P466/D3

CRITERIA FOR THE DESIGN OF SAFETY RELATED SURVEILLANCE INSTRUMENTATION IN NUCLEAR POWER GENERATING STATIONS

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Draft 3 Oct. 22, 1976

Criteria for the Design of Safety Related Surveillance Instrumentation in Nuclear Power Generating Stations.

1. SCOPE

This standard establishes minimum design criteria for permanently installed surveillance instrumentation that serves a safety related function during normal plant operation or during those time intervals when the station is that down. Plant protective and post accident monitoring functions are not included. Instrumentation addressed in this document is that which is necessary to enable the operator to:

- a. Determine that plant operating conditions are within the limits assumed for the safety analysis of the plant (for example, control rod position indicators).
- b. Determine that safety system status is maintained within the limits required to ensure minimum system performance if needed. (For example, emergency core cooling accumulator pressure and level).
- c. Verify that the performance of safety system equipment is acceptable during functional testing.
- d. Determine safety system bypass status.
- e. Verify that routine release rates and total releases of radioactive plant effluents are within the limits established for plant operation.

2. DEFINITIONS

RG1.47

- 2.1 Safety Related Surveillance Instrumentation-Information display channels, including alarms, which provide to the station operating personnel information related to safety system status and those plant operating conditions which are subject to safety limitations, as defined in the scope of this standard. These display channels will be referred to as "surveillance" throughout this document.
- 2.2 Information Display Channel An arrangement of electrical and mechanical components and/or modules from measured process variable to display device as required to sense and display conditions within the generating station.
- 2.3 Modules Any assembly of interconnected components which constitutes an identifiable device, instrument, or piece of equipment. A module can be disconnected, removed as a unit, and replaced with a spare. It has definable performance characteristic which permit it to be tested as a unit. A module could be a card or other sub-assembly of a larger device, provided it meets the requirements of this definition.

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2.4 Safety Systems - The collection of systems required to mitigate the consequences of design basis events.

NOTE: The safety system is the aggregate of a protection system and a protective action system. It includes the engineered safety features, the reactor trip system and the auxiliary supporting features.

2.5 Margin - The difference between the most severe service conditions and the conditions used in design to account for uncertainties in defining performance requirements during normal plant operation.

3. DESIGN BASIS

A specific surveillance system design basis shall be provided for each nuclear power generating station. The information thus provided shall be available, as needed, for making judgments on safety related system functional adequacy. The design basis shall document, as a minimum, the following:

- a. The generating station process variables (for example, pressure, flow, gamma, etc.) that are required to be monitored.
- b. The generating station equipment (for example, valves, switchgear) for which status is required to be monitored.
- c. The minimum number and location of information display channels required to monitor adequately those items covered in 3 a. and b.
- d. Operational limits and margins for those items listed in 3 a. and b.
- e. The range of transient and steady state conditions of energy supply and environment (e.g. voltage, humidity, etc.) throughout which the surveillance instrumentation must perform.
- f. Minimum performance requirements including the following:
 - response time.
 - 2. accuracy
 - 3. range
- g. The type of display required for each information display channel (e.g. indicator, recorder, status light, alarm).

4. DESIGN REQUIREMENTS

4.1 General Functional Requirement - The nuclear power generating station surveillance instrumentation shall perform its function with precision and reliability. This requirement applies for the range of conditions specified in sections 3 d. and 3 e.

4.2 Failure Criterion - The surveillance instrumentation need not be designed to withstand postulated single failures which could result in the loss of the surveillance instrumentation function if such failures are detectable.

A failure can be detected by using redundant or functionally equivalent (diverse) information channels, including alarms, that are electrically independent, as explained in requirement 4.6 below. In this case a failure can be detected by comparing one channel output against the other channel output (in addition to periodic testing of these channels). Alternatively, a failure can be detected by using a single information channel whose display can be verified by supplementary means (e.g. by visual inspection of levels or valve positions or by laboratory sample analysis) or by a testing program which can be shown to provide acceptable reliability of the display information.

The choice of using either a single channel or redundant or diverse channels must be made with due consideration of the complexity and frequency of testing of a single channel and the convenience detainable by using redundant or diverse channels.

A single failure includes such events as the shorting or open-circuiting of interconnecting signal or power cables. It also includes single credible malfunctions or events that cause a number of consequential component, module, or channel failures. For example, the overheating of an amplifier module is a single failure even though several transistor failures result. Mechanical damage to a mode switch would be a single failure although several channels might become involved.

- 4.3 Quality of Components and Modules Components and modules shall be of a quality that is consistent with minimum maintenance requirements and low failure rates for its intended service. This shall be achieved through the specification of requirements known to promote these characteristics such as requirements for design, manufacturing, quality control, inspection, calibration, and test, the derating of components, or the use of existing components with favorable operating history.
- 4.4 Equipment Qualifications Type test data, manufacturers data, or reasonable engineering extrapolation from test data or operating history shall be available to verify that the surveillance instrumentation shall meet on a continuing basis, its performance requirements.
- 4.5 Channel Integrity All surveillance instrumentation shall be designed to maintain functional capability throughout the range of conditions relating to environment and energy supply specified in Section 3e. Surveillance instrumentation need not be designed to maintain functional capability following a seismic event or other

potentially damaging event, provided that the plant can be put into a condition where the instrumentation is not required or maintenance can be performed within a time frame consistent with the need for the displayed information.

4.6 Separation Criterion - Where the requirements of Section 4.2 are met by the use of redundant or diverse information display channels, those channels that provide the same function shall be electrically independent to accomplish decoupling of the effects of electrical transients and to reduce the likelihood of interaction between channels during maintenance operations or in the event of equipment malfunction. An exception to electrical independence may be made for diverse channels if it can be shown that no single electrical fault can cause the channels to give consistent but erroneous information.

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Redundant or diverse channels need not be physically separated provided that, should damage to the channels occur, the plant can be put into a condition where they are not required or that maintenance can be performed in a time frame consistent with the need for the displayed information.

- 4.7 Instrumentation Channels with Multiple Functions If the surveillance instrumentation is also used for functions outside the scope of this standard, it should meet the requirements consistent with the function most important to safety.
- 4.8 Derivation of System Inputs To the extent feasible and practical, inputs to surveillance instrumentation channels shall be derived from signals that are direct measurements of the desired variables.
- 4.9 Power Source Surveillance instrumentation need not be capable of operating independent of off-site power availability if the plant can be put in a condition where the instrumentation is not required following a loss of off-site power.
- 4.10 Capability of Sensor Checks For those sensors which must function during a normal mode of operation, means shall be provided for checking, with a high degree of confidence, their operational availability. This may be accomplished in various ways, for example:
 - a. by varying and observing the response of the monitored variable; or
 - by introducing and varying, as appropriate, a substitute input to the sensor of the same nature as the measured variable; or
 - c. by cross-checking between redundant or diverse information channels.

- 4.11 Capability for Test and Calibration Capability shall be provided for testing and calibrating the surveillance instrumentation channels. Where the required time interval between testing is less than the normal time interval between generating station shutdowns, there shall, to the maximum extent possible, be capability for testing during power operation.
- 4.12 Channel Bypass or Removal from Operation The surveillance instrumentation need not be provided with redundancy to allow bypass and maintenance of one channel during power operation provided that, should maintenance be required:
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- a. the plant can be brought to a condition where the channel is not needed.
- b. The maintenance can be performed in a time frame consistent with the need for the displayed information, or
- c. other means exist for obtaining the displayed information.
- 4.13 Access to Means for Bypassing The design shall permit the administrative control of the means for manually bypassing the surveillance instrumentation.
 - 4.14 Access to Set-Point Adjustments, Calibration and Test
 Points The design shall permit the administrative
 control of access to all set-point adjustments, equipment calibration adjustments, and test points.
 - 4.15 Identification of Redundant Channels If the design basis required physical separation of redundant or diverse surveillance instrumentation channels, identification shall exist to distinguish between the redundant or diverse channels. Components or modules mounted in installed assemblies that are clearly identified as being part of a surveillance instrumentation channel do not themselves require identification.

1. The intended purpose and application of this standard is not clear.

The question arises from the use of safety-related. Section 7.5 of the Standard Format and Content for Safety Analysis Reports states that safety-related display instrumentation (SRDI) "provides information to enable the operator to perform required safety function." Section 7.5 of the Standard Review Plan identifies the criteria for SRDI. These include IEEE Std 279-1971 and the other requirements for Class 1E equipment. For postaccident monitoring (a subset of SRDI) certain requirements for Class IE (e.g., seismic qualification) have been modified. Otherwise, all SRDI must conform to 1E criteria, these include system bypass status information, permanently installed safety system functional testing instrumentation and instrumentation for monitoring safety system operability. Furthermore, in reading Section 4, it seems that the titles from IEEE 7td 279-1971 have been restated and the criteria changed from positive to negative. That is the functional requirements which are not required are identified. Thus, it would appear that this standard is an indistinct attempt to establish diluted criteria for safety-related instrumentation and is directed solely at the licensing process. Little consideration is given to improving nuclear power plant reliability and/or safety. Two major changes in direction should be made. First the term safety-related should be deleted and the scope should be in line with Comment 2. Second, the standard should take an approach similar to P-603. That is it should address surveillance instrumentation systems.

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2. Section 1 - Scope

The scope should be directed towards improving plant reliability by providing better information to the operator and thus enhancing safety. A copy of the scope for the classification Beta digital computer systems standard currently being developed by ANS 4.3.3 is attached. The underlined portions regarding reliability, maintaining the plant within normal limits and enhancement of safety are particularly applicable to surveillance instrumentation. Furthermore, one application for the Beta standard is the computer based CRT display systems. Such systems could also be included in safety-related surveillance instrumentation (SRSI) systems. Therefore, some effort should be made to ensure compatibility between the standards.

3. Section 3 - Design Basis

The design basis do not include the operator/system interface requirements.

This interaction is a key element in surveillance systems. The scope (and Comment I above) imply this. However, after the scope, this aspect is not clearly incorporated into the standard. The operator/system interface should be considered throughout. For example, the design basis should include the requirements for the operator requirements such as short term, long term, or immediate response. (Reference 1, 2 3, 4, and 5 provide some additional information). Including the operator's actions would also be in keeping with on-going work by IEEE and ANS regarding operator actions and control room design.

4. Section 4.3 - Quality of Components and Modules

This section should incorporate reliability design goals such as MTTR, MTBF, and availability. There is extensive work going on to collect and catalogue data by IEEE, EPRI, and EEI. Also most instrument manufacturers have reliability data which they use in determining manufacturing, marketing and servicing approaches. Reliability and availability goals are being incorporated into the BETA standard (Comment 2).

5. Section 4 - Design Requirements

In conjunction with Comments 1 and 2, this section should include positive statements of the design requirements. Also, the design requirements to saitsfy the operator/system interface design basis should be incorporated. For example, depending on the operator actions required, immediate response, short term response, etc., the design requirements for a given surveillance instrumentation system signal might require an annunciator, indicator, recorder, or combination of several types of diaplay. The design requirements and bases should also require identification and justification of diverse signals.

TE. W. Hagan, "Human Reliability Analysis, "Nuclear Safety, Volume 17, No. 3, May-June, 1976.

Willaim G. Milam, George J. Peterman and Michael D. Sulouff, "Advanced Concepts in Control Room Planning", 16th ISA Power Instrumentation Symposium, 1973, Chicago, Illonoise.

Gadi Juplan, "Power Plant Controls: Display, Computers and Man", IEEE Spectrum, Novemb , 1974.

⁴R. Dallimonti, "Human Factors in Control Center Design", Instrumentation Technology, May, 1976.

Jose A. Calvo and R. T. Jones, "A More Efficient Control Room Operator Process Interface", IEEE/ASME Joint Power Generation Conference, St. Louis, Missouri, September, 1971.

SCOPE

This standard establishes minimum criteria for the design, development, and implementation of classification Beta digital computer systems for nuclear power generating stations. For the purposes of this standard, classification Beta comprises digital computer systems that are not used for, or as part of, the nuclear reactor plant safety systems but whose failure or misoperation would reduce plant availability or capacity factor. These Beta systems are used for critical applications within the nuclear power plant such that, in case of failure of the computer system, insufficient time would exist for an operator to independently perform its functions and/or evaluate its results. Proper functioning of the Beta system will provide increased assurance that the nuclear plant operation will remain within the range of normal limits, with a corresponding enhancement of safety.* The minimum requirements established by this standard are for the digital computer system hardware and programs, and include the specifications and functional requirements, design and integration, testing and ceritification, modification, and documentation of the systems.

^{*}Examples of such applications are: direct digital control of the reactor, operating setpoint control, operator guidance, annunciator control and alarm analysis.

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June 18, 1979

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Mr. Bruce T. Lunden
Staff Director
President's Commission on the
Accident at Three Mile Island
2100 M Street, N.W.
Washington, D.C. 20037

Dear Mr. Lunden:

This is written in response to your May 22, 1979 letter requesting information from this office concerning our activities during the Three Mile Island accident.

- 1. Enclosed is a copy of the Bureau's response plan for Three Mile Island. The General Plan was rewritten in 1977. The Three Mile Island Annex was written in 1974. All Annexes to the Plan are written in "Draft" form since they are routinely changed to update personnel and telephone numbers. The original "Pennsylvania Plan for the Implementation of Protective Action Guides" (PAPIPAG) was written in 1973. It was completely revised in 1977. This plan is intended to address Bureau operations only.
- 2. This organization was contacted by the Pennsylvania Emergency Management Agency (PEMA) duty officer (Clarence Delier) at 7:03 a.m. on March 28. The Bureau's duty officer for the month was William Dornsife, Nuclear Engineer, who was at home at the time. Mr. Dornsife was informed that TMI had contacted the PEMA duty officer at 7:01 a.m. and that a site emergency had been declared. TMI had requested that the Bureau call Unit 2 control room as per standard procedures. Mr. Dornsife first contacted Ms. Margaret Reilly, Chief, Division of Environmental Radiation, to inform her of the incident and request that she and other staff members proceed to the office immediately. At approximately 7:05 a.m. Mr. Dornsife called the TMI switchboard and was unable to be connected to the Unit 2 control room. He was contacted at home by Unit 2 control room at 7:06 a.m.

In general, they stated that a site emergency had been declared, high radiation levels were present in the plant and that they may have had a small loss of coolant accident. The leakage was stopped and the plant was stable and being cooled normally. In addition, on-site surveys found no detectable radiation levels above background. Other information relating to plant status was obtained to assure that conditions were stable. No recommendation was made for protective actions for off-site populations. While on the phone, Mr. Dornsife remembers hearing a public address announcement to evacuate the fuel handling and auxiliary building. He was then transferred to a plant health physicist who verified out-of-plant radiation levels. The individual then said he had to go--"I'll call you back"--, and hung up. Mr. Dornsife proceeded into the office as per the plan.

By that time, Ms. Reilly had contacted Thomas Gerusky, Director of the Bureau, to inform him and to request that he leave for the office. She also called Kevin Malloy, Dauphin County Emergency Management Director, to inform him of the accident and suggest that he head for his office.

Mr. Thomas Gerusky was the first to reach the office, contacted TMI at 7:25 a.m. by telephone and established an open line with Unit 2 control room. Its. Reilly arrived momentarily and Mr. Dormife followed within 10 minutes. A summary of the information obtained from the control room (taken from notes and recall is as follows:

There was a site emergency at Unit 2--steam generator failure, primary to secondary leak and loop isolated. At approximately 7:30 a.m. a general emergency was declared because of a high reading of 800 R/hr in the reactor containment building. The unit had been shut down, there was some failed fuel, the high pressure injection system was initiated, some primary coolant was lost and high radiation areas in the auxiliary building.

With the dome monitor reading 800 R/hr, the procedure is to estimate off-site doses in the event of a leak in the containment building. Assuming a 0.2% leak rate and the wind out of 30°, the estimated exposure on the west side of the river was 10R/hr from a reference containment atmosphere mix. A State Police helicopter was at the site and the Bureau requested that TMI survey teams be flown across the river to establish the exposure rate.

Meanwhile, other Bureau of Radiation Protection staff were in contact with the Pennsylvania Emergency Management Agency to notify them of the reactor condition, that an evacuation of an area southwest of the plant in York County (between Goldsboro and York Haven) was a possibility and that York County should be alerted. A few minutes later it was verified that no radiation levels above background were detectable. PEMA was so notified.

Following this information, we notified other staff members and the Department administration of the accident and present conditions.

We alerted the Pennsylvania Department of Agriculture, Division of Milk Sanitation, of the event.

We had learned during the Chinese fallout episode of 1976 that telephones would be tied up, that the press would be contacting us and that communications would be a problem. We maintained the open line with the site and inquiries. Our regular clerical staff was experienced in responding to Officer.

