UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

MAY 1 3 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR

FROM: R. F. Warnick, Director, Office of Special Cases

SUBJECT: RECOMMENDATION FOR NOTIFICATION OF LICENSING BOARD

In accordance with present NRC procedures regarding Board Notifications, the following information is being provided as constituting new information relevant and material to the Midland OM/OL proceedings. This information deals with the licensee's May 9, 1983 decision to stop Remedial Soils work due to violations of applied Hold Tag requirements.

The pertinent facts that relate to the stop work are as follows:

1. On May 6, 1983, MPQAD issued a nonconformance report (NCR) to document drift set deficiencies identified on previous Remedial Soils installations. As a result of the NCR, Hold Tags were applied.

2. On May 7, 1983, MPQAD issued an NCR to document drift set deficiencies identified during installation of pier KC-2 (East). As a result of the NCR, Hold Tags were applied.

3. On May 9, 1983, the licensee determined that work had continued on pier KC-2 (East) despite the presence of the Hold Tags. An additional NCR was issued to document the Hold Tag violations. At noon on May 9, 1983, the Field Soils Organization (FSO) stopped Remedial Soils work activities due to the Hold Tag violations. Although a formal Stop Work Order was not issued, 53 workers were sent home.

4. At 8:00 a.m. on May 10, 1983, the licensee resumed Remedial Soils work activities. The resumption of work was allowed after a resolution of differences between MPQAD and FSO pertaining to the significance of NCR's and Hold Tags. The NRC was informed of the Remedial Soils stop work by Stone and Webster (S&W) personnel during their meeting with the Midland Resident Inspectors to discuss the monthly S&W report of Remedial Soils work activities.

8310210108 XA

If you have any questions or desire further information regarding this matter, please call me.

J. J. Harrison for

R. F. Warnick, Director
Office of Special Cases

cc: A. B. Davis
J. J. Harrison
R. N. Gardner
R. B. Landsman
R. J. Cook

UNITED STATES
CLEAR REGULATORY COMMISSIC
WASHINGTON, D. C. 20555

(2) Bd. Not. Re: Midland

July 27, 1983

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Docket Nos. 50-329 OM,OL
50-330 OM,OL

MEMORANDUM FOR: The Atomic Safety and Licensing Board for the Midland Plant, Units 1 and 2

FROM: Thomas M. Novak, Assistant Director for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

SUBJECT: BOARD NOTIFICATION 83-109

This notification transmits the NRC staff plan to address the concerns of Dr. Ross Landsman regarding the structural adequacy of the Midland Diesel Generator Building.

Enclosure 1 discusses the Region III and NRR activities while Enclosures 2 and 3 provides Dr. Landsman's concerns and a detailed NRR action plan. The schedules in Enclosure 3 may improve but the basic approach is being implemented.

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosures: As stated

cc: Licensee/Boards Service List
SECY
OPE
OGC

AUG 4 1983

SPP

8308120198

MIDLAND (For BNs)

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Vice President
Consumers Power Company
1945 West Parnall Road
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ATTN: Dr. Steve J. Poulos
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Winchester, Massachusetts 01890

UNITED STATES OF AMERICA
NUCLEAR REGUALTORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING APPEAL BOARD

In the Matter of	)	
	)	
CONSUMERS POWER COMPANY	)	Docket Nos. 50-329 OM & OL
	)	50-330 OM & OL
(Midland Plant, Units 1 and 2)	)	

CERTIFICATE OF SERVICE

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Docket Nos. 50-329/330

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 27, 1983

MEMORANDUM FOR: James G. Keppler, Regional Administrator, Region III
Richard H. Vollmer, Director, Division of Engineering

FROM: Darrell G. Eisenhut, Director, Division of Licensing

SUBJECT: EVALUATION OF LANDSMAN CONCERNS REGARDING DIESEL GENERATOR BUILDING AT MIDLAND

At the recent hearing before Congressman Udall's committee, Region III inspector Dr. Ross Landsman expressed his continuing concern regarding the structural adequacy of the diesel generator building at the Midland facility, specifically, that in his view, the building is not structurally sound. A similar concern was recently raised by Dr. Landsman in his testimony before the Atomic Safety and Licensing Board in the Midland proceeding. Following the Udall hearing, we assured the committee that we would further consider Dr. Landsman's views. As we have discussed, the Staff now needs to undertake certain actions to accomplish this.

For Region III:

To my knowledge, Dr. Landsman has never documented his specific concerns regarding the structural adequacy of the DGB. In order for the staff to undertake an appropriate review, this is a necessary first step. Accordingly, we ask that Dr. Landsman be requested to document his concerns in as specific a manner as possible on a priority basis and that you send them to us by July 15, 1983.

For Division of Engineering:

Following that, the Division of Engineering, NRR, should perform an expedited review of his concerns so that a timely response to Congress can be prepared. This effort should be performed by appropriate individuals to assure both the thoroughness and objectivity of the review. We request that this effort be completed by August 5, 1983. Of course, DE should also determine whether any of its reviewers assigned to the Midland project share Dr. Landsman's or other concerns regarding the structural adequacy of the DGB.

In light of the fact that the hearing process is continuing, I intend to advise the Board and parties of the efforts undertaken.

Darrell G. Eisenhut, Director
Division of Licensing

cc: H. Denton
R. DeYoung
E. Christenbury

8308120208

ENCLOSURE 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUL 21 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR

FROM: R. F. Warnick, Director, Office of Special Cases

SUBJECT: EVALUATION OF DR. LANDSMAN'S CONCERNS REGARDING THE DIESEL GENERATOR BUILDING AT MIDLAND

As requested in your memorandum dated June 27, 1983, Dr. Landsman has documented in the enclosed memorandum his concerns with the Midland diesel generator building.

When the NRR review of Dr. Landsman's concerns has been completed, we believe all of the related correspondence and the resulting report(s) and documentation should be placed in the public document room and distributed to those on NRC's standard Midland distribution list.

Let me know if you have any questions.

RF Warnick
R. F. Warnick, Director
Office of Special Cases

Enclosure: As stated

cc w/encl:
R. Vollmer
H. Denton
R. DeYoung
E. Christenbury

8308120213

ENCLOSURE

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUL 19 1983

MEMORANDUM FOR: R. F. Warnick, Director, Office of Special Cases

THRU: J. J. Harrison, Chief, Section 2, Midland

FROM: R. B. Landsman, Reactor Inspector

SUBJECT: DIESEL GENERATOR BUILDING CONCERNS AT MIDLAND

At the recent hearing before Congressman Udall's subcommittee, I expressed my concern regarding the structural adequacy of the diesel generator building because of numerous structural cracks that have occurred throughout the building over the years. I also expressed the same concern during the recent ASLB hearings. Mr. Eisenhut has requested me to document the basis of my concerns about the building so an independent review group can analyze them.

My first concern deals with the finite element analysis that Consumers Power Company (CPCo) used to show that the building is structurally sound. Their model of the building assumed a very rigid structure without any cracks. The building has numerous cracks, reducing the rigidity of the structure. The effects of these cracks have not been taken into account in the analysis. CPCo's interpretation of the settlement data as a straight line approximation always stems from their position that the building is too rigid to deform as indicated by actual settlement readings. The settlement of the building occurred over a period of time during different phases of construction. It is this time dependent effect that was also not used in their model. Even CPCo expert Dr. Corely testified at the ASLB hearings that the analysis should have "taken into account cracking and time dependent effects" in order to give correct results. Finally, the staff's official position, as stated by Dr. Schauer, on CPCo's analysis was, "The staff takes no position with regard to that analysis."

My second concern deals with the acceptance of the diesel generator building in the SSER #2 which was subject to the results of an analysis to be performed by the NRC consultants using the actual settlement values. The consultants testified at the ASLB hearing that this analysis gave unacceptable results and this portion of the SSER should be stricken. They are basing their unacceptable results and comments on their finding of

very high stresses obtained in areas where no cracks exist. Therefore, the actual settlement values are not accurate enough (are in error) to be used in an analysis. The consultants, as well as CPCo, ran a linear analysis (structure always in the elastic range) instead of a plastic analysis which would allow a redistribution of loads in the structure. Therefore, supposed areas of high stress, where cracks are not located, may not exist due to redistribution of loads. Finally, the staff's official position, as stated by Mr. Rinaldi, on this analysis as performed by the consultants, was that the actual settlement values could not be relied upon to determine if the diesel generator building meets regulatory requirements.

My third concern deals with the fact that we are not following normal engineering practice in accepting the building by using a crack analysis approach because there is no practical method available today to analyze a complex structure with cracks in it. The basis of this concern is that there are no formulas available that can estimate stresses in a complex stress field like those which exist in this building. Thus, the evaluation of the structure based on the staff's crack analysis using empirical unproven formulas to determine the rebar stresses is unacceptable.

My fourth concern deals with the staff accepting the building by relying on a crack monitoring program to evaluate the stresses during the service life of the building. If cracks exceed certain levels, recommendations will be made for maintaining the structural integrity of the building. The basis for my concern deals with the lack of crack size criteria and the lack of formulated corrective action to be taken when the allowed crack sizes are exceeded.

These concerns which I have just enumerated are also shared by members of Mr. Vollmer's engineering staff, as well as their consultant. These concerns were documented in the ASLB hearing transcripts of December 10, 1982, prior to my ever expressing my concerns before the ASLB hearing or Congressman Udall's subcommittee.

In summary, since it is impossible to analyze this severely cracked structure to the total staff's approval, I recommend some remedial structural fixes be undertaken to ensure the structural integrity of the building to provide an adequate margin of safety.

Ross B. Landsman

Ross B. Landsman
Reactor Inspector

cc: DMB/Document Control Desk (RIDS)

ENCLOSURE 3

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

JUL 21 1983

MEMORANDUM FOR: Darrel G. Eisenhut, Director
Division of Licensing

FROM: Richard H. Vollmer, Director
Division of Engineering

SUBJECT: EVALUATION OF LANDSMAN'S CONCERNS REGARDING DIESEL GENERATOR BUILDING AT MIDLAND

Responding to your memorandum, subject as above dated June 27, 1983, J. Knight, Assistant Director for Components & Structures Engineering, has formed a task group to re-evaluate the structural design and construction adequacy of the Midland Diesel Generator Building. The group, headed by Dr. P. T. Kuo, will review the design review documents and the construction reports; physically inspect the building; search out and interview concerned individuals, including Mr. Landsman; and prepare a final report on the adequacy of the Midland NPP Diesel Generator Building. The particulars of the groups' composition and charter are developed in more detail in the attached document. Note that we intend to use a consultant in a capacity to critique our findings on Mr. Landsman's concerns. The consultant's views will be provided in our report.

Richard H. Vollmer, Director
Division of Engineering

cc: H. Denton
J. Knight
J. Keppler
T. Novak
E. Adensam
G. Lear
P. Kuo
F. Rinaldi
D. Hood

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IMPLEMENTATION CONCEPT

REVIEW OF THE MIDLAND NPP

DIESEL GENERATOR BUILDING

1. MISSION

A review will be conducted as to the structural adequacy of the Midland NPP diesel generator building. All information available from NRC regional inspectors in this matter will be obtained and the impact of that information will be fully considered in the review.

2. BACKGROUND

The NRC structural engineering staff (headquarters) has reviewed the Midland NPP diesel generator building's engineering design and construction and has indicated that the building is structurally adequate to resist its design loads. However, during hearings before a NRC Congressional Oversite Committee, the structural adequacy of the Midland NPP diesel generator building was questioned by an NRC employee, Mr. Ross Landsman, a Region III site inspector for the Midland project. It is considered prudent that a review be undertaken by a technical group to assure that Mr. Landsman's concerns are fully heard and carefully evaluated so that the adequacy of the diesel generator building may be further assured.

3. ORGANIZATION

The review group is composed of four technical members -

a group leader, two team members from the structural review staff and a structural consultant. The consultant will be asked to provide his critique of Landsman's concerns and our findings directly into the final report.

4. SUPPORT

The NRC structural review staff will provide the background technical studies, reports, and other review materials that formed the basis for their review and technical conclusions. The NRC project staff for the Midland NPP will provide general administrative arrangements to facilitate the review. Region III will provide a complete listing of Mr. Landsman's concerns.

5. SCOPE OF EFFORT

The efforts of the review group may include but will not be limited to 1) review of all pertinent technical materials, 2) on-site inspection of the diesel generator building, 3) on-site interviews with all inspection personnel that have information to contribute and 4) preparation of a technical report summarizing their activities, considerations and findings. The report will include, as a separate attachment, the opinion of the consultant group member.

6. TIMING

Review activities should be completed NLT 30 working days after receipt of a written statement of Mr. Landsman's concerns and the final report will be due to the Director, DE NLT 15 working days after completion of the review.

7. DESIRED PRODUCT

The desired final report of the review is a report that discusses each of Mr. Landsman's concerns, as well as any other concerns that might be offered during the review, and provide a basis for acceptance or rejection of each concern. A technical review of the adequacy of the diesel generator building should then be presented that is reflective of the groups' final recommendations in this matter in light of new information furnished by Mr. Landsman and others.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUN 29 1983

Docket No. 50-329
Docket No. 50-330

Consumers Power Company
ATTN: Mr. D. Miller
Site Manager
P. O. Box 1963
Midland, MI 48640

Dear Mr. Miller:

The NRC has completed a review of the Zack Company welding procedures and welder performance testing.

This review, which was conducted by the Senior Resident Inspector, consisted of the following:

(1) A review of the welding procedures to assure compliance with the American Welding Society Standards

(2) Observation of a representative sample of welders performing welding activities in the shop and field to those procedures

(3) A review of the result of the destructive testing of the welding specimens

Based on the results of this review you are authorized to proceed with the fabrication and welding of Heating, Ventilation, and Air Conditioning (HVAC) systems.

Should you have any questions do not hesitate to contact me.

Sincerely,

J. J. Harrison

J. J. Harrison, Chief
Midland Section

cc: See attached distribution
list

1P

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Bd Not. file

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUL 21 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR

FROM: R. F. Warnick, Director, Office of Special Cases

SUBJECT: RECOMMENDATION FOR NOTIFICATION OF LICENSING BOARD

In accordance with present NRC procedures regarding Board Notifications, the following information is being provided as constituting new information, some of which is relevant and material to the Midland OM/OL proceedings.

A. This information deals with the licensee's July 11, 1983, decision to stop all Service Water Pump Structure (SWPS) related dewatering well drilling. The pertinent facts that relate to the stop work are as follows:

1. On July 9, 1983, Bechtel Construction stopped drilling on well #521 when an obstruction was encountered at approximate elevation 619.5 feet. The licensee thought that the obstruction was most likely bedding material for a non-Q prestressed concrete pipe connecting the service water system to the cooling tower.

2. On July 9, 1983, Bechtel Construction stopped drilling on piezometer #LS-7 when an obstruction was encountered at approximate elevation 614.5 feet. The licensee thought that the obstruction was most likely the mud mat from an electrical duct-bank.

3. On July 11, 1983, the NRC was informed of these two incidents by a conference call from the licensee. Midland Project Quality Assurance Department (MPQAD) decided to issue a formal stop work on all SWPS drilling after these discussions.

At the current time all drilling around the SWPS remains stopped pending the licensee's completion of their corrective action to preclude recurrence. The events and the licensee's corrective actions are described in the attached letter from Mooney to Harrison, dated July 15, 1983.

3P

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B. There appears to be a continuing lack of attention to detail in the implementation of the remedial soil/underpinning programs. This is illustrated by the latest Stone and Webster weekly report No. 41, which is attached. The report indicates problems such as untimely resolution of outstanding NCR's, not meeting the intent of design drawings by extending the slope layback under the electrical penetration area (EPA), and not keeping the number of attached changes to a design drawing within workable limits.

On July 13, 1983, the Region III staff performed an inspection of the matters described in paragraphs A. and B. above and questioned why soils work should continue. The licensee's response, dated July 15, 1983, to these questions is attached.

On July 20, 1983, subsequent to the licensee response, the NRC was informed that well #521 had indeed been drilled through the concrete pipe and not into the bedding material as originally thought.

C. On June 29, 1983, following a review by the Senior Resident Inspector of welding procedures and observation of welding performance demonstrations, the NRC authorized the resumption of safety-related welding work on the Heating, Ventilation, and Air Conditioning systems. The work was initially stopped November 30, 1982, after a licensee audit determined that the quality assurance program for welder qualification and welding procedure qualifications was inadequate. A copy of our authorization letter is attached.

D. Although this is not a safety concern, the following information is provided to keep the Board informed. The lead welding engineer for remedial soils work allegedly instructed a welding rod room attendant to change the rod return time on a number of weld rod withdrawal slips to conform to site requirements. Bechtel, when learning of the alleged falsification, investigated, and fired the engineer on June 29, 1983.

The inspectors determined there was no safety significance to this incident. The welding rods, even though outside the heating ovens for an extended period, were kept by workmen in small portable warming ovens. In addition, the rods were used in the welding of structures considered temporary.

E. Consumers Power Company informed Region III that Dow Chemical Company is attempting to terminate its contract with Consumers Power Company to supply process steam to Dow's Midland facility from the Midland Nuclear Power Station. On July 14, 1983, Dow announced it was filing suit seeking a court judgment that all Dow's obligations under the contract be cancelled "because of CPCo's misrepresentations and

non-disclosures . . . and CPCo's inability to complete the Midland Nuclear Plant within any reasonable time and at a reasonable cost." CPCo notified the region that they planned to formally notify the Board in the near future.

If you have any questions or desire further information regarding this matter please call me.

"Original signed by R. F. Warnick"

R. F. Warnick, Director
Office of Special Cases

Attachments: As stated

cc w/o attachments:
A. B. Davis
J. J. Harrison
R. N. Gardner
R. B. Landsman
R. J. Cook
B. L. Burgess

OFFICE ▶	RIII						
SURNAME ▶	Landsman/ls	Gardner KMR	Harrison JJH	Warnick RFW			
DATE ▶	7/21/83		7/24/83				

NRC FORM 318 (10-80) NRCM 0240 OFFICIAL RECORD COPY

~~Orig~~
③ File

J A Mooney
Executive Manager
Midland Project Office

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-0774

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OL		FILE	

July 15, 1983

Mr J J Harrison
U S Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

MIDLAND ENERGY CENTER GWO 7020
RESPONSE TO NRC REGION III QUESTIONS
OF JULY 14, 1983 MEETING
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6792
12*32

On July 14, 1983, the Region III Staff raised certain questions relating to drilling of the soil in the area of the Service Water Pump Structure, technical problems encountered in the drilling of Wells #502 and #503, the procedure for drilling in "Q" concrete, and certain comments in the Stone and Webster "Independent Assessment Report No. 41". The Staff requested that the Company respond in writing to these questions. The Staff also asked that the Company provide justification for continuing soils work in light of the above questions.

Although the Company recognizes the significance of the Staff's concern, we believe that the clarifications and proposed corrective actions provided in this response will satisfactorily resolve these concerns. The following explains the nature of the problems, answers the Staff's questions as we understand them, and provides a more detailed justification for continuing soils work.

ITEMS RELATING TO SERVICE WATER PUMP STRUCTURE

NRC Region III Staff requested information relating to the drilling of Well #521 and Piezometer #LS-7 in the vicinity of the Service Water Pump Structure.

24PP

~~8307210248~~

JUL 18 1983

Well #521 is a dewatering well near the Service Water Pump Structure. An excavation permit was properly obtained and executed in accordance with all applicable procedures before well drilling began. The location of the well was surveyed, verified and marked, as were underground utilities in the vicinity of Well #521. The drill rig was set up on a stake marking an underground utility rather than the stake designating Well #521. Spencer, White and Prentis and Bechtel Field Engineers verified this as the proper location. Quality Control verified that the drilling rig was positioned within allowable tolerances relative to this stake. When drilling proceeded, an obstruction was encountered at approximately elevation 619.5 feet. Drilling was stopped and gravel was found in the drill bit. It has been determined that the obstruction is most likely bedding material for a non-Q prestressed concrete pipe connecting the service water system to the cooling tower. It is not known whether the pipe itself was hit. An investigation is planned to inspect the pipe for damage.

In the case of piezometer #LS-7, drilling also occurred at a wrong location, as a result of misinterpreting a Field Change Request (FCR). Again, the excavation permit system procedures were followed. Prior to drilling, the field organization submitted an FCR to Project Engineering, asking for a change in the location of this piezometer, along with other wells, to avoid interferences with underground utilities and soldier piles. Project Engineering approved certain relocations, revised some proposed relocations, and added additional relocation. When the FCR came back from Project Engineering approved, the Field Engineers and QC inspector failed to notice the revised location for piezometer #LS-7 made by Project Engineering. As a result, the piezometer was drilled in an incorrect location.

As previously indicated, the excavation permit procedures were followed in the above two incidents. We believe that the incidents resulted from work processes which, although basically adequate, were not specific enough to avoid error. Corrective actions are as follows:

A. We are establishing a new procedure for identifying location markers. Markers for utilities or obstructions will be a different color from those marking drilling location. All responsible personnel will be trained in this procedure before further drilling is implemented.

B. We are requiring Bechtel Field Engineers to verify and sign for drill rig locations before drilling commences. These individuals will be responsible, on a single point basis, for making sure drilling occurs at the correct location.

C. Bechtel Field Engineers will be required to be present during field operations.

D. Spencer, White and Prentis (SW&P) has been directed to provide additional personnel to assure full coverage of field operations.

E. The PQCI's will be expanded adding clarity to the related inspection activities. This will require the QCE to compare coordinates on the location marker to design documents.

F. Bechtel and SW&P Field Engineers and QCE's will be trained to the new requirements established above.

The Staff also questioned why an MPQAD stop work order was not issued on Saturday, July 9, 1983 when drilling at an incorrect location for Well #521 was first discovered.

The incident relating to hole #521 resulted from a mistake by the Field Engineers in identifying the field markings for the drilling location. The excavation permit system and other applicable procedures were followed. Past work has been successfully carried out using the same procedures which were in place for this Well. After the incident was discovered, Bechtel Construction took immediate corrective action by stopping drilling and resurveying the location markers in the vicinity. Although we recognized the seriousness of this incident, particularly in light of the past drilling problems at Midland, MPQAD did not feel that the incident alone warranted a stop work order.

The second incident, relating to Piezometer #LS-7 was discovered on Monday, July 11, 1983. The actual drilling began on Saturday, July 9, 1983. Shortly after discovering that the drilling was at the wrong location, a verbal directive stopping all SWPS related drilling was issued. A written direction followed that afternoon.

The two different location errors, although caused by different circumstances, indicate that issues existed which must be resolved prior to continuing drilling by Spencer, White and Prentis. The stop work order would have been issued by MPQAD on this basis alone, regardless of whether the NRC discussions had occurred on July 11, 1983. The corrective action described above will be in place before affected drilling work resumes.

TECHNICAL PROBLEMS ENCOUNTERED IN THE DRILLING OF WELLS #502 and #503

During the process of drilling dewatering Well #502, problems were encountered with materials caving into the hole. Because of our inability to keep the hole open, we decided to abandon this well.

Dewatering Well #503 was started approximately the same time that problems with Well #502 were experienced. Dewatering Well #503 has not experienced problems similar to those noted for Well #502. Nevertheless, because the two wells are only five feet apart, we suspended drilling on Well #503, and conducted a technical evaluation of alternatives for completing wells in that area. An acceptable approach towards completing Well #503 in accordance with existing procedures has been determined.

To avoid caving of holes in this area, future holes will be drilled using one of the following methods: (1) Use of a "Becker" hammer drill, which allows the hole to be cased and drilled at the same time, or (2) Use of smaller diameter wells similar to those used in the interior of the SWPS. We believe either of these methods will solve the problem relative to the dewatering wells on the east side of the SWPS.

PROCEDURES FOR DRILLING IN Q-CONCRETE

The NRC was presented with information during the July 14, 1983 meeting pertaining to a stop work order concerning drilling in Q-concrete. PQCI C-1.60, Rev. 6, Concrete Drilling and Cutting of Reinforcing Steel, was considered inadequate to cover inspection of concrete drilling for work performed by FSO Direct Hire Work Forces. A recent FCR (C-5880 to Specification C-231) allows holes to be drilled in "Q" concrete and does not require QC inspection when a ground fault detector and carbide bit are used. The present PQCI revision does not require QC verification of these attributes; it only requires sampling inspection to be performed for drilling in "Q" listed concrete and block walls.

A stop work order for concrete drilling by FSO Direct Hire Work Forces was required until the PQCI could be revised and implemented. The PQCI's applicable to Mergentime and SW&P work requires 100 percent QC inspection and are not affected by this FCR.

The PQCI is being revised to require verification of the drilling method utilized in "Q" concrete and block walls. This PQCI will be revised prior to resuming work.

Further, a QAR is being issued by MPQAD to evaluate the impact of the PQCI's use for drilled holes in the balance of the plant and whether corrective action is required for previous work performed. Concrete drilling inspection plans for HVAC and B&W will also be evaluated for adequacy as a close-out to this QAR.

STAFF CONCERNS WITH STONE AND WEBSTER COMMENTS IN REPORT NO. 41

The Region III Staff expressed concerns over a number of items noted by Stone and Webster in the "Independent Assessment of Underpinning Report No. 41." The company's response to those concerns is as follows:

A. Page 3 - Quality Control, Documentation and Records

Concern: Timely resolution of outstanding NCR's continues to be a nagging problem.

Response: A discussion was held with the Region III Staff relative to the number of NCR's issued and time required for resolution (Attachment 1). A program is in place to identify adverse trends and take corrective action. Significant improvements have been realized as evidenced by the attached charts and considerable emphasis is being placed in these areas by all Soils Remedial Organizations to improve the results. Personnel have been assigned the responsibility in each action organization to coordinate responses and make sure that follow-up commitments are made within their respective organizations. Action is also taken during the Weekly Project Soils Management Meetings, as required, to assure continuing improvement in addressing quality items and closure of NCR's.

B. Item 3 - Notes of 6/27/83 Meeting

Concern: Use of dry-pack grout for pier leveling plates in lieu of pressure grout.

Response: Dry-pack grout is used for temporary pier leveling plates. As previously discussed with the staff, pressure grouting will be used for all permanent pier leveling plates.

C. Item 4 - Notes of 6/27/83 Meeting

Concern: Use of superplasticizer concrete.

Response: As previously agreed, CPCo will submit the concrete mix design using superplasticizer and receive NRC concurrence prior to using this mix.

D. Item 7 - Notes of 6/27/83 Meeting

Concern: Grouting of void between existing fill and West Auxiliary Building Foundation.

Response: The attached report (Attachment 2) addresses the grouting of the gap encountered between the soil and the Auxiliary Building Foundation.

E. Item 8 - Notes of 6/27/83 Meeting

Concern: Slope layback extending under the Unit 1 EPA.

Response: The limits of the drift north of Piers E/W 8 were at the discretion of the Resident Geotechnical Engineer (RGE) and the design drawings recognized the RGE's responsibility to authorize changes as necessitated by field conditions. Since the work was completed in accordance with quality requirements, a Non-Conformance Report was not issued.

F. Item 6 - Notes of 6/28/83 Meeting

Concern: Specification requirement for furnishing grout.

Response: Project Engineering dispositioned NCR FSO-286 relative to furnishing grout by clarifying the requirements and Mergentime Procedure MCP-35.000 will be revised accordingly.

G. Item 2 - Notes of 6/29/83 Meeting

Concern: Electrical IPIN's.

Response: A QA reinspection of IR's with associated IPIN's in the Auxiliary Building monitoring system is being conducted. The status of this reinspection was discussed with R. Landsman and R. Gardner on July 14, 1982.

H. Item 3 - Notes of 6/29/83 Meeting

Concern: Number of attached changes to drawings.

Response: MPQAD Soils had raised a question regarding the number of unincorporated changes to drawings in QAR #F-326 dated 6/20/83. This QAR is open. As part of the closure to this QAR, consideration will be given to the fact that CPCo Volume II Quality Assurance Program Manual Procedure #6-1 sets a limit of four attachments to a drawing for design documents prepared by CPCo. The final closure to the open QAR will satisfactorily address the quality concern related to the number of unincorporated attachments to drawings.

Concern: Use of FCR's and NCR's.

Response: The project adopted a position in June, 1983 to clearly establish the requirement that NCR's are required for "after the fact" FCR's; ie. FCR's written to obtain approval of "as built" conditions which do not conform to design requirements. This position clearly indicates that the Field Engineer is responsible for causing an NCR to be initiated whenever it is desired to use an FCR to get approval of an "as-built" condition which is not in accordance with design requirements. This requirement has been incorporated in Bechtel Field Procedures FPD-2.000 as Revision 9. (This revision is in the final distribution as of this date.) In addition, MPQAD Procedure F-2M, Control of Nonconforming Items, has been revised (Revision 6-Effectivity of 8/29/83) and requires an NCR to be written for any item that is nonconforming and "is at a point in the construction process where it should be in compliance with the applicable design or program requirements and it is not." These actions will programmatically require that NCR's are written for "after the fact" FCR situations.

Stone and Webster indicated that the term "field as-built condition" in this item referred to the original constructed conditions which are encountered during the underpinning work activities and not as a result of current work activities.

I. Item 3 - Notes of 6/30/83 Meeting

Concern: Acceptability of the pumped grout test program for pier leveling plates.

Response: The pumped grout test program has been completed and the results of this program are included as Attachment 3.

J. Item 4 - Notes of 6/30/83 Meeting

Concern: Over excavation under the Unit 1 EPA.

Response: Refer to Item E.

K. Item 2 - Notes of 7/1/83 Meeting

Concern: Number of outstanding drawing changes.

Response: Refer to Item H.

L. Item 3 - Notes of 7/1/83 Meeting

Concern: Pumped grout test program.

Response: Refer to Item I.

M. Item 4 - Notes of MPQAD 6/28/83 Meeting

Concern: Instruction memorandum on issuing QC hold tags.

Response: The memorandum in question did not provide programmatic directions for issuing QC hold tags, but addressed action by FSO and MPQAD to avoid confusion that may occur when hold tags are placed.

DISCUSSION OF JUSTIFICATION FOR CONTINUING SOILS WORK

Because of the concerns previously discussed in this letter, the Region III Staff has asked whether the soils work at Midland should be allowed to continue. We recognize and acknowledge the Region's concerns, which we share, with aspects of the performance of soils remedial work thus far. We are mindful of the need for continuing close attention, and extensive management involvement, to correct deficiencies and avoid errors. As previously described, steps are being taken to correct the deficiencies of concern to the Staff, as expressed in meetings this week.

On the question of whether these concerns warrant an overall stoppage of soils remedial work at Midland, we believe the answer is no. In our opinion, the concerns, while valid, do not run deep enough or are not widespread enough to call into question the overall integrity of the work, or the soundness of as-built hardware.

In our opinion the most serious of the various items cited by the NRC are the drilling incidents. We acknowledge that there have been drilling problems at the Midland Site in the past; however, the two drilling incidents discussed above occurred after a period of successful implementation of involved procedures. The drilling rig mislocations that occurred appear to be caused primarily by too narrow a view of the inspection requirements and lack of specific verification of proper drill rig locations by both field engineers and QC personnel. The entire corrective actions listed previously will, we believe, prevent recurrence of this and possible related problems. In addition, the drilling has been stopped until the corrective actions noted herein are implemented.

Another item referenced by the NRC is an MPQAD stop work order related to drilling in "Q" concrete. Corrective actions, including the issuance of a revised PQCI, are being taken. This represents a case where our Quality Organization identified a problem and stopped work until corrective action has been taken.

Additionally, the NRC had concerns about comments in Stone and Webster's Report No. 41. None of these items resulted in a Stone and Webster nonconformance. By contrast, when deemed appropriate, Stone and Webster has issued nonconformances in carrying out their responsibilities as an independent assessor. We take seriously the need to consider all Stone and Webster comments, and where appropriate, initiate corrective action in our work activities. Without understating the significance of Stone and Webster's comments, we do not believe any of them question the basic adequacy of the work in the soils area.

In summary, while we have not achieved perfection, the quality of our final product is meeting design requirements and commitments. Our Quality Organization and Field Engineers are finding and correcting problems. The substantial upgrading of our quality effort in 1982 has achieved noticeable and acceptable results. The Stone and Webster 90-day assessment of the underpinning work has not identified any major problems. Indeed, Stone and Webster determined that the initial underpinning work, which constitutes the significant activities presently being accomplished, was being performed with a high degree of quality and since this report was issued, Stone and Webster has not advised us of any situation which would change this assessment. Based on all of these factors and in consideration of the overall quality of the work, we believe the soils work at Midland should continue. Continuing basic attention to detail by the Soils Organization with overview and involvement by Stone and Webster and NRC Region III will insure immediate identification and resolution of concerns and provide adequate assurance that the soils activities are successfully completed.

JA Mooney

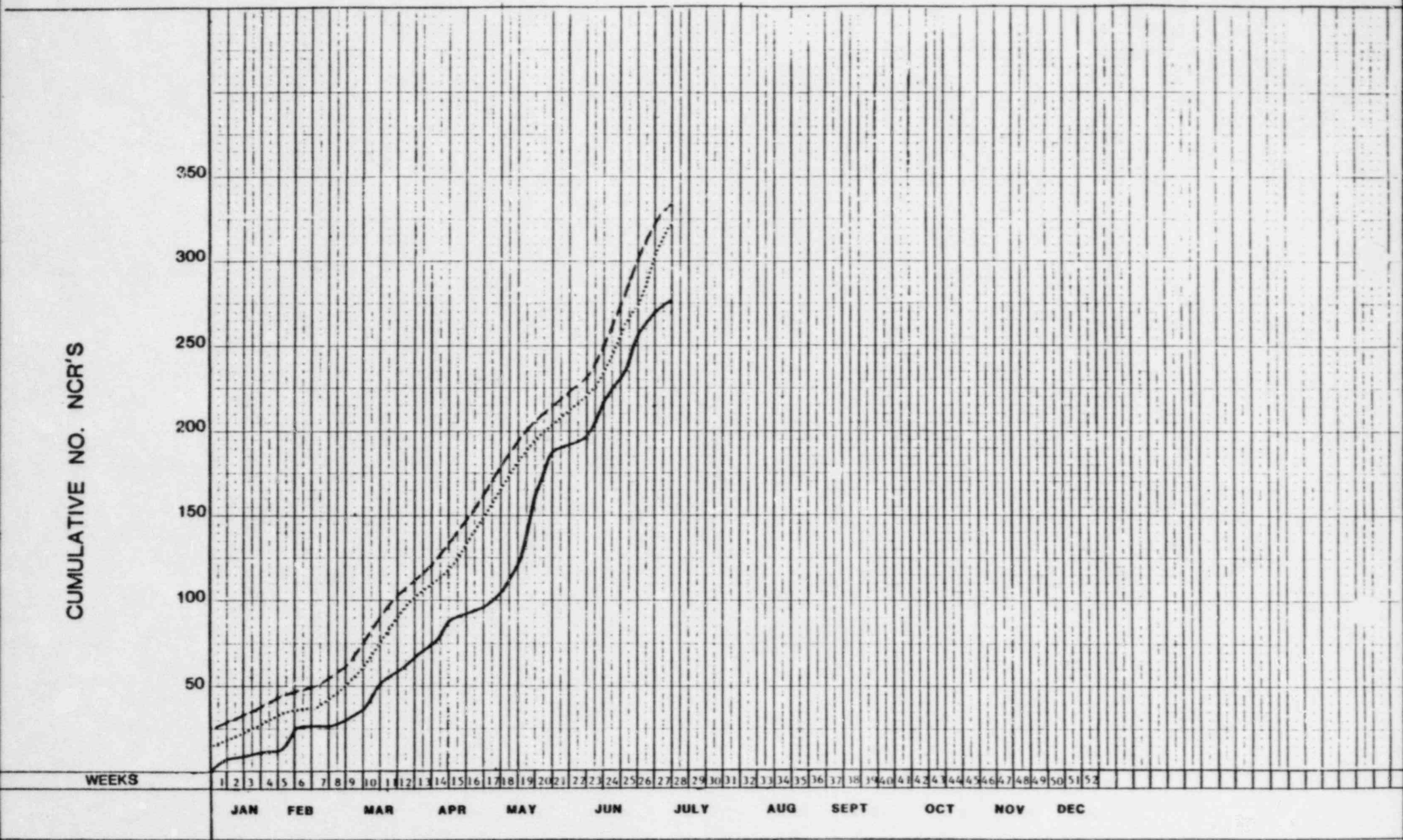
NRC/work3

EXPLANATION OF GRAPHS 1 AND 2

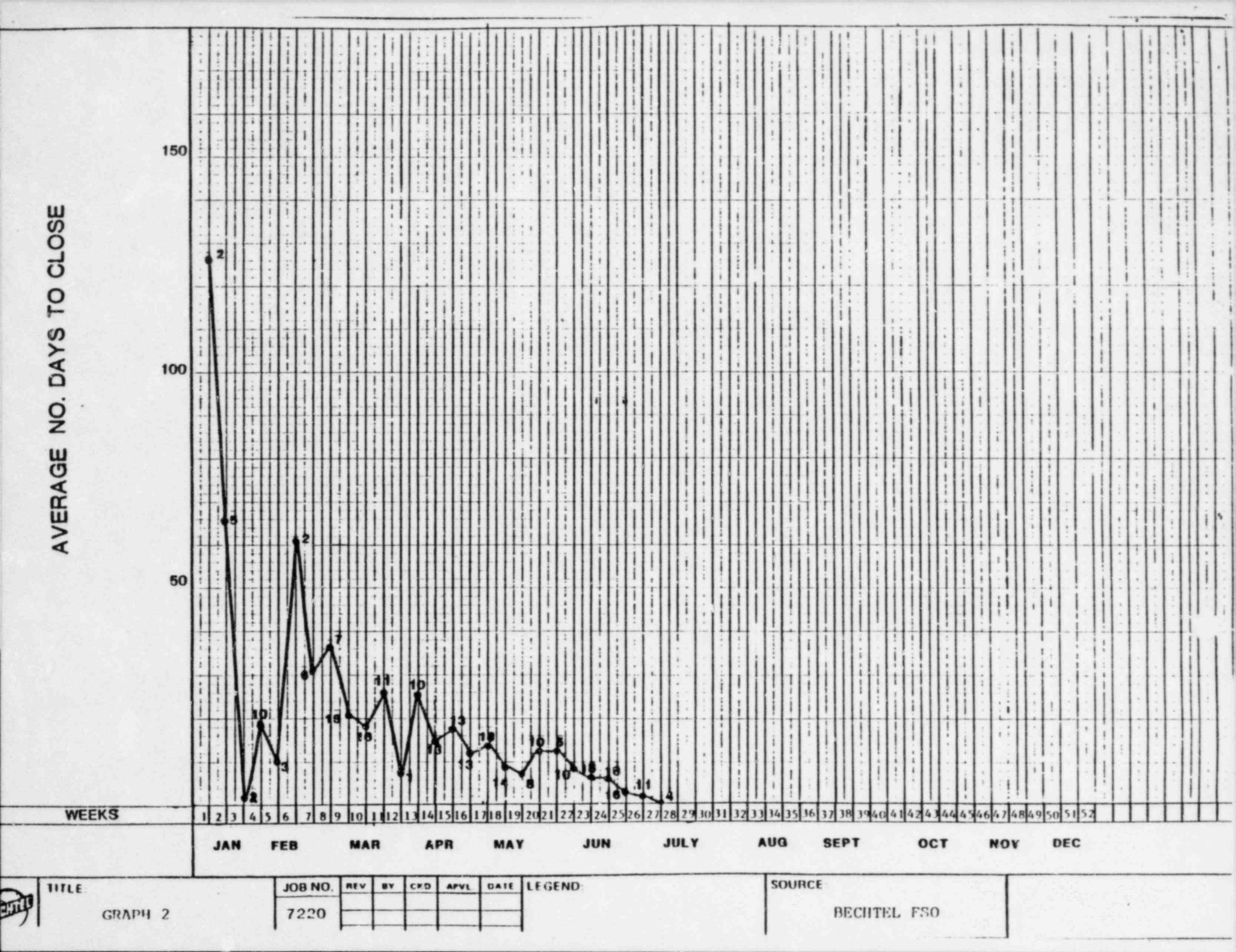
The weekly periods begin with Week 1, January 1 through January 15, 1983, and end with Week 27, July 10 through July 16, 1983.

Graph 1: The cumulative number of NCR's is plotted for each week. The broken/slashed line represents all FSO NCR's written. The dotted line represents FSO NCR's written and corrected for those NCR's inherited from the Balance of Plant. These "inherited" NCR's predate the FSO organization and represent long term Non-"Q" soil replacement. The solid line represents the number of NCR's closed.

Graph 2: The average time to close an NCR for a given week is plotted for each week. The number shown beside each point is the number of NCR's used that week to determine the average.



BECHTEL	TITLE: GRAPH 1	JOB NO. 7220	REV	BY	CKD	APVL	DATE	LEGEND: NO. WRITTEN; NO. WRITTEN (CORRECTED) FOR NCR'S PREVIOUSLY INHERITED; NO. CLOSED	SOURCE: BECHTEL FSO



TITLE	JOB NO.	REV	BY	CKD	APVL	DATE	LEGEND	SOURCE
GRAPH 2	7220							BECHTEL FSO

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-22-83 Page 1 of 2
Shift DAY
A3

No.	Description	Remarks
	PIERS W9 W11 W12 ALSO E9 E11 E12	
(1)	WJE CONTINUED RHDS DIAL GAUGE SETTING RDGS. OF TOPP TIP OF THE PIERS. TESTING OF WEDGES CONTINUED	
	PIER PIT W-8 (ACCESS DRIFT)	NOTE REG. ITEM #3
(2)	THE PIER PIT HAS BEEN COVERED TEMPORARILY WITH PLYWOOD	RGE NOTED THAT A SM[illegible] VOID 1/4" TO 1/2", 2' TO 4' WIDE WAS LOCATED DIRECTLY UNDER MUD MAT AND ABOVE 18"± THICK LAYER OF SAN[illegible] THE EXTENT OF THESE VOIDS HAS NOT BEEN DETERMINED YET AN[illegible] IT IS EXPECTED THAT THIS INSPECTION SHOU[illegible] BE COMPLETED ON 6/23
(3)	MERGENTIME EXTENDED EXCAVATION NORTH OF PIER PIT. THE TOE WAS EXTENDED TO WITHIN THE DISTANCE OF 3' FROM NORTH EDGE OF THE BRACE [illegible] 2'-0"± BERM WAS PROVIDED WITH A NEARLY VERT. CLAY FACE ABOVE THE DRIFT FLOOR AND 1:1 ± SLOPE IN CLAYEY FILL WAS EXCAVATED DUE NORTH. IT WAS NOTED THAT 18"± THICK LAYER OF SAND WAS LOCATED UNDER THE MUD MAT & FILL CONCRETE. PART OF THE MUD MAT WAS ALSO REMOVED.	
	EXCAVATION FOR THE (N-S) BULKHEAD (WEST SIDE)	
(4)	STARTED CHIPPING GROUT AT THE (N-E) SECTION OF THE EXCAVATION, EAST OF THE EASTERN DRIFT SET LAGGING. (THIS GROUT WAS POURED IN THE SLOPE LAYBACK AT THE EAST END OF THE DRIFT)	
	PIER PIT W-8 ACCESS DRIFT (CONTINUED)	
(5)	NOTE: EXPOSED DSB-2W AT THE (N-E) SECTION. SOME SATURATED CLAYEY MATERIAL WAS NOTED AT THE DSB-2W CASING. THERE WAS NO INDICATION THAT CHIPPING OF THE ADJACENT GROUT DAMAGED THIS DSB.	
(6)	BSE ADVISED THAT AN EXCESSIVE MVMT. (SETTLMT.) OF THE STRUCTURE HAS BEEN RECORDED AT DSB-2W, AND THAT ROUTINE REJACKING ON PIER W-9, DUE TO THE MVMT OF THE STRUCTURE, WOULD BE REQUIRED.	
	PIER W-9	
(7)	COMPLETED ROUTINE REJACKING DUE TO THE MVMT. OF STRUCTURE ON NITE SHIFT TODAY. APPLIED 110% OF SPEC LOAD AND HELD IT FOR 30 MINS. ALL WEDGES WERE FOUND TIGHT (COULD NOT BE MADE LOOSE WITH A CLAW HAMMER) TOTAL SETTMT. OF TOP OF PIER W.R.T. STRUCTURE TO-DATE WAS 0.480". IT WAS DECIDED TO DRIVE WEDGES	

FOR INFORMATION ONLY
RS-003-03
7220

Signed Richard R. Cosby Date 6-22-83
Reviewed by JCWanzeck Date 6-30-83

Distribution
BAPP- B. [illegible]
PGE- J. [illegible]

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-22-83 Page 2 of 2
Shift DAY
A3

No.	Description	Remarks
7 (CONTIN)	AND DEPRESSURIZE THE JACKS AFTER 0.002" SETTMT IN A PERIOD OF 60 MINS. MINIM WAS RECORDED RGE ADVISED RGE TO TERMINATE THE REJACKING. THE PRESSURE DROP DURING DRIVING OF THE WEDGES WAS 675 PSI. FINAL PRESSURE OF 25PSI WAS REACHED BY 18:45 HRS	
	PIER-W-10	
8	NO ACTIVITY NOTED AT THE PIER TODAY	
	PIER KC-2	
9	CURING OF PIER CONCRETE CONTINUED	
10	UPPER TELL-TALE P. HAS BEEN DRYPACKED.	
	PIER E-8	
11	THE UPPER PIT SECTION WAS COVERED WITH PLYWOOD	
	PIER E-8 (ACCESS DRIFT), AREA NORTH OF PIER E-8	
12	NOTE: RGE AGREED TO REVISE THE PROPOSED NORTH SLOPE FROM 1:1 TO 1 HOR : 3 VERT MINIM AND THUS LIMIT THE EXCAVATIONS UNDER AUX BLDG. THE WRITER DISCUSSED THIS REVISION WITH MESSRS L. WILLIAMS & KILGORE THIS MORNING.	
	EXCAVATION FOR (N-S) BULKHEAD (EAST-SIDE)	
13	STARTED BREAKING OUT A SECTION OF "ZAYBACK GROUT" AT THE (N-W) SECTION.	
14	LAID OUT LOCATION OF HILTI BOLTS AT P'S (WEST SIDE)	
	PIER E-10	
15	COMPLETED LOAD TRANSFER, 110% OF SPEC LOAD, AT 3:00 PM TODAY AFTER "0.00[illegible]" SETTMT CRITERIA IN 24 HRS" WERE REACHED AND SATISFIED TOTAL SETTMT OF TOP OF PIER WRT STRUCTURE WAS .172" RSE ADVISED THAT THE JACKS WOULD BE ACTIVE FOR A LONGER PERIOD OF TIME (WEDGES WILL NOT BE DRIVEN) AND WJE WOULD READ GAUGES EVERY 8 HRS. RGE WILL NOT PARTICIPATE IN THE READING OF THE GAUGES.	
	PIER KC-11	
16	UPPER TELL-TALE: DRYPACKING HAS BEEN REPLACED	

FOR INFORMATION ONLY
RS-003-03
7220

Signed Richard F. Corley Date 6-23-83
Reviewed by J. McWanger[illegible] Date 6-30-83

Distribution
RAPS- B. [illegible]
PGE- J. [illegible]

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6-23-83 Page 1 of 2

Shift DAY

A3

No.	Description	Remarks

PIERS: W9, W11, W12 ALSO E9, E11 & E12

(1) WJE CONTINUED 8HRS DIAL GAUGE SETTMT RDGS. of TOP & TIP of THE PIERS.

(2) NOTE: RSE ADVISED RGE THAT "ROUTINE REJACKING, DUE TO THE MVMNT. of THE STRUCTURE" WOULD BE ACTIVATED TO 110% of SPEC LOADS ON PIERS W9, W11 & W12. REJACKING of W9, W11 & W12 STARTED AT 11:07AM, 2:35PM & 5:11PM RESPECTIVELY.

(3) THE FOLLWING RESULTS WERE NOTED ON DAY & NITE SHIFTS

PIER No	TOTAL SETTMT. TO DATE (DAY SHIFT)	TOTAL SETTMT. TO DATE (NITE SHIFT)	NUMBER of [illegible] 110%	125% *
W9	.488"/110%	.513/125% *	0	(2)
W11	.697"/110%	.708/125%	0	0
W12	.344"/110%	.366/125%	0	(2)

(4) Δ4: -0.002" (DAY SHIFT) : -0.005" (NITE ——)

(*) RSE DECIDED TO INCREASE THE LOAD from 110% TO 125% of SPEC. LOAD AT APPROX 8PM DUE TO EXCESSIVE MVMNT. of STRUCT. THE "ROUTINE REJACKING" STATUS WAS CHANGED TO "NON-ROUTINE"

NOTE: 4HR READINGS WERE TAKEN ON ALL THREE PIERS BY END OF THE NITE SHIFT.

PIER PIT W-8

(5) CONTINUED WORK ON SHAFT REBARS AND CLEAN UP of THE PITS. PLACING of THE CONCRETE HAS AGAIN BEEN DELAYED DUE TO PROBLEMS WITH INSTALL. of REMAINING RE-BARS.

