we can go, anybody we can go talk to to find out specific locations?

A Let's see, Danny Brown borrowed it several times to drill holes. He's still working out there. Other than getting ahold of Mike Sanders, Danny Brown is the only one I can think o And as far as sitting here and telling you locations, evidently you haven't been out to that plant.

Q I have, yes.

A Well, I had access to every building on

that place. I have been in every building. I ha cut rebar in every building but containment one, except the dam. Now, does that tell you anything Now, to go tell you to go to a certain wall and s if the rebar is cut is impossible.

Q You understand what we're trying to do with the information. We're trying to find out specific locations --

A Right.

Q -- so that we can verify what you're saying. Let me ask you, in your statement that y made to Ms. Ellis, you identified a diary that yo have kept and in this diary -- it's my understand in this diary you logged in instances or times wh this rebar eater was used to drill holes when you did not have the proper documentation; is that correct?

A No. This is --

Q Was this just a work --

A This goes from 9-7-78 to 10-17-79. Thi was the period in which I was in charge of the reb eater. And this documentation, there's some of th most of them have documentation. It also has the CMC number, and like at the beginning it was a DCD or something. I got it wrote on there someplace.

DCDDA is what they started drilling rebar with. Then they find out this was not the right documentation. Then they changed it to a CMC, bu when they first got it they were doing it on three-part memos.

Q But --

A And this is every hole that I drilled, legal and illegal, and except for the ones where equipment -- I was ordered to loan my equipment o

Q All right.

MS. ELLIS: Just for the record, we probably should mention that Mr. Messerly is referring to a -- looks like a twenty-four pa listing which he had prepared of these different items and he will be giving that to you.

Q Is this a complete rendering of this diary --

A Uh-huh (affirmative).

Q So --

A It is in complete form.

MR. dERR: Is it marked? You said legal and illegal. Have you got the illegal stuff marked on it?

THE WITNESS: No, I really haven't

but if it doesn't -- it's going to have to
interpreted by me, which I'll try to explai
you or I can tear off a page and y'all can
at a page --

MR. HERR: Perhaps take a blue pe
a red pen and we'll mark the illegal stuff.

THE WITNESS: No, I won't do that.
can't do that because I didn't keep that muc
of it. I mean, you can take a look and flip
through it to see what it's talking about.
didn't do that -- as far as that, if I had k
that kind of a record, it would have been a
separate record or something like that.

Q Would any of these entries in this document lead us to the locations of where holes were drilled without authorization?

A It's very possible. It is very possib

MS. ELLIS: If I can call your attention to this third column here, it says "rebar cut" -- it's upside down. But in thi column, this is where specific rebar was cut apparently and --

THE WITNESS: Yeah, what I did was, marked down -- this was my own deal and my o idea, because there were certain areas that

were supposed to take out a percentage of th rebar. If you cut a hole in the rebar it should have been reported and thus and so forth.

Q In those instances, did you report it?

A Yes, I'm legal. So is this thing.

Q Okay.

A But it gives the direction of the reba which way it was running, north, south, east, wes It gives the depth that I cut the rebar and it al gives the percentage of rebar, just me looking at piece of rebar and saying I cut fifty percent, te percent or if I just nicked it, just whatever aft the hole was drilled.

Q But on each of those entries, does it tell the location on the site out there?

A It tells you the location, what buildi what print number it was taken off of or the hange number itself. So all you got to do is look up th hanger number and it will give you the area and exact location of this particular hanger.

Q All right. So any -- which column show the authorization?

A This one here.

Q Okay. So if that column is left blank,

then that would be an example?

A Not necessarily blank. I don't know r in the hell to put that without sounding silly.

Q We are going to need to identify -- we not interested in the ones that were done properl We're only -- we want to look at the ones that we done without documentation as required by procedu

(MS. ELLIS: We're referring to the fifth column now on the far right.

A No, there's really not no way of telli not without looking up the hanger number and find out what was done on the hanger. You will just h to go over each individual hanger and check the C and see what was legal to cut and what was not le to cut.

(MS. ELLIS: You might mention, too in this column the ones on the front page al seem to have items by them, but on several o them throughout the listing there were none. So it's not -- each one of these items, in other words, doesn't have rebar cut necessarily. It's just as indicated on ther

Q At this point I was just trying to lim it to holes drilled without proper authorization, regardless of whether rebar was cut or just

concrete. If the drill was used improperly, we'r trying to identify those instances.

Can you think of any way with this document or any other documents you may know exis that would lead NRC inspectors to specific locati where holes were drilled without proper authorization? Do you see what we're trying to g

A I see exactly what you're trying to dc You're trying to make your job real easy and ther no easy way way to dc it. I'm serious as hell there's just no easy way to go to it because you have so many things out there that's been like th and for me to pinpoint and give you an exact area this or any other means -- I might be able to wal out there and show you things if I walk with you say, this was done here and this was done here. you're asking me to remember back three, four yea too, and if you have ever been in that area, if y go in there a week later it's all different.

Q I understand what you're saying. Can think of any way that I can transmit this information to an inspector or to a group of inspectors where we might be able to identify the You're right, we are trying to make it easier in that we can't reinspect all the holes drilled at

Comanche Peak since its beginning, since the foundation was poured.

A This rebar didn't come in until this c here.

Q In other words, we want to address thi potential problem.

A I can't think of the guy's name. Ther one area down in the tunnel what they call the tunnel area, and he was foreman over it when he borrowed that drill. He cut a bunch of rebar dow in there and it would be a damn good place to sta

Q If we talked to this man, do you think would be willing to tell us?

A I can't think of his name. Yeah, I do I really do. I'm trying to think of his name; I can't think of it.

Q If you cannot remember his name today would you mind giving us that name when you do remember it?

A He's still working out there. He got fired and he was -- he went into the pipe departme at Green Hat now. He's a welder.

Q Do you think you will remember the name eventually?

A If I don't I've got it at home I would

call you, but he might testify. And if you could get ahold of a Richard Montjar (phonetic), he was man --

MS. ELLIS: Do you know how to spe that?

A M-o-n-t, something like that. It's pronounced Montjar, but he's in Germany now, I'll tell you that much.

Q Now?

A Yes. Well, he married a girl in the service is the only reason -- well, he was a year ago. He might be back over here, now but he's married to a girl in the service.

Q Okay.

A But he worked and drilled a lot of hol illegally.

Q Now, these illegal holes that you are referring to that he drilled, this was when the rebar was, or the rebar eater was on loan?

A No, he worked for me. But he was also around and could be a character witness to what I stating as to when I was ordered to do this. And you could pin that Danny Grisso (phonetic) down, Danny Grisso used to work for me, too. And if you put him on a stand and square him in, he will eith

perjure himself or tell you about holes he drille when he was working for me and now he is in charg of that operation.

If you could pin him down, but that company has got him sewed down tight. He's a puppet.

Q First of all, let me tell you, I'm not engineer. I have an engineering or technical background, but let me see if I can phrase this.

In the holes that were drilled by your crew members without proper documentation, can yo remember any instances or did you witness any instances where damage was done to containment or any of these other areas where the drill was used that would constitute a safety or health hazard o possible weakening of the structure?

A Well --

Q I know that's detailed.

A I'm not an engineer either. I have bee in steel, I have been in supervision, I have been out there working. And when an engineer designs something, he designs it for that particular thing for that particular strength. All right. If somebody comes in there and cuts part of that out without documentation, there's your answer. But I

not an engineer.

Q So you're saying, if I understand you correctly, you're saying that if it's done, then knows what the effect will be?

A Well, the engineer knows, the engineer that designed it. If he puts in fourteen rebars there and you cut out seven of them, then you hav weakened half of them, what he designed it to hol And I have went down walls in that particular tun that I was talking about and we were putting up t hold thirty-two inche lines down there. I wasn't this guy was if I could think of his name. And w had to cut a bunch of rebar down in there.

This was, I'm -- well, quote me if you want to, I think, I'm not sure, but I think this an area that wasn't supposed to have any rebar cu out of it.

Q All right. Let me ask you one more ti because you have accused me of looking for the ea way. I would like to be able to walk out of this room today and go find examples or instances of holes drilled down there without proper authorization. I hope there's some way we can figure out how that can be done because we would like to follow up on this.

A If I could just think of one exact hol that I could remember. I know of three on the turbine deck, but I'll be damned if I can remembe what area. There's another deal where I would ha to go out and it's completely changed over now, a it would be a spot check between three or four hangers.

Q All right.

A In fact, out of the three or four, I think you will find a Hilti-bolt welded on the bac side because they couldn't get a hole in the grour

Q What would it take to refresh your memo as to a possible location?

A I have no idea. The documents you coul get is -- now, this would be Turbine One area whic would cut it down quite a bit. It's around them tanks that they covered with the aluminum siding a insulation. I don't know what tanks, what they ar called, them big long tanks up on the turbine deck And it was right alongside one of them tanks there that three holes rebar was cut in without documentation.

Q Was there anybody else present that mig be able to further identify, help us identify this location?

A There was Richard Montjar. I should h brought my time books with me. I'm not really su if Danny Grisso was there or not.

Q Is it your personal belief that Grisso could identify locations?

A Yeah, I think he could, but I doubt if you will get him to do it.

Q Is he still employed by them?

A Yes, he's very much employed.

Q All right. Well, I'll tell you, let's move on. We have got several other --

MS. ELLIS: Perhaps if you had Mr. Grisso appear under these circumstances, you know, sworn with a stenographer and so forth maybe it might enable him to say things that might not feel comfortable saying not under oath.

A I seriously think Danny would. I have known Danny for quite a few years. I went through divorce with him and everything else when he was working for me. But right now that company has gi him bought and paid for.

Q I can assure you the NRC is not bashful about going and asking, so we will --

MR. BERR: I have one question I

would like to ask. Did you see any of these people using the drill improperly? I know y said you loaned them the drill out, but did ever see them use it?

THE WITNESS: Oh, yeah.

MR. HERR: And that was during the time frame --

THE WITNESS: That was during this time frame that this covers.

MR. HERR: Okay. That's the only question I have.

Q Will that document that you are provid us, will examination of this document, say, by an engineer, would it lead to any locations where suc holes were drilled? Seems this fifth columns seer to be filled in.

A What I would do if I was you, I would g pull these CMC's and DCDDA all through it with an engineer, bump it against the number of the hanger and see what was authorized to cut and what was nc authorized to cut, and then come back and bump it against this, like a hundred percent cut out and i that was really legal in that area to cut out a hundred percent.

Q Do you think, then, a random sampling

done like that is going to reveal instances of ho cut without authorization?

A Uh-huh (affirmative). I really do.

MS. ELLIS: It would seem to me on that third column there where it shows the amount that was cut out, that it would be prudent at least to check all the ones where says a hundred percent or maybe as much as fifty percent have been cut out.

A Because the way I understand that, on first part, all this -- these DCDDA's and all tha and the three parts were all illegal.

Q You mean where it says DCDDA?

A Yes.

Q Those are illegal cuts?

A At the beginning they were, and then th changed it to a CMC. Now, if they went back and covered their butts on that DCDDA I don't know.

Q If we checked all the ones that -- the DCDDA and checked that number it might lead us to locations?

A I would try that first and find out if this was a legal document, because according to De Fellinger the engineer, that was all wrong until h come up with the CMC -- talk Bob -- CMC idea that

had to be wrote by a specific engineer.

Q As I flip through here, I only see tha DCDDA recorded twice. Are some of these other it also that type of number?

A All right. Here's one that was wrote an RPIC. That was illegal, too. And a DCDDA --

MS. ELLIS: Are all of these numbe here, are those all --

THE WITNESS: They could be CMC's they could be DCDDA's. I'm not real sure ab which they were. God, that's been, '78?

Q Right.

A I really need to sit down -- I haven't looked at this other than a couple of days ago si I have been out of it, and I could probably sit d with somebody, and be glad to, to try to more or less interpret exactly how it was wrote and what i is.

Q Okay. We would greatly appreciate that

A I would. I will; I'll be glad to do it

MR. GRIPPIN: Do you have any more questions, Dick?

MR. BERR: No.

Q Tell me now, you say, if I understand correctly that this unauthorized use of this rebar

eater, is it true you were threatened with termination if you failed to loan it out --

A If I failed to do anything that this m said as far as that rebar eater loan-out or drill bits or the whole operation or failed to drill something myself and my crew, I was told that I would be terminated if I didn't do it.

Q Tell me what his name is again.

A Mike Sanders. You have to understand there exactly what the deal was. At that time Ha Goodson was the superintendent. Mike Sanders was guess, twenty-six, twenty-seven years old and had never done any kind of work like that in his life and he was right underneath Hal Goodson as a three-stripe general foreman. And Hal Goodson ha one thing out of his mouth, and that was producti He didn't come out and say it, but he didn't give damn how you got it --

Q Okay.

A -- as long as it showed up on paper. H wanted production, he wanted pipe hangers up, he wanted cable tray supports up and he wanted them o the wall and completed and bought off. He didn't give a damn how they were put up, and this is what Mike Sanders did. And in doing so, if they ran in

a problem, you've got to to figure some holes wer drilled, a hundred and something holes for one hanger to try and find a decent spot to hang it without hitting rebar. This brings on frustratio on the men, they go to their foreman, the foreman goes to Mike Sanders, Mike Sanders says go down a see Messerly and drill the damn thing and put it

Q I understand. Let's move on. You sta in your affidavit to CASE that you observed or witnessed the use of the polar (phonetic) crane t pull up a piece of thirty-two inch pipe; is that correct?

A That is absolutely correct.

Q I'm not an engineer; I don't understan the significance of this. Could you explain it t me, please?

A All right. What it amounts to is the main steam pipe has a condensation joint like for expansion joint is what it's called. It's a huge horseshoe type shape, and this thing is coming out of the turbine building. All right. This thirty-two inch main steam pipe, it's coming out - it's anchored in concrete all the way around it, it's a fixed object, you can't move it, right? It comes into this expansion joint, makes huge

horseshoe shape and it goes down into each one of the steam generators, which there's four of them, in the containment building.

It was attached through the wall and it was also attached to the steam generator in the compartment inside the containment building. Somebody come along after these pipes had been in there, because somebody else was hollering, production, production, production, and found out that the main steam line was six inches off of location on the vertical way and four inches on the horizontal way off of location. There is a guy --

THE WITNESS: What was that guy's name? Have I got his name down there?

MS. ELLIS: I don't think you have got a name in here.

A I'm hell on names today, ain't I? But what this gold hat did was ordered his people to raise it up with the polar crane. I can't remember the exact tonnage that was put on this because they had a big gauge on it that showed tonnage when you pull on it. A big round gauge looks like big clock and whatever tonnage -- seemed like to me it was eighty-five tons, it was ungodly because everybody scattered when they seen that needle going up as th

crane was pulling on it. The reason I know this f a fact is because I was pipe hanger foreman at tha time between 860 and 905 elevation in the containment building. I had all of main steam and all of fourteen-inch feedwater lines that run all through that area.

Q Supports for them?

A I had all the pipe supports. And I had to undo my pipe supports, let him pull this up, Re Broom, which is a guy about -- I don't know, if yo seen him you would think he's eight foot tall, but he's only about seven feet tall and four foot wide, I'm serious. Look him up out there, you will -- he's got a head on him that big around.

He was on three tons come-alongs pulling the horizontal way. And they put it into position and once they got into position, I had to go back and change my pipe support dimensions and hold that thing in position. When they cut the temporary hookup that they had welded to the steam generator loose, it flopped like fourteen inches and echoed through that whole containment building.

Q So you're saying they put this complete pipe under tension in this movement?

A (Nods head affirmatively).

Q And it was secured into the wall on one end and temporarily unsecured to the steam generators?

A It was temporarily secured, welded to t steam generators with temporary pipe. It's a thirty-two inch line that goes into the steam generators.

Q So the pipe was attached at both ends a the center portion or some portion in between the two ends --

A The expansion chambers is where they moved the pipe at.

Q And they were -- this is a complete uni so it was put under tension; is that what you're saying?

A Yeah.

Q And then you put in the supports to hold it in that position?

A The supports were already there. In fact, several of my supports could not be used no longer, that's how far they moved the pipe because was allowed so many degrees for my pipe hangers to be off of dead center of that thirty-two inch main steam pipe. And when they moved it with these come-alongs, and the overhead crane -- several of m

pipe hangers had to be completely removed and started over again and redesigned to move over to the center of the pipe. They moved it six inches horizontally or six inches -- damn it -- six inche up vertically and four inches horizontally.

