



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION I  
475 ALLENDALE ROAD  
KING OF PRUSSIA, PENNSYLVANIA 19406

OCT 04 1990

Docket No. 50-336

Mr. Edward C. Mroczka  
Senior Vice President  
Nuclear Engineering and Operations  
Northeast Nuclear Energy Company  
P.O. Box 270  
Hartford, CT 06141-0270

Dear Mr. Mroczka:

The U.S. Nuclear Regulatory Commission recently received an allegation concerning activities at Millstone 2 (RI-50-A-144). Details of this allegation are enclosed for your review and followup.

We request that the results of your review and disposition of this matter be submitted to Region I within 30 days of receipt of this letter. We request that your response contain no personal privacy, proprietary, or safeguards information so it can be released to the public and placed in the NRC Public Document Room. If necessary, such information shall be contained in a separate attachment which will be withheld from public disclosure. The affidavit required by 10 CFR 2.790(b) must accompany your response if proprietary information is included.

The enclosure to your letter should be controlled and distribution limited to personnel with a "need to know" until your investigation of the allegation has been completed and reviewed by NRC Region I. The enclosure to this letter is considered Exempt from Public Disclosure in accordance with Title 10, Code of Federal Regulations, Part 2.790(a). However, a copy of this letter, excluding the enclosure, will be placed in the NRC Public Document Room.

The response requested by this letter and the accompanying enclosure are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

N/88

Your cooperation with us is appreciated. We will gladly discuss any questions you may have concerning this information.

Sincerely,

Original Signed By

Edward C. Wenzinger, Chief  
Reactor Projects Branch 4  
Division of Reactor Projects

Enclosure: Allegation Details  
(10 CFR 2.790(a) INFORMATION)

cc w/encl:  
W. Raymond, SRI

cc w/o encl:  
W.D. Romberg, Vice President, Nuclear Operations  
S.E. Scace, Nuclear Station Director, Millstone Station  
J.S. Keenan, Nuclear Unit Director, Millstone Unit 2  
Gerald Garfield, Esquire  
Public Document Room (PDR)  
Local Public Document Room (LPDR)  
State of Connecticut

bcc w/encl:  
M. Perkins, DRMA  
J. Stewart, DRP

# SAMPLE RECORD OF ALLEGATION PANEL DECISIONS

SITE: M. Williams 2

PANEL ATTENDEES:

ALLEGATION NO.: RI-90-A-0144

Chairman - W. Agins

DATE: 9/26/90 (Mtg. 1 2 3 4 5)

Branch Chief -                     

PRIORITY: High Medium (Low)

Section Chief (AOC) - D. Havekamp

SAFETY SIGNIFICANCE: Yes (No) Unknown

Others - STEWART

CONCURRENCE TO CLOSEOUT: DO BC SC

Gray - DRS

CONFIDENTIALITY GRANTED: Yes No  
(See Allegation Receipt Report)

Matakin - OI

IS THEIR A DOL FINDING: Yes No

IS CHILLING EFFECT LETTER WARRANTED: Yes No

HAS CHILLING EFFECT LETTER BEEN SENT: Yes No

HAS LICENSEE RESPONDED TO CHILLING EFFECT LETTER: Yes No

## ACTION:

- 1) S/G AE RM: Did licensee follow their rules for identifying & tracking the problems/solutions for the monitor.
- 2) Were appropriate documents/reports filed?
- Was impact on LCO tracked?
- Response of B. Salem?

- 3) 140 response:
- Is requirement? Why wasn't responded to? What is your policy? - t/o to licensee

NOTES: 3. Orange Stickie t/o to licensee  
- failure to document work in a loop folder

4. W. Raymond concern  
- call from ECW  
- document in allegation file

A4-1

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions b7C  
FOIA 91-162

W/89

# ALLEGATION RECEIPT REPORT

Date/Time Received: Sept 20, 1600 hrs

Allegation No. R1-70-A-0144  
(leave blank)

Name: [REDACTED]

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

## Confidentiality:

Was it requested?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Was it initially granted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Was it finally granted by the allegation panel?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Does a confidentiality agreement need to be sent to alleeer?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Has a confidentiality agreement been signed?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Memo documenting why it was granted is attached?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Alleeer's Employer: NNECO

Position/Title: [REDACTED]