PIER W-10

(6) NO ACTIVITY NOTED AT THE PIER TODAY

PIER KC-2

(7) NO ACTIVITY NOTED AT THE PIER TODAY

ACCESS DRIFT TO PIER PIT W-8

(8) NO ACTIVITY AT NORTH OR SOUTH SIDES of THE PIT EXCAVATION FOR (N-S) BULKHEAD (N-E SECTION OF ACCESS DRIFT PIT W-8)

Remarks: NOTE: REG. NORTH SIDE O[illegible] ACCESS DRIFT (PIER PIT W[illegible] RSGEE CHECKED EXTEN[illegible] OF THE 1/4 TO 1/2" GAPS UN[illegible] THE MUDMAT ALONG NO[illegible] LIMIT OF LAYBACK EXCA[illegible] WITH 1/4" x 1" LATH PRO[illegible] 4'-6" MAX DEPTH of THE G[illegible] WAS NOTED. STEEL TAPE PENETRATED UP TO 12' [illegible] THE GAPS IN PROX of EX[illegible] (N-S) ℄ OF THE PIT W-8

FOR INFORMATION ONLY

RS-003-03 7220

Distribution: BAPS- B. [illegible] PGE- J. [illegible]

Signed Richard R. Cles[illegible] Date 6-24-83

Reviewed by JoWanzeck Date 6-30-83

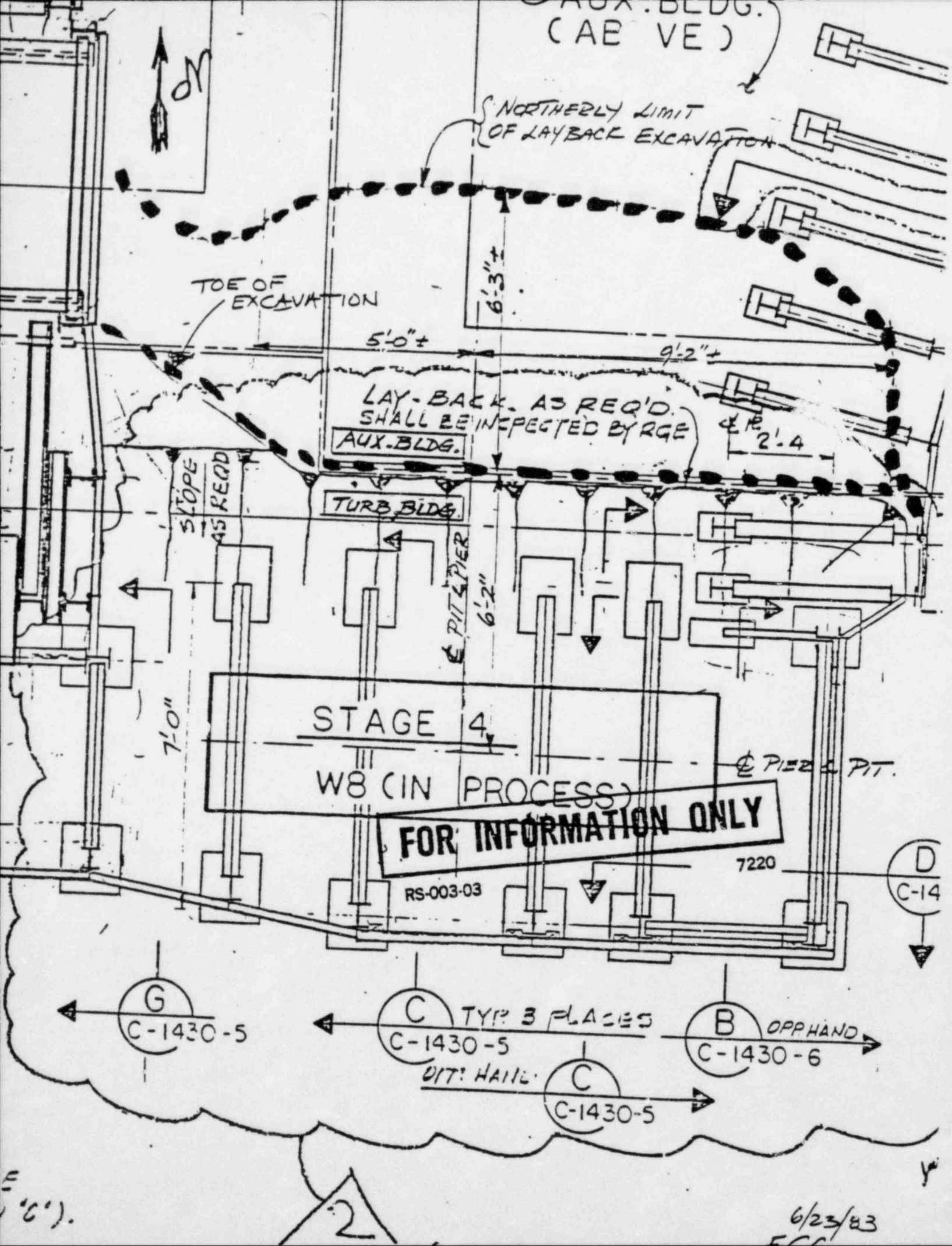
MIDLAND UNITS 1 AND 2 - JOB 720
RESIDENT GEOTECHNICAL ENGINEER REPORT

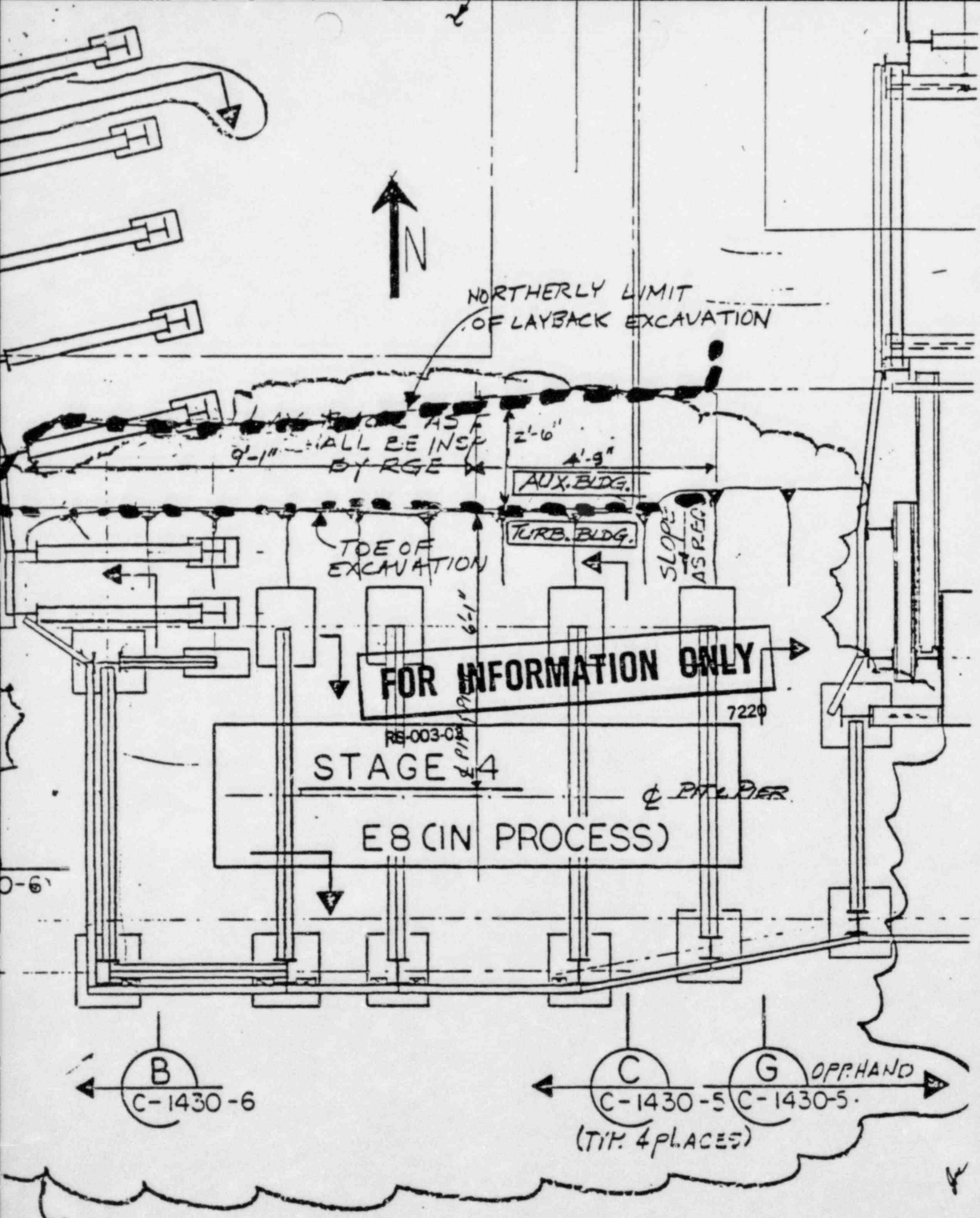
Date: 6-23-83 Page: 2 of 2
Shift: DAY
AE

No.	Description	Remarks
9	MERGENTIME HAS BEEN DRILLING HOLES FOR HILTI BOLTS AT 1st & 2nd POST RDs (N-E CORNER) OF THE DRIFT	
10	NO ADDITIONAL EXCAVATION FOR THE (N-S) BULKHEAD IN PROGRESS TODAY	
	PIER E-8	
11	HAMMERHEAD SECTION OF PIT - HAS BEEN COVERED WITH PLYWOOD	
	ACCESS DRIFT TO PIER E-8 & EXCAVATION FOR (N-S) - BULKHEAD	
12	NOTE: RGE DISCUSSED THE STATUS OF BULKHEAD EXCAVATION WITH RSGFEL MERGENTIME IT WAS AGREED TO PERMIT AN ADDITIONAL EXCAV AT (N-W) SECTION OF THE ACCESS DRIFT INCL BREAKING OUT OF 18" ± THICK FILL CONCRETE & MUD MAT IN (E-W) DIRECTION. THIS SPACE WAS REQUIRED TO INSTALL BULKHEAD RDs & POSTS (ROOM TO TORQUE THE BOLTS)	FOR INFORMATION ONLY 8306030220
	PIER E-10	
13	STRUCTURE SUPPORTED ON "ACTIVE JACKS" AT 110% OF SPEC LOAD READINGS HAVE BEEN TAKEN AT 1 HRS TIME INTERVALS	
	PIER KC-11	
14	CURING OF THE UPPER TELL - TALE RD DEVICE CONTINUED	
15	RGE (R COSBY & E GRAY) COMPLETED PREPARATION OF "AS BUILT" EXTENT OF EXCAVATIONS UNDER AUX BLDG ALONG THE NORTH SIDE OF ACCESS DRIFTS TO PIERS E-8 & W-9. TODAY SKETCHES WERE PREPARED	
		(3) SHEETS OF SKETCHES ATTACHED TO THIS REPORT

Signed: Richard P. Cosby Date: 6-24-83
Reviewed By: Jon Wanzel Date: 6-30-83

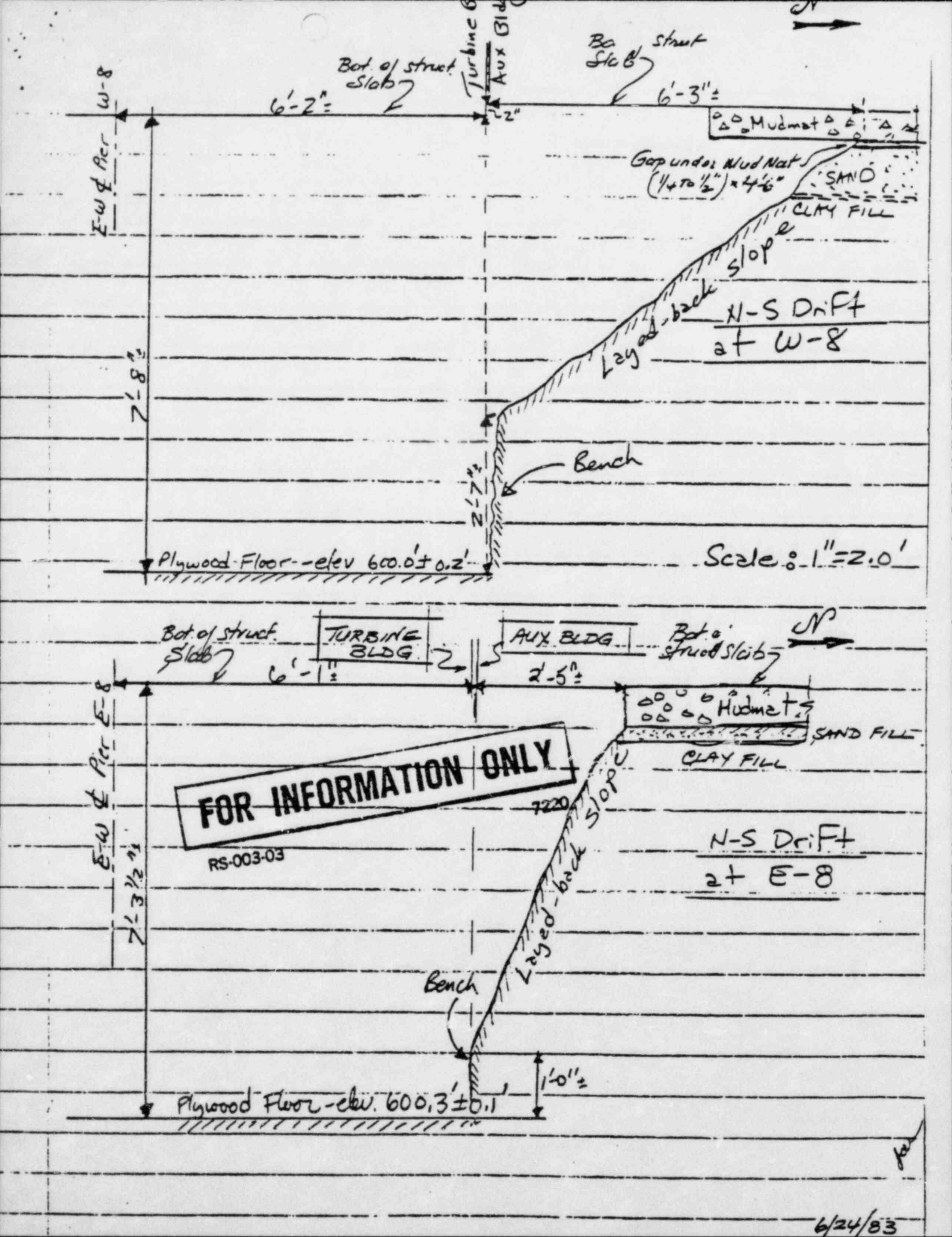
Distribution:
BATE- E. STEIN
FSE- J. AUSTIN


AUX. BLDG.
(AE VE)
NORTHERLY LIMIT OF LAYBACK EXCAVATION
TOE OF EXCAVATION
6'-3"±
5'-0"±
9'-2"±
LAY-BACK AS REQ'D. SHALL BE INSPECTED BY RGE
2'-4
AUX. BLDG.
TURB BLDG
SLOPE 45 READ
℄ PIT & PIER
6'-2"
7'-0"
STAGE 4
W8 (IN PROCESS)
℄ PIER & PIT.
FOR INFORMATION ONLY
7220
RS-003-03
D
C-14
G
C-1430-5
C
TYP. 3 PLACES
C-1430-5
B
OPP HAND
C-1430-6
DIT. HAIL
C
C-1430-5
2
6/23/83


N
NORTHERLY LIMIT OF LAYBACK EXCAVATION
9'-1"
ALL BE INST BY RGE
2'-6"
4'-9"
AUX. BLDG.
TURB. BLDG.
SLOPE AS REQ'D
TOE OF EXCAVATION
FOR INFORMATION ONLY
7220
RE-003-03
STAGE 4
℄ PILE PIER
E8 (IN PROCESS)
B
C-1430-6
C
C-1430-5
(TYP. 4 PLACES)
G
OPP. HAND
C-1430-5

6/23/03

NOTES


Bot. of struct. Slab
Turbine Bldg
Aux Bldg
Bot. of struct. Slab
6'-2"±
6'-3"±
W-8
E-W ℄ Pier
Mudmat
Gap under Mud Mat (1/4 to 1/2") x 4'-6"
SAND
CLAY FILL
Slope
Layed-back
N-S Drift at W-8
7'-8"±
2'-7"±
Bench
Plywood Floor -- elev 600.0'± 0.2'
Scale: 1" = 2.0'
Bot. of struct. Slab
TURBINE BLDG
AUX. BLDG
Bot. of struct. Slab
N
6'-1"±
2'-5"±
E-8
Mudmat
SAND FILL
CLAY FILL
FOR INFORMATION ONLY
7220
RS-003-03
Slope
Layed-back
N-S Drift at E-8
E-W ℄ Pier
7'-3 1/2"±
Bench
1'-0"±
Plywood Floor - elev. 600.3'±0.1
6/24/83

MIDLAND UNITS 1 AND 2 - JOB 7220
RESIDENT GEOTECHNICAL ENGINEER REPORT

Date 6/26/83
Shift NIGHT - E
A3

No.	Description	Remarks
	West Shaft	FOR INFORMATION ONLY
	Pier KC-2	
1.	No activity	
	Pier W8	
1.	No activity	
	Pier W9	
1.	"Non-routine" repacking at 125% S.L. Continued. As of 12:56 a.m. pier top movement was 13 mil in last 48 hours. 4 hour readings continued.	
1	Pier W10 Started placing jacks.	
	N-S Bulkhead North of W8	
1.	Filled void north of layback area.☆ 180 gals of neat cement grout (3/4 water : 1) were used. grout pressures ranged from approx. 20 to 80psi Signed QC IR and stated that RGE concurred with F.E. grouting operation was acceptable. QC hold on bearing PL on knee brace* of 2nd set.	☆ See sketch attached. * PL improperly shimmed on QC tag.
	East Shaft	
	Pier KC-11	
1.	Started placing jacks on top of pier.	
	Pier E8	
1.	No activity	
	Pier E10	
1.	110% S.L. maintained. 8 hour readings Continued As of 12:35 a.m. movement was 3 mils in last 24 hours.	
	N-S Bulkhead North of E8	
1.	QC hold on bearing PL on 2nd post due to gap between PL & Str. Conc. wider than 1/16".	

Signed Alan Tang (Sid Wagner) Date 6/27/83

Distribution
RAPE- E. CTI
PGE- J. ANDE

ATTACHMENT C
To MCP 15.000

FOR
INFORMATION ONLY

GROUT PLACEMENT PLAN

Prepared By: *C.E. Reader* (MFE)

Approved By: *Timothy Ellis* (RSG FE)

C.E. (RGE)

Location: *11' NORTH OF WEST 8*

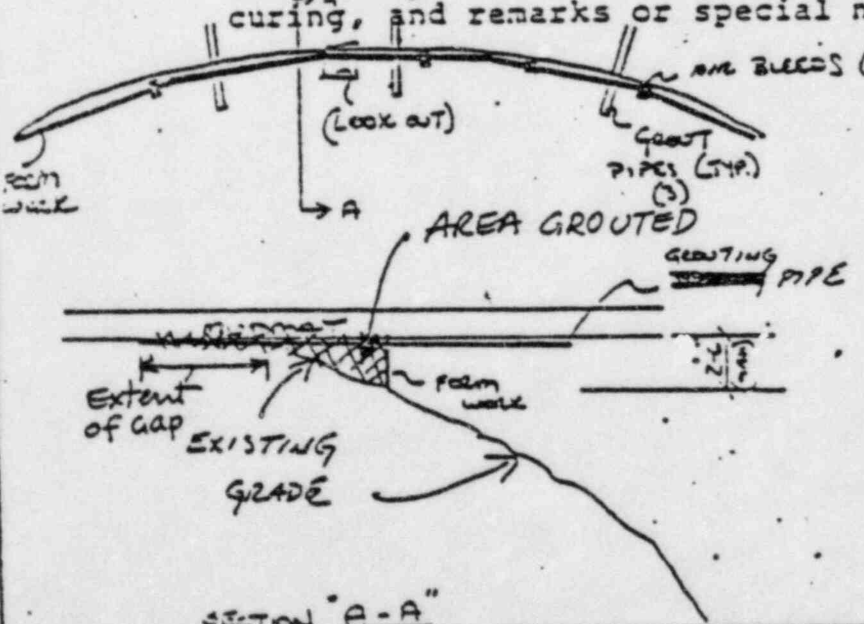
Plate Orientation: *N/A*

Type of Grout: *CEMENT*

Method of Grout Placement:
- [ ] Gravity
- [ ] Pressure - Hand Pump
- [x] Pressure - Mechanically Driven Pump

Maximum Grout Pressure: *150* (For pressure grout placement with a mechanically driven pump only.)

Sketch: (Indicate plate orientation, location of forms, location of vent holes and/or vent pipes, grouting sequence to avoid air entrapment, location of grout pipes, edge treatment for curing, and remarks or special notes.)



FORM CORE

NOTE:
1. *PIPE LOCATIONS MAY VARY DUE TO RESISTANCE WHILE BEING PLACED.*
2. *AIR BLEEDS AS NECESSARY*
3. *OBSERVATION PORTS AS REQUIRED.*
4. *FORMWORK MAY VARY DEPENDING ON SOIL CONDITIONS (ACTUAL).*
5. *MAX. SPACING OF GROUT TUBE 10'.*

AREA GROUTED.

F7220-C195-28-7 (2)

ATTACHMENT FOR DAILY REPORT 6/26/83
NIGHT SHIFT (E.)

ATTACHMENT-3

REPORT

of the

OVERHEAD FLUID GROUTING

TEST PROGRAM

Located at

Consumers Power Company

Midland Nuclear Power Plant

Midland Units 1 & 2

July 15, 1983

47 pp

~~8304210210~~

TABLE OF CONTENTS

OVERHEAD FLUID GROUTING TEST PROGRAM
REMEDIAL UNDERPINNING
MIDLAND UNITS 1 & 2

I. EXECUTIVE SUMMARY OF TEST PROGRAM

A. Purpose of Test

To insure proper pressure grout placement on the permanent underpinning piers, a series of tests simulating leveling plate installations has been performed using different concrete surface preparations, different methods for venting air, and different grouting techniques for the placement of grout.

B. Summary of Test Results

All pressure grouted test plates provided a fully satisfactory grout pad. None of the special surface preparations appeared to have had any affect on reducing the amount of entrapped air. Multiple injection points seemed to induce more entrapped air than the single injection point. An expanded metal/leadwool forming system had more disadvantages than advantages. The performance of the Masterflow #713 grout and the equipment used all proved to be more than adequate for these tests.

C. Summary of Conclusions

The pressure grouting with Masterflow #713 provided a quality product equal to or better than drypacking with Masterflow #713. The overhead pressure grouting of steel plates can successfully be performed using conventional materials, equipment, and methodology already available and in use on the project. Successful pressure grouting can be accomplished using a single centrally located grout injection point thru the steel plates and by bulkheading around the periphery of the plate with wooden forms.

II. SCOPE OF TEST PROGRAM

A. Objectives

1. To determine the quality of a grout pad that can be achieved by overhead pressure grouting. Of particular concern was the minimizing of voids created by air being entrapped in the grout at the interface between the existing concrete surface and grout surface

2. To determine the optimum methods of surface preparation, formwork and grout placement.

II SCOPE OF TEST PROGRAM

B. Location

Testing was performed in a portion of the northeast corner of the Midland Jobsite Poseyville Laydown Area.

C. Test Facilities

The simulation of actual conditions which exist under a structure being underpinned was accomplished by utilizing concrete blocks (crane counter weights) cribbed by other concrete blocks to create two test bays. (See Exhibit D - Photographs #1 and #5).

D. Personnel

The Mergentime personnel during grouting consisted of four (4) craftsmen, a foreman, and a superintendent. The drypack crew consisted of five (5) craftsmen, a foreman, and a superintendent. In addition to the Mergentime personnel, observers were present from Bechtel's FSO Field engineering and MPQAD for all of the grout placements. Part time observers included Mergentime Field Engineering, Stone & Webster Independent Assessment Team, U .S. Testing (for testing) and Consumers Power Company.

III TEST PROCEDURES

A. Layout of Test Plates

Eight (8) test plates were laid out four (4) in each of the two simulation bays. The north simulation bay test plates were installed to test a multiple injection point system of grout placement under varying bulkheading and concrete preparation conditions. The South simulation bay test plates were installed to test the single grout injection point system with various concrete surface preparations. One plate was formed on three sides and drypacked with Masterflow #713 as a comparison to the pressure grouting techniques. (See Exhibit #A for Grouting Plan Arrangement).

B. Description of Test Plates, Formwork, and Surface Preparation Area*

All test plates were made of ½" x 3'5" x 5'8" steel plates and were held in position by eight (8) 3/4" diameter Hilti kwik bolt expansion anchors. The plates were positioned 1½" beneath the concrete slab by means of short pieces of pipe sleeves placed over the anchor bolts. The sleeves also facilitated easier test plate removal. The steel test plates were sized to represent the maximum size anticipated for actual conditions. In addition, four plates were notched to represent the worst geometric conditions anticipated. The concrete underslab surface was lightly greased

*Also see Exhibit A and Photographs #9 thru #12 of Exhibit D

III. TEST PROCEDURES (Cont'd)

with Union 76 - Multipurpose grease. This was used as a bond breaker. The grease was brushed on with a 2½" wide paint brush with 1¼" bristles. The underslab concrete surfaces above each plate had a combination of surface preparations consisting of grooves cut in the concrete, forming either a figure X, H, or 3 parallel lines or no surface preparation at all. The cut grooves were installed as air venting systems with the grooves extending well beyond the forming at the edges of the steel plates.

Test plates #1 thru #4 had four grout injection points down the center of each plate. Plates #1 and #4 were formed on four sides (bulkheaded) with 2 x 4 lumber and were sealed to the underslab concrete using a silicone caulking. Plates #2 and #3 were bulkheaded using expanded metal backed with leadwool packing. This system of bulkheading also required 2 x 4 framing to retain the expanded metal. In addition to these cut grooves, the 2 x 4 bulkheading had ½" square vents cut into its top surface. These vents were later plugged with wood plugs or leadwool. The backup framing for Plate #2 and #3 had long slots approximately 3/4" deep cut along its top edge to aid in the passage of air thru the leadwool packing.

Test plates #6 thru #8 had one grout injection point each. All were conventionally bulkheaded with 2 x 4 lumber and silicone caulking. Test plate #6 had an injection point at its center and the underslab concrete was prepared by roughening it with a chisel bit tool to simulate an irregular surface. Test plate #7 had an injection point at its center with a pipe extension which protruded up into a 1½" diameter hole cored into the underslab concrete. This was done to provide a positive means of limiting grout loss to the area of the cored hole in the event leakage resulted from failure of the injection shut-off valve. In addition, an "X" groove pattern was cut across the hole extending to each corner. Test plate #8 had one injection point located 3" in from the northwest corner. The underslab concrete was left in its original condition.

Test plate #5 was drypacked utilizing Masterflow #713 grout. This test plate was bulkheaded on the north, south, and east sides with all drypacking being done from the west side. In addition to test plate #5, two additional drypack test plates were prepared from this same location and they were numbered 5A and 5B. Test plate #5A was made with Masterflow #713 grout mix while test plate #5B was made using a 1:1 ratio sand/cement drypack mix.

C. Description of Grouting

The flowable grout used was Masterflow #713 mixed in accordance with Mergentime Grouting Procedure MCP 15.000 (See Exhibit D - Photograph #2 and Exhibit E). Where multiple injection points were used, grouting progressed south to north.

III TEST PROCEDURES (Cont'd)

The grouting was accomplished using an Airplaco model #HG-5, hand operated grout pump, in a five gallon plastic pail. The grout pump was connected to the plate injection point by a flexible hose using Chicago type couplings. Attached to the steel test plate injection nipple was a shut-off valve and a Chicago type coupling. (See Exhibit D - Photographs #4 and #7). Air vents were plugged only after a good flow of grout passed through them. After all vents were plugged the pump was used to apply and maintain a static pressure of 9 to 15 lbs. until the injection point valve was closed.

U.S. Testing was present at the start of grouting and drypacking each day and to take flow cone tests and to make strength cubes (see Exhibit D - Photograph #3) for verification of material characteristics (see Exhibit C). It should be noted that no curing was performed on the grout test pads and that they were all stripped within approximately 20 hours of being placed.

D. Post Test Observations

All test plates were removed the day after placement. The grease bond breaker worked well, however, most test plate grout pads were cracked or otherwise broken during the process of removal.

The results of all test plates grouted with Masterflow #713 were satisfactory. The utilization of various patterns of specially cut grooves in the underslab concrete appeared to have had no influence on relieving entrapped air. In certain instances air bubbles were entrapped continuously across a cut groove. The larger (over ½" diameter and 1/8") air bubbles appeared almost exclusively on the plates with four (4) injection points. (See Exhibit D - Photograph #27). Since the first injection point generally filled the bulk of each test area it appears that these bubbles may be portions of a larger bubble that was formed when grout was placed from a previous injection point. There is no definite pattern on entrapped air bubbles other than they appear to be radially oriented about one or more of the three subsequent injection points.

Both the wood form and expanded metal/leadwool bulkhead methods effectively contained the grout and provided adequate avenues for escaping air. The wood forms left a neat uniform grouted edge while the Expanded metal/leadwool created a void area approximately 3/4" back from the test plate edge. (See Exhibit D - Photograph #28).

The wood plug system used to plug the bulkhead air vents worked well at all locations where it was used. Although the leadwool plugs were satisfactory, in some locations they were pushed as much as 3/4" to 1" into the grout pad itself and thus leaving a void. Also leadwool was used at the only two vent areas that showed evidence of grout leakage after grout shut-off.

III TEST PROCEDURES (Cont'd)

Minor dripping of a clear amber fluid was noted from all pressure grouted test plates, starting at approximately half way thru the grouting time period and extending well beyond completion of grouting. This was apparently bleed water and a visual inspection of the pads could find no damage or voids as a result of the fluid.

E. Test Results

Plate No.	Grouting Time	Grouting Pressure	Plate Deflection	% of Voids Over ½" Ø	Remarks
1	35 min.	13 psi	3/16 to 1/4	0.9	Many small surface bubbles noted
2	27 min.	12 psi	3/16 to 1/4	0.5	Contained large and deep trapped air pockets
3	39 min.	15 psi	1/4 to 3/8	0.7	Contained air bubbles apparently formed from subsequent injection points
4	40 min.	9 psi	0 to 1/8	1.2	Contained large shallow air pockets
5 (DP)	1 to 1½ hr	n/a	None	14.0	Poor consolidation at east edge of pad
5A (DP)	Not Avail	n/a	3/16 to 1/4	7.0	Poor consolidation at east edge of pad
5B (DP)	2 to 2¼ Hr	n/a	3/16 to 1/4	0.1	Actual Void Area is 2.5% When Lost Contact Area is Included
6	25 min.	12 psi	1/16 to 1/8	0.8	Experienced No Problem Filling Irregularities Chipped Into Concrete Surfaces
7	20 min.	12 psi	1/8 to 3/16	0.5	Appears to have had plate movement during grouting
8	30 min.	10 psi	1/8 to 1/4	0.9	Poor consolidation appears to have resulted form excessive grout flow distance

*See Exhibits B and D for additional photographs and test results evaluations.

III TEST PROCEDURES (Cont'd)

Dates of Testing:

- o Plates 1 thru 5 were grouted on 6-28-83 and removed on 6-29-83
- o Plates 5 thru 8 were grouted on 6-29-83 and removed on 6-30-83
- o Plate 5A was drypacked on 6-30-83 and removed on 7-1-83
- o Plate 5B was drypacked on 7-6-83 and removed on 7-7-83

IV. CONCLUSIONS

All pressure grouted test plates provided a fully satisfactory grout pad for transfer of loading into or from an overhead concrete structure. Based upon the comparison of the seven (7) pressure grouted test plates, it appears that the single centrally located injection point type of test gives the best product.

Test plate #7 had a special condition of a pipe extension of the injection nipple up into a 1½" drilled hole in the underslab concrete. No advantages to this system were noted in the resultant underslab/grout contact surface to merit further consideration.

Two drypack test plates were made using Masterflow #713 for comparison purposes. Neither of these two test plates proved to be better than the pressure grouted test plates. Proper consolidation of the drypack on the far side of the test plate and behind anchor bolts appears to be the weak areas for these plates. A third drypack test plate was made using a 1 to 1 sand/cement ratio which proved to be the best test plate except for a loss of contact area in the northwest corner, apparently a result of the plate moving during final stages of drypacking.

One problem noted from the pressure grouting and from two of the three drypack test plates, was the elastic bowing of the ½" steel test plates resulting from the induced pressures. The least affected pressure grout test plate was #4, on which grouting was stopped with a static pressure, indicated at the grout pump, of approximately 8 to 10 psi. All other plates were stopped at static pressures of 12 psi±. It should be noted that only eight (8) expansion bolts were used to support the test plates and that no attempts were made to restrain or limit plate deflections (bowing). It should also be noted that the static shut-off pressure was measured on a 0 to 60 psi pressure dial attached to the grout pump discharge. (See Exhibit #D - Photograph #4). This static pressure includes approximately six (6) feet of head between the gage and the overhead test plate. Consequently ten (10) pounds per square inch pressure at the gage should mean four (4) psi actual pressure within the grout bed itself. Thus it appears that minimal pressure (sufficient to force grout to flow out the bulkhead air vents) is all that is necessary to achieve grout placements.

IV CONCLUSIONS (Cont'd)

An observation noted was that the pressure gage attached to the grout pump indicated high pressure peaks during the initial stages of pumping. This pressure could not have built up under the plates, since all the vents were open during this stage of pumping. This "peaking" was due to a combination of rapid pumping and line losses during the initial filling. As the vents were closed and pumping slowed, the pressures stabilized in the line, reflecting pressures actually transferred to the grouted plates. (This "peaking" phenomena will be a consideration in gage range selection in permanent pier grouting.)

No advantages were noted by use of the expanded metal/leadwool system over the more conventional wooden bulkhead system. A major disadvantage was, however, noted in that there was a definite loss in available grout pad size in the leadwool system. Consequently production plates utilizing this bulkhead system would require larger sized plates to makeup for the lost grout pad area.

The Union 76 multipurpose grease was used as a bondbreaker on the underslab concrete surface and performed its function. The use of this grease as opposed to normal pre-soaking or the use of the weld crete could be expected to result in a larger amount of air entrapped in the grout concrete contact surface due to the grease being impervious and thus not allowing any air to be absorbed by the concrete.

On the whole the amount of small air pockets noted were about equivalent to what might be expected on a vertically formed surface poured with air entrained concrete. A quantitative value for percentage of lost contact surface, due to air or just no contact, was determined by physical measurements of the void areas larger than ¼" equivalent diameter. The results of these measurements for plates #1 thru #4 and #6 thru #8 show a range of from 0.5 percent to 1.2 percent loss. Inclusion of all void areas less than 1/4" Ø should not amount to any more than double the values calculated or in other words a maximum of 2.4 percent loss in total.

The hand pumping of the grout was a satisfactory method for placement of the grout. It was an easy method to control the placing of grout as well as being mobile and requiring little in the way of support facilities or maintenance during placement.

The Masterflow #713 grout proved to be an acceptable mix in terms of its net physical characteristics as well as the finished product. It should be noted that although the Mergentime Procedures for grouting (MCP 15.000) and drypacking (MCP14.000) were utilized as guidelines, absolute adherence was not expected, nor was it guaranteed by quality control inspections. In particular, no bonding to existing concrete was desired, no grout placement plan was utilized, and no attempts were made to properly cure the test plate grout pads.

IV CONCLUSIONS (Cont'd)

It should be noted also that the expansion anchor bolts were installed at varying depths and in several instances spacer washers had to be utilized in order to tighten the nut without bottoming out on the the threads.

The bowing or elastic bending of virtually all of the test plates was to be expected, but should not be a source of concern. Bowing of the test plates showed up on both the pressure grouted plates as well as the dry-packed plates. To date, no problems have been noted in the Auxiliary Building Underpinning work with drypacked leveling plates. Bowing of pressure grout plates will not be a problem either since the bowing can easily be eliminated by the installation of plate bracing before grout placement.

V. RECOMMENDATIONS

Utilization of leadwool as a form of bulkheading for pressure grouting should be kept as an option for areas where the more conventional wood bulkheading can not be utilized. There may be instances during grouting where the use of leadwool will provide the best and most reasonable means of stopping grout movement. Care will still have to be exercised to ensure that use of leadwool does not reduce the required effective bearing area of the grout pad.

An option, although not tested, that should prove equally as good as the single injection point system would be a dual injection point system (At 1/3 points down the center of plate). This system would use two grout pumps both of which are pumped either simultaneously in a manner so as not to form air pockets/bubbles as noted in Section III D of this report.

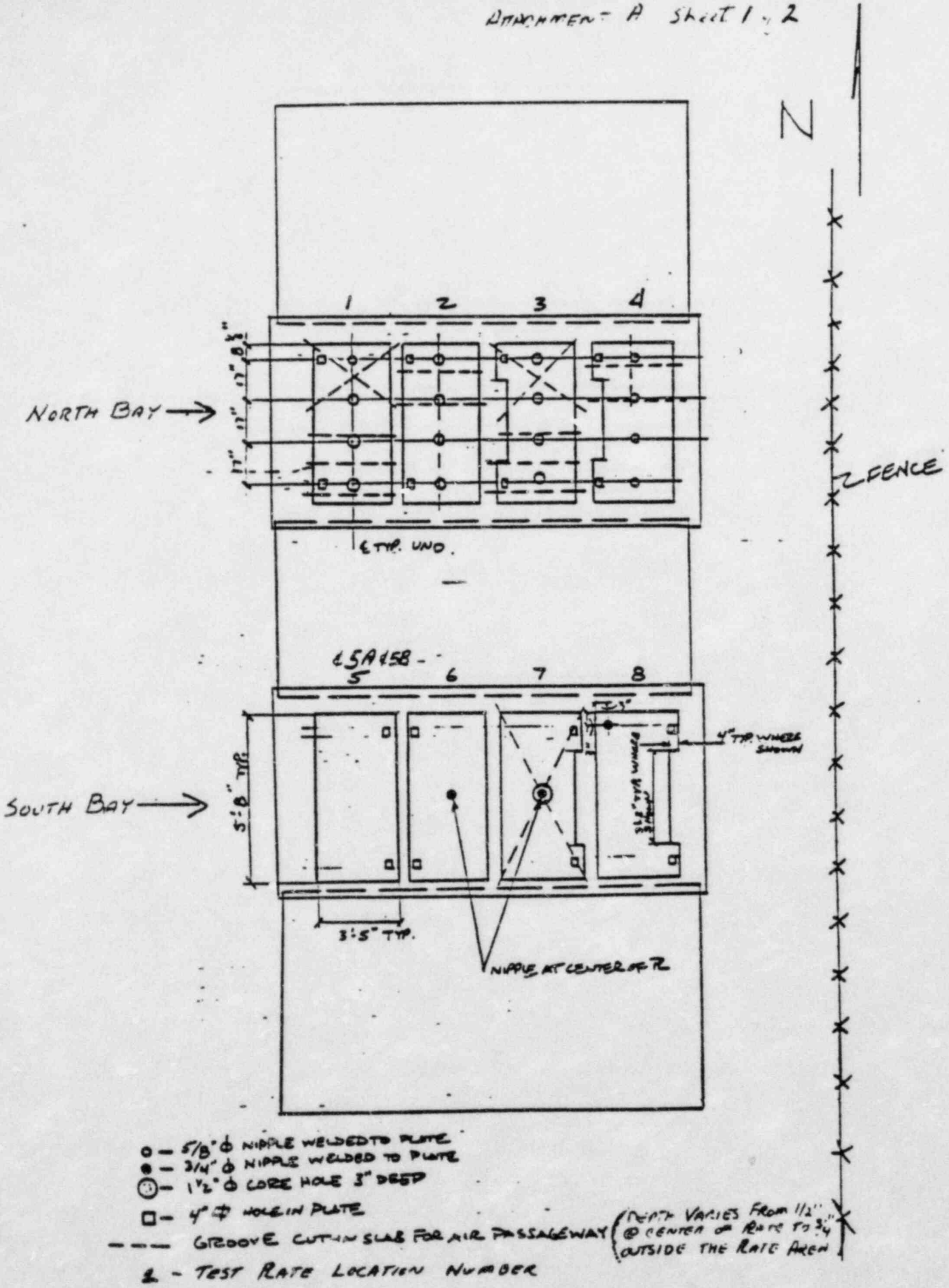
Grouting pressure should be kept near the minimal required to obtain grout flow through the air vents. To avoid possible plate bowing or excessive bracing of plates, slow stroking of the handpump to eliminate impulse loading should be utilized.

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT A

GROUTING PLAN ARRANGEMENT

Attachment A Sheet 1 of 2



FORMWORK

PLATE NO.	FORMWORK
1	WOOD FORMS CAULKED W/ SILICONE CAULK
2	EXPANDED METAL SCREEN W/LEAD WOOL
3	EXPANDED METAL SCREEN W/LEAD WOOL
4	WOOD FORMS CAULKED W/ SILICONE CAULK
5	WOOD FORMS (DRYPACK PLATE)
6	WOOD FORMS CAULKED W/SILICONE CAULK
7	WOOD FORMS CAULKED W/ SILICONE CAULK
8	WOOD FORMS CAULKED W/ SILICONE CAULK

NOTES

1. ALL PLATES WITH THE EXCEPTION OF NO. 5 WILL HAVE 12 VENT HOLES BETWEEN THE SLAB AND THE TOP OF THE FORM EVENLY SPACED AROUND THE PERIMETER OF THE PLATE. THESE HOLES WILL BE PLUGGED WITH WOOD WHEN A STEADY STREAM OF GROUT FLOWS FROM THEM.

2. ALL PLATES WILL BE PRESSURE GROUTED BY HAND PUMP WITH THE EXCEPTION OF PLATE NO. 5 WHICH WILL BE DRYPACKED.

3. SLAB AREA TO BE GROUTED OR DRYPACKED AGAINST WILL BE GREASED FOR EASY REMOVAL OF PLATE AND GROUT/DRYPACK.

4. GROUT/DRYPACK WILL BE MASTERFLOW 713.

5. HILTI EXPANSION ANCHORS WILL HAVE A SMOOTH PIPE SLEEVE ON THEM BETWEEN THE LEVELING PLATE AND THE SLAB TO PERMIT EASY REMOVAL OF THE PLATE AND GROUT/DRYPACK.

6. ALL SLAB SURFACES TO BE GROUTED/DRYPACKED WILL BE PREPARED BY REMOVING SURFACE LAITANCE WITH A WIRE BRUSH WITH THE EXCEPTION OF THE SLAB @ PLATE NO. 6 WHICH WILL BE ROUGHENED WITH A HILTI DRILL W/ CHISEL TIP.

7. PLATE NO. 7 WILL HAVE AN ADDITIONAL PIECE OF PIPE ATTACHED AT THE NIPPLE PROJECTING UP INTO A DRILLED CAVITY.

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT B

FIELD EVALUATIONS OF VOID AREAS

PLATE NO. 1

1. Peripherial bubbles about nipples?

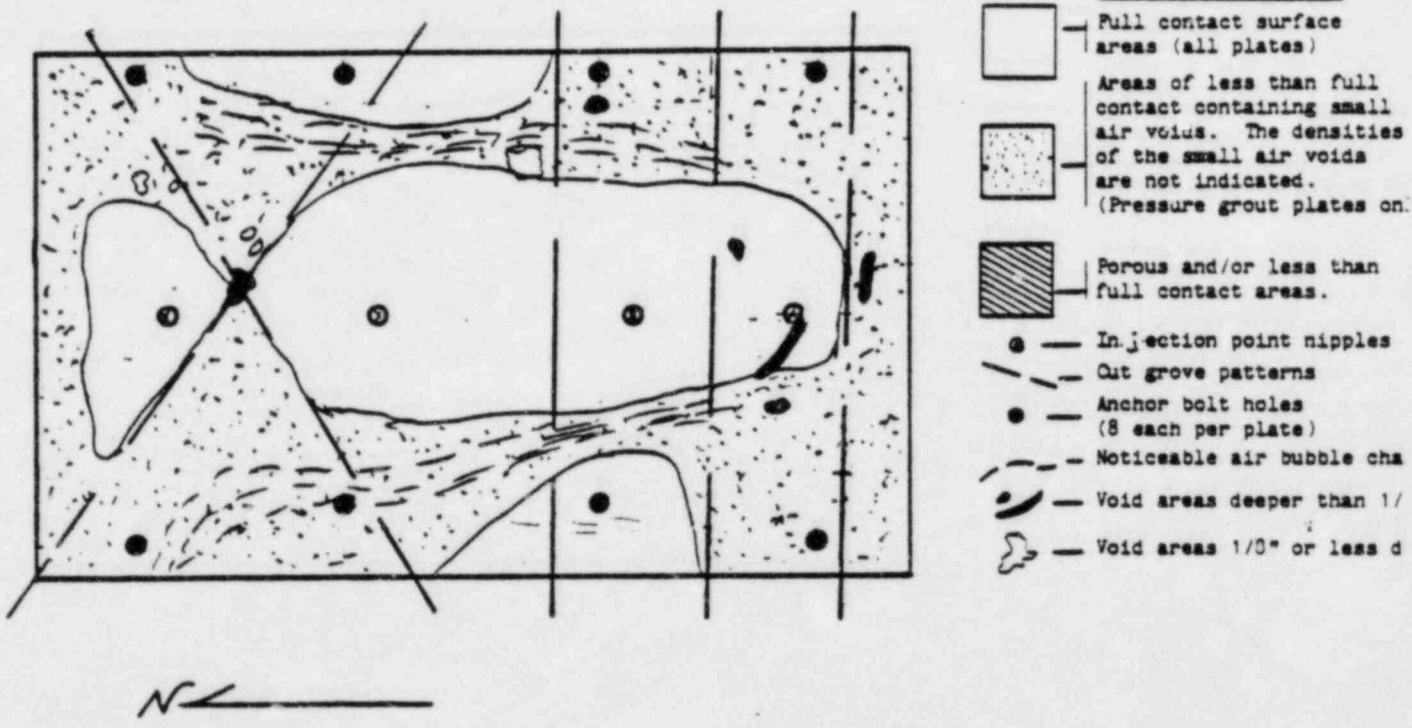
#1 (South)	No (Peripheral bubbles from #2 over hole)	#3	No
#2	Yes - Towards #1	#4 (North)	No

2. Air noted in underslab notch grout projections? Yes

3. Grout leakdown at air vent holes? No, but lead wool hole plugs extending into grout slab 3/4" past plate edge.

4. Noticeable general air bubble pattern? Yes

Visual interpretation sketch (no scale):



N

5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.9% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

North ½: Poor, (satisfactory), good, excellent
South ½: Poor, (satisfactory), good, excellent

7. General evaluation of test plate: For some reason, this plate has a lot of little air bubbles and they form chains of flow lines. This is by far the worst of the plates (#2, #3, & #4) placed on same day as far as general appearance and numbers of small bubbles are concerned. The cut grooves appear to have had little, if any effect on the pattern of these bubbles. This was the last plate done on this day.

PLATE NO. 2

1. Peripherial bubbles about nipples?

   #1 (South) No #3 No

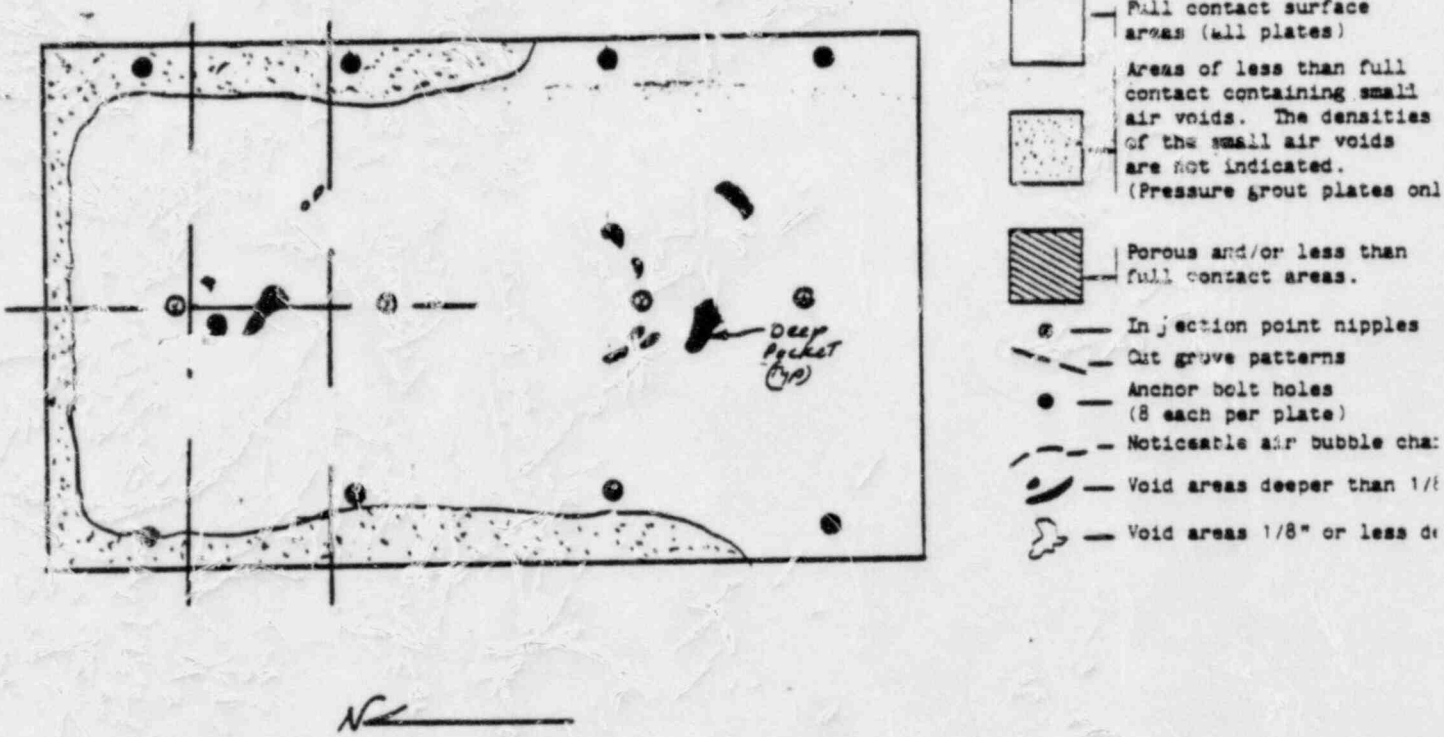
   #2 Yes, Several (one 2½" x 1½") #4 (North) Yes, (two 1" x ¼" & 3½" x ½")

2. Air noted in underslab notch grout projections? Yes, Minor

3. Grout leakdown at air vent holes? n/a
   Leadwool/exp. metal bulkhead

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):



N

5. Calculated void area in excess of 1/4" Ø nominal sizing = .05% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good), excellent
   South ½: Poor, satisfactory, (good), excellent

7. General evaluation of test plate: The grooved end seemed to have more small air bubbles than the non-grooved end. Both ends had several large trapped air pockets. In general, the non-grooved end looked better. Steel plate size should be increased to account for approximately 3/4" to 1"± grout pad loss, due to lead-wool packing.

PLATE NO. 3

1. Peripherial bubbles about nipples?

   #1 (South) No — #3 Yes, 4 deep approx. 1½" long

   #2 Yes, one (2½" x 1½") — #4 (North) Yes, shallow & minor

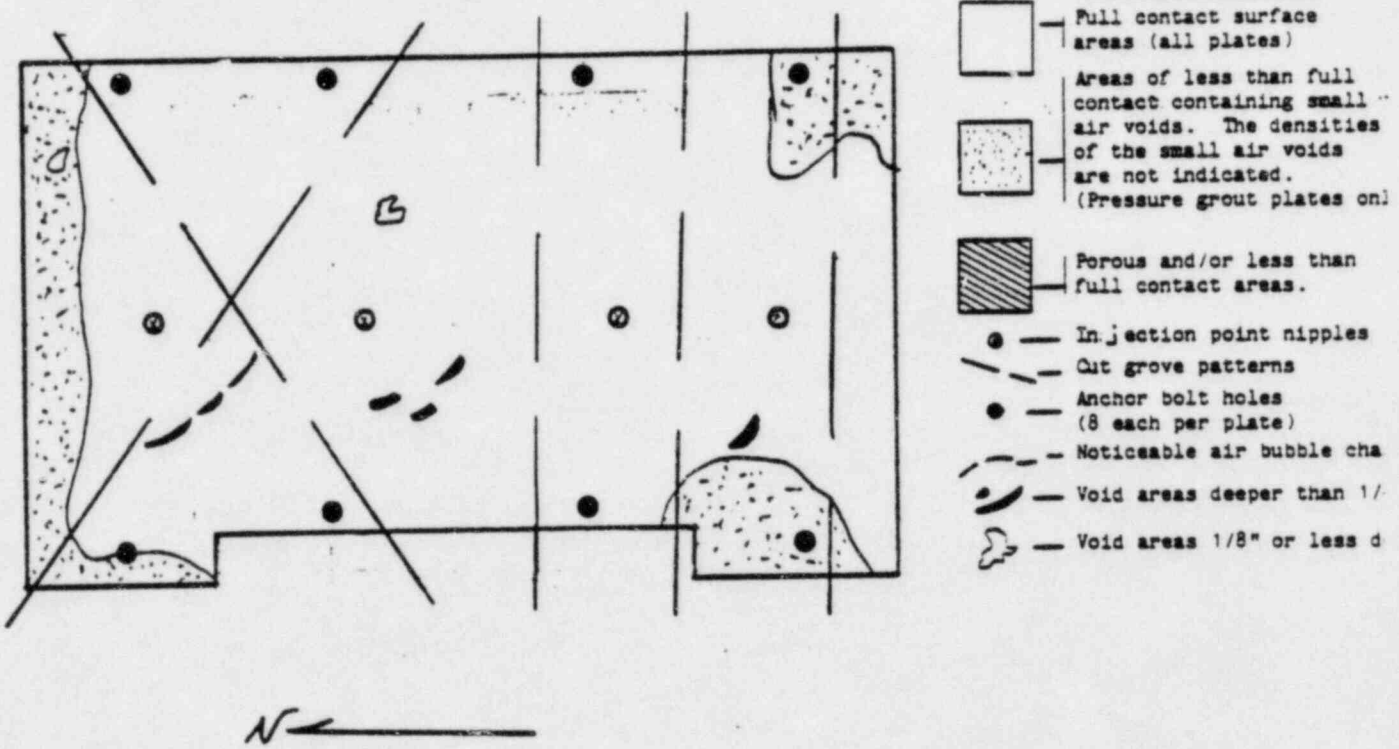
2. Air noted in underslab notch grout projections? Yes, minor

3. Grout leakdown at air vent holes? n/a

   Lead wool/Exp. metal bulkhead

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.7% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good) excellent

   South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: Overall grout/cement contact surface is good; however, the leadwool packing bulkhead undercuts the grout pad so plate size would have to be increased. No noticable difference between the cut groove patterns.