. Mr. Bruce T. Lunden

At approximately 9:00 a.m., Mr. Charles Meinhold, Director of Health and Safety at DOE's Brookhaven National Laboratory and head of the Federal Interagency Radiation Assistance Program Team at BNL, contacted us by telephone to state that their team was ready to assist us at our request. At that point, no off-site problems were occurring so we told them to hold until we had more information. At about 11:00 a.m. we requested assistance.

At 9:00 a.m., Mr. Dornsife was requested by the Deputy Secretary to go to Lieutenant Governor Scranton's office to brief him on the situation and to participate in a press conference at 10:00 a.m.

He contacted Gary Miller, TMI station superintendent, to be updated on what had occurred. Mr. Miller's briefing of Mr. Dornsife is reconstructed (based partly on notes and partly on memory) as follows:

At about 0400 a turbine trip occurred at 98% power. As designed, the reactor tripped and all safeguard systems, including high pressure injection, actuated automatically when required. There was a violation of technical specifications, specifically, that the auxiliary feed system block valves were initially closed. The electromatic relief valve on the pressurizer lifted and did not reset; however, the indication in the control room (electrical signal to valve) let the operator to believe it had reclosed. The block valve downstream of the relief valve is now closed. The pressurizer may have gone solid and low pressure in the reactor coolant system probably caused flashing and steam bubbles in the system. This may have led to a temporary loss of main coolant circulation. There was a possible primary to secondary leak in the "B" steam generator which has been isolated. The boron concentration in the primary has been diluted to about 100 ppm. This may have been caused by secondary to primary feedback through the leaking steam generator when the system was pressurized. There has been a slight amount of failed fuel. The exact magnitude is not certain at this time--it may have been only some gap activity. The reactor building dome monitor was reading 600R/hr and the reactor building pressure was about 1 psig. The fence post dose was less than 1 mrem/hr. The wind is currently blowing to the west at about 1 to 2 mph and they are sending monitoring teams to Goldsboro.

At approximately 10:45 a.m. the utility notified us that radiation was being detected off-site and that exposure rates were 3 mr/hr or less. A Eureau radiation monitoring team was sent out to verify the TMI readings. Similar levels were observed.

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We were concerned about the probable presence of radioiodines in the plume of radiogases from the plant. The DER Bureau of Radiation Protection (BRP) was not equipped to do sobile in-the-field airborne iodine estimates. (We did have a fixed monitor at the Observation Building which we chose to leave in place for a historical sample.) TMI field teams were out, though, making these measurements according to plan. Several of their field estimate samples were suggesting I-131 concentrations of up to tens of thousands of picocuries per cubic meter. Unconfirmed, this concentration range would suggest an eventual (days) need for protective actions against inhalation with plant deterioration and a significant impact on fresh fluid milk production and use.

Since the backgrounds at the facility had understandably increased, Mr. Dubiel, TMI health physicist, asked if we could recount the samples in our labs at Harrisburg. We agreed. The samples were transported by helicopter to the helipad at Holy Spirit Hospital and thence to the lab by BRP staff. Spectrum analysis, using GeLi detector, indicated no I-131 (sensitivity at about 10 pCi/m²). We began to suspect the current direct exposure mode to be noble gases with little, if any, I-131. This was consistent with knowledge that the dominant source was the water on the aux building floor and the existent charcoal filters on the aux building vent.

We advised the Agriculture Department that milk sampling should begin with farm sampling of milkings of Wednesday evening (3/28) and Thursday morning (3/29). The results of the analyses of those samples showed milkborne I-131 to be in the range of tens of picocuries per liter-hardly an acute contaminating episode. The sampling of fresh milk continues.

For the remainder of the first day-ground surveys performed by teams from this Bureau, DOE, NRC and utility confirmed that the off-site levels of radioactivity were in the range of about 1-10 mrem/hr (β - γ). Occasional higher levels were observed on site, in the plume and in relatively stagnant pockets due to the meterological condition. The meterological conditions during the first few days were such that the wind speed was very low and the direction was variable. Therefore, very little dispersion was occurring and pockets of noble gases with higher than average radiation levels were not uncommon near the site.

Reports from the site and from the NRC I&E teams which had arrived first after 10:00 a.m. confirmed that the primary source of radioactive releases were noble gases which were being offgassed from reactor coolant water which had been pumped from the reactor building sump to the auxiliary building sump tank and that the sumps had overflowed onto the floor. Prior to this it had been suspected that the main source of release had been the venting of steam from the "A" steam generator directly to the atmosphere which had occurred most of the morning.

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During that morning, the Peach Bottom Atomic Power Plant staff called offering assistance, as did the State of New Jersey and Pennsylvania State University.

Levels of radioactivity in the environment remained at or below 3 mr/hr througout the next day with some occasional high reading found on site and in the plume. Helicopter surveys were being performed by the ARMS aircraft which came with the DOE teams. Levels detected in the plume right over the release stack ranged up to 3000 mr/hr $(\beta-\gamma)$.

On Friday morning, March 30, releases from the plant increased due to venting of gases from the make-up tank. Levels as high as 20-25 mr/hr (β - γ) were observed for a short period of time just off-site. One helicopter reading of 1200 mr/hr (β - γ) was found at 600 feet, 300 feet above the reactor building and in the plume. DOE teams and Bureau teams were measuring ground level radiation levels off-site as was the NRC and the utility.

The Bureau received a call from PEMA stating that "Doc" Collins of NRC-Bethesda had called them recommending evacuation out to ten miles downwind because of the 1200 mr/hr reading. We advised PEMA that off-site readings did not indicate a need for evacuation and that the plant had stated that the venting should be over shortly.

Ms. Reilly and Mr. Dornsife contacted Mr. Collins at NRC-Bethesda to ask why the recommendation was made. He stated that the "top brass" had recommended it and he was only following orders. By that time telephone lines were tied up, and Mr. Dornsife went to PEMA headquarters while Mr. Gerusky went to the Governor's office. Ms. Reilly stayed in contact with IMI and the survey teams. Both Mr. Dornsife and Mr. Gerusky recommended against evacuation due to current conditions.

Radiation levels off-site steadily decreased to 1 mr/hr or less during the day. Some intermittent readings were higher in the immediat- vicinity of the site and on-site. Levels remained at that point until they declined to background much later in the episode.

Effective March 28, 1979, the Bureau of Radiation Protection office went on a 24-hour schedule. The Bureau has a full-time Harrisburg staff of 19 including four late atory personnel. Good working relationships had been long established with the NRC Region I office, with the DOE emergency teams and with the utility's radiation protection organization.

Following the March 30 episode, addiational EPA, HEW, DOE and NRC health physics personnel were involved in environmental radiation surveillance activity. The operation of the Bureau became one of collecting and analyzing data and making recommendations based upon the data. Assistance in operations was gained from other program personnel in the Department and the Laboratory.

The Bureau stayed on a 24-hour schedule for approximately two weeks, a 12-hour schedule for the third week, and back to normal for the remaining time. On Friday, May 30, 1979, the Bureau Nuclear Engineer was assigned to the Three Mile Island Site on a 12-hour-a-day basis to keep the Governor's Office and this Bureau informed of any activity which could cause off-site problems. Dedicated telephone lines were installed in our office with the NRC Region I trailer, NRC headquarters, DOE operations at the Harrisburg-York State Airport, and the FDA Bureau of Radiological Health. On about April 1, 1979, representatives from NPC, DOE and FDA were located in our Harrisburg office as liaison personnel to collect and relay information with their respective organizations.

Water releases were also a problem and additional monitoring was required. The Department's Bureau of Water Quality Management, the Bureau of Radiation Protection and USEPA combined resources to provide a water sampling and analysis program. A copy of that program is attached.

Activities wound down slowly until the reactor was placed in a natural circulation cooling mode. With the "crisis" over, the Bureau continues a long-term operation to monitor the environment during the recovery stage.

3. Comments

There is no doubt that there was a lack of understanding of the scope of the problem during the first days of the accident. It was known that some fuel cladding failure had occurred but the extent of core damage was not known until later. Off-site consequences were initially caused because of contaminated water being pumped from the containment to the auxiliary building and the sumps overflowing. Other releases resulted when venting of radioactive gases occurred prior to hooking up a line to return the gases to the containment building.

Based on the monitoring information that we had received throughout the accident, we felt assured that the maximum accumulated off-site dose to any individual would not have exceeded 100 mrem. This was a factor of ten below the EPA protective action guidelines upon which our plan was based and where we were prepared to take protective actions to limit further off-site cumulative dose.

After the decision was made to move the NRC headquarters staff to Middletown and to set up an adequate communications system, the problems became more solvable and calmness returned to the area. There was a serious problem in communications from the facility, to Commonwealth and Federal officials and to the general public. This was partially resolved when the decision was made to issue press statements from either the Governor's Office or NRC-Middletown.

TMG/MAR/WPD/dmm
cc: Bill Dornsife
Bruce Segal, DOE
Historian's Office

Rin. C478-GT DOE, 20545 Sincerely yours.

Thomas M. Gerusky, Director & Bureau of Radiation Protection

Att.

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ANOT ADMITTED IN D. C.

December 4, 1979

George Frampton, Esquire NRC/TMI Special Inquiry Group Nuclear Regulatory Commission Washington, D.C. 20555

Dear George:

In response to the November 26, 1979, written request of R. C. Haynes, enclosed are copies of the following documents:

Three Mile Island Unit II Work Request Nos. 0027, 0028, 0037, 0039, 0172, 0173, 0249, 0282, 0335, 0204, 0436, 0468, 0478, 0489, 490, 495, 496, 500, 602, 730, 890, 956, 957, 2151 and 1296.

In addition, we are still attempting to locate Work Request Nos. 0036, 1053 and 1076.

Cincerely,

mut you

Matias F. Travieso-Diaz

JFW:rt Enclosures

cc: Mr. Jacque Durr (w/encl.)

Most of 123 pg 547

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET JOB LOCATION /UNIT PRIDRITY COMP COMP SYS NUMBER MO DAY YR TYPE 15 116 17 19 0 3 6 0 0 2 CM C DESCRIBE MALFUNCTION 0 0 N 14 5 DR MODIFICATION 5 0 6 A 2 6 6 DESIRED 0 14 0 0 P CAUSE OF MALFUNCTION 6 1 13 (IF KNOWN) ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO. CAdo 12.5.78 ORIGINATOR'S SIGNATURE 0 SUPERVISOR'S SIGNATURE 4200 WORK ORDER NUMBER GC ACCOUNT NUMBER PLANT CONDITION NPRD FAILURE START LOCATION SERIAL SU OP HD CD RF HS LR YR MO DAY HR MIN 0 3 6 0 8 0 0 STATUS HOLD CODE REG ENV TAGGING SSTIMATED DOLLARS DUTAGE AGENCY CHG / MOD REQ D CAUSE NUMBER CODE NO CODE 0 0 S /M APPROVAL COMMENCE WORK S /F APPROVAL EST RESP. LOCATION CREW COMMENCE WORK MANHOURS OR CONTRACTOR PROCEDURE NUMBER MO DAY YR MO DAY YR 77 02 000 3 0:0 ASSISTING DEPARTMEN ASSISTING DEPARTMENT RESP LOCATION RESP. LOCATION OR CONTRACTOR ES1 RESP. LOCATION EST OR CONTRACTOR CREW MANHOURS CREW CREW MANHOURS OR CONTRACTOR MANHOURS TOTAL ACTUAL PURCHASE REQUISITION DATE COMPLETION DATE REASON PURCHASE ORDER MANHOURS . MATERIAL ORDER - CODE MO NUMBER DAY MO DAY YR NUMBER NUMBER 74 66 73 8 0 7 A 0 2 8 0003 8 0 1 A 0 0 N INSIT 8 0 1 A 0 8 4ED 8 0 1 A 0 9 8 0 1 A 1 0 ORIGINATOR -- SUPERVISOR -- SUPERVISOR OF MAINTENANCE --NPRO FAILURE END FAIL URE NO FAILURE STATUS TXN MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR DAY HR MIN FOREMAN - SUPERVISOR OF MAINTENANCE -49 CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 8 0 8 CM COORDINATOR-DATA ENTRY REPORTED DATE NPRD FAIL MODE CAUSE OF FAILURE CODES EFFECT OF **ACTION TAKEN CODES** TXN FAIL FAILURE CODES TYPE DAY 8 1 55 56 57 42 43 8 0 8 A COPY 2

GENERATION CORRECTIVE MAINTENANCE SYSTEM

1 /	GENERA JOB TICKET	TION CORRECTIVE FORM (WORK REQ	MAINTENA UESTI-THR	NCE SYSTEM	UNIT 2	PF
	COMPONENT DESIGNATION SYS COMP COMP 6 TYPE 10 02	LOCATION/UNIT	JOB TYPE	JOB TICKET NUMBER	MO DAY YA	RECOMMENDED PRIORITY
	MS * *	0 3 6 0 0 2	C M	C002	120478	14
DESCRIBE MALFUNCTION OR MODIFICATION	TURBINE BCO LOCBTOONE	OWING B	1 "G C	DAHAND		111551116
DESIRED	GASKET AT	TUES TE	-	NER TA	FOM UL	UNIPPL
CAUSE OF MALFUNCTION (IF KNOWN)	VALUE KERKI	Ng By				
	ORIGINATOR'S EMP NO. CAdo ORIGINATOR'S SIGN	WHITE CONTRACTOR OF THE PARTY O	.18	PERVISOR'S MP. NO.	CAdo SUPERVISOR'S SIGNAT	12-5-73 DATE
		200				
	LOCATION SERIAL GC CODE	ACCOUNT NUMBER		++++	IS LR YR	D FAILURE START MO DAY HR MIN
	PEG D A SAFETY RD CODE NUM	399813 MOD BER	[4]	ENV OUTAGE CAUSE CODE	STATUS HOLD CODE	<u> </u>
	0000		Ŀ	׾III		
	S/M AF. JOVAL COMMENCE WORK NO DAY YR			o v	RESP. LOCATION OR CONTRACTOR	
					-,0,0,7/	
				set	mply with the forth in AP at Ed Safety I	1002 and
	Limits and Precautions: a) Personnel					
	b) Equipment					
	c) Environment				GPU 1	
	d) Nuclear				SUPT. AP	PROVAL
	Post Maintenance Testing required and Acci	eptance Criteria.	+ turb	ine trip to	tet - no lan	haze from caps

JOB TICKET NUMBER 0027

	1.	Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021. C/M No	Yes	No
	2a.	Does work require an RWP	Yes	No
	2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
	3a.	Is work on a QC component as defined in GP 1008.	Yes	No
	3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
	4.	Agreement that a PORC reviewed, Superintendent approved procedure is not require it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	ed for this v	vork because
		Unit Superintendent		Date
	5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
	5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
	6.	Agreement that 5b is No. (Required only if 5a is Yes).		
		Unit Superintendent/Supervisor of Operations	-	Date
	7.	Plant status or prerequisite conditions required for work.		
	8.	QC Dept. , rejew, if required in item No. 3		
		QC Supervisor		Date
	9.	Supervisor of Maintenance approval to commence work:		Date /2/6/22
	10.	Maintenance Foreman Assigned:	_	
	11.	Shift Foreman's approval to commence work Cala	Date/	12/18/78
STE	Al	PROVAL		
		Initial if Shift		
		Foreman Radiation W signature is not required	ork Permit No	

			JOB TICKET	(WORK REQUE	ST) NUMBER	0027
	12.	Retest met acceptance criteria	Yes 📑	No		
	13.	Work Performed by date/time	Wor	k Reviewed - Mainten	ance Foreman's Signat	ture
			12/18/78 Date	F	ulton	
	14.	Work completed and component a	lligned for testing			
		Initial if S. F. signature is not requ	ired.	Couth	uie	12-18-78
	15.	Testing completed and component			eman's Signature	Date
STE	AF	Initial if S. F. signature is not requ		Court	Luc	12-18-78
	16.	Quality Control Department review	واستناستانا		oreman's Signature ork only).	Date
		Surveillance Report No.		C Department	Date	
	17.	Supervisor of Maintenance Job Tio off as required. Change/modificat	ket (Work Reque ion form has beer	st) and procedure are a signed off as required	complete and signed	/ /
				W. Me Supervisor of Me	in renance Signature	/3/78 Date

WORK AUTHORIZATION TO CATALYTIC, INC.

In accordance with the terms, conditions, and provisions of General Maintenance Contract, Met-Ed P.O. #38735, Catalytic, Inc. is hereby authorized to perform the work described on Work Request No. <u>COO27</u> attached hereto and forming a part hereof.

Acceptance: Date: 12/8/78	Rictary ME WM
. /	MET-ED By: (Print Name, Title & Initial)
Date: 12/8/28	CATALYTIC, INC. By: (Print Name, Title & Initial
//	CATALYTIC, INC. By: (Print Name, Title & Initial

WORK COMPLETED BY CATALYTIC, INC.

JO # 01048

has been completed and hereby returned as noted below.