Facility: Millstone 2

Docket No.: SC/336

(Allegation Summary (brief description of concern(s): 4 discussion issues for Allegation panel: 2 concerns / allegations (1) Steam Generator Air Ejector is inoperable (2) Supervisor failed to respond to individuals complaints within 14 days (3) I&C Tech failed to log TR in log folder (4) Complaint about SRI

Number of Concerns: 4

Employee Receiving Allegation: W. Raymond / Transmitted by fax to Haverkamp/Stewart  
(first two initials and last name)

Type of Regulated Activity (a) ☒ Reactor (d) ☐ Safeguards  
(b) ☐ Vendor (e) ☐ Other: \_\_\_\_\_  
(c) ☐ Materials (Specify)

Materials License No. (if applicable): \_\_\_\_\_

Functional Area(s): ☒ (a) Operations (e) Emergency Preparedness  
☐ (b) Construction (f) Onsite Health and Safety  
☐ (c) Safeguards (g) Offsite Health and Safety  
☐ (d) Transportation (h) Other: \_\_\_\_\_

(NRC Region I Form 207  
Revised 10/89)

Information in this record was deleted  
in accordance with the Freedom of Information  
Act, exemptions b7C  
FOIA 91-162

W/90

RECORD OF TELEPHONE CALL

FROM: [REDACTED]  
Received BY: Bill Raymond

Sep 14, 1990  
1:40 PM

Phone: [REDACTED]

Address: [REDACTED]

City/ St: [REDACTED]

Employer: NNECO  
Facility: MILLSTONE 2

Position/Title: [REDACTED]  
DOCKET NO.: 50-336

SUMMARY: See attached sheet for 3 concerns regarding (1) failure of operators to note that the SJAE radiation monitor may not be working properly; (2) the failure of a supervisor to respond to his questions within 14 days; and (3) the failure of [REDACTED] to follow a department instruction to update an equipment history file and issue a trouble report sticker after completing maintenance on a signal input to the reactor regulating system (Tref vs. Tave comparator).

Requested the employee to contact me if he had any further information

NUMBER OF CONCERNS: \_\_\_\_3\_\_\_\_

EMPLOYEE RECEIVING CONCERNS: WILLIAM J. RAYMOND

Time Required to Process Request: \_\_\_\_2\_\_\_\_ Man-Hours



## 1. SJAE OPERABILITY QUESTION

[redacted] said he checked on the SJAE today and noted that the sample line condensate bottle does not appear to be collecting water and that further, the monitor response appears to have decreased, indicating moisture buildup may be causing a decrease in channel functioning. The monitor had been reading about 2000 cpm and had decreased to 1000 cpm. He further noted that the PED [redacted] said he had not emptied the collection bottle for the last 10 days. [redacted] said normally the chillers collect about 4 quarts per day.

[redacted] said he notified the Operations Shift Supervisor of his observations that the SJAE might not be working. [redacted] also notified [redacted] a supervisor in I&C of his concern.

[redacted] stated his concern was that (i) operators are not finding the same problems he is, and (ii) the SJAE may not have been operable for an extended period of time with no compensatory actions taken.

## 2. RESPONSIVENESS TO CONCERNS

[redacted] stated that he raised three questions with [redacted] his department supervisor, on August 23, 1990. The questions involved (i) use of the "completed by" block for prerequisites, initial conditions and precautions when doing surveillances; (ii) a procedure statement about actions to be taken during testing of the RPS if pre-trips or trips come in on another channel, and, (iii) break times. [redacted] stated that during a department meeting on September 5 the answers to questions #1 and #3 were provided, but not for #2. [redacted] stated he was not in attendance at the meeting. [redacted] stated it was significant to him that his supervisor did not answer all the questions as requested.

I said that the NRC cannot help him communicate with his supervisor on routine matters and that [redacted] should talk to his supervisor about the resolution to question #2, since there several possibly valid reasons to delay the supervisor's response. [redacted] became belligerent and was adamant that he did not have to initiate contact on the matter again since he raised the question once and the supervisor failed to get back to him a within 14 days as required by the procedure on handling nuclear concerns.

[redacted] stated he felt the NRC should help him get answers to questions within the 14 days. I declined to pursue the issue further and told [redacted] that I had noted the concern.

[redacted] offered the following about question #2. He stated he had problems because the question came up while doing a surveillance recently because some pre-trips came in on TMLP while he was doing an RPS surveillance. The procedure stated he should place channels in bypass and return the channel under test to "normal" *at the discretion of the shift supervisor*. [redacted] said the shift supervisor stated it was OK to continue testing.