PLATE NO. 4

1. Peripherial bubbles about nipples?

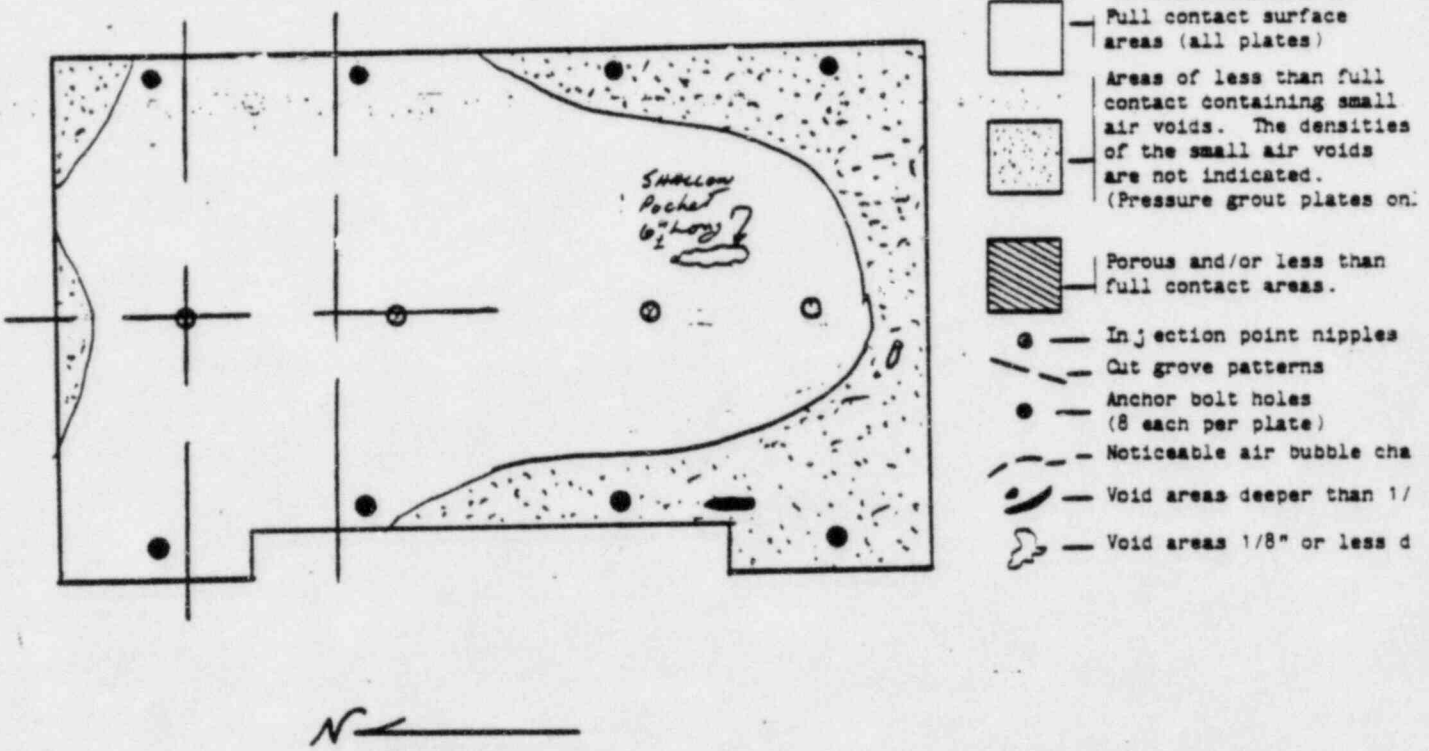
#1 (South)	No	#3	No
#2	No	#4 (North)	Yes, one

2. Air noted in underslab notch grout projections? Yes

3. Grout leakdown at air vent holes? No, one wood plug too deeply inserted, though.

4. Noticeable general air bubble pattern? Yes

Visual interpretation sketch (no scale):



N

5. Calculated void area in excess of 1/4" Ø nominal sizing = 1.2% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

North ½: Poor, satisfactory, (good) excellent
South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: The wooden bulkhead with wooden grout hole plugs seem to have worked quite well. No major advantages noted for grooved half.

PLATE NO. 5 - Masterflow #713 Drypack

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

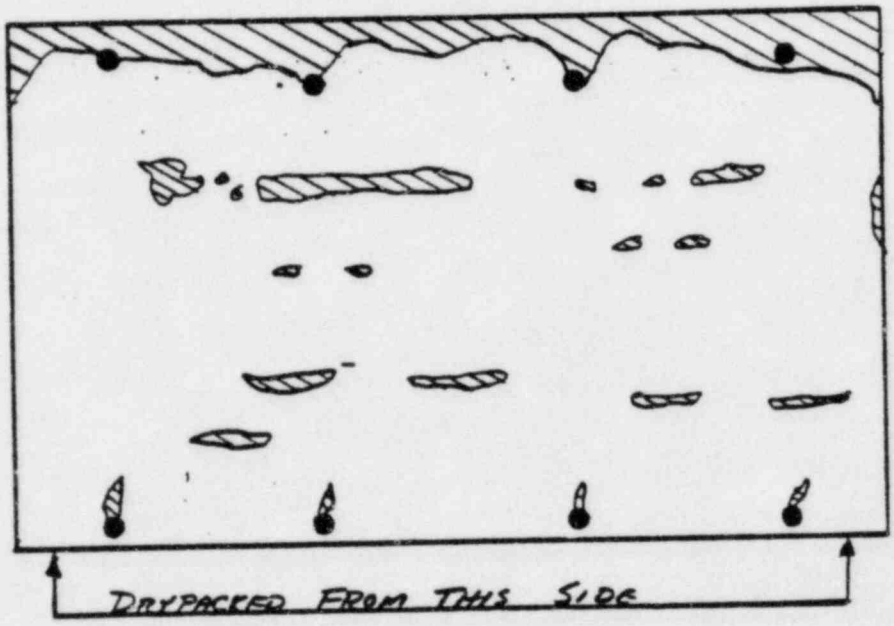
   #2 n/a #4 (North) n/a

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? n/a

4. Noticeable general void pattern? Yes

Visual interpretation sketch (no scale):



LEGEND

- Full contact surface areas (all plates)
- Areas of less than full contact containing small air voids. The densities of the small air voids are not indicated. (Pressure grout plates on
- Porous and/or less than full contact areas.
- Injection point nipples
- Cut grove patterns
- Anchor bolt holes (8 each per plate)
- Noticeable air bubble cha
- Void areas deeper than 1/
- Void areas 1/8" or less c

5. Calculated void area in excess of 1/4" Ø nominal sizing = 14.0% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: (Poor) satisfactory, good, excellent
   South ½: Poor, (satisfactory) good, excellent

7. General evaluation of test plate: General appearance of concrete/ grout contact surface is lesser than the worst fluid pumped grout test plate.

PLATE NO. 5A - Masterflo 713 Drypack

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

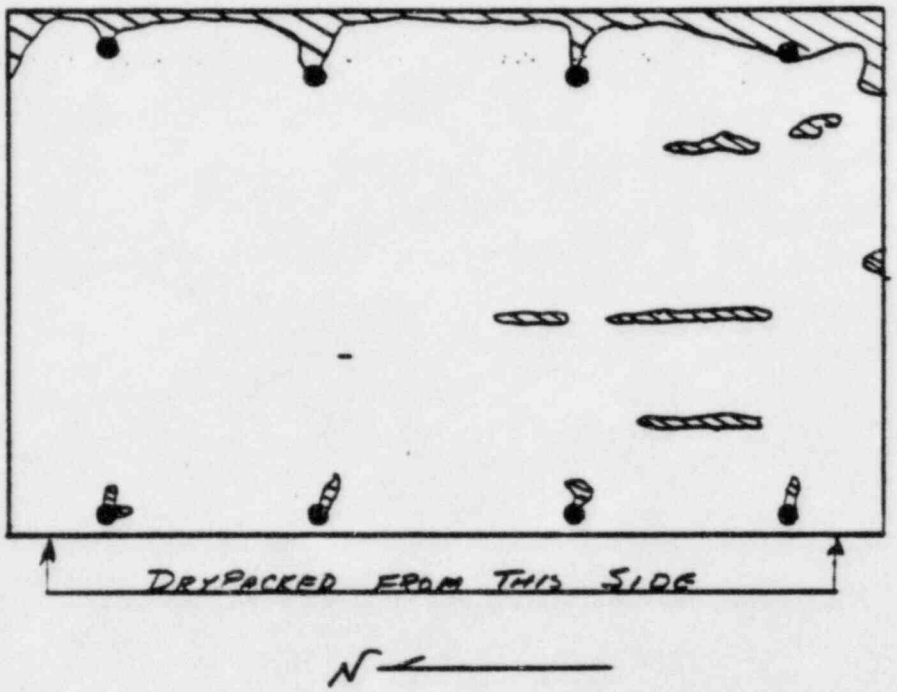
   #2 n/a #4 (North) n/a

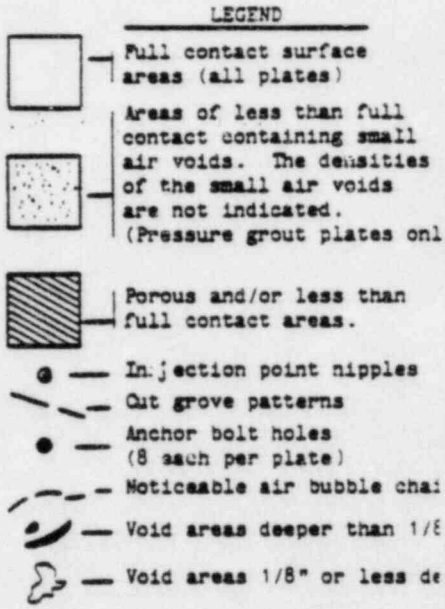
2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? n/a

4. Noticeable general void pattern? Yes

Visual interpretation sketch (no scale):





5. Calculated void area in excess of 1/4" Ø nominal sizing = 7.0% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good) excellent

   South ½: Poor, (satisfactory) good, excellent

7. General evaluation of test plate: General appearance of contact surface is not as good as best pumped grout test plate, but as good as the worst.

PLATE NO. 5B - Sand/Ceme Drypack

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

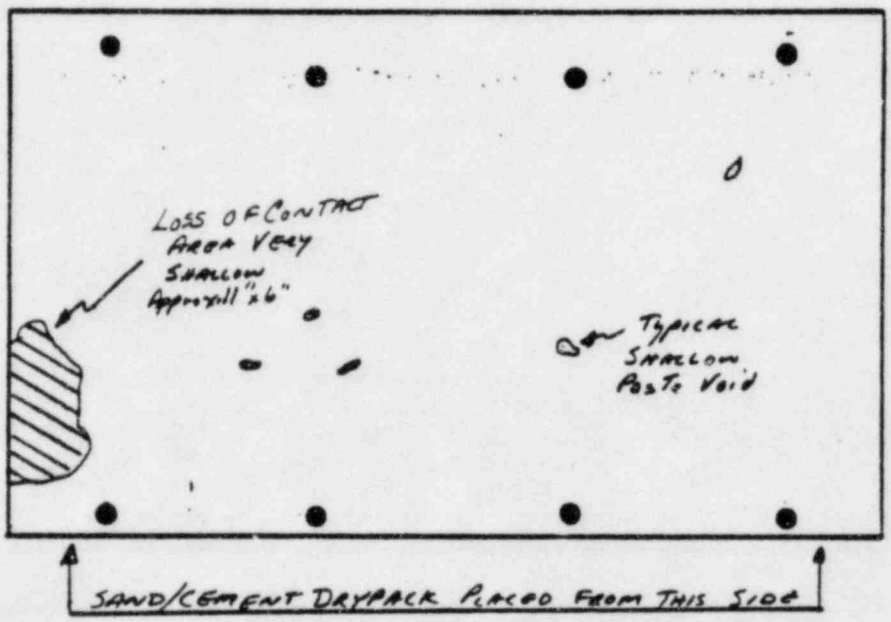
   #2 n/a #4 (North) n/a

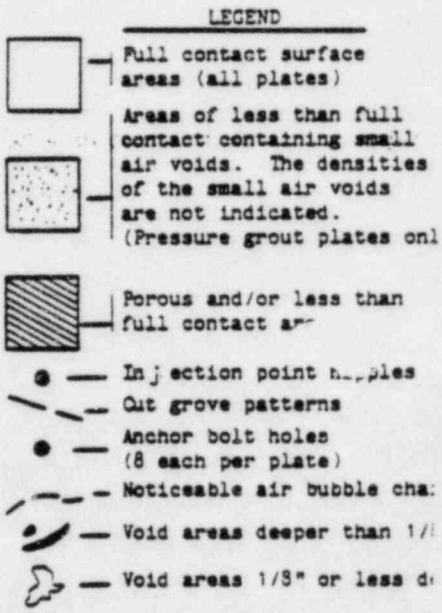
2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? n/a

4. Noticeable general void pattern? No

Visual interpretation sketch (no scale):





N

5. Calculated void area in excess of 1/4" Ø nominal sizing = 2.49% percent of surface area. Neglecting lost contact area = 0.1%

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good), excellent

   South ½: Poor, satisfactory, good, (excellent)

7. General evaluation of test plate: Good sound plate, most voids were in surface paste only. Test plate was solid, however, it appears that some, if not all of the West side anchor bolts have slipped some in the final stages of packing. Basic grout pad thickness is 1½", but West face is 1 3/4" at N&S ends and 2" at midpoint. This is probably when large lost contact area was developed.

PLATE NO. 6

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

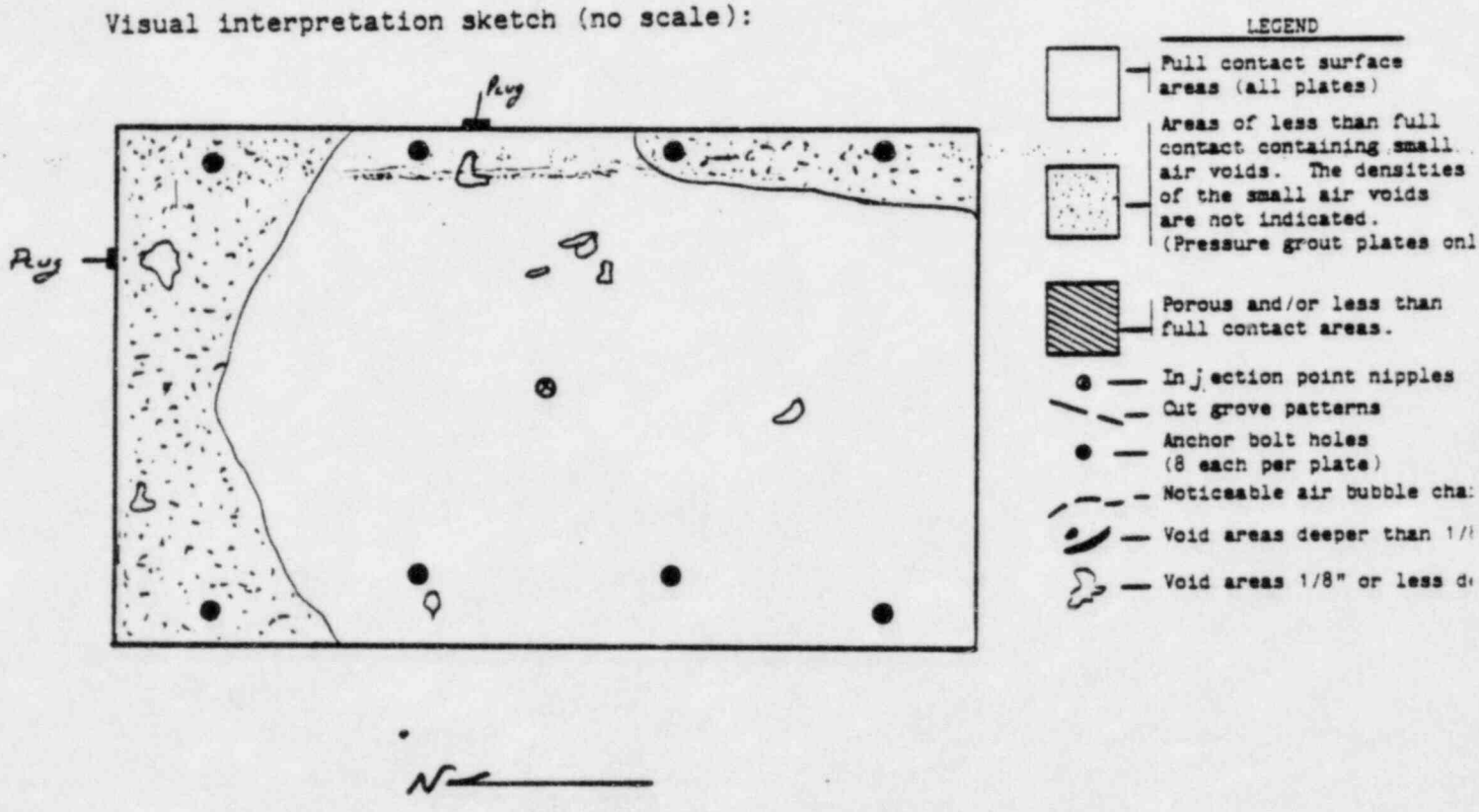
   #2 n/a #4 (North) n/a

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? Yes, at 2 locations, both are lead wool plugs (3" x 2") at North end east plug & 1½" x ½" at East side north middle plug , both are shallow depressions.

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.8% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good) excellent

   South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: The scarrified contact surface is so irregular that it is hard to evaluate with grooved and non-grooved test plates. Again, the lead wool grout plugs penetrate into grout slab at approximately 3/4". Overall evaluation is that this appears to be one of the better looking less flawed test plates.

PLATE NO. 7

1. Peripherial bubbles about nipples?

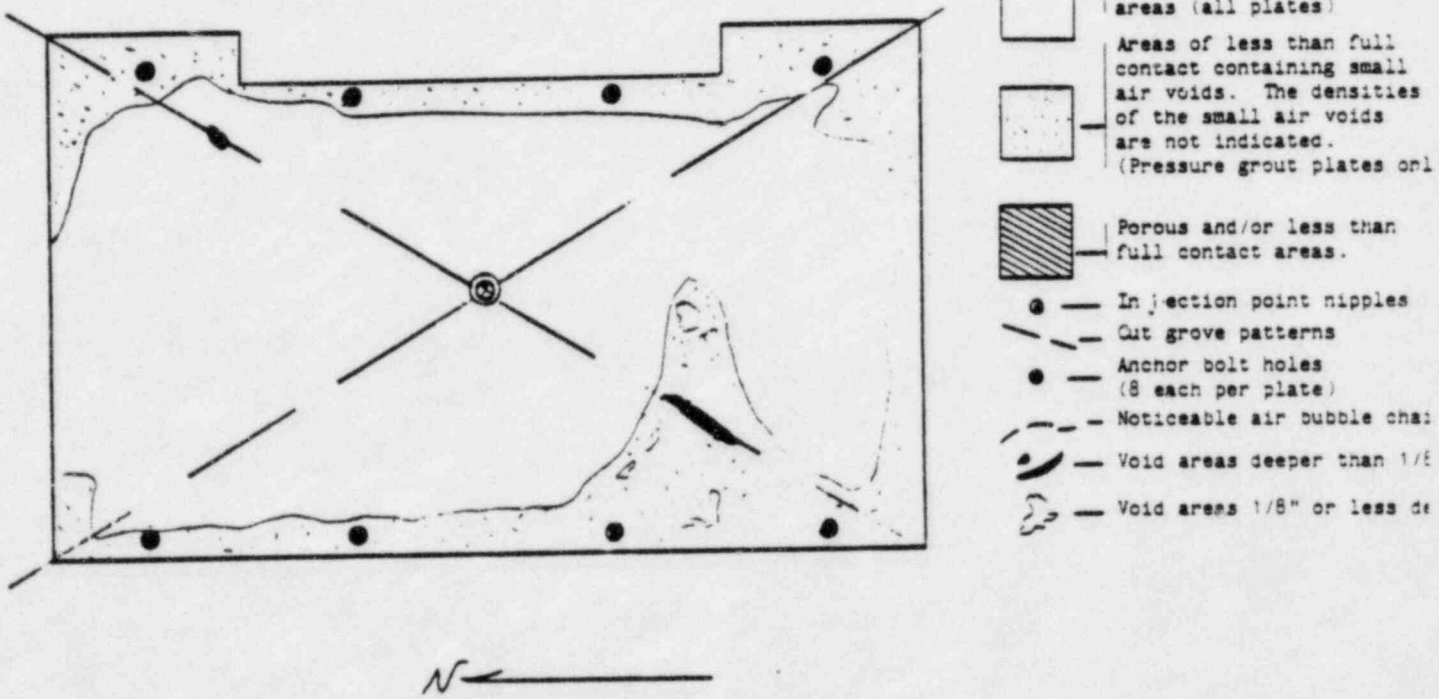
#1 (South)	n/a	#3	n/a
#2	No	#4 (North)	n/a

2. Air noted in underslab notch grout projections? Yes

3. Grout leakdown at air vent holes? No

4. Noticeable general air bubble pattern? Yes, minor

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.5% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

North ½: Poor, satisfactory, (good) excellent
South ½: Poor, satisfactory, (good) excellent

7. General evaluation of test plate: The expansion bolts on the East side appear to have pulled or never were snug at 1½". Grout pad thickness increased up to 2½" nominally. Overall evaluation is as good as plate #6. No advantage noted due to fountain or cut grooves.

PLATE NO. 8

1. Peripherial bubbles about nipples?

   #1 (South) n/a #3 n/a

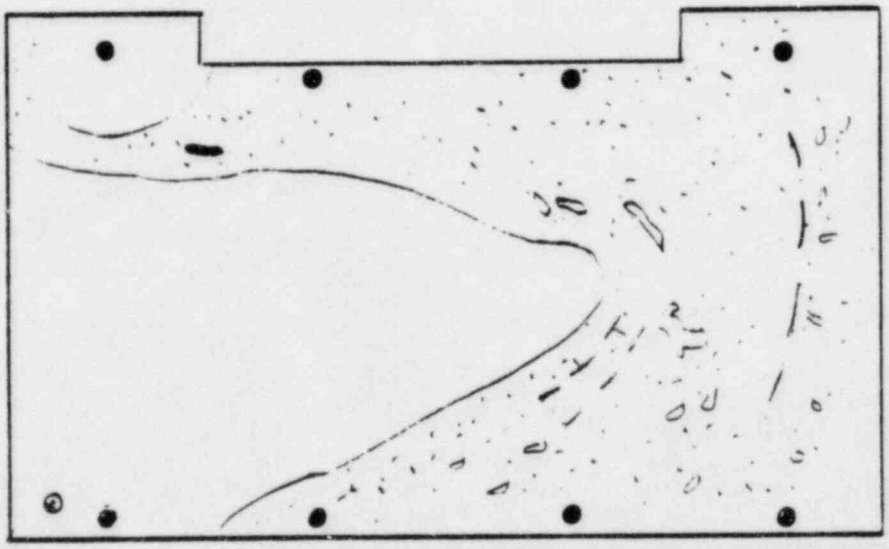
   #2 n/a #4 (North) No, (in West corner)

2. Air noted in underslab notch grout projections? n/a

3. Grout leakdown at air vent holes? No

4. Noticeable general air bubble pattern? Yes

Visual interpretation sketch (no scale):



5. Calculated void area in excess of 1/4" Ø nominal sizing = 0.9% percent of surface area.

6. General quality evaluation of grout/concrete contact area.

   North ½: Poor, satisfactory, (good), excellent

   South ½: Poor, (satisfactory), good, excellent

7. General evaluation of test plate: General condition evaluation is that this plate is no worse than plate #1. One injection nipple in the corner gives a lesser quality product than one in the middle of the plate.

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT C

LABORATORY TEST DATA

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220

REPORT OF NON-SHRINK GROUT TESTS

INFORMATION TEST ONLY

1. Placement Identification: NON-Q (TRAINING) Lot No.: * B2662Q3 Exp. Date: 9-84			2. Date Placed: 6-28-83
3. Placement Location: POSEY VILLE LAY DOWN AREA			
3A. PLANT DATA — Source: MERRENTIME HANDMIXER		Grout Brand & Type: MASTERBUILDERS MASTERFLOW 713 FLOW GROUT	
4. Mix: 713 Flow Grout	5. Class: II	6. "Q" List: ☐ Yes ☒ No	7. Required Strength: 4000 PSI At 28 Days
8. Test Data At: @ HANDMIXER IN POSEYVILLE LAY DOWN AREA		9. Stopwatch: 695	Calibration Date: 11-3-83
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 19.1 No. 2 27.1 No. 3 31.1 Average 25.8 Sec		11. Flowcone: 498	Calibration Date: 7-22-83
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout: 61 °F	14. Temp.: Air: 67 °F
15. Initials: LH SF 6-28-83			
16. Initial Curing Thermometer: 790	Calib. Date: 10-26-83	17. Time of Testing: 1331 Hrs at 1 Bag.	18. Time of Molding: 1343 Hrs
19. Initial Curing ~~ASTM C-31-80~~ SF 6-28-83: 71 °F To 77 °F		20. Stripped ASTM-C109-75: 6-29-83 At 1135 Hrs	21. Initials: SF 6-29-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load In Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G164 — 2491	6-29-83	7-1-83	3	16,750	2x2	4.0	A	1	2	4,188
2492			3	16,450	2x2	4.0	A	1	2	4,112
2493			3	16,450	2x2	4.0	A	1	2	4,112
Average		7-1-83	3							~~4,110~~ 4,170 SF 7-1-83
2494		7-5-83	7	25,200	2x2	4.0	A	1	6	6,300
2495			7	26,150	2x2	4.0	A	1	6	6,538
2496			7	26,300	2x2	4.0	A	1	6	6,575
G164 Average	6-29-83	7-5-83	7							6,470

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * NON-ACCEPTED GROUT

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	RZ	7-1-83 SF 7-2-83	
7	(RTB) KK	7-6-83 SF 7-6-83	

38. Laboratory Supervisor Signature | 39. Date

Type of Breaks: A-Cone, Mortar Failure C-Shear, Mortar Failure E-Other

QCF-74 Rev. 1

G-0213-1

UNITED STATES TESTING COMPANY, C.

TRAINING-INFO ONLY!

CEMENT LOCATION: ROSEVILLE LAYDOWN AREA DATE 6-28-83

CEMENT IDENTIFICATION: NON "Q" TRAINING GROUT TYPE: 713 FLOW GROUT (MASTER BUILDERS) / MASTER FLOW

FLOW DATA CRD-C-611-80/QCP-18

Test Number #	1	2	3	4
Set Number #	LH-28-83 N/A C-164	G-164		
Time of Sample	1312	1331		
Ambient Temperature (°F)	71	67		
Grout Bag Temperature (°F)	75	75		
Water Temperature (°F)	66	44		
Mix Temperature (°F)	73	61		
Flow Data				
First (sec.)	22.8	19.1		
Second (sec.)	42.4	27.1		
Third (sec.)	*	31.1		
. (sec.)		25.8		
Tested By	SF, LH 6-28-83	SF, LH 6-28-83		

Equipment Data	M & TE Number	Calibration Due Date
Flow Cone	498	7-22-83
Thermometer	211	9-5-83
Stopwatch	695	11-3-83

Lot Number: B2662Q3 Expiration Date: 9-84 IR No. N/A

Struck off @ 1435 Hrs. on 6-28-83, after initial set.

Workability ended @ N/A Hrs. on N/A

Remarks:

"NON-ACCEPTED" GROUT

* BROKE EARLY

mold Q 1343

INFORMATION

TEST ONLY

Checked by: SF

Date: 6-29-83

MEI 123W 6-3-83

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF NON-SHRINK GROUT TESTS

INFORMATIO...
TEST ONLY

1. Placement Identification: NON "Q" -- TRAINING	Lot No.: B266203	Exp. Date: 9-84	2. Date Placed: 6-29-83	
3. Placement Location: POSEYVILLE LAYDOWN AREA				
3A. PLANT DATA	Source: MERGENTIME HAND MIXER		Grout Brand & Type: MASTER BUILDERS MASTERFLOW 713 FLOW GROUT	
4. Mix: 713 FLOW GROUT	5. Class: II	6. "Q" List: ☐ Yes ☒ No	7. Required Strength: 4000 PSI	At 28 Days
8. Test Data At: MERGENTIME HANDMIXER POSEYVILLE LAYDOWN AREA		9. Stopwatch: 695	Calibration Date: 11-3-83	
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 18.5 No. 2 24.7 No. 3 29.3 Average 24.2 Sec			11. Flowcone: 498	Calibration Date: 7-22-83
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout: 63 °F	14. Temp.: Air: 78 °F	15. Initials: SF, LH 6-29-83
16. Initial Curing Thermometer: 783	Calib. Date: 12-16-83	17. Time of Testing: 1307 Hrs at 1 Bags		18. Time of Molding: 1320 Hrs
19. Initial Curing ~~ASTM-C-31-80~~ LH 6-29-83: 74 °F To 78 °F		20. Stripped ASTM-C109-75: 6-30-83 At 1025 Hrs		21. Initials: SF 6-30-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load In Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G-166 2515	6-29-83	7-2-83	3	14,475	2x2	4.0	A	1	2	3,619
2516	〃	〃	3	14650	2x2	4.0	A	1	2	3,662
2517	〃	〃	3	14,475	2x2	4.0	A	1	2	3,619
G-166 Average	6-29-83	7-2-83	3							3,630
2518	〃	7-6-83	7	25,000	2x2	4.0	A	1	6	6250
2519	〃	〃	7	23,000	2x2	4.0	A	1	6	5,750
2520	〃	〃	7	23,500	2x2	4.0	A	1	6	5,875
G-166 Average	6-29-83	7-6-83	7							5,960

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * "NON-ACCEPTED GROUT"

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	PD	PD 7-6-83 SF 7-7-83	
7	PD	PD 7-9-83 SF 7-7-83	

38. Laboratory Supervisor Signature | 39. Date

G/M-0213-1

Type of Breaks: A-Cone, Mortar Failure C-Shear, Mortar Failure E-Other

UNITED STATES TESTING COMPANY, INC. | INFORMATION TEST ONLY

CEMENT LOCATION: POSEYVILLE LAYDOWN AREA DATE 6-29-83

CEMENT IDENTIFICATION: NON "Q" TRAINING GROUT TYPE: MASTER BUILDERS 713 FLOW GROUT / MASTER FLOW

FLOW DATA CRD-C-611-80 / QCP-18

Test Number #	1	2	3	4
Set Number #	G-166			
Time of Sample	1307			
Ambient Temperature (°F)	78			
Grout Bag Temperature (°F)	74			
Water Temperature (°F)	46			
Mix Temperature (°F)	63			
Flow Data				
First (sec.)	18.5			
Second (sec.)	24.7			
Third (sec.)	29.3 -			
Avg. (sec.)	24.2 -			
Tested By	SF, LH 6-29-83			

Equipment Data	M & TE Number	Calibration Due Date
Flow Cone	498	7-22-83
Thermometer	211	9-5-83
Stopwatch	695	11-3-83

Lot Number: *B2662Q3 Expiration Date: 9-84 IR No. N/A

Struck off @ 1400 Hrs. on 6-29-83, after initial set.

Workability ended @ N/A Hrs. on N/A

Remarks:

*"NON-ACCEPTED" GROUT

4000 PSI @ 28 DAYS

molded @ 1320

Checked by: SF ND

Date: 6-30-83 7-6-83

TEI 123W 6-3-83

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220

REPORT OF NON-SHRINK GROUT TESTS

TEST ONLY

1. Placement Identification: NON "Q" - TRAINING — Lot No.: * B246202 — Exp. Date: 9-84
2. Date Placed: 6-29-83
3. Placement Location: POSEYVILLE LAYDOWN AREA
4A. PLANT DATA — Source: MERGENTIME HAND MIXED — Grout Brand & Type: MASTER BUILDERS MASTERFLOW 713 DRYPACK
5. Mix: 713 DRYPACK — Class: II — 6. "Q" List: ☐ Yes ☑ No — 7. Required Strength: 4000 PSI At 28 Days
8. Test Data At: MERGENTIME HANDMIXED POSEYVILLE LAYDOWN AREA — Stopwatch: N/A — Calibration Date: N/A
10. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 N/A No. 2 N/A No. 3 N/A Average N/A Sec — 11. Flowcone: N/A — Calibration Date: N/A
12. Thermometer: 211 — Calibration Date: 9-5-83 — 13. Temp.: Grout: 87 °F — 14. Temp.: Air: MIX 82 / PLACEMENT 77 °F — 15. Initials: SF, LH 6-29-83
16. Initial Curing Thermometer: 758 — Calib. Date: 9-22-83 — 17. Time of Testing: 1442 Hrs at 1 Bags — 18. Time of Molding: 1444 Hrs
19. Initial Curing ASTM-C-31-69: °F To °F — 20. Stripped ASTM-C109-75: At Hrs — 21. Initials

COMPRESSIVE STRENGTH DATA ASTM-C-109-75 TAMPER: 741 / 8-3-83

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G-168F 2539	6-29-83	7-2-83	3	35,150	2x2	4.0	A	3	0	8788
2540	1	1	3	35,100	2x2	4.0	A	3	0	8,775
2541			3	35,150	2x2	4.0	A	3	0	8,788
G-168F Average	6-29-83	7-2-83	3							8780
2542	1	7-6-83	7	39,000	2x2	4.0	C	7	0	9,750
2543		1	7	39,500	2x2	4.0	C	7	0	9,875
2544			7	37,000	2x2	4.0	C	7	0	9,250
G-168F Average	6-29-83	7-6-83	7							9,630

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: * "NON-ACCEPTED GROUT"

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.	Remarks
3	LH	D 7-6-83 SF 7-5-83		@ DURING 6-30-83 SPECIMEN PICK UP OF 2x4 HOLD DOWNS MOLDS USED COVERING MOLDS REPLACED SINCE TWO WERE
7	BW	M 7-9-83 SF 7-7-83		REMOVED BY SOMEONE AFTER MOLDING
				38. Laboratory Supervisor Signature — 39. Date

Type of Breaks: A-Con Mortar Failure C-Shear. Mortar Failure E-Other

QCF-74 Rev. 1

INFORMATION
TEST ONLY

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF NON-SHRINK GROUT TESTS

1. Placement Identification: NON "Q" — TRAINING Lot No.:* B2474 P3 Exp. Date: 8-84
2. Date Placed: 7-1-83
3. Placement Location: POSEYVILLE LAYDOWN AREA
3A. PLANT DATA Source: HAND MIXED BY MERGENTIME
Grout Brand & Type: MASTER BUILDERS MASTERFLOW 713 DRYPACK
4. Mix: 713 DRYPACK
5. Class: II
6. "Q" List: ☐ Yes ☑ No
7. Required Strength: 4000 PSI At 28 Days
8. Test Data At: HAND MIXED BY MERGENTIME POSEYVILLE LAYDOWN AREA
9. Stopwatch: N/A Calibration Date: N/A
10. Flow Data CRD 611-80 Time of Efflux (Sec) No. 1 N/A No. 2 N/A No. 3 N/A Average N/A Sec
11. Flowcone: N/A Calibration Date: N/A
12. Thermometer: 211 Calibration Date: 9-5-83
13. Temp.: Grout 77 °F
14. Temp.: Air mix 70 | placement 78 °F
15. Initials: SF, LH 7-1-83
16. Initial Curing Thermometer: 779 Calib. Date: 10-26-83
17. Time of Testing: 1020 Hrs at 1 Bags
18. Time of Molding: 1022 Hrs
19. Initial Curing ASTM-C-31-69: 67 °F To 81 °F
20. Stripped ASTM-C109-75: 7-2-83 At 1442 Hrs
21. Initials: SF 7-2-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75 TAMPER: 741 / 8-3-83

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load in Pounds	27. Actual Cube Dim	28. Actual Cube Area	29. Type of Break	30. Cure Field	Lab	31. Strength PSI
G-171F 2563	7-1-83	7-4-83	3	33,000	2x2	4.0	A	3 +	0 7	8,250
2564	↓	↓	3	31,250	2x2	4.0	A	3 +	0 7	7,812
2565	↓	↓	3	30,250	2x2	4.0	A	3 +	0 7	7,562
G-171F Average	7-1-83	7-4-83	3							7870
2566	↓	7-8-83	7	33,500	2x2	4.0	A	7	0	8,375
2567	↓	↓	7	33,500	2x2	4.0	A	7	0	8,375
2568	↓	↓	7	33,500	2x2	4.0	A	7	0	8,375
G-171F Average	7-1-83	7-8-83	7							8,380

32. Specimen Size: ☒ 2" x 2" Cube ☐ Other

37. Remarks: *- "NON-ACCEPTED" GROUT

33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
3	PB	PB 7-6-83 SF 7-5-83	
7	RTB	PB 7-12-83 SF 7-11-83	

38. Laboratory Supervisor Signature:
39. Date:

Type of Breaks: A-Cone. Mortar Failure C-Shear. Mortar Failure E-Other
QCF-74 Rev. 1

BECHTEL POWER CORPORATION
MIDLAND NUCLEAR POWER PLANT JOB 7220
REPORT OF NON-SHRINK GROUT TESTS

INFORMATION
TEST ONLY

1. Placement Identification: Morgantime Training — Lot No.: NA — Exp. Date: NA			2. Date Placed: 7-6-83
Placement Location: Poseyville Laydown Area			
PLANT DATA — Source: Morgantime Hand Mix		Grout Brand & Type: AETNA Type I Cement and Sand	
Mix: ment/Sand Dry Pack	5. Class: II	6. "Q" List: ☐ Yes ☑ No	7. Required Strength: 4000 PSI At 28 Days
Test Data At: Poseyville Laydown Area Morgantime		8. Stopwatch: NA	Calibration Date: NA
9. Flow Data CRD 611-80 Time of Efflux (Sec): No. 1 NA No. 2 NA No. 3 NA Average NA Sec			11. Flowcone: NA — Calibration Date: NA
12. Thermometer: 211	Calibration Date: 9-5-83	13. Temp.: Grout 70 °F	14. Temp.: Air mix 75 placement 78 °F — 15. Initials: KH BW 7-6-83
16. Initial Curing Thermometer: 256	Calib. Date: 9-22-83	17. Time of Testing: 1835 Hrs at 1 Bag	18. Time of Molding: 1835 Hrs
19. Initial Curing ~~ASTM-C-31-68~~ ASTM-C-31-64 BW 7-6-83: 58 °F To 82 °F		20. Stripped ASTM-C109-75: 7-7-83 At 11:05 Hrs	21. Initials: KH BW 7-7-83

COMPRESSIVE STRENGTH DATA ASTM-C-109-75 — Temp. 241 8-5-83; #4 Sieve 239. 9-18-83

22. Specimen Identification	23. Date Molded	24. Date Tested	25. Age	26. Total Load In Pounds	27. Actual Cube Dim.	28. Actual Cube Area	29. Type of Break	30. Cure: Field	30. Cure: Lab	31. Strength PSI
G-184F 2692	7-6-83	7-9-83	3	35,500	2x2	4.0	A	3	0	8,875
2693	"	"	"	36,500	2x2	4.0	A	3	0	9,125
2694	"	"	"	~~35,500~~ 35,000	2x2	4.0	A	3	0	8,750
Average	"	7-9-83	3							8,920
2695	"	7-13-83	7							
2696	"	"	"							
2697	"	"	"							
G-184F Average	7-6-83	7-13-83	7							

32. Specimen Size	33. Age (Days)	34. Tested By	35. Checked By	36. Reviewed by Q.C.
☑ 2" x 2" Cube ☐ Other	3	KH	7-12 JF	

37. Remarks

38. Laboratory Supervisor Signature

39. Date

Type of Breaks: A-Cone, Mortar Failure C-Shear, Mortar Failure E-Other

OVERHEAD FLUID GROUTING TEST PROGRAM

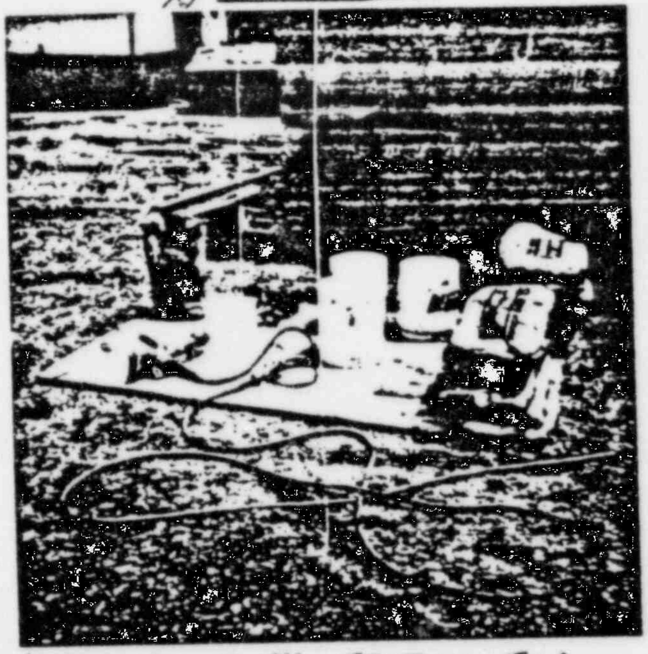
EXHIBIT D

PHOTOGRAPHICS

N ← #1

6/28/83 GROUTING TEST SITE @ POSEYVILLE YARD.

N ← #2



6/28/83 GROUT MIX STATION FOR TEST RATES #1 thru #4 POSEYVILLE YARD

#3 → N

6/28/83 U.S. TESTING - FLOW CONE SETUP FOR TEST RATES #1 thru #4 ONE SUCCESSFULL TEST TAKEN FOR ALL RATES PER MCP15.00 SECT. 11.2

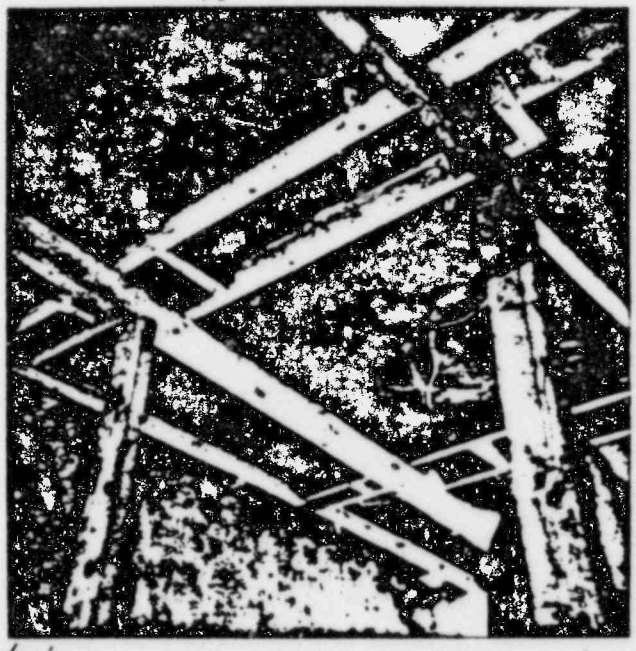
#4 → N

6/28/83 GROUT PUMP SET UP
PUMP = AIRPLACO MODEL #HG-5, S.N. - 821121, PRESSURE GAUGE 0-60P: 2½"Ø DIAL
ALL APPEAR TO BE IN GOOD CONDITION.

N ← #5

6/26/83 GROUTING TEST SITE NORTH BAY (RATES #1—#4) LOOKING EAST SHOWING WIND BREAK ON FAR END AND BULKHEAD WITH BRACING

N ← #6



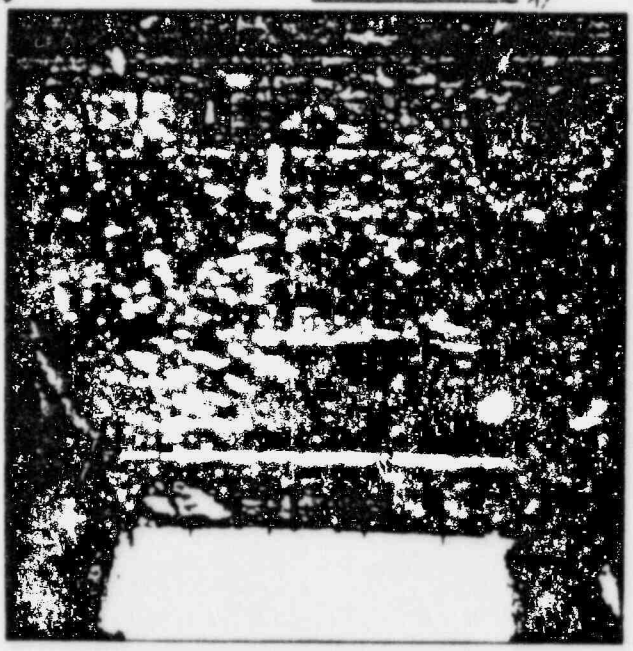
6/28/83 WOODEN BULKHEAD AT RATES #2 & #3. BOTH WITH LEAD WOOL/EXP. METAL BEHIND

#7 → N

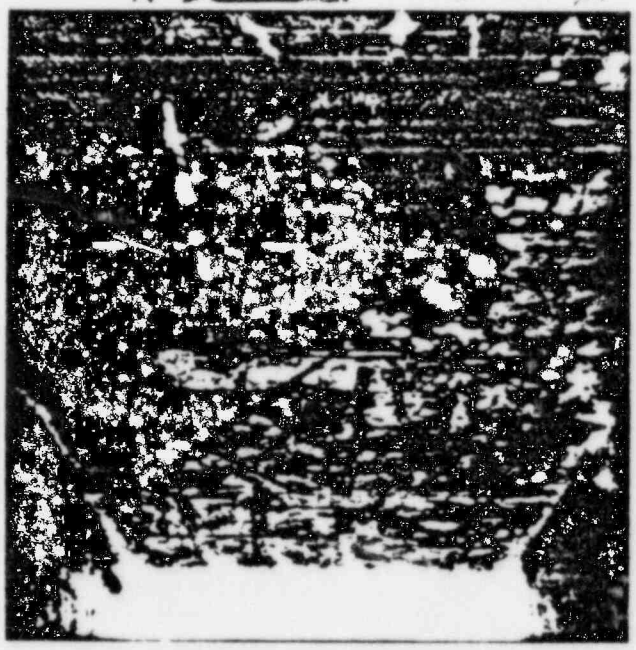
6/28/83 TYPICAL GROUT NIPPLE SET-UP WITH C.P. COUPLING, PIPE NIPPLE, VALVE and WELDED NIPPLE. (SHOWN @ RATE No. 4)

#8 → N

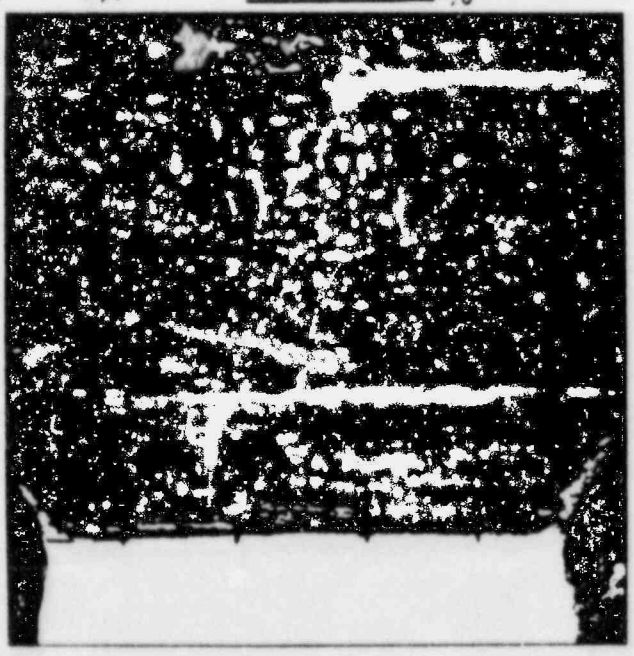
6/28/83 WOOD BULKHEAD WITH AIR VENTS PLUGGED @ EAST SIDE OF RATE No. 4. RATES SUPPORTED BY ANCHOR BOLTS ONLY



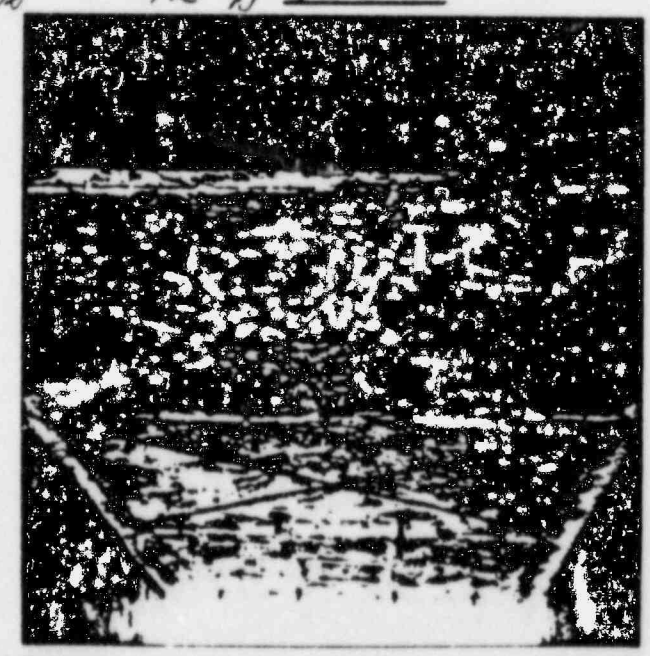
7/2/83 North Bay underslab looking west. Cut groove patterns visable.



7/2/83 North Bay underslab looking east. Cut groove patterns visable



7/2/83 South Bay underslab looking west. Scarified pad #6 and drypack pad #5(85N) at far end



7/2/83 South Bay underslab looking east. Scarified and cut grooves visable.

#13

6/29/83 PLATE No. 1 (NORTH END)
CONCRETE CUT "X" PATTERN, 4 NIPPLES FOR RATE, WOOD BULKHEAD

#14

6/29/83 PLATE No. 1 (SOUTH END)
CONCRETE CUT PARALELL LINES, 4 NIPPLES FOR RATE, WOOD BULKHEAD

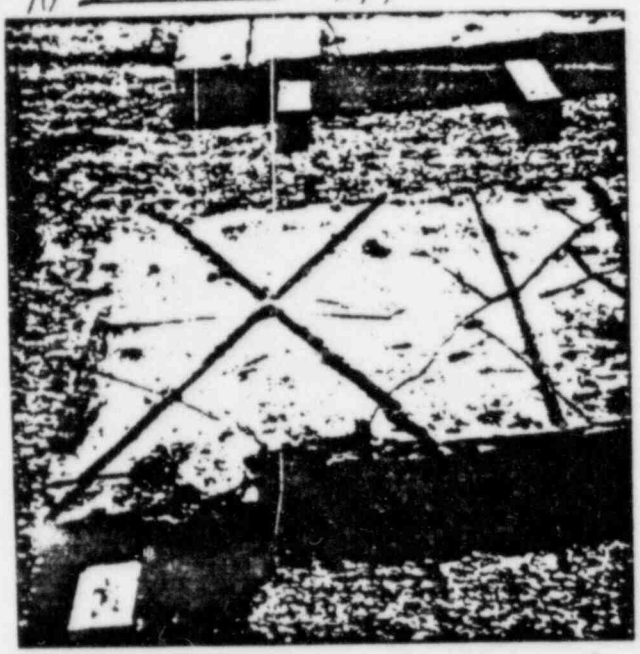
#15

6/29/83 PLATE No. 2 (NORTH END)
CONCRETE CUT "H" PATTERN
LEAD WOOL/EXP. METAL BULKHEAD
4 GROUT NIPPLES FOR WHOLE RATE

#16

6/29/83 PLATE No. 2 (SOUTH END)
NO CONCRETE CUT, 4 NIPPLES,
LEAD WOOL/EXP. METAL BULKHEAD

N ← #17



6/29/83 RATE No. 3 (NORTH END)
CONCRETE CUT "X" PATTERN, 4 NIPPLES FOR RATE, LEADWOOL/EXP. METAL

N ← #18

6/29/83 RATE No. 3 (SOUTH END)
CONCRETE PARALELL LINES, 4 NIPPLES FOR RATE, LEADWOOL/EXP. METAL BULKHEAD

N ← #19

6/29/83 RATE No. 4 (SOUTH END)
NO CONCRETE CUT, 4 NIPPLES FOR RATE, WOOD BULKHED

N ← #20

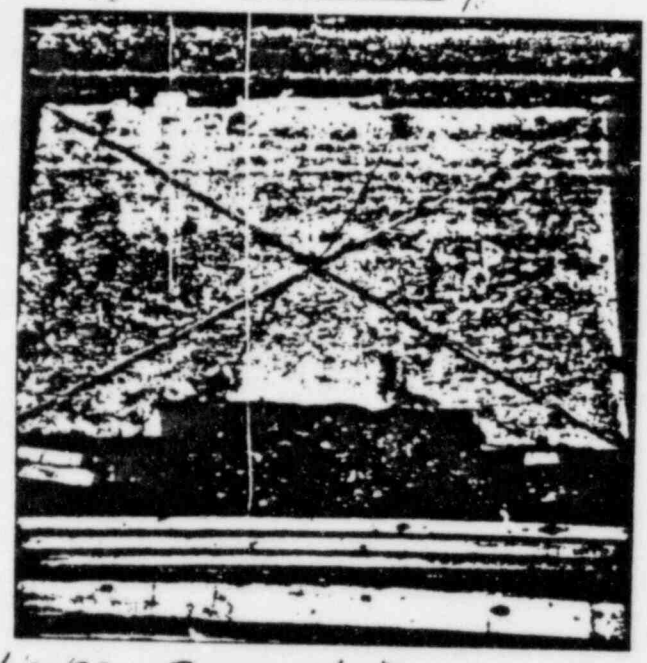
6/29/83 RATE No. 4 (NORTH END)
CONCRETE CUT "H" PATTERN, 4 NIPPLES FOR RATE, WOOD BULKHEAD

6/30/83 PLATE No. 5
TEST PLATE WITH 713 MASTERFLOW DRY PACK (BEFORE STEEL PLATE REMOVAL)

6/30/83 PLATE No. 6
TEST PLATE WITH CHISEL PREP. ON CONCRETE SURFACE

7/2/83 PLATE No. 5A (SOUTH END)
SECOND DRYPACK TEST PLATE AT SAME LOCATION ALSO USING MASTERFLOW #713

7/2/83 PLATE #5A (NORTH END)
SECOND DRYPACK TEST PLATE AT SAME LOCATION AS PLATE #5



6/30/83 PLATE No. 7
TEST PLATE WITH CORE HOLE IN SLAB @ CENTER.