Remarks:

Planning Department

GENERATION CORRECTIVE MAINTENANCE SYSTEM UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED PRIORITY COCATION CONST MO DAY SYS TYPE 2 05 78 0 2 C 000 B 0 3 0 CM 8 6 P G P 88 AD J45 C 0 OR E MALFUNCTION REAL CESS 0 u 0 AD 5 MODIFICATION MALFUNCTION (IF KNOWN) SUPERVISOR'S EMP. NO. ORIGINATOR'S 12-5-78 SUPERVISOR'S SIGNATURE 4200 WORK GROER NUMBER PLANT CONDITION ACCOUNT NPRO FAILURE START DAY MIN YR MO HR LOCATION SERIAL ? 0 3 6 10 STATUS HOLD AGENCY CAUSE CODE 0 X 0 OR CONTRACTOR COMMENCE WORK DAY MO 1/2 Comply with the Provisions set forth in AP 1002 and Met Ed Safety Manual Limits and Precautions: a) Personnel b) Equipment c) Environment

Post Maintenance Testing required and Acceptance Criteria

d) Nuclear

DESCRIBE

OR

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CAUSE OF

GPU TEST SUPT. APPROVAL 25 auch m 12/4

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JOB TICKET NUMBER 0028

	Initial if Shift Foreman signature is not required Radiation	Nork Permit No	·
1. 4r	Shift Foreman's approval to commence work	Date	
0.	Maintenance Foreman Assigned: A DE 17		
9.	Supervisor of Maintenance approval to commence work:		Date 13/6/28
	QC Supervisor 2//14		Date
8.	QC Dept. review, if required in item No. 3	asun	
7.	Plant status or prerequisite conditions required for work	O.	Date
6.	Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations		
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	_ No
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	_ No
	Unit Superintendent		Date
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not req it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	uired for this	work because
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	
3a.	Is work on a QC component as defined in GP 1008.	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	_ No
2a.	Does work require an RWP	Yes	No
	C/M No.	Yes	No
1.	Does work represent a change or modification to an existing system or compone If yes, an approved change modification is required per AP 1021.	nt?	

SIL

	neview of	Addition - Noothid Contribe Form	
		JOB TICKET (WORK REQUEST) NUMBER	0038
12.			
13.	B. Work Performed by date/time	Work Reviewed - Maintenance Foreman's Signat	<u>ure</u>
14.			
TE /	Initial if S. F. signature is not Testing completed and composition Testing completed and composition Initial if S. F. signature is not	Shift For Jan's Signature onent released for normal use.	Date
16.		Shift Foreman's Signature review of work and testing completed (QC work only).	Date
	Surveillance Report No.	QC Department Date	
17.		b Ticket (Work Request) and procedure are complete and signed ification form has been signed off as required.	
		Supervisor of Maintenance Signature	Date

Close WF-1300D WT-P88 Ofer. + Ext. Control Switch Carver Pump So. Model 4FL S/N 83421 1/08/79 Need Op to Clean
the -pump ARED

	JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND UNIT 2	-
	COMPONENT DESCRIPTION	
	EVE COMP COMP 6 LOCATION/UNIT JOB JOR TICKET NUMBER MO DAY YE PRIO	MENDED
	5 7 R TYPE 11/12 10 15 016/17 22 23 24 25 28 32 33 38	
	HY #	
DESCRIBE	REPAIR LIAM AT KYAROGEN MANUAY ON GEN	weeks !
MALFUNCTION)+0R	
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CAUSE OF		
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(IF KNOWN)		++++
35.36		
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		HR. MIN
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8 0 8 A	CM COORDINATO 3 - DATA ENTRY - SUPERVISOR OF MAINTENANCE	E
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GENERATION CORRECTIVE MAINTENANCE SYSTEM 323.1120 UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND MW COMPUNEL DESIGNATION PEQUEST DATE RECOMMENDED JOB TICKET NUMBER LOCATION /UNIT COMP PRIORITY . 545 0 3 5 0 0 2 CM 00 0 MALFUNCTION 0 12 MODIFICATION MALFUNCTION (IF KNOWN) ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO 0 63 ORIGINATOR & SIGNATURE 4200 WORK ORDER NUMBER ACCOUNT NUMBER PLANT CONDITION CODE NPRD FAILURE START LOCATION SERIAL SU OP HD CO RF HS LR YR MO DAY HR MIN L 0 3 6 0 N STATUS HOLD CODE REG OUTAGE NUC. CHG/MOD NUMBER N. 0 CODE OR CONTRACTOR COMMENCE WORK 1 DAY Comply with the Provisions set forth in AP 1002 and Met Ed Safety Manual Limits and Precautions a) Personnel

b) Equipment

DESCRIBE

OR

DESIRED

CAUSE OF

- c) Environment
- d) Nuclear

Post Maintenance Testing required and Acceptance Criteria.

He leakage at

GPU TEST

ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE - MAINTENANCE FOREMAN -JOB PERFORMER - MAINTENANCE FOREMAN - SUPERVISOR OF MAINTENANCE

.

JOB TICKET NUMBER 0037

	1.	Does work represent a change or modification to an existing system or componently yes, an approved change modification is required per AP 1021.	nt?	
		C/M No	Yes	No
	2a.	Does work require an RWP	Yes	No
	2b.	is an approved procedure required to minimize personnel exposure.	Yes	No
	3a.	Is work on a QC component as defined in GP 1008.	Yes	No
	3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
	4.	Agreement that a PGRC reviewed, Superintent int approved procedure is not requit has no effect on nuclear safety. (Applies or y if 3a is Yes and 3b is No).	uired for this w	vork because
		Unit Superintendent		Date
	5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
	5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
	6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	7.	Unit Superintendant/Supervisor of Operations		Date
		Plant status or prerequisite conditions required for work.	•	
	8.	QC Dept. review, if required in item No. 3 QC Supervisor N/A		Date
	9.	Supervisor of Maintenance approval to commence work:		Date 12/7/15
	10.	Maintenance Foreman Assigned:		
STF	11. A.	Shift Foreman's approval to commence work Ami Co.	Date_/	-8-79
		Initial if Shift Foreman signature is not required Radiation	A Work Permit No	

			JOB TICKET (WORK REQUEST) NUMBER)037
	12.	Retest met acceptance criteria Work Performed by date/time	Yes No Work Reviewed - Maintenance Foreman's Signature	<u>e</u>
	14.	Work completed and component	alligned for testing.	
		Initial if S. F. signature is not req	quired. And Co.	1-8-79
	15.	Testing completed and compone		Date
STE	AF	Initial if S. F. signature is not req	juired. Am. DC.	1-8-79
	16.	Quality Control Department revi	Shift Foreman's Signature ew of work and testing completed (QC work only).	Date
		and the second s	A/A	
		Surveillance Report No.	QC Department Date	
	17.	Supervisor of Maintenance Job T off as required. Change/modifica	icket (Work Request) and procedure are complete and signed ation form has been signed off as required.	
			D'm Shorten	5-12-79
			Supervisor of Maintenance Signature	Date

3	COMPONENT DESIGNATION REQUEST DATE RECOMMENDED
[SYS COMP COMP D LOCATION / UNIT TYPE NUMBER MO DAY YR PRIORITY
	P 10010036002CM C0039120678
	(CONDENSATE PUMP LE SEGRES ON BUS 2-2)
MALFUNCTION	
MODIFICATION DESIRED	RELAY PROBLEM
DESINED	
CAUSE OF	
(IF KNOWN)	RELAY DEPT. PROCKEM REPORT COPY DITAKKED
	ORIGINATOR'S EMP. NO. C. P. d. 12-6-78 SUPERVISOR'S EMP. NO. C. P. d. 78
	0 (30) ORIGINATOR'S SIGNATURE DATE 0 (30) SUPERVISOR'S SIGNATURE DATE
	WORK ORDER NUMBER GC ACCOUNT PLANT CONDITION NPRD FAILURE START
	LOCATION SERIAL CODE NUMBER SU OP HD CO RF HS LR YR MO DAY HR MIN
	0360001875 8 3998134 1111011
	CHANGE R NUC NP REG CHG/MOD TAGGING CODE CAUSE STATUS ESTIMATED CODE CAUSE HOLD DOLLARS
	00000
	S / M APPROVAL S / F APPROVAL P. RESP. LOCATION EST EST
	COMMENCE WORK COMMENCE WORK PROCEDURE NUMBER R 1 OR CONTRACTOR SIZE MANHOURS O Y MANHOURS
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TXN A C	JOB COMPLETION FIELD WORK SIGN OFF TOTAL ACTUAL PURCHASE REQUISITION PURCHASE ORDER MATERIAL ORDER NUMBER NUMBER
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8 0 7 A	122178
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1xv A	NPRO FAILURE END FAILURE FAILURE ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE —
CD C	YR MO DAY HR MIN NO STATUS MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE 39
8 0 8 A	CM COORDINATOR DATA ENTRY SUPERVISOR OF MAINTENANCE CM COORDINATOR DATA ENTRY
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GENERATION CORRECTIVE MAINTENANCE SYSTEM

JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED LOCATION /UNIT JOB TYPE PRIORITY COMP COMP NUMBER DAY 548 0 0 P 3 6 0 0 2 0 CM 0 5 DIE um 0 RE N Blu 2 0 2 3 DESCRIBE MALFUNCTION OK. 0 25 0 E 2 0 Ô 6 A MODIFICATION PR B D 0 DESIRED CAUSE OF MALFUNCTION RE DE RO AK 14 C PY AT 20 (IF KNOWN) ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO. Ada Ada 12-6-75 0 ORIGINATOR'S SIGNATURE 0 30 SUPERVISOR'S SIGNATURE 4200 WORK ORDER NUMBER PLANT CONDITION ACCOUNT NUMBER CODE NPRD FAILURE START LOCATION SERIAL SUIDP DAY MO HR MIN 3 0 3 817 P 6 0 9 STATUS HOLD CODE OUTAGE CHG/MOD NUMBER AGENCY CAUSE CODE CODE 0 0 0 S 7M APPROVAL COMMENCE WORK 1 DAY MO YR 00 Comply with the Provisions set forth in AP 1002 and Met Ed Safety Manual Limits and Precautions: a) Personnel b) Equipment c) Environment d) Nuclear GPU TEST Post Maintenance Testing required and Acceptance Criteria. Jamp will operate from proper bus ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE - MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE FOREMAN - SUPERVISOR OF MAINTENANCE

GENERATION CORRECTIVE MAINTENANCE SYSTEM

DR

UNIT 2

COPY 1

R. G. EDNNEVILLE

RELAY DEPARTMENT RELAY OPERATION/PROBLEM REPORT

Forward Completed form to Shift Supervisor for his review.

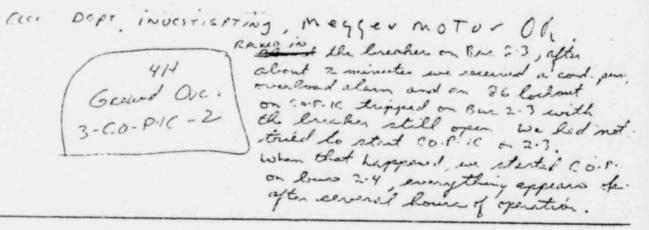
Time	Date	Bus	Component	MOTOR Currents from	WHITE CARD DATA TARGET (Which Or
1546	12-6-78	2-3	co.r.1C	Installed	(In Relay Window) EX. 50-51-83 No. 2H 50 G

REMARKS:

1. Did Breaker Trip? Yes No

2. Was Work Request Submitted Yes X No

3. Is problem a relay problem or is it a system or component problem. Relay . Other 4. Other info. that may aid the Relay Dept:



NOTE:

- If corrective action is required, submit a work request in addition to this
- ON OVERLOAD RELAYS, the "L" & "T" Toger trip the breaker. "I" alon will trip the breaker.
- If the breaker has tripped and the 50G or 50-51-83 "I" target 3. is present, the motor/cable should be checked by Electrical Dept. prior to attempting re-start. Megger 0%.

H. STERT CO-P. IC ON 2-4 Rus every Thing OK.

Performed By:

Aux Operator - C Ad-

Date 12-6-78 Shift

OTHERS

Date 12.6.75 Time

Date /2 .6.77

SHIFT FOREMAN/SUPERVISOR

CAda

JOB TICKET NUMBER 0172

1.	Does work represent a change or modification to an existing system or compone If yes, an approved change modification is required per AP 1021. C/M No	nt? Yes	No.
	C/W NO.	Yes	No
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
3a.	Is work on a QC component as defined in GP 1008.	Yes_	n No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not recit has no effect or nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this	s work because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1028	Yes	
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes/	
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Unit Superintendent/Supervisor of Operations		Date
7.		thum	Date
8.	QC Dept. review, if required in item No. 3	1	
	QC Supervisor = 06001 12 13-78 6	Street Street,	Date 12 · 13 · 78
9.	Supervisor of Maintenance approval to commence work: 1 501512 716	12-1)	Date 12-17-75
10.	Maintenance Foreman Assigned: Games		
11.	Shift Foreman's approval to commence work	Date	12-14-78
	STE APPROVAL BY 12-14-78		
	Initial if Shift 140	15	
		Work Permit	No.
	signature is not required		

	JOB TICKET (WORK REQUEST) NUMBER	
12.	Retest met acceptance criteria Yes [17] No	
13.	Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature 12-15-78 Date Mis.Gry!	
14.	00.00	2-14-
15.	Testing completed and component released for normal use.	2-14- Date
16.		Date
17.	off as required. Change/modification form has been signed off as required.	, .
	TE APPROVAL Supervisor of Maintenance Signature 30 12-15-78	Date

		JOB	SENERATION TICKET FORM	CORRECT (WORK	TIVE MAI	NTEN T)-TH	ANCE S	YSTE	EM)	U	NIT	2			-		
	1	NT DESIGNATION		OCATION /UN				TICKET		T	REGI	JEST	DATE			OMME		
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MEY-ED

Quality Control

1 FOINOSO

ACCEPT

p.o. No. 57929 ITEM NO. 1 a.c. INSP. 7400000 DATE 7-6-75

GPF 4008 003

TMI-65A REV. 11-76

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JOB TICKET NUMBER

Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021. C/M No. 2a. Does work require an RWP Is an approved procedure required to minimize personnel exposure. Is work on a QC component as defined in GP 1008. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No). Unit Superintendent Date 5a. Is the system on the Environmental Impact list in AP 1026 If 5a is Yes, is an approved procedure required to limit environmental impact 5b. 6. Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations Date Plant status or prerequisite conditions required for work. 7. QC Dept, review, if required in item No. 3 8. QC Supervisor Date Supervisor of Maintenance approval to commence work: 2 2 9. Maintenance Foreman Assigned: 10. Shift Foreman's approval to commence work C. Zulhui Date 12-14-78 11. Initial if Shift Foreman Radiation Work Pennit No.

signature is not required

Retest me* acceptance criteria Yes	No	
Work Performed by date/time	Work Reviewed - Maintenance Foreman's Signature	
Manch+ 1330 -12/14	Date JP Galler	
Work completed and component alligned fo	r testing.	
Initial if C. F. views in the state of the s	E Duthui	12-1
initial if S. F. signature is not required.	Shift Foreman's Signature	Date
Testing completed and component released	for normal use.	
Initial if S. F. signature is not required.	C. Luthine	12-14
South Control Bondard Control	Shift Foreman's Signature	Date
duality Control Department review of work		
Surveillance Report No.		
Supervisor of Maintenance Job Ticket (Work off as required. Change/modification form	k Request) and procedure are complete and signed	
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129-2	JOB TICKET FORM (WORK REQUEST)-THREE	CE SYSTEM UNIT 2	-
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	a) Personnel																							
	b) Equipment																							

Post Maintenance Testing required and Acceptance Criteria.

c) Environment

d) Nuclear

JOB TICKET NUMBER C0249

	1.	Does work represent a change or modification to an existing system or component of yes, an approved change modification is required per AP 1021. C/M No	t? Yes	No
	2a.	Does work require an RWP	Yes	No
	2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
	3a.	Is work on a QC component as defined in GP 1008.	Yes	No
	3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
	4.	Agreement that a PORC reviewed, Superintendent approved procedure is not required it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	uired for this w	ork because
		Unit Superintendent		Date
	5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
	5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No_
X	6.	Agreement that 5b is No. (Rer uired only if 5a is Yes).		
	7			Date
	7.	Plant status or prerequisite conditions required for work. OC Dept. review, if required in item No. 3	Loun	
		QC Supervisor		Date
	9.	Supervisor of Maintenance approval to commence work: DE Waaren/se	21	Date 12/22/76
	10.	Maintenance Foreman Assigned: D. U. Paracar		
	11.	Shift Foreman's approval to commence work	Date /	2-29-78
		142	76	
			g at	
		The first it shift	Work Permit No	