Q And yet the ends remained in the same place?

A (Nods head affirmatively).

Q Today would that same -- would it be in the same condition as far as you knew it was when was -- when your supports were put back in place, reconnected or --

A What do you mean, the same position?

Q In other words, is it still under tension?

A I would say yeah. Because I know they did -- well, they moved from where it was welded to the steam generator with the temporary pipe. I would imagine now that they have the thirty-two inc pipe going down after they got it on its last location, that they have got permanent pipe in ther now, which would still put where it comes through the wall in the same bind that it was originally when they done it.

Q When did this occur? Do you remember

what year?

A Had to be right before I got fired, in that summer I'm pretty sure.

Q Summer of what?

A '82.

Q Summer of '82?

A Might have been earlier than that.

Q From the way you described it, sounds like everybody knew this was taking place?

A Hell, yes, anybody that was in the reactor. My general foreman, Ed Dean told me to ge my people and get the hell out of 860 and go someplace and hide until that idiot got done.

Q Was there an engineer in charge?

A Hell, no, there wasn't no engineer up there. It was just that stupid gold hat that they got up there that they call the pipe fitters. A good friend of mine got fired -- what the hell was his name -- he got fired once because of his --

MR. HERR: What's his name, the gold hat?

THE WITNESS: Damn, I can't remember his name either. I should brought my paper; I had all that crap wrote down.

MR. HERR: Was he the guy in charge

of moving this thing, the gold hat?

THE WITNESS: Yeah.

MR. HERR: Is there any documentatic on that?

THE WITNESS: To my knowledge, no. knew the foreman real well. Don't ask me his name. All of a sudden names escape me. I got his name at home, too.

Q You may not know the answer to this question, but just for my information, is it possible for all these people to be involved in wha sounded like a major operation and management all through the company not know that this event was taking place, including the engineers that would have -- might have an opinion on any kind of movement of such a large piece of material? I'm just asking your opinion.

A I want to give my opinion, but I want to try and explain something to you. It's very possible, because you got no communication out ther between the crafts. You have a pipe engineer -- sa you're a pipe engineer and I am a cable tray engineer and so forth and so on down, just name any branch in there. We're sitting across from each other in the same office, but we don't tell each

other a damn thing. We don't talk to each other about coffee and yes, it was possible because your management out there, your upper management contro the place. If they want to do it, all they have t do is say, do it. Well, we haven't got the correc paper works. I don't give a damn, I said do it.

Now, what choice have you got? You're o there trying to make a buck and feed a family. Yo ain't got no choice and most of your upper supervision out there at that particular time, the were all a clique that came up from North Carolina and all buddy-buddies, and most of the upper supervision -- how in the hell I ever got to be a supervisor out there I don't know because I don't know anybody and I ain't got no kin out there, but that's what all your upper supervision was, and ninety percent of your foremen out there are the same way.

Q I noticed that at one place in your affidavit here -- moving on to a different subject now -- you talk about the fact that you reinstalled hangers on the feedwater system?

A Uh-huh (affirmative).

Q This was, I guess, what, a major rework project?

A I would call it a major rework. I wish had them books. I would like to show you how many times I rebuilt hangers out there.

Q The same hangers?

A Same hangers over and over and over again.

Q I've only got one question on this. You say you worked at that for a long time. Was the work done by your crew done properly as far as you know?

A Yes, sir. It was done exactly right, bought off by QC and everybody else and somebody came through there and said, hey, they have been redesigned wrong, let's tear them down and redo them. And as far as I know on December 7th, '82 when I left there they were still working on feedwater lines and I had them all completed on the big feedwater that floods that whole containment area.

Q A different subject again. I notice in your report that you make reference to notice to employees. This is a notice -- I believe it's called a form three NRC document?

A Yes.

(MS. ELLIS: That's a two-folding

a cutting torch on hangers. I don't personally know, is it improper to use a cutting torch to tear down or alter a hanger?

A Not to tear down and alter, but it's illegal to use it in the containment building where I was the entire supervision, when I was hanging pipe supports. You drill everything and everything has to go on the wall according to the drill size. I took down a hanger -- took down several hangers that was put up by this general foreman out there that I tried to fire.

Q Which one is this?

A Oh, boy.

Q Was it your general foreman?

A No, he wasn't my general foreman. He worked for me. I tried to fire him while he was working for me.

Q You were a foreman?

A Yeah. They call them supervisors out there. You got a supervisor, a general supervisor, a three-stripe general supervisor and then a superintendent.

Q I see. Is a foreman higher than a general foreman?

A No. The general foreman's got two

stripes on his hat.

Q So this guy was your boss?

A Huh-uh (negative). He later made genera foreman because he went out to Raymond Hebert's house and built him a little sun deck and a little porch and patio and all that, and then he became a general foreman overnight over in pipe hangers. I heard he got fired, which I hope he did.

He had taken a torch and cut the back sid of a tube out because a lot of bolts are put in lik this, the holes in the wall. They are supposed to be straight, ninety degrees off the wall. They're anchored in the wall, poured into the concrete.

(MS. ELLIS: Richman inserts.

A Yes. And you go to hang a pipe hanger o that and they give you a threaded piece of steel an you're supposed to stick it in there and it's supposed to come ninety degrees off the wall. Well they come off this way and come off that way and come off this way and this way --

(MS. ELLIS: For the record, could yo kind of try to describe those angles that you are talking about? That's kind of hard to do sometimes.

Q Let me just ask you, maybe it would be

more clear at least to me that -- were these, I think these are called anchor bolts or something like that?

A You got Richman inserts is what are in the concrete wall, poured in around the concrete.

Q And you say these were installed at improper angles --

A Yes.

Q -- for the supports that they were to b attached to?

A Uh-huh (affirmative).

MS. ELLIS: Off the record.

(Discussion off the record.)

(Brief recess.)

Q These bolts that you are discussing, do you know where they were located at the site?

A Are you talking about the Richman inserts?

Q Yes.

A Well, narrow it down between 860 and 905 I had that whole elevation and all of your compartment rooms.

Q Well, do you know specific ones that wer

A The only way I could give you a specific would have -- my record of my hangers that I done

and be able to say, well, this hanger or that hang was done that way.

Q Would you have recorded the traveler fo the hanger if one of these bolts or these inserts -

A No.

Q -- were improperly installed?

A No, because we drilled holes this way, drilled holes up, we drilled holes down due to the installation of the insert.

Q If you found an insert that was improperly installed or not at the correct angle, did you drill these holes to repair it?

A No. You don't drills holes in concrete. Not in the insert.

MS. ELLIS: I misunderstood, so explain how that works with these deals. How do they get into the wall to start with?

THE WITNESS: They tie in the rebar when they pour the concrete, and they got a piece of foam in them to plug the hole, and al you do is dig the foam out and stick your threaded rod in there.

MS. ELLIS: So rather than drilling hole to put them in to begin with, they have some kind of a form or something and they are

poured -- initially when they pour the concre they are in there to start with?

THE WITNESS: Originally their plan were to put in so many inserts in a wall area or ceiling or whatever. They just put in a bunch of inserts; ever so many feet they put an insert. And hopefully what they were hopi was they could come back and put a pipe support, a cable support or electrical suppor whatever, a conduit and use these inserts tha were put in there -- which turned out they didn't use half of them -- and they had to be grouted over the ones that weren't used or ha to have a hole drilled in there by a Hilti drill in which they changed the entire operation on unit two and went to a solid ste wall imbedded in the concrete with studs welde right to the steel wall and the concrete poure around them.

Q Are you saying that they put this steel in the wall and started welding to that steel?

A Started welding direct in unit two. It takes in safeguard two, auxiliary two, containment two.

Q Are you saying that the problem then tha

we're discussing was in containment one?

A Yes.

Q Where there was no steel wall --

A Well, they started on the -- I think on the 905 pour, when they poured 905 floor and beams in there, they started putting steel in them. But from 905, the bottom of 905 down, there wasn't any steel imbedded in the wall, just a few plates and stuff.

Q The use of the steel in the wall took th place of these inserts because you could attach directly to the steel?

A Well, it had a sheet of steel there you could put whatever hanger you wanted to.

Q Okay. When your crew ran into these inserts that were at the wrong angle, placed at the wrong angle, how did you attach the inserts normall or how did you attach your hanger to these?

A I drilled the hole in the tubing at an angle, whatever the angle was, because you don't bend inch and a half threaded rod. Normally you don't.

Q You drill a hole?

A Drill a hole at an angle, and then I hav seen them put in documentation on some of the

hangers they put a tapered washer on it to allow t the angle that the threaded rod came out.

Q And then you say they grouted over the other hole?

A Unused ones had to be grouted. You had dimension from one hole to another that you could drill. There was a dimension in your nine point s documentation out there how close you could drill a Richman insert, how close you could drill to another Hilti-bolt or how close you could drill to another attachment or steel plate or whatever. There's all kinds in your nine point six.

Q Are you saying that these redrillings o these angled drillings into these inserts constituted a procedural violation on unauthorized drilling?

A Well, there again, you can go back to being that neither one of us are engineers. These inserts are tied to rebar with wire, all right? To be at a hundred percent, they have to be surrounded by concrete a hundred percent, and they have to be ninety degrees off the wall. When you stick something in it, it should be ninety degrees off th wall. If you have got this thing in there at, say, at a ten-degree angle, you've not got the same

pulling capacity or coming out of tne wall as you have if it's straight.

Q Let me ask you this, then. How many instances do you know of in which there were -- many?

A How about ten that were right and the rest wrong.

Q Is that right?

A Now, that's the percentage.

Q What did QC said?

A QC never seen them. QC didn't see nothing but the finished product.

Q So the finished product they saw was a bolt sticking out that was attached to a hanger and it looked to be proper?

A (Nods head affirmatively). QC don't get in behind the hanger. You had a one-inch plate that goes in behind, say -- for instance, we used a six-inch tube vertical on the wall and say we had two of these inserts. All right, we drilled completely through the tube, used a one-inch washer in the back of the tube, a one-inch washer in front of the tube, and this one inch or inch and a half threaded rod went through the washer, the tube, the washer and into the wall.

Now, if it was at an angle, QC never see this because there's a nut on top of that.

Q Were the engineers aware of this manner of altering these inserts when they were at an improper angle?

A Man, I tell you what, I have been aroun a lot of places in my life but I have never seen anything out there -- if they call themselves engineers -- I don't know what you'd call me, a nigger aviator, I guess. But I'm telling you, the don't communicate, they don't go out in the field. How in the hell can you solve any problem if you s in this office and you don't go out into the plant? That was their problem.

Q Would you mind telling me the original instance of this manner of correcting these, the angle of these inserts?

A Only way to correct it is not use it and drill around it and drill a straight hole. You don't put a Richman anchor in after the concrete is poured.

Q Who was directing that they do it, though?

A The Richman --

Q These redrillings.

A Your building department.

Q Who specifically? Somebody had to decic that it was going to be done this way. Do you know who?

A No. I imagine that comes from your original Gibbs and Hill drawings or something.

Q I'm talking about the variation, this changing the angle without -- to make it improper, where the angle is wrong.

A I'm losing you someplace. I don't know what you're saying.

Q You're saying it's supposed to be at ninety degrees angles to the wall?

A Yeah.

Q And you-all were changing the angles so it would fit --

A We weren't touching the Richman now. Only thing we did was take the threaded rod, and whatever angle it is, we would drill it at that angle so that it would come through the tube and when it come out the other side of the tube, it com out as close to center as we could get it.

Q When you talk about tube, are you talkin about tube steel?

A Uh-huh (affirmative).

Q On the hanger?

A On the hanger. There was no way of changing the insert.

Q So the insert remained the same and the angle on the tube steel was changed?

A Wel, the holes through the tube steel wa changed.

Q Okay. So does that mean that the tube steel had at least two holes in it, one of which wa used and the other unused?

A No. No. I don't know how to describe that to you. Say that's the insert. All right, yo know me and my drawing. You got a piece of tube steel here. We're going to run this one horizontally. All right, looking at it, here is th hole in the front like so. All right, this back hole, we'll say that this angle runs this way to ou left. The back hole, if you know anything about a print at all, might be drilled like that. Understand what I'm saying, looking straight throug the tube?

Q I think so.

A Then this one here might be drilled like thus. But when it come out the front it was straight, so that means that this tube, if I was

sticking it in the wall here, would be at this angl or -- no, this angle, in order to get out, and this here be at this angle and get out. But when you tighten on an inch-and-a-half screw, whatever gives I don't know, but it's flat on the front. And see, you got a big one-inch washer that goes here, the size of the tube and also on the back side of it to space it away from the wall.

Q Okay.

A So we don't change the insert.

Q And you are saying because it's not at the proper angle that it is less than whatever the load factor of its ability to support whatever weight it is supporting?

A Well, again, I'm not an engineer but if something is designed to go in a certain way and it's not there, it's not in that way, then it's not designed right. And it is a weaker point.

Q Okay.

MR. HERR: Did you bring this to anybody else's attention.

THE WITNESS: Yeah. It don't do no good.

MR. HERR: Do you know who you brought it to?

THE WITNESS: Oh, you could just about mention anybody else's name of my superiors from Hal Goodson to Mike Sanders to Mike Robinson to Ed Dean to Jim Starkey. There's a jewel you ought to hang.

MR. HERR: What did they say when yo brought it to their attention?

THE WITNESS: Do you want a quote? "Hang the damn thing". What do you do? And that is all my upper supervisors. You don't know how glad I am to be away from that place. I ain't got no job, but I'm still glad to be away from it. I've never seen anything in my forty-three years on earth run like that place

Q Can you think of any way that we can identify specifics again of hangers that were, wher these holes were improperly --

A I tell you what. I just about bet you, Mr. Griffin, I'm telling you what I bet you. Just go out there and pull any damn studded rod out of there, pull three of them and two of them is crooked.

Q And these were never addressed by QC fro that inspection?

A There's no way of checking it. No way of

knowing what angle that thing is in there unless y pull the hanger off and screw a straight rod in there and look at it. But I would say, I would ju damn near bet you that out of three rods you get t of them that's crooked.

(MS. ELLIS: Just to be sure I understand, when you look at this straight on like QC would come and look at it, everything looks all right from the front and all of the part that you are talking about that's at an angle is, in effect, hidden?

THE WITNESS: It's inside the concrete. Nobody knows it. It's inside of solid concrete.

Q Can you think of any way that we can identify particular areas where this was done? Is this all the areas that don't have steel plate against the wall?

A No. Most of the places that had the threaded rod would be in the compartments, compartments one, two, three and four, and then you have a lot of your other buildings, safeguard and auxiliary, they all got the threaded rod imbedded inserts.

Q Okay.

A But in the containment itself, you would probably find them in the compartments would probably be the major part of them.

Q All right. Let's go back to this, the use of the cutting torch. Is that --

A That's what I'm saying. This hanger in these compartments, if they didn't have enough intelligence to find out what kind of angle it is and how to drill the hole from the back and make it come out center from the front, what this foreman done out there or general foreman on nights, what h done was take a torch and cut about a three-inch hole. And you can see, if I cut -- if I got this angle here and say we have another one here and the back was at another angle, we just cut that sucker out like that so we can move that thing any way we want to to get it started.

Q How do they fill in the hole or is it --

A They don't fill it in; it's covered with a washer. The only reason I found it out, the hanger that was particularly put up by this guy was designed wrong. I had to go down there and tear it down. And I went to my superior Ed Dean and I said what are you going to do about this? I mean, I got my butt tore up yesterday because I put something i

wrong or because one of my men had forgot to grout behind a plate. I got called up to the front offic about a plate I put up three or four years ago. Ar it wasn't grouted, the holes wasn't grouted behind the plate. And I was called in and told if they found one more hanger like that that I was going ou the gate. I said, Raymond, what the hell are you talking about? I can't stand there and watch fifteen men every five minutes put up every plate, and you're going to fire me for something that happened four years ago, fire me.

And then I go down there and I report something like this to my general foreman. He reports to Raymond Hebert -- well, this same guy is the one that built the little sun deck or whatever you want to call it at Raymond Hebert's house.

MR. HERR: What's his name?

THE WITNESS: Raymond Hebert.

MR. HERR: No, the guy that did the building.

THE WITNESS: That's the name I can' remember.

MR. HERR: The night foreman?

