

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.1
Subject Description:	Plant Parameter Verification
Question Number:	1

Question:
Calculate the reactor period given that IRM level has gone from 10 to 20 in 54 seconds.

Answer:
Doubling time = time to change from 10 to 20 or 54 seconds.
$54 \times 1.44 = 77.76$ seconds for reactor period.

Technical Reference(s):
GO-100-002, Section 6.39

K/A #:	Importance:
2.1.7	3.0/4.0

Comments:

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.1
Subject Description:	Plant Parameter Verification
Question Number:	2

Question:

During a reactor startup the mode switch is about to be transferred to RUN. What method is available to you to determine that the APRMs are accurate, other than reading the APRMs or using the LPRMs? Give an example of the method.

Answer:

Bypass valve position is an alternate indication of Reactor power.

Per RE-1TP-026, Validation of Core Thermal Power Heat Balance:

A Channel Check is performed at approximately 7-10% power, as determined by the APRMS, prior to moving the mode switch from Startup to Run.

- a. Confirm Pressure Set at 955 psig.
- b. Record number of open bypass valves (blank if using computer point NBA13).
- c. Record percent core thermal power utilizing Attachment D, "Bypass Valve Position vs Calculated % Power," or computer point NBA13.
- d. Attachment D is attached for use in the demonstration.

Technical Reference(s):

RE-1TP-026

K/A #:	Importance:
2.1.7	3.0/4.0

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.1 - 2
Subject Description:	Logs and Log Keeping
Question Number:	1

Question:
<p>Unit 1 is at 100% power. When performing the daily logs, the following are observed:</p> <ul style="list-style-type: none"> • LIS-B21-1N042A: +39 inches • LIS-B21-1N042B: +32 inches • LIS-B21-1N024A: +34 inches • LIS-B21-1N024B: +36 inches • LIS-B21-1N024C: +37 inches • LIS-B21-1N024D: +35 inches <p>What are the required actions, if any?</p>

Answer:
<p><i>NOTE: Only the information in "BOLD" is required to answer the question. Additional information describes how the necessary actions are determined. Provide the attached log sheets from SO-100-006 (Attachment A, pages 18-19)</i> *****</p> <p>CHANNEL CHECK is outside the agreement criteria for the 42A-B instruments. CHANNEL CHECK is within the agreement criteria for the 24A-D instruments.</p> <p>Initiate a CR to investigate the instrument response for the 42A&B instruments and complete it (determine the problem) within 24 hours. If the investigation is <u>NOT</u> completed within 24 hours, declare both channels inoperable.</p> <p>Note: Logged values for LIS-B21-1N024A-D and LIS-B21-1N042A-B should be:</p> <ul style="list-style-type: none"> • LIS-B21-1N042A: +39 inches • LIS-B21-1N042B: +32 inches • LIS-B21-1N024A: +34 inches • LIS-B21-1N024B: +36 inches • LIS-B21-1N024C: +37 inches • LIS-B21-1N024D: +35 inches

Technical Reference(s):

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.1-2
Subject Description:	Logs and Log Keeping
Question Number:	2

Question:
<p>Unit 1 is at 100% power. During the performance the daily logs, the Recirculation Loop "A" Drive Flow versus total core flow is plotted at +11%.</p> <p>You are directed by the Unit Supervisor to complete SO-100-007, Attachment C, step "c" under SR 3.4.2.1 Acceptance Criteria for LOOP "A" and determine if the LOOP "A" jet pumps are OPERABLE or NOT OPERABLE.</p> <p>NOTE: "A" Loop JET PUMP DELTA P's are provided on the attached page.</p>

Answer:
<p><i>NOTE: Only the information in "BOLD" is required to answer the question. Additional information describes how the necessary actions are determined.</i></p> <p>*****</p> <p>JP 17 is NOT OPERABLE.</p> <p>Calculation is completed as follows (e.g.):</p> <p>Average JP d/p = 36 (sum all 10 JP values and divide by 10).</p> <p>Calculate each JP deviation by subtracting the average value from the individual JP value. The resultant value is divided by the average value.</p> <p>This resultant value is multiplied by a factor of 100. For example:</p> <p>$(JP11-A) \div A \times 100 = [(36.1-36) \div 36 \times 100] = +0.27$, JP11 calculated deviation is +0.27</p> <p>$(JP17-A) \div A \times 100 = [(38.3-36) \div 36 \times 100] = +6.38$, JP 17 calculated deviation is +6.38</p> <p>NOTE: After JP11 deviation is calculated (or the first calculation is completed), provide a completed Attachment C (page 3 of 8) with all calculations complete. The calculated deviation values are then plotted on Figure 1, TWO LOOP JET PUMP DISTRIBUTION LOOP A, the results indicate JP 17 is inoperable.</p> <p>Deviation Values: (JP11 +0.27, +JP12 +0.27, JP13 -2.77, JP14 +2.77, JP15-0.55, JP16 -1.11, JP17 +6.38, JP18 -2.77, JP19 -2.77, JP20 +0.27</p>