## 2. FAILURE OF TECH TO FOLLOW INSTRUCTIONS

[redacted] to troubleshoot a problem with the control circuit for the turbine bypass valves. The apparently has been a an unexplained shift (decrease by 10 degrees F) in the Tref input to the Tref to Tave controller. The Tref signal is derived from turbine first stage pressure measured by PT 4300. [redacted] did not elaborate on the solution to the technical problem.

[redacted] stated that during his reviews, he discovered that another [redacted] had performed work on the system per AWOs 06498 and 07792, and that there was a known problem from that effort which required work on PT 4300 during the upcoming refueling outage. [redacted] cited the following issues relative to the performance by the other tech: failure to document the previous work in the loop folder was a point of confusion for [redacted] (although he was able to reconstruct the work history from the AWOs), failure to document the previous work in the loop folder was contrary to the instructions to the I&C staff in the department instruction; and, the tech also did not affix an orange sticker to the associated instrument, which was also contrary to the department instruction and caused operators to submit a redundant trouble report on the problem.

[redacted] stated he was sensitive to this issue of failing to document work in the loop folder because of his previous problem when he did a test on the RPS and thought the system was inoperable, when in fact, test circuit deficiency was known by I&C personnel but not communicated to him. [redacted] stated the problem of needing to update the loop folder work

histories was previously addressed in department meetings and it is obvious that techs still are not doing it right.

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ADDITIONAL QUESTION

No follow-up: Question presented by [redacted] hot a  
Concern. [redacted] 9/20/90

[redacted] stated when he recently worked on the turbine bypass valve (TPBV) control circuit, the control room operators had to switch the reactor regulating system to control on channel X while he worked on channel Y for 2 - 3 hours. [redacted] stated that there is no quick opening feature for the TBPVs when controlling on Channel X. [redacted] stated the quick open feature was removed by the licensee as part of a PDCR some time ago. Mr. [redacted] asked me if this was a violation of the technical specifications. I told [redacted] that I was not aware of any Tech Spec requirement for the TBPVs to be operable, and that operation of the valves was not relied upon for plant safety. I also stated that he should address his question to qualified licensee personnel (either I&C supervisory personnel or licensed operations management) and to not rely on my response. [redacted] stated his intentions were to not pursue the question.

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FURTHER INFORMATION BASED ON INSPECTOR REVIEW OF ISSUE #1 - SJAE

I discussed the status of the SJAE with Pete Habighorst and shift operations personnel on September 14. Plant operators had suspected a possible moisture problem with the SJAE detector (R5099) about 3 weeks ago when the chiller stopped collecting water from the sample lines. Initial evaluation was that the monitor was tracking SJAE activity. Nonetheless, the operators only used the channel for trending SJAE activity and did not rely on it for meeting the Tech Specs, or for assuring a steam generator blowdown isolation, or for monitoring of the effluent path in the event of a SG tube leak. The SG blowdown monitor (R4262) was operable during the period in question. In response to [redacted] question, I&C investigated the monitor per AWO 90-09965 on 9/14. I&C found no moisture in the



#### 4.2 Chemistry Controls (Primary/Secondary)

The inspector reviewed primary and secondary chemistry results during the inspection period. The review included a comparison of measured values to technical specification (TS) 3.4.7 "Reactor Coolant System Chemistry," TS 3.4.8 "Reactor Coolant System Specific Activity," TS 3.7.1.4 "Specific Activity Secondary Coolant," and Procedure OP 2217, Rev. 4, Secondary Chemistry Control, requirements. No inadequacies were noted.

#### 4.3 Radiation Monitor Status Alarm Issues

##### 4.3.1 Steam Jet Air Ejector Radiation Monitor Performance

The inspector reviewed the performance of the steam jet air ejector (SJAE) radiation monitor, and assessed the safety significance to determine whether licensee actions sufficiently addressed the operation of the radiation monitor.

##### Background

As documented in inspection report 50-336/89-13 dated November 9, 1989, an allegation questioned the capability of the SJAE radiation monitor to detect a steam generator tube leak. The previous NRC review substantiated the allegation. The primary focus of this review is to assess further the need for and reliability of the SJAE radiation monitor.