THE WITNESS: He was the general foreman. I sold him a car. Hell, he used to

be a good friend of mine. I don't have nothin against the guy except he don't know nothing.

Q Can you think of anybody else that we ca go talk to that can identify some hangers where the specifically remember that this was done, these cut were made in the tube steel?

A Let me go home and I can give you a call and I can give some names. If they are going to talk I don't know. If they are still out there, ninety-nine out of a hundred of them are in the clique and they ain't going to talk unless they are utterly threatened, because their jobs are on the line. Hell, they are making thirty-five, forty thousand dollars a year for doing nothing and they ain't going to come over here and take a chance on losing their job. Several of them are still there. I think about seventy-five percent of my crew is there. But if they would talk, I don't know.

Q Okay.

MR. GRIFFIN: Off the record.

(Discussion off the record.)

Q Now, you say the fellow that was drilling the holes with the drill, is that this guy --

A The one I was drilling for. He was foreman in that area. I was drilling holes for him.

Q And his name is Nathan?

A Nathan Hammers or something like that, Hammers.

Q And Hammers might know specific holes drilled --

A True.

Q -- with the rebar eater?

A Yeah. If you could corner him, I think he would go.

Q All right. Now, the use of the cutting torch on this tube steel, you say this was at the direction of the general foreman?

A No. He wasn't a general foreman at that time.

Q He became --

A He became general foreman later. He was boy, I tell you what, if you could get in my print shack out there and get my log that I kept on every damn hanger I got in there, I could tell you who worked on it, the name of the person that worked on it and when he done it. I kept a daily log, but I turned that over to the new foreman. When they busted me back, I give him that so he would have a record of all the hangers put up. In that log is all the feedwater hangers that were reworked and why

and who the person that worked on them, because if anything ever fell back I went to each of them men and said, why was it done this way. Because when you got two or three guys here and two or three guy here and two or three guys here and so forth and so on, you can't be at every place at one time.

But if you could get ahold of that log that was in my print shack, I can narrow them hangers down real close for you.

Q How many would there be?

A Every hanger between 860 and 905 that I put up. Every CT line, every main steam line, feedwater line. It should still be in my print shack.

MR. HERR: Who did you give the log to?

THE WITNESS: Here we go again. I'm not very good on names as you found out. I can give you his name, too, because I got it in my time book. He was my lead man for me for about six months. He was an ex-foreman down there; his foreman lasted about a month before they busted him back.

MR. HERR: When did you give it to him?

THE WITNESS: When I got fired -- no no, in June of '82 when they busted me back is when I gave him everything in that print shack except that document you got there, which was none of his business that I took with me.

MR. HERR: And you weren't fired until when?

THE WITNESS: December 7th.

MR. HERR: Of '82?

THE WITNESS: '82.

MR. HERR: He had it six months?

THE WITNESS: He had it six months, and everybody liked the way I kept that log because they could go right to that book and open it up and it would tell what percentage o that hanger was done, who worked on it and the rework and CMC's and so forth on it.

MR. HERR: Was it a black or green book?

THE WITNESS: No, it was a notebook with paper in it, a regular black notebook.

MR. HERR: Three ring?

THE WITNESS: Yeah. And in there is everything I have done in four years out there

MR. HERR: Was there any printing on

it?

THE WITNESS: No. Yeah, it would just have -- let's see, I forget what I had c the front of it. I had this whiteout that yc use on typing paper. I had something printec on that, main steam or containment one hanger or something like that. I don't remember wha it was. You can't miss my shack.

MR. HERR: Where was your shack located?

THE WITNESS: It was located on 860 but now it's outside of the entrance to containment one. It's a bright red shack out there. I painted it bright red because I got in trouble for putting a Christmas tree on it one year. And it's got my name all over it, Bob Messerly, 8895.

MR. GRIFFIN: Do you have any more questions?

MR. HERR: Is there anything else outside of your affidavit that you wish to go into or describe to us at this time?

THE WITNESS: No. Well, I don't really know. If you are going to get into something besides what I have discussed

already, I know it's been brought up before, but if you can get ahold of a guy named Red I gave you his name the other day. I ain't it with me. I wish I had his address. He w a weld tech out there and he can tell you ab a lot of that welding. That's another name I'll have to get for you. I have got it on of my affidavits or something. And there's Joe Gray that was a welding foreman out ther that done a lot of welding illegally without documentation, such as lugs on pipes without purge, and --

MR. HERR: Did he tell you this?

THE WITNESS: I seen him do it.

MR. HERR: Can you give me the location?

THE WITNESS: It was down on the 8 elevation. Roy Estes was foreman at the time and you might get ahold of a guy named Gary Hill who was foreman down on 808 elevation which had some bad lugs welded on by Joe Gray illega'ly. Ed Dean was general foreman and they done it on the sly, Raymond Hebert knew about it.

MR. HERR: Who gave the order?

THE WITNESS: Raymond Hebert.

MR. HERR: He gave it to Dean, and Dean passed it --

THE WITNESS: Dean then passed it Joe Gray because he was the foreman. He wou go down there and do it and didn't want any the welders to know about it.

MS. ELLIS: Was there anybody else maybe on the crew that you know of --

THE WITNESS: Joe Gray's crew or m crew?

MS. ELLIS: -- that would have kno about this particular thing that you are talking about?

THE WITNESS: Other than Joe Gray there's another name I need to find out. I give you a bunch of names on stuff that was done wrong down there that was seen by them stuff like that. The only thing you can do if they are still working down there -- I hea Joe Gray got fired, too.

Q Okay. Why don't we wrap this thing u We discussed three issues outside of jus those notices posted, and we have asked you or you have mentioned names or knowledge of names of

people, although you cannot recall the names righ at the moment regarding the use of this rebar eat the polar crane, that incident and the use of the torches to cut hangers. And do you agree that yo will call me and let me know --

A I do.

Q -- fill in these names with these situations as you have described them --

A Yes.

Q -- so we can put a complete package together?

A I can give you every name that was in rebar crew from the time I had it. I have my tim books at home. I kept my own time books.

Q We are looking for people that know ab these instances of illegal or improper or work do out of procedure.

A These are all the people that were doi it. My entire crew was.

MR. HERR: They were doing that at your direction --

THE WITNESS: At my direction, but several of them were there when Mike Sanders came down and ordered me to do so. And when your superiors tell you to do something and

your job is on the line, that's what you did

MR. HERR: These improper weldings Gray and some of these, did they tell you th they had actually done it improperly?

THE WITNESS: I have seen them do Any time you weld a stainless steel lug on, have to purge a line after a certain size. you don't purge it, it causes a sugar coatin on the inside and sucks that pipe into the piece of steel that you are welding. So what you have is you have a void area inside of a slick steel piece of pipe, just a sunk-in are The stainless -- on stainless it just sucks i right into that lug you're welding. We're talking about a little lug like half an inch long and maybe three-eighths of an inch high. What it is, it's a lug that keeps the pipe fr doing this motion. You weld like four lugs o this side, four lugs on this side around a pipe, and you put a clamp in between it and struts back to a fixed object on the wall and it stops that pipe from going in this motion up and down, whichever way the pipe is locate

MS. ELLIS: And the purpose of it i to keep the pipe from moving?

THE WITNESS: Right.

Q Wouldn't that show up on a radiograph?

A It should.

Q And aren't such things radiographed before they are finally accepted by QC?

A No. On a stainless you get a -- hell, they run that dye test on it.

MR. HERR: Penetrant test?

THE WITNESS: Yeah, penetrant. That's the only thing, as long as the weld i pretty and all that, it will pass penetrant. But that's all on the inside.

MR. HERR: Do you know one way or other whether these are involving safety-related or nonsafety-related, or do y know offhand --

THE WITNESS: No, I'm not a nuclea power plant -- it's all put in there for something. Now, what particular thing this did, I don't know -- I couldn't be honest wit you and tell what you it did without remembering the line.

MR. HERR: The exact location.

THE WITNESS: The exact location an line number. If you had the line number I'd

tell you what it did.

MS. ELLIS: Was it like in the containment?

THE WITNESS: Everything I done wa. in the containment. Everything I have mentioned here, except for the rebar eater, concerns the containment building in Reactor One, which the reactor is inside containment one. But everything I have mentioned in here has happened in here that I have personally seen done.

MR. HERR: Do you have anything el you wish to add?

THE WITNESS: No. I'll give you a list of names.

MR. HERR: Thank you very much, Mr. Messerly.

(End of statement).

STATE OF TEXAS

COUNTY OF DALLAS

This is to certify that I, David Cogburn, reported in shorthand the proceedings had at the time and place set forth in the caption hereof, a that the above and foregoing 62 pages contain a full, true and correct transcript of said proceed ings.

Given under my hand and seal of office on th the ____ day of _____, 1983.

_____

David Cogburn, Notary Public
in and for the State of Texas
County of Dallas

My Commission Expires on December 30, 1985.

START OF NEW CREW + NEW OPER[A]

REBAR CUTTING DETAIL

[redacted]

C-M

	PRINT NO	LOCATION	REBAR CUT & O" DEPTH	DATE + DAY	POSITION
9-9-78 9-HOLES REBAR	576	SAFE GUARD	2 1/3" RUNNING N.S	Thur 9-7-78	AT OVERH...
	642	SAFE GUARD	2 3/4" HORZ 801 3	FRI - 9-8-78	IRFIC
	642	SAFE GUARD	2 3/4 VERT 777.9" COLD DRILL 801' 3"	FRI - 9-8-78	" WA...
	643	SAFE GUARD	DRILLED NO REBAR AT 799.9	FRI - 9-8-78	" WA...
	597	SAFE GUARD	806.8" 6" DEPTH HORZ. & REBAR 2" DEPTH	SAT 9-9-78	DCDDE 2489
	597	SAFE GUARD	807 8" HORZ 4" REBAR	SAT 9-9-78	DCDDE 249
	704	SAFE GUARD	799-6 VERT AT 2 1/3"	SAT-9-9-78	0096
	704	SAFE GUARD	798-1 VERT AT 2 1/3"	" "" "	009
	704	SAFE GUARD	796-8 VERT. AT 2 1/3"	" "" "	009
PIPE HANGER	CO-1-033-007-T45	TURBIN B. 1st	S.E. HOLE 3" DEPTH ELV. Running E+W	MON-9-11-78	009
" "	CO-1-033-007-T46	TURBIN #1	ELV Running E+W N.W. HOLE 3" DEPTH.	MON-9-11-78	FLOOR
" "	CO-1-033-007-T45	TURBIN #1	ELV Running E+W	MON-7-11-78	FLOOR
" "	HD-1-322-006-T35	TURBIN #1 - 778 ELV	EAST SPAN depth 5 3/4 Running N+S SE HOLE 10% Fiber East Span	MON -9-11-78	009
" "	HD-1-322-006-T35	778 ELV.	Running N+S SW HOLE 10% Fiber West Span depth 5 3/4	↓	↓
" "	HD-1-322-006-T35	↓	Running N+S NE HOLE 5% Fiber West Span depth 5 3/4	↓	↓
" "	HD-1-322-006-T35	↓	Running N+S NW HOLE 15% Fiber West Span depth 5 3/4	↓	↓
" "	HD-1-322-006-T35	↓	Running N+S SW HOLE Full Core West Span depth 5 3/4	↓	↓
" "	HD-1-322-006-T35	↓	Running N+S SE HOLE Full Core	↓	↓
BEAM PLATES IN FLOOR	2323-S-715	CONTROL 807 ELV	S.W HOLE DEPTH 3" Running N+S	TUE-9-12-78	FLOOR
" "	2323-S-715	CONTROL 807 ELV	DEPTH 3" Running N+S S.W HOLE	TUE-9-12-78	FLOOR
807 ELV FLOOR BEAM IN	TOP BEAM BAR CMC-00979	CONTROL 807 ELV	REBAR Running E+W 5" DEEP	WED.-9-13-78	FLOOR

81 HOLES DRILLED TO FULL DEPTH WITH (HILTY GUN)

26 HOLES DRILLED TO FULL DEPTH WITH DRILCO + HILT BOLT GUN DUE TO WIRE MESCH — 009 CMC

25 HOLES DRILLED TO FULL DEPTH WITH FULL CORE REBAR REMOVED ALL REBAR RUNNING E+W — 132 TOTAL

NEXT PAGE

MEN PICKED UP 400 - 1"X9" + 560 1 1/4" X 12" HILTY — THUR - 9-14-78

ALLSO 80 1" X2" Richmond bolts STRIGHTEN UP LAYDOWN AREA BY CUT OFF SAW — 82 ...

PUT IN ORDER + MARKED. Took 3/4" Richmonds TO FAB SHOP 2000 TOTAL

CLEANED UP AREA IN 807' CONTROL BUILD FOR LAYOUT OF BEAM SUPPORTS.

3-m PLATES Elec.	2323-51-0410	Turbin #1 EL 803	depth 5" Ceiling Plate	Fri 9-15-78	0107 Floor
Beam Plate Floor	2323-51-0410	Turbin #1 EL 803	depth 5" Ceiling Plate	Fri 9-15-78	Floor
Beam Plates	2323-51-0410	Turbin #1 EL 803	depth 5" Ceiling Plate	Fri 9-15-79	Floor

WK ENDING 9/16-78
76 HOLES REBAR
81" HILTY GUN

PRINT NO	LOCATION	REBAR CUT DEPTH	DAY + DATE	~~CMC~~ POSITION
2323-S1-044	TURBIN/ELV 803'	3" Running E+W	9-15-78 FRI.	FLOOR 00992
2323-S1-044	TURBIN/ELV 803'	3" ↓ ↓	9-15-78 FRI.	↓ ↓
412	AUX 810'6"	4" Running N&S	9-15-78 FRI.	OVERHEAD 01076
2323 S-0748	Control 807'	3½" VERT. Running	9-16-78 SAT	WALL 01097
MK-CV-1-056-005-T55	830 TURBIN	Depth 4" Full Core Horz. Elv. 830	9-16-78 SAT	Wall CMC
MK-CV-1-056-005-T55	830 TURBIN	depth 4" Full Core Horz. Elv 830	9-16-78 SAT	Wall CMC
MK-DD-X-006-003 T35	Turbin	depth 2½ Full Core Running Hor. Elv 779	9-16-79	Wall { CMC
MK-DD-X-006-003 T35	Turbin	Depth 2½ Fullcore Running Hor Elv 779	9-16-79	Wall { 107 +
MK-DD-X-006-003 T35	Turbin	depth 2½ Full Core running hor Elv 779	9-16-79 SAT	Wall { 0057

WK ENDING 9-23-78
6 HOLES REBAR
4" HILTY GUN NOVELENT

PRINT NO	LOCATION	REBAR CUT DEPTH	DAY + DATE	POSITION
1150 + 1151	807' CONTROLL	DEPTH 4" - VERT ELV. 807'	9-18-78 MON	WALL - 0110
1150 + 1151	807' CONTROLL	DEPTH 4" VERT ELV 807'	9-18-78 MON	WALL - 0110
1150 + 1151	807' CONTROLL	DEPTH 4" VERT ELV 807'	9-18-78 MON	WALL - 0110
2323-S-0748	807 CONTROLL	DEPTH 3" VERT FULL CORE	9-20-78 WED	WALL - 11
1123	807 CONTROLL	NO CORE	9-20-78 WED	BEAM - HILTY GUN NOVELENT
1123	807 CONTROLL	HIT REBAR 4-2"	9-20-78 WED	" "
642	SAFE GUARD 801' 7½"	HIT REBAR 3" 12% CUT VERT	9-20-78 WED	C11
374	AUX -	COMPLETED HOLE	9-20-78 WED	WALL OVERHEAD ELEV SHAFT HILTY THRU
395	AUX	COMPLETE HOLE	9-21-78 THUR	" "
598	SAFE GUARD 806' 8½'	DEPTH 1½" FULL CORE VERT	9-21-78 THUR	BEAM 01146