Technical Reference(s):
SO-100-006, Attachment A, Item C1

K/A #:	Importance:
2.1.7, 2.1.18, 2.1.25	3.7, 3.9, 2.8

Performance Data Sheet
Recirculation System Dual Loop

I.	Jet Pump Delta P's	JET PUMP INST PANEL 1C619 UPPER RELAY ROOM
----	--------------------	---

JP11	<u>36.1%</u>	JP12	<u>36.1%</u>	JP13	<u>35%</u>	JP14	<u>37%</u>	JP15	<u>35.8%</u>
JP16	<u>35.6%</u>	JP17	<u>38.3%</u>	JP18	<u>35%</u>	JP19	<u>35%</u>	JP20	<u>36.1%</u>

LOOP A

JET PUMP ΔP PERCENT DEVIATION FROM THE AVERAGE

A = Average Jet Pump ΔP Loop A (Calculate below)

		<u>JP ΔP%</u>	<u>% JP ΔP Dev.</u>
1.	JP11	<u>36.1</u>	$(JP11 - A) \div A \times 100 = +0.27$
2.	JP12	<u>36.1</u>	$(JP12 - A) \div A \times 100 = +0.27$
3.	JP13	<u>35</u>	$(JP13 - A) \div A \times 100 = -2.77$
4.	JP14	<u>37</u>	$(JP14 - A) \div A \times 100 = +2.77$
5.	JP15	<u>35.8</u>	$(JP15 - A) \div A \times 100 = -0.55$
6.	JP16	<u>35.6</u>	$(JP16 - A) \div A \times 100 = -1.11$
7.	JP17	<u>38.3</u>	$(JP17 - A) \div A \times 100 = +6.38$
8.	JP18	<u>35</u>	$(JP18 - A) \div A \times 100 = -2.77$
9.	JP19	<u>35</u>	$(JP19 - A) \div A \times 100 = -2.77$
10.	JP20	<u>36.1</u>	$(JP20 - A) \div A \times 100 = +0.27$

PLOT ON
FIG. 1
ATTACHMENT I

$$A = \frac{360}{(\text{Sum of } \Delta P\%)} \times 0.1 = \frac{36}{JP11 \text{ thru } 20}$$

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.2
Subject Description:	Tagging and Clearances
Question Number:	1

Question:
During an outage it is necessary to apply blocking on 4.16 KV Breaker, 2A20409, 2B Turb. Building Chiller, The work will require cycling the breaker in TEST, NO work will actually be performed in the breaker or on the 4.16 KV Bus.
Where must the blocking tags be placed?

Answer:
The breaker will be placed in TEST and tags placed on the following:
<ul style="list-style-type: none"> a. Local Control Switch on the cubicle door b. Trip Control and DC Power knife switch c. Alternate Trip DC Power knife switch d. Racking screw
Note: The candidate may indicate the associated bus must be declared inoperable when the breaker is in TEST, This information is NOT necessary to answer the question.

Technical Reference(s):
NDAP-QA-0323, Sect. 6.3.8

K/A #:	Importance:
2.2.13	3.6/3.8

Comments:

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.2
Subject Description:	Tagging and Clearances
Question Number:	2

Question:
<p>After the work is completed the Sign On requested a "Temporary Lift of Red Tags to allow testing 4.16 KV Breaker, 2A20409, 2B Turb. Building Chiller.</p> <p>The testing is successful and operations requests the chiller remain in service.</p> <p>What requirements apply to clearing and closing the permit?</p>

Answer:
<p>The Sign On may permit the chiller remain in the temporary lift position by immediately signing off the permit. This allows:</p> <ul style="list-style-type: none"> a. Energy isolating devices may remain in the "Out of Permit Condition". b. All tags lifted shall be turned over to Ops to support the subsequent permit clearance. c. Notify any active Sign-Ons of the status. d. Sign-On shall notify Shift Supervisor of the equipment status e. A Field Operator shall physically verify equipment status.