JOB TICKET (WORK REQUEST) NUMBER _ C0249

12. 13.	Cla Atronna pp/02/74	- Maintenance Foreman's Signature
14.	Work completed and component alligned for testing.	^
	(F)	1/0/2
	Initial if S. F. signature is not required.	Shift Foreman's Signature Date
15.	Testing completed and component released for normal use.	
		11.1-
	Initial if S. F. signature is not required.	Shift Foreman's Signature Date
16.	Quality Control Department review of work and testing comple	
	N/A	
	Surveillance Report No. OC Departmen	
17.	Supervisor of Maintenance Job Ticket (Work Request) and proc off as required. Change/modification form has been signed off	edure are complete and signed as required.
	Sal	mits 1/29/
	Supe	rvisor of Maintenance Signature Date

UNIT 2 JOB-TICKET FORM (WORK REQUEST) - THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOS TICKET LOCATION / UNIT PRIORITY COMP COMP NUMBER SYS MO DAY 24 25 28 2 0 3 6 0 0 C C 0 DESCRIBE MALFUNCTION OR MODIFICATION 0 1 12 0 N DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S SUPERVISOR'S EMP. NO EMP NO mitzien 0 ORIGINATOR'S SIGNATURE SUPERVISOR'S SIGNATURE 01* 4200 WORK ORDER NUMBER GC ACCOUNT PLANT CONDITION NPRO FAILURE START NUMBER LOCATION SERIAL OP HD CD RF HS LR YR DAY MO HR . MIN 3 0 6 0 3 REG ENV STATUS OUTAGE AGENCY REQ'D APPLICATION CAUSE DOLLARS NUMBER SAFETY NO 0 S /M APPROVAL S /F APPROVAL RESP LOCATION SIZE COMMENCE WORK COMMENCE WORK MANHOURS PROCEDURE NUMBER OR CONTRACTOR 110 DAY YR MO DAY YR 79 02 060 00 ASSISTING DEPARTMENT ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR RESP. LOCATION EST EST OR CONTRACTOR | CREW MANHOURS I CREW MANHOURS CREW OR CONTRACTOR MANHOURS TOTAL ACTUAL PURCHASE REQUISITION DATE COMPLETION DATE REASON PURCHASE ORDER MATERIAL ORDER NUMBER DAY MO DAY YR 51 CODE NUMBER NUMBER 7 7 73 74 66 326 8 0 7 A 0000060 8 0 -1 CONNECT 0 8 REQUIRED 3 8 A 1 8 0 1 A 0 9 8 0 A 1 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -FAILURE FAILURE MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR DAY MIN FOREMAN - SUPERVISOR OF MAINTENANCE -48 49 CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 8 0 8 CM COORDINATOR-DATA ENTRY NPRO REPORTED DATE CAUSE OF FAILURE CODES **ACTION TAKEN CODES** TXN FAILURE CODES FAIL FAIL A YR DAY TYPE MODE B A B MO 65166 42 43 COPY 2 T 8 0 8 A

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JOB PERFORMER—MAINTENANCE FOREMAN—SUPERVISOR OF MAINTENANCE

Work completed or per description section

Post Maintenance Testing required and Anceptance Criteria.

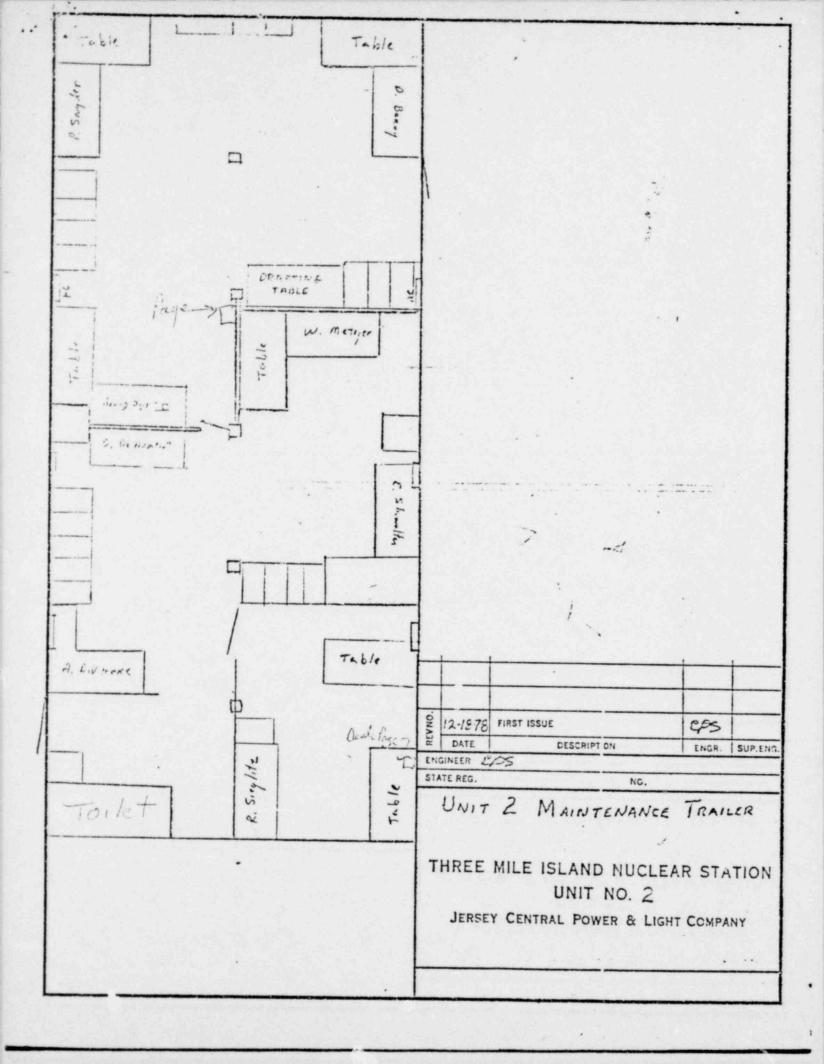
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JOB TICKET NUMBER 0282

Shift Foreman's approval to commence work Am QQ	Date	1-8-79
Maintenance Foreman Assigned: Wm. PEAN		
Supervisor of Maintenance approval to commence work: Mety	>	Date 12/18/20
GC Supervisor N/2		Date
QC Dept. review, if required in item No. 3		
	6	Date
Agreement that 5b is No. (Required only if 5a is Yes).		Dave
If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	_ No
Is the system on the Environmental Impact list in AP 1026	Yes	No
Unit Superintendent		Date
Agreement that a PORC reviewed, Superintendent approved procedure is not relit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this	work because
PORC reviewed Superintendent approved procedure must be used.	Yes	_ No
	Yes	_ No
	Yes	_ No
	Yes	_ No
C/M No.	Yes	No
	ent?	
	Does work require an RWP Is an approved procedure required to minimize personnel exposure. Is work on a QC component as defined in GP 1008. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Agreement that a PORC reviewed, Superintendent approved procedure is not retit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No). Unit Superintendent Is the system on the Environmental Impact list in AP 1026 If 5a is Yes, is an approved procedure required to limit environmental impact Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations Plant status or prerequisite conditions required for work. QC Dept. review, if required in item No. 3 QC Supervisor Maintenance Foreman Assigned: WM. PEAW Maintenance Foreman Assigned:	Does work require an RWP Yes Is an approved procedure required to minimize personnel exposure. Is work on a QC component as defined in GP 1008. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No). Unit Superintendent Is the system on the Environmental Impact list in AP 1026 Yes If 5a is Yes, is an approved procedure required to limit environmental impact Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations Plant status or prerequisite conditions required for work. QC Dept. review, if required in item No. 3 QC Supervisor Maintenance Foreman Assigned: W.M. PEAIX Maintenance Foreman Assigned: W.M. PEAIX

-1/-		JOB TICKET	T (WORK REQUEST) NUMBER _	0282
*	12.	Retest met acceptance criteria Yes	No.	
	13.	Work Performed by date/time 3-26-79 3-21-79 J. SCALES Date	Reviewed - Maintenance Foreman's Sign	ature
	14.	Work completed and component alligned for testing	g. Shift Foreman's Signature	3/2/179
	15.	Testing completed and component released for normal limitial if S. F. signature is not required.		3/26/7
	16.	Quality Control Department review of work and ter-		
~/~	17.	Supervisor of Maintenance Job Ticket (Work Reque off as required. Change/modification form has been	est) and procedure are complete and signed	4-27-79 Date
*	I C	CONNECTED FEEDERS	TO NEW LOAD CE TO TRAILERS.	250 MCM NTER.
	7	INSTALLED 400' #" AND CONNECTED T	CONPUT FOR GAG	TRONICS UNITS ALSO.

INSTALLED 150' I" CONDUIT FOR TELEPHONES.



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JOB TICKET NUMBER 0204

1.	Does work represent a change or modification to an existing system or componently yes, an approved change modification is required per AP 1021. C/M No	ent? Yes	No
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
3a.	Is work on a QC component as defined in GP 1008.	Yes	_ No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	_ No
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not reit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this	work because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	_ No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	_ No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Unit Superintendent/Supervisor of Operations		Date
7.	Plant status or prerequisite conditions required for work. Operating or shuth	loun	
8.	QC Dept. review, if required in item No. 3		
	QC Supervisor		_ Date /A
9.	Supervisor of Maintenance approval to commence work: w. huty		Date 12/14/2-
10.	Maintenance Foreman Assigned:	60	
11.	Shift Foreman's approval to commence work Churchen	Date 2	128/73
	Initial if Shift Foreman Radiatio	N/A	0.
	signature is not required		

		JOB TICKET	(WORK REQUES	ST) NUMBER	0201
12.	Retest met acceptance criteria	Yes 🔃	No		
13.	Work Performed by date/time	Wor	k Reviewed - Maintena	nce Foreman's Signatu	ıre
	John Watter	2-28-79 Date	- Og	RSUD	_
14.	Work completed and component	alligned for testing			
	Initial if S. F. signature is not req	uired	Chulke Shift Fore	man's Signature	2-28-79 Date
15.	Testing completed and componer Initial if S. F. signature is not requ			hui	2-28-79
				eman's Signature	Date
16.	Quality Control Department review	ew of work and test	ing completed (QC wo	rk only).	
	Surveillance Report No.	- 0	C Department	Date	
17.	Supervisor of Maintenance Job Ti off as required. Change/modifica	icket (Work Reques tion form has been	it) and procedure are consigned off as required.	omplete and signed	, ,
			-in nutro		3/23/29
			Supervisor of Main	ntenance Signature	Date

JOB TICKET NUMBER 0436

1.	Does work represent a change or modification to an existing system or compone If yes, an approved change modification is required per AP 1021. C/M No	nt? Yes	No -
	C/W NO.	Tes	No
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
3a.	Is work on a QC component as defined in GP 1008.	Yes M	No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes_/	_ No
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not recit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this v	vork because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Linit Superintendent/Supervisor of Operations		Date
7.	Plant status or prerequisite conditions required for work.		
8.	QC Dept. review, if required in item No. 3		
	ac Supervisor W. Shamada le	itelecon	Date 12-29-78
9.	Supervisor of Maintenance approval to commence work: for D. Sl	J 0840	Date 12-29-78
10.	Maintenance Foreman Assigned: Spath page 63	2	
11.	Shift Foreman's approval to commence work C Dda	Date /-	2-29.75
	Initial if Shift NE	1	
		n Work Permit No).
	signature is not required		

JOB TICKET (WORK REQUEST) NUMBER C-0436

12.	Work Performed by date/time WAGNER 12-29-78 HUNTER 1100 Wes No Work Reviewed - Maintenance Foreman's Signature Work Reviewed - Maintenance Foreman's Signature	
14.	Work completed and component alligned for testing. Initial if S. F. signature is not required. Shift Foreman's Signature	12.29.75 Date
15.	Testing completed and component released for normal use. Initial if S. F. signature is not required. Shift Foreman's Signature	12.25.79
16.	Ouality Control Department review of work and testing completed (DC work only). Surveillance Report No. OC Department Date	Date
17.	Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required. Supervisor of Maintenance Signature	1/5/79 Dete

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8 0 8 A S S S S S S S S S S S S S S S S S S	8 0 7 A 8 0 1 A 8 0 1 A 8 0 1 A 8 0 1 A 7 TXN CD TXN	JOB COMPLETION DATE MO DAY YI 39 O (O S 7) 39 RESOLUTI O 7 V A L O 8 J J D O 9 L. C 1 O P E R NPRO FAIL YR MO DA 39	CO 44 45 9 1 - ON DESC V E L O: URE END V HR	FAILURA FAILURA	WORK TON DATAY 9 7 ON Y C B E D I G	50 5 5 8 S L URE F. S O S S S S S S S S S S S S S S S S S	REAS, COO	ON DE S2	P O O O O O O O O O O O O O O O O O O O	PENN	ATC NAA	UAL RS 55	R R R ACO	PUR C UPE ORI R-I	Y NI K	SOF NO A EN	H A JO F NOT R	E T N SUPPLY	PER ERIE	VIS OF NAME OF	O E F	ASE (CAMBE	L P N OF	E A C	M T C T I	JA O NANA	A	S PA	80 F 0	

	GENER JOB TICKE	ATION CORRECTIVE T FORM (WORK RED	MAINTENAL	NCE SYSTEM FE MILE ISLAND	UNIT 2	
	COMPONENT DESIGNATION SYS COMP COMP. TYPE ID.	LOCATION /UNIT	JOB TYPE	JOB TICKET NUMBER	MO DAY YR	RECOMMENDED PRIORITY
	RCVIOOOI	036002	СМ	00436	122078	
DESCRIBE MALFUNCTION OR MODIFICATION DESIRED		UHEN VA	ACT LVE H/5			HOULD HEN THE WOF
CAUSE OF MALFUNCTION (IF KNOWN)	ROTORFOR	COUPACT	6 1	SOUT	OFADJ	STUENT
	ORIGINATOR'S EMP. NO. ORIGINATOR'S SIGNATOR'S SIGNATOR		28-78 E	ERVISOR'S MP. NO.	De Lawton SUPERVISOR'S SIGNATURE	12-28-78 DATE
	WORK ORDER NUMBER GC CODE CODE	ACCOUNT NUMBER		++++++++++++++++++++++++++++++++++++	LR YR MO	
	TADAGE A NUC NP REG CHO	3 9 9 8 1 3 		ENV OUTAGE CAUSE CODE	STATUS HOLD CODE	
	S/M APPROVAL COMMENCE WORK WO DAY YR			OF OV R	SP LOCATION R CONTRACTOR	
					ly with the Proforth in AP100	IC. ALTOO
	Limits and Precautions: a) Personnel					
	b) Equipment					
	c) Environment					
	d) Nuclear					
	Post Maintenance Testing required and According to the party of the pa	ceptance Criteria.	420-7	-10		

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE

157-1	GENERATION CORRECTIVE MAINTENANCE SYSTEM JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND UNIT 2
	COMPONENT DESIGNATION REQUEST DATE RECOMMENDED
	SYS COMP. COMP. 0 LOCATION/UNIT JOB TYPE NUMBER MO DAY YR PRIORITY 5 7 9 TYPE 11 12 ID 15 10 15
	AS = 100014036002CM C0465123178 1
DESCRIBE MALFUNCTION	(RS WORMAL COOLING UNIT A MAS COUTIMOUS)
OR MODIFICATION	LOW PAN TEND ALARM. VERIFIED HTREKE
DESIRED	1 CKOSED + 50844 AUNDS DM. 40644 TEMO WOLSVEE
	WAS 599 F. Repair
MALFUNCTION	
(IF KNOWN)	
	ORIGINATOR'S SUPERVISOR'S
	ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO. GJTHAIR 12/31/78
	0 5 4 5 SUPERVISOR'S SIGNATURE DATE 0 5 4 5 SUPERVISOR'S SIGNATURE DATE
	A 6721
	WORK ORDER NUMBER CODE ACCOUNT PLANT CONDITION NPRO FAILURE START
	LOCATION SERIAL SU OP HD CD RF HS LA YR MO DAY HA MIN
	036000187FA 5305 1/1/1/1011
	CHANGE R NO NO NO NO NO NO NO NO NO NO NO NO NO
	loldold IIII IIII
	S / M APPROVAL S / F APPROVAL EST EST
	COMMENCE WORK COMMENCE WORK PROCEDURE NUMBER OR CONTRACTOR SIZE MANHOURS OR CONTRACTOR SIZE MANHOURS
	010279010479 110364 02000120
	ASSISTING DEPARTMENT RESP LOCATION EST PEST PEST PEST PEST PEST PEST PEST
	OR CONTRACTOR CREW MANHOURS OR CONTRACTOR CREW MANHOURS REST CREW MANHOURS
TXN A	JOB COMPLETION FIELD VORK SIGN OFF TOTAL ACTUAL PURCHASE REQUISITION PURCHASE ORDER MATERIAL DRDFR
CO CT	MO DAY YR MO DAY YR CODE MANHOURS NUMBER NUMBER NUMBER
8 0 7 A	0105790104781 000120
1 4	39 RESOLUTION DESCRIPTION 79
8 0 1 A	07 RESET AND CAL. PAN TEMP SWITCHES
8 0 1 A	08
8 0 1 A	0 9
8 0 1 A	10
TXN A C	NPRO FAILURE END FAILURE FAILURE ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE —
1 4	39 MAINTENANCE POREMAN - JOB PERFORMER - MAINTENANCE
8 0 8 A	CM COORDINATOR - DATA ENTRY - SUPERVISOR OF MAINTENANCE CM COORDINATOR - DATA ENTRY
TXN A C C	NPRD NPRD CAUSE OF FAILURE CODES EFFECT OF FAILURE CODES OFFICE THOM TAKEN CODES REPORTED DATE TYPE MODE A B P TRAIL REPORTED DATE TO B TRAIL REPORTED DATE TO B
8 0 8 A	TYPE MODE 39 40 41 42 43 50 51 55 56 57 58 A B YR MO DAY 71 COPY 2
OUBA	