7/1/83 PLATE No. 8
TEST PLATE WITH GROUTING NIPPLE IN NORTH WEST CORNER

7/1/83 PLATE No. 2
NOTING PERIPHERALLY ORIENTED AIR HOLES AROUND INJECTION HOLE #2 (from SOUTH END)

7/1/83 TEST PLATE No. 2
SHOWING LOST GROUT PAD AREA DUE TO LEAD WALL PARING TYPE BULKHEAD

7/7/83 PLATE No. 5B (SOUTH END)
3RD DRYPACK TEST PLATE BUT MADE WITH SAND/CEMENT MIX #713

7/11/83 PLATE No. 5B (NORTH END)
3RD DRYPACK TEST PLATE BUT MADE WITH SAND/CEMENT MIX NOT #713

7/7/83 PLATE No. 5B (NORTH WEST CORNER)
APPEARANT LOSS OF CONTACT AREA 2 11"x6". THE M.B. APPEAR TO HAVE SLIPPED ON THE WEST SIDE (1½" TO 2" GROUT FIN)

OVERHEAD FLUID GROUTING TEST PROGRAM

EXHIBIT E

PROCEDURE #MCP-15.000 (EXCERPT)

-

-

10.1.1 Forms will be mortar tight and well braced.

10.1.2 Sufficient air relief holes of adequate size will be provided to avoid entrapment of air as determined by the MFE and concurred with by the RSG FE.

10.1.3 If required, forms will be caulked to prevent leakage of grout and loss of head.

10.2 When pouring grout in a form, the form will be extended high enough to facilitate rapid, continuous and complete filling of the space to be grouted.

11.0 MIXING

11.1 The approximate amount of water/bag to be used for mixing grout will be as listed in Attachment B.

11.1.1 Graduated buckets or containers will be used for determining quantity of water.

11.2 The subcontractor will determine the amount of water to be used in the grout mix at the beginning of each days production, for each type of grout used, excluding Set 45, based on the flow cone tests performed by the contractor's approved testing agency. Acceptance criteria for flow cone tests will be as shown in Attachment B. The amount of water added to Set 45 will always be as listed in Attachment B.

11.3 Any time the amount of water to be used in the grout mix needs to be adjusted, the adjusted amount of water will be based on the results of a flow cone test performed by the contractor's approved testing agency. The subcontractor will notify the RSG FE when additional flow cone tests are required.

11.4 Discard any grout batched for flow cone tests that does not pass the test requirements given in Attachment B.

11.5 Compressive strength test cubes will be cast by the contractor's approved testing agency at the beginning of each days production for each type of grout used. The subcontractor will notify the RSG FE when grout test cubes are required.

11.6 A paddle mixer, vertical shaft vane mixer, or Jiffler-type mixer revolving at less than 300 rpm will be used for mixing grout. In no case will the grout be mixed by hand.

QAP

11.7 Water to be used for mixing will be potable water (i.e., drinking water) having a temperature range indicated in Attachment B.

11.8 Grout as mixed will be between temperature ranges specified in Attachment B. The use of ice water in hot weather and warm water in cold weather is recommended.

11.9 Place at least 90% of the water in the mixer first, then with the mixer operating, steadily add grout and water and mix for the time period shown in Attachment B. If lumps exist, mixing may be continued one additional minute beyond the times listed in Attachment B. If lumps still exist, the grout will be filtered through a 1/8" mesh sieve or discarded.

11.10 Do not mix a grout quantity greater than what can be placed in approximately 15 minutes.

QAP

11.11 Grout will not be re-tempered. Discard any material that becomes unworkable.

12.0 PLACING

QAP

12.1 The grouting sequence for structural plates will be in accordance with approved grout placement plan (Attachment C). Grout placement operations will be observed by the RSG FE for compliance with the approved plan.

12.2 Grout will be placed quickly and continuously to avoid segregation, bleeding, and change in the initial set.

QAP

12.3 During the grout operation, the surfaces which are to come in contact with grout will have a temperature range as indicated in Attachment B.

12.4 Sufficient head will be maintained so that all the spaces become full with grout.

QAP

12.5 Subcontractor may drill additional holes in the form to determine whether grout has filled all the spaces. These holes shall be plugged by wood, ethafoam or cork once the grout starts oozing out of these holes.

12.6 When grout is being placed by means of tube, the tube will be withdrawn slowly in such a manner that the end of the tube is always in grout. Sufficient holes in the form will be provided to facilitate in making this determination. These holes shall be plugged by wood, ethafoam, or cork once the grout starts oozing out of these holes.

F7220-C195-28-7(Q)

12.9.4 For grouting spin lock rock bolts, a steel plate with two keyholes for inserting grout tube and de-air tube will be used. The grout tube will be inserted to the top of the thrust ring. Grout will then be pumped with a hand pump until grout starts oozing out of the de-air tube. The grout tube will be gradually removed once grout starts oozing from the de-air tube. Discharge of grout in a steady stream from the de-air tube is positive proof that the entire hole is filled and entire area of the bolt, including seams, is well grouted. Plug the de-air tube and continue pumping briefly. Then plug the grout hole.

12.9.5 For grouting hollow core spin lock rock bolts, a steel plate with one keyhole for inserting grout tube (for bolting to surface above) or de-air tube (for bolting to surface below) will be used. The hollow tube in the rock bolt is the de-air tube (for bolting to surface above) or the grout tube (for bolting to surface below). Grout will be pumped with a hand pump until grout starts oozing from the de-air tube. Discharge of grout in a steady stream from the de-air tube is positive proof that the entire hole is filled and entire area of the bolt is well grouted. Plug the de-air tube and continue pumping briefly. Then plug the grout hole.

13.0 PRESSURE GROUTING

13.1 The grouting sequence for structural plates will be in accordance with approved grout placement plan (Attachment C). Grout placement operations will be observed by the RSG FE for compliance with the approved plan.

13.2 Pressure grouting will be used where necessary and at the Subcontractor's option. Pressure grouting will be necessary where indicated on the approved grout placement plan (Attachment C) and at other locations determined by the MFE and concurred with by the RSG FE.

13.3 The pump must be a positive displacement type, such as the piston, or a progressive cavity type.

13.4 The pump, the hose, and the nozzle will first be rinsed with water.

QAP

13.5 The grout to be used will be made into a slurry and pumped through the line prior to pumping grout to ensure that neither water nor cement are removed from the grout during pumping, and that the pump and hose will not clog. Slurry will be discarded.

13.6 If a nozzle is not used on a mechanically driven grout pump, first pump water through the line, followed by a pig, and immediately followed by a pump grade grout.

13.7 Grout pressure will be monitored when using mechanically driven pumps to place grout. Maximum grout pumping pressure will be 40 psi or as noted on the approved grout placement plan (Attachment C).

13.7.1 Pressure gauges for monitoring grout pressures will be supplied and calibrated by the Contractor. The range of the gauge will be between 0 and 100 psi (maximum).

13.8 On mechanically driven grout pumps, a pressure gauge will be installed on the pump discharge line, for indicating to the operator incipient line blockage or a plugged insert pipe.

13.9 When grout is pumped into place, grouting is started at the far end of the space to be grouted or as shown on the approved grout placement plan (Attachment C).

13.10 As the grout is pumped in, the nozzle will be backed out slowly so that it always remains within the grout, preventing air entrapment.

14.0 CURING

QAP

14.1 After placement, the grout will be cured in accordance with the methods and temperatures listed in Attachment B until the grout has attained its specified compressive strength.

F7220-C195-28-7

ATTACHMENT B
To MCP 15.000 | 6

	Embeco 636	Masterflow 713	Masterflow 814	Set 45
uantity of Water Per Bag	1.26 gals.*	1.32 gals.*	2.55 gals.*	0.5 gals.
ater Temperature	32°F to 80°F	32°F to 80°F	32°F to 80°F	32°F to 8
rout Temperature	45°F to 70°F	45°F to 70°F	45°F to 75°F	50°F to 8
rface Temperature	45°F to 85°F	55°F to 85°F	55°F to 85°F	50°F to 8
uring Temperature	45°F to 75°F	45°F to 85°F	45°F to 85°F	50°F to 8
uring Method	Cover exposed grout with clean wet rags (not burlap) a minimum of 3 days then apply appropriate Contractor approved and supplied curing compound.	Cover exposed grout with clean wet rags (not burlap) a minimum of 3 days then apply appropriate Contractor approved and supplied curing compound.	Cover exposed grout with clean wet rags (not burlap) a minimum of 3 days then apply appropriate Contractor approved and supplied curing compound.	Air dry. Do not us curing compound. not wet c
low Cone Values	25 ±5 Sec.	25 ±5 Sec.	25 ±5 Sec.	N/A
ixing Time	2-3 Min.	2-3 Min.	Until Uniform 3 Min. Max.	1-1 1/2

*These are recommended quantities of water to be added and may be adjusted as specified in Section 11.2 and 11.3 of this procedure.

F7220-C195-28-4(a

STONE & WEBSTER MICHIGAN, INC.

P.O. BOX 2325, BOSTON, MASSACHUSETTS 02107

United States Nuclear Regulatory Commision
Midland Site Resident Inspection Office
Route 7
Midland, MI. 48640

July 7, 1983

J. O. No. 14358
Ref. MPF 41

Attention Mr. R. Cook

RE: DOCKET NO. 50- 329/330
MIDLAND PLANT-UNITS 1 & 2
INDEPENDENT ASSESSMENT OF UNDERPINNING
REPORT NO. 41

A copy of the Independent Assessment of Underpinning, Weekly Report No. 41 for the period of June 26,1983 through July 2, 1983 is enclosed with this letter. Included as attachments, are the minutes of the daily meetings held during the week between members of the Assessment Team and Site Engineering, Construction, and Quality Assurance personnel.

If you have any questions with respect to this report, please contact me at 617-589-2067.

Very truly yours,

WE Keller for A S Lucks

A. Stanley Lucks
Project Manager

Enclosures

ASL/pd

8308040455

J. O. No. 14358
Midland Plant
Units 1 & 2
Independent Assessment of Underpinning

Weekly Report No 41

June 26, 1983 through July 2, 1983

Personnel on Site

Stone & Webster Michigan, Inc.

W. Kilker	6/27 - 6/29
P. Barry	6/26 - 6/30
L. Rouen	6/27 - 7/ 1
P. Majeski	6/27 - 7/ 2
A. Lucks	6/30

Parsons,Brinckerhoff Michigan, Inc.

W. Parish	6/28 - 7/ 1

Meetings Attended

Date	Represented	Purpose
6/27 - 7/1	Stone & Webster Bechtel Consumers Power Parsons (6/29 - 7/1)	Daily Meeting
6/27	Bechtel Consumers Power Mergentime Stone & Webster	Road Map Meeting for Mass Excavation
6/30	Bechtel Consumers Power Stone & Webster	Weekly Engineering and Construction Coordination Meeting

J. O. No. 14358
Midland Plant
Units 1 & 2
Independent Assessment of Underpinning
Weekly Report No. 41

Activities:

Construction :

Pier KC11: The load transfer was initiated and the proof load criteria met.

Pier E8: The installation of rebar in the hammerhead was completed and concrete was placed.

Pier E10: The acceptance criteria for load transfer was met. However, the pier remains on active jacks to obtain engineering data for evaluation of secondary settlement.

Pier E8 N-S Bulkhead: Excavation of the drift and installation of lateral bracing continued to approximately 15 % completion.

Pier KC2: Bearing plates and jacks were installed and load transfer commenced.

Pier W8: Installation of rebar in the hammerhead was completed and the concrete was placed.

Pier W10: Load transfer was initiated and the acceptance criteria met. As with pier E10, active jacking will continue to obtain data for evaluation of secondary settlement.

W8 N-S Bulkhead: Excavation of the drift and installation of bracing continued to approximately 25 % completion.

SWPS: Phase II shallow probing was completed and deep probing and sheeted pits for probing continued. Interior well installation began while work on benchmarks and extensometer continued.

BWST: The drilling of anchor holes and fabrication of reinforcing steel continued. Sandblasting existing concrete surfaces and mapping of cracks was continued.

Quality Control, Documentation and Records:

1. The implementation of nonconformance trending analysis as applicable to underpinning activities was reviewed.

2. Reviewed CPCo Audit reports of Dudgeon and of U. S. Testing .

3. Lead Auditor qualifications were reviewed for the U. S. Testing and the Dudgeon audits.

4. Completed inspection reports were examined for the following activities: installation of anchor bolts, grouting, welding of jack stands, concrete drilling and rebar splicing.

5. QC field inspections were witnessed.

Observations

Construction - Load transfer at pier W10 caused slight movement of adjacent piers, particularly W9 which remained on active jacks until late in the week as a result of the building movement noted previously. A review of the data being prepared and evaluated by resident engineering does not indicate any unusual pier or structure movement in this area.

J. O. No. 14358
Midland Plant
Units 1 & 2
Independent Assessment of Underpinning
Weekly Report No. 41

Resident Engineering continues to evaluate all pier load-settlement and structural movement data to assure that no unexpected problems are developing.

The Assessment Team observed the results of the installation of several flowable grout test panels and two dry-pack test panels. A visual evaluation of the panels indicated no significant defects. Two small void areas were observed in one of the dry-pack panels. Based on these results the Assessment Team believes the Subcontractor is capable of satisfactorily installing either the dry-pack or flowable grout materials.

Quality Control, Documentation and Records:

1. The trending analysis system implementation has been somewhat modified from its normal usuage for application to the remedial soils work. To insure that maximum benefits are obtained the evaluation of data must be accomplished in a more timely manner.

2. All audit findings resulting from the Dudgeon and U S Testing Audits were answered in an acceptable manner. Implementation of a few items has yet to be verified by the audit team.

3. Qualifications and certifications of the lead auditors involved in the audits of Dudgeon and U S Testing were in accordance with ANSI N 45.2.23 in all instances.

4. No discrepancies were found in any of the inspection reports which were reviewed.

5. The QC inspections of Hiltibolt installation and torquing were in accordance with the inspection procedures.

The weekly Engineering and Construction Coordination meetings are becoming an effective forum for discussion of problem areas. However, timely resolution of outstanding NCR's continues to be a nagging problem. The organization involved must strive to significantly reduce the time required for resolution.

During the week an NCR was written on weld rod filler material which was inadvertently used up to 12 hours after withdrawl from the supply station. The specification was recently altered to limit the use time to 10 hours maximum. Of particular significance was the fact that MPQAD discovered alterations to the weld rod filler withdrawal records associated with this nonconformance. FSO reacted quickly to the situation by terminating the employment of the responsible welding engineer.

Nonconformance Identification Report

NIR No.	Description	Date
12	NCR Reviewed for Reportability under 10 CFR 50.55 (e) part 21.	(Opened) (Closed) 6/16/83

Wayne E Keller
Project Engineer

A S Boos by W E Keller
Project Manager

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 27, 1983

Present For:

Consumers Power	Bechtel	MPQAD	Stone & Webster
G. Murray	M. Blendy	R. Sevo	W. Kilker
	D. Lavelle		P. Barry
	N. Swanberg		
	J. Gaydos		

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - SWPS Soldier Pile Installation.

D. Lavelle reported the procedure for drilling and supporting the pre-drilled 2 ft. diameter hole is being revised based on the experience on the first pile installation attempt. J. Gaydos said a change request was processed to use grout as the pile backfill rather than concrete.

Item 2 - E/W8 Reinforcing Steel Welding.

D. Lavelle said that the two qualified welders have nearly completed this type of welding for pier E8 hammerhead.

Item 3 - Pier KC2 Dry-Pack.

J. Gaydos reported that at pier KC2 the upper leveling plate dry-pack had been removed after the initial cube break strength did not quite meet the specification requirements. Rather than waiting or attempting an engineering resolution, the material was removed and new dry-pack installed.

* Item 4 - Concrete Mix Design.

N. Swanberg stated that the SCN approving new concrete mix designs, including superplasticized concrete,is scheduled for release this week. P. Barry said K. Razden (C P Co) had discussed the proposed designs with him and the Team concerns were stated. K. Razden must approve any new mix design prior to release as a project concrete mix.

Item 5 - MPQAD Inspections and Sign-offs.

R. Sevo will verify that MPQAD has "signature-authorized " personnel on-site on weekends to assure timely sign-off on NCRs, FCRs, etc.

* Item 6 - Auxiliary Building Benchmark Movement.

W. Kilker reported J.Darby and P. Barry discussed the measures taken last week to reduce the structural settlement shown on Unit 1 Auxiliary building as shown by the benchmark in the vicinity of pier W8. Apparently care taken in working around the benchmark combined with some pier re-jacking has reduced the settlement rate to that in effect over the past few months.

Notes of Daily Meeting
Independent Assessment of Underpinning 2
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 27, 1983

Item 7 - Grouting Of Void Between Existing Fill And West Auxiliary Building Foundation

There was a discussion of the grouting of the gap encountered between the soil and auxiliary building foundation during fill excavation. The grout take was nearly 30 cubic feet.

Item 8 - EPA Excavation.

W. Kilker reported that the Assessment Team considered the recent slope lay-back extending under the Unit 1 EPA area to be questionable in terms of the intent of the drawings. N. Swanberg said Project Engineering agreed with this viewpoint but from a structural support viewpoint there was no reason for concern.

Item 9 - Assessment Team Scope of Work.

W. Kilker reported that, as per conversations last week with the NRC and CPCo, the Team will in the future assess all soils remedial work done on safety related structures or installations.

Items Requiring Resolution.

Items requiring resolution are indicated by an *.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 28, 1983

Present For:

Consumers Power	Bechtel	MPQAD	Stone & Webster
G. Murray	M. Blendy	R. Sevc	P. Barry
J. Schaub	D. Lavelle		W. Kilker
R. Wheeler	N. Swanberg		P. Majeski
	J. Gaydos		L. Rouen
	E. Cvikl		

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - Plate Tolerances.

There was a discussion of tolerance on the fluoroloc plate flatness based on an NCR that has been issued on pier W10 plates. N. Swanberg reported that tolerances will be provided to better define for QC the acceptable limits.

Item 2 -Pier E/W8 Status.

M. Blendy reported that rebar welding for E8 is virtually complete and that the similar activity for W8 is now underway.

Item 3 - Pier W10 Status.

M. Blendy presented an outline of the chronology of events that have led to the delays associated with the load transfer at pier W10.

Item 4 - MPQAD Re-inspection of Auxiliary Building Instrumentation Installations.

R. Sevo reported that MPQAD will re-inspect the open IPIN items and also inspect the remainder of the system. NCRs will be issued for all open items and new nonconforming conditions that will then require disposition.

Item 5 - Engineering/Construction Coordination Meeting.

M. Blendy stated that in an attempt to improve the productivity of the meeting an action item list has been developed and that the goal is to resolve at least 70 percent of all FCRs and NCRs under discussion (at a particular meeting) prior to adjournment.

Item 6 - NCR on Furnishing Pressure Grout.

J. Gaydos reported that an NCR was issued on the grout used to fill the gap between the fill and EPA foundation. The basis for issuance was on interpretation of the specification requirement for furnishing the grout. N. Swanberg said Engineering will disposition by clarifying the specification wording or discussing the interpretation with MPQAD.

Items Requiring Resolution.
Items requiring resolution-none.

Notes of Daily Report
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 29, 1983

Present For:

Consumers Power	Bechtel	MPQAD	Stone & Webster
G. Murray	M. Blendy	R. Sevo	P. Barry
	J. Gaydos		P. Majeski
	E. Cvikl		
			Parsons
			P. Parish

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at tne Midland Plant, Units 1 & 2.

Discussion

Item 1 - Documentation Concerning Pier Load Transfer.

R. Sevo requested a copy of the load transfer field data sheets from QC prior to Mergentime issuing the final copy.

* Item 2 - QA Reinspection.

R. Sevo and M. Blendy stated that a number of NCR's will be issued concerning reinspection of electrical conduit originally installed as non-Q but now re-inspected as Q. P. Majeski stated that it would be important to review these NCR's to determine if the nonconforming items were an indication of construction quality on nonQ items, the result of as-built conditons or the result of differing inspection criteria. G. Murray stated that none of the NCR's to date concerns the integrity of the system.

* Item 3 - Use of FCR's For Drawing Revisions.

P. Parish stated that often drawings were difficult to review because of the number of attached changes and the physical problem of looking on the back of the drawing. In the past, these documents were kept in a binder but CPCo requested that they be attached to the drawings. E. Cvikl will look up the current requirements for reissuing drawings based upon the number of outstanding changes. It was also mentioned that an FCR, etc. is usually written to approve a field as-built condition prior to QC inspection to prevent an NCR from being written. M. Blendy stated that from three to six FCR's are usually issued a day.

Item 4 - Building Settlement.

E. Cvikl stated that the differential settlement from DSB 2W had leveled off in the last few days but still was being monitored.

Items Requiring Resolution.

Items requiring resolution are indicated by an *.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 30, 1983

Present For:

Consumers Power	Bechtel	MPQAD	Stone & Webster
G. Murray	M. Blendy	R. Sevo	P. Barry
K. Razden	J. Gaydos *		P. Majeski
	E. Cvikl		
	D. Lavelle *		Parsons
	J. Kelleher		
	D. Himmelberger *		P. Parish

Part time. *

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - Rebar Welding For E8.

An NCR was written against the welding of rebar because a portion of the welding was done with weld rod which was in use for more than the specified 10 hour period. This situation inadvertently occurred because of two factors. The first being that the weekend shifts on which much of the work was performed were 12 hours, rather than 10 hours. The second factor is that there has been a recent specification change cutting the allowable time from 12 hours to 10 hours. D. Lavelle advised the Assessment Team that the FSO Lead Field Welding Engineer was terminated for altering the weld rod withdrawal records associated with the E8 welding nonconformance described above.

* Item 2 - Carlson Meters.

P. Barry questioned if the WJE procedure on Carlson Meters may need changing as a result of an upcoming specification change .

* Item 3 - Pumped Grout Test Program.

The results of the testing of grouting procedures of the first four test plates showed satisfactory results. Three additional plates were grouted and one dry packed on June 29. During this test series, plate bulge as high as 3/8 inch was noted. R. Sevo indicated that the MPQAD inspector noted pressures of up to 125 psi during grout placement. There was some discussion as FSO had noted maximum pressures of 12-14 psi. R. Sevo is to confirm his understanding of MPQAD's observation.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
June 30, 1983

Item 4 - EPA Excavation.

No NCR is to be written for overexcavation under the Unit 1 EPA as the drawings give the RGE authority to layback the slope as required. No specific dimensions are provided on drawings and engineering has no additional concerns.

* Item 5 - Load Transfer Acceptance Determination.

Paul Barry asked how rebound would be taken into consideration in determining acceptance of a pier after load transfer . E. Cvikl is to determine method of acceptance.

Item 6 - Carlson Meter Readings at Pier W11.

P. Barry asked if Carlson meter information would be used to determine a need to rejack W11 or any other pier . K. Razden indicated that the intent is to maintain constant elevation of the structures.

Items Requiring Resolution.

Items requiring resolution are indicated by an *.

Notes of Daily Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2
Consumers Power Company

Held at Midland Site Location
Midland, Michigan
July 1, 1983

Present For:

Consumers Power	Bechtel	MPQAD	Stone & Webster
G. Murray	M. Blendy	R. Sevo	P. Majeski
	E. Cvikl		
	D. Himmelberger*		Parsons
			P. Parish

Part time. *

Purpose

This meeting is held each day to discuss items regarding the Independent Soils Assessment at the Midland Plant, Units 1 & 2.

Discussion

Item 1 - Carlson Meters.

E. Cvikl indicated that the WJE procedure will require changes as a result of the upcoming specification change. Forecast dates for completion are being developed.

Item 2 - Use of FCR's For Drawing Revisons.

E. Cvikl provided copies of the pertinent pages defining the criteria to be used for reissuing a drawing based upon the number of outstanding changes. In summary these are: 45 days since approval of first FCR/FCN against the drawing; 10 days have elapsed since the 10th FCN; and, 30 days since the 15th FCR, FCN and DCN, taken in total.

Item 3 - Pumped Grout Test Program.

R. Sevo indicated that the high pressures noted by MPQAD inspector during the pumping operation were only instanteous "spikes" during the hand pumping operation. M. Blendy indicated that the test panel for the dry pack did not go as well as for the pumped grout. It was his understanding that the crew was not as experienced as the crews actually performing the work at the piers. An additional test panel is to be constructed using dry pack. P. Parish said that it was his understanding that the dry pack used for the test was not as moist as that used at the piers. He further stated that all of the panels including the dry packed panel appeared acceptable to him.

Items Requiring Resolution.

Items Requiring Resolution-None.

Notes of MPQAD Meeting
Independent Assessment of Underpinning
Midland Plant Units 1 & 2

Held at Midland Site Location
Midland, Michigan
June 28, 1983

Present For:

Stone & Webster	MPQAD
P. Barry	R. Oliver
P. Majeski	D. Horn
L. Rouen	M. DeWitt
W. Kilker	J. Meisenheimer

Purpose

This meeting is held each week to obtain information from MPQAD regarding the soils underpinning work at the Midland Plant Units 1 & 2.

Discussion

Item 1 - Status of NIR # 12.

J. Meisenheimer reported that the QAR has been dispositioned and a revised NCR form will be forthcoming to include the "reportability" consideration.

Item 2 - Instrumentation IPINs.

J. Meisenheimer explained that MPQAD will re-inspect the open IPIN items and issue NCRs as required. In addition, MPQAD will re-inspect the remainder of the instrumentation system installation. The majority of these open items are electrically related.

Item 3 - MPQAD Signature Authority.

M. DeWitt and J. Meisenheimer explained that signature authority has been designated for all work shifts. However, in the case of sensitive issues or disputes over interpretation, department supervisory signature shall be obtained.

Item 4 - Revised Instruction on Issuing QC Hold-Tags.

J. Meisenheimer reported the instruction on issuing QC Hold Tags is being revised . Once implemented, there should be less delay in actually placing the tag and thereby a reduction in confusion with the field personnel as to the "limits" of the hold area.

Item 5 - MPQAD Activities Status.

R. Oliver reported that presently his group is concentrating on reviewing drawings for Control Tower piers. Few Work Activity Package submittals are coming through from the FSO Constructability group.

(1) RFW
(2) Bd. Not. File

JUN 0 1 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR

FROM: R. F. Warnick, Director, Office of Special Cases

SUBJECT: RECOMMENDATION FOR FOLLOWUP NOTIFICATION OF LICENSING BOARD

REFERENCES: BOARD NOTIFICATION - ZACK PART 21 REPORT ON WELDER RECORD DISCREPANCIES (BN 82-94)

Enclosed is the Zack investigation report of the welder record discrepancies identified previously in the referenced Board Notification. The Zack Company is a heating, ventilation, and air conditioning (HVAC) subcontractor at three power plant construction sites within Region III (Clinton, LaSalle and Midland). The subject investigation report serves as the basis for Zack's decision to withdraw its report of a potential 10 CFR 21 concerning the welder record discrepancies.

If you have any questions or desire further information regarding this matter, please call me.

"Original signed by R. F. Warnick"

R. F. Warnick, Director
Office of Special Cases

Enclosure: As stated

dupe of ~~8406020077~~

OFFICE	RIII							
SURNAME	RNG Gardner/ls	RFW for Harrison	RFW Warnick					
DATE	5/31/83							

4600 W. 12TH PLACE • CHICAGO (CICERO) ILL 60650 • 312/242-3434
4401 WESTERN • FLINT MICHIGAN 48506 • 313/736-2040

the ZACK co.

CUSTOM METAL FABRICATION

September 28, 1982

7220-M-151-C/B-643

Mr. L.E. Davis
Site Manager
Bechtel Power Corp.
P.O. Box 2167
Midland, Michigan 48640

Subject: INVESTIGATION INTO APPARENT DISCREPANCIES IN WELD RECORDS

Mr. Davis,

Recently, as the result of a Zack Company report to Region III of the U.S.N.R.C. of a potential 10CFR21 condition, the Zack Company conducted an investigation into approximately 11,400 Travelers that exhibited conditions that put the authenticity of the welder of record in question.

This condition came to light when approximately 11,400 zerox copies of Shop Travelers were discovered while Zack personnel were attempting to discard them. A cursory initial review revealed that these photocopies contained welder identification and other fabrication information. It was decided that a small-scale comparison to the Record Copy of these photocopied Travelers should be made.

During the comparison, it was noted that, in most cases, the photocopy Traveler did not match the Record Copy in that different initials both in quantity and identification, appeared on the photocopy than were indicated on the Record Copy.

At this point, it was decided by the Zack Company that a full-scale investigation was required, that a potential 10CFR21 condition existed, and that the U.S.N.R.C. should be notified.

The U.S.N.R.C. was notified on July 29, 1982 and a full-scale investigation was initiated. As a result of this investigation, the Zack Company officially withdrew its report of a potential 10CFR21 on September 14, 1982 as it was determined by Zack Company Quality Assurance and Zack Company Management that a 10CFR21 condition did not exist.

cont'd on page 2

Mr. L.E. Davis
Midland, Michigan

September 28, 1982
7220-M-151-C/B-643

Following, for your information, is an in-depth report on the investigation and the results as they affect the Midland Project.

Sincerely,

Raymond J. Basiaga
Lead Q.A. Engineer

RJB/lf
Encl.

CC: H. Leonard, CPCO
R. McCarley, Zack
C.Z. DeZutel
J.C. DeZutel
D. Calkins
D. Malzahn
M. Skates
Doc. Control File
Q.A. File

INVESTIGATION INTO
APPARENT DISCREPANCIES IN WELD RECORDS
RELATIVE TO THE MIDLAND PROJECT

Sept. 27, 1982

type of ~~8406030080~~

The condition that was investigated to determine if it failed to comply with the Atomic Energy Act of 1954 as amended, or that the components supplied contained defects which could create a "substantial safety hazard", was due to the apparent discrepancy between "working" (photocopy) copies of Shop Travelers containing welder identifications and the official Quality Record Copies (yellow) of these Travelers which contained conflicting welder identifications.

Overall, the Travelers with discrepancies were found to have been used to fabricate HVAC components to be installed at all three currently active contract facilities, but were limited to work performed at the Zack Company facilities at Cicero, Illinois and Chicago, Illinois. Information in this report pertains to MIDLAND PROJECT only.

The Travelers in question are part of a system utilized by the Zack Company to record as-built, as-welded conditions and inspection verifications for fabricated HVAC components. Certain "working" (photocopy) copies of the official Travelers utilized by production tradesmen contain the initials/numbers of various personnel who apparently performed some work function on the component(s) listed on an individual Traveler. Relevant information such as welder identification was then transferred to the official Record Copy (yellow).

These "working" copies were reviewed against the official copy and all discrepancies between the two were noted and evalutated to determine if they would create a substantial safety hazard.

The investigation had two (2) specific goals:

A. To determine if the inconsistancies between the "working" copies and the original Travelers could result in a condition that would create a substantial safety hazard.

B. To determine if the individual(s) involved were trying to remove evidence of a deviation with malice aforethought.

The following action plan and work assignments were directed at achieving goal "A" above. Zack Company Management in conjunction with legal advisors addressed the resolution of goal "B" above.

To determine if the inconsistancies resulted in a substantial safety hazard, they were collated, reviewed, catagorized and evaluated.

"Working"Copies were collated by:
1. Project
2. Safety related/Non-Safety related
3. By the type of information contained on the "working" copy.

This report deals only with Travelers identified as safety related.

The following types of information were obtained and used to provide background and to substantiate the validity of the records.
A. Payroll records to set time frames for welders employment at Zack.
B. Load Shipment Dates to support work and inspection dates.
C. Welder hire dates, qualification dates and termination dates.
D. Support personnel hire, and termination dates (i.e. cleaners, inspectors, etc.)
E. Weld wire issue dates for Plant 2 (Kilbourn Avenue).

Using the above information, the review process was started and progressed as described on page 4.

The first review identified all "working" copies that contained no fabrication or identification information and, therefore, could not disagree with the Record Copy. These were put in numerical order, cataloged and removed from further consideration.

The second review compared the "working" copies to the Record Copies (which had been removed from file for this comparison) for the following:

A. Unqualified welders indicated on the working copy.
B. Welders listed on the "working" copy that did not appear on the Record Copy.
C. Any personnel identifications on the "working" copy (i.e. initials or I.D. numbers) not immediately identifiable.
D. "Working" copy in total agreement with Record Copy.
E. To note any other variations or discrepancies.

The above information was catagorized as stated below.

CATEGORY 1 - (Indicated by "Yes" on tally sheets) - "working" copy and Record Copy agree and welder(s) qualified. (Item D above).

CATEGORY 2 - (Indicated by "Yes X" on tally sheets) - "working" copy and Record Copy differ with all welders involved being qualified. (Item B above).

CATEGORY 2 - (Indicated by "No" on tally sheets) - "working" copy and Record Copy differ and unable at this stage to establish if all welders are qualified. (Items A and C above).

At this point in time, Catagories 1 and 2 were eliminated from further review as it was determined that no serious problem existed as long as all welders identified were qualified.

Category 3 was further broken down as follows.

A. Date discrepancies exist for welder qualification because of inability to establish actual work or inspection dates.
B. No weld procedure was listed on "working" or Record Copy.
C. Two weld procedures were listed on either copy, but welders listed were qualified to only one or to neither.
D. Welder apparently not qualified or unidentifiable initials on either copy.

E. Welder not qualified on best available indication of work date, but qualified at a later date.
   1. Qualification not prior to Traveler issue date, no work/ inspection date available.
   2. Qualification not prior to actual work/inspection date.

F. Miscellaneous variations or discrepancies.

To provide the most expeditious handling of this volume of paperwork through the review cycle to this point while maintaining the level of integrity required, the Zack Company brought in five (5) Engineers from one of our field operations to assist in the review.

Internal departments provided the following support.

DRAFTING DEPT: Located and matched record copies with "working" copies.

ENGINEERS: Reviewed "working" copies vs. Record Copies, noted and recorded and categorized differences.

DOCUMENT CONTROL: Provided control and security for all relevant documents and assisted in logging/filing operations.

The above group operated under Mr. Tom DeLafosse, Project Coordinator who was assigned the Lead Function.

ACCOUNTING DEPT: Provided payroll and employment records to validate time frames for individual welders' work, and for various other support personnel.

Q.A. DEPT: Developed welder and cleaner/inspector matrixes and functioned as part of the review team.

The above group operated under Mr. Ray Basiaga, Lead Q.A. Engineer who was assigned the Lead Function.

CORPORATE MANAGEMENT provided coordination, additional required management, individuals relevant to the investigation for interview, review and approval of all phases of the review and support to all individuals involved throughout the effort.

All relevant personnel were interviewed during the various phases of the investigation and said interviews were documented when deemed appropriate. Information obtained in this form that was based facts, not opinion, and that could be substantiated, was used in the evaluation. All other information was simply recorded and included for information only.

The final evaluation of the Travelers in Category Three (3) ("No") was conducted by Mr. Dave Calkins, Manager of Nuclear Construction, Mr. Tom DeLafosse, Project Coordinator and Mr. Ray Basiaga, Lead Quality Assurance Engineer.

The goal of the final evaluation was to determine if the inconsistancies noted on all copies of the remaining Category Three (3) ("No") Travelers raised any questions as to the quality of the workmanship.
The final evaluation utilized the finalized welder qualification matrix containing all information available from Pittsburgh Testing Laboratories in addition to information on file at the Zack Company. This matrix included welder name, I.D. No., hire date, termination date, and qualification date for each welding process.

Also utilized was a listing of shop cleaning and inspection personnel. This list was compiled from personnel records and verified by plant supervision. This list included name, I.D. No., hire date, termination date and position.

The following shop practices, confirmed by interview, were considered credible and accepted as valid for the purpose of the final review.

1. Shop Personnel often marked dimensional, operational or identification information on the "working" copy of the Traveler. This information was not required to be on the Record Copy of the Traveler by either procedure or regulation.

2. Cleaning Personnel generally circled their initials or I.D. No.
3. Layout or Cutting Personnel generally initialed their work within the cut list portion of the Traveler.
4. Inspection Personnel identified by their initials, symbol or I.D. No., were considered as acceptable as none have ever worked for the Zack Company as welders.
5. Welders normally initialed beside the work they performed and indicated completion with the word "out".
6. Sheet Metal workers from various locals are generally not qualified to AWS Standards. The Zack Company often had these personnel working as helpers with Zack Company certified AWS qualified welders until they became familiar with AWS Standards and Zack procedures. Their initials on the "working" copy do not indicate that they welded, but served as a means of tracking their training. However, for purposes of this report, it has been assumed that they did weld and were evaluated accordingly.

The results of the comparison between the "working" copies and Record Copies of Shop Travelers are included as attachments. The attachments are collated in progression from the earliest results to the final results.

In conclusion, a complete and thorough investigation has been conducted by the Zack Company of the information contained on the "working" copies and Record Copies of Shop Travelers.

This investigation has revealed that in some cases there is additional and/or different information on the "working" copies than on the Record Copies. There is, however, no basis for establishing that the "working" copy is complete and correct or that the Record Copy is in error. The Zack Company has taken the position that the "working" copies will be attached to the Record Copy and retained as a part of the permanent record thereby accounting for all personnel with any possible relevance to the work. It is also the position of the Zack Company that any individual identified by initials or I.D. No. on either copy, who ever worked as a welder during his term of

employment with the Zack Company, was to be considered a welder at the time his identification was put on the Traveler.

Accepting this as the worst possible condition, the Zack Company has been able to account for all persons identified on the Travelers in question. On over 96% of the Travelers, all individuals identified as welders were qualified at the time the work was performed. For the remaining Travelers, all welders with the exception of Mr. Ken Gibson, were qualified at a later date. Of these fourteen (14) welders, six (6) were qualified within thirty (30) days, the remaining eight (8) within six (6) months.

It was upon assurance that the welders were qualified in accordance with applicable codes, regulations, and/or contractual requirements and that all welds were inspected to respective criteria that the determination was made that no "Defect", as defined in 10CFR21 Para. 21.3D existed, and it was at this time that our report to the U.S.N.R.C. was withdrawn.

With regard to Mr. Ken Gibson, the Zack Company has recognized that it never certified Mr. Gibson in accordance with the requirements of the AWS Code. However, this in no way implies that Mr. Gibson was not a qualified welder or deminishes his ability to produce quality welds in accordance with Zack Company approved weld procedures.

Mr. Gibson has been involved in and been a qualified welder working for various mechanical contractors over the past sixteen (16) years. He has been qualified with the Zack Company at the Clinton Nuclear Project for the past twenty (20) months. Therefore, while the Zack Company may have been remiss in not having put Mr. Gibson through the certification process, it should be noted that this in no way detracts from his previous qualifications and ability to produce sound, quality welds.

Mr. Gibson only worked in the Zack Company, Chicago facility, for a period of four (4) months between July, 1978 and November, 1978 and was responsible for welds on one (1) Traveler for the Midland Project. This discrepancy with respect to Mr. Gibson's qualifications and the Midland Traveler, is an internal Zack Company procedural violation only. Mr. Gibson's welds were inspected and accepted to the same standards all other welders are required to meet.

The one Traveler (F6654) welded by Mr. Gibson is still in existance at the Midland Project for one transition piece. This piece will be reinspected and replaced by the Zack Company if found unacceptable.

The following events were considered relevant in either understanding the reasons the inconsistancies could have occurred or in judging that the inconsistancies did not indicate a significant problem:

The Zack Company went from a single plant operation to a two-plant operation at the opening of its Chicago facility on Kilbourn Avenue. The plant was purchased in February, 1979 and after initial refurbishment it was made operational in May, 1979 and was operated until November 1981. The transition from a single plant operation to a two-plant operation was coupled with the build-up in personnel could account for a part of the delay in qualifying a few welders in a timely manner.

Various inspections by both Zack Company personnel and client personnel (see attachments) have re-established the quality of the welds irrespective of the documented qualifications of the welders.

In any event, I believe that the Zack Company has proved that a serious systemic problem does not, nor did not exist. A distribution of the dates of occurrence of discrepant Travelers is attached for your information.

Please review this report and its attachments to determine if a 50.55.E Report is required on your part.

Any and all questions concerning this matter should be directed to the Zack Company Quality Assurance Department.

NO.	NO's.	DATE	LATE	DATE	O.K.	COMMENTS Pg 20
10482	39	12/3/79	1/10/90	OK	YES	
F10429	12	12/3/79	1/10/80	OK	YES	
F10428	21	12/3/79	1/10/80	OK	YES	
F10285	6	12/3/79	1/10/80	OK	YES	
F10269	23	12/3/79	1/10/80	OK	YES	
F10286	5	12/3/79	1/10/80	OK	YES	
F10132	21	12/3/79	1/10/80	OK	YES	
F10268	34,30	12/3/79	1/10/80	30, 1/22/80	NO /	
F10264	26	12/3/79	1/10/80	OK	YES	
10265	34	12/3/79	1/10/80	OK	YES	
10261	48	12/3/79	1/10/80	OK	YES	
10130	48	12/3/79	1/10/80	OK	YES	
10128	5,6	12/3/79	1/10/80	OK	YES X	
10125	34,6	12/3/79	1/10/80	OK	YES X	
10124	21	12/3/79	1/10/80	OK	YES	
1203	34	9/18/79	1/9/80	OK	YES	
1201	34,54	9/18/79	1/9/80	54 1/22/80	NO /	
185	26	10/2/79	1/9/80	OK	YES	
766	34	10/15/79	1/9/80	OK	YES	
456	48,54	8/10/79	1/9/80	54 1/22/80	NO /	
767	34,26 or 52	10/15/79	1/9/80	52 3/15/80	NO ? /	
768	26	10/15/79	1/9/80	OK	YES	
769	26	10/15/79	1/9/80	OK	YES	
798	39,26 or 52	10/15/79	1/9/80	52 3/15/80	NO ? /	
797	12	10/15/79	1/9/80	OK	YES	
799	39	10/15/79	1/9/80	OK	YES	
60	39	10/10/79	1/9/80	OK	YES	
16	34,54	10/10/79	1/9/80	54 1/22/80	NO /	
10	5	10/10/79	1/9/80	OK	YES	
09	5	10/10/79	1/9/80	OK	YES	

MIDLAND

YES - 23
YES X - 2
NO - 6

NO.	NO's.	DATE	E	DATE	O.K.	COMMENTS
3611	23,12	3/81	4/28/81	OK	YES	
P3608	21,12,34	3/81	4/28.81	OK	YES	
P3606	23,21,63	3/81	4/28/81	OK	YES	
P3605	20,63,21	3/81	4/27/81	OK	YES	
P3604	12,23	3/81	4/29/81	OK	YES	
P3601	34,12	3/81	4/27/81	OK	YES	
P12055	12	3/81	4/21/81	OK	YES	
2853	63,20	1/81	2/19/81	OK	YES	
2523	21,20	1/81	4/21/81	OK	YES	
2226	21,23	4/81	4/21/81	OK	YES	
2225	21,34	4/81	4/21/81	OK	YES	
2222	21,23	4/81	4/12/81	OK	YES	
2082	12,21,63	3/81	4/17/81	OK	YES	
2050	12,21	4/81	4/21/81	OK	YES	
2049	12,23	4/81	4/21/81	OK	YES	
2048	21,12,34	4/81	4/21/81	OK	YES	
2047	63,21,12	4/81	4/17/81	OK	YES	
2033	23,34	3/81	4/17/81	OK	YES	
2030	34,63	3/81	4/17/81	OK	YES	
2029	34,12	3/81	4/17/81	OK	YES	
10487	48	12/3/79	1/10/80	OK	YES	
10488	5	12/3/79	1/10/80	OK	YES	
10484	6,54	12/3/79	1/10/80	54 - 1/22/80	NO /	
10494	48	12/3/79	1/10/80	OK	YES	
10493	5	12/3/79	1/10/80	OK	YES	
10491	5	12/3/79	1/10/80	OK	YES	
10489	34,26 or 52	12/3/79	1/10/80	52 3/15/80	NO? /	
10490	6	12/3/79	1/10/80	OK	YES	
10497	48	12/3/79	1/10/80	OK	YES	
10480	39	12/3/79	1/10/80	OK	YES	
10481	39	12/3/79	1/10/80	OK	YES	

MIDLAND

YES - 29
YES X - 0
NO - 2

CLASS I

NO.	NO's.	DATE	TE	DATE	O.K.	COMMENTS
F2224	21,63,5	4/81	4/21/81	OK	YES X	
F2116	23,21	4/81	5/7/81	OK	YES	
P3041	34,23	12/80	5/14/81	OK	YES	
P3035	23,12,21,20	12/80	5/8/81	OK	YES X	
P3040	34,63,23	12/80	5/1/81	OK	YES	
P3038	23,34,12	12/80	5/1/81	OK	YES	
P3037	21	12/80	5/5/81	OK	YES	
P3033	23	12/80	5/4/81	OK	YES	
P3036	12,21,23	12/80	5/1/81	OK	YES	
P3034	21,63,23	12/80	5/1/81	OK	YES X	
P3031	34,12	12/80	4/30/81	OK	YES X	
P3030	34	12/80	5/5/81	OK	YES	
P3029	34,23	12/80	5/6/81	OK	YES	
F13782	63	12/80	5/6/81	OK	YES	
F13789	34	12/80	5/5/81	OK	YES	
F13784	23	12/80	5/6/81	OK	YES	
F13788	63	12/80	5/5/81	OK	YES	
F13787	63	12/80	5/6/81	OK	YES	
F13786	21	12/80	5/4/81	OK	YES	
F13783	63	12/80	5/1/81	OK	YES	
F13781	63	12/80	5/5/81	OK	YES	
F13763	63	12/80	5/1/81	OK	YES	
F13762	12	12/80	5/6/81	OK	YES	
P3032	12,23,34,12	12/80	5/8/81	OK	YES	
F13761	12	12/80	5/4/81	OK	YES	
F13760	63	12/80	5/5/81	OK	YES	
3609	12,21	3/30/81	5/4/81	OK	YES	
3610	34,63	3/30/81	5/4/81	OK	YES	
3614	21	4/81	4/21/81	OK	YES	
3613	21,63	4/81	4/21/81	OK	YES	
3612	34,63	4/81	4/29/81	OK	YES	

MIDLAND

YES - 27
YES X - 4
NO - 0

CLASS I

NO.	NO's.	DATE	DATE	DATE	O.K.	COMMENTS Pg 23
10048	48,26	11/16/79	1/15/80	OK	YES	
10050	5	11/16/79	1/15/80	30, 1/22/80	NO ✓	
10057	5,26	11/19/79	1/15/80	OK	YES	
10058	5	11/19/79	1/15/80	OK	YES	
10059	12	11/19/79	1/15/80	OK	YES	
10063	34	11/19/79	1/15/80	OK	YES	
10068	12	11/19/79	1/15/80	OK	YES	
10008	23,26	11/15/79	1/15/80	OK	YES X	
8661	48	10/10/79	1/15/80	OK	YES	
8859	12	10/10/79	1/15/80	OK	YES	
8812	34	10/10/79	1/15/80	OK	YES	
10427	34	12/10/79	1/10/80	OK	YES	
10486	48	12/3/79	1/10/80	OK	YES	
1638	48	1/9/80	1/9/80	OK	YES	
1490	34	12/10/79	1/9/80	OK	YES	
10485	6,54	12/3/79	1/10/80	54, 1/22/80	NO ✓	
1493	34	12/10/79	1/9/80	OK	YES	
13299	26,12,5	10/80	10/28/80	OK	YES X	
13297	12,34	10/80	10/28/80	OK	YES	
13298	12,5	10/80	10/28/80	OK	YES	
13296	12,34,21	10/80	10/27/80	OK	YES X	
12495	12,54	10/80	10/28/80	OK	YES	
12492	12,23	10/80	10/28/80	OK	YES	
12490	12,26	2/80	10/28/80	OK	YES	
12481	26,54,12	2/80	10/28/80	OK	YES X	
12468	26,23,12	2/80	10/30/80	OK	YES X	
12467	26,12	2/80	10/30/80	OK	YES X	
3330	26,54	2/80	10/28/80	OK	YES	
3327	54,68,12,26	2/80	10/28/80	OK	YES	
3779	23,54	3/81	5/7/81	OK	YES	

MIDLAND

YES -22
YES X - 7
NO - 2

CLASS I

NO.	NO's.	DATE	D	QUAL. DATE	O.K.	COMMENTS
13303	12,54	10/80	10/28/80	OK	YES	
10131	21	11/26/79	1/15/80	OK	YES	
10129	6,12	11/26/79	1/16/80	OK	YES X	
10126	6	11/26/79	1/16/80	OK	YES	
10127	34	11/26/79	1/16/80	OK	YES	
10049	26	11/7/79	1/14/80	OK	YES	
10051	34	11/16/79	1/15/80	OK	YES	
10066	26,30	11/19/79	1/14/80	30, 1/22/80	NO /	
10053	21	11/16/79	1/14/80	OK	YES	
10067	21	11/19/79	1/14/80	OK	YES	
10071	39	11/19/79	1/14/80	OK	YES	
10013	12	11/15/79	1/14/80	OK	YES	
8863	5	10/10/79	1/14/80	OK	YES	
8733	21	10/2/79	1/15/80	OK	YES	
8732	21	10/2/79	1/15/80	OK	YES	
8802	34	10/15/79	1/15/80	OK	YES	
8735	21	10/2/79	1/15/80	OK	YES	
1513	21,6,12	11/16/79	1/15/80	OK	YES X	
1522	23,48	11/15/79	1/15/80	OK	YES X	
1514	21,30	11/16/79	1/15/80	30, 1/27/80	NO /	
1512	34	11/19/79	1/15/80	OK	YES	
1523	26,48,DL	11/15/79	1/15/80	DL?	NO? /	
1511	34,54,5	11/19/79	1/15/80	54, 1/22/80	NO /	
1510	39 WI GS	11/19/79	1/15/80	WI, GS	NO? /	
1509	12	11/19/79	1/15/80	OK	YES	
1113	21	8/10/79	1/15/80	OK	YES	
10262	34,54	12/10/79	1/15/80	54, 1/22/80	NO /	
10266	26	12/10/79	1/15/80	OK	YES	
10260	34	12/10/79	1/15/80	OK	YES	
10009	34,26	11/15/79	1/15/80	OK	YES X	

MIDLAND

YES - 21
YES X - 4
NO - 6

CLASS I

NO.	NO's.	DATE	I E	DATE	O.K.	COMMENTS
F12256	21,12,23	2/80	12/17/80	OK	YES	
F12255	12	2/80	12/17/80	OK	YES	
F10656	23	2/80	10/31/80	OK	YES	
F2335	26	2/80	1/6/81	OK	YES	
F2319	23,5	12/80	1/6/81	OK	YES	
F2318	23,12,21	12/80	1/6/81	OK	YES X	
P3393	23	11/80	16/81	OK	YES	
P3392	23,26	11/80	1/6/81	OK	YES	
P3391	26,5	11/80	1/6/81	OK	YES	
P3388	23,26	11/80	1/6/81	OK	YES	
P3389	23	11/80	1/6/81	OK	YES	
P3386	23,26	11/80	1/6/81	OK	YES	
P3018	5	11/80	12/17/80	OK	YES	
2990	26,23	11/80	12/2/80	OK	YES	
2292	5,21	11/80	12/31/80	OK	YES	
2989	5	11/80	12/17/80	OK	YES	
2988	12/5	11/80	12/17/80	OK	YES	
2986	5,26,34	11/80	12/3/80	OK	YES	
2984	12,5	11/80	12/17/80	OK	YES	
2977	26,5,34	11/80	12/2/80	OK	YES	
2978	12,26	11/80	12/2/80	OK	YES	
2976	23,34,34	11/80	12/2/80	OK	YES	
2975	5,23,63,26	11/80	12/2/80	OK	YES	
2974	5,63,26	11/80	12/2/80	OK	YES	
2973	63,12,26	11/80	12/2/80	OK	YES	
2972	12,63,34,26	11/80	12/2/80	OK	YES	
2955	21,5	11/80	12/17/80	OK	YES	
12501	21	2/80	10/27/80	OK	YES	
2475	N/A	2/80	11/21/80	N/A	N/A	
2333	5,34	11/80	12/17/80	OK	YES	