WK ENDING 9-30-78
NEXT PAGE

PRINT NO	LOCATION	REBAR CUT DEPTH	DAY + DATE	POSITION
722	SAFE GUARD 792' 11½"	DEPTH 4" VERT 10% CUT	9-25-78 MON	WALL 1149
722	SAFE GUARD 791' 3½"	DEPTH 4" VERT 10% CUT	9-25-78 MON	WALL 1149
MK CO-1-028-001-T55 ↓	TURBIN 830' ↓	NO 2 Running N&S 90% REBAR CUT 5" DEP. (2) Running E+W 7" DEP 10% CUT (3) Running E+W 7" DEP. 20% REBAR CUT (4) Running N+S 3½" DEP 50% CUT (5) 3½" DEP. Running N+S 50% CUT (6) Running E+W 7" DEPTH 10% (7) Running E+W 3½" 20%	9-25-78 MON ↓	CMC 1856 FL ↓
2323-S-715	807' CONTROLL	REBAR Running E+W 5" DEPTH FULL CORE		967 FL
2323-S-715	807' CONTROLL	REBAR Running E+W 5" DEPTH FULL CORE		967 FL
784	799' 3¾ SAFE GUARD	REBAR VERT DEPTH 10% CUT	THESE WILL BE DONE OVER	WALL 01145
785	800' 7½" SAFE GUARD	REBAR VERT FULL CORE ALSO DRAIN PIPE		WALL 01145

(OVER)

WK. ENDING 9-30-78
24 HOLES
4 HOLES F.S
PLUS INVENTORY ALL DAY
FAI-OUT

PRINT NO#	LOCATION ELV	REBAR CUT DEPTH	DAY + DATE	CMC + P
658	810'6" SAFEGUARD	10% REBAR CUT 3" DEPTH	TUE 9-26-78	0098
763	S.G 790'	10% REBAR CUT VERT	WED 9-27-78	01105
818	SG 790	FULL COAL FLOOR Running HOLE	9-27-78	01107
[redacted]				
757	790 S.G	10% Rebar E & W Horz. 6" Deep	TUE 9-26-78	01109
757	790 S.G.	"	TUE 9-26-78	01109
756	790. SG	"	TUE 9-26-78	01109
756	790 SG.	10% REBAR Running NOS	TUE 9-26-78	01109
1925	831 AUX	NO REBAR AT 3½"	WED 9-27-78	FLEX SHAFT HILTY
1925	831 AUX	HIT REBAR	9-27-78	

WK ENDING 10-7-78
60 HOLES

2465	831' S.G.	10% CT W/ Running VERT N. HOLE Running 25% CUT SAME 75 CUT 3½"	MON 10-2-78	WALL
EX-1-013-005 TSS	830' TURBIN		MON 10-2-78	FLOOR 18
EX-1-013-005-TSS	930 TURBIN SAFEGUARD	" "	10-2-78	FLOOR 181
SW-1-129-021-SW3R	810'	FLEX SHAFT		WALL FL
SW-1-129-021-SW3R				
SW-1-129-013-AW3R	810 AUX.	FLEX SHAFT	TUE 10-3-78 4 HOLES	FLEX SHAFT
784 + 785	800 S.G.	VERT FULL COALS WALL	TUE 10-3-78 2 HOLES	1118
SB-1-069-015-A46R	810 AUX	FLEX SHAFT WALL	10-3-78 4 H	FLEX
SB-1-069-014-AW6R	810 AUX	FLEX SHAFT WALL	10-3-78 4 H	FLEX
SB-1-132-024-543R	810 SG.	FLEX SHAFT OVERHEAD	10-3-78 2"	FLEX
SB-1-069-011-A36R	790 AUX		WED 10-4-78 4 H	FLEX
CO-1-042-034-536R	790 SG	OVERHEAD FLEX	10-4-78 6 H	FLEX
AF-1-048-056-533R	790 SG	WALL FLEX	THR 10-5-784 #	FLEX
2416	831 SG	SIDE OF BEAM 50% CUT 8½" VERT, SIDE OF BEAM	10-5-78 1.	00188 1.
1664	807 CONTROLL	50% CUT 2" VERT OVERHEAD	FR 10-6-78 2	001947
SB-1-012-001 ASSR	831 AUX	FLEX	10-6-78 4	OVER HEA FLEX

PRINT NO. OR HANGER NO.	LOCATION + ELV.	REBAR-CUT + DEPTH - WHICH WAY RUNNING	DAY + DATE	C.M.C. + POSITION DRILL
WK ENDING 10-7-78 60 HOLES				
SB-1-012-001-ASS	831' AUX	RECIEVE 5 INCH DRILLS + FINISHED HOLES NONE	10-6-78 FRI 2	OVERHEAD FLEX
SB-1-069-011-A3SR	790 AUX	NONE	10-7-78 SAT 6	FLEX
1554	810 SG	100% CUT 1½" DEPTH HORZ	10-7-78 SAT 1	WALL 1934
SB-1-012-011 ASSR [redacted]	831 [redacted] AUX	NONE	10-7-78 2	FLEX WALL
1084	810 SG	3½" DEPTH VERT 10%	10-7-78 SAT 1	1836 WALL
48 HOLES / WK ENDING 10-14-78				
1060	810 SG	2½" HORZ 100% CUT	10-8-78 SUN 1	1855 WALL
1061	810 SG	4" HORZ 20% CUT	10-8-78 SUN 1	1855 WALL
778	790 SG	2" N+S 100% CUT	10-8-78 SUN 2	1933
718	790 SG	2" N+S 100% CUT	10-8-78 SUN 1	1835
CT-1-004-004-E2SR	ELECT. CONTROLL 778	NONE	10-9-78 MON 4	FLEX WALL
SB-1-069-017-A4SR	810' AUX	NONE	10-9-78 6	FLEX WALL
CREW	WORKED ON HANGERS CREW		10-10-78 TUE	I WAS IN COURT
CREW	WORKED ON HANGER CREW		10-11-78 WED	NO CMC
491	803'	2½" 10% E+W	10-12-78 THUR 1	2052
492	803'	3½" 25% N+S	10-12-78 THUR 1	2052
492	803'	3½" 75% N+S	10-12-78 THUR 1	2052
SB-1-069-016-4SR	810 AUX	NONE	10-12-78 THUR 4	FLEX
SB-1-069-016-4SR	810 AUX	NONE	10-12-78 THUR 4	FLEX
DD-1-017-002-A3SR	AUX 810	NONE	10-13-78 FRI 4	FLEX
SB-1-069-016-A4SR	AUX 810	NONE	10-13-78 FRI 4	FLEX
CA-1-005-003-E2SR	778 ELECT CONTROLL	NONE	10-13-78 FRI 2	FLEX
[redacted] 1176	807 CONTROLL [redacted]	3½" VERT 25% CUT	10-13-78 FRI 1	2099
[redacted] 1176	807 CONTROLL [redacted]	3½" VERT 25% CUT	10-13-78 FRI 1	2099
2487	837 S.G [redacted]	2½" HORZ [redacted] 25% CUT	10-13-78 FRI 1	2087
SB-1-069 -A4SR	810 AUX	NONE	10-14-78 SAT 2	FLEX
1933	831' AUX	1" HORZ 100% CUT	10-14-78 SAT 1	2012 W
1913	831' AUX	2½" VERT 10% CUT	10-14-78 SAT 1	2012 W
1613	831' AUX	2" E+W 25% CUT	10-14-78 SAT 1	2085 OVERHEAD
1618	831' AUX	3" HORZ 75%	10-14-78 SAT 1	2084 WALL
CC-1-009-006-A33R	778' AUX 1¼" UNT	6" E+W 10% CUT	10-14-78 SAT 1	2014 FLOOR
CC-1-008-006-A33R	778' AUX ¾" DT	1" VERT 100%	10-14-78 SAT 1	2014 WALL
CC-1-008-006-A33R	778' AUX ¾" DT	1" VERT 100%	10-14-78 SAT 1	2014 WALL
CA 1005-003-2SR	778 ELEC CONTROLL	1½ DRILL USING TUL	10-16-78 MON 2	

WK ENDIN 10-21-78 114 HOLES

PRINT NO OR HANGER NO	LOCATION & ELV.	REBAR CUT DEPTH & WHICH DIRECTION	DAY & DATE		CMC DCODA & POSITION
SB-1-069-017-A4S	810' AUX	REDRILL USING TOLERANCE	MON 10-16-78	4	FLEX -
SB-1-069-016-A-USR	810' AUX	REDRILL USING TOLERANCE	MON 10-16-78 -	3	FLEX
SB-1-069-013 TAS	810 AUX	REDRILL USING TOLER	TUE 10-17-78	2	OVERHEAD
SB-1-059-001 A55R	775 AUX	REDRILL USING TOL	TUE 10-17-78	3	OVERHEAD
SB-1-069-012 A559	778 CONT.	REDRILL USING TOL	TUE 10-17-78	4	WALL
SB-1-069-001-A55R	831 AUX	RE DRILL USING TOL.	TUE 10-17-78	3	WALL
SW-1-129-024-Y33R	796'6"	NONE	WED 10-18-78	4	FLOOR -
SW-1-129-025-Y33R	796'6"	NONE	WED 10-18-78	4	FLOOR - FL
SW-1-129-026-Y33R	796'6"	NONE	WED 10-18-78	4	FLOOR - FL
SW1-129-027-Y33R	796'6"	NONE	WED 10-18-78	13	FLOOR - FL
SW1-129-028-Y33R	796'6"	NONE	WED 10-18-78	6	FLOOR - FLE
SW1-129-029 Y33R	796'6"	NONE	WED 10-18-78	4	FLOOR - FLE
DD-1-16-030 Y33R	796'6"	NONE	THR 10-19-78	2	FLOOR - FL
SW-1-129-030 Y33R	796'6"		THR 10-19-78	2	FLOOR - FL
SW-1-132-028-Y33R	796'6"		THR 10-19-78	4	FLOOR - FL
SW-1-129-032 Y33R	796'6"		FRI 10-20-78	8	FLOOR - F
CT-1-057-005 S35R	794'		FRI 10-20-78	6	WALL - F
105 H790 020 021	798'	CARPENTER	THR 10-19-78	7	FLOOR - FL
105-H790-020-021	798'	CARPENTER	THR 10-19-78	1	FLOOR - FL
AF-1-048-011-S35R	790'	[illegible]	FRI 10-20-78	8	FLOOR - FLE
AF-1-048-066-S35R	790'		SAT 10-21-78	11	WALL FLE
AF-1-048-064 S35R	790		SAT 10-21-78	4	OVERHEAD
EX-1-029-003 T45	TURBIN	1¾" 50% R-W	SAT 10-21-78	1	2154
1459	810' SG	3" 90% VERT 3" 20% VERT	SAT 10-21-78	1	2185
1346	810' SG	2¾" 90% VERT	SAT 10-21-78	1	2186
1347	810' AUX	2¾" 30% VERT	SAT 10-21-78	1	2186
1347	810 AUX	2¾" 20% VERT	SAT 10-21-78	1	2186
EX-1-029-003 T45	TURBIN 778	1¾" 50% R-W	SAT 10-21-78	1	2154

WK ENDING 10-28-78 (CONT)

PRINT NO OR HANGER NO	LOCATION & ELV.	REBAR CUT DEPTH & WHICH DIRECTION	DAY & DATE		CMC DCODA & POSITION
SW-1-010-001-A33R	790 ELV	NONE	MON 10-23-78	11	FLOOR - F
SW-1-132-024-A43	810'	NONE	TUE 10-24-78	1	WALL FL
SB-1-069-012-A35R	790'	NONE	TUE 10-24-78	2	WALL F
CT-1-066-001-S32R	790'	NONE	TUE 10-24-78	4	WALL F
CC-1-043-005-A43R	810'	NONE	TUE 10-24-78	3	WALL F
[illegible]-1-179-017 CU30	[illegible]		TUE [illegible]	[illegible]	[illegible]

	Penetration or Hanger No.	Location + ELV	Rebar Cut Dia + Direction	Day + Date		C.M.C or Rebar + Position
WK ENDING 10-28-78 65 HOLES	CC-1-042-004-SH5R	810'	NONE	WED 10-25-78	1	WALL
	CC-1-158-003-A43S	810'	NONE	WED 10-25-78	1	WALL
	SA-1-069-001-A55R	832'	NONE	WED 10-25-78	2	WALL
	CC-X-079-002-A0R	810	NONE	WED 10-25-78	8	WALL
	SH-1-025-001-S22	780'	NONE	THUR 10-26-78	17	FLOOR
	3034	790' AUX	5" VERT 10%	THUR 10-26-78	1	WALL 2628 F
	CC-1-044-001-A45S	810'	NONE	THUR 10-26-78	10	FLOOR FLEX
	3112	790' AUX	5" VERT 50%	THUR 10-26-78	1	WALL 2628 F
	3112	780' AUX	2" HORZ 100%	THUR 10-26-78	1	WALL 2628 F
WK ENDING 11-4-78 77 HOLES	CC-1-109-003-A43R	810' AUX	NONE	MON 10-30-78	4	OVERHEAD F
	NO C.M.C. OR FLEX WORK			TUE 10-31-78	0	I CHASED D. PRAWPS & ...
	BEAM 807 CONTAIN RM N+S	807 CONT.	4" N+S 100% ALL 4 HOLES	WED 11-1-78	4	2661
	DD-1-029-018-A35R	790'	100% REBAR CUT BOTH HOLES N+S	WED 11-1-78	2	2647
	EX-1-011-005-T55	832'	EAST MIDDLE HOLE 20% 4 1/2" E+W	WED 11-1-78	1	2657
	EX-1-011-005-T55	832'	SOUTHEAST HOLE 5" 50% E+W	WED 11-1-78	1	2657
	EX-1-011-005-T55	832'	SOUTH MIDDLE HOLE 4" 50% E+W	WED 11-1-78	1	2657
	EX-1-011-005-T55	832'	SOUTH WEST HOLE 5" 20% E+W	WED 11-1-78	1	2657
	EX-1-011-005-T55	832'	WEST MIDDLE HOLE 5" 50% E+W	WED 11-1-78	1	2657
	HD-1-325-001-T35	778'	NONE	THUR 11-2-78	12	FLEX SH. FLOOR
	CORE DRILL FOR MILLABATS	832'	NONE BACK AFTER MILLABATS	THUR 11-2-78	5	FLOOR FOR MILLABATS
	HD-1-325-001-T35	778	NONE	THUR 11-2-78	4	FLEX SH.
	WA-X-485569 SS-27	790' TURBIN	NONE	FRI 11-3-78	2	WALL - FLEX S.
	CT-1-005-003-S22	760'	NONE	FRI 11-3-78	29	FLOOR FLEX
	CT-1-017-010-Y35R	796.6"	NONE	FRI 11-3-78	5	FLEX
	HANGER 2602	790. SG	20%	SAT 11-4-78	1	WALL 267
	HD-1-009-011-T35	778 TURBIN	NO CORE	SAT 11-4-78	1	OVERHEAD 2665
	HD-1-009-011-T35	778 "	"	SAT 11-4-78	1	" 2665
	HD-1-009-011-T35	778 "	"	SAT 11-4-78	1	" 2665
	HD-1-009-011-T35	778 "	"	SAT 11-4-78	1	" 2665
	CT-1-004-003-S32	790"	NONE	MON 11-6-78	4	FLOOR FLE
	AF-1-001-010-Y33R	790"	NONE	MON 11-6-78	7	WALL FLEX
	NO. C.M.C. OR FLEX WORK			TUE 11-7-78		
	11 11-8-78 11 11		1111	WED 11-8-78		1111 11

WK ENDING 11-11-78 15 HOLES — 2 1/2 DAYS [illegible] DRILLING AT [illegible]