The inspector reviewed the condition of the steam generator tubes from eddy current testing results during the February, 1989 refueling outage, and the mid-cycle outage conducted in November, 1989. The review focused on the number of tubes identified with circumferentially oriented cracks. In February, 1989, 309 tubes with circumferential cracks were detected, and during the November, 1989 eddy current inspection an additional 104 cracks were identified. In January, 1987 the unit

detector well and considers that the channel was operable and trending SJAE activity

As a final note, excerpts from Millstone 2 IR 89-24 are forwarded for reference, which contains an coverage of the operability and reliability of RM 5099. The licensee intends to upgrade the channel to address longstanding maintenance issue and to enhance system reliability by a PDCR, now scheduled for implementation in the latter part of 1990.

IR 89-24

89-135, auxiliary exhaust actuation system radiation monitor  
RIT - 8157 out of calibration  
90-03, RM-5099 isotopic out of calibration

No inadequacies were noted.

#### 4.0 Radiological Controls

##### 4.1 Posting and Controls of Radiological Areas

During plant tours, posting of contaminated, high airborne radiation, and high radiation areas were reviewed with respect to boundary identification, locking requirements, and appropriate control points. No inadequacies were noted.

##### 4.2 Chemistry Controls (Primary/Secondary)

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experienced a tube leak from a circumferential crack at the top of the tube sheet which forced a shut down of the plant. The event description was previously documented in inspection report 50-336/87-01. As documented in inspection report 50-336/89-13 the SJAE monitor did not indicate an increase in steam generator activity until two days after chemistry sampling, and after the steam generator blowdown monitor indicated a tube leak.

Final Safety Analysis Report section 14.14.1 states that "detection of the steam generator tube rupture incident is facilitated by radiation monitors in the steam generator blowdown lines and in the condenser air ejector discharge lines. The monitors initiate alarms in the control room and alert the operator of abnormal activity levels and that corrective actions are required."

#### Performance

During mid-December, the SJAE radiation monitors developed spurious spikes in radiation indication resulting in multiple isolations of the steam generator blowdown system. The inspector identified no inadequate control room operator actions as a result of the isolation and procedural follow-up actions. Various plant operations review committee (PORC) meetings during the inspection period discussed the performance of the radiation monitor, verification of the activity in the SJAE samples, and initiation of corrective maintenance activities.

The inspector reviewed the previous corrective maintenance activities on the SJAE during power operations between 1988 and 1989. Approximately twenty-seven authorized work orders were performed by the licensee. Effectively 14 days out of 329 days the radiation monitor was out of service solely for corrective maintenance, excluding required technical specification surveillances (i.e. source check, channel calibration, and channel function test). The general deficiencies with the monitor performance were flooding, low flow alarms, no audible horn alarm, monitor spiking after trip monitor floods. Past utility corrective actions included heat tracing the inlet lines to the radiation monitor to prevent flooding, and adjusting sample flow.

Recently (late December 1989/early January 1990), the SJAE monitor was out of service for troubleshooting based on numerous steam generator blowdown isolations. In review of completed authorized work orders, three primary items in SJAE performance were identified by the licensee: a potential dilution from the instrument air flow based on the isotopic gas calibration results; sample flow low (i.e. 1.8 standard cubic feet per minute (SCFM) vs. 3.0 SCFM; and inappropriate wire configuration for the detector establishing a potential 'floating' ground.

The instrument loop folder indicates the flow rate and detector electrical installation were previously identified respectively in January and December, 1987.

#### Chemistry Sampling

As prescribed in procedure SP-2802 the required sampling frequency for SJAE exhaust is monthly for tritium and gaseous activity. The licensee administratively completes the analyses weekly and in the event of a radiation level exceeding the alarm setpoint for the monitor. Further guidance prescribed by the assistant chemistry supervisor per document MP-S-C-89-215 indicates a daily sampling frequency, consisting of: leakrate determination, trending of data, and establishment of a baseline. The specific guidance requires a sample frequency of twice per day if the primary-to-secondary leakrate calculation increases to 5 gallons per day. In the event the leakrate calculation exceeds 72 gallons per day, the sampling frequency is three times per day. The technical specification 3.4.6.2.c limit is 1 gallon per minute (gpm) total primary to secondary and 0.10 gpm through any one steam generator. The leakrate determinations for the SJAE are based on the isotopes Xenon-133, Xenon-135, Xenon-135M for gaseous and iodine-131, iodine-135, and iodine-135 for particulate.