MIDLAND

YES - 29
YES X - 1
NO - 0

CLASS I

NO.	NO's.	DATE	DATE	DATE	O.K.	COMMENTS
13498	34,54	11/80	12/2/80	OK	YES	
13488	34	11/80	12/2/80	OK	YES	
13485	34,5	11/80	12/2/80	OK	YES	
13487	12	11/80	12/1/80	OK	YES	
13486	12,34	11/80	12/2/80	OK	YES	
13484	26,23	11/80	12/2/80	OK	YES	
13483	26,54	11/80	12/2/80	OK	YES	
13482	26,63	11/80	12/2/80	OK	YES	
13480	26,34,12	11/80	12/2/80	OK	YES	
13304	21,12	10/80	12/15/80	OK	YES	
13301	26,63	10/80	10/25/80	OK	YES	
13239	12,34	10/80	12/1/80	OK	YES	
13238	12,34	10/80	12/1/80	OK	YES	
13100	12,21	10/80	12/1/80	OK	YES	
12500	21,26	2/80	10/27/80	OK	YES	
12491	21,12	2/80	12/15/80	OK	YES	
12479	21,34	2/80	12/2/80	OK	YES	
12476	21,63	2/80	12/2/80	OK	YES	
12472	21,34	2/80	12/2/80	OK	YES	
12469	34	2/80	12/13/80	OK	YES	
12466	54,26,21	2/80	10/27/80	OK	YES	
12454	5	2/80	1/5/81	OK	YES	
12453	5	2/80	1/5/81	OK	YES	
12260	21,12	2/80	12/17/80	OK	YES	
12265	21	2/80	12/17/80	OK	YES	
12262	21,12	2/80	12/17/80	OK	YES	
12261	21,26	2/80	12/17/80	OK	YES	
12263	21,12,26	2/80	12/17/80	OK	YES	
12258	21,12,26	2/80	12/17/80	OK	YES	
12259	21,12	2/80	12/17/80	OK	YES	

MIDLAND

YES -31
YES X - 0
NO -0

CLASS I

NO.	NO's.	DATE	E	DATE	O.K.	COMMENTS pg 27
F12335	34	3/4/80	3/19/80	OK	YES	
F13245	23	2/12/80	3/14/80	OK	YES	
F13246	34,66	2/12/80	3/14/80	66?	NO? ✓	
F13247	34	2/12/80	3/14/80	OK	YES	
F13248	48	2/12/80	3/14/80	OK	YES	
F13249	5	2/12/80	3/14/80	OK	YES	
F13250	5	2/12/80	4/10/80	OK	YES	
F13251	21	2/12/80	3/13/80	OK	YES	
F13252	34	2/12/80	3/13/80	OK	YES	
F13253	34	2/12/80	4/10/80	OK	YES	
F13254	5,64	2/12/80	3/14/80	64 3/25/80	NO ✓	
F13255	23	2/12/80	3/14/80	OK	YES	
F13256	23	2/12/80	4/10/80	OK	YES	
F13258	54	2/12/80	3/14/80	OK	YES	
F13257	54	2/12/80	3/14/80	OK	YES	
F13259	21	2/12/80	3/14/80	OK	YES	
F13261	23,54	2/12/80	3/14/80	OK	YES X	
F13260	34	2/12/80	3/14/80	OK	YES	
F11100	58	9/5/79	3/11/80	58?	NO? ✓	
F13262	54	2/12/80	3/13/80	OK	YES	
F11117	58	9/5/79	3/11/80	58?	NO? ✓	
F11104	34	9/5/79	3/11/80	OK	YES	
F2798	23,26	1/23/81	3/3/81	OK	YES	
F3453	34,54	1/26/81	3/9/81	OK	YES	
F3452	34,12	1/27/81	3/4/81	OK	YES	
F13571	5,23	11/80	12/17/80	OK	YES	
F13573	5154	11/80	12/17/80	OK	YES	
F13504	54	11/80	12/5/80	OK	YES	"YELLOW CUT" USED
F13503	12	11/80	12/5/80	OK	YES	
F13499	34	11/80	12/2/80	OK	YES	

MIDLAND

YES - 26
YES X - 1
NO - 4

CLASS I

NO.	NO's.	DATE	L .E	DATE	O.K.	COMMENTS
F10468	26	12/3/79	2/18/80	OK	YES	
F10354	21	12/19/79	2/18/80	OK	YES	
F10357	12	12/20/79	2/18/80	OK	YES	
F10349	34	12/19/79	2/18/80	OK	YES	
F10353	21	2/18/80	2/18/80	OK	YES	
F10352	12	12/19/79	2/18/80	OK	YES	
F10351	26	12/19/79	2/18/80	OK	YES	
F10355	34	12/19/79	2/18/80	OK	YES	
F10348	34	12/19/79	2/18/80	OK	YES	
F10356	39	12/19/79	2/18/80	OK	YES	
F10473	6,48	12/3/79	1/14/80	OK	YES X	
F11050	26	9/4/79	3/11/80	26 3/25/80	NO /	
F11091	26	9/4/79	3/11/80	26 3/25/80	NO /	
F11118	58	9/4/79	3/11/80	58?	NO? /	
F10007	23	11/15/79	8/15/80	OK	YES	
F10011	6	11/15/79	8/15/80	OK	YES	
F11132	58	9/4/79	3/11/80	58?	NO? /	
F10012	39	11/15/79	8/15/80	OK	YES	
F10052	39	11/15/79	8/15/80	OK	YES	
F10055	6	11/15/79	8/15/80	OK	YES	
F10047	12	11/15/79	8/15/80	OK	YES	
F10054	5,39	11/15/79	8/15/80	OK	YES X	
F10015	30	11/15/79	8/15/80	OK	YES	
F10056	48	11/15/79	8/15/80	OK	YES	
F10060	12	11/19/79	8/15/80	OK	YES	
F10064	39	11/19/79	8/15/80	OK	YES	
F10065	39	11/19/79	8/15/80	OK	YES	
F10069	6	11/19/79	8/15/80	OK	YES	
F10070	48	11/19/79	8/15/80	OK	YES	
F10061	34	11/19/79	8/15/80	OK	YES	

MIDLAND

YES -25
YES X -2
NO -4

CLASS I

NO.	NO's.	DATE	D' E	DATE	O.K.	COMMENTS Pg 29
F5627	21,12	5/8/79	8/6/79	OK	YES X	
F5626	21	4/17/79	8/6/79	OK	YES	
F5625	34,21	4/18/79	8/6/79	OK	YES X	
F5623	34	4/26/79	8/7/79	OK	YES	
F5624	34,21	4/26/79	8/6/79	OK	YES X	
F5052	12,21	6/24/79	8/6/79	OK	YES X	
F5628	21,34	4/17/79	8/7/79	OK	YES X	
F5629	12	5/8/79	8/6/79	OK	YES	
P2756	21,39,12	6/9/79	7/26/79	39 10/29/79	NO ✓	
P04407	12	3/5/79	6/5/79	OK	YES	
P04410	12	3/5/79	6/5/79	OK	YES	
P7405	12	2/12/79	6/5/79	OK	YES	
P04412	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
P04411	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
P04409	12	3/5/79	6/5/79	OK	YES	
P04408	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
P04406	12	3/5/79	6/5/79	OK	YES	
P4405	12	3/5/79	6/5/79	OK	YES	
P4404	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
P4277	21	3/5/79	6/5/79	OK	YES	
P11103	26	9/5/79	3/11/80	OK	YES	
P11102	58	9/5/79	3/11/80	58?	NO? ✓	
P9127	12	11/30/79	3/7/80	OK	YES	
P10470	21	11/27/79	2/18/80	OK	YES	
P10477	12	12/3/79	2/18/80	OK	YES	
P10476	12	12/3/79	2/18/80	OK	YES	
P10475	5	12/3/79	2/18/80	OK	YES	
P10472	23	12/3/79	2/18/80	OK	YES	
P10350	34	12/19/79	2/18/80	OK	YES	
P10478	26	12/3/79	2/18/80	OK	YES	

MIDLAND

YES - 20
YES X - 5
NO - 6

CLASS I

NO.	NO's.	DATE	I E	DATE	O.K.	COMMENTS Pg 20
F12136	12,21	2/80	2/10/81	OK	YES	
F12144	12,21	2/80	2/10/81	OK	YES	
F12142	12	2/80	2/10/81	OK	YES	
F12140	12	2/80	2/10/81	OK	YES	
F12138	12,21	2/80	2/10/81	OK	YES	
F12130	12,21	2/80	2/10/81	OK	YES	
F13132	12	2/80	2/10/81	OK	YES	
F12138	12,26	2/80	2/10/81	OK	YES	
F12126	21	2/80	2/10/81	OK	YES	
P3325	54,26,12	2/80	10/28/80	OK	YES	
P2971	34,21,26 24	11/80	12/3/80	24?	NO	WHO IS 24?
P2922	12,5,63,21	10/80	10/28/80	OK	YES	
F13694	26,5	12/80	1/5/81	OK	YES	
F13634	21,63	11/80	12/15/80	OK	YES	
F13633	21.63	11/80	12/15/80	OK	YES	
F13616	21,54	11/80	12/15/80	OK	YES	
F13615	12,54	11/80	12/15/80	OK	YES	
F13614	12.63	11/80	12/15/80	OK	YES	
F13613	12,5	11/80	12/15/80	OK	YES	
F13612	12,34	11/80	12/15/80	OK	YES	
F13605	26,54,21	11/80	1/6/81	OK	YES	
F13611	12,21,34	11/80	12/15/80	OK	YES	
F13610	23,5	11/80	1/6/81	OK	YES	
F13609	26,54	11/80	1/6/81	OK	YES	
F13604	23,54	11/80	1/6/81	OK	YES	
F13481	26,21,	11/80	12/2/80	OK	YES	
F13603	26,12	11/80	1/6/81	OK	YES	
F13577	26,12	11/80	1/6/81	OK	YES X	
F13575	54	11/80	12/17/80	OK	YES	
F13576	5,54	11/80	12/17/80	OK	YES	

MIDLAND

YES - 28
YES X - 2
NO - 1

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	EXP DATE	QUAL. DATE	TICKET O.K.	COMMENTS Pg 31
3416	26,5	1/16/81	2/11/81	9/19/80	YES	
3415	26	1/15/81	2/11/81	9/19/80	YES	
2521	63,5	1/7/81	2/9/81	9/19/80	YES	
503	12,48	10/79	11/8/79	OK	YES	
502	12,48	10/79	11/8/79	OK	YES	
1229	34	8/79	10/11/79	OK	YES	
5405	34	5/79	11/5/79	OK	YES	
9252	21	8/79	11/5/79	OK	YES	
9260	34,6	8/79	11/2/79	6	NO /	6 NOT QUALIFIED TO P9CS
9380	34	9/79	11/2/79	OK	YES	
9381	12	9/79	11/1/79	OK	YES	
1305	21,6	9/79	10/29/79	6	NO /	6 NOT QUALIFIED TO P9CS
1308	12,48	9/79	10/30/79	48	NO /	48 QUALIFIED TO P9CS 4/3/80
1350	34,5,21	9/79	10/30/79	OK	YES X	P5CS
8430	34	8/79	10/24/79	OK	YES	
11170	21	8/79	10/24/79	OK	YES	
11171	21,26	8/79	10/24/79	26	NO /	26 QUALIFIED P5CS 10/29/79
11176	21,6	8/79	10/24/79	6	NO /	6 QUALIFIED P5CS 10/29/79
11180	12	8/79	10/24/79	OK	YES	
11179	34,39	8/79	10/24/79	OK	YES X	
1181	21	8/79	10/24/79	OK	YES	
1182	34,39	8/79	10/24/79	OK	YES X	
1192	12	8/79	10/22/79	OK	YES	
1199	21	8/79	10/22/79	OK	YES	
1205	34,26	8/79	10/24/79	26	NO /	26 QUALIFIED P5CS 10/29/79
1208	34	8/79	10/22/79	OK	YES	
1209	12,39	8/79	10/22/79	39	NO /	39 QUALIFIED P5CS
776	54	1/81	2/19/81	OK	YES	
3716	21,63,5	12/80	1/23/81	OK	YES X	
397	63	12/80	2/9/81	OK	YES	

MIDLAND

YES - 20
YES X - 4
NO - 7

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	P.W.H. DATE	QUAL. DATE	TICKET O.K.	COMMENTS
						Pg 37
3829	63	7/10/81	8/12/81	OK WPS-1	YES	
3828	63	7/10/81	8/11/81	OK WPS-1	YES	
3791	63	7/1/81	8/11/81	OK WPS-1	YES	
3790	63	7/1/81	8/11/81	OK WPS-1	YES	
670	63	6/17/81	8/10/81	OK WPS-1	YES	
669	9	6/17/81	8/10/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
668	9	6/17/81	8/10/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
648	63	6/10/81	8/10/81	OK WPS-1	YES	
596	63	6/5/81	8/11/81	OK WPS-1	YES	
593	63	6/10/81	8/10/81	OK WPS-1	YES	
13747	34	12/10/80	5/29/81	OK WPS-1	YES	
13739	23	12/10/80	5/28/81	OK WPS-1	YES	
13738	12	12/10/82	5/29/81	OK WPS-1	YES	
13737	63	12/10/80	5/28/81	OK WPS-1	YES	
13736	34	12/10/80	5/28/81	OK WPS-1	YES	
17066	21	8/26/81	9/22/81	OK WPS-1	YES	
17073	34	8/26/81	9/14/81	OK WPS-1	YES	
17074	54	8/26/81	9/25/81	OK WPS-1	YES	
17075	21	8/26/81	9/24/81	OK WPS-1	YES	
17076	21	8/26/81	9/24/81	OK WPS-1	YES	
17123	52,21	8/31/81	9/21/81	OK WPS-1	YES	
17124	21,52	8/31/81	9/21/81	OK WPS-1	YES	
7125	52,21	8/1/81	9/21/81	OK WPS-1	YES	
7402	21,63	8/13/81	9/4/81	OK WPS-1	YES	
7424	21,63	8/14/81	9/4/81	OK WPS-1	YES	
7067	34	8/26/81	9/16/81	OK WPS-1	YES	
7425	63	8/17/81	9/29/81	OK WPS-1	YES	
7071	63	8/26/81	9/15/81	OK WPS-1	YES	
7070	9	8/26/81	9/15/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
7437	9	8/17/81	9/29/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
	63	8/17/81	9/29/81	OK WPS-1	YES	

MIDLAND

YES - 37
YES X - 4
NO - 0

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	PUNCH DATE	QUAL. DATE	TICKET O.K.	COMMENTS
17440	54	8/17/81	9/29/81	OK WPS-1	YES	
17443	54	8/17/81	9/29/81	OK WPS-1	YES	
548	52,9	8/31/81	9/21/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
667	63	6/17/81	8/10/81	OK WPS-1	YES	
3946	21	8/11/81	9/4/81	OK WPS-1	YES	
17453	9	8/17/81	9/29/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
17442	9	8/17/81	9/29/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
17441	63	8/17/81	9/29/81	OK WPS-1	YES	
15505	34	6/25/81	8/7/81	OK WPS-1	YES	
15556	34	7/1/81	8/12/81	OK WPS 1	YES	
15557	34	7/1/81	8/12/81	OK WPS-1	YES	
3451	5,34	1/24/81	2/19/81	OK WPS-1	YES	
3775	21	4/1/81	4/21/81	WPS-1 WPS-2	YES	WELDING PROCEDURE NOT CIRCLED ON TRAVELER
2834	6	8/27/79	12/7/79	OK P5CS	YES	
2143	34	4/17/81	5/29/81	OK WPS-1	YES	
17115	9	9/1/81	10/8/81	WPS-1 WPS-2	YES ?	2 - #9's, UNABLE TO DISTINQUISH WHICH ONE
3448	34,21	1/24/81	2/19/81	OK WPS-1	YES	
3447	54	1/24/81	2/19/81	OK WPS-1	YES	
17116	63	9/1/81	10/12/81	OK WPS-1	YES	
13732	12	12/10/80	5/27/81	OK WPS-1	YES	
13731	5	12/10/80	5/27/81	OK WPS-1	YES	
13730	12	12/10/80	5/26/81	OK WPS-1	YES	
221	21,12	4/1/81	5/6/81	OK WPS-1	YES	
053	23,21	3/26/81	5/7/81	OK WPS-1	YES	
937	23	3/13/81	5/7/81	OK WPS-1	YES	
774	23	3/27/81	5/7/81	OK WPS-1	YES	
181	12,20	9/22/79	1/9/81	OK WPS-1	YES X	OUT ON COPY GP
668	34	12/21/79	12/24/80	OK WPS-1	YES	
186	34	9/14/79	12/23/80	OK WPS-1	YES	
64	34	12/20/79	12/24/80	OK WPS-1	YES	
53	34	12/18/79	12/23/80	OK WPS-1	YES	

MIDLAND

YES - 37
YES X - 4
NO - 0

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
8726	12,63,34	9/13/79	12/17/80	9/19/80 8/27/80	YES X	VANE WELDER 34 NOT TRANSFERRED
8570	34	8/30/79	2/9/81	4/22/76	YES	
8572	20,6	8/30/79	2/9/81	12/10/76 10/29/79	YES X	WELDER 6 ON COPY
02636	26,12	1/16/81	2/11/81	9/19/80 3/31/81	NO ✓	MPS NOT CIRCLED, WELDER 12 NOT QUALIFIED FOR WPS-2, 26 QUALIFIY
						AFTER WORK DATE WPS-2
02635	26,12	1/16/81	2/11/81	9/19/80 3/31/81	NO ✓	WPS NOT CIRCLED, WELDER 12 NOT QUALIFIED FOR WPS-2, 26 QUALIFY.
						AFTER WORK DATE WPS-2
02633	23,12	1/16/81	2/11/81	9/19/80	YES	
02632	23,12	1/16/81	2/11/81	9/19/80	NO ✓	WPS NOT CIRCLED, ID DATE DOES NOT MATCH WELDER 23, 12 NOT QUALIFIED
						FOR WPS-2
02630	26,54	1/16/81	2/11/81	9/19/80 3/31/81	NO ✓	WPS NOT CIRCLED, WELDER 54 NOT QUALIFIED FOR WPS-2 WELDER 26
						QUALIFIED AFTER WORK DATE WPS-2
2628	26,12	1/15/81	2/11/81	9/19/80	YES ?	WELDER 26 ON COPY (VANES) ?
2626	26,34	1/15/81	2/11/81	9/19/80 8/27/80	YES	
02624	23,54	1/15/81	2/11/81	9/19/80	YES	
663	26	1/17/81	2/11/81	9/19/80	YES	
662	26	1/16/81	2/11/81	9/19/80	YES	
657	23	1/17/81	2/11/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 23 NOT QUALIFIED FOR WPS-2
656	23	1/17/81	2/11/81	9/19/80	NO ✓	WELDER 26 ON COPY (VANE) ? WELDER NOT QUALIFIED FOR WPS-2
023	21,54	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 54 NOT QUALIFIED FOR WPS-2
3765	21,34	12/10/80	1/23/81	9/19/80 8/27/80	YES	
3764	21,34	12/10/80	1/23/81	9/19/80 8/27/80	NO	WPS NOT CIRCLED, WELDER 21 NOT QUALIFIED FOR WPS-2
3746	21,23	12/10/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 23 NOT QUALIFIED FOR WPS-2
3719	21,63	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 63 NOT QUALIFIED FOR WPS-2
3718	21	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER NOT QUALIFIED FOR WPS-2
3717	21,5	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 5 NOT QUALIFIED FOR WPS-2
432	23,5	1/17/81	2/11/81	9/19/80	YES	
432	23,5	1/17/81	2/11/81	9/19/80	YES	
418	26,5	1/16/81	2/11/81	9/19/80	YES	
420	26,54	1/17/81	2/11/81	9/19/80	YES	
417	26,5	1/16/81	2/11/81	9/19/80	YES	

MIDLAND

YES - 13
YES X - 2
NO - 12

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	R DATE	QUAL. DATE	TICKET O.K.	COMMENTS
1652	34	12/18/79	12/23/80	OK WPS-1	YES	
1651	34	12/18/79	12/22/80	OK WPS-1	YES	
1297	20,21	9/13/79	1/12/81	OK WPS-1	YES	
1224	34,20	8/30/79	1/5/81	OK WPS-1	YES ?	OUT ON COPY RM
1180	21,20	9/22/79	1/9/81	OK WPS-1	YES	
1202	5	9/4/79	2/9/81	OK WPS-1	YES	OUT ON COPY WJ
1188	12,21, 34,63	9/14/79	12/17/80	OK WPS-1	YES	
2359	34	12/30/80	2/10/81	8/27/80	YES	
3402	63	12/30/80	2/10/81	9/19/80	YES	
3406	34	12/30/80	2/10/81	8/27/80	NO	NO WELDER ID FOR FITTING
3405	34	12/30/80	2/10/81	8/27/80	YES	
3404	34,5	12/30/80	2/10/81	8/27/80 9/19/80	YES	
3403	3454	12/30/80	2/10/81	8/27/80 9/19/80	YES	
2326	21,63	12/30/80	1/23/81	9/19/80	YES	
2320	21,34	12/2/80	1/23/81	9/19/80 8/27/80	NO	WPS NOT CIRCLED, WELDER 21 NOT QUALIFIED FOR WPS-2
2301	34	12/3/80	2/9/81	8/27/80	NO	WPS NOT CIRCLED
13720	21,63	12/9/80	1/23/81	9/19/80	NO	WPS NOT CIRCLED, WELDER 21,53 NOT QUALIFIED FOR WPS-2
2683	34	1/28/81	2/27/81	8/27/80	YES	
2682	63	1/27/81	2/27/81	8/19/80	YES	
2681	34	1/28/81	2/27/81	8/27/80	YES	
1980	20	3/5/81	5/19/81	9/19/80	YES	
2680	63	1/27/81	2/27/81	9/19/80	YES	
0934	12	9/22/79	2/9/81	2/3/80	YES	
0933	5,20	9/22/79	1/9/81	9/19/80 10/29/79	YES	
0932	21	9/22/79	2/9/81	2/3/80	YES	
0931	54,20	9/22/79	1/9/81	12/10/76 1/22/80	YES	
0930	12	9/22/79	2/9/81	2/3/80	YES	
0929	34	9/22/79	2/9/81	4/22/76	YES	
0911	34,21	9/22/79	12/24/80	OK	YES	
0909	21	9/22/79	2/9/81	2/3/80	YES	

MIDLAND

YES -27
YES X - 0
NO -4

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F6478	34	7/16/79	2/9/81	4/22/76	YES X	DI (?) CLEANER ?
F6476	34	7/16/79	2/9/81	4/22/76	YES X	DI (?) CLEANER ?
F6477	34	7/16/79	2/9/81	4/22/76	YES X	DI (?) CLEANER ?
F6473	21	7/16/79	2/9/81	2/3/80	YES	
F6474	21	7/16/79	2/9/81	2/3/80	YES	
F6471	20,52 (?)	7/16/79	2/9/81	12/10/76 3/15/80	YES X	GP ON COPY
F6469	20	7/16/79	2/9/81	12/10/76	YES	
F14851	12	6/16/81	8/7/81	9/19/80	NO /	WELDER 12 NOT QUALIFIED FOR WPS-2
F14821	34	6/11/81	8/7/81	8/27/80	YES	
F14820	34	6/11/81	8/10/81	8/27/80	YES	
F14819	34	6/11/81	8/10/81	8/27/80	NO /	RM (?) ON COPY
F14817	34	6/10/81	8/11/81	8/27/80	YES	
F14588	34	6/5/81	8/10/81	8/27/80	YES	
F14587	34	6/5/81	8/10/81	8/27/80	YES	
F14586	63	6/5/81	8/12/81	9/19/80	NO /	WELDER NOT QUALIFIED FOR WPS-2
F14562	34	6/11/81	8/12/81	8/27/80	YES	
F14182	63,6	5/8/1	8/12/81	12/31/80 9/19/80 5/14/81	YES	
F13735	5	12/10/81	5/28/81	OK WPS-1	YES	
F13734	63	12/10/80	5/27/81	OK WPS-1	YES	
F13733	23	12/10/80	5/28/81	OK WPS-1	YES	
F15555	34	7/2/81	8/12/81	OK WPS-1	YES	
F15554	34	7/2/81	8/12/81	OK WPS-1	YES	
F15504	34	6/25/81	8/12/81	OK WPS-1	YES	
F15503	34	6/25/81	8/10/81	OK WPS-1	YES	
F15502	34	6/25/81	8/7/81	OK WPS-1	YES	
F14864	34	6/17/81	8/11/81	OK WPS-1	YES	
F14866	34	6/17/81	8/11/81	OK WPS-1	YES	
F14865	34	6/17/81	8/7/81	OK WPS-1	YES	
F14863	63	6/17/81	8/13/81	OK WPS-1	YES	
F14862	63	6/17/81	7/30/80	OK WPS-1	YES	

MIDLAND

YES - 24
YES X - 4
NO - 3

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	WPS DATE	QUAL. DATE	TICKET O.K.	COMMENTS
P3010	54,23	1/28/81		OK	YES	
F2794	34,5	1/26/81		OK	YES	
F2779	54,26	1/24/81		OK	YES	
F2782	54,12,34	1/24/81		OK	YES	
F2778	54,23	1/24/81		OK	YES	
F2777	54,26	1/23/81		OK	YES	
F2786	12,34	1/24/81		OK	YES X	
F2785	34,12,5	1/24/81		OK	YES X	
F2783	54,21,34	1/24/81		OK	YES	
F2781	54,21,34	1/24/81		OK	YES X	
F2780	54,21,23	1/24/81		OK	YES X	
F2774	34,12	1/23/81		OK	YES	
F2768	63,26	1/23/81			NO /	26 & 63 NOT QUALIFIED FOR WPS-2
F2756	5,54	1/23/81		OK	YES	
F2748	5,63,12	1/23/81		OK	YES X	
F2599	5,63	1/23/81		OK	YES	
F2767	26,12	1/23/81		OK	YES	
F2809	54,5	1/28/81		OK	YES	
F2327	63,26	1/28/81		OK	YES	
F3075	63,26	12/17/80			NO /	63 & 26 NOT QUALIFIED FOR WPS-2
F02643	23,26,12	1/17/81			NO /	12, 23 & 26 NOT QUALIFIED FOR WPS-2
F02638	26,21	1/16/81		OK	YES	
F02642	23,26	1/17/81			NO /	26 & 23 NOT QUALIFIED FOR WPS-2
F02641	23,5	1/17/81			NO /	23 & 5 NOT QUALIFIED FOR WPS-2
F3571	12,23	8/30/79	2/9/81	2/3/80 10/29/79	YES X	WELDER 23 ON COPY
F3569	21,20,6	8/30/79	1/12/81	10/29/79 2/3/80 12/10/76	NO /	LP NOT LISTED
F3568	20,23	8/30/79	1/12/81	12/10/76 10/29/79	YES X	WELDER 23 ON COPY
F3567	21	8/30/79	2/9/81	2/3/80	YES X	
F3481	34	7/16/79	2/9/81	4/22/76	YES ?	DI (?) CLEANER ?
F3480	34	7/16/79	2/9/81	4/22/76 10/29/79	YES ?	DI (?) CLEANER ?

MIDLAND

YES - 17
YES X - 8
NO - 6

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK LOC.	QUAL. DATE	TICKET O.K.	COMMENTS
F10922	21,54	1/23/80	9/18/81	OK WPS-1	YES	
F12332	21,54	2/18/80	9/18/81	OK WPS-1	YES	
F15879	21,34	8/11/81	9/4/81	OK WPS-1	YES	
F17122	52,63	8/31/81	9/21/81	OK WPS-1	YES	
F15891	21	8/11/81	9/4/81	OK WPS-1	YES	
F02639	26	1/17/81		D	NO	26 NOT QUALIFIED FOR WPS-2
F02637	26,12	1/16/81		D	NO	26 & 12 NOT QUALIFIED FOR NPS-2
F2043	34	3/27/81		OK	YES	
F1977	20	3/5/81		OK	YES	
F2042	34	3/27/81		OK	YES	
P661	52,21	6/16/81			NO	52 & 21 NOT QUALIFIED FOR WPS-2
P660	52,54	6/16/81			NO	52 & 54 NOT QUALIFIED FOR WPS-2
P659	52,23	6/16/81			NO	52 & 23 NOT QUALIFIED FOR WPS-2
P658	52,23	6/16/81			NO	52 & 23 NOT QUALIFIED FOR WPS-2
P657	52,23	6/16/81			NO	52 & 23 NOT QUALIFIED FOR WPS-2
P3619	63	3/30/81			NO	63 NOT QUALIFIED FOR WPS-2
P3602	63,34	3/27/81			NO	63 NOT QULALIFED FOR WPS-2
F2052	12,23	3/27/81		OK	YES	
F2032	12,23	3/30/81			NO	12 & 23 NOT QUALIFIED FOR WPS-2
F2031	5,23,12	3/30/81			NO	5, 23 & 12 NOT QUALIFIED FOR WPS-2
F2223	12,23,21	4/1/81			NO	12, 23 & 21 NOT QUALIFED FOR WPS-2
F2023	12,63	3/31/81			NO	12 & 63 NOT QUALIFIED FOR WPS-2
F1877	63,12	3/20/81		OK	YES	
F1925	34	3/17/81		OK	YES	
F2009	12	3/31/81			NO	12 NOT QUALIFIED FOR WPS-2
F2014	34,63	3/31/81			NO	63 NOT QUALIFIED FOR WPS-2
F2022	12,34	3/31/81			NO	12 NOT QUALIFIED FOR WPS-2
F13759	23	12/11/80			YES	
P3446	26	1/24/81		OK	YES	
P3431	21,54	1/17/81		OK	YES	
P3011	54,63	1/29/81		OK	YES	

MIDLAND

YES - 15
YES X - 0
NO - 16

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK LATE	QUAL. DATE	TICKET O.K.	COMMENTS
F9217	34	11/6/79	12/31/80	OK WPS-1	YES	
F9015	20	10/2/79	2/9/81	OK P5CS	YES X	OUT BS
F8943	21	9/23/79	2/9/81	OK P5CS	YES X	OUT ID
F8942	21	9/22/79	2/9/81	OK P5CS	YES X	OUT ID
F8939	20	10/22/79	1/12/81	OK WPS-1	YES X	OUT TW
F8941	12	9/22/79	2/9/81	OK P5CS	YES	
F8940	34	9/22/79	2/9/81	OK P5CS	YES	
F8938	5	9/22/79	2/9/81	OK P5CS	YES	
F8937	21	9/22/79	2/9/81	OK P5CS	YES	
F8936	21	9/22/79	2/9/81	OK P5CS	YES	
F8935	5	9/22/79	2/9/81	OK P5CS	YES	
F2312	26,5	10/20/80	1/6/81	OK WPS-1	YES	
P1665	23	12/20/79	10/31/80	OK WPS-1	YES	
P1663	23	12/20/79	10/31/80	OK WPS-1	YES	
F1538	34	8/27/79	2/9/81	OK P5CS	YES X	OUT GP (26)
P3726	21,9	8/14/81	9/4/81	OK WPS-1	YES	9 NOT IDENTIFIABLE
F11286	12	8/29/79	10/22/79	OK P5CS	YES	
F11207	21	8/29/79	10/15/79	OK P5CS	YES	
F5832	34	3/27/79	9/20/79	OK P5CS	YES	
F6467	21	7/14/79	9/21/79	OK P5CS	YES X	EJ NOT CIRCLED (COPY)
F4460	12	3/13/79	5/23/79	OK P5CS	YES	
						DR NOT CIRCLED (COPY)
F17428	21,9	8/17/81	9/4/81	OK WPS-1	YES X?	9 NOT IDENTIFIABLE
F17429	21,63	8/14/81	9/4/81	OK WPS-1	YES	
F17431	21	8/17/81	9/4/81	OK WPS-1	YES	
F17430	21,34	8/14/81	9/4/81	OK WPS-1	YES	
F17427	21	8/14/81	9/4/81	OK WPS-1	YES	
F17426	21	8/14/81	9/4/81	OK WPS-1	YES	
F17425	21	8/14/81	9/4/81	OK WPS-1	YES	
F10732	21,9	1/21/80	9/18/81	OK WPS-1	YES X?	9 NOT IDENTIFIABLE
F10849	21,54	1/21/80	9/18/81			

MIDLAND

YES -22
YES X - 8
NO -0

CLASS 1

TICKET NO.	WELDER NO's.	ISSUE DATE	[illegible] DATE	QUAL. DATE	TICKET O.K.	COMMENTS Pg 40
F13740	12	12/10/80		O.K.	YES	
F13751	23	1/8/81		O.K.	YES	
F13758	DG,12	1/8/81		DG	NO /	CAN'T DETERMINE DG
F13757	5	1/8/81		O.K.	YES	
F13756	JL,23	1/8/81		JL	NO /	CAN'T DETERMINE JL
F13755	34	12/11/80		O.K.	YES	
F13754	34	12/11/80		O.K.	YES	
F13753	63	12/11/80		O.K.	YES	
F13752	12	12/11/80		O.K.	YES	
F13750	5	12/11/80		O.K.	YES	
F13748	DG,5	12/10/80		DG	NO /	CAN'T DETERMINE DG
F13749	63	1/8/81		O.K.	YES	
P1306	34,54	10/1/79	1/14/80	54-1/22/80	NO /	
P1187	23,12,21	9/14/79	12/18/80	OK WPS-1	YES	
P1182	12,20	9/22/79	1/8/81	OK WPS-1	YES X?	HM ON COPY, NOT CIRCLED
P1179	21	9/22/79	2/9/81	OK WPS-1	YES	
P1178	20,21	9/22/79	1/12/81	OK WPS-1	YES X	GP ON COPY, NOT CIRCLED
						BS,MDS,RM,DW - NOT CIRCLED
P1177	34,20	9/22/79	1/12/81	OK WPS-1	YES X	OUT ON COPY - GP,RM
P1106	21,20	7/16/79	1/12/81	OK WPS-1	YES X	OUT ON COPY - WJ
P1105	21,20	7/16/79	1/12/81	OK WPS-1	YES X	OUT ON COPY - WJ
P1104	20,21	7/16/79	1/12/81	OK WPS-1	YES X?	OUT ON COPY - WJ NO DL ON FILE (COPY)
P1103	34,20	7/16/79	1/12/81	OK WPS-1	YES X?	OUT BS ON COPY DL - NO PERSON ON FILE
P507	5	10/10/79	2/9/81	OK WPS-1	YES	
F13540	26,21	11/25/80	1/6/81	OK WPS-1	YES	
F13539	23,63	11/25/80	1/6/81	OK WPS-1	YES	
P10643	23	12/20/79	10/30/80	OK WPS-1	YES	
P10641	23	12/20/79	10/30/80	OK WPS-1	YES	
P10638	23	12/20/79	10/30/80	OK WPS-1	YES	
P10637	23	12/20/79	10/29/80	OK WPS-1	YES	
P9567	34	9/13/79	2/9/81	OK WPS-1	YES	

MIDLAND

YES - A
YES X - 7
NO - 4

CLASS I
PLANT 2

TICKET NO. **	HEADER NO's.	ISSUE DATE	W/A L S	CAL. DATE	TICKET O.K.	COMMENTS Pg 41
F8727	12,21	9/13/79	12/17/80	OK WPS 1	YES X	34 ADDED TO COPY 12/17/80
P3609	12,21,23	3/30/81	4/30/81	OK WPS 1	YES	
P3610	34,63,23	3/30/81	4/3/81	OK WPS 1	YES	
F2807	63,34,21	1/28/81	2/19/81	OK WPS 1	YES	
F13608	21,26	11/22/80	1/22/81	OK WPS 1	YES	
P500	34	10/10/79	11/7/79	OK P5	YES	
P2833	6	8/27/79	12/7/79	NO P5	NO /	RK NOT CIRCLED ON COPY
F10423	6,JDT	12/8/79	1/10/80	NO P5	NO /	RK NOT CIRCLED ON COPY
F10424	6 JDT	12/8/79	1/10/80	NO P5	NO /	RK NOT CIRCLED ON COPY
F10425	6,JDT	12/8/79	1/10/80	NO P5	NO	RK NOT CIRCLED ON COPY JDT NOT QUALIFIED
F10426	6,JDT	12/8/79	1/10/80	NO P5	NO /	RK NOT CIRCLED ON COPY JDT NOT QUALIFIED
F10492	6,JDT	11/29/82	1/10/80	NO P5	NO /	OUT TW ON COPY TW NOT QUALIFIED
F10010	48	11/3/79	1/10/80	OK P5	YES	
F10072	6	11/5/79	1/15/80	NO P5	NO /	RK NOT CIRCLED ON COPY
F10062	6	11/5/79	1/14/80	NO P5	NO /	RK NOT CIRCLED ON COPY
F13617	21	11/22/80	1/22/81	OK WPS 1	YES	
F13607	21,63	11/22/80	1/22/81	OK WPS 1	YES	
F13574	21,23	11/21/80	1/22/81	OK WPS 1	YES	
P495	21	8/29/79	10/10/79	NO P5	NO /	RK & DW LISTED ON COPY NOT QUALIFIED
F5817	34	4/14/79	8/27/79	NO P5	NO /	OUT BS ON COPY BS NOT QUALIFIED
F6485	34	7/17/79	9/17/79	NO P5	NO /	OUT BS ON COPY BS NOT QUALIFIED
F1114	21	7/12/79	10/1/79	NO P5	NO /	OUT DW NOT QUALIFIED
F1115	34	7/12/79	10/3/79	NO P5	NO /	OUT WJ ON COPY - NOT QUALIFIED
F1107	21	7/16/79	9/17/79	OK P5	YES	
F9259	21	8/31/79	11/5/79	NO P9	NO /	DW ON COPY - NO QUALIFIED.
F8952	21	9/22/79	10/31/79	NO P9	NO /	RK ON COPY
F8951	21	9/22/79	10/31/79	NO P9	NO /	RK ON COPY
F2704	34,63,21	1/17/81	2/18/81	OK WPS 1	YES	

MIDLAND

YES -11
YES X - 1
NO - 16

ATTACHMENT #2

INITIAL CATEGORIZATION OF

MIDLAND CLASS 1 CATEGORY 3 ("NO") TRAVELERS

Sept. 28, 1982

CATEGORIES

A. DATE DISCREPANCIES BETWEEN ISSUE DATE, WORK DATE, INSPECTION DATE.

B. NO WELD PROCEDURE ON TICKET.

C. TWO (2) WELD PROCESSES LISTED - WELDER QUALIFIED TO ONE (1) ONLY OR NEITHER.

D. WELDER NEVER QUALIFIED, AND/OR UNIDENTIFIABLE INITIALS ON COPY. (ARE INITIALS WELDER, INSPECTOR OR CLEANER?)

E. WELDER NOT QUALIFIED, BUT QUALIFIED AT LATER DATE.

1. AT TRAVELER ISSUE DATE (NO WORK DATE AVAILABLE)
2. AT WORK DATE

F. MISCELLANEOUS OTHER.

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CIAS 1 PLANT: II

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-6656	1	D	-TRAVELER VOIDED-
F-6654	1	D	
F-6652	1	D	-TRAVELER VOIDED-
F-6648	1	D	-TRAVELER VOIDED-
F-6644	1	D	-TRAVELER VOIDED-
F-6643	1	D	-TRAVELER VOIDED-
F-6642	1	D	-TRAVELER VOIDED-
F-4425	2	D	Unidentifiable intials on copy
F-4399	2	D	" " "
F-4398	2	D	" " "
F-4397	2	D	" " "
F-4271	2	D	" " "
F-4269	2	D	" " "
F-4284	2	D	" " "
F-4279	2	D	" " "
F-2462	2	D	" " "
F-4276	3	D	" " "
F-4275	3	D	" " "
P-2464	3	D	" " "
F-4424	3	D	" " "
F-804	4	F	No Dates/Qualification status undetermined
F-11202	6	E (2)	Welder #26 & #39
F-11206	6	E (2)	Welder #39
F-11210	6	E (2)	Welder #39
F-11211	6	E (2)	Welder #26 -TRAVELER VOIDED-
F-11200	6	E (2),D	Welder #39/D.I. -TRAVELER VOIDED-
F-6449	6	D	D.L.
F-6444	6	E (2)	Welder #39
F-6443	6	E (2)	Welder #39
P-1110	6	E (2)	Welder #48

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLASS: 1 PLANT: 11

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-9379	6	D	Welder #6
F-9378	6	D	Welder #6
F-8742	8	D	Welder #63 -TRAVELER VOIDED-
F-11198	9	D	S.L.
F-11186	9	E (2)	Welder #48
F-11187	9	D	S.L.
F-11189	9	D	D.L. -TRAVELER VOIDED-
F-11195	9	E (2)	Welder #48 -TRAVELER VOIDED-
F-11196	9	E (2)	Welder #48
F-9256	9	E (2)	Welder #26
F-9251	9	E (2)	Welder #26
P-2570	10	D	D.L. -TRAVELER VOIDED-
P-1150	10	E (2)	Welder #6 -TRAVELER VOIDED-
P-1149	10	E (2)	Welder #3[illegible]
F-6482	10	E (2)	Welder #26 -TRAVELER VOIDED-
F-6465	10	E (2)	Welder #6 -TRAVELER VOIDED-
F-6464	10	E (2)	Welder #43 -TRAVELER VOIDED-
F-6443	10	E (2)	Welder #26
F-5847	10	E (2)	Welder #6
F-5846	10	E (2)	Welder #6
F-5842	10	E (2)	Welder #6 -TRAVLER VOIDED-
P-493	10	E (2)	Welder #5
P-494	10	E (2)	Welder #39 & #6 -TRAVELER VOIDED-
F-11173	10	E (2)	Welder #5 -TRAVELER VOIDED-
F-11177	10	E (2)	Welder #5
F-11178	10	C	Welder #26
F-5636	11	E (2)	Welder #26
F-5632	11	E (2)	Welder #5
F-5054	11	E (2)	Welder #5
F-5053	11	D	D.L.

DISCREPANT TRAVELER BREAKDOW OR PROJECT: Midland CLAS. 1 PLANT: 11

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-5829	12	E (2)	Welder #26
F-5827	12	E (2)	Welder #39
F-5826	12	E (2)	Welder #26 -TRAVELER VOIDED-
F-4448	12	E (2)	Welder #43
F-4444	12	E (2)	Welder #6 -TRAVELER VOIDED-
F-4443	12	D	M.K.
P-2596	12	E (2)	Welder #5 -TRAVELER VOIDED-
F-5814	12	D	D.R.
F-6813	12	D	D.R.
F-5815	12	E (2)	Welder #26
F-5816	12	E (2)	Welder #26
F-5818	12	E (2)	Welder #39
F-5812	12	E (2)	Welder #26
F-5811	12	E (2)	Welder #26
F-5808	12	E (2)	Welder #5
F-11105	14	F	Welder #58 not identified -TRAVELER VOIDED-
F-11036	14	F	Welder #58 not identified -TRAVELER VOIDED-
P-2756	29	E (2)	Welder #39
F-04412	29	E (2)	Welder #39 -TRAVELER VOIDED-
F-04411	29	E (2)	Welder #39 -TRAVELER VOIDED-
F-04408	29	E (2)	Welder #39
F-4404	29	E (2)	Welder #39
F-11102	29	F	Welder #58 not identified
P-2971	30	F	Welder #24 not identified
F-9260	31	D	Welder #6
F-1305	31	D	Welder #6
P-1308-	31	E (2)	Welder #48
F-11171	31	E (2)	Welder #26 -TRAVELER VOIDED-
F-11176	31	E (2)	Welder #6
F-11205	31	E (2)	Welder #26

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLAS. 1 PLANT: II

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-1872	17	D	-TRAVELER VOIDED-
F-8801	19	E-2	#52-Welder -TRAVELER VOIDED-
P-1112	19	C	-TRAVELER VOIDED-
F-10268	20	E	#30
P-1201	20	E	#54
F-6456	20	E	#54
F-8767	20	E	#52 -TRAVELER VOIDED-
F-8798	20	E	#52
F-8816	20	E	#54 -TRAVELER VOIDED-
F-10484	21	E	#54
F-10489	21	E	#52
F-10050	23	E	#30 -TRAVELER VOIDED-
F-10485	23	E	#54
F-10066	24	E	#30 -TRAVELER VOIDED-
P-1514	24	E	#30 -TRAVELER VOIDED-
P-1523	24	D	D.L. ? -TRAVELER VOIDED-
P-1511	24	E	#54 -TRAVELER VOIDED-
P-1510	24	D	W.I. & G.S. ? -TRAVELER VOIDED-
P-10262	24	E	#54 -TRAVELER VOIDED-
F-13246	27	D	#66 ? -TRAVELER VOIDED-
F-13254	27	E	#64 -TRAVELER VOIDED-
F-11100	27	D	#58 ?
F-11117	27	D	#58 ?
F-11050	28	E	#26 -TRAVELER VOIDED-
F-11091	28	E	#26 -TRAVELER VOIDED-
F-11118	28	D	#58 ? -TRAVELER VOIDED-
F-11132	28	D	#58 ? -TRAVELER VOIDED-
P-1491	16	E	#54
F-02636	34	C	#12 not qualified for WPS-2
F-02635	34	C	#12 not qualified for WPS-2

DISCREPANT TRAVELER BREAKDOW OR PROJECT: Midland CLAS 1 PLANT: II

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-13717	34	D	#21 & #5 not qualified for WPS-2
F-2320	35	D	#21 not qualified for WPS-2 -TRAVELER VOIDED-
F-2301	35	B	WPS not circled -TRAVELER VOIDED-
F-13720	35	D	#21 & #53 not qualified for WPS-2
P-661	38	A,D	#52 & #21 not qualified for WPS-2
P-660	38	A,D	#52 & #54 not qualified for WPS-2
P-659	38	A,D	#52 & #53 not qualified for WPS-2
P-658	38	A,D	#52 & #53 not qualified for WPS-2
P-657	38	A,D	#52 & #53 not qualified for WPS-2
P-3619	38	A,D	#63 not qualified for WPS-2
P-3602	38	A,D	#63 not qualified for WPS-2 -TRAVELER VOIDED-
F-2032	38	A,D	#12 & #23 not qualified for WPS-2 -TRAVELER VOIDED-
F-2031	38	A,D	#5, #12, & #23 not qualified for WPS-2 -TRAVELER VOIDED-
F-2223	38	A,D	#12, #23 & #21 not qualified for WPS-2
F-2023	38	A,D	#12 not qualified for WPS-2
F-2009	38	A,D	#12 not qualified for WPS-2
F-2014	38	A,D	#63 not qualified for WPS-2 -TRAVELER VOIDED-
F-2022	38	A,D	#12 not qualified for WPS-2
F-13758	40	D	D.G. ? -TRAVELER VOIDED-
F-13756	40	D	J.L. ? -TRAVELER VOIDED-
F-13748	40	D	D.G. ?
P-1306	40	E	#54
P-495	41	D	R.K. & D.W. ? -TRAVELER VOIDED-
F-5817	41	D	B.S. ?
F-6485	41	D	B.S. ?
P-1114	41	D	D.W. ?
P-1115	41	D	W.J. ?
P-2833	41	D	R.K. ? -TRAVELER VOIDED-
F-10423	41	D	R.K. ?
F-10424	41	D	R.K. ?

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-4943	11	E (2)	Welder #5
F-4941	11	E (2)	Welder #39
P-2597	11	E (2)	Welder #5 & #39
P-2595	11	D,E (2)	Welder #5/D.R.
P-2594	11	E (2)	Welder #5
P-1093	11	E (2)	Welder #43
F-6448	11	E (2)	Welder #26
F-6454	11	E (2)	Welder #48
F-6486	11	D	D.L.
F-5834	11	E (2	Welder #5 -TRAVELER VOIDED-
F-4446	11	E (2)	Welder #39
F-4445	11	E (2)	Welder #6 -TRAVELER VOIDED-
F-6466	11	E (2)	Welder #5
F-5835	11	E (2)	Welder #26
F-5837	12	E (2)	Welder #39
F-5836	12	E (2)	Welder #6 -TRAVELER VOIDED-
F-5830	12	E (2)	Welder #5 -TRAVELER VOIDED-
F-10426	41	D	R.K. ?
F-10492	41	D	R.K. ?
F-10072	41	D	R.K. ? -TRAVELER VOIDED-
F-10062	41	D	R.K. ? -TRAVELER VOIDED-
F-9259	41	D	D.W. ?
F-8952	41	D	R.K. ? -TRAVELER VOIDED-
F-8951	41	D	R.K. ?
F-02632	3	C	#12 not qualified for WPS-2
F-02630	34	C,D	#26 qualified after work date for WPS-2 #54 not qualified for WPS-2
F-2657	34	D	#23 not qualified for WPS-2
F-2656	34	D	#23 not qualified for PWS-2
F-3023	34	D	#21 & #54 not qualified for WPS-2

DISCREPANT TRAVELER BREAKDOWN OR PROJECT: Midland CLASS PLANT:

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-13746	34	D	#21 & #23 not qualified for WPS-2
F-13719	34	D	#21 & #63 not qualified for WPS-2
F-13718	34	D	#21 not qualified for WPS-2
F-14851	36	D,C	#12
F-14819	36	D	R.M.
F-14586	36	D	Welder #63 & #26
F-2768	37	D	Welder #26 & #63 -TRAVELER VOIDED-
P-3075	37	D	Welder #63 & #26
F-02643	37	D	Welder #12, #23 & #26
F-02642	37	D	Welder #23 & #5
F-02641	37	D	Welder #23 & #5
F-8569	37	D	L.P.
F-7256	2	E (2)	39 Qualified 10/29/79
F-6453	6	E (2)	
F-6452	6	E (2)	
F-02639	38	D	26 not qualified for WPS-2
F-02637	38	D	26 & 12 not qualified for WPS-2
F-3406	35	D	No welder I.D. for fitting
F-10425	41	D	RK not circled on copy JDT not qualified

ATTACHMENT #3

FINAL LISTING AND BREAKDOWN OF

MIDLAND CLASS 1 CATEGORY 3 ("NO") TRAVELERS

Sept. 28, 1982

FINAL SUMMARY OF TRAVELERS WITH WELD RECORD DISCREPANCIES

Following is a listing of all Travelers that exhibit discrepancies in the information pertinent to welding.

The list was distilled from the original listing of all record copy Travelers that had a corresponding "working" (zerox) copy.

Definitions used in describing the discrepancies listed are as follows:

No Qualification Records on file"

Indicates that the records of welder qualification are not on file within the Zack Company and could not be found in the files of the test lab used for welder qualification testing. This leaves no proof that the individual in question was qualified to weld during the time frame in question.

Qualified:

Indicates the earliest date that a welder passed a welder qualification test for the particular welding process call-out on the Traveler. Records for all welders listed as qualified are on file within the Zack Company.

Work Date:

Indicates the date that welding was performed by evidence of a date entered by the welder next to his I.D. number on the Traveler.

Work Inspected:

Indicates the date that the work was inspected by evidence of a date entered next to the Inspector's initials. This date is usually within two days of actual welding and is the next most representative date for establishing a time frame for work performance.

Material Shipped:

Indicates the date that material listed on a particular Traveler was shipped to a jobsite. This date is usually within two (2) weeks of completion of work. This date is used to establish a time frame for the work when no work date or inspection date is on the Traveler. This date is more indicative of the actual work date than the Traveler issue date.