PAIN[illegible] NO OR HANGER NO#	LOCATION + ELV.	REBAR CUT DEPTH + DIRECTION	DAY + DATE		CH- D.C.O[illegible] + POSITION
CREW	LOANED OUT TO HANGERS		THUR 11-9-78		
3326	810' AUX	1 1/2" EAST + W - 50%	FRI 11-10-78	1	267[illegible]
CS-1-158-010-S42	810' SG	NE HOLE 3 3/4" 50% N+S	FRI 11-10-78	1	2859
CS-1-158-010-S42	810' SG	SE HOLE 3" 50% N+S	FRI 11-10-78	1	2859
HD-1-309-001-TSSD	830 TURBIN	NW HOLE 2 5/8" 10% E+W	FRI 11-10-78	1	2681
HD-1-309-001-TSSD	830 TURBIN	NE HOLE 2 5/8" 10% E+W	FRI 11-10-78	1	2681
SW-1-129-025-Y33R	796'6" TUNNEL	SE HOLE 100% 2 1/2 N+S	FRI 11-10-78	1	2845
SW-1-129-025-Y33R	796'6" TUNNEL	NE HOLE 50% 2 1/2" N+S	FRI 11-10-78	1	2845
3325	810'	E [illegible] HOLE 100% 1 1/2" E+W	MON 11-13-78	1	2889
3325	810'	E NO 2 HOLE 100% 1 1/2" E+W	MON 11-13-78	1	2889
3325	810'	W NO 2 HOLE 100% 1 1/2" E+W	MON 11-13-78	1	2889
3325	810'	W HOLE 100% 1 1/2" E+W	MON 11-13-78	1	2889
AF-1-048-071-S35R	790	NONE	MON 11-13-78	3	FLEX 97
CT-1-012-001-S22S	778'	NONE	MON 11-13-78	4	FLEX 1818
CT-1-014-001-S22S	778'	NONE	TUE 11-14-78	4	FLEX 1820
CT-1-090-024-S35R	790'	NONE	TUE 11-14-78	3	FLEX WALL
CC-2-020-007-A33R	790'	NONE	TUE 11-14-78	6	FLEX WALL
RAND CABLE TRAY HANGER	832'	NONE	WED 11-15-78	6	FLEX WALL
SB-1-053-004-AS5R	832' AUX	NONE	WED 11-15-78	2	FLEX WALL
SB-1-016-002-AS5R	832' AUX	NONE	WED 11-15-78	3	FLEX WALL
[illegible]3-1-069-018-AS5R	832 AUX	NONE	WED 11-15-78	4	FLEX WALL
SD-1-005-003-AS5R	832' AUX	NONE	THUR 11-16-78	5	[illegible] FLE[illegible]
SD-1-045-002-AS5R	832' AUX	NONE	THUR 11-16-78	2	WALL FLE[illegible]
CI-1-090-040-S35R	790' SG	NONE	THUR 11-16-78	4	WALL FLEX

WK ENDING 11-18-78 50 HOLES

CREW	HANGING	CLIPS	FRI 11-17-78		
1370	810 AUX	10% VERT 3 3/4"	SUN 11-19-78	1	2910
1370	810 AUX	50% VERT 3 3/4"	SUN 11-19-78	1	2910
CREW	HANGIN CLIPS	8 HRS SUN	SUN 11-19-78		
REF-677-2874	807' CONTROL	50% 40% CUT IN BEAM	MON 11-20-78	8	3022
CREW	REWORKING CLIPS	8 HRS MON	MON 11-20-78		
CREW REWORKING CLIPS + CHANGING RICHMONDS			TUE 11-21-78		
SI-0601	810' SG	10% VERT 7 1/8" DIAM	WED 11-22-78	1	3026
PIPE HANGER SS-38	810' TURBIN	50% E+W 1 3/4" D	WED 11-22-78	2	3008

WK ENDING 11-22-78 27 holes

Week	PRINT NO. OR HANGER NO.	LOCATION AND OR ELV	REBAR CUT DEPTH & DIRECTION WHAT %	DATE		CMC OR ?OOR & POSITION
WK ENDING 11-22-78 27 HOLES	SB-1-053-004 ASSR	831'	NONE	WED 11-22-78	11	WALL F
	S3-1-006-004 ASSR	848'6	NONE	WED 11-22-78	3	OVERHEAD F
WK ENDING 12-02-78 67 HOLES	CC-1-050-002-A4SR	810'	NONE	MON 11-27-78	14	WALL F
	CI-1-090-046-S3SR	790'	NONE	MON 11-27-78	4	WALL FL
	SB-1-005-004-ASSR	820'	NONE	MON 11-27-78	2	FL OVERHEAD
	CI-1-090-040 S3SR	790'	NONE	TUE 11-28-78	4	WALL FLEX
	SB-X-016-007 ASSR	831'	NONE	TUE 11-28-78	4	OVERHEAD FLEX
	SB X-017-006-ASSR	831'	NONE	TUE 11-28-78	4	OVERHEAD FLEX
	SB X-017 005-ASS	831'	NONE	TUE 11-28-78	10	OVERHEAD FLEX
	SB-1-005-004-ASSR	831'	NONE	WED 11-29-78	3	OVERHEAD FLEX
	FLOOR PLATE CONTROL ROOM	807'	4" 50% E+W	THUR 11-30-78	1	3108
	BEAMS+FLOOR PLATE CONTROL ROOM	807	4" 75% E+W	THUR 11-30-78	1	3108
	PIPEHANGER	831'	DRILLED 4 HILTYS OUT OF 4 HANGERS	THUR 11-30-78	4	WALL HILTY BOLTS
	1D-1-049-016-S2SR	785' 6	NONE	THUR 11-30-78	9	FLOOR FLEX
	SW-1-132-034 Y33R	796' 6	NONE	THUR 11-30-78	2	FLOOR FLEX
	SW-1-132-033Y33R	796' 6	NONE	FRI 12-1-78	5	FLOOR FLEX
	8 HRS HANGING CLIPS 2 MEN.			12-1-78		1 HOLE ON ACCOUNT
WK ENDING 12-9-78 89 HILTY 68 REBAR CUT	SB-X-016-006-ASSR	832' AUX	NONE	MON 12-4-78	3	FLEX WALL
	3306	810' AUX	NONE	MON 12-4-78	5	FLEX WALL
	3346	810' AUX	NONE	MON 12-4-78	6	FLEX WALL
	SW-1-011-022-F33R	785' 6	E BAR RUNNING N+S 1" DEPTH ALL 5 HOLE 25% N+S	TUE 12-5-78	1	3307
	SW-1-011-022-F33R	785' 6	E BAR RUNNING N+S #2 SMALL 10% N+S	TUE 12-5-78	1	3307
	SW-1-011-022-F33R	785' 6	E-BAR RUNNING N/S No 2 N HOLE 10%	TUE 12-5-78	1	3307
	SW1-011-022-F33R	785' 6"	E BAR RUNNING N+S No 1 N HOLE 10%	TUE 12-5-78	1	3307
	SW1-011-021-F33R	785' 6	6 HOLE FROM S-E BAR 100% 1" DEPTH N+S	TUES 12-5-78	1	3307
	SW1-011-021-F33R	785' 6	3 HOLE FROM S-W BAR 100% 1" DEPTH N+S	↓	1	3307
	SW1-011-021-F33R	785' 6	4 HOLE FROM S-W BAR 75% 1" DEPTH N+S	↓	1	3307
	SW1-011-021-F33R	785' 6'	5 HOLE FROM S-W BAR 10% 1" DEPTH -N+S	↓	1	3307
	SW1-011-021-F33R	785' 6'	6 HOLE FROM S-W BAR 10% 1" DEPTH -N+S	↓	1	3307
	SW1-011-021-F33R	785' 6	7 HOLE FROM S W BAR 10% 1" DEPTH -N+S	↓	1	3307
	SW1-011-021-F33R	785' 6"	7 HOLE FROM S -W BAR 75% 1" DEPTH -N+S	↓	1	3307
	SW1-011-021-F33R	785' 6"	10 HOLE FROM S - W BAR 75% -1" DEPTH -N+S	↓	1	3307
	3157	831' 6	100% 2" DEPTH -N+S	WED 12-6-78	1	33[illegible] OVERHEAD

89 HOLES HILTY
68 REBAR CUT

WK ENDING 12-9-78

PAIR OR HANGER NO.	LOCATION — ELV	REBAR CUT TO DEPTH + DIRECTION	DAY — DATE	CMC OF DC OOA + POSITION
SPECIAL	785' 6"	CUT 1" TAB OUT OF RICHMOND W-BAR 5TH FROM SOUTH	WED 12-6-78	[redacted]
SW-1-011-020-F33R	785' 6"	10% 1" DEPTH N+S W-BAR 4 HOLE FROM S	WED 12-6-78	3307
		50% 1" DEPTH N+S W-BAR 5 HOLE FROM SOUTH		
		100% 1" DEPTH N+S W-BAR 6TH HOLE FROM S		
		10% 1" DEPTH N+S W-BAR 7TH HOLE FROM S		FLEX
		100% 1" DEPTH N+S W BAR 9TH HOLE FROM S		
SW-1-011-020-F33R		25% 1" DEPTH N+S W-BAR 10TH HOLE FROM S		
		10% 1" DEPTH N+S E-BAR 6TH HOLE FROM S		
		50% 1" DEPTH N+S W BAR 6TH HOLE FROM S		
SW-1-011-019-F33R		25% 1" DEPTH E+W W BAR 4TH FROM SOUTH		
		10% 3½" DEPTH N+S E-BAR 6TH HOLE FROM SOUTH		FLEX
SW-1-011-018-F33R		90% 1" DEPTH E+W W-BAR 4TH HOLE FROM SOUTH		
		25% 3½" E+W E BAR 4TH HOLE FROM SOUTH		
		25% 3½" DEPTH E+W E-BAR 4TH HOLE FROM SOUTH		
		10% 3½" E+W E BAR 10TH HOLE FROM SOUTH		
SW-1-011-017-F33R	ICICLES DOWN E+W	10% 3½" E+W 2ND HOLE N SIDE		
		50% 1" DEPTH E+W 3RD HOLE N SIDE	12-7-78 THUR	
		100% 1" DEPTH E+W 4TH HOLE N SIDE	12-7-78	
		10% 1" DEPTH E+W 5TH HOLE N SIDE		
		10% 1" DEPTH E+W 6TH HOLE N SIDE	THUR	
		25% 1" DEPTH E+W 7TH HOLE N SIDE		3307
		25% 1" DEPTH E+W 8TH HOLE N SIDE		
		50% 1" DEPTH E+W 9TH HOLE N SIDE		
		25% 1" DEPTH E+W 2ND HOLE S SIDE		
		25% 2½" DEPTH N+S 6TH HOLE S SIDE		
SW-1-011-016-F33R		10% 2½" DEPTH N+S 2ND HOLE N SIDE		
		50% 1" DEPTH E+W 3RD HOLE N SIDE		
		25% 1" DEPTH E+W 4TH HOLE N SIDE		
		75% 1" DEPTH E+W 5TH HOLE N SIDE		3307
		75% 1" DEPTH E+W 6TH HOLE N SIDE		
		10% 1" DEPTH E+W 7TH HOLE N SIDE		
		90% 1" DEPTH E+W 8TH HOLE N SIDE		
		25% 1" DEPTH E+W	OVER	

WK ENDING 12-9-78 — 89 HILT, 68 REBAR CUT

HANGER NO.	LOCATION + ELV	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CMC OCD & POST
SWI-011-C-6-Y31R	783' 6"	4th hole N side 50% - 2½" depth N+S; 2nd hole S side 75% - 2½" depth N+S; 9th hole S side 10% 2½" depth N+S	THUR 12-7-78	1 / 1 / 1	330 / 330 / 330
3351	810' 56	TOP HOLE 50% VERT 4" depth	FRI 12-8-78	1	342
3352	810' 56	BOTTOM HOLE 75% VERT 4" depth	12-8-78	1	342
3353	810' 56	SAME AS ABOVE	12-8-78	1	342
3623	810' 56	TOP HOLE 50% VERT 3" depth	12-8-78	1	3420
3623	810' 56	BOTTOM HOLE 50% VERT 3" depth	FRI 12-8-78	1	3420

WK ENDING 12-16-78 — 56 HOLES

HANGER NO.	LOCATION + ELV	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CMC OCD & POST
3327 [redacted]	790' 56	NONE	MON 12-11-78	5	FLEX
CC-1-016-040-S35R	790' 56	NONE	MON 12-11-78	8	FLEX
SW-1-132-030-Y31R	796' 6	NONE	MON 12-11-78	13	FLEX
SO-X-016-001-A55R	850' 4"	NONE	TUE 12-12-78	3	FLEX O
SO-X-016-006-A55R	850' 4"	NONE	TUE 12-12-78	3	FLEX O
CC-1-115-001-A43R	828' 6"	NONE	TUE 12-12-78	8	FLEX O
SW-1-132-032-Y31R	796' 6	NONE	TUE 12-12-78	2	FLEX / OVERHEAD
SO-1-069-011-A35R	809' 6"	NONE	WED 12-13-78	1	/ OVERHEAD
CC-2-057-002-A33R	806'-4"	NONE	WED 12-13-78	13	FLEX

MEN WORKING HANGING CLIPS — THUR 12-14-78

MEN WORKING HANGING CLIPS — FRI 12-15-78

MEN WORKING HANGERS — SAT 12-16-78

WK ENDING 12-23-78 — 17 HOLES, 1-DAY

MEN WORKING HANGERS — MON 12-18-78

HANGER NO.	LOCATION + ELV	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CMC OCD & POST
2602	805' 9"	100% VERT 2½"	TUE 12-19-78	1	36-2
2801	775'	NONE	TUE 12-19-78	2	FLEX WALL
CC-5-1-315-040-A5R	831-AUX	NONE	TUE 12-19-78	6	OVERHEAD FLEX
SO-X-016-006-A55R	831-AUX	NONE	TUE 12-19-78	4	OVERHEAD FLEX
SO-X-016-001-A55R	831-AUX	NONE	TUE 12-19-78	4	OVERHEAD FLEX

2-MEN DIPING BOLTS FOR 807-ELV — WED 12-20-78

2-MEN DIPING BOLTS FOR 807-ELV — THUR 12-21-78

WK-ENDING 12-30-78 — 49 HOLES

2 MEN DIPING BOLTS FOR 807' - 3 HRS — TUE 12-26-78 — 3 HRS

HANGER NO.	LOCATION + ELV	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CMC OCD & POST
ALLIS-CHALMERS SY-501-235-401	803' TRAIN	3" DEPTH N+S 100% ALL HOLES	TUE 12-26-78	12	3630
ARH-CR1-01118 REV1	803' "	3" DEPTH N+S 100% N+S ALL HOLES	TUE 12-26-78	12	3630

2 MEN DIPING BOLTS FOR 807' ELV — WED 12-27-78

2 MEN DIPING BOLTS + PACKING HILTY BOLTS — THUR 12-28-78

PRINT OF CA HANGER NO.	LOCATION + ELV	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CMC OR DCDA + POSITION
WK ENDING 12-30-78 119 HOLES					
CS-2-019-001-ASIR	831 AUX	NONE	FRI 12-29-78	4	FLEX OVERH
CS-1-315-021-ASIR	831 AUX	NONE	FRI 12-29-78	8	FLEX OVER EC
CS-1-315-022-ASIR	831 AUX	NONE	FRI 12-29-78	6	FLEX OVERHE
SE-X-049-027-AESR	831 AUX	NONE	FRI 12-29-78	7	FLEX OVERHEA
SW-1-129-016-SWSR	810 SG	NONE	WED 1-3-79	2	FLEX
2 MEN STAMPING HILTY BOLTS		WAREHOUSE (A)	WED 1-3-79	5 HRS	
2 MEN STAMPING HILTY BOLTS		WAREHOUSE (A)	THUR 1-4-79	ALSO	
BRINGING BOLTS FROM WAREHOUSE A TO MY OFFICE				1-4-79	
WK ENDING 1-6-79 32 HOLES					
7163-57171-026 ALLIS CHALMERS	803' TURBIN	NONE	FRI 1-5-79	2	FLEX W
54-301-235-401	803' TURBIN	AIR DRILL	FRI 1-5-79	1	FLEX FLOOR
SW-1-124-018-SWSR	810' SG	NONE	FRI 1-5-79	21	FLEX FLWR
4893	SG SG CONTROL	NONE	FRI 1-5-79	6	FLEX OVERHE
2 MEN HANGING CLIPS			SAT 1-6-79		
2 MEN SETTING HILTYS FROM ALLIS WHITE HOUSE			1-8-79 (TO FIELD)		3 HRS
SW-1-129-018-SWSR	810' SG	NONE	MON 1-8-79	24	FLEX WALL
SW-1-129-019-SWSR	810' SG	NONE	MON 1-8-79	8	FLEX WALL
SW-1-129-020-SWSR	810' SG	NONE	MON 1-8-79	15	FLEX WALL
CL-1-028-020 S3SR	770' SG	NONE	TUE 1-9-79	2	FLEX OVERHEAD
GOT 1" X9" SUPER HILTY FROM ELECTRICAL WAREHOUSE			TUE 1-9-79		
GOT YANG BOX FOR MIAK			TUE 1-9-79		
GENERAL CLEAN UP FROM 12:00 TO 5:30 (MAN KILLED)			TUE 1-9-79		
WK ENDING 1-13-79 119 HOLES					
SW-1-011-016-F33R	786.6"	NE HOLE 30% 1/2 DEPTH E+W	WED 1-10-79	1	3664
SW-1-011-016-F33R		NE MIDDLE HOLE 100% 1/2 DEPTH E+W	WED 1-10-79	1	3664
SW-1-011-016-F33R		NE 3RD HOLE 100% 1/2 DEPTH E+W	WED 1-10-79	1	3664
SW-1-011-016-F33R		NW 1ST HOLE 100% 1/2 DEPTH E+W	WED 1-10-79	1	3664
SW-1-011-016-F33R		NW 2ND HOLE 100% 1/2 DEPTH E+W	WED 1-10-79	1	3664
SW-1-011-016-F33R		NW 3RD HOLE 100% 1/2 DEPTH E+W	WED 1-10-79	1	3664
SW-1-011-017-F33R		NE 1ST HOLE 20% 1" DEPTH E+W	WED 1-10-79	1	3665
SW-1-011-017-F33R		NE 2ND HOLE 20% 1" DEPTH E+W	WED 1-10-79	1	3665
SW-1-011-017-F33R		NW 1ST HOLE 20% 1" DEPTH E+W	WED 1-10-79	1	3665
SW-1-011-017-F33R		NW 2ND HOLE 20% 1" DEPTH E+W	WED 1-10-79	1	3665
SW-1-011-017-F33R		NW 3RD HOLE 100% 1" DEPTH E+W	WED 1-10-79	1	3665
HOLES RUNNING					