128-1		GENERATION COR	RECTIVE MAIN ORK REQUEST	TENANCE SYSTEM -THREE MILE ISLAND	UNIT 2						
100.	COMPONENT DESIGN		ON /UNIT JOB	JOB TICKET NUMBER	MO , DAY , YR	RECOMMENDED PRIDRITY					
	RB Z C		-		123/78	1					
	/ [] [] [] []										
DESCRIBE MALFUNCTION	1.00 pan	TEMP A		NIT A HA	0 47R	MOUS					
OR MODIFICATION DESIRED	10405ED	4508121	UNDS.	DW. KOCAL		MCASURE					
	WAS 590	F. Rep	AIR								
CAUSE OF MALFUNCTION (IF KNOWN)											
	ORIGINATOR'S			SUPERVISOR'S							
	EMP NO.	WTHUIP	F431/77	EMP. NO.	GUTHAL'S						
	05422 ORI	A (70)	DATE	0 6 7 5 5	SUPERVISOR'S SIGNATUR	RE DATE					
	WORK ORDER NUMBER	A 6721	PLANT CONDITIO	PLANT CONDITION NPRO							
	LOCATION SERIAL	V V	NUMBER	SU OP HD CD RF HS	S LR YR A	AO DAY HR MIN					
	0 3 6 0 0 0 / 8 7	FA 5 3 0	5	ENV OUTAGE	STATUS	ШШШ					
	MOD V. NUC NP AGENC CODE	CHG/MOD NUMBER		CODE CAUSE CODE	HOLD						
	0000			XIIII							
	S/M APPROVAL COMMENCE WORK			ET	RESP. LOCATION OR CONTRACTOR						
	MO DAY YR			O Y							
	010279			110	361						
	Limits and Precautions: a) Personnel	Comply with set forth in	the Provisi	on•							
		set forth in A		10							
	b) Equipment										

c) Environment

d; Nuclear

Post Maintenance Testing required and Acceptance Criteria. UNIT WORKS PREPERLY

JOB TICKET NUMBER 6468

1.	Does work represent a change or modification to an existing system or componently ses, an approved change modification is required per AP 1021. C/M No	ent? _ Yes	No
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No_V
3a.	Is work on a QC component as defined in GP 1008.	Yes	No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	_ No
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not re it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	equired for this	work because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Unit Superintendent/Supervisor of Operations		Date
7.	Plant status or prerequisite conditions required for work. Op ov S	VD D	
8.	QC Dept. review, if required in item No. 3		
	QC Supervisor		Date
9.	Supervisor of Maintenance approval to commence work: E. Show	alter	Date 1/2/79
10.	Maintenance Foreman Assigned: G.LBeet		
11.	Shift Foreman's approval to commence work Amick.	Date	1-4-78
	Initial if Shift	ŕ.	
	Foreman Radiation signature is not required	on Work Permit N	ło.
	3명 에게 18 NG (19 NG 19		

		JOB TICKET (WORK REQUEST) NUMBER 0468			
	12.	Retest met acceptance criteria Yes No			
	13.	Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature			
Riggen	bac L	1/54Clair 1430 1-4-79 AFRILLENT			
"	14.	Work completed and component alligned for testing.			
		Initial if S. F. signature is not required. Shift Foreman's Signature Date			
	15.	Testing completed and component released for normal use.			
		Initial if S. F. signature is not required. Shift Foreman's Signature Date		16.	Quality Control Department review of work and testing completed (QC work only).
		Surveillance Report No. QC Department Date			
	17.	Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required. Supervisor of Maintenance Signature 1/5-/79 Supervisor of Maintenance Signature			

JOB TICKET NUMBER 0478

	1.	Does work represent a change or modification to an existing system or component of yes, an approved change modification is required per AP 1021.			
		C/M No	Yes	No	
	2a.	Does work require an RWP	Yes	No	
	2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No	
	3a.	Is work on a QC component as defined in GP 1008.	Yes M	No	
	3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No	
*	4.	Agreement that a PORC reviewed, Superintendent approved procedure is not requit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No). Unit Superintendent	ired for this wo	Date	
	5a.	Is the system on the Environmental Impact list in AP 1026	Y'es	No	
	5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Y'es	No	
	6.	Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations			
	7.	Plant status or prerequisite conditions required for work.	-2	Date	
	8.	QC Dept. review, if required in item No. 3	orun	Date 1/9/5	۵
	9.	Supervisor of Maintenance approval to commence work: E Show as	lter	Date 1/10/	79
	10.	Maintenance Foreman Assigned:			
	11.	Shift Foreman's approval to commence work Add Vennaucey	Date 1//	5/79	
		Initial if Shift			
		Foreman Radiation	Work Permit No.		
		signature is not required			

JOB TICKET (WORK REQUEST) NUMBER 12. Retest met acceptance criteria 13. Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature 14. Work completed and component alligned for testing. Initial if S. F. signature is not required. Shift Foreman's Signature 15. Testing completed and component released for normal use. Initial if S. F. signature is not required. Shift Foreman's Signature Quality Control Department review of work and testing completed/QC work only). 16. Surveillance Report No. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed 17. off as required. Change/modification form has been signed off as required. Supervisor of Maintenance Signature

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION RECOMMENDED REQUEST DATE JOB TICKET JOB TYPE LOCATION / UNIT PRIDRITY COMP NUMBER SYS DAY YA ID. 0 3 6 0 0 2 C 11 * CM DESCRIBE MALFUNCTION B DR MODIFICATION DESIRED CAUSE OF MALFUNCTION (IF KNOWN) SUPERVISOR'S EMP. NO. ORIGINATOR'S EMP. NO ORIGINATOR'S SIGNATURE SUPERVISOR'S SIGNATURE 6721 WORK I ROER NUMBER ACCOUNT NUMBER PLANT CONDITION NPRD FAILURE START SULOP LOCATION SERIAL HD CD RF HS LR YR MO DAY HR MIN 0 3 6 0 STATUS HOLD CODE ESTIMATED DOLLARS TAGGING CODE OUTAGE MOD REQ D CHG/MOD AGENCY APPLICATION CAUSE SAFETY NO CODE 0 S /M APPROVAL S / F APPROVAL RESP. LOCATION CREW COMMENCE WORK COMMENCE WORK MANHOURS PROCEDURE NUMBER OR CONTRACTOR SIZE DAY | YR MO 1 DAY 1 YR 79 430 e 0 ASSISTING DEPARTMENT ASSISTING DEPARTMENT
RESP. LOCATION EST ASSISTING DEPARTMENT RESP LOCATION OR CONTRACTOR EST ES1 1 CREW EST OR CONTRACTOR CREW MANHOURS MANHOURS OR CONTRACTOR CREW MANHOURS TOTAL ACTUAL MANHOURS DATE COMPLETION DATE PURCHASE REQUISITION PURCHASE ORDER REASON MATERIAL ORDER · CODE DAY MO DAY NUMBER NUMBER 66 67 8 0 7 A 30 8 0 0 7 1 A a no 8 0 1 A 0 8 0 9 8 0 1 A 8 0 1 A 1 0 NPRO FAILURE END ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -FAILURE FAILURE MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR MO DAY MIN HR FOREMAN - SUPERVISOR OF MAINTENANCE -CM COORDINATOR DATA ENTRY SUPERVISOR OF MAINTENANCE 8 0 8 A CM COURDINATOR-DATA ENTRY NPRE CAUSE OF FAILURE CODES FFFFCI OF **ACTION TAKEN CODES** FAIL FAILURE CODES REPORTED DATE 8 TYPE MODE YR 8 42 43 8 0 8 A COPY 2

GENERATION CORRECTIVE MAINTENANCE SYSTEM

30.6	JOB TICKET FORM (WORK REQUEST)- COMPONENT DESIGNATION LOCATION / UNIT JOB												THREE MILE ISLAND						T	UNIT 2					RECOMMENDED				
	1	COMP		COMP. ID.	1000	1			L	TYPE			NUMBER					MO DAY YA						PRIDRITY					
	ZA	116	190	FI	<u></u>	0 3	3 6	10	0	2	CIN	1			C	2	#	7 8	1	2	3	11	75	<u>-</u>		_	_	_	
ESCRIBE FUNCTION OR DIFICATION ESTRED	1	RT R	CL	1	12	·~	P 5	1	, V	6	4	1	9		Ð	1	2 6	2/	-	5	-	<i>i</i> !	5 -7	10	٥	0	h	2	
AUSE OF FUNCTION KNOWN)				H	H	H	F				+	+	I			1	+	+	<u> </u>	-		7	+	H			+	П	
	ORIGINATOR'S	E M	ORIGIN	ATOR'S	TANOI	TURE		12	2/3	DAT	28 E	1	1	RVISI				(2/ SU	OD PERV	do	r's Si	GNAT	URE		_ /2	2.3 / DAT		
E	WORK ORD	DER NUMBE SERM		GC COO		• 72	21	ACI NU	COUN	IT R			su	OP	HD	_	CON	H	ON S LR	I	П	Y		RD FA:	LURE DAY	Н	STAR	T AIN	
Ē	O 3 6 0 4	11	REG AGENCY CODE	72	CHG/M NUMBI	5 3	30	6				1	L E	/ NV DDE	/	OU	TAGE USE ODE	0 1]		Ш	H	ATUS OLD ODE			Ш			
	S/M APPROV COMMENCE WI	A.]			1		١						_×				0 0 - 00	-	RESP OR CO	NTR	ACTO	R	1	_					
																			se	t i	for	th	in	AP	10	rovis 02 nual	and	3	
a)	mits and Prec Personnel Equipment	autions:																											
	Environment																												
	Nuclear																												
Po	ost Maintenan	ce Testin	g require	ed and A	Accep	tance	Crit	eria	m	Locu	T.	ラ	a	-1	un	4	w	1.4	.11	i	1		end	me	143	?0->	-2,	,	

GENERATION CORRECTIVE MAINTENANCE SYSTEM

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND REQUEST DATE RECOMMENDED JOB TICKET LOCATION /UNIT TYPE PRIDRITY COMP SYS NUMBER MO DAY TYPE 218 3 5 0 0 2 CM C 10 D DESCRIBE MALFUNCTION 4 F A OR MODIFICATION F 12 P DESIRED 0 CAUSE OF MALFUNCTION 2 (IF KNOWN) 0 0 A 30 y 11 ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO 5 ORIGINATOR'S SIGNATURE 9 WORK ORDER NUMBER GC ACCOUNT NUMBER PLANT CONDITION NPRO FAILURE START LOCATION SU OP CD SERIAL HD RF HS LR VR T MO DAY HR MIN 013 b REG ESTIMATED DOLLARS TAGGING DUTAGE APPLICATION CAUSE REO'D SAFETY NO CODE 0 S/M APPROVAL S /F APPROVAL RESP. LOCATION OR CONTRACTOR MANHOURS CREW COMMENCE WORK COMMENCE WORK PROCEDURE NUMBER SIZE DAY MO DAY I YR 0 ASSISTING DEPART ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR EST EST MANHOURS I CREW CREW MANHOURS OR CONTRACTOR MANHOURS OR CONTRACTOR CREW DATE COMPLETION DATE TOTAL ACTU PURCHASE REQUISITION PURCHASE ORDER REASON MATERIAL ORDER NUMBER MANHO! DAY YR MO DAY CODE NUMBER NUMBER 44 66 73 79 8 0 7 A 8 0 11 A 0 7 8 0 1 A 0 8 8 0 0 9 1 A 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END FAILURE STATUS MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR MO DAY MIN HR FOREMAN - SUPERVISOR OF MAINTENANCE -CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 8 0 8 A CM COORDINATOR-DATA ENTRY NPRO NPRO REPORTED DATE MO D CAUSE OF FAILURE CODES **ACTION TAKEN CODES** TXN FAIL FAIL DETEC FAILURE CODES B B 42 43 8 0 8 A COPY 2

GENERATION CORRECTIVE MAINTENANCE SYSTEM

120-	JOB T	CKET FORM (WORK RED	UEST) - THREE MILE I	SLAND UNIT 2	
	SYS COMP COMP TYPE 10	LOCATION /UNIT	JOB TICKS		RECOMMENDED PRIORITY
erl ft	WT P 001	9 036002	CM CO	488010279	2
DESCRIBE MALFUNCTION OR MODIFICATION DES!RED	Y AND WHE Y NOISY T	AND B DO N STARTE HEY SCUN	DMANUA	HET ALTON LLY THEY THEY ARE	ATICAII ARE VER
CAUSE OF MALFUNCTION (IF KNOWN)	SUMP HAD CLEANED O	EFSIN IN	UMPS PR	TWEEK AN	UE SOME
	ORIGINATOR'S EMP. NO. Doruld ORIGINATOR	O. Berry 1-2-DA	SUPERVISOR'S FMP. NO. 1	Dorald Q. Ber SUPERVISOR'S SIGNATI	
		A6721			
	LOCATION SERIAL	GC ACCOUNT NUMBER		RF HS LR YR	D FAILURE START
	0360001874	5307	11111	1011	
	MOD W NUC NP AGENCY CODE	CHG/MOD NUMBER	CODE	OUTAGE STATUS CAUSE HOLD CODE CODE	
	0000		X]
	S /M APPROVAL COMMENCE WORK MO DAY YR			R I DCATION OR CONTRACTOR	
	010379		1	2036N	
		ance			
		100		set forth in	h the Provisions AP 1002 and fety Manual
	Limits and Precautions: a) Personnel				wanuar
	b) Equipment				
	c) Environment				
	d) Nuclear				
	Post Maintenance Testing required an	d Accontance Criteria			

GENERATION CORRECTIVE MAINTENANCE SYSTEM

ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE - MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE FOREMAN - SUPERVISOR OF MAINTENANCE

Pumps aprinte as designed

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TYPE JOB TICKET LOCATION /UNIT PRIORITY. COMP COMP NUMBER MO DAY SYS 0 3 6 0 2 C C 0 M DESCRIBE MALFUNCTION P OR MODIFICATION 2 DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S SUPERVISOR'S EMP. NO. EMP. NO ORIGINATOR'S SIGNATURE WORK ORDER NUMBER GC ACCOUNT NUMBER PLANT CONDITION NPRD FAILURE START SU OP LOCATION CD RF HS LR SERIAL HD YR MO DAY HR MIN 0 3 6 0 STATUS HOLD CODE ESTIMATED DOLLARS TAGGING DUTAGE CHOZMOD W AGENCY APPLICATION REG D CAUSE SAFETY NO. CODE X 000 00 50 S / M APPROVAL S /F APPROVAL ES RESP. LOCATION CREW COMMENCE WORK COMMENCE WORK MANHOURS PROCEDURE NUMBER OR CONTRACTOR SIZE | DAY | YR MO DAY MO 0 0 ASSISTING DEPARTMENT RESP. LOCATION EST ASSISTING DEPARTMENT RESP. LOCATION RESP. LOCATION EST EST OR CONTRACTOR CREW CREW MANHOURS OR CONTRACTOR MANHOURS OR CONTRACTOR CREW MANHOURS * TOTAL ACTUAL MANHOURS TXN DATE COMPLETION DATE REASON PURCHASE REQUISITION PURCHASE ORDER MATERIAL ORDER NUMBER NUMBER NUMBER DAY MO DAY YR CODE * * 66 67 74 8 0 7 A 20 8 0 1 A 0 REP FRAYE FOR AC RECA 0020 ++ AND 2 8 0 2500 1 A 0 8 8 2 AT ED 082 P UT 5RY1 2 BA CE 5 8 0 1 A 0 9 8 U 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR MO DAY MIN FOREMAN - SUPERVISOR OF MAINTENANCE -39 CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 8 0 8 A CM COORDINATOR-DATA ENTRY EFFECT OF FAILURE CODES NPRO CAUSE OF FAILURE CODES ACTION TAKEN CODES LICENSE EVENT FAIL REPORTED DATE MODE B 6 43 47 COPY 2 8 0 8 A

GENERATION CORRECTIVE MAINTENANCE SYSTEM

d) Nuclear

c) Environment

Post Maintenance Testing required and Acceptance Criteria.

ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE - MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE FOREMAN - SUPERVISOR OF MAINTENANCE

COPY 1

JOB TICKET NUMBER A491

Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021. C/M No. __ 2a. Does work require an RWP 2b. Is an approved procedure required to minimize personnel exposure. 3a. Is work on a QC component as defined in GP 1008. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No). Unit Superintendent Date is the system on the Environmental Impact list in AP 1026 If 5a is Yes, is an approved procedure required to limit environmenta, impact 5b. 6. Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations Date Plant status or prerequisite conditions required for work 7 QC Dept. review, if required in item No. 3 8. QC Supervisor 9. Supervisor of Maintenance approval to commence work: 4 Maintenance Foreman Assigned: Benitt 10. 16en xu Y / Date Shift Foreman's approval to commence work. Initial if Shift Foreman Radiation Work Permit No. signature is not required

	JOB TICKET (WORK REQUEST) NUMBER 0498
12.	Retest met acceptance criteria Yes No
13.	Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature
	GILBERT - 4/12/79 8/1/28 STA
14.	Work completed and component alligned for testing.
	Initial if S. F. signature is not required. Shift Foreman's Signature Date
15.	Testing completed and component released for normal use.
	Initial if S. F. signature is not required. Shift Foreman's Signature Date
16.	Quality Control Department review of work and testing completed (QC work only).
	Surveillance Report No. QC Department Date
17.	Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.
	Supervisor of Majortenance Signature Date

322		(WORK REQUEST)	THREE MILE ISLAND	UNITZ	
	SYS COMP. COMP. 5 TYPE 10	CATION/UNIT JOB	JOB TICKET NUMBER	MO DAY YR	RECOMMENDED PRIORITY
	0HV 0008 03	6 0 0 2 C M	1 c 0 4 9 5	010479	2
DESCRIBE MALFUNCTION OR MODIFICATION DESIRED	PROVIDE ALARM S LOW OR ES T ION PER ECM S		L 8 WHEN ITCHIS REY 4	BWST A	FUELI
CAUSE OF MALFUNCTION (IF KNOWN)	TO 6 TUE CRO B FOR 04-4-8A/B		INDICATI LOCK WIT	UN OF S H BWST	STATUS LEVEL
	ORIGINATOR'S EMP NO. OG 6 38 James L. Pare ORIGINATOR'S SIGNATURE A 6 7	DATE	SUPERVISOR'S EMP. NO.	supervisor's SIGNATURE	Pules 1/4/7
	WORK ORDER NUMBER GC CODE LOCATION SERIAL CODE 53	ACCOUNT NUMBER	PLANT CONDITION SU OP HD CD RF HS	N NPROFI	
	LHANGE R NUC NP REG AGENCY CODE CHG/MOD NUMBER		ENV CODE CAUSE CAUSE CODE	STATUS HOLD CODE	
	S7M APPROVAL COMMENCE WORK MO DAY YR	tou	O Y	RESP LOCATION OR CONTRACTOR	
			Con	nply with the l	Provisions
	Limits and Precautions: a) Personnel			t Ed Safety Ma	
	b) Equipment				

GENERATION CORRECTIVE MAINTENANCE SYSTEM

c) Environment

d) Nuclear

Post Maintenance Testing required and Acceptance Criteria WIRING COMPLETED AND FONCTIONS
AS PER DESIGN OF ECM S-5970 REV 4

JOB TICKET NUMBER 0495

1.	Does work represent a change or modification to an existing system or compone If yes, an approved change modification is required per AP 1021. C/M No. 2-03/0	nt? Yes	No
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No_
3a.	Is work on a QC component as defined in GP 1008.	Yes /	E No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes_	No_
4.	Agreement that a PORG reviewed, Superintendent approved procedure is not recit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this	work because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No_/
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	_ No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Unit Superintendent/Supervisor of Operations		Date
7.	Plant status or prerequisite conditions required for work operating or shut	Rown	
8.	QC Dept. review, if required in item No. 3		
	QC Supervisor (AT Enlamis)		Date 3/2/2
9.	Supervisor of Maintenance approval to cmence work: E. Shows	elter	Date 3/12/7
10.	Maintenance Foreman Assigned: 5348 atth. (page. 68)		
11.	Shift Foreman's approval to commence work Chulchie	Date	3/26/79
	Initial if Shift	NI	4
	Foreman Radiatio signature is not required	n Work Permit N	No.

JOB TICKET (WORK REQUEST) NUMBER C-0495

12.	Retest met acceptance criteria Yes No
13.	Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature
	WAGNER 3-27-79 BYR Date
14.	Work completed and component alligned for testing.
	Initial if S. F. signature is not required. Shift Foreman's Signature Date
15.	Testing completed and component released for normal use.
	Initial if S. F. signature is not required. C&rthu: 3/27/7
16.	Quality Control Department review of work and testing completed (QC work only).
	Surveillance Report No. OF CO Department Date
17.	Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.
	Rex - 514/2

WORK REQUEST PROCEDURE

TMI Nuclear Station

Maintenance Procedure Format and Approval

Un	it No. C.
for	is form outlines the format and acts as a cover sheet for a maintenance procedure. Due to the limited size of the m, additional pages may be attached as required. Work Request procedure AP 1016 Section 6 should be used as uide in preparing the maintenance procedure.
1.	Procedure Title & No.:
	ADD ALARM ON PNL & FOR DH-V-8A/B IN TEST POSITION WHEN BUST LEVEL IS LOW AS PER ECM-5976 REV 4 FQ 2679
2.	Purpose: PROVIDE GUIDANCE FOR ABOJE
3.	Description of system or component to be worked on.
	DH-V-8A/B TEST SWITCH
4.	References: ATTACHED FQ 2679 ECM 5-5970 R4
5.	Special Tools, and Materials required.
	NONE
6.	Detailed Procedure (attach additional pages as required) SEE ATTACHED
	Supervisor of Maintenance recommends approval 50. Should Date 2-20-79
	* PORC RECOMMENDS APPROVAL
	Unit No. 1 Chairman 1 Date Unit No. 2 Chairman Revalence 3/5/79
	UNIT SUPERINTENDENT APPROVAL
	Unit No. 1 Date Unit No. 2 Oh Fry Date 3/6/79
	* Standing Procedure
	Supervisor of QC Date
	*Note: These approvals required only on Nuclear Safety Related/Radiation work permit jobs.

- 6.0 Procedure
- 6.1 Oltani Blift Symmon/Shift Foreman germineni to begin work
- and equipment softy.
- 9AF/mcc-2-HEA & Cond. Pul 8 (TB-C-11)
- compt. 11AF/mce 2-21EA & Cat. Pul, 8 (TB-c)
- MCC 2-ZIEA.
- 6.6 In control pul 8 remove jumper between TB-CA-13 & CA-14 and add jumper between TB-CA-13 & TB-C-12.
- 6.7 add window in Pul 8 alam window B17 engraved "BUST LEVEL LOW OR ES TEST SW. ACTUATED"
- 6.8 Brown logic of alan circuit and notify Shift Source that the source added as for FQ 2679 and ECM 5-5970 R4.
- 69 Remove tags if necessary.

44.7	JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND UNIT 2
The same of the sa	COMPONENT DESIGNATION REQUEST DATE PERCOMMENDED
	SYS COMP. COMP. TYPE NUMBER MO DAY YR
**	1 3 8 4 0003 036002 CM C0496010379 /
DESCRIBE	- REPLACE LUBE WATER STRAINER CARTRIDGES -
MALFUNCTION) SUSPECTED CLOGGED
MODIFICATION DESIRED	
CAUSE OF	
MALFUNCTION (IF KNOWN)	VERY DURTY RIVER, WATER
	ORIGINATOR'S SUPERVISOR'S
	EMP. NO. Amilla 1-3-79 EMP. NO. Aviilla 1-3-79
	0 5 8 7 3 SUPERVISOR'S SIGNATURE DATE DATE
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	WORK ORDER NUMBER GC ACCOUNT PLANT CONDITION
	LOCATION SERIAL CODE NUMBER SU OP HD CD RF HS LR YR MO DAY HR MIN
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11.00	CHANGE R PEG STORY
	MOD W NUC RED D P SAFETY RO CODE NUMBER APPLICATION CODE CAUSE HOLL DOLLARS NO CODE NUMBER NO CODE CODE
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	- PARTITION LE MARCONINO
	S /M APPHOVAL S /F APPROVAL COMMENCE WORK PROCEDURE NUMBER B OR CONTRACTOR CREW MANHOURS
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	OR CONTRACTOR CREW MANHOURS OR CONTRACTOR CREW MANHOURS RESP. LOCATION EST CREW MANHOURS
	JOB COMPLETION FIELD WORK SIGN OFF
TXN C	DATE COMPLETION DATE REASON TOTAL ACTUAL PURCHASE REQUISITION PURCHASE ORDER MATERIAL ORDER
1 4	39 44 45 50 51 52 53 58 59 66 67 73 74 80
8 0 7 A	01/10790108791/600040
1 2	39 RESOLUTION DESCRIPTION 80
8 0 1 A	07 CHANGED FILTERS
8 0 1 A	08
8 0 1 A	0 9
8 0 1 A	10
TA TA	NPRO FAILURE FAILURE FAILURE ORIGINATOR - SUPERVISOR - SUPERVISOR C/F MAINTENANCE -
CD C	YR , MO , DAY , HR , MIN TO MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE
0000	39 48 49 50 FOREMAN — SUPERVISOR OF MAINTENANCE — CM COORDINATOR DATA ENTRY-SUPERVISOR OF MAINTENANCE
8 0 8 A	CM COORDINATOR-DATA ENTRY
TXN C	NPRD NPRD CAUSE OF FAILURE CODES EFFECT OF FAILURE CODES ACTION TAKEN CODES LICENSE EVENT REPORTED DATE
1 4	TYPE MODE 39 40 41 42 43 50 51 55 56 57 58 A B YR MO DAY 71
8 0 8 A	COPY 2

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Comply with the Provisions set forth in AP 1002 and Met Ed Safety Manual

Limits and Precautions:

a) Personnel

- b) Equipment
- c) Environment
- d) Nuclear

Post Maintenance Testing required and Acceptance Criteria.

Strains cleans - OP is within limite

JOB TICKET NUMBER 0496

1.	Does work represent a change or modification to an existing system or component	ent?	
	If yes, an approved change modification is required per AP 1021. C/M No	Yes	No
2a.	Does work require an RW ^D	Yes	No
2b.	Is an approved procedura required to minimize personnel exposure.	Yes	No
3a.	Is work on a QC component as defined in GP 1008.	Yes	No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No_/
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not red it has no effer on nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this w	vork because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No_
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Unit Superintendent/Supervisor of Operations		Date
7.	Plant status or prerequisite conditions required for work. Operation or show	70	
8.	QC Dept. review, if required in item No. 3	arun	
	QC Supervisor		Date
9.	Supervisor of Maintenance approval to commence work: up mily		Date 1/4/19
10.	Maintenance Foreman Assigned:		77-
11.	Shift Foreman's approval to commence work	Date	1-8-79
	Initial if Shift	14	
	Foreman Radiation	n Work Permit No	
	signature is not required		

0490

		OB TICKET (WORK REQUEST) NUMBER _	
12.	Retest met acceptance criteria	Yes No	
13.	Work Performed by date/time	Nork Reviewed - Maintenance Foreman's Signal Date	ature
14.	Work completed and component alli	gned for testing.	
	Initial if S. F. signature is not require	ed. AMCCA. Shift Foreman's Signature	1-8-79 Date
15.	Testing completed and component relationships and componen	11. 20	1-8-79
16.	Quality Control Department review (of work and testing completed (QC work only).	Date
17.	Supervisor of Maintenance Job Ticks	et (Work Request) and procedure are complete and signed in form has been signed off as required. E. Showalter	1/10/79
		Supervisor of Maintenance Signature	Date

JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET JOB TYPE LOCATION /UNIT PRIDRITY COMP COMP SYS MO DAY YR TYPE 10 15 616 17 24 3 6 0 0 0 2 CM C 9 0 E D 0 13 DESCRIBE MALFUNCTION 7 P A 0 N E D OR MODIFICATION DESIRED CAUSE OF MALFUNCTION 10 E 9 (IF KNOWN) ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO. 8 3/19 0 2 6 0 A672 ACCOUNT WORK ORDER NUMBER GC PLANT CONDITION NPRO FAILURE START NUMBER LOCATION SERIAL SUIOP HD CD RF HS LR YR MO DAY HR MIN 97 0 3 6 0 REG ENV STATUS TAGGING ESTIMATED OUTAGE CHG/MOD NUC AGENCY APPLICATION CAUSE HOLD DOLLARS NUMBER CODE NO: CODE 0 S /M APPROVAL S /F APPROVAL RESP. LOCATION CREW COMMENCE WORK MANHOURS COMMENCE WORK PROCEDURE NUMBER OR CONTRACTOR SIZE MO DAY YR MO DAY YR 4 ASSISTING DEPARTMENT ASSISTING DEPARTMENT ASSISTING DEPARTMEN RESP LOCATION EST RESP. LOCATION EST OR CONTRACTOR CREW MANHOURS CREW MANHOURS OR CONTRACTOR OR CONTRACTOR CREW MANHOURS . FIEED WOR SIGN OFF REASON PURCHASE REQUISITION NUMBER TOTAL ACTUAL DATE COMPLETION DATE PURCHASE ORDER MATERIAL ORDER ▼ CODE MANHOURS MO DAY YR MO DAY YR NUMBER NUMBER * * 73 74 44 66 8 0 7 A 39 RESOLUTION DESCRIPTION 0 7 8 0 1 A 8 0 1 0 8 A 8 0 1 A 0 9 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END FAILURE NO FAILURE MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YH DAY MIN FOREMAN - SUPERVISOR OF MAINTENANCE-49 CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 0 8 8 A CM COORDINATOR DATA ENTRY NPRO CAUSE OF FAILURE CODES EFFECT OF LICENSE EVEN ACTION TAKEN CODES REPORTED DATE FAIL FAIL FAILURE CODES A CD YR B 8 42 COPY 2 8 0 8

GENERATION CORRECTIVE MAINTENANCE SYSTEM

UNIT 2

GENERATION CORRECTIVE MAINTENANCE SYSTEM UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET NUMBER LOCATION /UNIT PRIORITY DAY SYS TYPE 3 6 2 0 0 CM F C 0 0 W S RE 0 D DESCRIBE MALFUNCTION PAI FE BE 0 7 N TED OR MODIFICATION DESIRED CAUSE OF MALFUNCTION 2 EIR (IF KNOWN) ORIGINATOR'S EMP. NO WORK ORDER NUMBER CODE PLANT CONDITION ACC NPRD FAILURE START LOCATION SERIAL SUIOP HS LR MO DAY HR MIN 87 0 3 6 0 0 STATUS DUTAGE AGENCY HOLD CAUSE SAFETY CODE 0 0 0 0 GR CONTRACTOR COMMENCE WORK MO DAY YR 4 4 3 0 Comply with the Provisions set forth in AP 1002 and

Met Ed Safety Manual

Limits and Precautions:

- a) Personnel
- b) Equipment
- c) Environment
- d) Nuclear

Post Maintenance Testing required and Acceptance Criteria.

ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE - MAINTENANCE FOREMAN -JOB PERFORMER - MAINTENANCE FOREMAN - SUPERVISOR OF MAINTENANCE

COPY 1

JOB TICKET NUMBER

01002

Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021. C/M No. Does work require an RWP 2a. 2b. Is an approved procedure required to minimize personnel exposure. Is work on a QC component as defined in GP 1008. 3a. 3b. If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes. PORC reviewed Superintendent approved procedure must be used. Agreement that a PORC reviewed, Superintendent approved procedure is not required for this work because it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No). Is the system on the Environmental Impact list in AP 1026 If 5a is Yes, is an approved procedure required to limit environmental impact 6. Agreement that 5b is No. (Required only if 5a is Yes). Unit Superintendent/Supervisor of Operations Date Plant status or prerequisite conditions required for work. Opor 5/10 7. 8. QC Dept. review, if required in item No. 3 9. Supervisor of Maintenance approval to commence work: 1 Maintenance Foreman Assigned: 10. 11. Shift Foreman's approval to commence work Initial if Shift Foreman Radiation Work Permit No. signature is not required

	JOB TICKET (WORK REQUEST) NUMBER
12.	Retest met acceptance criteria Yes No
13.	Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature
	WYNN 01/22/79 MBenth
14.	Work completed and component alligned for testing.
	Initial if S. F. signature is not required. Shift Foreman's Signature Date
15.	Testing completed and component released for normal use.
	Initial if S. F. signature is not required. Shift Foreman's Signature Date
16.	Quality Control Department review of work and testing completed (QC work only). Surveillance Report No. QC Department Date
17.	Supervisor of Maintenance Job Ticket (Work Req. est) and procedure are complete and signed off as required. Change/modification form has been signed off as required. With 1/26/29 Date 1/26/29 Date te Date Date Date Date Date Date Date Date Date Date Date Date Date Date D

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET LOCATION /UNIT PRIORITY NUMBER MO DAY TYPE 10 3 6 0 3 0 2 CM C 4 DESCRIBE MALFUNCTION OR MODIFICATION DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S SUPERVISOR'S EMP. NO. 0 ORIGINATOR'S SIGNATURE A6721 WORK ORDER NUMBER ACCOUNT PLANT CONDITION NPRD FAILURE START NUMBER SU OP HD RF HS LR LOCATION SERIAL CD DAY YR MO HR MIN 0 3 6 0 STATUS ESTIMATED REG TAGGING OUTAGE AGENCY APPLICATION CAUSE NUMBER CODE CODE NO. 000 20 S /M APPROVAL S /F APPROVA RESP. LOCATION CREW MANHOURS COMMENCE WORK COMMENCE WORK PROCEDURE NUMBER MO DAY YR MO 1 DAY YR 20 0 020 3 e 00 0 ASSISTING DEPARTMENT ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP LOCATION RESP. LOCATION OR CONTRACTOR EST RESP. LOCATION OR CUNIRACTOR | CREW CREW CREW MANHOURS MANHOURS OR CONTRACTOR MANHOURS PURCHASE REQUISITION TOTAL ACTUAL PURCHASE ORDER NUMBER DATE COMPLETION DATE REASON MATERIAL ORDER MO ▼ CODE NUMBER VA DAY MO DAY YR NUMBER 44 66 000040 8 0 7 A 0 0 2 4 9 RESOLUTION DESCRIPTION PS 8 0 1 0 7 FW-- 3769-A 8 0 0 8 ARDS PEVERSED 1 0 0 9 1 CORRECTLY 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END FAILURE FAILURE MAINTENANCE FOREMAN - JOS PERFORMER - MAINTENANCE YR DAY MIN FOREMAN - SUPERVISOR OF MAINTENANCE -CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 8 0 8 A CM COORDINATOR-DATA ENTRY LICENSE EVENT REPORTED DATE R MO DAY NPRI EFFECT OF CAUSE OF FAILURE CODES **ACTION TAKEN CODES** FAIL YR MODE TYPE B B CODE COPY 2 8 0 8 A

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	b) Equipment c) Environment	in a	1 S.T.	(e.j	i.i.	277.2	-																						
	d) Nuclear																												
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GENERATION CORRECTIVE MAINTENANCE SYSTEM

	JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND UNIT 2	1.
*	COMPONENT DESIGNATION REQUEST DATE RECOMMENDED	
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DESIRED		
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(IF KNOWN)		-
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	WORK ORDER NUMBER GC ACCOUNT PLANT CONDITION	_
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8 0 7 A	0124740(28791 000180	
1 4	39 RESOLUTION DESCRIPTION	80
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8 0 1 A	0 9	
8 0 1 A	10	
TXN A	NPRO FAILURE END FAILURE ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -	_
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8 0 8 A	CM COORDINATOR - DATA ENTRY - SUPERVISOR OF MAINTENANCE CM COORDINATOR - DATA ENTRY	
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	b) Equipment																													
	c) Environmen	nt																												

d) Nuclear

Operate as

Post Maintenance Testing required and Acceptance Criteria.

ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE

COPY 1

JOB TICKET NUMBER 0730 Does work represent a change or modification to an existing system or component? If yes, an approved change modification is required per AP 1021.

	C/M No.	Yes	No ~
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
3a.	Is work on a QC component as defined in GP 1008.	Yes	_ No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not re it has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	quired for this	work because
	Unit Superintendent		Date
5a.	is the system on the Environmental Impact list in AP 1026	Yes	_ No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
	Unit Superintendent/Supervisor of Operations		0
7.	Plant status or prerequisite conditions required for work		Date
8.	QC Dept. review, if required in item No. 3 Operating or short	Rown	
	QC Supervisor		Date
9.	Supervisor of Maintenance approval to commence work: W. Mety		Date 1/10/19
10.	Maintellce Foreman Assigned: (Kenny 6	2	
11.	Shift Foreman's approval to commence work J. Schouman	Date_	1/27/79
	Initial if Shift Foreman Radiations is not required	NA on Work Permit N	lo.

12.	Retest met acceptance criteria Yes No
13.	Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature Date Date
14.	Work completed and component alligned for testing.
	Initial if S. F. signature is not required. Shift Foreman's Signature Date
15.	Testing completed and component released for normal use
	Initial if S. F. signature is not required. The characteristic 1/28 Shift Foreman's Signature Date
16.	Quality Control Department review of work and testing completed (QC work only).
	Surveillance Report No. QC Department Date
17.	Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required.
	Supervisor of Mintenance Si; nature Date

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET LOCATION / UNIT PRIGRITY NUMBER MO DAY YR SY5 TYPE 1D 3 6 0 0 0 2 C 3 9 CM 5 P DESCRIBE MALFUNCTION 0 R P15 TIO DR MODIFICATION R = D DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S SUPERVISOR'S 2 0 7 SUPERVISOR'S SIGNATURE ACCOUNT NUMBER WORK ORDER NUMBER PLANT CONDITION NPRO FAILURE START LOCATION SERIAL SU OP HD CD RF HS LR DAY YR MO HR MIN 0 3 6 0 3 STATUS REC DOLLARS CHG/MOD NUMBER W APPLICATION CAUSE NO CODE 0080 00 0 S /F APPROVAL COMMENCE WORK S /M APPROVAL RESP. LOCATION CREW COMMENCE WORK MANHOURS PROCEDURE NUMBER SIZE MO 1 DAY DAY YR YR 24 8 0 0 0 0 ASSISTING DEPARTMENT ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP. LOCATION EST MANHOURS RESP. LOCATION OR CONTRACTOR EST EST CREW OR CONTRACTOR CREW MANHOURS CREW OR CONTRACTOR MANHOURS PURCHASE REQUISITION TOTAL ACTUAL DATE COMPLETION DATE REASON PURCHASE ORDER MATERIAL ORDER ▼ CODE MANHOURS NUMBER MO DAY MO DAY YR NUMBER NUMBER • 67 66 7 8 0 A 0000 U 1 A 0 7 P AN 8 0 1 A 0 8 8 0 1 A 0 9 MO 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END TXS FAILURE MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR FOREMAN - SUPERVISOR OF MAINTENANCE -48 CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 8 0 8 A CM COORDINATOR - DATA ENTRY NPAD NPRO CAUSE OF FAILURE CODES ACTION TAKEN CODES LICENSE EVEN FAILURE CODES FAIL FAL REPORTED DATE TYPE MODE MO A DAY B R 41 42 43 COPY 2 8 0 8 A

GENERATION CORRECTIVE MAINTENANCE SYSTEM

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c) Environment

b) Equipment

d) Nuclear

Post Maintenance Testing required and Acceptance Criteria.

PT operates properly

JOB TICKET NUMBER 0890

1.	Does work represent a change or modification to an existing system or compone If yes, an approved change modification is required per AP 1021. C/M No.	nt? Yes	No/
2a.	Does work require an RWP	Yes_L	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No
3a.	Is work on a QC component as defined in GP 1008.	Yes	No
3b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not recit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	uired for th	is work because
	Unit Superintendent		Date
5a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
7.	Unit Superintendent/Supervisor of Operations Plant status or prerequisite conditions required for work. OP and S/	0	Date
8.	QC Dept. review, if required in item No. 3		
	QC Supervisor		Date
9.	Supervisor of Maintenance approval to commence work: E. Shawa	Her	Date 1/23/75
10.	Maintenance Foreman Assigned:		
11.	Shift Foreman's approval to commence work F Schaumann	Date	1/24/79
	Initial if Shift	1A n Work Permi	t No.

JOB TICKET (WORK REQUEST) NUMBER 0890 12. Retest met acceptance criteria Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature 14. Work completed and component alligned for testing. Initial if S. F. signature is not required. Shift Foreman's Signature 15. Testing completed and component released for normal use. Initial if S. F. signature is not required. Shift Foreman's Signature Quality Control Department review of work and testing completed (QC work only). 16. Surveillance Report No. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed 17. off as required. Change/modification form has been signed off as required. Supervisor of Maintenance Signature

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TYPE JOB TICKET LOCATION / UNIT COMP PRIDRITY NUMBER DAY YR TYPE 10 0 3 6 0 0 2 C C M P 0 DESCRIBE MALFUNCTION DIT 0 1 OR MODIFICATION DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO. 0 0 ORIGINATOR'S SIGNATURE DAJE 0 SUPERVISOR'S SIGNATURE A6721 WORK ORDER NUMBER GC ACCOUNT PLANT CONDITION NPRD FAILURE START LOCATION SERIAL SU OP CH CD RF HS LR YR DAY MO HR MIN 0 3 6 0 9 STATUS HOLD CODE RES ESTIMATED DOLLARS TAGGING CODE QUITAGE AGENCY CHG/MOD APPLICATION CAUSE NUMBER SAFETY NO. CODE 40 0 S / M APPROVAL S / F APPROVAL RESP. LOCATION CREW COMMENCE WORK COMMENCE WORK MANHOURS PROCEDURE NUMBER OR CONTRACTOR MO DAY YR MO DAY YR 20 ASSISTING DEPARTMENT ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP LOCATION EST RESP. LOCATION OR CONTRACTOR CREW OR CONTRACTOR MANHOURS OR CONTRACTOR CREW MANHOURS CREW MANHOURS COMPLETION DATE TXN TOTAL ACTUAL PURCHASE REQUISITION NUMBER MATERIAL ORDER NUMBER DATE REASON PURCHASE ORDER MANHOURS MO DAY YR MO DAY YR CODE NUMBER * * * 66 67 44 58 59 73 2 8 0 7 3 0 A RESOLUTION DESCRIPTION 8 0 0 7 R A 2 1 8 0 0 8 1 A 8 0 1 A 0 9 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END FAR URE STATUS TXN MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE MIN FOREMAN - SUPERVISOR OF MAINTENANCE -48 50 CM COORDINATOR-DATA ENTRY-SUPERVISOR OF MAINTENANCE 0 8 A CM COORDINATOR - DATA ENTRY NPRD NPRO CAUSE OF FAILURE CODES EFFECTO REPORTED DATE MO DAY **ACTION TAKEN CODES** TXN DETEC FAIL FAI! FAILURE CODES A 8 MODE A B YR B COPY 2 8 0 8 A

GENERATION CURRECTIVE MAINTENANCE SYSTEM

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and Wet Ed Safety Manual.

Limits and Precautions:

- a) Personnel
- b) Equipment
- c) Environment
- d) Nuclear

Post Maintenance Testing required and Acceptance Criteria Mountal INW sect. 6.11 in procedure 1430-4-21

REVIEW - CLASSIFICATION - ROUTING CONTROL FORM

JOB TICKET NUMBER 0956

1.	Does work represent a change or modification to an existing system or componently yes, an approved change modification is required per AP 1021. C/M No.	Yes	No
2a.	Does work require an RWP	Yes	No
2b.	Is an approved procedure required to minimize personnel exposure.	Yes	No_
3a.	Is work on a QC component as defined in GP 1008.	Yes //	7 No
3b.	If 3a is ves does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
4.	Agreement that a PORC reviewed, Superintendent approved procedure is not requit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	uired for this v	vork because
	Unit Superintendent	-	Date
5a.	Is the system on the Environmental Impact list in AP 026	Yes	No
5b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
6.	Agreement that 5b is No. (Required only if 5a is Yes).		
7.	Unit Superintendent/Supervisor of Operations Plant status or prerequisite conditions required for work.		Date
8.	QC Dept. review, if required in item No. 3 Operating or white	low	
	ac Supervisor Spanis		Date 1/30/79
9.	Supervisor of Maintenance approval to commence work: 40 Mets		Date 1/30/79
10.	Maintenance Foreman Assigned:		
11.	Shift Foreman's approval to commence work	Date	
	Initial if Shift		
	Foreman Radiation signature is not required	Work Permit No	

JOB TICKET (WORK REQUEST) NUMBER 12. Retest met acceptance criteria Yes No 13. Work Reviewed - Maintenance Foreman's Signature Work Performed by date/time Date 14. Work completed and component alligned for testing. Initial if S. F. signature is not required. Shift Foreman's Signature 15. Testing completed and component released for normal use. Initial if S. F. signature is not required. Shift Foreman's Signature Date Quality Control Department review of work and testing completed (QC work only). 16. Surveillance Report No. QC Department 17. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required. Date Supervisor of Maintenance Signature

1430-Y-21 Revision i 04/12/78

WORK REQUEST PROCEDURE

Thil Nuclear Station

Maintenance Procedure Format and Approval CONTROLLED CUPY Station

This form outlines the format and acts as a cover sheet for a maintenance procedure. Due to the limited size of the form, additional pages may be attached as required. Work Request procedure AP 1016 Section 6 should be used as a guide in preparing the maintenance procedure.

1.	Procedure Title & No.: 1430-Y-21
	Quality Control Mounting Procedure for (Unit II) Instruments and Controls
2.	Purpose: Insure instruments and controls that are not required to function during or after a seismic event must maintain its mechanical integrity in order to prevent discharge of radioactive material and/or jeopardize the overall performance capability of systems required to safely shutdown the reactor plant and maintain it in a shutdown condition.
3.	Description of system or component to be worked on. Instruments, controls, linkages, tubing, instruments isolation valves, wires, and etc., used to sense and/or initiate a system response.
4.1	
5.	Special Tools, and Materials required.
	Special Tools, and Materials required. Tools as necessary depending on individual job. It could include scales, scribes, tubing wrenches, and regular hand tools.
	Tools as necessary depending on individual job. It could include scales, scribes,

Supervisor of QC

Date

Note: These approvals required only on Nuclear Safety Related/Radiation work permit jobs.

6.0 PROCEDURE .

NOTE: This procedure may be used in conjunction with other detailed work procedures.

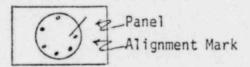
- 6.1 Inform the Shift Foreman that you will be commencing work. Insure he is aware of what instrument, indication or system you may be affecting.
- 6.2 Mounting Applicable if the equipment must be moved.

NOTE: For the purposes of this procedure an instrument is

defined as a measuring device for determining the present

value of a quantity under observation i.e., it must have
a readout.

- 6.2.1 Inspect the mounting of the device. If it appears to have been improperly mounted or modified consult the applicable mounting print.
- 6.2.2 If the mounting is complex make a sketch to insure all parts are replaced properly.
- 6.2.3 When you are sure of the proper mounting and tagging is complete (if applicable), remove the device for maintenance. If the orientation of the mounting is not obvious, place alignment marks on the device and the mounting. Insure proper collection of the water if the device has a liquid boundary.



6.2.4 When the unit is repaired, remount the device and if necessary, consult the applicable mounting print or sketch. If any mounting part (i.e. nuts, bolts, washer, etc.) is lost or broken, replace it with an equivalent commercially available

part. For a question concerning the parts equivalency consult the Mechanical Engineering Department for guidance.

- 6.3 Electronic/Electrical control devices mounted in racks, cabinets, or mounting.
- 6.3.1 All wires shall be routed and supported so as not to be the support of the device. Terminal screws should be checked for tightness.
- 6.3.2 All conduit supports shall be tight.
- 5.3.3 Mounting bolts and screws shall be tight.

NOTE: This section is also applicable to devices mounted in the internals of QC instruments.

- 6.4 Devices with process connections.
- 6.4.1 Must be supported per original design.
- 6.4.2 The pressure connection point shall be sealed with proper thread sealant. (Note: Teflon tape is prohibited in primary system). Any gasket should be inspected for damage and reinstalled or replaced.
- 6.4.3 The device shall be leak tested in accordance with Step 6.7.5.
- 6.5 Instrument valves

NOTE: This procedure is not applicable if any welding is required.

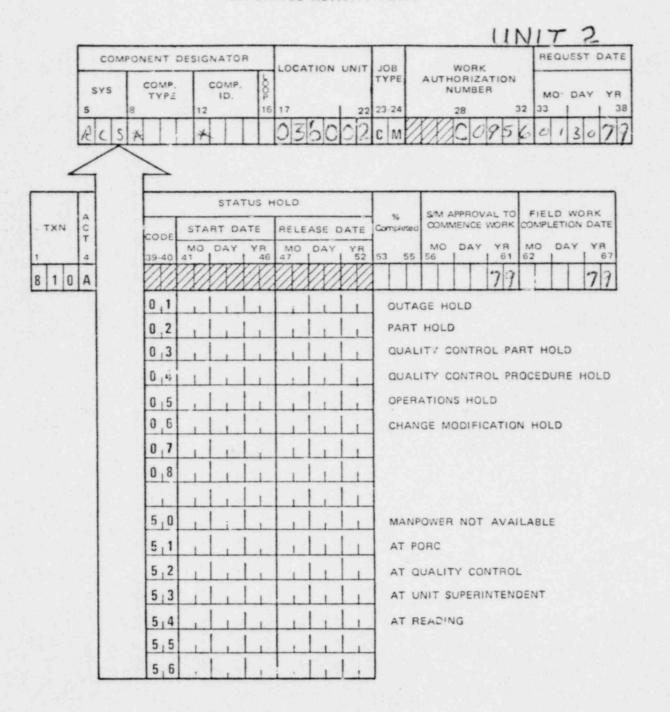
- 6.5.1 The pressure connection point shall be sealed with proper thread sealant. (Note: Teflon tape is prohibited in primary systems). Any gasket should be inspected for damage and reinstalled or replaced.
- 6.5.2 The valve shall be leak tested in accordance with Step 6.7.5.
- 6.6 Valve operators and associated equipment.