WELD RECORD DISCREPANCIES FOR PROJECT: MIDLAND Page 1 CLASS I

TRAVELER NO.	PAGE	WELDER I.D.	COMMENTS
F-6654	1	Gibson	No qualification records on file. Work inspected 9-11-78.
F-4425	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4399	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4398	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4397	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4271	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4269	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4284	2	#39	Qualified 10-29-79, work inspected 5-21-79.
F-4279	2	#39	Qualified 10-29-79, work inspected 5-21-79.
F-2462	2	#39	Qualified 10-29-79, work inspected 5-18-79.
F-4276	3	#39	Qualified 10-29-79, work inspected 6-5-79.
F-4275	3	#39	Qualified 10-29-79, work inspected 6-5-79.
P-2464	3	#39	Qaulified 10-29-79, work inspected 6-5-79.
F-4424	3	#39	Qualified 10-29-79, work inspected 6-5-79.
F-11202	6	#39	Qualified 10-29-79, work inspected 10-12-79.
F-11206	6	#39	Qualified 10-29-79, work inspected 10-12-79.
F-11210	6	#39	Qualified 10-29-79, work inspected 10-12-79.
F-6444	6	#39	Qualified 10-29-79, work inspected 9-17-79.
F-6443	6	#39	Qualified 10-29-79, work inspected 9-17-79.
F-9379	6	#6	Qualified 10-29-79, work inspected 10-8-79.
F-9378	6	#6	Qualified 10-29-79, work inspected 10-8-79.
F-11186	9	#48	Qualified 10-29-79, work inspected 10-10-79.
F-11196	9	#48	Qualified 10-29-79, work inspected 10-11-79.
P-1149	10	#39	Qualified 10-29-79, work inspected 9-17-79.
F-5847	10	#6	Qualified 10-29-79, work inspected 9-13-79.
F-5846	10	#6	Qualified 10-29-79, work inspected 9-13-79.
F-5827	12	#39	Qualified 10-29-79, work inspected 9-14-79.
F-4448	12	#43	Qualified 10-29-79, work inspected 9-12-79.

WELD RECORD DISCREPANCIES FOR PROJECT: MIDLAND Page 2 CLASS I

TRAVELER NO.	PAGE	WELDER I.D.	COMMENTS
F-5818	12	#39	Qualified 10-29-79, work inspected 8-28-79.
F-04408	29	#39	Qualified 10-29-79, work inspected 6-5-79.
F-4404	29	#39	Qualified 10-29-79, work inspected 6-5-79.
F-11176	31	#6	Qualified 10-29-79, work inspected 10-24-79.
F-11209	31	#39	Qualified 10-29-79, work inspected 10-27-79.
F-10268	20	#30	Qaulified 1-22-80, work inspected 1-10-80.
P-1201	20	#54	Qualified 1-22-80, work inspected 1-9-80.
F-6456	20	#54	Qualified 1-22-80, work inspected 1-9-80.
F-10484	21	#54	Qualified 1-22-80, work inspected 1-10-80.
F-10458	23	#54	Qualified 1-22-80, work inspected 1-10-80.
P-1491	16	#54	Qualified 1-22-80, work inspected 1-3-80.
P-1306	40	#54	Qualified 1-22-80, work inspected 1-14-80.
F-5817	41	#39	Qualified 10-29-79, work inspected 8-27-79.
F-6485	41	#39	Qualified 10-29-79, work inspected 9-17-79.
P-1114	41	#48	Qualified 10-29-79, work inpsected 10-1-79.
F-4941	11	#39	Qualified 10-29-79, work inspected 8-28-79.
P-2579	11	#39	Qualified 10-29-79, work inspected 8-28-79.
P-1093	11	#43	Qualified 10-29-79, work inspected 10-1-79.
F-6454	11	#48	Qualified 10-29-79, work inspected 10-1-79.
F-4446	11	#39	Qualified 10-29-79, work inspected 9-20-79.
F-5837	12	#39	Qualified 10-29-79, work inpsected 9-13-79.
F-10492	41	#54	Qualified 1-22-80, work inpsected 1-10-80.
F-7256	2	#39	Qualified 10-29-79, work inpsected 6-5-79.

ATTACHMENT #4

LISTING OF MIDLAND CLASS 1 "WORKING" COPY TRAVELERS

CONTAINING NO INFORMATION PERTINENT TO THE REVIEW

Sept. 28, 1982

1471 TOTAL

MIDLAND

CLASS I

PLANT 2 TRAVELER COPIES WITH NO EXTRA WELDER I.D. MARKINGS

P-507	F-1947	F-2633	F-2809
657	1998	2634	2851
658	2009	2635	2852
659	2014	2636	2866
660	2022	2637	2867
661	2023	2638	2868
695	2031	2639	2869
1103	2032	2640	2870
1104	2052	2641	2871
1105	2053	2642	2872
1106	2116	2643	2873
1177	2221	2656	2874
1178	2223	2657	2875
1179	2294	2662	2876
1180	2301	2663	2877
1181	2318	2704	2878
1182	2319	2748	2879
1202	2320	2756	2880
1224	2321	2767	2881
1297	2325	2768	P-2917
F-1538	2326	2773	2918
P-1666	2327	2774	2919
1667	2330	2776	2921
F-1794	2333	2777	2922
1804	2339	2778	2955
1851	2358	2779	2971
1857	2359	2780	2972
1872	2519	2781	2973
1877	2520	2782	2974
1881	2521	2783	2975
1925	2522	2785	2976
1927	2599	2786	2977
1928	2617	2787	2978
1929	2624	2788	2984
1930	2625	2789	2986
1931	2626	2790	2988
1932	2627	2792	2989
1933	2628	2794	2990
1934	2629	2795	2992
1935	2630	2798	3007
1937	2631	2805	3008
1946	2632	2807	3009

(169)

MIDLAND

CLASS I

PLANT 2 TRAVELER COPIES WITH NO EXTRA WELDER I.D. MARKINGS

P-3010	F-6481	F-10951	F-12453
3011	6483	10952	12454
3018	6650	10953	12466
3023	8417	10954	12467
3050	8567	11960	12468
3075	7568	11988	12469
3318	8569	11997	12472
3325	8570	12002	12473
3326	8571	12033	12474
3327	8572	12034	12475
3328	8722	12043	12476
3330	8723	12051	12479
3331	8724	12063	12480
3332	8725	12086	12481
3394	8736	12091	12482
3396	8800	12096	12487
3397	8909	12100	12488
3402	8912	12101	12489
3415	8929	12114	12490
3430	8930	12115	12491
3431	8931	12116	12492
3441	8932	12117	12493
3444	8933	12118	12494
3446	8934	12119	12495
3447	8935	12120	12496
3448	8936	12121	12497
3449	8937	12123	12498
3450	8938	12126	12500
3451	8939	12128	12501
3452	8940	12130	13100
3453	8941	12132	13238
3455	8942	12134	13239
3468	8943	12136	13294
3612	9015	12138	13295
3794	9128	12140	13296
3913	9217	12142	13297
3914	9467	12144	13298
F-6385	10267	12178	13299
6469	10483	12255	13301
6471	10603	12256	13302
6472	10604	12257	13303
6473	10605	12258	13304
6474	10606	12259	13480
6477	10607	12260	13481
6476	10608	12261	13482
6478	10645	12262	13483
6479	10849	12263	13484
6480	10950	12265	13485

MIDLAND

CLASS I

PLANT 2 TRAVELER COPIES WITH NO EXTRA WELDER I.D. MARKINGS

F-13486	F-14619	F-17427
13487	14620	17428
13488	14621	17429
13497	14622	17430
13498	14623	17431
13499	14820	18437
13503	14832	17439
13504	14834	17440
13571	14835	17441
13573	14836	17442
13574	14851	17443
13575	14866	17452
13576	15503	17453
13577	15663	
13591	15665	
13603	15667	
13604	15795	
13605	15879	
13607	15891	
13608	15938	
13609	15939	
13610	15940	
13611	17066	
13612	17067	
13613	17070	
13614	17071	
13615	17073	
13616	17074	
13617	17075	
13633	17076	
13634	17117	
13686	17118	
13694	17122	
13716	17123	
13717	17124	
13718	17125	
13719	17126	
13720	17289	
13721	17297	
13723	17298	
13727	17299	
13746	17300	
13763	17301	
13764	17308	
13765	17309	
13781	17402	
13784	17424	
13828	17425	
13988	17426	

ATTACHMENT #5

LISTING OF

MIDLAND VOIDED TRAVELERS

Sept. 28, 1982

MIDLAND CLASS I VOIDED TRAVELER LIST

F-8911
11171
11173
11189
11195
P-1523
F-2768
8952
10062
10072
5830
5836
4445
5834
2833
P-495
F-13756
13758
2014
2301
2032
P-3602
F-2320
2031
11132
11118
11091
11050
13254
13246
10262
P-1510
1511
P-1514
F-10066
10050
8816
8767
P-1112
F-8801
1872
04411
04412
11036
11105
P-2596
F-4444
5826
P-494
F-5842
6464
6465
6482
P-1150
2570
F-8742
P-1110
F-11200
11211
6643
6648
6644
6642
6652
6656

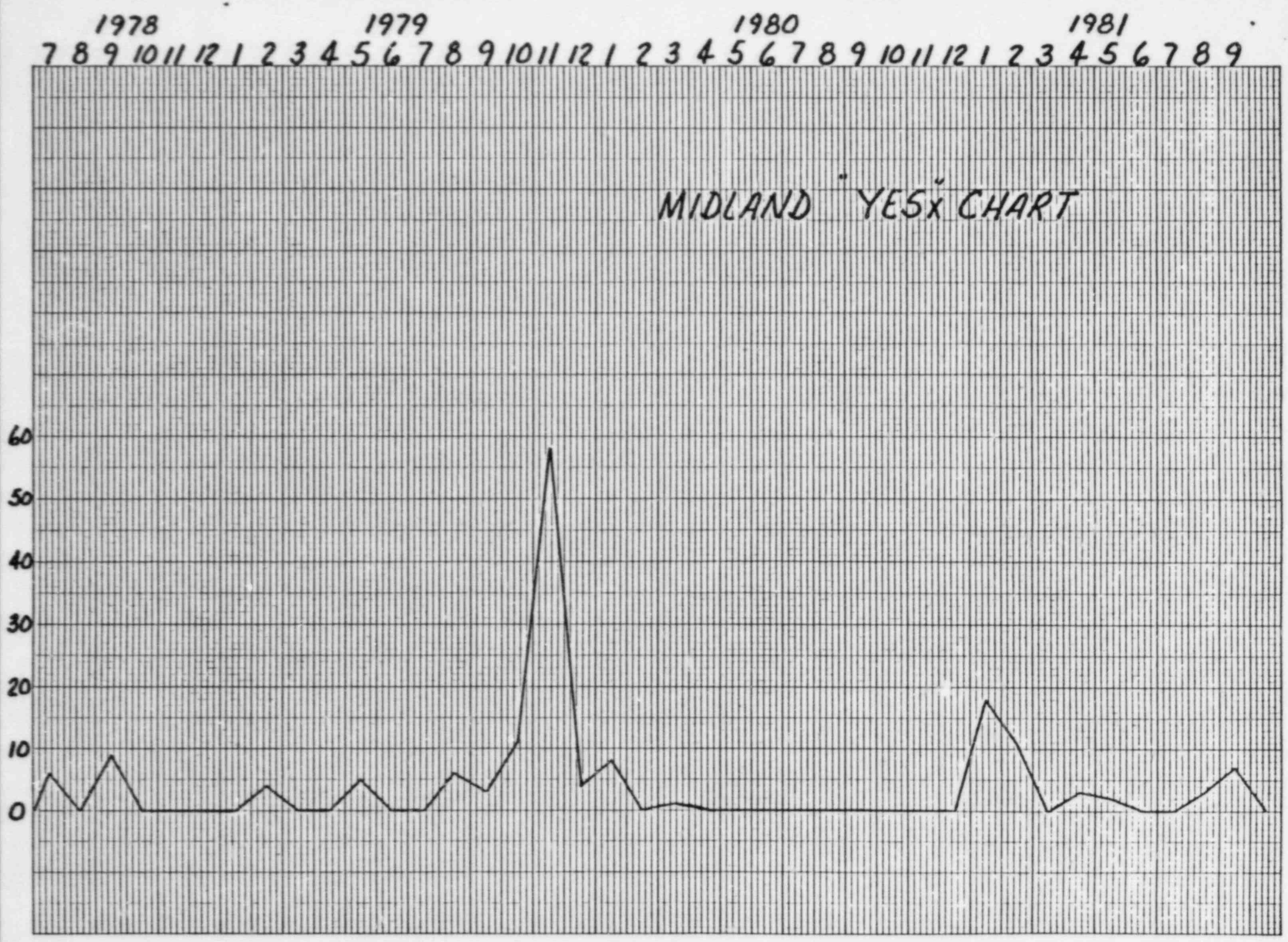
ATTACHMENT #6

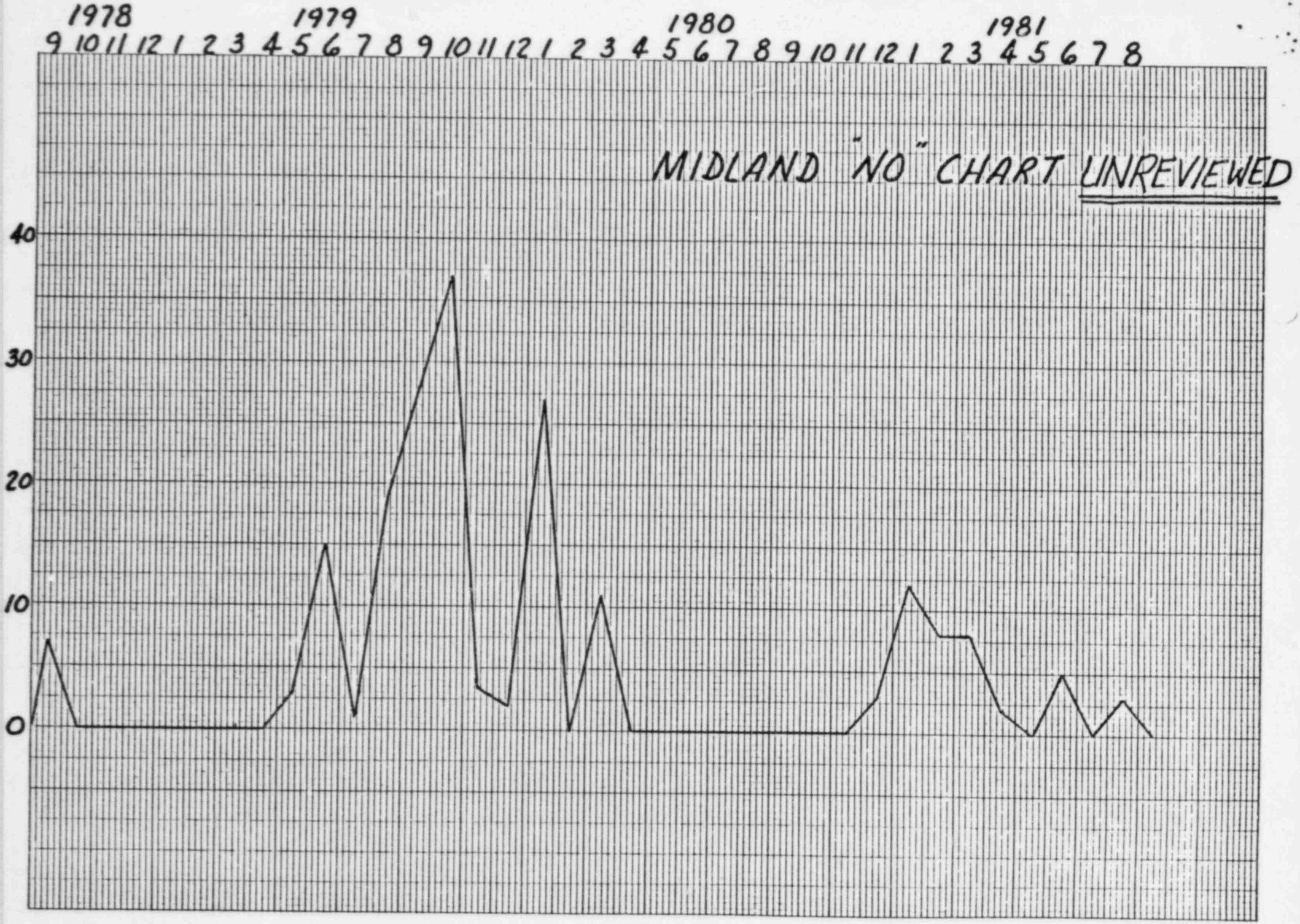
DISTRIBUTION BY DATE OF OCCURRENCE

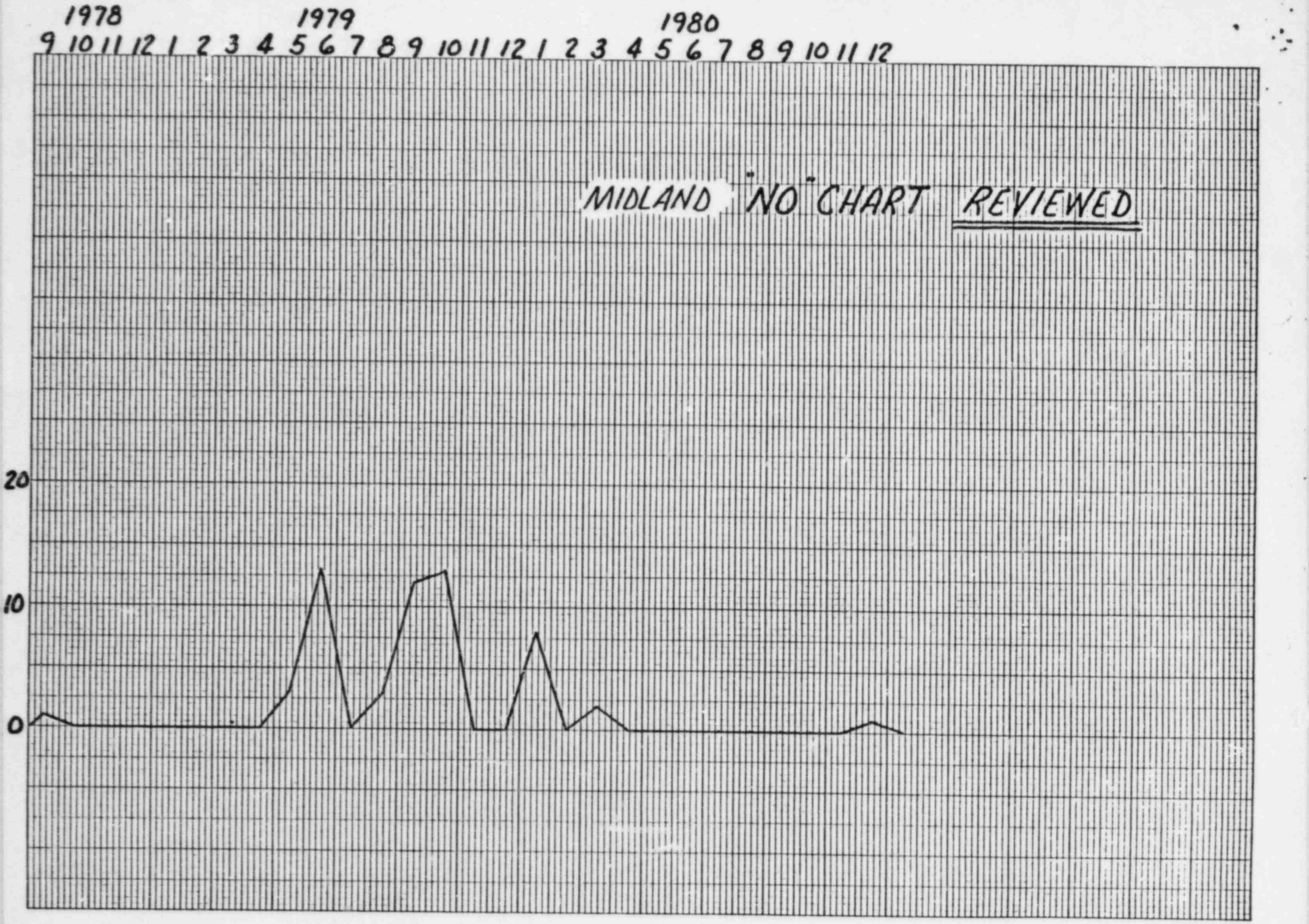
OF

MIDLAND CLASS 1 DISCREPANT TRAVELERS

Sept. 28, 1982







ATTACHMENT #7

WELDER MATRIX

Sept. 28, 1982

NAME	NO.	HIRE	TERM.	PLANT 2 WIRE ISSUE	GMAW CS	GMAW SS	GMAW CS/SS	SMAW CS	SMAW SS	SMAW CS/SS
. Bartolino	14	2/1/78	6/25/78	N/A	2/3/78	N/A	N/A	N/A	N/A	N/A
. Boyle	20	6/1/76	N/A	5/15/79-10/14/81	12/10/76	1/26/82	7/13/81	N/A	N/A	N/A
. Byers	61	1/31/80	3/31/80	N/A	3/25/80	N/A	N/A	N/A	N/A	N/A
. Collins	67	3/12/80	5/22/80	4/14/80-5/13/80	3/25/80	N/A	N/A	N/A	N/A	N/A
. Dianis	9	7/31/78	9/2/79	N/A	3/2/79	N/A	N/A	N/A	N/A	N/A
. Dickey	21	9/12/77	2/15/82	5/15/79-10/1/81	2/3/78	N/A	7/13/81	10/15/81	N/A	N/A
. Drozdek	23	5/29/79	9/6/81	12/29/79-8/24/81	10/29/79	N/A	7/13/81	N/A	N/A	N/A
. Genova	43	9/11/79	2/ /80	N/A	10/29/79	N/A	N/A	N/A	N/A	N/A
. Gibson	11	7/7/78	11/19/78	N/A	N/A	N/A	N/A	N/A	N/A	N/A
. Golon	49	6/1/65	N/A	N/A	4/27/76	8/28/79	9/25/79	4/9/79	N/A	N/A
. Gonzalez	34	9/30/69	N/A	5/15/79-10/15/81	4/22/76	1/20/82	7/13/81	4/22/76	2/25/82	N/A
. Hoffman	1	6/9/76	1/11/81	N/A	6/22/76	N/A	N/A	6/22/76	N/A	N/A
. Jacobs	64	2/18/80	8/31/80	3/27/80-8/27/80	3/25/80	N/A	N/A	N/A	N/A	N/A
. Jordan	5	4/3/72	9/18/81	6/5/79-8/7/81	3/2/79	N/A	7/13/81	N/A	N/A	N/A
. Kuzmin	6	6/1/76	2/19/82	11/7/79 2/5/80	10/29/79	N/A	N/A	6/1/77	N/A	N/A
. Matkowich	12	1/10/78	12/28/81	5/15/79 8/26/81	2/3/78	N/A	7/13/81	N/A	N/A	N/A
. Mech	59	1/13/80	4/4/80	3/26/80	3/25/80	N/A	N/A	N/A	N/A	N/A
. Parker	11	12/7/78	1/7/79	N/A	3/2/79	N/A	N/A	N/A	N/A	N/A
. Petkus	26	7/10/78	1/5/82	5/15/79-3/24/81	3/2/79	N/A	N/A	4/1/81	N/A	N/A
. Place	52	11/4/79	10/7/81	N/A	3/25/80	N/A	N/A	N/A	N/A	N/A
. Purington	60	1/31/80	4/6/80	N/A	3/25/80	N/A	N/A	N/A	N/A	N/A
. Quinn	9	5/27/80	N/A	7/10/80 10/5/81	7/8/80	1/26/82	8/28/81	N/A	N/A	N/A
. Scott	63	2/8/80	N/A	8/4/80 10/14/81	7/8/80	1/26/82	7/13/82	N/A	N/A	N/A
. Smith	39	2/5/79	8/31/80	5/15/79-8/13/80	10/29/79	N/A	N/A	N/A	N/A	N/A
. Socha	30	9/8/78	10/19/80	N/A	1/22/80	N/A	N/A	N/A	N/A	N/A
. Sowa	56	3/31/80	6/29/80	5/1/80-6/11/80	4/17/80	N/A	N/A	N/A	N/A	N/A
. Way	48	7/19/79	9/21/80	11/5/79-6/20/80	10/29/79	N/A	N/A	N/A	N/A	N/A
. Weiss	66	3/12/80	5/25/80	3/26/80-5/2/80	3/25/80	N/A	N/A	N/A	N/A	N/A
. Weyer	54	12/7/79	10/8/81	3/3/80-9/24/81	1/22/80	N/A	7/13/81	N/A	N/A	N/A
. Zogata	29	5/19/69	N/A	N/A	12/10/76	N/A	N/A	N/A	N/A	N/A

ATTACHMENT #8

CLEANER & INSPECTOR MATRIX

Sept. 28, 1982

CLEANER/INSPECTOR LIST

NAME	NO.	POSITION	HIRE	TERM.
S. Bilek	6	Cleaner	3/11/80	8/17/80
J. Bonsimore	14	Cleaner	8/30/78	2/17/80
E. Bryson	65	Cleaner	3/11/80	8/17/80
T. Burton	43	Cleaner	4/01/80	7/06/80
R. Diaferia	55	Cleaner	9/14/78	3/22/81
C. Eichstaedt	N/A	Q.A.	1/07/78	N/A
J. Fitzpatrick	22	Cleaner	3/29/71	N/A
J. Friskenstein	?	Cleaner	9/18/79	9/24/79
H. Geyer	N/A	Q.C.	8/66	N/A
A. Hansen	Gary	Cleaner	1/24/80	4/02/80
D. Hanslor	59	Cleaner	4/16/80	8/31/80
D. Ireton	11	Cleaner	5/16/79	11/25/79
E. Jerzak	32	Cleaner	8/23/78 11/03/80	8/10/80 3/22/81
M. Johnson	25	Cleaner	9/15/78	N/A
M. Kelly	?	Cleaner	2/16/81	3/19/82
P. Klecki	57	Cleaner	4/07/80	5/15/80
S. Lanasa	?	Cleaner	2/28/78	4/23/78
M. Lilja	15	Cleaner	6/13/79	N/A
J. Lott	33	Cleaner	?	N/A
J. McElroy	45	Cleaner	5/07/79	11/03/80
J. McGuin	44	Cleaner	1/21/80	3/22/80
J. Michalik	N/A	Q.C.	2/29/80	4/17/82
R. Miklos	51	Cleaner	12/03/79	8/03/80
R. Morency	8	Cleaner	8/10/78	12/28/80
L. Pabisinski	50	Cleaner	9/17/79	N/A
D. Richards	35	Q.C.	6/01/78	N/A
D. Rychell	4	Cleaner	4/29/74	7/09/82
K. Schaeffer	N/A	Q.C.	8/18/80	4/23/82
D. Schultz	61	Cleaner	11/30/70	5/04/80
J. Spychalski	3	Cleaner	5/76	N/A
E. Thompson	N/A	Q.C.	11/07/77	11/02/80

ATTACHMENT #9

STATEMENT OF THOMAS BOYLE

Sept. 28, 1982

STATEMENT OF THOMAS BOYLE

My name is Thomas Boyle. From approximately May 1979 to October 1981 I was the General Foreman of Plant No. 2.

During the time period when the Xerox copy of the yellow copy of the traveler was sent over to Plant No. 2, I would give Bud Prim a slip of paper containing or orally give him information with respect to who did the welding.

The initials which appear on the Xerox copies of the yellow copy are not necessarily the initials of the person doing the welding. The information on the Xerox copy was an effort to keep track of what was done to the material while in plant No. 2. Therefore, the initials on the Xerox copy could be the initials of persons, including welders, who did cleaning or shipping. Therefore, it is impossible to tell just by looking at the Xerox copy who did welding, cleaning or shipping. Also, these Xerox copies are not the official records. The official records are the actual yellow copies retained by Zack.

At the time I attempted to discard the Xerox copies, I did so because these records were not the official records and I did not feel we had any obligation to retain them. Also, I felt that because I knew that there were initials of persons on the Xerox copies who may not have done welding and who may have done cleaning or shipping and because there was no way to tell by looking at the Xerox copies who did what, I thought the Xerox copies would cause unnecessary confusion. I talked to Bud Prim. He agreed that these records were not the official records and that Zack had no obligation to retain them and that they would cause unnecessary confusion. Bud Prim agreed that I should discard them.

Dated: August 27, 1982

Thomas P. Boyle

Thomas Boyle

-1

ATTACHMENT #10

STATEMENT & QUALIFICATION RECORDS

of

KENNETH GIBSON

Sept. 28, 1982

August 27, 1982

To Whom It May Concern:

The following are the jobs and/or training I have had as a Sheetmetal Welder.

1. Attended adult evening school in Joliet for welding class.
2. Started working for Zack in 1966-67 (approximately 18 months).
3. Worked for R. B. Heyworth for 3 or 4 months.
4. Back to Zack - worked at Republic Steel job and at U. S. Steel.
5. Took union welding test in 1977.
6. Worked for Babcock and Wilcox at Morris Station Power House in Joliet (visual test).
7. Worked at Pullman Sheetmetal and took tests for them. Did not get results of tests but they should have copies.
8. Worked for Peerless Sheetmetal Co.
9. Worked for E. F. Guafstson in Skokie.
10. Worked for Merchants Sheetmetal Co. in Chicago.
11. Took visual tests for R. Irsay Company.
12. Working in Clinton Power Station for 20 months.

Kenneth Gibson

Kenneth Gibson

Att: Certifications

CERTIFICATE

OF

TEST AND APPROVAL OF WELDING PROCESS

AND

QUALIFICATION OF OPERATOR OF WELDING EQUIPMENT

PITTSBURGH TESTING LABORATORY, has witnessed the welding and testing of test specimens welded by an employee of

National Training Fund
for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405
Washington, D. C.
in accordance with

American Society of Mechanical Engineers
Boiler and Pressure Vessel Code, Section IX,
1974 Edition plus Addenda through Summer 1976

Welding Operator Kenneth Gibson SS# No. 347-28-0161

Welding Process Shielded Metal Arc

Operator Tested

This is to certify that the Welding Technic used in this test and described in SPECIFICATIONS FOR WELDING PROCESS No. PG-4690 and the results of the test given in PHYSICAL TEST REPORT No. 772675 complied with the requirements of the above code within the following limitations.

Maximum Plate or Wall Thickness 3/4"
Minimum Plate or Wall Thickness 1/16"
Welding Positions Flat, OH & Horiz.
Other Limitations Fillet & Groove

Remarks Group No. P1 to P1

No.

Order No. PG-4690

File No.

Approved 2-7-77

PITTSBURGH TESTING LABORATORY

By Earl Gallagher
DIRECTOR

ESTABLISHED 1900

PITTSBURGH, PA.

Lab No. 772675
Order No. PG-4690
Date 2/7/77

PHYSICAL TEST REPORT OF WELDER PERFORMANCE QUALIFICATION TESTS

Client: National Training Fund, for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405, Washington, D. C. 20036 Attn: J. R. Olejnicza

Welder Name Kenneth Gibson S. S. No. 247-28-0161 Stamp No. 44

Welding Process SMAW

Position (For vertical weld state whether upward or downward) Overhead & Horizontal Grooves
(For Plate: Flat, horizontal, vertical, or overhead; For Pipe: Axis of pipe vertical, horizontal fixed or horizontal rolled).

In accordance with Procedure Specification No. ASME Section IX 1974 Edition

Material – Specification SA36 to SA36 of P-No. 1 to P-No. 1

Diameter and Wall Thickness (if pipe) otherwise Joint Thickness 3/8" Plate

Thickness Range this qualifies 1/16" to 3/4"

FILLER METAL

Specification No. ASME SFA-5.1

Describe Filler Metal E7018

Is Backing Strip Used? Yes

– For Information Only –

Filler Metal Diameter and Trade Name 1/8" & 3/32" Lincoln Manual Flux for Submerged Arc or Gas for Inert Gas Shielded Arc Welding Multipass

Above Information by: PTL [X] Client [ ] Other

Preparation of specimen witnessed by PTL Yes [X] No [ ]

GUIDED BEND TEST RESULTS

Overhead / Horizontal

TYPE AND FIGURE NO.	RESULT	FIGURE NO.	RESULT
4G Face Bend	PASSED	2G Face Bend	PASSED
4G Root Bend	PASSED	2G Root Bend	PASSED

Test Witnessed by PITTSBURGH TESTING LABORATORY Test No. 1811

per J. Kalman

Results of tests (do) ~~(do not)~~ meet requirements of AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER AND PRESSURE VESSEL CODE, SECTION IX, 1974 EDITION

Remarks PLUS ADDENDA THROUGH SUMMER, 1976

PITTSBURGH TESTING LABORATORY

By

CERTIFICATE

OF

TEST AND APPROVAL OF WELDING PROCESS

AND

QUALIFICATION OF OPERATOR OF WELDING EQUIPMENT

PITTSBURGH TESTING LABORATORY, has witnessed the welding and testing of test specimens welded by an employee of

National Training Fund
for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405
Washington, D. C.
in accordance with

American Welding Society
Structural Welding Code D1.1-75

Welding Operator Kenneth Gibson SS# No. 347-28-0161

Welding Process Shielded Metal Arc

Operator Tested

This is to certify that the Welding Technic used in this test and described in SPECIFICATIONS FOR WELDING PROCESS No. PG-4690 and the results of the test given in PHYSICAL TEST REPORT No. 772675 complied with the requirements of the above code within the following limitations.

Maximum Plate or Wall Thickness 3/4" Max.*
Minimum Plate or Wall Thickness Not Limited
Welding Positions Flat, OH & Horiz.
Other Limitations Fillet & Groove
*Fillet Not Limited.

Remarks AWS A5.1 Electrode

No.

Order No. PG-4690

File No.

Approved 2/7/77

PITTSBURGH TESTING LABORATORY

By Earl Gallagher
DIRECTOR

ESTABLISHED 1941

PITTSBURGH, PA.

AS A MUTUAL PROTECTION TO CLIENTS THE PUBLIC AND OURSELVES ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL

Lab No. 772675
Order No. PG-4690
Date 2/7/77

PHYSICAL TEST REPORT OF WELDER PERFORMANCE QUALIFICATION TESTS

Client: National Training Fund, for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405, Washington, D. C. 20036 Attn: J. R. Olejnic

Welder Name Kenneth Gibson S. S. No. 347-28-0161 Stamp No. 44

Welding Process SMAW

Position (For vertical weld state whether upward or downward) Overhead & Horizontal Grooves
(For Plate: Flat, horizontal, vertical, or overhead; For Pipe: Axis of pipe vertical, horizontal fixed or horizontal rolled).

In accordance with Procedure Specification No. AWS D1.1-75

Material – Specification A36 to A36 of P-No. to P-No.

Diameter and Wall Thickness (if pipe) otherwise Joint Thickness 3/8" Plate

Thickness Range this qualifies 3/4" Maximum

FILLER METAL

Specification No. AWS A-5.1

Describe Filler Metal E7018

Is Backing Strip Used? Yes

– For Information Only –

Filler Metal Diameter and Trade Name 1/8" & 3/32" Flux for Submerged Arc or Gas for Inert Gas Shielded Arc Welding Lincoln Manual Multipass

Above Information by: PTL [X] Client [ ] Other

Preparation of specimen witnessed by PTL Yes [X] No [ ]

GUIDED BEND TEST RESULTS

Overhead		Horizontal	
TYPE AND FIGURE NO.	RESULT	FIGURE NO.	RESULT
4G Face Bend	PASSED	2G Face Bend	PASSED
4G Root Bend	PASSED	2G Root Bend	PASSED

Test Witnessed by PITTSBURGH TESTING LABORATORY Test No. 1811-f
per J. Kalman

Results of tests (do) (~~do not~~) meet requirements of AMERICAN WELDING SOCIETY

Remarks STRUCTURAL WELDING CODE D1.1-75

PITTSBURGH TESTING LABORATORY

By Ed Hastings

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 9, 1983

Docket Nos.: 50-329 OM, OL
50-330 OM, OL

PRINCIPAL STAFF

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DPRP		SLO	
DRBA		ASLBP	
DRSP			
DE			
ML			
OL		PTL	

MEMORANDUM FOR: The Atomic Safety and Licensing Board for tne Midland Plant, Units 1 and 2

FROM: Thomas M. Novak, Assistant Director for Licensing
Division of Licensing

SUBJECT: BOARD NOTIFICATION - ZACK REPORT ON WELDER RECORD DISCREPANCIES (83-79)

This information is provided in accordance with the present NRC procedures regarding Board Notifications.

The enclosed Zack report constitutes a followup item to BN 82-94, "Zack Part 21 Report on Welder Record Discrepancies." BN 82-94 indicated that Zack would be investigating a potential 10 CFR 21 reportable deficiency regarding accuracy of welder records. The enclosed report documents Zack's investigation and subsequent decision that this item does not constitute a 10 CFR 21 deficiency.

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing
Office of Nuclear Reactor Regulation

Enclosure:
Zack Report

cc: See next page

3pp

JUN 17 1983

8306170448

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Docket Nos. 50-329/330

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Richland, Washington 99352

Mr. I. Charak, Manager
NRC Assistance Project
Argonne National Laboratory
9700 South Cass Avenue
Argonne, Illinois 60439

James G. Keppler, Regional Administrator
U.S. Nuclear Regulatory Commission,
Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Mr. Ron Callen
Michigan Public Service Commission
6545 Mercantile Way
P.O. Box 30221
Lansing, Michigan 48909

Geotechnical Engineers, Inc.
ATTN: Dr. Steven J. Poulos
1017 Main Street
Winchester, Massachusetts 01890

Billie Pirner Garde
Director, Citizens Clinic
for Accountable Government
Government Accountability Project
Institute for Policy Studies
1901 Que Street, N.W.
Washington, D. C. 20009

Commander, Naval Surface Weapons Center
ATTN: P. C. Huang
White Oak
Silver Spring, Maryland 20910

Mr. L. J. Auge, Manager
Facility Design Engineering
Energy Technology Engineering Center
P.O. Box 1449
Canoga Park, California 91304

Mr. Neil Gehring
U.S. Corps of Engineers
NCEED - T
7th Floor
477 Michigan Avenue
Detroit, Michigan 48226

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

JUN 0 1 1983

MEMORANDUM FOR: D. G. Eisenhut, Director, Division of Licensing, NRR

FROM: R. F. Warnick, Director, Office of Special Cases

SUBJECT: RECOMMENDATION FOR FOLLOWUP NOTIFICATION OF LICENSING BOARD

REFERENCES: BOARD NOTIFICATION - ZACK PART 21 REPORT ON WELDER RECORD DISCREPANCIES (BN 82-94)

Enclosed is the Zack investigation report of the welder record discrepancies identified previously in the referenced Board Notification. The Zack Company is a heating, ventilation, and air conditioning (HVAC) subcontractor at three power plant construction sites within Region III (Clinton, LaSalle and Midland). The subject investigation report serves as the basis for Zack's decision to withdraw its report of a potential 10 CFR 21 concerning the welder record discrepancies.

If you have any questions or desire further information regarding this matter, please call me.

RF Warnick

R. F. Warnick, Director
Office of Special Cases

Enclosure: As stated

cc w/encl:
A. B. Davis
J. J. Harrison
R. N. Gardner
R. B. Landsman
R. J. Cook

Dupe of 8406020077

4600 W. 12TH PLACE • CHICAGO (CICERO) ILL 60650 • 312/242-3434
4401 WESTERN • FLINT MICHIGAN 48506 • 313/736-2040

the ZACK co.

CUSTOM METAL FABRICATION

September 28, 1982

7220-M-151-C/B-643

Mr. L.E. Davis
Site Manager
Bechtel Power Corp.
P.O. Box 2167
Midland, Michigan 48640

Subject: INVESTIGATION INTO APPARENT DISCREPANCIES IN WELD RECORDS

Mr. Davis,

Recently, as the result of a Zack Company report to Region III of the U.S.N.R.C. of a potential 10CFR21 condition, the Zack Company conducted an investigation into approximately 11,400 Travelers that exhibited conditions that put the authenticity of the welder of record in question.

This condition came to light when approximately 11,400 zerox copies of Shop Travelers were discovered while Zack personnel were attempting to discard them. A cursory initial review revealed that these photocopies contained welder identification and other fabrication information. It was decided that a small-scale comparison to the Record Copy of these photocopied Travelers should be made.

During the comparison, it was noted that, in most cases, the photocopy Traveler did not match the Record Copy in that different initials both in quantity and identification, appeared on the photocopy than were indicated on the Record Copy.

At this point, it was decided by the Zack Company that a full-scale investigation was required, that a potential 10CFR21 condition existed, and that the U.S.N.R.C. should be notified.

The U.S.N.R.C. was notified on July 29, 1982 and a full-scale investigation was initiated. As a result of this investigation, the Zack Company officially withdrew its report of a potential 10CFR21 on September 14, 1982 as it was determined by Zack Company Quality Assurance and Zack Company Management that a 10CFR21 condition did not exist.

cont'd on page 2

Mr. L.E. Davis
Midland, Michigan

September 28, 1982
7220-M-151-C/B-643

Following, for your information, is an in-depth report on the investigation and the results as they affect the Midland Project.

Sincerely,

Raymond J. Basiaga

Raymond J. Basiaga
Lead Q.A. Engineer

RJB/lf
Encl.

CC: H. Leonard, CPCO
R. McCarley, Zack
C.Z. DeZutel
J.C. DeZutel
D. Calkins
D. Malzahn
M. Skates
Doc. Control File
Q.A. File

INVESTIGATION INTO
APPARENT DISCREPANCIES IN WELD RECORDS
RELATIVE TO THE MIDLAND PROJECT

Sept. 27, 1982

Dupe of 8411020088

The condition that was investigated to determine if it failed to comply with the Atomic Energy Act of 1954 as amended, or that the components supplied contained defects which could create a "substantial safety hazard", was due to the apparent discrepancy between "working" (photocopy) copies of Shop Travelers containing welder identifications and the official Quality Record Copies (yellow) of these Travelers which contained conflicting welder identifications.

Overall, the Travelers with discrepancies were found to have been used to fabricate HVAC components to be installed at all three currently active contract facilities, but were limited to work performed at the Zack Company facilities at Cicero, Illinois and Chicago, Illinois. Information in this report pertains to MIDLAND PROJECT only.

The Travelers in question are part of a system utilized by the Zack Company to record as-built, as-welded conditions and inspection verifications for fabricated HVAC components. Certain "working" (photocopy) copies of the official Travelers utilized by production tradesmen contain the initials/numbers of various personnel who apparently performed some work function on the component(s) listed on an individual Traveler. Relevant information such as welder identification was then transferred to the official Record Copy (yellow).

These "working" copies were reviewed against the official copy and all discrepancies between the two were noted and evalutated to determine if they would create a substantial safety hazard.

The investigation had two (2) specific goals:

A. To determine if the inconsistancies between the "working" copies and the original Travelers could result in a condition that would create a substantial safety hazard.

B. To determine if the individual(s) involved were trying to remove evidence of a deviation with malice aforethought.

The following action plan and work assignments were directed at achieving goal "A" above. Zack Company Management in conjunction with legal advisors addressed the resolution of goal "B" above.

To determine if the inconsistancies resulted in a substantial safety hazard, they were collated, reviewed, catagorized and evaluated.

"Working"Copies were collated by:
1. Project
2. Safety related/Non-Safety related
3. By the type of information contained on the "working" copy.

This report deals only with Travelers identified as safety related.

The following types of information were obtained and used to provide background and to substantiate the validity of the records.
A. Payroll records to set time frames for welders employment at Zack.
B. Load Shipment Dates to support work and inspection dates.
C. Welder hire dates, qualification dates and termination dates.
D. Support personnel hire, and termination dates (i.e. cleaners, inspectors, etc.)
E. Weld wire issue dates for Plant 2 (Kilbourn Avenue).

Using the above information, the review process was started and progressed as described on page 4.

The first review identified all "working" copies that contained no fabrication or identification information and, therefore, could not disagree with the Record Copy. These were put in numerical order, cataloged and removed from further consideration.

The second review compared the "working" copies to the Record Copies (which had been removed from file for this comparison) for the following:

A. Unqualified welders indicated on the working copy.
B. Welders listed on the "working" copy that did not appear on the Record Copy.
C. Any personnel identifications on the "working" copy (i.e. initials or I.D. numbers) not immediately identifiable.
D. "Working" copy in total agreement with Record Copy.
E. To note any other variations or discrepancies.

The above information was catagorized as stated below.

CATEGORY 1 - (Indicated by "Yes" on tally sheets) - "working" copy and Record Copy agree and welder(s) qualified. (Item D above).

CATEGORY 2 - (Indicated by "Yes X" on tally sheets) - "working" copy and Record Copy differ with all welders involved being qualified. (Item B above).

CATEGORY 2 - (Indicated by "No" on tally sheets) - "working" copy and Record Copy differ and unable at this stage to establish if all welders are qualified. (Items A and C above).

At this point in time, Catagories 1 and 2 were eliminated from further review as it was determined that no serious problem existed as long as all welders identified were qualified.

Category 3 was further broken down as follows.

A. Date discrepancies exist for welder qualification because of inability to establish actual work or inspection dates.
B. No weld procedure was listed on "working" or Record Copy.
C. Two weld procedures were listed on either copy, but welders listed were qualified to only one or to neither.
D. Welder apparently not qualified or unidentifiable initials on either copy.

E. Welder not qualified on best available indication of work date, but qualified at a later date.
   1. Qualification not prior to Traveler issue date, no work/ inspection date available.
   2. Qualification not prior to actual work/inspection date.

F. Miscellaneous variations or discrepancies.

To provide the most expeditious handling of this volume of paperwork through the review cycle to this point while maintaining the level of integrity required, the Zack Company brought in five (5) Engineers from one of our field operations to assist in the review.

Internal departments provided the following support.

DRAFTING DEPT: Located and matched record copies with "working" copies.

ENGINEERS: Reviewed "working" copies vs. Record Copies, noted and recorded and categorized differences.

DOCUMENT CONTROL: Provided control and security for all relevant documents and assisted in logging/filing operations.

The above group operated under Mr. Tom DeLafosse, Project Coordinator who was assigned the Lead Function.

ACCOUNTING DEPT: Provided payroll and employment records to validate time frames for individual welders' work, and for various other support personnel.

Q.A. DEPT: Developed welder and cleaner/inspector matrixes and functioned as part of the review team.

The above group operated under Mr. Ray Basiaga, Lead Q.A. Engineer who was assigned the Lead Function.

CORPORATE MANAGEMENT provided coordination, additional required management, individuals relevant to the investigation for interview, review and approval of all phases of the review and support to all individuals involved throughout the effort.

All relevant personnel were interviewed during the various phases of the investigation and said interviews were documented when deemed appropriate. Information obtained in this form that was based facts, not opinion, and that could be substantiated, was used in the evaluation. All other information was simply recorded and included for information only.

The final evaluation of the Travelers in Category Three (3) ("No") was conducted by Mr. Dave Calkins, Manager of Nuclear Construction, Mr. Tom DeLafosse, Project Coordinator and Mr. Ray Basiaga, Lead Quality Assurance Engineer.

The goal of the final evaluation was to determine if the inconsistancies noted on all copies of the remaining Category Three (3) ("No") Travelers raised any questions as to the quality of the workmanship.
The final evaluation utilized the finalized welder qualification matrix containing all information available from Pittsburgh Testing Laboratories in addition to information on file at the Zack Company. This matrix included welder name, I.D. No., hire date, termination date, and qualification date for each welding process.

Also utilized was a listing of shop cleaning and inspection personnel. This list was compiled from personnel records and verified by plant supervision. This list included name, I.D. No., hire date, termination date and position.

The following shop practices, confirmed by interview, were considered credible and accepted as valid for the purpose of the final review.

1. Shop Personnel often marked dimensional, operational or identification information on the "working" copy of the Traveler. This information was not required to be on the Record Copy of the Traveler by either procedure or regulation.

2. Cleaning Personnel generally circled their initials or I.D. No.
3. Layout or Cutting Personnel generally initialed their work within the cut list portion of the Traveler.
4. Inspection Personnel identified by their initials, symbol or I.D. No., were considered as acceptable as none have ever worked for the Zack Company as welders.
5. Welders normally initialed beside the work they performed and indicated completion with the word "out".
6. Sheet Metal workers from various locals are generally not qualified to AWS Standards. The Zack Company often had these personnel working as helpers with Zack Company certified AWS qualified welders until they became familiar with AWS Standards and Zack procedures. Their initials on the "working" copy do not indicate that they welded, but served as a means of tracking their training. However, for purposes of this report, it has been assumed that they did weld and were evaluated accordingly.

The results of the comparison between the "working" copies and Record Copies of Shop Travelers are included as attachments. The attachments are collated in progression from the earliest results to the final results.

In conclusion, a complete and thorough investigation has been conducted by the Zack Company of the information contained on the "working" copies and Record Copies of Shop Travelers.

This investigation has revealed that in some cases there is additional and/or different information on the "working" copies than on the Record Copies. There is, however, no basis for establishing that the "working" copy is complete and correct or that the Record Copy is in error. The Zack Company has taken the position that the "working" copies will be attached to the Record Copy and retained as a part of the permanent record thereby accounting for all personnel with any possible relevance to the work. It is also the position of the Zack Company that any individual identified by initials or I.D. No. on either copy, who ever worked as a welder during his term of

employment with the Zack Company, was to be considered a welder at the time his identification was put on the Traveler.

Accepting this as the worst possible condition, the Zack Company has been able to account for all persons identified on the Travelers in question. On over 96% of the Travelers, all individuals identified as welders were qualified at the time the work was performed. For the remaining Travelers, all welders with the exception of Mr. Ken Gibson, were qualified at a later date. Of these fourteen (14) welders, six (6) were qualified within thirty (30) days, the remaining eight (8) within six (6) months.

It was upon assurance that the welders were qualified in accordance with applicable codes, regulations, and/or contractual requirements and that all welds were inspected to respective criteria that the determination was made that no "Defect", as defined in 10CFR21 Para. 21.3D existed, and it was at this time that our report to the U.S.N.R.C. was withdrawn.

With regard to Mr. Ken Gibson, the Zack Company has recognized that it never certified Mr. Gibson in accordance with the requirements of the AWS Code. However, this in no way implies that Mr. Gibson was not a qualified welder or deminishes his ability to produce quality welds in accordance with Zack Company approved weld procedures.

Mr. Gibson has been involved in and been a qualified welder working for various mechanical contractors over the past sixteen (16) years. He has been qualified with the Zack Company at the Clinton Nuclear Project for the past twenty (20) months. Therefore, while the Zack Company may have been remiss in not having put Mr. Gibson through the certification process, it should be noted that this in no way detracts from his previous qualifications and ability to produce sound, quality welds.

Mr. Gibson only worked in the Zack Company, Chicago facility, for a period of four (4) months between July, 1978 and November, 1978 and was responsible for welds on one (1) Traveler for the Midland Project. This discrepancy with respect to Mr. Gibson's qualifications and the Midland Traveler, is an internal Zack Company procedural violation only. Mr. Gibson's welds were inspected and accepted to the same standards all other welders are required to meet.

The one Traveler (F6654) welded by Mr. Gibson is still in existance at the Midland Project for one transition piece. This piece will be reinspected and replaced by the Zack Company if found unacceptable.

The following events were considered relevant in either understanding the reasons the inconsistancies could have occurred or in judging that the inconsistancies did not indicate a significant problem:

The Zack Company went from a single plant operation to a two-plant operation at the opening of its Chicago facility on Kilbourn Avenue. The plant was purchased in February, 1979 and after initial refurbishment it was made operational in May, 1979 and was operated until November 1981. The transition from a single plant operation to a two-plant operation was coupled with the build-up in personnel could account for a part of the delay in qualifying a few welders in a timely manner.

Various inspections by both Zack Company personnel and client personnel (see attachments) have re-established the quality of the welds irrespective of the documented qualifications of the welders.

In any event, I believe that the Zack Company has proved that a serious systemic problem does not, nor did not exist. A distribution of the dates of occurrence of discrepant Travelers is attached for your information.

Please review this report and its attachments to determine if a 50.55.E Report is required on your part.

Any and all questions concerning this matter should be directed to the Zack Company Quality Assurance Department.