WK ENDING 119 HOLES 1-13-79

POINT NO — OR HANGER NO	LOCATION + ELV.	REBAR CUT % DEPT + DIRECTION	DAY + DATE		CM OR DCP + POSIT
SW-1-011-018-F33R	785'6"	UNKNOWN OBSTRUCTION AT 3½" DEPTH	WED 1-10-79	1	3666
SW-1-011-019 F33R	785'6"	NE HOLE 100% 3" DEPTH E+W	WED 1-10-79	1	3667
SW-1-011-019-F33R	785'6"	NW HOLE 100% 3" DEPTH 100%	WED 1-10-79	1	3667
SW-1-011-020-F33R	785'6"	NE HOLE N PLATE 50% 1" DEPTH N+S	WED 1-10-79	1	3668
SW-1-011-020-F33R	785'6"	NE MIDDLE HOLE N PLATE 100% 1" DEPTH N+S	WED 1-10-79	1	3668
SW-1 011-021-F33R	785'6"	S PLATE MIDDLE HOLE 100% 1" DEPTH N+S	WED 1-10-79	1	3669
SW-1-011-021-F33R	785'6"	N PLATE NW HOLE 50% 1" DEPTH N+S + E+W	WED 1-10-79	1	3669
SW-1-011-021-F33R	785'6"	N PLATE NE HOLE 75% 2½" DEPTH E+W	WED 1-10-79	1	3669
CC-1-028-020 S33R	790'	NONE	THUR 1-11-79	16	FLEX OVER H[illegible]
CC-1-028-020 S33R	790'	NONE	THUR 1-11-79	15	FLEX WALL
CC-1-028-020 S33R	790'	NONE	FRI 1-12-79	2	FLEX WALL
CS-1-063-033-S42R	810-56	NONE	FRI 1-12-79	7	WALL
CS-1-063-026-S32R	790'	NONE	FRI 1-12-79	7	WALL
DD-1-003-084-S35R	790'	NONE	FRI 1-12-79	3	OVERHEAD
DD-1-003-084 S35R ~~[illegible]~~ A35R	790'	NONE	MON 1-15-79	3	WALL FLEX
CC-X 013-006 A43R	810'	NONE	MON 1-15-79	7	WALL FLEX
2602	790	HILTY BOLT DRILLED OUT	MON 1-15-79	1	WALL STAND
2602	790'	HILTY BOLT DRILLED OUT	TUE 1-16-79	1	WALL STAND
AE-1-048-056-S25R	790'	NONE	TUE 1-16-79	10	WALL FLEX
5227	810'	NONE	TUE 1-16-79	1	FLEX [illegible]
RH-1-025-001-S22R FINISH UP	785'6	NONE	TUE 1-16-79	4	FLEX FL[illegible]
RH-1-025-001-S22R	785'6	NONE	WED 1-17-79	3	FLEX FLO[illegible]
SB-X-016-002-A55R	831'	NONE	WED 1-17-79	4	FLEX ~~WALL~~ OVER
SF-X-049-026-A55R	831'	NONE	WED 1-17-79	2	FLEX OVER
SBX-016-006-A55R	831	NONE	WED 1-17-79	2	FLEX OVER
DDX-146-013-A35R	790	NONE	WED 1-17-79	11	FLEX WA[illegible]
SBI-084-003-A55R	831'	NONE	WED 1-17-79	4	FLEX WALL
SFX-049-025-A55R	831'	NONE	WED 1-17-79	2	FLEX OVERHEAD

PICKED UP WASHERS + NUTS WAREHOUSE A. FOR HILTYS 1 HR. 1-17-79

PUTTING NUTS + WASHERS ON HILTYS BOLTS THUR 1-18-79 1-18-79

INVENTORY OF DRILLCO BITS + CLEAN UP OF TOOLS. WORKED 5 HR FOR KR

J.W. OFF RICHARD NUTTING + BOLTING 807' WALL FRI 1-19-79

J.W. + RICHARD WORKING REWORK CREW FOR KRK MON 1-22-79

1-20-79 [illegible]

W/K ENDING 1-27-79 27 HOURS

PRINT NO # OR HANGER NO #	LOCATION + ELV.	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CM DEC + POSIT
2733 + 2735	843'6" SG	100% 1" DEPTH HORIZ	TUE 1-23-79	1	37..
2733 + 2355	843'6" SG	100% 5" DEPTH HORIZ + CHALK	TUE 1-23-79	1	374
3534 + 3535	822'0"	100% 2½" DEPTH VERT	TUE 1-23-79	1	412
3534 + 3535	826 11" CEILING	50% 2½" DEPTH VERT	TUE 1-23-79	1	4129
MEN STAMPING HILTYS IN WATER... (A)			4 hrs. TUE 1-23-79		
SW-1-132-029-Y33R	790' TUNNEL	NONE	WED 1-24-79	3	FLOOR
EX-1-010-015-7S6	831 TURBIN	75% 4" DEPT E+W	WED 1-24-79	1	4190
CO-1-051-005-T430	803' TURBIN	100% 3" DEPTH N+S	WED 1-24-79	1	4189
DD-1-003-093-S36R	790'	NONE	WED 1-24-79	0	PIPE TO C.. HARD ...
CC-2-019-009-AH1R	810'	NONE	WED 1-24-79	3	FLEX
DD-1-...-057-A35R	790'	NONE	THUR 1-25-79	4	FLEX
2602	794'4"	100% 3 in DEPTH VERT	THUR 1-25-79	2	WALL 4182
2602	777'5"	75% 3 in DEPTH VERT	THUR 1-25-79	1	WALL 4182
CC-2-019-003-AH3R	810'	NONE	THUR 1-25-79	8	FLEX

W/K ENDING 2-3-79 73 HOURS

PRINT NO # OR HANGER NO #	LOCATION + ELV.	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CM DEC + POSIT
CT-1-017-011-Y33R	800'	100% 2½" DEPTH VERT.	MON 1-29-79	1	423.
3630	831'6"	50% 3" DEPTH E+W	MON 1-29-79	1	422.
3630	831'6"	50% 3" DEPTH E+W	MON 1-29-79	1	4226
CC-2-021-010-A33R	790'	NONE	MON 1-29-79	32	WALL FLEX
CC-1-116-018-AH3R	810'	NONE	MON 1-29-79	5	FLEX WA..
CC-1-156-003-A63R	852'	NONE	TUE 1-30-79	7	FLEX W..
7 HRS WORKING WITH INTERFERENCE CREW			TUE 1-30-79		WORKED 5 HRS
J.W. OFF FOR DR Richard WORKED INTERFERENCE			TUE 1-31-79		
CC-1-126-007-F433	810' FUEL	NONE	WED 2-1-79 THUR	2	FLEX OVER
CC-1-158-003-A435	810 - AUX	NONE	THUR 2-1-79	3	FLEX WA..
CC-1-116-016-F43R	810 - FUEL	NONE	THUR 2-1-79	3	FLEX WA..
CC-1-156-012-A63R	831 - AUX	NONE	THUR 2-1-79	10	FLEX WA..
CC-1-126-008-A433	810 AUX	NONE	THUR 2-1-79	3	FLEX OVER

PRINT NO # OR HANGER NO #	LOCATION + ELV.	REBAR CUT % DEPTH + DIRECTION	DAY + DATE		CM DEC + POSIT
CI-1-090-040-S33R	795'6"	100% 3" DEPTH VERT	MON 2-5-79	1	43-72
SW-1-011-020-F33R	778 TUNNEL	100% 1" DEPTH N+S	MON 2-5-79	1	3668
SW-1-011-020-F33R	778 "	100% 1" DEPTH N+S	MON 2-5-79	1	3668
SW-1-011-020-F33R	778 "	100% 1" DEPTH N+S	MON 2-5-79	1	3668
SW-1-011-020-F33R	778 "	100% 1" DEPTH N+S	MON 2-5-79	1	3668
SW-1-011-021-F33R	778 "	100% 1" DEPTH N+S	MON 2-5-79	1	4377
...-021-F33R		100% 1" DEPT	MON		

171 HOLES
W/E ENDING 2-10-79

PRINT NO. # OR HANGER NO. #	LOCATION & ELV.	[illegible] CUT [illegible] DEPTH & [illegible]RECTION	DAY & DATE		C[illegible] NC[illegible] & POS
CT-1-057-003 S3SR	790'	NONE	MON 2-5-79	(5)	FLE
CC-2-021-01-A3JR	790	NONE	MON 2-5-79	(7)	FLE
CC-1-109-003-A43R	810'	NONE	TUE 2-6-79	(5)	FLE[illegible] OV
CC-2-021-011-A33R	790'	NONE	TUE 2-6-79	(66)	FL[illegible]
CS-1-066-001-AH3R	810'	EAST HOLE 10% 5" DEPTH E&W	WED 2-7-79	(1)	44
CS-1-066-001-AH4R	810'	WEST HOLE 50% 5" DEPTH E&W	WED 2-7-79	(1)	44.
CS-1-075-003 AH2R	810'	EAST HOLE 100% 3½ DEPTH E&W	WED 2-7-79	(1)	443
CS-1-075-003-AH4R	810	WEST HOLE 100% 3½ DEPTH E&W	WED 2-7-79	(1)	443
CC-1-107-004-AH3R	810	NONE	WED 2-7-79	(4)	FLE OVH
CC-1-126-004-AH3S	810	NONE	WED 2-7-79	(2)	FL[illegible] OV[illegible]
CC-1-156-001-A63R	831	NONE	WED 2-7-79	(11)	FL[illegible]
DD-X-054-019-A75R	812	NONE	THUR 2-8-79	(2)	F[illegible]
CC-1-157-003-A63R	831	NONE	THUR 2-8-79	(5)	FLE[illegible]
CC-1-156-003-A63R	831	NONE	THUR 2-8-79	(9)	FLEX
CC-1-051-003-AH31R	810	NONE	THUR 2-8-79	(2)	FLEX FLOO
DD-1-006-053-S35R	790	NONE	THUR 2-8-79	(2)	FLE[illegible] OVER
4313	807 CONTROL ROOM	NONE	FRI 2-9-79	(8)	BEA
4314	807 " "	NONE	FRI 2-9-79	(9)	"
53-58	807 " "	NONE	FRI 2-9-79	(5)	"
DD-1-006-114-Y36R	790'	NONE	SAT 2-10-79	(2)	OVER FL
SW-1-129-032 Y13R	790'	NONE	SAT 2-10-79	(4)	FLOOR FLEX
3762	807'	NONE	SAT 2-10-79	(8)	FLEX BEAM
3801	807'	NONE	SAT 2-10-79		"
3822	807'	NONE	SAT 2-10-79		"
4314	807'	NONE	SAT 2-10-79	(3)	"

62 HOLES
WK ENDING 2-17-79

PRINT NO. # OR HANGER NO. #	LOCATION & ELV.	[illegible] CUT [illegible] DEPTH & [illegible]RECTION	DAY & DATE		C[illegible] NC[illegible] & POS
CI-1-015-033-A35R	790	NONE	MON 2-12-79	(6)	FLEX
3136	790 AUX	NONE	MON 2-12-79	(5)	FLEX .
DD-1-029-067-AH5R	810 AUX	NONE	MON 2-12-79	(16)	FLEX .
DD-1-029-066-AH5R	810	NONE	MON 2-12-79	(2)	FLEX W
DD-1-006-014-Y35R	790 TUNNEL	NONE	TUE 2-13-79	5	FLEX W
DD-1-029-068-AH5R	810	NONE	TUE 2-13-79	2	FLEX WA
DD-1-034-066-AH5R	810	NONE	TUE 2-13-79	2	FLEX WA
DD-1-029-067-AH5R	810	NONE	TUE 2-13-79	16	FLEX W[illegible]

PRINT NO. OR HANGER NO.	[illegible]ATION + ELV.	REBAR CUT % DEPTH + DIRECTION	DAY + DATE	C.M OR DECON + POSITION
SW-1-173-018-Y3R	790 TUNNEL	HILTY BOLT CUT OUT	2-14-79	1" 6 [illegible]
RMAINDER OF DAY LAYOUT + DRILL AUX - INSTRUMENT				
TW + RICHARD ON LAYOUT FOR INST.			2-15-79	
TW ON LAYOUT RICHARD ABSENT			2-16-79	
CS-1-019-~~004~~-A3SR 2689	832	HILTY BOLT CUT OUT	MON 2-19-79	OVERH.
~~[illegible]~~	832	HILTY BOLTS CUT OUT	MON 2-19-79	WALL
SW-1-013-001-A3SR	790	N HOLE 25% 6½" DEPTH RUNNING DIA.	TUE 2-20-79 (1)	WALL
SW-1-013-001-A3SR	790	S HOLE 25% 6½" DEPTH RUNNING DIA.	TUE 2-20-79 (1)	WALL
CC-1-015-001-AN3	810	N HOLE 10% 3" DEPTH N+S	TUE 2-20-79 (1)	OVERH. 44[illegible]
CC-1-015-001-AN3	810	3" DEPTH N+S S HOLE 10%	TUE 2-20-79 (1)	OVERH. 447
?	778	E HOLE 10% 4" DEPTH E+W	WED 2-21-79 (1)	449[illegible]
?	778	W HOLE 10% 4" DEPTH E+W	WED 2-21-79 (1)	449[illegible]
BRX-071-015-A3SR	778	SET UP ON BROKE WATERLINE		4491
LOST ABOUT 4 HOURS MEN SOAKED SENT TO FIRST AID			WED 2-21-79	
BRX-071-015-A3SR	778	E-BOT HOLE 75% W 1" DEPTH HORZ	THUR 2-22-79 (1)	WALL 4491
BRX-071-015-A3SR	778	W BOT HOLE 50% 1" DEPTH HORZ	THUR 2-22-79 (1)	WALL 4491
SW-1-173-018-Y3S	790	HILTY BOLT CUT OUT	THUR 2-22-79	OVERH.
SW-1-173-019-Y3S	790	HILTY BOLT CUT OUT	THUR 2-22-79	OVERH.
2689	832	HILTY BOLT CUT OUT	FRI 2-23-79	WALL
NO WATER 3 HRS HAD MEN CLEAN EQUIPMENT			FRI	
WP-1-061-007-S4SR	810'6	100% N HOLE 2½" DEPTH	SAT 2-24-79 (1)	449
WP-1-061-007-S4SR	810'6'	100% S HOLE 2½" DEPTH	2-24-79 (1)	4497
2689	832' SG	1¼" HILTY BOLT	2-24-79	
DO-1-003-093-S3SR	790' SG	NONE	MON 2-26-79 (4)	FLEX WALL
SW-1-010-002-S3SR	790 AUX	NONE	MON 2-26-79 (8)	FLEX FLOOR
SF-X-049-019-A5SR	845' 5"	5/8" HILTY BOLT	TUE 2-27-79	STAND OVERHE.
2689	832'	1¼" HILTY BOLT FINISHED	TUE 2-27-79 3 IN TOTAL.	WALL STAND
LAID OUT 2 PIPE HANGER FOR INST.			TUE 2-27-79	
SAX-019-019-A3SR	790'	NONE	WED 2-28-79 (4)	FLEX OVERH.
SAX-019-017-A3SR	790	NONE	WED 2-28-79 (8)	FLEX OVERH.
~~[illegible]~~ DAX-13-072-A5R	790	NONE	WED 2-28-79 (6)	FLEX WALL
CI-1-090-049-A3S	790	NONE	WED 2-28-79 (12)	FLEX WALL
CS-1-328-001-A6R	868'	CUT HILTY BOLT 5/8" FOR PIPE HANGER	THUR 3-1-79	