- 6.6.1 Before removing the operator ensure a sketch showing all the mountings and connections is on hand, if applicable.
- 6.6.2 When replacing the operator or associated equipment all brackets and mountings shall be tight.
- 6.6.3 All pneumatic or process connections shall be connected per 6.7.
- 6.6.4 Lubricate as necessary to insure all moving parts are free to move smoothly.
- 6.7 Threaded pipes and tubing.
- 6.7.1 Before removing any pipe or tubing support, make sketches and record all dimensions necessary to ensure supports are properly replaced. (eg. length of support rod, distance between supports, etc.).
- 6.7.2 All piping connections must be sealed with proper thread sealant. (Note: Teflon tape is prohibited in primary systems).
- 6.7.3 All tubing connections shall be connected properly. (Note: Use vendors manual or 1410-Y-4 for reference).
- 6.7.4 All pipe hangers and supports must be reinstalled in accordance with engineering specifications. If there is any questions regarding support design or spacing contact Mechanical Engineering.
- 6.7.5 All piping and tubing connections shall be inspected for leaks and normal operating pressure immediately upon presumption and after about 10 minutes at pressure.
- 6.8 Mechanical linkages.
- 6.8.1 Ensure a sketch of the linkage is available before disassembly.

 (Either obtain a vendor drawing or make your own). Ensure all sketches indicate which joints should be tight and which are free to move.

- 6.8.2 Reassemble the linkage in accordance with the sketch. Lubricate as necessary. Ensure all fasteners are properly secured.
- 6.9 Report clear to the Shift Foreman and clean up the work area.
- 6.10 Document the completed work on the work request.
- 6.11 Acceptance Criteria
- 6.11.1 The device is mounted per the original or applicable mounting print.
- 6.11.2 All screws, bolts, and fasteners are properly tightened.
- 6.11.3 No pressure boundary leaks at normal operating pressure per 6.7.5.

GENERATION CORRECTIVE MAINTENANCE SYSTEM CM STATUS ACTIVITY FORM



WORK REQUEST PROCEDURE TMI Nuclear Station Maintenance Procedure Format and Approval

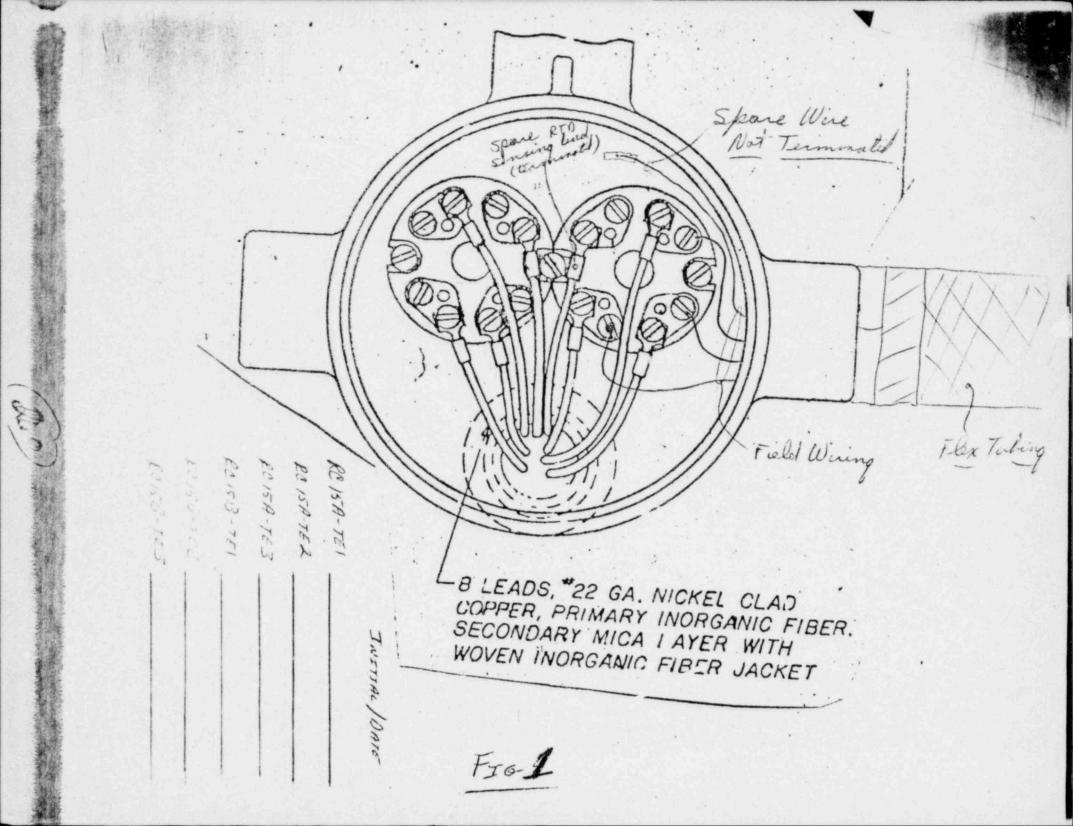
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for	is form outlines the format and acts as a cover sheet for a maintenance procedure. Due to the limited size of the rm, additional pages may be attached as required. Work Request procedure AP 1016 Section 6 should be used as juide in preparing the maintenance procedure.
1.	Procedure Title & No.:
	TERMINATE SPARE FIELD WIRES IN RTO HEAD FOR ALL
2.	Purpose: Provide quictance for terminating spare field wir in RTD Head for all RE 155
3.	Description of system or component to be worked on. RCS Temp Monitoring
4.	References: AP 100Z AP 1003 Met Ed Safety Manual.
5.	Special Tools, and Materials required. Wone
6.	Detailed Procedure (attach additional pages as required) Per Attached Pages.
	Supervisor of Maintenance recommends approval No. 1 Chairman Date Unit No. 2 Chairman Power Date 1/30/79
ι	UNIT SUPERINTENDENT APPROVAL Unit No. 1 Date Unit No. 2 Unit No. 2 Unit No. 2
	Standing Procedure

Supervisor of QC

Date

6.0 Procedure 6.1 Satify Shift Foreman/Supervisor prior to 6.2. Lacate RC15A-TEINand remove cows from ITD head assembly. 6.3 RC 15A- TET is a dual element RTD, with only are element being used for the indication (4M-TR-1922) Locate spare field wire inside LTD heard (Pfer to Fig 1) and terminate on RTD head terminal block. Terminate to spare RTD sensing lead (Refer to fig 1). Replace RTD Head lavel. 6.1 Repeat Steps 6.2 \$6.3 for Following LTD's 6.4.1 RC 15A -TEZ A loop To by RC-P- 1A 6.4.2 RC 15A - TE3 A loop Te my Di-P-2A 6.4.3 RC 1513-TE1 B loop TH 6.4.4 RC 15 B - TEZ B loop Te by RC-P-1B 6.4.5 RC 1513-TE3 Bloop Te by RC-P-213 6.4 Notify Shift Forman Supervisas and ItC Engineer after work is completed 2 Note: Instead and date Figure I after each



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ORIGINATOR — SUPERVISOR — SUPERVISOR OF MAINTENANCE — MAINTENANCE FOREMAN — JOB PERFORMER — MAINTENANCE FOREMAN — SUPERVISOR OF MAINTENANCE

Post Maintenance Testing required and Acceptance Criteria.
(ISI) Procedure 2303-m33 applies of the repair

UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET LOCATION / UNIT PRIORITY COMP COMP NUMBER MO SYS DAY 10 0 3 6 0 0 2 CM C 0 DESCRIBE MALFUNCTION N 0 OR MODIFICATION F Q 2 DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S SUPERVISOR'S EMP. NO There 52374 0 ORIGINATOR'S SIGNATURE DATE SUPERVISOR'S SIGNATURE DATE 6721 ACCOUNT WORK ORDER NUMBER GC PLANT CONDITION NPRD FAILURE START NUMBER LOCATION SU OP HD CD RF HS LR SERIAL YR DAY MO HR MIN 0 3 6 F 0 7 D ESTIMATED DOLLARS TAGGING OUTAGE STATUS NUC WP HOLD APPLICATION CAUSE NUMBER CODE CODE NO. 0 S / M APPROVAL S / F APPROVAL RESP LOCATION CREW COMMENCE WORK COMMENCE WORK MANHOURS PROCEDURE NUMBER MO DAY YR MO DAY YR . ASSISTING DEPARTMENT
RESP LOCATION EST ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP. LOCATION OR CONTRACTOR EST RESP. LOCATION FST OR CONTRACTOR MANHOURS CREW MANHOURS OR CONTRACTOR CREW MANHOURS PURCHASE REQUISITION TOTAL ACTUAL PURCHASE ORDER NUMBER DATE COMPLETION DATE REASON MATERIAL ORDER MANHOURS NUMBER ▼ CODE MO DAY MO DAY YR NUMBER 50 45 66 73 110 8 0 7 A RESULUTION DESCRIPTION 8 0 1 A 0 SL 8 EP 0 A 0 80 1 E D 8 0 0 9 1 A 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END FAIL LIRE FAILURE YR MAINTENANCE FOREMAN - JOB PERFORMER -- MAINTENANCE DAY MIN FOREMAN - SUPERVISOR OF MAINTENANCE -CM COORDINATOR DATA ENTRY SUPERVISOR OF MAINTENANCE 8 0 8 A CM COORDINATOR-DATA ENTRY NPRO CAUSE OF FAILURE CODES LICENSE EVENT **ACTION TAKEN CODES** TXN FAILURE CODES FAIL REPORTED DATE MO DAY MODE B 8 0 8 A COPY 2

GENERATION CORRECTIVE MAINTENANCE SYSTEM

GENERATION CORRECTIVE MAINTENANCE SYSTEM UNIT 2 JOB TICKET FORM (WORK REQUEST)-THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED LOCATION /UNIT JOB TYPE COMP PRIORITY SYS NUMBER MO DAY 0 3 6 0 2 0 CM 3 MALFUNCTION MODIFICATION 23 MALFUNCTION ORIGINATOR'S SUPERVISOR'S EMP. NO. EMP. NO Thers 5.23.79 WORK ORDER NUMBER GC ACCOUNT NUMBER PLANT CONDITION NPRD FAILURE START LOCATION SERIAL SU HS LR OP RF . DAY HR YR MO MIN 0 3 6 0 0 REG STATUS OUTAGE CHG/MOD NUMBER HOLD SAFET CAUSE CODE 0 0 0 COMMENCE WORK OR CONTRACTOR MO DAY YR 0

Limits and Precautions:

a) Personnel

DESCRIBE

OR

DESIRED

CAUSE OF

(IF KNOWN)

- b) Equipment
- c) Environment

Comply with the fravitions

eet forth in AP 1002 and

d) Nuclear Wet Ed Safety Manual

Post Maintenance Testing required and Acceptance Criteria.

wark proparly

JOB TICKET (WORK REQUEST) REVIEW - CLASSIFICATION - ROUTING CONTROL FORM

JOB TICKET NUMBER 2151

1.			
	Does work represent a change or modification to an existing system or component of the system of the	Yes	No/_
2a.	Does work require an RWP	Yes	No_/
b.	Is an approved procedure required to minimize personnel exposure.	Yes	No/
a.	Is work on a QC component as defined in GP 1008.	Yes	No/
b.	If 3a is yes does work have an effect on Nuclear Safety? If 3b is yes, PORC reviewed Superintendent approved procedure must be used.	Yes	No
	Agreement that a PORC reviewed, Superintendent approved procedure is not requit has no effect on nuclear safety. (Applies only if 3a is Yes and 3b is No).	uired for thi	s work because
	Unit Superintendent		Date
a.	Is the system on the Environmental Impact list in AP 1026	Yes	No
b.	If 5a is Yes, is an approved procedure required to limit environmental impact	Yes	No
į	Agreement that 5b is No. (Required only if 5a is Yes).		
7.	Unit Superintendent/Supervisor of Operations Plant status or prerequisite conditions required for work.	1shut	Date
	QC Dept. review, if required in item No. 3		
	QC Dept. review, if required in item No. 3 QC Supervisor A A		Date
	A. A.		
	QC Supervisor	3-	Date
	OC Supervisor Code 1899. To be Notified 1999. L'an Supervisor of Maintenance approval to commence work: 1999. L'an Maintenance Foreman Assigned: 3000.	74	Date
	OC Supervisor Code 1899. To be Notified 1999. Supervisor of Maintenance approval to commence work: Maintenance Foreman Assigned: OR 10000	74	Date
3.	OC Supervisor Code 1899. To be Notified 1999. Supervisor of Maintenance approval to commence work: Maintenance Foreman Assigned: Shift Foreman's approval to commence work Initial if Shift	74	Date Y = 5 Date 5/29/7

JOB TICKET (WORK REQUEST) REVIEW - CLASSIFICATION - ROUTING CONTROL FORM

JOB TICKET (WORK REQUEST) NUMBER C-215/

12. Retest met acceptance criteria 13. Work Performed by date/time Work Reviewed - Maintenance Foreman's Signature 14. Work completed and component alligned for testing. Initial if S. F. signature is not required. 15. Testing completed and component released for normal use. Cado Initial if S. F. signature is not required. Quality Control Department review of work and testing completed (QC work only). 16. Surveillance Report No. 17. Supervisor of Maintenance Job Ticket (Work Request) and procedure are complete and signed off as required. Change/modification form has been signed off as required. nance Signature

UNIT 2 JOB TICKET FORM (WORK REQUEST) - THREE MILE ISLAND COMPONENT DESIGNATION REQUEST DATE RECOMMENDED JOB TICKET LOCATION / UNIT COMP PRIORITY SYS NUMBER MO ID 0 3 6 0 0 2 C CM DESCRIBE MALFUNCTION OR MODIFICATION DESIRED CAUSE OF MALFUNCTION (IF KNOWN) ORIGINATOR'S EMP. NO. SUPERVISOR'S EMP. NO 0 18/7 ORIGINATOR'S SIGNATURE 5 0 SUPERVISOR'S SIGNATURE WORK ORDER NUMBER ACCOUNT PLANT CONDITION NPRD FAILURE START NUMBER LOCATION SERIAL SU OP HD CD RF HS LA MO DAY HR MIN 0 3 6 0 2 2 0 REG STATUS TAGGING ESTIMATED DUTACE NUC CHG/MOD AGENCY HOLD APPLICATION CAUSE NUMBER CODE NO. CODE S /M APPROVAL S /F APPROVAL RESP. LOCATION OR CONTRACTOR EST CREW COMMENCE WORK COMMENCE WORK MANHOURS PROCEDURE NUMBER MO DAY YR MO DAY YR ASSISTING DEPARTMEN ASSISTING DEPARTMENT ASSISTING DEPARTMENT RESP LOCATION RESP. LOCATION EST RESP. LOCATION OR CONTRACTOR OR CONTRACTOR CREW MANHOURS OR CONTRACTOR CREW MANHOURS CREW MANHOURS TOTAL ACTUAL MATERIAL ORDER DATE COMPLETION DATE REASON PURCHASE REQUISITION PURCHASE ORDER MANHOURS ▼ CODE 140 DAY YR MO DAY YR NUMBER NUMBER NUMBER 8 2 8 0 7 A 0 RESOLUTION DESCRIPTION 3 C06 55 8 0 0 7 1 A 8 0 1 A 0 8 8 0 0 9 1 A 8 0 1 A 1 0 ORIGINATOR - SUPERVISOR - SUPERVISOR OF MAINTENANCE -NPRO FAILURE END NO STATUS MAINTENANCE FOREMAN - JOB PERFORMER - MAINTENANCE YR MO DAY HR MIN FOREMAN - SUPERVISOR OF MAINTENANCE -CM COORDINATOR DATA ENTRY SUPERVISOR OF MAINTENANCE 0 8 A CM COORDINATOR-DATA ENTRY LICENSE EVENT REPORTED DATE NPRO CAUSE OF FAILURE CODES EFFECT O ACTION TAKEN CODES TXN FAIL FAILURE CODES TYPE MODE B YR MO 8 0 8 A

GENERATION CORRECTIVE MAINTENANCE SYSTEM

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c) Environment

d) Nuclear

Post Maintenance Testing required and Acceptance Criteria.

Leak repaired