NO.	NO's.	DATE	DATE	DATE	O.K.	COMMENTS Pg 20
10482	39	12/3/79	1/10/80	OK	YES	
F10429	12	12/3/79	1/10/80	OK	YES	
F10428	21	12/3/79	1/10/80	OK	YES	
F10285	6	12/3/79	1/10/80	OK	YES	
F10269	23	12/3/79	1/10/80	OK	YES	
F10286	5	12/3/79	1/10/80	OK	YES	
F10132	21	12/3/79	1/10/80	OK	YES	
F10268	34,30	12/3/79	1/10/80	30, 1/22/80	NO /	
F10264	26	12/3/79	1/10/80	OK	YES	
F10265	34	12/3/79	1/10/80	OK	YES	
F10261	48	12/3/79	1/10/80	OK	YES	
F10130	48	12/3/79	1/10/80	OK	YES	
F10128	5,6	12/3/79	1/10/80	OK	YES X	
F10125	34,6	12/3/79	1/10/80	OK	YES X	
F10124	21	12/3/79	1/10/80	OK	YES	
1203	34	9/18/79	1/9/80	OK	YES	
1201	34,54	9/18/79	1/9/80	54 1/22/80	NO /	
1185	26	10/2/79	1/9/80	OK	YES	
8766	34	10/15/79	1/9/80	OK	YES	
6456	48,54	8/10/79	1/9/80	54 1/22/80	NO /	
8767	34,26 or 52	10/15/79	1/9/80	52 3/15/80	NO ? /	
8768	26	10/15/79	1/9/80	OK	YES	
8769	26	10/15/79	1/9/80	OK	YES	
8798	39,26 or 52	10/15/79	1/9/80	52 3/15/80	NO ? /	
8797	12	10/15/79	1/9/80	OK	YES	
8799	39	10/15/79	1/9/80	OK	YES	
8860	39	10/10/79	1/9/80	OK	YES	
8816	34,54	10/10/79	1/9/80	54 1/22/80	NO /	
8810	5	10/10/79	1/9/80	OK	YES	
8809	5	10/10/79	1/9/80	OK	YES	
	12					

MIDLAND

YES - 23
YES X - 2
NO - 6

CLASS I

NO.	NO's.	DATE	TE	DATE	O.K.	COMMENTS
3611	23,12	3/81	4/28/81	OK	YES	
P3608	21,12,34	3/81	4/28.81	OK	YES	
P3606	23,21,63	3/81	4/28/81	OK	YES	
P3605	20,63,21	3/81	4/27/81	OK	YES	
P3604	12,23	3/81	4/29/81	OK	YES	
P3601	34,12	3/81	4/27/81	OK	YES	
F12055	12	3/81	4/21/81	OK	YES	
F2853	63,20	1/81	2/19/81	OK	YES	
F2523	21,20	1/81	4/21/81	OK	YES	
F2226	21,23	4/81	4/21/81	OK	YES	
F2225	21,34	4/81	4/21/81	OK	YES	
F2222	21,23	4/81	4/12/81	OK	YES	
F2082	12,21,63	3/81	4/17/81	OK	YES	
F2050	12,21	4/81	4/21/81	OK	YES	
F2049	12,23	4/81	4/21/81	OK	YES	
F2048	21,12,34	4/81	4/21/81	OK	YES	
F2047	63,21,12	4/81	4/17/81	OK	YES	
F2033	23,34	3/81	4/17/81	OK	YES	
F2030	34,63	3/81	4/17/81	OK	YES	
F2029	34,12	3/81	4/17/81	OK	YES	
10487	48	12/3/79	1/10/80	OK	YES	
10488	5	12/3/79	1/10/80	OK	YES	
10484	6,54	12/3/79	1/10/80	54 - 1/22/80	NO	
10494	48	12/3/79	1/10/80	OK	YES	
10493	5	12/3/79	1/10/80	OK	YES	
10491	5	12/3/79	1/10/80	OK	YES	
10489	34,26 or 52	12/3/79	1/10/80	52 3/15/80	NO?	
10490	6	12/3/79	1/10/80	OK	YES	
10497	48	12/3/79	1/10/80	OK	YES	
10480	39	12/3/79	1/10/80	OK	YES	
0481	39	12/3/79	1/10/80	OK	YES	

MIDLAND

YES - 29
YES X - 0
NO - 2

CLASS I

NO.	NO's.	DATE	ATE	DATE	O.K.	COMMENTS
						Pg 22
F2224	21,63,5	4/81	4/21/81	OK	YES X	
F2116	23,21	4/81	5/7/81	OK	YES	
P3041	34,23	12/80	5/14/81	OK	YES	
P3035	23,12,21,20	12/80	5/8/81	OK	YES X	
P3040	34,63,23	12/80	5/1/81	OK	YES	
P3038	23,34,12	12/80	5/1/81	OK	YES	
P3037	21	12/80	5/5/81	OK	YES	
P3033	23	12/80	5/4/81	OK	YES	
P3036	12,21,23	12/80	5/1/81	OK	YES	
P3034	21,63,23	12/80	5/1/81	OK	YES X	
P3031	34,12	12/80	4/30/81	OK	YES X	
P3030	34	12/80	5/5/81	OK	YES	
P3029	34,23	12/80	5/6/81	OK	YES	
F13782	63	12/80	5/6/81	OK	YES	
F13789	34	12/80	5/5/81	OK	YES	
F13784	23	12/80	5/6/81	OK	YES	
F13788	63	12/80	5/5/81	OK	YES	
F13787	63	12/80	5/6/81	OK	YES	
F13786	21	12/80	5/4/81	OK	YES	
F13783	63	12/80	5/1/81	OK	YES	
F13781	63	12/80	5/5/81	OK	YES	
F13763	63	12/80	5/1/81	OK	YES	
F13762	12	12/80	5/6/81	OK	YES	
P3032	12,23,34,12	12/80	5/8/81	OK	YES	
F13761	12	12/80	5/4/81	OK	YES	
F13760	63	12/80	5/5/81	OK	YES	
P3609	12,21	3/30/81	5/4/81	OK	YES	
P3610	34,63	3/30/81	5/4/81	OK	YES	
P3614	21	4/81	4/21/81	OK	YES	
P3613	21,63	4/81	4/21/81	OK	YES	
P3612	34.63	4/81	4/29/81	OK	YES	

MIDLAND

YES - 27
YES X - 4
NO - 0

CLASS I
PLANT 2

NO.	NO's.	DATE	TE	DATE	O.K.	COMMENTS Pg 23
F10048	48,26	11/16/79	1/15/80	OK	YES	
F10050	5	11/16/79	1/15/80	30, 1/22/80	NO ✓	
F10057	5,26	11/19/79	1/15/80	OK	YES	
F10058	5	11/19/79	1/15/80	OK	YES	
F10059	12	11/19/79	1/15/80	OK	YES	
F10063	34	11/19/79	1/15/80	OK	YES	
F10068	12	11/19/79	1/15/80	OK	YES	
F10008	23,26	11/15/79	1/15/80	OK	YES X	
F8861	48	10/10/79	1/15/80	OK	YES	
F8859	12	10/10/79	1/15/80	OK	YES	
F8812	34	10/10/79	1/15/80	OK	YES	
F10427	34	12/10/79	1/10/80	OK	YES	
F10486	48	12/3/79	1/10/80	OK	YES	
P1638	48	1/9/80	1/9/80	OK	YES	
P1490	34	12/10/79	1/9/80	OK	YES	
F10485	6,54	12/3/79	1/10/80	54, 1/22/80	NO ✓	
P1493	34	12/10/79	1/9/80	OK	YES	
F13299	26,12,5	10/80	10/28/80	OK	YES X	
F13297	12,34	10/80	10/28/80	OK	YES	
F13298	12,5	10/80	10/28/80	OK	YES	
F13296	12,34,21	10/80	10/27/80	OK	YES X	
F12495	12,54	10/80	10/28/80	OK	YES	
F12492	12,23	10/80	10/28/80	OK	YES	
F12490	12,26	2/80	10/28/80	OK	YES	
F12481	26,54,12	2/80	10/28/80	OK	YES X	
F12468	26,23,12	2/80	10/30/80	OK	YES X	
F12467	26,12	2/80	10/30/80	OK	YES X	
P3330	26,54	2/80	10/28/80	OK	YES	
P3327	54,68,12,26	2/80	10/28/80	OK	YES	
P3779	23,54	3/81	5/7/81	OK	YES	
P2224	21,63,5	4/81	4/21/81	OK	YES X	

MIDLAND

YES - 22
YES X - 7
NO - 2

CLASS I
PLANT 2

NO.	NO's.	DATE	IE	DATE	O.K.	COMMENTS
F13303	12,54	10/80	10/28/80	OK	YES	
F10131	21	11/26/79	1/15/80	OK	YES	
F10129	6,12	11/26/79	1/16/80	OK	YES X	
F10126	6	11/26/79	1/16/80	OK	YES	
F10127	34	11/26/79	1/16/80	OK	YES	
F10049	26	11/7/79	1/14/80	OK	YES	
F10051	34	11/16/79	1/15/80	OK	YES	
F10066	26,30	11/19/79	1/14/80	30, 1/22/80	NO /	
F10053	21	11/16/79	1/14/80	OK	YES	
F10067	21	11/19/79	1/14/80	OK	YES	
F10071	39	11/19/79	1/14/80	OK	YES	
F10013	12	11/15/79	1/14/80	OK	YES	
F8863	5	10/10/79	1/14/80	OK	YES	
F8733	21	10/2/79	1/15/80	OK	YES	
F8732	21	10/2/79	1/15/80	OK	YES	
F8802	34	10/15/79	1/15/80	OK	YES	
F8735	21	10/2/79	1/15/80	OK	YES	
P1513	21,6,12	11/16/79	1/15/80	OK	YES X	
P1522	23,48	11/15/79	1/15/80	OK	YES X	
P1514	21,30	11/16/79	1/15/80	30, 1/27/80	NO /	
P1512	34	11/19/79	1/15/80	OK	YES	
P1523	26,48,DL	11/15/79	1/15/80	DL?	NO? /	
P1511	34,54,5	11/19/79	1/15/80	54, 1/22/80	NO /	
P1510	39 WI GS	11/19/79	1/15/80	WI, GS	NO? /	
P1509	12	11/19/79	1/15/80	OK	YES	
P1113	21	8/10/79	1/15/80	OK	YES	
P10262	34,54	12/10/79	1/15/80	54, 1/22/80	NO /	
F10266	26	12/10/79	1/15/80	OK	YES	
F10260	34	12/10/79	1/15/80	OK	YES	
F10009	34,26	11/15/79	1/15/80	OK	YES X	
					YES	

MIDLAND

YES - 31
YES X - 4
NO - 6

CLASS I
PLANT 2

NO.	NO's.	DATE	TE	DATE	O.K.	COMMENTS
F12256	21,12,23	2/80	12/17/80	OK	YES	
F12255	12	2/80	12/17/80	OK	YES	
F10656	23	2/80	10/31/80	OK	YES	
F2335	26	2/80	1/6/81	OK	YES	
F2319	23,5	12/80	1/6/81	OK	YES	
F2318	23,12,21	12/80	1/6/81	OK	YES X	
P3393	23	11/80	16/81	OK	YES	
P3392	23,26	11/80	1/6/81	OK	YES	
P3391	26,5	11/80	1/6/81	OK	YES	
P3388	23,26	11/80	1/6/81	OK	YES	
P3389	23	11/80	1/6/81	OK	YES	
P3386	23,26	11/80	1/6/81	OK	YES	
P3018	5	11/80	12/17/80	OK	YES	
P2990	26,23	11/80	12/2/80	OK	YES	
P2292	5,21	1_/80	12/31/80	OK	YES	
P2989	5	11/80	12/17/80	OK	YES	
P2988	12/5	11/80	12/17/80	OK	YES	
P2986	5,26,34	11/80	12/3/80	OK	YES	
P2984	12,5	11/80	12/17/80	OK	YES	
P2977	26,5,34	11/80	12/2/80	OK	YES	
P2978	12,26	11/80	12/2/80	OK	YES	
P2976	23,34,54	11/80	12/2/80	OK	YES	
P2975	5,23,63,26	11/80	12/2/80	OK	YES	
P2974	5,63,26	11/80	12/2/80	OK	YES	
2973	63,12,26	11/80	12/2/80	OK	YES	
2972	12,63,34,26	11/80	12/2/80	OK	YES	
2955	21,5	11/80	12/17/80	OK	YES	
12501	21	2/80	10/27/80	OK	YES	
12475	N/A	2/80	11/21/80	N/A	N/A	
2333	5,34	11/80	12/17/80	OK	YES	
13302	12,23	10/80	10/28/8_		YES	

MIDLAND

YES - 29
YES X - 1
NO - 0

CLASS I

NO.	NO's.	DATE	DATE	DATE	O.K.	COMMENTS Pg 26
F13498	34,54	11/80	12/2/80	OK	YES	
F13488	34	11/80	12/2/80	OK	YES	
F13485	34,5	11/80	12/2/80	OK	YES	
F13487	12	11/80	12/1/80	OK	YES	
F13486	12,34	11/80	12/2/80	OK	YES	
F13484	26,23	11/80	12/2/80	OK	YES	
F13483	26,54	11/80	12/2/80	OK	YES	
F13482	26,63	11/80	12/2/80	OK	YES	
F13480	26,34,12	11/80	12/2/80	OK	YES	
F13304	21,12	10/80	12/15/80	OK	YES	
F13301	26,63	10/80	10/25/80	OK	YES	
F13239	12,34	10/80	12/1/80	OK	YES	
F13238	12,34	10/80	12/1/80	OK	YES	
F13100	12,21	10/80	12/1/80	OK	YES	
F12500	21,26	2/80	10/27/80	OK	YES	
F12491	21,12	2/80	12/15/80	OK	YES	
F12479	21,34	2/80	12/2/80	OK	YES	
F12476	21,63	2/80	12/2/80	OK	YES	
F12472	21,34	2/80	12/2/80	OK	YES	
F12469	34	2/80	12/13/80	OK	YES	
F12466	54,26,21	2/80	10/27/80	OK	YES	
F12454	5	2/80	1/5/81	OK	YES	
F12453	5	2/80	1/5/81	OK	YES	
F12260	21,12	2/80	12/17/80	OK	YES	
F12265	21	2/80	12/17/80	OK	YES	
F12262	21,12	2/80	12/17/80	OK	YES	
F12261	21,26	2/80	12/17/80	OK	YES	
F12263	21,12,26	2/80	12/17/80	OK	YES	
F12258	21,12,26	2/80	12/17/80	OK	YES	
F12259	21,12	2/80	12/17/80	OK	YES	
F12257	21,26	2/80	12/17/80	OK	YES	

MIDLAND

YES - 31
YES X - 6
NO - 0

CLASS I

NO.	NO's.	DATE	LATE	DATE	O.K.	COMMENTS Pg 27
F12335	34	3/4/80	3/19/30	OK	YES	
F13245	23	2/12/80	3/14/80	OK	YES	
F13246	34,66	2/12/80	3/14/80	66?	NO? /	
F13247	34	2/12/80	3/14/80	OK	YES	
F13248	48	2/12/80	3/14/80	OK	YES	
F13249	5	2/12/80	3/14/80	OK	YES	
F13250	5	2/12/80	4/10/80	OK	YES	
F13251	21	2/12/80	3/13/80	OK	YES	
F13252	34	2/12/80	3/13/80	OK	YES	
F13253	34	2/12/80	4/10/80	OK	YES	
F13254	5,64	2/12/80	3/14/80	64 3/25/80	NO /	
F13255	23	2/12/80	3/14/80	OK	YES	
F13256	23	2/12/80	4/10/80	OK	YES	
F13258	54	2/12/80	3/14/80	OK	YES	
F13257	54	2/12/80	3/14/80	OK	YES	
F13259	21	2/12/80	3/14/80	OK	YES	
F13261	23,54	2/12/80	3/14/80	OK	YES X	
F13260	34	2/12/80	3/14/80	OK	YES	
F11100	58	9/5/79	3/11/80	58?	NO? /	
F13262	54	2/12/80	3/13/80	OK	YES	
F11117	58	9/5/79	3/11/80	58?	NO? /	
F11104	34	9/5/79	3/11/80	OK	YES	
F2798	23,26	1/23/81	3/3/81	OK	YES	
P3453	34,54	1/26/81	3/9/81	OK	YES	
P3452	34,12	1/27/81	3/4/81	OK	YES	
F13571	5,23	11/80	12/17/80	OK	YES	
F13573	5154	11/80	12/17/80	OK	YES	
13504	54	11/80	12/5/80	OK	YES	"YELLOW OUT" USED
13503	12	11/80	12/5/80	OK	YES	
13499	34	11/80	12/2/80	OK	YES	
13497	34,54	11/80	12/2/80			

MIDLAND

YES - 26
YES X - 1
NO - 4

CLASS I

NO.	NO's.	DATE	DATE	DATE	O.K.	COMMENTS
F10468	25	12/3/79	2/18/80	OK	YES	
F10354	21	12/19/79	2/18/80	OK	YES	
F10357	12	12/20/79	2/18/80	OK	YES	
F10349	34	12/19/79	2/18/80	OK	YES	
F10353	21	2/18/80	2/18/80	OK	YES	
F10352	12	12/19/79	2/18/80	OK	YES	
F10351	26	12/19/79	2/18/80	OK	YES	
F10355	34	12/19/79	2/18/80	OK	YES	
F10348	34	12/19/79	2/18/80	OK	YES	
F10356	39	12/19/79	2/18/80	OK	YES	
F10473	6,48	12/3/79	1/14/80	OK	YES X	
F11050	26	9/4/79	3/11/80	26 3/25/80	NO ✓	
F11091	26	9/4/79	3/11/80	26 3/25/80	NO ✓	
F11118	58	9/4/79	3/11/80	58?	NO? ✓	
F10007	23	11/15/79	8/15/80	OK	YES	
F10011	6	11/15/79	8/15/80	OK	YES	
F11132	58	9/4/79	3/11/80	58?	NO? ✓	
F10012	39	11/15/79	8/15/80	OK	YES	
F10052	39	11/15/79	8/15/80	OK	YES	
F10055	6	11/15/79	8/15/80	OK	YES	
F10047	12	11/15/79	8/15/80	OK	YES	
F10054	5,39	11/15/79	8/15/80	OK	YES X	
F10015	30	11/15/79	8/15/80	OK	YES	
F10056	48	11/15/79	8/15/80	OK	YES	
F10060	12	11/19/79	8/15/80	OK	YES	
F10064	39	11/19/79	8/15/80	OK	YES	
F10065	39	11/19/79	8/15/80	OK	YES	
F10069	6	11/19/79	8/15/80	OK	YES	
F10070	48	11/19/79	8/15/80	OK	YES	
F10061	34	11/19/79	8/15/80	OK	YES	
F10073	5	11/19/79	8/15/80	OK	YES	

MIDLAND

YES - 25
YES X - 2
NO - 4

CLASS I
PLANT 2

NO.	NO's.	DATE	1 E	DATE	O.K.	COMMENTS Pg 29
F5627	21,12	5/8/79	8/6/79	OK	YES X	
F5626	21	4/17/79	8/6/79	OK	YES	
F5625	34,21	4/18/79	8/6/79	OK	YES X	
F5623	34	4/26/79	8/7/79	OK	YES	
F5624	34,21	4/26/79	8/6/79	OK	YES X	
F5052	12,21	6/24/79	8/6/79	OK	YES X	
F5628	21,34	4/17/79	8/7/79	OK	YES X	
F5629	12	5/8/79	8/6/79	OK	YES	
P2756	21,39,12	6/9/79	7/26/79	39 10/29/79	NO ✓	
F04407	12	3/5/79	6/5/79	OK	YES	
F04410	12	3/5/79	6/5/79	OK	YES	
F7405	12	2/12/79	6/5/79	OK	YES	
F04412	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
F04411	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
F04409	12	3/5/79	6/5/79	OK	YES	
F04408	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
F04406	12	3/5/79	6/5/79	OK	YES	
F4405	12	3/5/79	6/5/79	OK	YES	
F4404	20,39	3/5/79	6/5/79	39 10/29/79	NO ✓	
F4277	21	3/5/79	6/5/79	OK	YES	
F11103	26	9/5/79	3/11/80	OK	YES	
F11102	58	9/5/79	3/11/80	58?	NO? ✓	
F9127	12	11/30/79	3/7/80	OK	YES	
F10470	21	11/27/79	2/18/80	OK	YES	
F10477	12	12/3/79	2/18/80	OK	YES	
F10476	12	12/3/79	2/18/80	OK	YES	
F10475	5	12/3/79	2/18/80	OK	YES	
F10472	23	12/3/79	2/18/80	OK	YES	
F10350	34	12/19/79	2/18/80	OK	YES	
F10478	26	12/3/79	2/18/80	OK	YES	
F10469	39	12/3/79	2/18/80	OK	YES	

MIDLAND

YES — 20
YES X — 5
NO — 6

CLASS I
PLANT 2

NO.	NO's.	DATE	E	DATE	O.K.	COMMENTS Pg 30
F12136	12,21	2/80	2/10/81	OK	YES	
F12144	12,21	2/80	2/10/81	OK	YES	
F12142	12	2/80	2/10/81	OK	YES	
F12140	12	2/80	2/10/81	OK	YES	
F12138	12,21	2/80	2/10/81	OK	YES	
F12130	12,21	2/80	2/10/81	OK	YES	
F13132	12	2/80	2/10/81	OK	YES	
F12138	12,26	2/80	2/10/81	OK	YES	
F12126	21	2/80	2/10/81	OK	YES	
P3325	54,26,12	2/80	10/28/80	OK	YES	
P2971	34,21,26 24	11/80	12/3/80	24?	NO	WHO IS 24?
P2922	12,5,63,21	10/80	10/28/80	OK	YES	
F13694	26,5	12/80	1/5/81	OK	YES	
F13634	21,63	11/80	12/15/80	OK	YES	
F13633	21.63	11/80	12/15/80	OK	YES	
F13616	21,54	11/80	12/15/80	OK	YES	
F13615	12,54	11/80	12/15/80	OK	YES	
F13614	12.63	11/80	12/15/80	OK	YES	
F13613	12,5	11/80	12/15/80	OK	YES	
F13612	12,34	11/80	12/15/80	OK	YES	
F13605	26,54,21	11/80	1/6/81	OK	YES	
F13611	12,21,34	11/80	12/15/80	OK	YES	
F13610	23,5	11/80	1/6/81	OK	YES	
F13609	26,54	11/80	1/6/81	OK	YES	
F13604	23,54	11/80	1/6/81	OK	YES	
F13481	26,21,	11/80	12/2/80	OK	YES	
F13603	26,12	11/80	1/6/81	OK	YES	
F13577	26,12	11/80	1/6/81	OK	YES X	
F13575	54	11/80	12/17/80	OK	YES	
F13576	5,54	11/80	12/17/80	OK	YES	
P5630	12.34	4/17/79	8/6/79	OK	YES X	

MIDLAND

YES - 28
YES X - 2
NO - 1

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	[illegible] DATE	QUAL. DATE	TICKET O.K.	COMMENTS
P3416	26,5	1/16/81	2/11/81	9/19/80	YES	
P3415	26	1/15/81	2/11/81	9/19/80	YES	
F2521	63,5	1/7/81	2/9/81	9/19/80	YES	
P503	12,48	10/79	11/8/79	OK	YES	
P502	12,48	10/79	11/8/79	OK	YES	
P1229	34	8/79	10/11/79	OK	YES	
F5405	34	5/79	11/5/79	OK	YES	
F9252	21	8/79	11/5/79	OK	YES	
F9260	34,6	8/79	11/2/79	6	NO /	6 NOT QUALIFIED TO P9CS
F9380	34	9/79	11/2/79	OK	YES	
F9381	12	9/79	11/1/79	OK	YES	
P1305	21,6	9/79	10/29/79	6	NO /	6 NOT QUALIFIED TO P9CS
P1308	12,48	9/79	10/30/79	48	NO /	48 QUALIFIED TO P9CS 4/3/80
P1350	34,5,21	9/79	10/30/79	OK	YES X	P5CS
F8430	34	8/79	10/24/79	OK	YES	
F11170	21	8/79	10/24/79	OK	YES	
F11171	21,26	8/79	10/24/79	26	NO /	26 QUALIFIED P5CS 10/29/79
F11176	21,6	8/79	10/24/79	6	NO /	6 QUALIFIED P5CS 10/29/79
F11180	12	8/79	10/24/79	OK	YES	
F11179	34,39	8/79	10/24/79	OK	YES X	
F11181	21	8/79	10/24/79	OK	YES	
F11182	34,39	8/79	10/24/79	OK	YES X	
F11192	12	8/79	10/22/79	OK	YES	
F11199	21	8/79	10/22/79	OK	YES	
F11205	34,26	8/79	10/24/79	26	NO /	26 QUALIFIED P5CS 10/29/79
11208	24	8/79	10/22/79	OK	YES	
11209	12,39	8/79	10/22/79	39	NO /	39 QUALIFIED P5CS
2776	54	1/81	2/19/81	OK	YES	
13716	21,63,5	12/80	1/23/81	OK	YES X	
3397	63	12/80	2/9/81	OK	YES	
3396	63	12/80	2/9/81	OK	YES	

MIDLAND

YES - 20
YES X - 4
NO - 7

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	QA DATE	QUAL. DATE	TICKET O.K.	COMMENTS
P3829	63	7/10/81	8/12/81	OK WPS-1	YES	
P3828	63	7/10/81	8/11/81	OK WPS-1	YES	
P3791	63	7/1/81	8/11/81	OK WPS-1	YES	
P3790	63	7/1/81	8/11/81	OK WPS-1	YES	
P670	63	6/17/81	8/10/81	OK WPS-1	YES	
P669	9	6/17/81	8/10/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
P668	9	6/17/81	8/10/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
P648	63	6/10/81	8/10/81	OK WPS-1	YES	
P596	63	6/5/81	8/11/81	OK WPS-1	YES	
P593	63	6/10/81	8/10/81	OK WPS-1	YES	
F13747	34	12/10/80	5/29/81	OK WPS-1	YES	
F13739	23	12/10/80	5/28/81	OK WPS-1	YES	
F13738	12	12/10/82	5/29/81	OK WPS-1	YES	
F13737	63	12/10/80	5/28/81	OK WPS-1	YES	
F13736	34	12/10/80	5/28/81	OK WPS-1	YES	
F17066	21	8/26/81	9/22/81	OK WPS-1	YES	
F17073	34	8/26/81	9/14/81	OK WPS-1	YES	
F17074	54	8/26/81	9/25/81	OK WPS-1	YES	
F17075	21	8/26/81	9/24/81	OK WPS-1	YES	
F17076	21	8/26/81	9/24/81	OK WPS-1	YES	
F17123	52,21	8/31/81	9/21/81	OK WPS-1	YES	
F17124	21,52	8/31/81	9/21/81	OK WPS-1	YES	
F17125	52,21	8/1/81	9/21/81	OK WPS-1	YES	
F17402	21,63	8/13/81	9/4/81	OK WPS-1	YES	
F17424	21,63	8/14/81	9/4/81	OK WPS-1	YES	
F17067	34	8/26/81	9/16/81	OK WPS-1	YES	
F17425	63	8/17/81	9/29/81	OK WPS-1	YES	
F17071	63	8/26/81	9/15/81	OK WPS-1	YES	
F17070	9	8/26/81	9/15/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
F17437	9	8/17/81	9/29/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
F1743(	63	8/17/81	9/29/81	OK WPS-1	YES	

MIDLAND

YES - 37
YES X - 4
NO - 0

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F17440	54	8/17/81	9/29/81	OK WPS-1	YES	
F17443	54	8/17/81	9/29/81	OK WPS-1	YES	
P548	52,9	8/31/81	9/21/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
P667	63	6/17/81	8/10/81	OK WPS-1	YES	
P3946	21	8/11/81	9/4/81	OK WPS-1	YES	
F17453	9	8/17/81	9/29/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
F17442	9	8/17/81	9/29/81	OK WPS-1	YES X	9 NOT IDENTIFIABLE
F17441	63	8/17/81	9/29/81	OK WPS-1	YES	
F15505	34	6/25/81	8/7/81	OK WPS-1	YES	
F15556	34	7/1/81	8/12/81	OK WPS 1	YES	
F15557	34	7/1/81	8/12/81	OK WPS-1	YES	
P3451	5,34	1/24/81	2/19/81	OK WPS-1	YES	
P3775	21	4/1/81	4/21/81	WPS-1 WPS-2	YES	WELDING PROCEDURE NOT CIRCLED ON TRAVELER
P2834	6	8/27/79	12/7/79	OK P5CS	YES	
F2143	34	4/17/81	5/29/81	OK WPS-1	YES	
F17115	9	9/1/81	10/8/81	WPS-1 WPS-2	YES ?	2 - #9's, UNABLE TO DISTINQUISH WHICH ONE
P3448	34,21	1/24/81	2/19/81	OK WPS-1	YES	
P3447	54	1/24/81	2/19/81	OK WPS-1	YES	
F17116	63	9/1/81	10/12/81	OK WPS-1	YES	
F13732	12	12/10/80	5/27/81	OK WPS-1	YES	
F13731	5	12/10/80	5/27/81	OK WPS-1	YES	
F13730	12	12/10/80	5/26/81	OK WPS-1	YES	
F2221	21,12	4/1/81	5/6/81	OK WPS-1	YES	
F2053	23,21	3/26/81	5/7/81	OK WPS-1	YES	
F1937	23	3/13/81	5/7/81	OK WPS-1	YES	
P3774	23	3/27/81	5/7/81	OK WPS-1	YES	
P1181	12,20	9/22/79	1/9/81	OK WPS-1	YES X	OUT ON COPY GP
P1668	34	12/21/79	12/24/80	OK WPS-1	YES	
P1186	34	9/14/79	12/23/80	OK WPS-1	YES	
1664	34	12/20/79	12/24/80	OK WPS-1	YES	
1653	34	12/18/79	12/23/80	OK WPS-1	YES	

MIDLAND

YES - 37
YES X - 4
NO - 0

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F8726	12,63,34	9/13/79	12/17/80	9/19/80 8/27/80	YES X	VANE WELDER 34 NOT TRANSFERRED
F8570	34	8/30/79	2/9/81	4/22/76	YES	
F8572	20,6	8/30/79	2/9/81	12/10/76 10/29/79	YES X	WELDER 6 ON COPY
F02636	26,12	1/16/81	2/11/81	9/19/80 3/31/81	NO ✓	MPS NOT CIRCLED, WELDER 12 NOT QUALIFIED FOR WPS-2, 26 QUALIFIY
						AFTER WORK DATE WPS-2
F02635	26,12	1/16/81	2/11/81	9/19/80 3/31/81	NO ✓	WPS NOT CIRCLED, WELDER 12 NOT QUALIFIED FOR WPS-2, 26 QUALIFY.
						AFTER WORK DATE WPS-2
F02633	23,12	1/16/81	2/11/81	9/19/80	YES	
F02632	23,12	1/16/81	2/11/81	9/19/80	NO ✓	WPS NOT CIRCLED, ID DATE DOES NOT MATCH WELDER 23, 12 NOT QUALIFIED
						FOR WPS-2
F02630	26,54	1/16/81	2/11/81	9/19/80 3/31/81	NO ✓	WPS NOT CIRCLED, WELDER 54 NOT QUALIFIED FOR WPS-2 WELDER 26
						QUALIFIED AFTER WORK DATE WPS-2
F02628	26,12	1/15/81	2/11/81	9/19/80	YES ?	WELDER 26 ON COPY (VANES) ?
F02626	26,34	1/15/81	2/11/81	9/19/80 8/27/80	YES	
F02624	23,54	1/15/81	2/11/81	9/19/80	YES	
F2663	26	1/17/81	2/11/81	9/19/80	YES	
F2662	26	1/16/81	2/11/81	9/19/80	YES	
F2657	23	1/17/81	2/11/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 23 NOT QUALIFIED FOR WPS-2
F2656	23	1/17/81	2/11/81	9/19/80	NO ✓	WELDER 26 ON COPY (VANE) ? WELDER NOT QUALIFIED FOR WPS-2
P3023	21,54	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 54 NOT QUALIFIED FOR WPS-2
F13765	21,34	12/10/80	1/23/81	9/19/80 8/27/80	YES	
F13764	21,34	12/10/80	1/23/81	9/19/80 8/27/80	NO	WPS NOT CIRCLED, WELDER 21 NOT QUALIFIED FOR WPS-2
F13746	21,23	12/10/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 23 NOT QUALIFIED FOR WPS-2
F13719	21,63	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 63 NOT QUALIFIED FOR WPS-2
F13718	21	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER NOT QUALIFIED FOR WPS-2
F13717	21,5	12/9/80	1/23/81	9/19/80	NO ✓	WPS NOT CIRCLED, WELDER 21 & 5 NOT QUALIFIED FOR WPS-2
P3432	23,5	1/17/81	2/11/81	9/19/80	YES	
P3432	23,5	1/17/81	2/11/81	9/19/80	YES	
P3418	26,5	1/16/81	2/11/81	9/19/80	YES	
P3420	26,54	1/17/81	2/11/81	9/19/80	YES	
P3417	26,5	1/16/81	2/11/81	9/19/80	YES	

MIDLAND

YES - 13
YES X - 2
NO - 12

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	RR DATE	QUAL. DATE	TICKET O.K.	COMMENTS
P1652	34	12/18/79	12/23/80	OK WPS-1	YES	
P1651	34	12/18/79	12/22/80	OK WPS-1	YES	
P1297	20,21	9/13/79	1/12/81	OK WPS-1	YES	
P1224	34,20	8/30/79	1/5/81	OK WPS-1	YES ?	OUT ON COPY RM
P1180	21,20	9/22/79	1/9/81	OK WPS-1	YES	
P1202	5	9/4/79	2/9/81	OK WPS-1	YES	OUT ON COPY WJ
P1188	12,21, 34,63	9/14/79	12/17/80	OK WPS-1	YES	
F2359	34	12/30/80	2/10/81	8/27/80	YES	
P3402	63	12/30/80	2/10/81	9/19/80	YES	
P3406	34	12/30/80	2/10/81	8/27/80	NO	NO WELDER ID FOR FITTING
P3405	34	12/30/80	2/10/81	8/27/80	YES	
P3404	34,5	12/30/80	2/10/81	8/27/80 9/19/80	YES	
P3403	3454	12/30/80	2/10/81	8/27/80 9/19/80	YES	
F2326	21,63	12/30/80	1/23/81	9/19/80	YES	
F2320	21,34	12/2/80	1/23/81	9/19/80 8/27/80	NO	WPS NOT CIRCLED, WELDER 21 NOT QUALIFIED FOR WPS-2
F2301	34	12/3/80	2/9/81	8/27/80	NO	WPS NOT CIRCLED
F13720	21,63	12/9/80	1/23/81	9/19/80	NO	WPS NOT CIRCLED, WELDER 21,53 NOT QUALIFIED FOR WPS-2
F2683	34	1/28/81	2/27/81	8/27/80	YES	
F2682	63	1/27/81	2/27/81	8/19/80	YES	
F2681	34	1/28/81	2/27/81	8/27/80	YES	
F1980	20	3/5/81	5/19/81	9/19/80	YES	
F2680	63	1/27/81	2/27/81	9/19/80	YES	
F8934	12	9/22/79	2/9/81	2/3/80	YES	
F8933	5,20	9/22/79	1/9/81	9/19/80 10/29/79	YES	
F8932	21	9/22/79	2/9/81	2/3/80	YES	
F8931	54,20	9/22/79	1/9/81	12/10/76 1/22/80	YES	
F8930	12	9/22/79	2/9/81	2/3/80	YES	
F8929	34	9/22/79	2/9/81	4/22/76	YES	
F8911	34,21	9/22/79	12/24/80	OK	YES	
F8909	21	9/22/79	2/9/81	2/3/80	YES	
F8900	20	9/20/79	2/9/81	12/10/76	YES	

MIDLAND

YES - 27
YES X - 0
NO - 4

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	QUAL. DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F6478	34	7/16/79	2/9/81	4/22/76	YES X	DI (?) CLEANER ?
F6476	34	7/16/79	2/9/81	4/22/76	YES X	DI (?) CLEANER ?
F6477	34	7/16/79	2/9/81	4/22/76	YES X	DI (?) CLEANER ?
F6473	21	7/16/79	2/9/81	2/3/80	YES	
F6474	21	7/16/79	2/9/81	2/3/80	YES	
F6471	20,52 (?)	7/16/79	2/9/81	12/10/76 3/15/80	YES X	GP ON COPY
F6469	20	7/16/79	2/9/81	12/10/76	YES	
F14851	12	6/16/81	8/7/81	9/19/80	NO /	WELDER 12 NOT QUALIFIED FOR WPS-2
F14821	34	6/11/81	8/7/81	8/27/80	YES	
F14820	34	6/11/81	8/10/81	8/27/80	YES	
F14819	34	6/11/81	8/10/81	8/27/80	NO /	RM (?) ON COPY
F14817	34	6/10/81	8/11/81	8/27/80	YES	
F14588	34	6/5/81	8/10/81	8/27/80	YES	
F14587	34	6/5/81	8/10/81	8/27/80	YES	
F14586	63	6/5/81	8/12/81	9/19/80	NO /	WELDER NOT QUALIFIED FOR WPS-2
F14582	34	6/11/81	8/12/81	8/27/80	YES	
F14182	63,6	5/8/1	8/12/81	12/31/80 9/19/80 5/14/81	YES	
F13735	5	12/10/81	5/28/81	OK WPS-1	YES	
F13734	63	12/10/80	5/27/81	OK WPS-1	YES	
F13733	23	12/10/80	5/28/81	OK WPS-1	YES	
F15555	34	7/2/81	8/12/81	OK WPS-1	YES	
F15554	34	7/2/81	8/12/81	OK WPS-1	YES	
F15504	34	6/25/81	8/12/81	OK WPS-1	YES	
F15503	34	6/25/81	8/10/81	OK WPS-1	YES	
F15502	34	6/25/81	8/7/81	OK WPS-1	YES	
F14864	34	6/17/81	8/11/81	OK WPS-1	YES	
F14866	34	6/17/81	8/11/81	OK WPS-1	YES	
F14865	34	6/17/81	8/7/81	OK WPS-1	YES	
F14863	63	6/17/81	8/13/81	OK WPS-1	YES	
F14862	63	6/17/81	7/30/80	OK WPS-1	YES	
F141[illegible]	63	5/8/81	8/12/81	OK WPS-1	YES	

MIDLAND

YES - 24
YES X - 4
NO - 3

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
P3010	54,23	1/28/81		OK	YES	
F2794	54,5	1/26/81		OK	YES	
F2779	54,26	1/24/81		OK	YES	
F2782	54,12,34	1/24/81		OK	YES	
F2778	54,23	1/24/81		OK	YES	
F2777	54,26	1/23/81		OK	YES	
F2786	12,34	1/24/81		OK	YES X	
F2785	34,12,5	1/24/81		OK	YES X	
F2783	54,21,34	1/24/81		OK	YES	
F2781	54,21,34	1/24/81		OK	YES X	
F2780	54,21,23	1/24/81		OK	YES X	
F2774	34,12	1/23/81		OK	YES	
F2768	63,26	1/23/81			NO /	26 & 63 NOT QUALIFIED FOR WPS-2
F2756	5,54	1/23/81		OK	YES	
F2748	5,63,12	1/23/81		OK	YES X	
F2599	5,63	1/23/81		OK	YES	
F2767	26,12	1/23/81		OK	YES	
F2809	54,5	1/28/81		OK	YES	
F2327	63,26	1/28/81		OK	YES	
P3075	63,26	12/17/80			NO /	63 & 26 NOT QUALIFIED FOR WPS-2
F02643	23,26,12	1/17/81			NO /	12, 23 & 26 NOT QUALIFIED FOR WPS-2
F02638	26,21	1/16/81		OK	YES	
F02642	23,26	1/17/81			NO /	26 & 23 NOT QUALIFIED FOR WPS-2
F02641	23,5	1/17/81			NO /	23 & 5 NOT QUALIFIED FOR WPS-2
F8571	12,23	8/30/79	2/9/81	2/3/80 10/29/79	YES X	WELDER 23 ON COPY
F8569	21,20,6	8/30/79	1/12/81	10/29/79 2/3/80 12/10/76	NO /	LP NOT LISTED
F8568	20,23	8/30/79	1/12/81	12/10/76 10/29/79	YES X	WELDER 23 ON COPY
F8567	21	8/30/79	2/9/81	2/3/80	YES X	
F6481	34	7/16/79	2/9/81	4/22/76	YES ?	DI (?) CLEANER ?
F6480	34	7/16/79	2/9/81	4/22/76	YES ?	DI (?) CLEANER ?
F6479	39,20	7/16/79	2/9/81	10/29/79 12/10/76	YES ?	BS ON COPY

MIDLAND

YES - 17
YES X - 8
NO - 6

CLASS I
PLANT 2

TICKET NO.	WELDER NO's.	ISSUE DATE	WK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F10922	21,54	1/23/80	9/18/81	OK WPS-1	YES	
F12332	21,54	2/18/80	9/18/81	OK WPS-1	YES	
F15879	21,34	8/11/81	9/4/81	OK WPS-1	YES	
F17122	52,63	8/31/81	9/21/81	OK WPS-1	YES	
F15891	21	8/11/81	9/4/81	OK WPS-1	YES	
F02639	26	1/17/81		D	NO	26 NOT QUALIFIED FOR WPS-2
F02637	26,12	1/16/81		D	NO	26 & 12 NOT QUALIFIED FOR NPS-2
F2043	34	3/27/81		OK	YES	
F1977	20	3/5/81		OK	YES	
F2042	34	3/27/81		OK	YES	
P661	52,21	6/16/81			NO	52 & 21 NOT QUALIFIED FOR WPS-2
P660	52,54	6/16/81			NO	52 & 54 NOT QUALIFIED FOR WPS-2
P659	52,23	6/16/81			NO	52 & 23 NOT QUALIFIED FOR WPS-2
P658	52,23	6/16/81			NO	52 & 23 NOT QUALIFIED FOR WPS-2
P657	52,23	6/16/81			NO	52 & 23 NOT QUALIFIED FOR WPS-2
P3619	63	3/30/81			NO	63 NOT QUALIFIED FOR WPS-2
P3602	63,34	3/27/81			NO	63 NOT QULALIFED FOR WPS-2
F2052	12,23	3/27/81		OK	YES	
F2032	12,23	3/30/81			NO	12 & 23 NOT QUALIFIED FOR WPS-2
F2031	5,23,12	3/30/81			NO	5, 23 & 12 NOT QUALIFIED FOR WPS-2
F2223	12,23,21	4/1/81			NO	12, 23 & 21 NOT QUALIFED FOR WPS-2
F2023	12,63	3/31/81			NO	12 & 63 NOT QUALIFIED FOR WPS-2
F1877	63,12	3/20/81		OK	YES	
F1925	34	3/17/81		OK	YES	
F2009	12	3/31/81			NO	12 NOT QUALIFIED FOR WPS-2
F2014	34,63	3/31/81			NO	63 NOT QUALIFIED FOR WPS-2
F2022	12,34	3/31/81			NO	12 NOT QUALIFIED FOR WPS-2
F13759	23	12/11/80			YES	
P3446	26	1/24/81		OK	YES	
P3431	21,54	1/17/81		OK	YES	

MIDLAND

YES - 15
YES X - 0
NO - 16

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	WORK DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F9217	34	11/6/79	12/31/80	OK WPS-1	YES	
F9015	20	10/2/79	2/9/81	OK P5CS	YES X	OUT BS
F8943	21	9/23/79	2/9/81	OK P5CS	YES X	OUT ID
F8942	21	9/22/79	2/9/81	OK P5CS	YES X	OUT ID
F8939	20	10/22/79	1/12/81	OK WPS-1	YES X	OUT TW
F8941	12	9/22/79	2/9/81	OK P5CS	YES	
F8940	34	9/22/79	2/9/81	OK P5CS	YES	
F8938	5	9/22/79	2/9/81	OK P5CS	YES	
F8937	21	9/22/79	2/9/81	OK P5CS	YES	
F8936	21	9/22/79	2/9/81	OK P5CS	YES	
F8935	5	9/22/79	2/9/81	OK P5CS	YES	
F2312	26,5	10/20/80	1/6/81	OK WPS-1	YES	
P1665	23	12/20/79	10/31/80	OK WPS-1	YES	
P1663	23	12/20/79	10/31/80	OK WPS-1	YES	
F1538	34	8/27/79	2/9/81	OK P5CS	YES X	OUT GP (26)
P3726	21,9	8/14/81	9/4/81	OK WPS-1	YES	9 NOT IDENTIFIABLE
F11286	12	8/29/79	10/22/79	OK P5CS	YES	
F11207	21	8/29/79	10/15/79	OK P5CS	YES	
F5832	34	3/27/79	9/20/79	OK P5CS	YES	
F6467	21	7/14/79	9/21/79	OK P5CS	YES X	EJ NOT CIRCLED (COPY)
F4460	12	3/13/79	5/23/79	OK P5CS	YES	
						DR NOT CIRCLED (COPY)
F17428	21,9	8/17/81	9/4/81	OK WPS-1	YES X?	9 NOT IDENTIFIABLE
F17429	21,63	8/14/81	9/4/81	OK WPS-1	YES	
F17431	21	8/17/81	9/4/81	OK WPS-1	YES	
F17430	21,34	8/14/81	9/4/81	OK WPS-1	YES	
F17427	21	8/14/81	9/4/81	OK WPS-1	YES	
F17426	21	8/14/81	9/4/81	OK WPS-1	YES	
F17425	21	8/14/81	9/4/81	OK WPS-1	YES	
F10732	21,9	1/21/80	9/18/81	OK WPS-1	YES X?	9 NOT IDENTIFIABLE
F10849	21,54	1/21/80	9/18/81	OK WPS-1	YES	

MIDLAND

YES -22
YES X - 8
NO -0

CLASS I

TICKET NO.	WELDER NO's.	ISSUE DATE	QUAL. DATE	QUAL. DATE	TICKET O.K.	COMMENTS
F13740	12	12/10/80		O.K.	YES	
F13751	23	1/8/81		O.K.	YES	
F13758	DG,12	1/8/81		DG	NO	CAN'T DETERMINE DG
F13757	5	1/8/81		O.K.	YES	
F13756	JL,23	1/8/81		JL	NO	CAN'T DETERMINE JL
F13755	34	12/11/80		O.K.	YES	
F13754	34	12/11/80		O.K.	YES	
F13753	63	12/11/80		O.K.	YES	
F13752	12	12/11/80		O.K.	YES	
F13750	5	12/11/80		O.K.	YES	
F13748	DG,5	12/10/80		DG	NO	CAN'T DETERMINE DG
F13749	63	1/8/81		O.K.	YES	
P1306	34,54	10/1/79	1/14/80	54-1/22/80	NO	
P1187	23,12,21	9/14/79	12/18/80	OK WPS-1	YES	
P1182	12,20	9/22/79	1/8/81	OK WPS-1	YES X?	HM ON COPY, NOT CIRCLED
P1179	21	9/22/79	2/9/81	OK WPS-1	YES	
P1178	20,21	9/22/79	1/12/81	OK WPS-1	YES X	GP ON COPY, NOT CIRCLED
						BS,MDS,RM,DW - NOT CIRCLED
P1177	34,20	9/22/79	1/12/81	OK WPS-1	YES X	OUT ON COPY - GP,RM
P1106	21,20	7/16/79	1/12/81	OK WPS-1	YES X	OUT ON COPY - WJ
P1105	21,20	7/16/79	1/12/81	OK WPS-1	YES X	OUT ON COPY - WJ
P1104	20,21	7/16/79	1/12/81	OK WPS-1	YES X?	OUT ON COPY - WJ NO DL ON FILE (COPY)
P1103	34,20	7/16/79	1/12/81	OK WPS-1	YES X?	OUT BS ON COPY DL - NO PERSON ON FILE
P507	5	10/10/79	2/9/81	OK WPS-1	YES	
F13540	26,21	11/25/80	1/6/81	OK WPS-1	YES	
F13539	23,63	11/25/80	1/6/81	OK WPS-1	YES	
F10643	23	12/20/79	10/30/80	OK WPS-1	YES	
F10641	23	12/20/79	10/30/80	OK WPS-1	YES	
F10638	23	12/20/79	10/30/80	OK WPS-1	YES	
F10637	23	12/20/79	10/29/80	OK WPS-1	YES	
F9567	34	9/13/79	2/9/81	OK WPS-1	YES	

Pg 40

MIDLAND

YES - 9
YES X - 7
NO - 4

CLASS I
PLANT 2

NO.	NO's.	DATE	DATE	DATE	O.K.	COMMENTS pg 41
F8727	12,21	9/13/79	12/17/80	OK WPS 1	YES X	34 ADDED TO COPY 12/17/80
P3609	12,21,23	3/30/81	4/30/81	OK WPS 1	YES	
P3610	34,63,23	3/30/81	4/3/81	OK WPS 1	YES	
F2807	63,34,21	1/28/81	2/19/81	OK WPS 1	YES	
F13608	21,26	11/22/80	1/22/81	OK WPS 1	YES	
P500	34	10/10/79	11/7/79	OK P5	YES	
P2833	6	8/27/79	12/7/79	NO P5	NO ✓	RK NOT CIRCLED ON COPY
F10423	6,JDT	12/8/79	1/10/80	NO P5	NO ✓	RK NOT CIRCLED ON COPY
F10424	6 JDT	12/8/79	1/10/80	NO P5	NO ✓	RK NOT CIRCLED ON COPY
F10425	6,JDT	12/8/79	1/10/80	NO P5	NO	RK NOT CIRCLED ON COPY JDT NOT QUALIFIED
F10426	6,JDT	12/8/79	1/10/80	NO P5	NO ✓	RK NOT CIRCLED ON COPY JDT NOT QUALIFIED
F1C492	6,JDT	11/29/82	1/10/80	NO P5	NO ✓	OUT TW ON COPY TW NOT QUALIFIED
F10010	48	11/3/79	1/10/80	OK P5	YES	
F10072	6	11/5/79	1/15/80	NO P5	NO ✓	RK NOT CIRCLED ON COPY
F10062	6	11/5/79	1/14/80	NO P5	NO ✓	RK NOT CIRCLED ON COPY
F13617	21	11/22/80	1/22/81	OK WPS 1	YES	
F13607	21,63	11/22/80	1/22/81	OK WPS 1	YES	
F13574	21,23	11/21/80	1/22/81	OK WPS 1	YES	
P495	21	8/29/79	10/10/79	NO P5	NO ✓	RK & DW LISTED ON COPY NOT QUALIFIED
P5817	34	4/14/79	8/27/79	NO P5	NO ✓	OUT BS ON COPY BS NOT QUALIFIED
P6485	34	7/17/79	9/17/79	NO P5	NO ✓	OUT BS ON COPY BS NOT QUALIFIED
P1114	21	7/12/79	10/1/79	NO P5	NO ✓	OUT DW NOT QUALIFIED
P1115	34	7/12/79	10/3/79	NO P5	NO ✓	OUT WJ ON COPY - NOT QUALIFIED
P1107	21	7/16/79	9/17/79	OK P5	YES	
P9259	21	8/31/79	11/5/79	NO P9	NO ✓	DW ON COPY - NO QUALIFIED
P8952	21	9/22/79	10/31/79	NO P9	NO ✓	RK ON COPY
P8951	21	9/22/79	10/31/79	NO P9	NO ✓	RK ON COPY
2704	34,63,21	1/17/81	2/18/81	OK WPS 1	YES	

MIDLAND

YES -11
YES X - 1
NO - 16

CLASS 1

ATTACHMENT #2

INITIAL CATEGORIZATION OF

MIDLAND CLASS 1 CATEGORY 3 ("NO") TRAVELERS

Sept. 28, 1982

CATEGORIES

A. DATE DISCREPANCIES BETWEEN ISSUE DATE, WORK DATE, INSPECTION DATE.

B. NO WELD PROCEDURE ON TICKET.

C. TWO (2) WELD PROCESSES LISTED - WELDER QUALIFIED TO ONE (1) ONLY OR NEITHER.

D. WELDER NEVER QUALIFIED, AND/OR UNIDENTIFIABLE INITIALS ON COPY. (ARE INITIALS WELDER, INSPECTOR OR CLEANER?)

E. WELDER NOT QUALIFIED, BUT QUALIFIED AT LATER DATE.

1. AT TRAVELER ISSUE DATE (NO WORK DATE AVAILABLE)
2. AT WORK DATE

F. MISCELLANEOUS OTHER.

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLAS 1 PLANT: II

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-6656	1	D	-TRAVELER VOIDED-
F-6654	1	D	
F-6652	1	D	-TRAVELER VOIDED-
F-6648	1	D	-TRAVELER VOIDED-
F-6644	1	D	-TRAVELER VOIDED-
F-6643	1	D	-TRAVELER VOIDED-
F-6642	1	D	-TRAVELER VOIDED-
F-4425	2	D	Unidentifiable intials on copy
F-4399	2	D	" " "
F-4398	2	D	" " "
F-4397	2	D	" " "
F-4271	2	D	" " "
F-4269	2	D	" " "
F-4284	2	D	" " "
F-4279	2	D	" " "
F-2462	2	D	" " "
F-4276	3	D	" " "
F-4275	3	D	" " "
P-2464	3	D	" " "
F-4424	3	D	" " "
F-804	4	F	No Dates/Qualification status undetermined
F-11202	6	E (2)	Welder #26 & #39
F-11206	6	E (2)	Welder #39
F-11210	6	E (2)	Welder #39
F-11211	6	E (2)	Welder #26 -TRAVELER VOIDED-
F-11200	6	E (2),D	Welder #39/D.I. -TRAVELER VOIDED-
F-6449 -	6	D	D.L.
F-6444	6	E (2)	Welder #39
F-6443	6	E (2)	Welder #39
P-1110	6	E (2)	Welder #48 -TRAVELER VOIDED-

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLASS: 1 PLANT: 11

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-9379	6	D	Welder #6
F-9378	6	D	Welder #6
F-8742	8	D	Welder #63 -TRAVELER VOIDED-
F-11198	9	D	S.L.
F-11186	9	E (2)	Welder #48
F-11187	9	D	S.L.
F-11189	9	D	D.L. -TRAVELER VOIDED-
F-11195	9	E (2)	Welder #48 -TRAVELER VOIDED-
F-11196	9	E (2)	Welder #48
F-9256	9	E (2)	Welder #26
F-9251	9	E (2)	Welder #26
P-2570	10	D	D.L. -TRAVELER VOIDED-
P-1150	10	E (2)	Welder #6 -TRAVELER VOIDED-
P-1149	10	E (2)	Welder #39
F-6482	10	E (2)	Welder #26 -TRAVELER VOIDED-
F-6465	10	E (2)	Welder #6 -TRAVELER VOIDED-
F-6464	10	E (2)	Welder #43 -TRAVELER VOIDED-
F-6443	10	E (2)	Welder #26
F-5847	10	E (2)	Welder #6
F-5846	10	E (2)	Welder #6
F-5842	10	E (2)	Welder #6 -TRAVLER VOIDED-
P-493	10	E (2)	Welder #5
P-494	10	E (2)	Welder #39 & #6 -TRAVELER VOIDED-
F-11173	10	E (2)	Welder #5 -TRAVELER VOIDED-
F-11177	10	E (2)	Welder #5
F-11178	10	C	Welder #26
F-5636-	11	E (2)	Welder #26
F-5632	11	E (2)	Welder #5
F-5054	11	E (2)	Welder #5
F-5053	11	D	D.L.