#### Safety Significance

The safety significance of SJAE radiation monitor operation was assessed based on the emergency operating procedures, technical specification requirements and basis, Final Safety Analysis Report (FSAR), and integrated plant detection capabilities of a potential steam generator tube leak/rupture.

The emergency operating procedures (EOPs) use the SJAE radiation monitor alarm in the break identification chart to assess a primary coolant or main steam line rupture, and the monitor alarm is an entry condition for EOP 2534 "Steam Generator Tube Rupture." The SJAE radiation alarm, however, is not relied upon solely, as a decision point for control room operators actions.

Technical Specification 3.3.3.9 table 3.3-12 item 1c describes the requirements for operability of the SJAE radiation monitor or the steam generator blowdown radiation monitor. Specifically, if both radiation monitors are inoperable, best efforts to repair the monitors are required, and in the interim chemistry grab samples of steam generator activity for gross radioactivity are acquired. The frequency of grab samples is based on reactor coolant system gross equivalent iodine. No licensee action is required if one of the two monitors is inoperable.

SJAE  
or  
SUBD



The FSAR description on the steam generator tube rupture event (Section 14.14) indicates that detection and integrated plant behavior varies depending upon the size of the tube rupture. For leakage rates up to the capacity of the chemical and volume control system charging pumps, reactor coolant inventory can be maintained and an automatic reactor trip would not occur. The gaseous fission products would be released to the atmosphere from the main steam system via the condenser air ejector discharge to the unit 1 stack. Those fission products not discharged in this way would be retained by the main steam, feedwater and condensate systems. For leaks that exceed the capacity of the charging pumps, pressurizer water level and pressure decrease and an automatic reactor trip results.

The licensee's other methods of steam generator tube leak detection consist of, but are not limited to, the following parameters: steam generator blowdown radiation monitor alarm; main steam line radiation monitor, unbalance in the control of letdown/charging flowrates, pressurizer level and pressure decrease, start-up of stand-by charging pumps, and chemistry samples for gross radioactivity.

#### Conclusion

Licensee efforts to address problems with the SJAE radiation monitor were extensive; however, the significant amount of corrective maintenance was not successful in assuring reliability of the monitor. The inspector noted that detection of a steam generator tube leak is not solely related to the performance of the SJAE monitor; however, poor performance of this monitor removes a valuable source of information to the control room operators.

#### 4.3.2 Operability Evaluation for High Range Noble Gas Effluent Monitor

On January 2, 1990 at approximately 10:00 a.m., the licensee was initiating a required calibration of the high range noble gas effluent monitor (RM-8168). The calibration is required by technical specification surveillance table 4.4-3 item 1d. RM-8168 failed its calibration acceptance criteria; specifically, the channel 3 particulate iodine Geiger-Mueller detector failed its 100 millirem/hour ( $\pm 10\%$ ) acceptance criteria. On January 12, the plant operations review committee approved an operability evaluation for RM-8168 based on the unsuccessful calibration.

#### Description

RM-8168 (Kaman channel) is the in-line accident range stack gas effluent radiation monitor. It samples the Unit 2 stack by one of three isokinetic nozzles. The monitor has five channels for



RECORD OF TELEPHONE CALL

FROM [REDACTED]  
Received BY Bill Raymond

Tue, Sep 18, 1990  
4:20 PM

I received a telephone call from [REDACTED] who stated he wanted to talk to Pete. I informed [REDACTED] that Pete was out sick today, but was expected back tomorrow.

I asked [REDACTED] if I could help him. [REDACTED] said he had a concern but declined to discuss it with me. When I asked why, [REDACTED] said because when he explains his issues to me, I argue with him, and with Pete, all he has to do is tell him his issues. I said it was not my intention to argue with him. [REDACTED] stated that I argued with him the other day (see telecon note for Sept 14), when I told him he should go back to [REDACTED] to ask why he had not answered the question about the procedure issue. When I reaffirmed my intention to listen to his concern, [REDACTED] stated he was "pissed-off" after our last conversation and he would rather not talk with me. I stated it was not my intention to make him upset. Mr. [REDACTED] stated his concern did not impact plant safety, was not an immed. issue and he would rather wait to talk to Pete.

I repeated my willingness to hear his concerns. The conversation ended with [REDACTED] stating he would contact Pete tomorrow.

I requested the employee to contact me if he had any further information.

*Discussion Issue, Not an allegation*