Left margin notes:

52 HOLES) WK ENDING 2-17-79

10 HOLES) WK ENDING 2-24-79 8 HILTY BOLTS DRILLED OUT

WK ENDING 3-2-79) 44 HOLES

PRINT NO # OR HANGER NO #	LOCATION ELV.	REBAR CUT +% DEPTH DIRECTION	DAY + DATE		CMT OR QCD
LAID OUT 2 HANGERS		FOR ERECTION	3-1-79		
SD-1-053-EY-A33R	B 32	100% CUT VERT AT 3½" DEPTH	MON 3-5-79	(1)	WALL
SD-1-053-EW-A33R	B 32	100% CUT VERT AT 3½" DEPTH	MON 3-5-79	(1)	WALL
DD-1-21-002 Y34D	790	NONE	MON 3-5-79	(2)	OVERH
SN-1-010-002-A33R	790	NONE	MON 3-5-79	(77)	FLOOR
SN-1-010-002-A33R	790	NONE	TUE 3-6-79	(43)	FLOOR
CA-1-005-003-E25R	778	NONE	TUE 3-6-79	(4)	
CC-1-42-032-A66R	B 32	TOOK DOWN TRE HUNG FROM ON OTHER WALL	TUE 3-6-79	(4)	
STAMPING HILTY BOLTS SHAS		FOR CABLE TRAY SUPPORTS	WED 3-7-79		
LAID OUT 2 PIPE HANGERS			WED 3-7-79		
	B10	NONE	WED 3-7-79		OVERHE
	778 TUNNEL	100% REBAR 4" DEPTH	THUR 3-8-79	(2)	FLOOR STAND
CW-1-032-001-KC5	C.W.1	NONE	THUR 3-8-79	(2)	FLEX BLOCK
SA-1-019-017-A35R	790 AUX	NONE	3-9-79	(1)	FLEX OVERHE
DD-1-003-080-Y33R	790 SG	NONE	3-9-79	(3)	FLEX OVERHE
DD-1-029-030-A35R	790 AUX	NONE	3-9-79	(2)	FLEX WALL
CL-1-116-007-F33R	778 FUEL	NONE	3-9-79	(2)	FLEX WALL
CL-1-116-005-F33R	778 FUEL	NONE	FRI 3-9-79	(2)	FLEX WALL
5339 DRILL OUT HILTY BOLTS REMOVE #2 1198		807' FOR CABLE TRAY SUPPORTS	3-9-79		(2 HILTYS)
DD-1-16-026-Y33R	790 PRO TUNNEL	DRILL OUT 2½" HILTY BOLTS	MON 3-12-79	(2)	2 HILTYS
491 + 492.	790 AUX	100% Running EW AT 2½" DEPTH	3-12-79	(1)	2052 WALL
491 + 492	790 AUX	25% Running NS AT 3½" DEPTH	3-12-79	(1)	2052 WALL
491 + 492	790 AUX	25% Running NS AT 3½" DEPTH	3-12-79	(1)	2052 WALL
DD-1-003-006 Y33R	YARD TUNNEL	NONE	3-12-79	(11)	WALL FLEX
3822-3762-4382	807 CONTROLL RM	DRILLING FLEX ON NONE CABLE TRAY SUPPORTS	3-13-79	(10)	OVERHEAD & BEAM FLEX
RICHARD	LEFT AT 12:00	JW RELOCATED PIPE	2-13-79 HANGERS SHAS 3-14-79		
3822-3762-4382	807 CONTROLL RM.	NONE		(6)	WALL + FLEX
S1-1-318-004-S55R	B32 SG	NONE	3-14-79	(2)	WALL FLEX
CC-1-042-034-J3SR	SG 790	NONE	3-15-79	(3)	FLEX OVERHEAD
REBAR CREW HANGING		HANGERS	3-15-79		
11	11	11	3-16-79		
10	11	11	3-17-79		

W/R ENDING 3-10-79 98 HOLES

W/R ENDING 3-17-79 3 DAYS 37 HOLES

	PRINT NO# OR HANGER NO#	LOCATION + ELV.	REBAR CUT DEPTH & DIRECTION	DAY + DATE	CMC OR DCDC
WK ENDING 3-24-79 126 HOLES 2 DAYS HANGING HANGERS & REWORKING	REBAR	CREW HANGING	HANGERS	MON 3-19-79	
	11	11 11	11	TUE 3-20-79	
	SF-X-049-027-A5SR	AUX 832 JUST	5 HRS WORKED NONE (4)	WED 3-21-79 (4)	OVERHEAD FLEX
	SF-X-049-029-A5SR	AUX 832'	NONE (8)	WED 3-21-79 (8)	OVERHEAD FLEX
	CA-X-064-003-A7SR	AUX 832'	NONE (18)	WED 3-21-79 (18)	OVERHEAD FLEX
	SFX-010-016-F4SR	FUEL	NONE	THUR 3-22-79 (10)	FLEX OVERHEAD
	CH-X-064-003 A7SR	AUX	NONE	THUR 3-22-79 (42)	FLEX WALL + F
	~~SF~~ CH-X-064-003 A7SR	AUX 876' 9"	NONE (19)	FRI 3-23-79 (19)	FLEX FLOOR
	SF-049-020-A5SR	AUX 848' 5"	NONE (6)	FRI 3-23-79 (6)	FLEX OVERHEAD
	CC-1-051-005-A4SR	AUX	NONE	FRI 3-23-79 1.	WALL HILTY BAR
	SB-1-057-003-A5SR	AUX	NONE	FRI 3-23-79 6.	FLEX FLOOR
	SB-1-057-002-A5SR	AUX	NONE	SAT 3-24-79 (8)	FLEX FLOOR
	SFX-061-013 A3SR	AUX	HILTY BOLTS DRILLED 10 BITS	SAT 3-24-79 (2)	FLEX WALL
WK ENDING 3-31-79 29 HOLES 3 DAYS HANGING & REWORKING PPL HANGERS	SFX 079-007 F4SR	FUEL HILTY BOLT DRILLED	NONE	MON 3-26-79 (2)	FLEX OVERHEAD 6100
	[redacted]	TURBIN 815' 5"	100% E+W AT 2" DEPTH	MON 3-26-79 (1)	STAND
	[redacted]	TURBIN 815' 5"	100% E+W AT 2" DEPTH	MON 3-26-79 (1)	6110
	[redacted]	TURBIN 815' 5	100% E+W AT 2" DEPTH	MON 3-26-79 - 0	6110
	[redacted]	TURBIN 815' 5	100% E+W AT 2" DEPTH	MON 3-26-79 - 1	6110
	CO-1-029-001 755				
	WA-X-485569-GMS	TURBIN 803	NONE	MON 3-26-79 FLEX (2)	FLEX
	CT-1-017-010-Y5SR	YARD TUNNEL	NONE	3-26-79 MON (4)	FLEX FLOOR
	CT-1-083-012-S2SR	S G	NONE	TUE 3-27-79 (13)	FLEX WALL
	C1-X-134-001-F4SR	FUEL	NONE	TUE 3-27-79 (4)	HILTY GUN - LAYED OUT
	HANGING HANGERS	5 HRS		TUE 3-27-79	
	HANGING HANGERS	5 HRS		WED 3-28-79	
	6118 ~~TUNNEL~~	TUNNEL 789' 1"	10% HORZ. 4" DEPTH (1)	WED 3-28-79	6118
	REWORK HANGERS	10 HRS		THUR 3-29-79	
START OF NEW RANGE?	REWORKING HANGER	10 HRS	NO TOMORROW ALL OUT.	MON 4-2-79	
WK END 4-7-79 41 HOLES	REWORKING HANGERS	10 HRS		TUE 4-3-79	
	11	11 11	TOM ON VACATION	WED 4-4-79	
			MIKIE ON NQTC FRED - MARILEE SICK,	WED 4-4-79	
	2-CW-2-074-003 H05			THUR 4-5-79 (4)	FLEX FLOOR

WK ENDING 4-7-79 41 HOLES

PRINT NO # OR HANGER NO #	LOCATION + ELV	REBAR CUT DEPTH + DIRECTION	DAY + DATE		CMC OR DCADA,
CW-1-030-051-H05	C.W.I	NONE	[redacted] THURS 4-5-79	(2)	FLEX FLOOR
CW-1-029-001-H05	C.W-I	NONE	[redacted] THUR 4-5-79	(4)	FLEX FLOOR
W2-269-002-H05	CW-I	NONE	[redacted] THUR 4-5-79	(2)	FLEX FLOOR
C1-1-015-050-A35R	AUX	WRONG LOCATION NONE	FRI 4-6-79	(1)	FLEX WALL
AF-1-048-059-S35R	SG	NONE	4-6-79	(3)	FLEX OVERHEAD
GS-1-034-037-A35R	AUX	NONE	4-6-79	(14)	FLEX WALL
DD-1-029-050-A45R	AUX	NUMB BUTTON HALF OF HANGER = DRILLED FINISHED HANGER 100% COMP.	4-6-79	(4)	STAND WALL
DD-1-029-050-A45R	AUX		4-7-79		STAND WALL
CW-1-032-001-H05 [redacted]	C.W.I.	NONE	4-7-79	(2)	FLEX FLOOR
CW-1-002-001-H05	C-W-I	NONE	4-7-79	(4)	FLEX FLOOR
CW-2 034-001 H05	C-W-I	NONE	4-7-79	(2)	FLEX. FLOOR

135 HOLES WK ENDING 4-14-79

CT-1-083-018-S35R	802' 6"	NONE	4-9-79	(1)	FLEX WALL
CC-1-042-010-S35R	802. 9"	NONE	4-9-79	(6)	FLEX WALL
CA-1-016-023-S35R	794' 3" SG	NONE	4-9-79	(2)	FLEX WALL
CT-1-017-038 S35R	800' 0 SG	NONE	4-9-79	(11)	FLEX WALL
CC-1-042-012-S35R	801.4½ SG	NONE	4-10 79	(5)	FLEX WALL
CH-1-001-026-S35R	832' SG	NONE	4-10-79	(14)	FLEX OVERHEAD [redacted]
GG-1-034-017-A35R	790 AUX	NONE	4-10-79	(20)	FLEX WALL
CT-1-083-009 S25R	778 SG	NONE	4-10-79	(3)	FLEX WALL
AC-1-048-068-S35R	790 SG	NONE	4-11-79	(10)	FLEX OVERHEAD [redacted]
SF-X-010-024-F45R	829' 8"	NONE	4-11-79	(2)	FLEX OVERHEAD
DD-1-055-022-A45R	824- AUX	NONE	4-11-79	(13)	FLEX WALL
CH-131-010-F45R	813'6" FULL	NONE	4-11-79	(6)	FLEX OVERHEAD
SF1-010-014-F45R	813'6" FULL	NONE	4-11-79	(6)	FLEX OVERHEAD
CC-1-043-005-A45R	810 AUX	NONE	4-12-79	(2)	FLEX WALL
CC-X-013-003-A75R	852 AUX	NONE	4-12-79	(1)	FLEX WALL
DD-1-029-040-A35R	790 AUX	NONE	4-12-79	(4)	FLEX WALL
C2-1-015-040-A35R	790 AUX	NONE	4-13-79	(2)	HILTY BOLTS
DD-1-029-047-A45R	810 AUX	NONE	4-13-79	(4)	FLEX WALL
DD-1-029-040-A35R	790 AUX	NONE	4-13-79	(1)	FLEX WALL
CA-X 061-013-A35R	790 AUX	NONE	4-13-79	(2)	DRILL OUT HILTY'S
SA-X-019-026-A05	790 AUX	NONE	4-14-79	(4)	FLEX OVERHEAD
GS-1-010-005T35Q	774 TURBINE	NONE	4-14-79	4	FLEX OVERHEAD

PRINT NO # OR HANGER NO #	LOCATION + ELV	REBAR CUT DEPTH + DIRECTION	# + DATE	CMC OR DCDOA
TO-1-005 012 -T310	778 TURBN	NONE	4-14-79 (3)	FLEX OVERHD
TO-1-034-000 T310	778 TURBN	NONE	4-14-79 (1)	FLEX OVERHD
TO-1-034-001 -T340	778 TURBN	NONE	MON 4-16-79 (3)	FLEX OVERHD
TO-1-000-014- T340	778 TURBN	NONE	MON 4-16-79 (4)	FLEX OVERHEAD
TO-1-001-005 T340	778 TURBN	NONE	MON 4-16-79 (4)	FLEX OVERHEAD
REBAR CREW WORKING ON		REWORK OF HANGERS	TUE 4-17-79	
1593	832 REACTOR	NONE	WED 4-18-79 15	FLEX WALL
1594	832 REACTOR	NONE	4-18-79 14	FLEX WALL
5800	832 REACTOR	NONE AT PLATE	4-18-79 1	FLEX OVERHEAD
SW-1-132-051-AH3R	810	NONE	4-19-79- 2	FLEX WALL
SW-1-129-039-AH3	810	NONE	4-19-79-2	FLEX OVERHEAD
SW-1-129-050-AH3R	810	NONE	4-19-79 2	FLEX WALL
SW-1-102-057-A3R	790	NONE	4-19-79 13	FLEX OVERHEAD
AF-1-048-066-S3SR	790	NONE	4-20-79 4	FLEX OVERHEAD
AF-1-048-059-S3SR	790	NONE	4-20-79 20	FLEX OVERHEAD
CC-1458 004-AH3S	810	NONE	4-20-79 3	FLEX WALL
SW-1-132-041-AH3R	810	NONE	4-21-79 19	FLEX WALL
CC-1-066-001-A33	790	NONE	4-21-79 2	FLEX OVERHEAD
SE-X-010-034-AH6R	810	NONE	4-21-79 2	FLEX OVERHEAD
WB-1-226-017-S3SR	778	NONE	4-23-79 (29)	FLEX OVERHEAD
WB-1-226-019-S3SR	778	NONE	4-23-79 (9)	FLEX OVERHEAD
5 HRS	HANGING HANGERS 2 MEN		4-22-79	
SE-1-041-001-S3SR	778	NONE	4-24-79 (2)	FLEX FLOOR
SW-1-129-015-SH3R	810	NONE	4-24-79 (16)	FLEX WALL
DD-1-029-019 SH3R	810	NONE	4-24-79 4	FLEX WALL
DD-1-12-021-Y33R	810 YARD WALL	NONE	4-25-79 2	FLEX OVERHEAD
CC-1-066-001-A33	790	NONE	4-25-79 2	FLEX OVERHEAD
CC-1-458-003-AH3R	810	NONE	4-25-79 2	FLEX WALL
DD-1-003-035-A33R	790	NONE	4-25-79 15	FLEX WALL
CC-1-012-031-S3SR	790	NONE	4-26-79 11	OVERHEAD
DD-1-019-003-S3SR	790	NONE	4-26-79 3	OVERHEAD
SD-X-015-004-AS3R	832	NONE	4-26-79 (4)	FLOOR
SD-1-014-001-AH3R	832	NONE	4-26-79 14	WALL