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLASS. 1 PLANT: 11

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-5829	12	E (2)	Welder #26
F-5827	12	E (2)	Welder #39
F-5826	12	E (2)	Welder #26 -TRAVELER VOIDED-
F-4448	12	E (2)	Welder #43
F-4444	12	E (2)	Welder #6 -TRAVELER VOIDED-
F-4443	12	D	M.K.
P-2596	12	E (2)	Welder #5 -TRAVELER VOIDED-
F-5814	12	D	D.R.
F-6813	12	D	D.R.
F-5815	12	E (2)	Welder #26
F-5816	12	E (2)	Welder #26
F-5818	12	E (2)	Welder #39
F-5812	12	E (2)	Welder #26
F-5811	12	E (2)	Welder #26
F-5808	12	E (2)	Welder #5
F-11105	14	F	Welder #58 not identified -TRAVELER VOIDED-
F-11036	14	F	Welder #58 not identified -TRAVELER VOIDED-
P-2756	29	E (2)	Welder #39
F-04412	29	E (2)	Welder #39 -TRAVELER VOIDED-
F-04411	29	E (2)	Welder #39 -TRAVELER VOIDED-
F-04408	29	E (2)	Welder #39
F-4404	29	E (2)	Welder #39
F-11102	29	F	Welder #58 not identified
P-2971	30	F	Welder #24 not identified
F-9260	31	D	Welder #6
F-1305	31	D	Welder #6
P-1308-	31	E (2)	Welder #48
F-11171	31	E (2)	Welder #26 -TRAVELER VOIDED-
F-11176	31	E (2)	Welder #6
F-11205	31	E (2)	Welder #26

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLASS 1 PLANT: II

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-1872	17	D	-TRAVELER VOIDED-
F-8801	19	E-2	#52-Welder -TRAVELER VOIDED-
P-1112	19	C	-TRAVELER VOIDED-
F-10268	20	E	#30
P-1201	20	E	#54
F-6456	20	E	#54
F-8767	20	E	#52 -TRAVELER VOIDED-
F-8798	20	E	#52
F-8816	20	E	#54 -TRAVELER VOIDED-
F-10484	21	E	#54
F-10489	21	E	#52
F-10050	23	E	#30 -TRAVELER VOIDED-
F-10485	23	E	#54
F-10066	24	E	#30 -TRAVELER VOIDED-
P-1514	24	E	#30 -TRAVELER VOIDED-
P-1523	24	D	D.L. ? -TRAVELER VOIDED-
P-1511	24	E	#54 -TRAVELER VOIDED-
P-1510	24	D	W.I. & G.S. ? -TRAVELER VOIDED-
P-10262	24	E	#54 -TRAVELER VOIDED-
F-13246	27	D	#66 ? -TRAVELER VOIDED-
F-13254	27	E	#64 -TRAVELER VOIDED-
F-11100	27	D	#58 ?
F-11117	27	D	#58 ?
F-11050	28	E	#26 -TRAVELER VOIDED-
F-11091	28	E	#26 -TRAVELER VOIDED-
F-11118	28	D	#58 ? -TRAVELER VOIDED-
F-11132	28	D	#58 ? -TRAVELER VOIDED-
P-1491	16	E	#54
F-02636	34	C	#12 not qualified for WPS-2
F-02635	34	C	#12 not qualified for WPS-2

DISCREPANT TRAVELER BREAKDO FOR PROJECT: Midland CLASS: 1 PLANT: II

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-13717	34	D	#21 & #5 not qualified for WPS-2
F-2320	35	D	#21 not qualified for WPS-2 -TRAVELER VOIDED-
F-2301	35	B	WPS not circled -TRAVELER VOIDED-
F-13720	35	D	#21 & #53 not qualified for WPS-2
P-661	38	A,D	#52 & #21 not qualified for WPS-2
P-660	38	A,D	#52 & #54 not qualified for WPS-2
P-659	38	A,D	#52 & #53 not qualified for WPS-2
P-658	38	A,D	#52 & #53 not qualified for WPS-2
P-657	38	A,D	#52 & #53 not qualified for WPS-2
P-3619	38	A,D	#63 not qualified for WPS-2
P-3602	38	A,D	#63 not qualified for WPS-2 -TRAVELER VOIDED-
F-2032	38	A,D	#12 & #23 not qualified for WPS-2 -TRAVELER VOIDED-
F-2031	38	A,D	#5, #12, & #23 not qualified for WPS-2 -TRAVELER VOIDED-
F-2223	38	A,D	#12, #23 & #21 not qualified for WPS-2
F-2023	38	A,D	#12 not qualified for WPS-2
F-2009	38	A,D	#12 not qualified for WPS-2
F-2014	38	A,D	#63 not qualified for WPS-2 -TRAVELER VOIDED-
F-2022	38	A,D	#12 not qualified for WPS-2
F-13758	40	D	D.G. ? -TRAVELER VOIDED-
F-1[illegible]56	40	D	J.L. ? -TRAVELER VOIDED-
F-13748	40	D	D.G. ?
P-1306	40	E	#54
P-495	41	D	R.K. & D.W. ? -TRAVELER VOIDED-
F-5817	41	D	B.S. ?
F-6485	41	D	B.S. ?
P-1114	41	D	D.W. ?
P-1115	41	D	W.J. ?
P-2833	41	D	R.K. ? -TRAVELER VOIDED-
F-10423	41	D	R.K. ?
F-10424	41	D	R.K. ?

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-4943	11	E (2)	Welder #5
F-4941	11	E (2)	Welder #39
P-2597	11	E (2)	Welder #5 & #39
P-2595	11	D,E (2)	Welder #5/D.R.
P-2594	11	E (2)	Welder #5
P-1093	11	E (2)	Welder #43
F-6448	11	E (2)	Welder #26
F-6454	11	E (2)	Welder #48
F-6486	11	D	D.L.
F-5834	11	E (2	Welder #5 -TRAVELER VOIDED-
F-4446	11	E (2)	Welder #39
F-4445	11	E (2)	Welder #6 -TRAVELER VOIDED-
F-6466	11	E (2)	Welder #5
F-5835	11	E (2)	Welder #26
F-5837	12	E (2)	Welder #39
F-5836	12	E (2)	Welder #6 -TRAVELER VOIDED-
F-5830	12	E (2)	Welder #5 -TRAVELER VOIDED-
F-10426	41	D	R.K. ?
F-10492	41	D	R.K. ?
F-10072	41	D	R.K. ? -TRAVELER VOIDED-
F-10062	41	D	R.K. ? -TRAVELER VOIDED-
F-9259	41	D	D.W. ?
F-8952	41	D	R.K. ? -TRAVELER VOIDED-
F-8951	41	D	R.K. ?
F-02632	34	C	#12 not qualified for WPS-2
F-02630	34	C,D	#26 qualified after work date for WPS-2 #54 not qualified for WPS-2
F-2657	34	D	#23 not qualified for WPS-2
F-2656	34	D	#23 not qualified for PWS-2
F-3023	34	D	#21 & #54 not qualified for WPS-2

DISCREPANT TRAVELER BREAKDOWN FOR PROJECT: Midland CLASS: PLANT:

TRAVELER NO.	PAGE	CATEGORY	COMMENTS
F-13746	34	D	#21 & #23 not qualified for WPS-2
F-13719	34	D	#21 & #63 not qualified for WPS-2
F-13718	34	D	#21 not qualified for WPS-2
F-14851	36	D,C	#12
F-14819	36	D	R.M.
F-14586	36	D	Welder #63 & #26
F-2768	37	D	Welder #26 & #63 -TRAVELER VOIDED-
P-3075	37	D	Welder #63 & #26
F-02643	37	D	Welder #12, #23 & #26
F-02642	37	D	Welder #23 & #5
F-02641	37	D	Welder #23 & #5
F-8569	37	D	L.P.
F-7256	2	E (2)	39 Qualified 10/29/79
F-6453	6	E (2)	
F-6452	6	E (2)	
F-02639	38	D	26 not qualified for WPS-2
F-02637	38	D	26 & 12 not qualified for WPS-2
F-3406	35	D	No welder I.D. for fitting
F-10425	41	D	RK not circled on copy JDT not qualified

ATTACHMENT #3

FINAL LISTING AND BREAKDOWN OF

MIDLAND CLASS 1 CATEGORY 3 ("NO") TRAVELERS

Sept. 28, 1982

FINAL SUMMARY OF TRAVELERS WITH WELD RECORD DISCREPANCIES

Following is a listing of all Travelers that exhibit discrepancies in the information pertinent to welding.

The list was distilled from the original listing of all record copy Travelers that had a corresponding "working" (zerox) copy.

Definitions used in describing the discrepancies listed are as follows:

No Qualification Records on file"
Indicates that the records of welder qualification are not on file within the Zack Company and could not be found in the files of the test lab used for welder qualification testing. This leaves no proof that the individual in question was qualified to weld during the time frame in question.

Qualified:
Indicates the earliest date that a welder passed a welder qualification test for the particular welding process call-out on the Traveler. Records for all welders listed as qualified are on file within the Zack Company.

Work Date:
Indicates the date that welding was performed by evidence of a date entered by the welder next to his I.D. number on the Traveler.

Work Inspected:
Indicates the date that the work was inspected by evidence of a date entered next to the Inspector's initials. This date is usually within two days of actual welding and is the next most representative date for establishing a time frame for work performance.

Material Shipped:

Indicates the date that material listed on a particular Traveler was shipped to a jobsite. This date is usually within two (2) weeks of completion of work. This date is used to establish a time frame for the work when no work date or inspection date is on the Traveler. This date is more indicative of the actual work date than the Traveler issue date.

WELD RECORD DISCREPANCIES FOR PROJECT: MIDLAND Page 1 CLASS I

TRAVELER NO.	PAGE	WELDER I.D.	COMMENTS
F-6654	1	Gibson	No qualification records on file. Work inspected 9-11-78.
F-4425	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4390	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4398	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4397	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4271	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4269	2	#39	Qualified 10-29-79, work inspected 6-6-79.
F-4284	2	#39	Qualified 10-29-79, work inspected 5-21-79.
F-4279	2	#39	Qualified 10-29-79, work inspected 5-21-79.
F-2462	2	#39	Qualified 10-29-79, work inspected 5-18-79.
F-4276	3	#39	Qualified 10-29-79, work inspected 6-5-79.
F-4275	3	#39	Qualified 10-29-79, work inspected 6-5-79.
P-2464	3	#39	Qaulified 10-29-79, work inspected 6-5-79.
F-4424	3	#39	Qualified 10-29-79, work inspected 6-5-79.
F-11202	6	#39	Qualified 10-29-79, work inspected 10-12-79.
F-11206	6	#39	Qualified 10-29-79, work inspected 10-12-79.
F-11210	6	#39	Qualified 10-29-79, work inspected 10-12-79.
F-6444	6	#39	Qualified 10-29-79, work inspected 9-17-79.
F-6443	6	#39	Qualified 10-29-79, work inspected 9-17-79.
F-9379	6	#6	Qualified 10-29-79, work inspected 10-8-79.
F-9378	6	#6	Qualified 10-29-79, work inspected 10-8-79.
F-11186	9	#48	Qualified 10-29-79, work inspected 10-10-79.
F-11196	9	#48	Qualified 10-29-79, work inspected 10-11-79.
P-1149	10	#39	Qualified 10-29-79, work inspected 9-17-79.
F-5847	10	#6	Qualified 10-29-79, work inspected 9-13-79.
F-5846	10	#6	Qualified 10-29-79, work inspected 9-13-79.
F-5827	12	#39	Qualified 10-29-79, work inspected 9-14-79.
F-4448	12	#43	Qualified 10-29-79, work inspected 9-12-79.

WELD RECORD DISCREPANCIES FOR PROJECT: MIDLAND Page 2 CLASS I

TRAVELER NO.	PAGE	WELDER I.D.	COMMENTS
F-5818	12	#39	Qualified 10-29-79, work inspected 8-28-79.
F-04408	29	#39	Qualified 10-29-79, work inspected 6-5-79.
F-4404	29	#39	Qualified 10-29-79, work inspected 6-5-79.
F-11176	31	#6	Qualified 10-29-79, work inspected 10-24-79.
F-11209	31	#39	Qualified 10-29-79, work inspected 10-27-79.
F-10268	20	#30	Qaulified 1-22-80, work inspected 1-10-80.
P-1201	20	#54	Qualified 1-22-80, work inspected 1-9-80.
F-6456	20	#54	Qualified 1-22-80, work inspected 1-9-80.
F-10484	21	#54	Qualified 1-22-80, work inspected 1-10-80.
F-10458	23	#54	Qualified 1-22-80, work inspected 1-10-80.
P-1491	16	#54	Qualified 1-22-80, work inspected 1-3-80.
P-1306	40	#54	Qualified 1-22-80, work inspected 1-14-80.
F-5817	41	#39	Qualified 10-29-79, work inspected 8-27-79.
F-6485	41	#39	Qualified 10-29-79, work inspected 9-17-79.
P-1114	41	#48	Qualified 10-29-79, work inpsected 10-1-79.
F-4941	11	#39	Qualified 10-29-79, work inspected 8-28-79.
P-2579	11	#39	Qualified 10-29-79, work inspected 8-23-79.
P-1093	11	#43	Qualified 10-29-79, work inspected 10-1-79.
F-6454	11	#48	Qualified 10-29-79, work inspected 10-1-79.
F-4446	11	#39	Qualified 10-29-79, work inspected 9-20-79.
F-5837	12	#39	Qualified 10-29-79, work inpsected 9-13-79.
F-10492	41	#54	Qualified 1-22-80, work inpsected 1-10-80.
F-7256	2	#39	Qualified 10-29-79, work inpsected 6-5-79.

ATTACHMENT #4

LISTING OF MIDLAND CLASS 1 "WORKING" COPY TRAVELERS

CONTAINING NO INFORMATION PERTINENT TO THE REVIEW

Sept. 28, 1982

1471 TOTAL

MIDLAND

CLASS I

PLANT 2 TRAVELER COPIES WITH NO EXTRA WELDER I.D. MARKINGS

P-507	F-1947	F-2633	F-2809
657	1998	2634	2851
658	2009	2635	2852
659	2014	2636	2866
660	2022	2637	2867
661	2023	2638	2868
695	2031	2639	2869
1103	2032	2640	2870
1104	2052	2641	2871
1105	2053	2642	2872
1106	2116	2643	2873
1177	2221	2656	2874
1178	2223	2657	2875
1179	2294	2662	2976
1180	2301	2663	2877
1181	2318	2704	2878
1182	2319	2748	2879
1202	2320	2756	2880
1224	2321	2767	2881
1297	2325	2768	P-2917
F-1538	2326	2773	2918
P-1666	2327	2774	2919
1667	2330	2776	2921
F-1794	2333	2777	2922
1804	2339	2778	2955
1851	2358	2779	2971
1857	2359	2780	2972
1872	2519	2781	2973
1877	2520	2782	2974
1881	2521	2783	2975
1925	2522	2785	2976
1927	2599	2786	2977
1928	2617	2787	2978
1929	2624	2788	2984
1930	2625	2789	2986
1931	2626	2790	2988
1932	2627	2792	2989
1933	2628	2794	2990
1934	2629	2795	2992
1935	2630	2798	3007
1937	2631	2805	3008
1946	2632	2807	3009

MIDLAND

CLASS I

PLANT 2 TRAVELER COPIES WITH NO EXTRA WELDER I.D. MARKINGS

P-3010	F-6481	F-10951	F-12453
3011	6483	10952	12454
3018	6650	10953	12466
3023	8417	10954	12467
3050	8567	11960	12468
3075	7568	11988	12469
3318	8569	11997	12472
3325	8570	12002	12473
3326	8571	12033	12474
3327	8572	12034	12475
3328	8722	12043	12476
3330	8723	12051	12479
3331	8724	12063	12480
3332	8725	12086	12481
3394	8736	12091	12482
3396	8800	12096	12487
3397	8909	12100	12488
3402	8912	12101	12489
3415	8929	12114	12490
3430	8930	12115	12491
3431	8931	12116	12492
3441	8932	12117	12493
3444	8933	12118	12494
3446	8934	12119	12495
3447	8935	12120	12496
3448	8936	12121	12497
3449	8937	12123	12498
3450	8938	12126	12500
3451	8939	12128	12501
3452	8940	12130	13100
3453	8941	12132	13238
3455	8942	12134	13239
3468	8943	12136	13294
3612	9015	12138	13295
3794	9128	12140	13296
3913	9217	12142	13297
3914	9467	12144	13298
F-6385	10267	12178	13299
6469	10483	12255	13301
6471	10603	12256	13302
6472	10604	12257	13303
6473	10605	12258	13304
6474	10606	12259	13480
6477	10607	12260	13481
6476	10608	12261	13482
6478	10645	12262	13483
6479	10849	12263	13484
6480	10950	12265	13485

(102)

MIDLAND

CLASS I

PLANT 2 TRAVELER COPIES WITH NO EXTRA WELDER I.D. MARKINGS

F-13486	F-14619	F-17427
13487	14620	17428
13488	14621	17429
13497	14622	17430
13498	14623	17431
13499	14820	18437
13503	14832	17439
13504	14834	17440
13571	14835	17441
13573	14836	17442
13574	14851	17443
13575	14866	17452
13576	15503	17453
13577	15663	
13591	15665	
13603	15667	
13604	15795	
13605	15879	
13607	15891	
13608	15938	
13609	15939	
13610	15940	
13611	17066	
13612	17067	
13613	17070	
13614	17071	
13615	17073	
13616	17074	
13617	17075	
13633	17076	
13634	17117	
13686	17118	
13694	17122	
13716	17123	
13717	17124	
13718	17125	
13719	17126	
13720	17289	
13721	17297	
13723	17298	
13727	17299	
13746	17300	
13763	17301	
13764	17308	
13765	17309	
13781	17402	
13784	17424	
13828	17425	
13988	17426	

ATTACHMENT #5

LISTING OF

MIDLAND VOIDED TRAVELERS

Sept. 28, 1982

MIDLAND CLASS I VOIDED TRAVELER LIST

F-8911
11171
11173
11189
11195
P-1523
F-2768
8952
10062
10072
5830
5836
4445
5834
2833
P-495
F-13756
13758
2014
2301
2032
P-3602
F-2320
2031
11132
11118
11091
11050
13254
13246
10262
P-1510
1511
P-1514
F-10066
10050
8816
8767
P-1112
F-8801
1872
04411
04412
11036
11105
P-2596
F-4444
5826
P-494
F-5842
6464
6465
6482
P-1150
2570
F-8742
P-1110
F-11200
11211
6643
6648
6644
6642
6652
6656

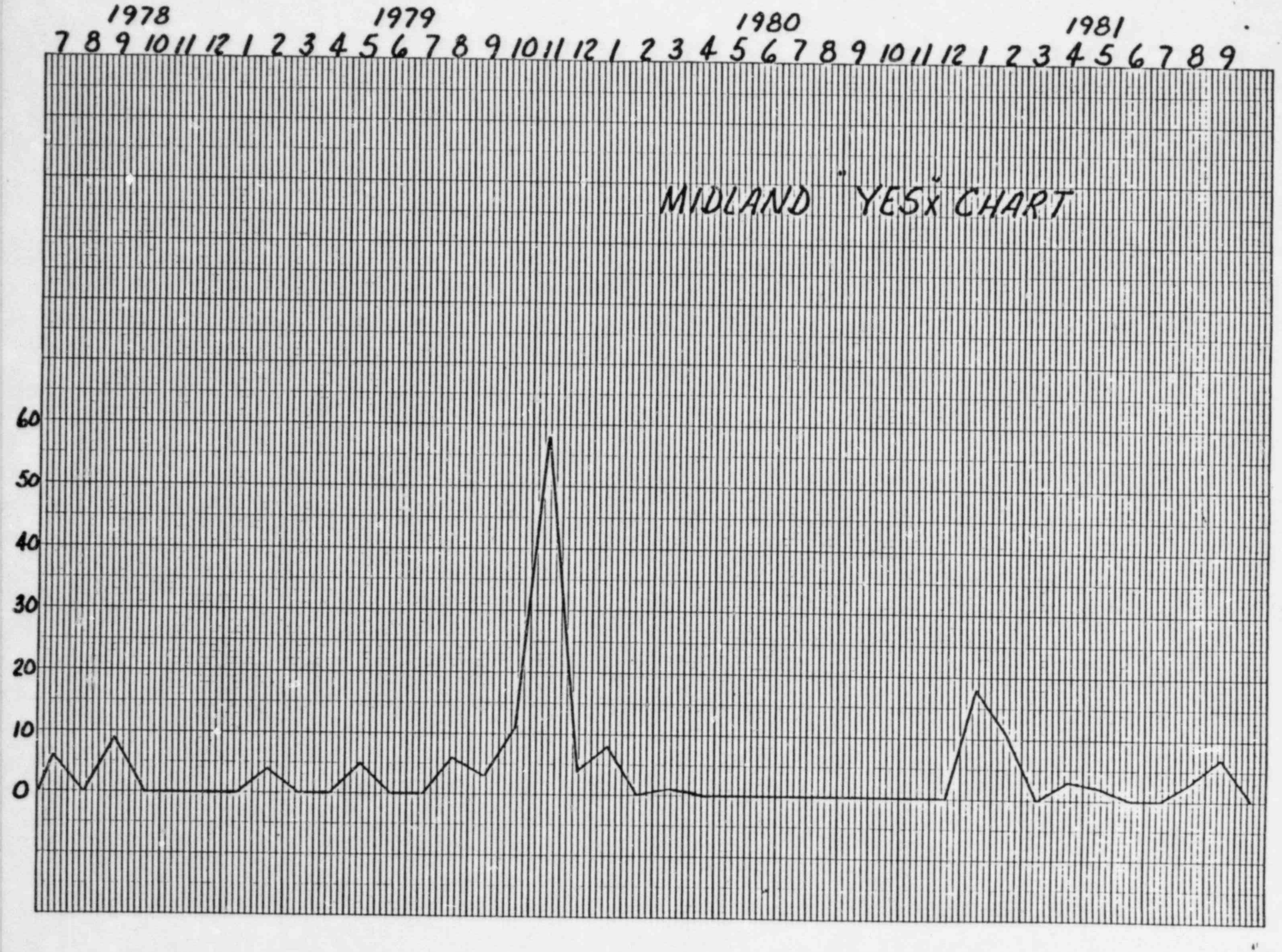
ATTACHMENT #6

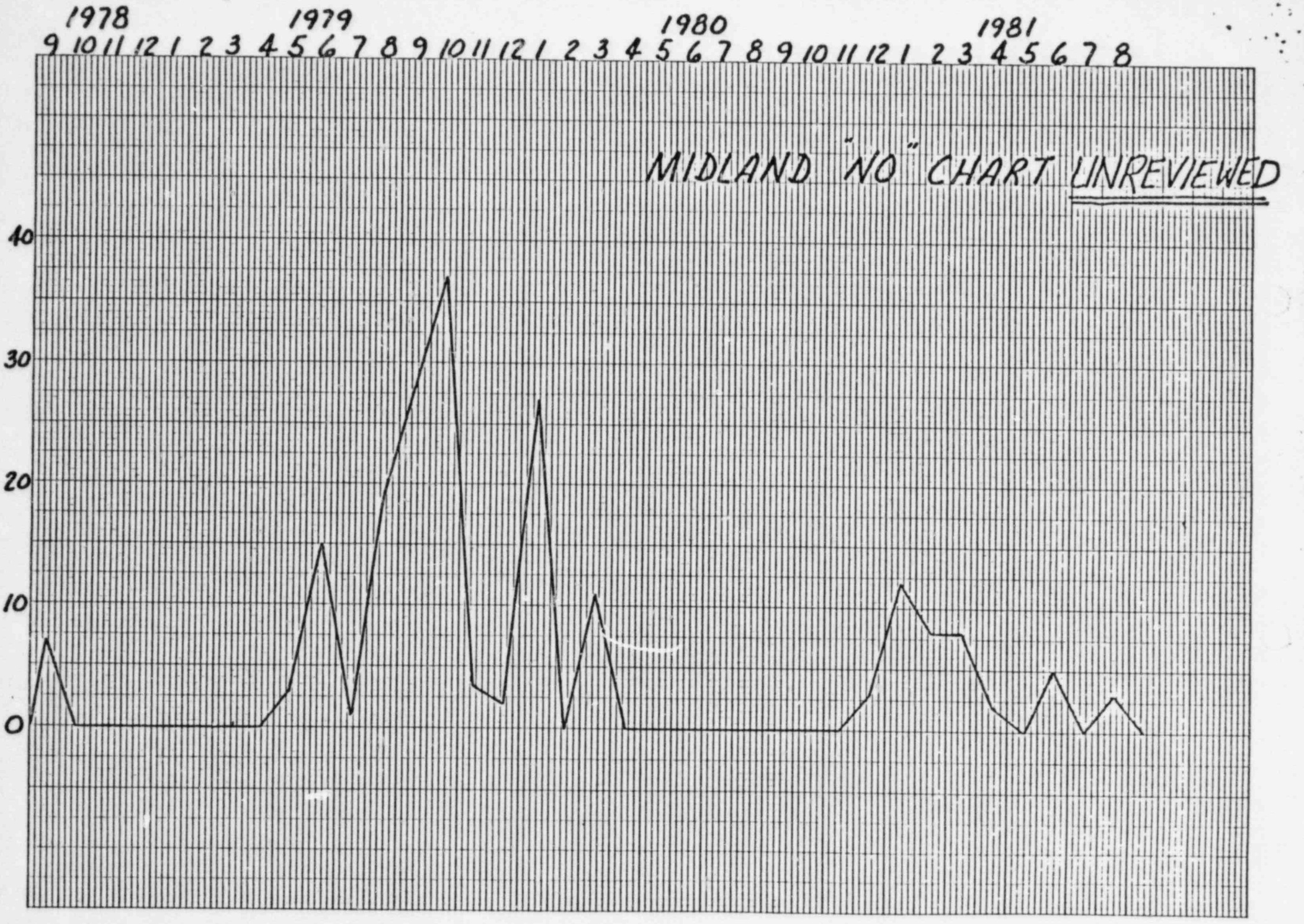
DISTRIBUTION BY DATE OF OCCURRENCE

OF

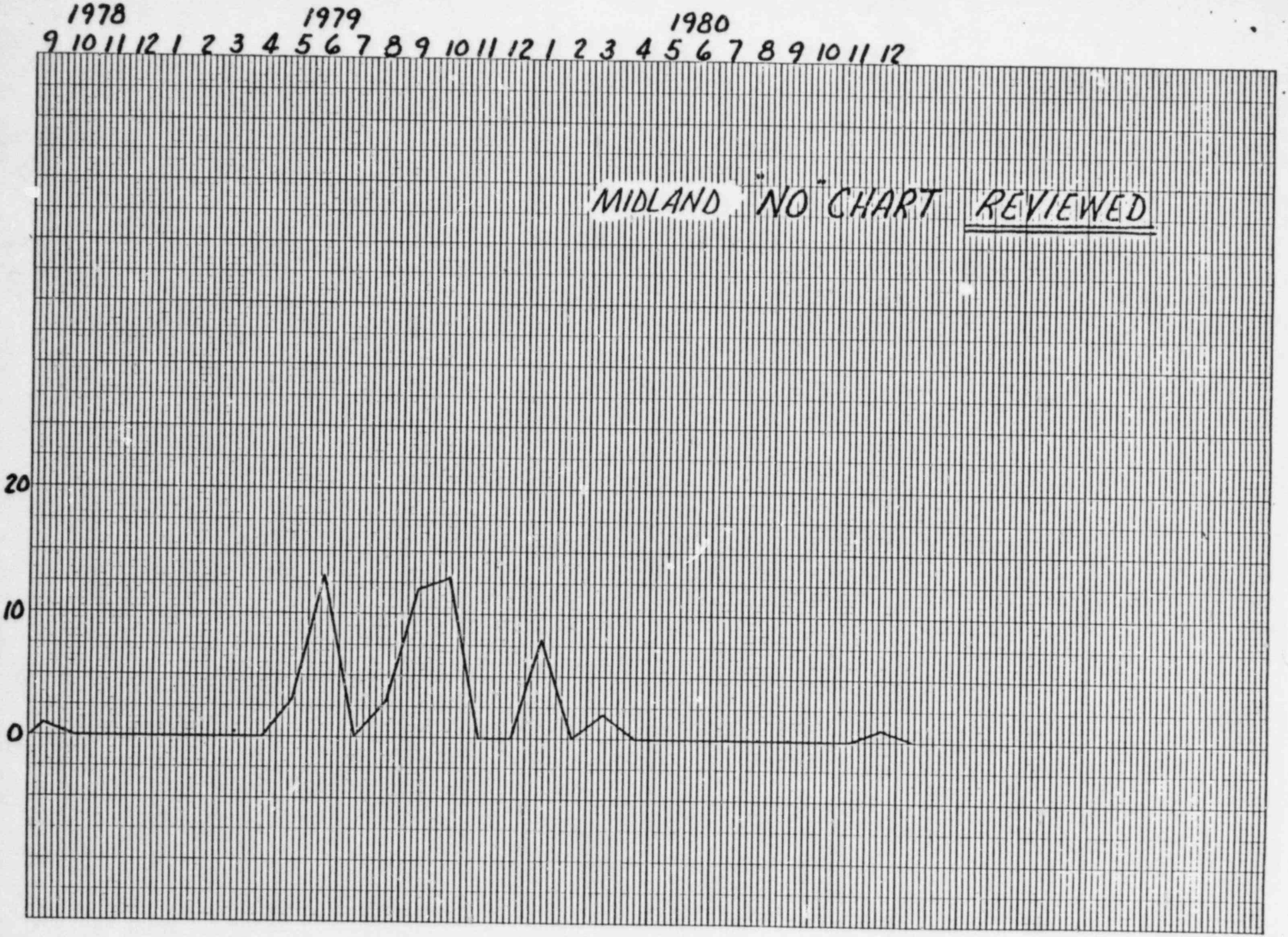
MIDLAND CLASS 1 DISCREPANT TRAVELERS

Sept. 28, 1982





46 1320



ATTACHMENT #7

WELDER MATRIX

Sept. 28, 1982

NAME	NO.	HIRE	TERM.	PLANT 2 WIRE ISSUE	GMAW CS	GMAW SS	GMAW CS/SS	SMAW CS	SMAW SS	SMAW CS/SS
H. Bartolino	14	2/1/78	6/25/78	N/A	2/3/78	N/A	N/A	N/A	N/A	N/A
T. Boyle	20	6/1/76	N/A	5/15/79-10/14/81	12/10/76	1/26/82	7/13/81	N/A	N/A	N/A
C. Byers	61	1/31/80	3/31/80	N/A	3/25/80	N/A	N/A	N/A	N/A	N/A
W. Collins	67	3/12/80	5/22/80	4/14/80-5/13/80	3/25/80	N/A	N/A	N/A	N/A	N/A
J. Dianis	9	7/31/78	9/2/79	N/A	3/2/79	N/A	N/A	N/A	N/A	N/A
L. Dickey	21	9/12/77	2/15/82	5/15/79-10/1/81	2/3/78	N/A	7/13/81	10/15/81	N/A	N/A
M. Drozdek	23	5/29/79	9/6/81	12/29/79-8/24/81	10/29/79	N/A	7/13/81	N/A	N/A	N/A
V. Genova	43	9/1 /79	2/ /80	N/A	10/29/79	N/A	N/A	N/A	N/A	N/A
K. Gibson	11	7/7/78	11/19/78	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Z. Golon	49	6/1/65	N/A	N/A	4/27/76	8/28/79	9/25/79	4/9/79	N/A	N/A
T. Gonzalez	34	9/30/69	N/A	5/15/79-10/15/81	4/22/76	1/26/82	7/13/81	4/22/76	2/25/82	N/A
C. Hoffman	1	6/9/76	1/11/81	N/A	6/22/76	N/A	N/A	6/22/76	N/A	N/A
J. Jacobs	64	2/18/80	8/31/80	3/27/80-8/27/80	3/25/80	N/A	N/A	N/A	N/A	N/A
V. Jordan	5	4/3/72	9/18/81	6/5/79-8/7/81	3/2/79	N/A	7/13/81	N/A	N/A	N/A
L. Kuzmin	6	6/1/76	2/19/82	11/7/79 2/5/80	10/29/79	N/A	N/A	6/1/77	N/A	N/A
M. Matkowich	12	1/10/78	12/28/81	5/15/79 8/26/81	2/3/78	N/A	7/13/81	N/A	N/A	N/A
R. Mech	59	1/13/80	4/4/80	3/26/80	3/25/80	N/A	N/A	N/A	N/A	N/A
D. Parker	11	12/7/78	1/7/79	N/A	3/2/79	N/A	N/A	N/A	N/A	N/A
S. Petkus	26	7/10/78	1/5/82	5/15/79-3/24/81	3/2/79	N/A	N/A	4/1/81	N/A	N/A
S. Place	52	11/4/79	10/7/81	N/A	3/25/80	N/A	N/A	N/A	N/A	N/A
. Purington	60	1/31/80	4/6/80	N/A	3/25/80	N/A	N/A	N/A	N/A	N/A
L. Quinn	9	5/27/80	N/A	7/10/80 10/5/81	7/8/80	1/26/82	8/28/81	N/A	N/A	N/A
L. Scott	63	2/8/80	N/A	8/4/80 10/14/81	7/8/80	1/26/82	7/13/82	N/A	N/A	N/A
. Smith	39	2/5/79	8/31/80	5/15/79-8/13/80	10/29/79	N/A	N/A	N/A	N/A	N/A
. Socha	30	9/8/78	10/19/80	N/A	1/22/80	N/A	N/A	N/A	N/A	N/A
. Sowa	56	3/31/80	6/29/80	5/1/80-6/11/80	4/17/80	N/A	N/A	N/A	N/A	N/A
L. Way	48	7/19/79	9/21/80	11/5/79-6/20/80	10/29/79	N/A	N/A	N/A	N/A	N/A
. Weiss	66	3/12/80	5/25/80	3/26/80-5/2/80	3/25/80	N/A	N/A	N/A	N/A	N/A
. Weyer	54	12/7/79	10/8/81	3/3/80-9/24/81	1/22/80	N/A	7/13/81	N/A	N/A	N/A
. Zogata	29	5/19/69	N/A	N/A	12/10/76	N/A	N/A	N/A	N/A	N/A

ATTACHMENT #8

CLEANER & INSPECTOR MATRIX

Sept. 28, 1982

CLEANER/INSPECTOR LIST

NAME	NO.	POSITION	HIRE	TERM.
S. Bilek	6	Cleaner	3/11/80	8/17/80
J. Bonsimore	14	Cleaner	8/30/78	2/17/80
E. Bryson	65	Cleaner	3/11/80	8/17/80
T. Burton	43	Cleaner	4/01/80	7/06/80
R. Diaferia	55	Cleaner	9/14/78	3/22/81
C. Eichstaedt	N/A	Q.A.	1/07/78	N/A
J. Fitzpatrick	22	Cleaner	3/29/71	N/A
J. Friskenstein	?	Cleaner	9/18/79	9/24/79
H. Geyer	N/A	Q.C.	8/66	N/A
A. Hansen	Gary	Cleaner	1/24/80	4/02/80
D. Hanslor	59	Cleaner	4/16/80	8/31/80
D. Ireton	11	Cleaner	5/16/79	11/25/79
E. Jerzak	32	Cleaner	8/23/78 11/03/80	8/10/80 3/22/81
M. Johnson	25	Cleaner	9/15/78	N/A
M. Kelly	?	Cleaner	2/16/81	3/19/82
P. Klecki	57	Cleaner	4/07/80	5/15/80
S. Lanasa	?	Cleaner	2/28/78	4/23/78
M. Lilja	15	Cleaner	6/13/79	N/A
J. Lott	33	Cleaner	?	N/A
J. McElroy	45	Cleaner	5/07/79	11/03/80
J. McGuin	44	Cleaner	1/21/80	3/22/80
J. Michalik	N/A	Q.C.	2/29/80	1/17/82
R. Miklos	51	Cleaner	12/03/79	8/03/80
R. Morency	8	Cleaner	8/10/78	12/28/80
L. Pabisinski	50	Cleaner	9/17/79	N/A
D. Richards	35	Q.C.	6/01/78	N/A
D. Rychell	4	Cleaner	4/29/74	7/09/82
K. Schaeffer	N/A	Q.C.	8/18/80	4/23/82
D. Schultz	61	Cleaner	11/30/70	5/04/80
J. Spychalski	3	Cleaner	5/76	N/A
E. Thompson	N/A	Q.C.	11/07/77	11/02/80

ATTACHMENT #9

STATEMENT OF THOMAS BOYLE

Sept. 28, 1982

STATEMENT OF THOMAS BOYLE

My name is Thomas Boyle. From approximately May 1979 to October 1981 I was the General Foreman of Plant No. 2.

During the time period when the Xerox copy of the yellow copy of the traveler was sent over to Plant No. 2, I would give Bud Prim a slip of paper containing or orally give him information with respect to who did the welding.

The initials which appear on the Xerox copies of the yellow copy are not necessarily the initials of the person doing the welding. The information on the Xerox copy was an effort to keep track of what was done to the material while in plant No. 2. Therefore, the initials on the Xerox copy could be the initials of persons, including welders, who did cleaning or shipping. Therefore, it is impossible to tell just by looking at the Xerox copy who did welding, cleaning or shipping. Also, these Xerox copies are not the official records. The official records are the actual yellow copies retained by Zack.

At the time I attempted to discard the Xerox copies, I did so because these records were not the official records and I did not feel we had any obligation to retain them. Also, I felt that because I knew that there were initials of persons on the Xerox copies who may not have done welding and who may have done cleaning or shipping and because there was no way to tell by looking at the Xerox copies who did what, I thought the Xerox copies would cause unnecessary confusion. I talked to Bud Prim. He agreed that these records were not the official records and that Zack had no obligation to retain them and that they would cause unnecessary confusion. Bud Prim agreed that I should discard them.

Dated: August 27, 1982

Thomas P. Boyle

Thomas Boyle

ATTACHMENT #10

STATEMENT & QUALIFICATION RECORDS

of

KENNETH GIBSON

Sept. 28, 1982

August 27, 1982

To Whom It May Concern:

The following are the jobs and/or training I have had as a Sheetmetal Welder.

1. Attended adult evening school in Joliet for welding class.
2. Started working for Zack in 1966-67 (approximately 18 months).
3. Worked for R. B. Heyworth for 3 or 4 months.
4. Back to Zack - worked at Republic Steel job and at U. S. Steel.
5. Took union welding test in 1977.
6. Worked for Babcock and Wilcox at Morris Station Power House in Joliet (visual test).
7. Worked at Pullman Sheetmetal and took tests for them. Did not get results of tests but they should have copies.
8. Worked for Peerless Sheetmetal Co.
9. Worked for E. F. Guafstson in Skokie.
10. Worked for Merchants Sheetmetal Co. in Chicago.
11. Took visual tests for R. Irsay Company.
12. Working in Clinton Power Station for 20 months.

Kenneth Gibson

Kenneth Gibson

Att: Certifications

CERTIFICATE

OF

TEST AND APPROVAL OF WELDING PROCESS

AND

QUALIFICATION OF OPERATOR OF WELDING EQUIPMENT

PITTSBURGH TESTING LABORATORY, has witnessed the welding and testing of test specimens welded by an employee of

National Training Fund
for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405
Washington, D. C.
in accordance with

American Society of Mechanical Engineers
Boiler and Pressure Vessel Code, Section IX,
1974 Edition plus Addenda through Summer 1976

Welding Operator Kenneth Gibson SS# - No. 347-28-0161

Welding Process Shielded Metal Arc

Operator Tested

This is to certify that the Welding Technic used in this test and described in SPECIFICATIONS FOR WELDING PROCESS No. PG-4690 and the results of the test given in PHYSICAL TEST REPORT No. 772675 complied with the requirements of the above code within the following limitations.

Maximum Plate or Wall Thickness 3/4"
Minimum Plate or Wall Thickness 1/16"
Welding Positions Flat, OH & Horiz.
Other Limitations Fillet & Groove

Remarks Group No. P1 to P1

No.

Order No. PG-4690

File No.

Approved 2-7-77

PITTSBURGH TESTING LABORATORY

By Earl Gallagher
DIRECTOR

ESTABLISHED 1900

PITTSBURGH, PA.

AS A MUTUAL PROTECTION TO CLIENTS THE PUBLIC AND OURSELVES, ALL REPORTS ARE SUBMITTED AS THE CONFIDENTIAL PROPERTY OF CLIENTS, AND AUTHORIZATION FOR PUBLICATION OF STATEMENTS, CONCLUSIONS OR EXTRACTS FROM OR REGARDING OUR REPORTS IS RESERVED PENDING OUR WRITTEN APPROVAL.

Lab No. 772675
Order No. PG-4690
Date 2/7/77

PHYSICAL TEST REPORT OF WELDER PERFORMANCE QUALIFICATION TESTS

Client: National Training Fund, for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405, Washington, D. C. 20036 Attn: J. R. Olejnicza

Welder Name Kenneth Gibson S. S. ~~No.~~ 347-28-0161 Stamp No. 44

Welding Process SMAW

Position (For vertical weld state whether upward or downward) Overhead & Horizontal Grooves
(For Plate: Flat, horizontal, vertical, or overhead; For Pipe: Axis of pipe vertical, horizontal fixed or horizontal rolled).

In accordance with Procedure Specification No. ASME Section IX 1974 Edition

Material – Specification SA36 to SA36 of P-No. 1 to P-No. 1

Diameter and Wall Thickness (if pipe) otherwise Joint Thickness 3/8" Plate

Thickness Range this qualifies 1/16" to 3/4"

Filler Metal

Specification No. ASME SFA-5.1

Describe Filler Metal E7018

Is Backing Strip Used? Yes

– For Information Only –

Filler Metal Diameter and Trade Name 1/8" & 3/32" Lincoln Manual Flux for Submerged Arc or Gas for Inert Gas Shielded Arc Welding Multipass

Above Information by: PTL [X] Client [ ] Other

Preparation of specimen witnessed by PTL Yes [X] No [ ]

Guided Bend Test Results

Overhead		Horizontal	
TYPE AND FIGURE NO.	RESULT	FIGURE NO.	RESULT
4G Face Bend	PASSED	2G Face Bend	PASSED
4G Root Bend	PASSED	2G Root Bend	PASSED

Test Witnessed by PITTSBURGH TESTING LABORATORY Test No. 1811

per J. Kalman

Results of tests (do) ~~(do not)~~ meet requirements of AMERICAN SOCIETY OF MECHANICAL ENGINEERS, BOILER

Remarks AND PRESSURE VESSEL CODE, SECTION IX, 1974 EDITION
PLUS ADDENDA THROUGH SUMMER, 1976

PITTSBURGH TESTING LABORATORY

By Ed Hoffman

CERTIFICATE

OF

TEST AND APPROVAL OF WELDING PROCESS

AND

QUALIFICATION OF OPERATOR OF WELDING EQUIPMENT

PITTSBURGH TESTING LABORATORY, has witnessed the welding and testing of test specimens welded by an employee of

National Training Fund
for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405
Washington, D. C.
in accordance with

American Welding Society
Structural Welding Code D1.1-75

Welding Operator Kenneth Gibson SS# No. 347-28-0161

Welding Process Shielded Metal Arc

Operator Tested

This is to certify that the Welding Technic used in this test and described in SPECIFICATIONS FOR WELDING PROCESS No. PG-4690 and the results of the test given in PHYSICAL TEST REPORT No. 772675 complied with the requirements of the above code within the following limitations.

Maximum Plate or Wall Thickness 3/4" Max.*
Minimum Plate or Wall Thickness Not Limited
Welding Positions Flat, OH & Horiz.
Other Limitations Fillet & Groove
*Fillet Not Limited

Remarks AWS A5.1 Electrode

No.

Order No. PG-4690

File No.

Approved 2/7/77

PITTSBURGH TESTING LABORATORY

By Earl Gallagher
DIRECTOR

Lab No. 772675
Order No. PG-4690
Date 2/7/77

PHYSICAL TEST REPORT OF WELDER PERFORMANCE QUALIFICATION TESTS

Client: National Training Fund for the Sheet Metal & Air Conditioning Industry
1900 L Street, N. W., Suite 405, Washington, D. C. 20036 Attn: J. R. Olejnic

Welder Name Kenneth Gibson S. S. No. 347-28-0161 Stamp No. 44

Welding Process SMAW

Position (For vertical weld state whether upward or downward) Overhead & Horizontal Grooves
(For Plate: Flat, horizontal, vertical, or overhead; For Pipe: Axis of pipe vertical, horizontal fixed or horizontal rolled).

In accordance with Procedure Specification No. AWS D1.1-75

Material – Specification A36 to A36 of P-No. to P-No.

Diameter and Wall Thickness (if pipe) otherwise Joint Thickness 3/8" Plate

Thickness Range this qualifies 3/4" Maximum

FILLER METAL

Specification No. AWS A-5.1

Describe Filler Metal E7018

Is Backing Strip Used? Yes

– For Information Only –

Filler Metal Diameter and Trade Name 1/8" & 3/32" Flux for Submerged Arc or Gas fo. Inert Gas Shielded Arc Welding Lincoln Manual Multipass

Above Information by: PTL ☒ Client ☐ Other

Preparation of specimen witnessed by PTL Yes ☒ No ☐

GUIDED BEND TEST RESULTS

Overhead

TYPE AND FIGURE NO.	RESULT
4G Face Bend	PASSED
4G Root Bend	PASSED

Horizontal

FIGURE NO.	RESULT
2G Face Bend	PASSED
2G Root Bend	PASSED

Test Witnessed by PITTSBURGH TESTING LABORATORY Test No. 1811-F

per J. Kalman

Results of tests (do) (~~do not~~) meet requirements of AMERICAN WELDING SOCIETY

Remarks STRUCTURAL WELDING CODE D1.1-75

PITTSBURGH TESTING LABORATORY

By Ed Hackney

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

(2) Midland B.C. File

RIII

May 24, 1983

PRINCIPAL STAFF		
RA		
D/RA		
A/RA		
DPRP		
DRMA		
DRMSP		
DE		
ML		
OL	FILE	

Docket Nos. 50-329 OM,OL
50-330 OM,OL

MEMORANDUM FOR: The Atomic Safety and Licensing Board for the Midland Plant, Units 1 and 2

FROM: Thomas M. Novak, Assistant Director for Licensing
Division of Licensing

SUBJECT: VIOLATION OF HOLD TAG DURING REMEDIAL UNDERPINNING CONSTRUCTION (Board Notification BN #83-70)

In accordance with NRC procedures regarding Board Notifications, the enclosed memorandum is being provided for your information as material and relevant to quality assurance issues before the Board in the OM-OL hearing. The information concerns continued construction activities on underpinning pier KC-2 located beneath the north-east portion of the Turbine Building despite the existence of a nonconformance report and hold tag. The NRC is reviewing this matter with respect to the effectiveness of existing procedures to control quality.

TM Novak

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

Enclosure:
As stated

JUN 3 1983

3pp

~~8306080019~~

MIDLAND (For BNs)

Mr. J. W. Cook
Vice President
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

cc: Stewart H. Freeman
Assistant Attorney General
State of Michigan Enviornmental
Protection Division
720 Law Building
Lansing, Michigan 48913

Mr. Roger W. Huston
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Nuclear Power Generation Division
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7910 Woodmont Avenue, Suite 220
Bethesda, Maryland 20814

Mr. Don van Farrowe, Chief
Division of Radiological Health
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Lansing, Michigan 48909

U.S. Nuclear Regulatory Commission
Resident Inspectors Office
Route 7
Midland, Michigan 48640

Mr. Paul A. Perry, Secretary
Consumers Power Company
212 W. Michigan Avenue
Jackson, Michigan 49201

Mr. Walt Apley
c/o Mr. Max Clausen
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SIGMA IV Building
Richland, Washington 99352

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NRC Assistance Project
Argonne National Laboratory
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Argonne, Illinois 60439

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Glen Ellyn, Illinois 60137

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6545 Mercantile Way
P.O. Box 30221
Lansing, Michigan 48909

Mr. Paul Rau
Midland Daily News
124 McDonald Street
Midland, Michigan 48640

Billie Pirner Garde
Director, Citizens Clinic
for Accountable Government
Government Accountability Project
Institute for Policy Studies
1901 Que Street, N.W.
Washington, D. C. 20009

Commander, Naval Surface Weapons Center
ATTN: P. C. Huang
White Oak
Silver Spring, Maryland 20910

Mr. L. J. Auge, Manager
Facility Design Engineering
Energy Technology Engineering Center
P.O. Box 1449
Canoga Park, California 91304

Mr. Neil Gehring
U.S. Corps of Engineers
NCEED - T
7th Floor
477 Michigan Avenue
Detroit, Michigan 48226

Geotechnical Engineers, Inc.
ATTN: Dr. Steve J. Poulos
1017 Main Street
Winchester, Massachusetts 01890

DISTRIBUTION LIST FOR BOARD NOTIFICATION

Midland Units 1&2,
Docket Nos. 50-329/330

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Board Panel
Atomic Safety and Licensing
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

May 24, 1983

PRINCIPAL STAFF			
RA		ENF	
D/RA		SCS	
A/RA		PAO	
DPRP		SLO	
DRMA		TC	
DRMSP			
DE			
ML			
OL		FILE	

Docket Nos. 50-329
and 50-330

MEMORANDUM FOR: The Atomic Safety and Licensing Board for the Midland Plant, Units 1 and 2

FROM: Thomas M. Novak, Assistant Director for Licensing
Division of Licensing

SUBJECT: FOLLOWUP EVALUATION AND RESOLUTION TO BOARD NOTIFICATION BN-83-21 (BN-83-21C)

On February 18, 1983, the NRC staff issued Board Notification BN-83-21. That notification identified information on the effectiveness of auxiliary feedwater spray that was potentially significant with respect to achieving and maintaining natural circulation in B&W designed reactors. The notification also stated the importance of operating procedures and operator training in assuring that a sufficient condensing surface is established in the steam generators under all design basis conditions.

The NRC has subsequently completed an evaluation of this concern, first for Three Mile Island Unit One and then for all other B&W designed plants. Our evaulation is enclosed and concludes that the information does not adversely affect the ability of these plants to achieve and maintain decay heat removal by natural circulation through the steam generators under transient and accident conditions. The staff also finds that procedures for loss-of-coolant and natural circulation provide reasonable assurance that the operators will increase steam generator levels to 95 percent of the operating range under conditions for which it is necessary to establish natural circulation.

Accordingly, the potential concern expressed by Board Notification BN-83-21 is considered resolved.

Thomas M. Novak, Assistant Director
for Licensing
Division of Licensing

Enclosure:
As stated

cc w/enclosures:
Board/Licensee Service List

JUN 2 1983

8306020611 388

MIDLAND (For BNs)

Mr. J. W. Cook
Vice President
Consumers Power Company
1945 West Parnall Road
Jackson, Michigan 49201

cc: Stewart H. Freeman
Assistant Attorney General
State of Michigan Enviornmental
Protection Division
720 Law Building
Lansing, Michigan 48913

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