) FRIDAY MAY 4-4-79

110 HOLES

) WEDNESDAY 4-21-79

) WEDNESDAY 4-28-79

118 HOLES

PRINT NO # OR HANGER NO #	L... + ELV -	...EAR CUT DEPTH + DIRECTION	D... + DATE	... OR DCDDA
SW-1-... -021 F33R	... TUNNEL	DIRTY BOLT NONE 1	4-30-79 ①	STAND FLOOR
...-1-016-011 -A36R	796	DIRTY BOLT 2	4-30-79 ②	FLEX OVERHEAD
CS-2-044 -007 -A55	852	NONE	5-1-79 ④	FLEX OVERHEAD
AF-1-018 -068 -S35R	796	NONE	5-1-79 ④	FLEX OVERHEAD
AF-1-018 -057 -S35R	796	NONE	5-1-79 ④	FLEX OVERHEAD
HD-1-... -013 -T...	796	NONE	5-1-79 ⑤	FLEX FLOOR
HP-1-330 -008 -TS55	832 TURBIN	100% NHS 3½" DEPTH	5-2-79 ①	6189 FLEX
HP-1-330 -008 -TS55	832 TURBIN	100% NHS DEPTH	5-2-79 ①	FLEX 6189
SW-1-046 -007-T65R		NONE	5-2-79 – ④	FLEX WALL
S1-035 -053 -S...	796	NONE	5-2-79 – ④	FLEX WALL
3½ HRS	EVERY BODY LEFT DUE TO STORM		5-3-79 –	
SF-X -010 -018 -H5R	FUEL	NONE	5-4-79 ⑦	FLEX OVERHEAD
CP-X-001 -053 -A35R	805'	NONE	5-4-79 ②	FLEX WALL
CI-1-044 -042 CH6R	818'	NONE	5-4-79 ⑲	FLEX OVERHEAD
SP-X 063 009 -F55R	858' 0"	NONE	5-4-79 ⑪	FLEX WALL
AF-1-048-068 -S35R	804'	NONE	5-7-79 ②	FLEX OVERHEAD
DD-1-12 -021 Y33R	802' 6"	NONE	5-7-79 ②	FLEX OVERHEAD
SF-X-013-013 -A55R	839' 10"	NONE	5-7-79 ⑥	FLEX OVERHEAD
CC-1-017 -005 -AH3R	810	100% BAHNONS 3" DEPTH	5-8-79 ①	WALL 6198
CC-1-017 -005 -AH3R	810	100% BAHNONS 3" DEPTH	5-8-79 ①	6198
	REASTOF DAY HUNG HANGERS 5 HRS		5-8-79	
SFX-062-003-AH5R	810	½ DEPTH	5-9-79 ①	FLEX 6197
CT-1-083-009 -S25R	800' 6'	NONE	5-9-79 ①	FLEX
SW-2-001-012-F33A	796' 7"	100% HORZ 5" DEPTH	5-10-79 – ①	WALL 6405
SW-2-001-012-F33A	796' 7"	100% HORZ 6" DEPTH	5-10-79 – ①	6405 WALL
SW-2-012 -012-F33A	786' 2½"	100% HORZ 2½" DEPTH	5-10-79 – ①	6606 WALL
SW-1-012-016 -F33A	791- 6"	100% HORZ 7½" DEPTH	5-10-79 – ①	6605
(BAHNSON) S.W.I. EXHAUST PLENUMS	833' 7½"	100% HORZ	5-11-79 ①	6903
" " "	833' 7½"	100% HORZ	5-11-79 ①	6903
AF-1-048 -059- S35R	790'	NONE	5-15-79 - 1	FLEX OVERHEAD
AF-1-039 -001- S33R	790	NONE	5-15-79 - 9	FLEX WALL
~~AF-1-039-001- ST~~				
VO-1-049 -012 -S35R	790 -	NONE	5-15-79 - 6	FLEX WALL

WK ENDING 5-5-79

WK ENDING 5-12-79

	Point No. Hanger	Location + Elev.	Rebar Cut Depth + Direction	Day + Date	CMC or DCDD
5-19	SA-X-019-026-A3S	790	BROKEN HILTYS 2	5-16-79 - (1)	OVERHEAD [illegible]
	SF-Y-002-003-F3S	790	NONE	5-16-79 (1)	FLEX [illegible]
	NO	REBAR WORK	5-17-79	HANGING HANGERS	
5-26-79	NO	REBAR WORK	5-29-79	Hanging Hangers	
	[illegible]	REBAR [illegible]	5-30-79	[illegible]	
	[illegible]	[illegible]	5-[illegible]	[illegible]	[illegible]
	SW-2-132-004-A43R	810'	NONE	5-31-79 (2)	FLEX WALL
	NO	REBAR - FLEX	NON	6-1-79 [illegible]	
	C1-144-026-C46R	REACTOR-[illegible]	NONE	6-4-79 [illegible]	FLEX [illegible]
	CT-1-063-011-S3SR	790	NONE	6-4-[illegible]	FLEX [illegible]
	CC-2-070-002-A33R	790	NONE	6-4-79 - 25	FLEX [illegible]
	RH-1-063-004-S22R	778	NONE	6-5-79 8	FLEX [illegible]
	AF-1-028-001-S53R	742	NONE	6-5-79 4	FLEX [illegible]
	SW-1-013-005-A33R	790	NONE	6-7-79 3	FLEX [illegible]
	CH-1-235-002-S43R	810'	NONE	6-7-79 2	FLEX [illegible]
	SW-1-102-065-A41R	810	NONE	6-7-79 0	NOT [illegible] [illegible] FOR
6-16-79	CW-1-034-010-HOS	C.W.I.	NONE	6-11-79 (4)	FLEX [illegible]
	CW-1-273-001-HOS	"	NONE	6-11-79 (2)	"
	CW-2-037-011-HOS	"	NONE	6-11-79 (4)	"
	CW-2-032-100-HOS	"	NONE	6-11-79 (6)	"
	CW-1-095-001-HOS	"	NONE	6-11-79 (2)	"
	WP-1-043-006-C46R			6-12-79 5	OVERHEAD FLEX
	CS-2-031-002-A53R		DRILLED HILTY BOLT OUT NONE	6-12-79 (1)	
		DRILLED FOR	9 HANGERS	6-13-79	
	AF-1-078-001-S33R	S,G-790	100% N+S 6¼" DEPTH	6-14-79	CMC695
	AF-1-078-001-S33R		100% N+S 6½" DEPTH	6-14-79	" 695
	CC-1-051-001-A43R		100% E+W 2¾" DEPTH	6-14-77	" 695
	CC-1-051-001-A43R		100% E+W 2¾" DEPTH	6-14-77	695
	3822 CABLE TRAY	807 ELECT.	NONE	6-14-77	FLEX [illegible]
W.E. Ending 6-23-79	SFX-03-001-F45R	810 FUEL	NONE	6-18-79	FLEX DRILL WALL
	WORKING	DRILLING	HANGERS	6-19-79	
	CS-2-031-002-A53R	831 AUX	HILTY BOLT DRILLED	6-20-79	FLEX WALL
	CH-1-235-002-S43R	810 SG	NONE	6-20-79 (6)	WALL FLEX

	PAINT NO# OR HANGER NO#	LOCATION + ELV	REBAR CUT DEPTH + DIRECTION	DAY + DATE		CA... ... DEDD...
WK ENDING 6-23-79	SW-1-013-005-A33R	AUX 790	NONE	6-20-79	(5)	FLEX WALL
	HO-1-356-001-T45	TURBIN	NONE	6-20-79	(6)	FLEX FLOOR
	SI-1-037-001-S22R	SG 778	NONE	6-20-79	(2)	FLEX FLOOR
	SB-X-016-001-A55R	AUX 832'	NONE	6-21-79	(1)	FLEX OVERHEAD
	WORKING HANGERS –			6-25-79		
WK ENDING 6-30-79	CI-1-053-85	TURBIN 2" OWNER	NONE	6-26-79		WALL
	CI-1-053-86	" "	NONE	6-26-79		WALL
	CF-104	" "	NONE	6-26-79		FLOOR
	CF-103	" "	NONE	6-26-79		FLOOR
	CC-1-077-010-S33R	790	NONE	6-27-79	45	FLOOR
	RH-1-003-004-S32S	790	NONE	6-27-79	2	FLEX
	CC-2-021-009-A33R	790	NONE	6-27-79	4	FLEX
	CW-2-047-003-K05	CWI	NONE	6-28-79	2	FLEX FLOOR
	SB-1-060-021-S55R	SG	NONE	6-28-79	1	FLEX OVER H...
	54-202-244-858	TURBIN	NONE	6-28-79	2	FLEX WALL
WK ENDING 7-7-79	CV-1-053-152-9 78	TURBIN	↓	7-3-79	2	WALL FLEX
	79	↓	↓	7-3-79	2	FLEX WALL
	80	↓	↓	↓		↓
	81	↓	↓	↓	2	↓
	82	↓	↓	↓	4	↓
	83	↓	↓	↓	4	↓
					4	
	DD-1-029-030-A35R		NONE	7-5-79	1	FLEX WALL
	GS-1-034-040-A45R		NONE	7-5-79	13	FLEX WALL
			Hanging Hanger	7-6-79		
WK ENDING 7-14-79	SW-1-010-01-A33R	AUX	NONE	7-9-79	(41)	FLEX FLOOR
	CS-1-063-006-S22R	SG	NONE	7-10-79	(16)	FLEX FLOOR
	CS-1-063-008-S22R	SG	NONE	7-10-79	(8)	FLEX FLOOR
	HANGING TEMP HANGERS REACTOR #1			7-11-79		
	FOR PIPE DEPT 32" MAIN STEAM LINE			7-12-79		
	"	" "	"	7-13-79		Re...By ...
WK ENDING 7-21-79	"	" "	"	7-16-79		
	"	" "	"	7-17-79		
	"	" "	"	7-18-79		

PRINT NO # OR HANGER NO #	LOCATION + ELV'	REBAR CUT DEPTH DIRECTION	DAY + DATE	C OF DCA
CABLE TRAY 6465	790	NONE	7/19-79 (1)	WALL FLEX
CABLE TRAY 5338	807 CONTROL	NONE	7-19-79 (5)	WALL
SW-2-035-004 - J03R	CARRIED TO DRILL BY MIKE SPINNERS - S.W.I.	NONE !	FLOOR 7-23-79 (8)	FLOOR
SB-X-017-001 - A55R	860' 4"	NONE	7-25-79 (2)	FLEX OVER
CF 100 GRINNELL	830'. 0"	NONE	7-26-79 - (2)	FLEX FLO
SB-X-017-005-A55R	842'	NONE	7-26-79 (2)	FLEX OVER
SBX-017-004-A55R	842	NONE	7-27-79 4	FLEX OVER
SW-1-026-001 - J03A	806'3"	NONE	7-27-79 - 4	WALL FL
CC-1-007-039 - A63R	869'4"	NONE	7-27-79 (2)	WALL FLE
CC-1-007-036-A63R	868' 10"	NONE	7-30-79 (2)	FLEX WALL
SBX-017-002 - A55R	848' 0"	NONE	7-30-79 (4)	FLEX OVER
38.22 CABLE TRAY	807'	NONE	7-30-79 (1)	FLEX WALL
NO DRILLING	CLEAN & REPAIR EQU.		8-1-79	
SI-035-054 S35R	807'	NONE	8-2-79 (9)	FLEX WALL
3284	807 ELEC CONTROL	NONE	8 2 79 (1)	FLEX WALL
5358	807 "	NONE	8 6-79 (9)	FLEX WALL
H CC-1-SB017-23	778 AUX	NONE 3" DEPTH	8 6-79 (2)	FLEX WALL
CONDUIT HANGER SUPPORT	832 AUX	10% MORE 3" DEPTH	8-8-79 (1)	WALL FLEX
" " "		100% MORE 3" DEPTH	8-8-79 (1)	WALL DCA
" " "		100% MORE 3" DEPTH	8-8-79 (3)	WALL DCA
		100% MORE	8-8-79 (1)	WALL DCA
CCX-044-003-F43R			(2)	
CCX-038-002-F43R			(2)	
CCX-038-003 F43R			(3)	
5658			(2)	
H-64-X-SB-024 #7	832 AUX	NONE	8-15-79 (1)	FLEX
SW-1-032-072-S43R	811' 3"	NONE	8-16-79 (9)	FLEX W
CH-1-235-011-S43R	824' 6"	NONE	8-16-79 (2)	FLEX WA
CC-1-028-019-S33R	906' 56	NONE	8-21-79 (2)	FLEX WALL
AF-1-001-011-Y33R	800' 6" TRAY	NONE	8-21-79 (8)	FLEX WAL
AF-1-001-010-Y33R	800'6"	NONE	8-23-79 2	FLEX - WA
CABLE TRAY	ELEC CONTROL 807.	NONE	8-23-79 (2)	FLEX ON WALL

PART NO. OR HANGER NO.	LOCATION ELV.	REBAR CUT DEPTH & DIRECTION	DAY & DATE	C-C OF DCODA
CC-1-193-004-C525	REACTOR #1	NONE	8-24-79 (2)	FLEX WALL 2
DD-1-017-008-A33R	AUX 790	3" 100% 3" DEPTH	8-24-79 (1)	DCA-537
DD-1-017-008-A33R	AUX 790	3" DEPTH 100%	8-24-79 1	DCA-537
SW-X-007-001-J03R	810-SWZ	NONE	8-27-79 (6)	FLEX WALL
SFX-068-002-F43R.	790 FUEL	NONE	8-27-79 1	FLEX OVERHEAD
1957	835' 4"	100% HORIZ 5" DEPTH	8-28-79 (1)	DCA 5410
1957	835' 4"	100% HORIZ 5" DEPTH	8-28-79 (1)	5410
1957	835' 0"	75% HORIZ 5" DEPTH	8-28-79 (1)	5410
SW-X-012-008-J03R	SWZ	NONE	8-29-79 (1)	FLEX DRILLED OUT N
2650 CABLE TRAY	8[illegible] CNI	NONE	8-30-79 (6)	FLEX SIDE OF BRA
6041 CABLE TRAY	REACTOR 2#	NONE	9-13-79	FLEX BEAM
6042 " TRAY	"	"	"	" "
6043 " "	"	"	"	" "
6043 " "	"	"	9-17-79 1	FLEX BEAM
3412 " "	SG 832'	BROKE HILTI BOLT	9-18-79 1	COLUMN 12"
[illegible]	[illegible]	NONE	[illegible]	FLEX DIDN'T HILTI
CC-1-057-10-AUX	AUX 790	NONE	9-20-79 4	FLEX WALL
CC-1-[illegible]-A33R	AUX 790	NONE	9-20-79 2	FLEX WALL
CC-1-[illegible]-A33R	AUX 790	NONE	9-21-79 1	FLEX WALL
CC-1-[illegible]	AUX 832	NONE	9-21-79 11	FLEX WALL
CH-X-047-003-A75R	AUX 873	NONE	10-2-79 2	FLEX WALL
CH-X-001-016-A75R	AUX 873	NONE	10-2-79-2	FLEX WALL
CH-X-0093-001-A75R	AUX 873	NONE	10-2-79-2	WALL FLEX
CC-1-007-031-A53R	AUX 831'6"	NONE	10-3-79-11	FLEX WALL
CC-1-156-004-A63R	AUX 832'6"	NONE	10-3-79 4	FLEX WALL
CABLE TRAY 3940	50 790	NONE	10-3-79-4	FLEX WALL
CHH-NC-1-09-C33 #8-3	D.GEN.	NONE	10-4-79-1	FLEX WALL
SW-1-026-007-J03R	SW1	NONE	10-4-79-1	FLEX WALL
3934 CABLE TRAY	854 AUX	NONE	10-5-79	FLEX WALL
CC-X-039-006-F43R	810	NONE	10-9-79	FLEX WALL
CC-1-116-013-F43R	810	NONE	10-9-79	FLEX OVERHEAD
ELECT DUCT -	807 ELECT CONTROL RM	[redacted] 10-70 3½" DEPTH N&S	10-9-79	FLOOR OCA-5854
CA-1-028-016-CW6R	806-R#1	DRILLED ISRODE HILTY OUT	10-17-79	WALL STAND

TERMINATED BECHTEL & ROOT EMPLOYEES

NAME	DATE TERMINATED	PRIOR POSITION
Richard Asevado	8/)5/82	Pipe Hangers
Kenneth H. Evans	1/21/82	Welding Technician
Hal Goodson	11/01/82	Pipe Hangers
Joe Gray	1/27/83	Pipe Welder
Louis Hale	8/10/79	Pipe Hangers
Rusty Hamilton	6/07/82	Structural Iron Worker
Larry Haney	8/02/79	Pipe Hangers
Gary Hill	7/09/82	Structural Iron Worker
Barry Kerfoot	3/22/79	Pipe Hangers
Paul Latham	10/14/82	Pipe Hangers
Richard Montjar	6/02/82	Pipe Hangers
Jackie Moore	8/30/79	Pipe Hangers
Charles R. Phillips	5/21/82	Structural Iron Worker
Mike Robinson	8/27/79	Pipe Welder
Glen Southard	7/09/80	Pipe Hangers
J. W. Strickland	8/22/79	Structural Iron Worker
Joe Williams	4/21/80	Pipe Hangers
Tim DeSpain	termination date unknown	Pipe Hangers

ATTACHMENT (3)