Technical Reference(s):
NDAP-QA-0322, Sect. 8.4.8.e.(3), 8.10

K/A #:	Importance:
2.2.13	3.6/3.8

Comments:

Susquehanna 1 & 2 Category "A" - Examination Outline Cross Reference	
Operating Test Number	Cat "A" Test: 1
Examination Level	RO
Administrative Topic	A.3
Subject Description:	Radiation Protection
Question Number:	1

Question:
RWP 2001-0037 is attached for your use.
Given RWP 2001-0037, determine which dose reduction activity results in the GREATEST reduction in the general area dose rates before starting jobs #1, #2, and #3.

Answer:
The contents of the Waste Sludge Phase Separator will be transferred to a High Integrity Container (HIC) prior to the start of the tank rinsing. <i>NOTE: If the student states ALARA blocking, ask them to be specific.</i>

Technical Reference(s):
NDAP-QA-0626 RWP 2001-0037 and ALARA Brief

K/A #:	Importance:
2.3.1	2.6/3.0
2.3.10	2.9/3.3

Comments:

SSES Radiation Work Permit

RWP 2001-0037

Rev 000

Unit: Common

Control Point: U-2 HP CONTROL POINT

Building: RWASTE

RWASTE

Elevation: 646 646

System: 068

RADWASTE SOLIDS HANDLING

Room: R-030

WASTE SLUDGE PHA Component ID: OT331

R-029

PHASE SEPARATOR

Job Description:

WSPS: CLEAN OUT/RINSE OT331- WASTE SLUDGE PHASE SEP TANK; CLEAN BASKET STRAINER ON PMP OP332. INCLUDES PUMP RM AND NON-CONTAMINATED AREA SUPPORT.

Special Instructions For HP Technicians:

Constant / intermittent coverage requirements:

1. CONSTANT COVERAGE required in tank room, if areas ≥ 1 R/hr are accessible, or if ALARA blocking is not applied.
2. Surveys required for initial entry into unsurveyed work areas and system breach, Daily dose rate verification survey in pump and tank rooms.
3. BZA required for system breach and rinsing tank.
4. ALARA blocking IAW NDAP 00-0626 is required prior to entry into Phase Sep. tank room.
5. Access is limited to the pump room and waste sludge phase sep tank room.
6. Ensure air sample lines, extension cords, and hoses utilized can be readily broken down to allow door closure when necessary.
7. Back-out dose rate during HP survey 3 R/hr general area.
8. Alert levels for suction strainer: Pre-breach contact dose rate: 1 R/hr
System internal contamination: 200 mRad/hr/100cm².
9. Monitor for Hot Particles as described below.

COPY

*******INSTRUCTIONS PERTAINING TO HOT PARTICLES*******

Monitor personnel involved in the breach of the WSPS Tank and Basket Strainer for Hot Particles. Include a hot particle check of the work area. If Hot Particles are found, take immediate action to minimize the spread of the particles; stop work; and notify HP Supervision. Document all survey results.

Work Activity	Radiation Levels (mRem/hr)	ALERT Contamination Levels (in units of Activity per 100cm ² k=1000 DPM)		Airborne Levels (DAC)
1	50		1K	N/A
2	200		150 K	0.3
3	1500		150K	0.3

ALARA

Blocking: YES	Est'd Person-Rem: 0.338	Contact: MADARA*CHARLES W
Pre Job: YES	Person Rem-Goal: 0.300	Outage: NON-OUT
	Actual Person-Rem: 0.000	Type: Routine

Name	Section	Date	Authorizing Signature
Requested by:			
Written by: HARDER*KURT T	339-HP TECH II	02/22/2001 07:31	HARDER*KURT T
ALARA Review: GALLAGHER*DAVID A	339-HP ALARA SUPERVISION	02/22/2001 07:37	GALLAGHER*DAVID A
Issue by: BELL JR*MARK R	339-HP FOREMAN	02/22/2001 07:47	BELL JR*MARK R
Terminated by:			

SSES Radiation Work Permit

PWP: 2001-0037 Rev: 000



Description:

WSPS: CLEAN OUT/RINSE OT331- WASTE SLUDGE PHASE SEP TANK; CLEAN BASKET STRAINER ON PMP OP332. INCLUDES PUMP RM AND NON-CONTAMINATED AREA SUPPORT.

RWP Activities:

1. Support work in non-contaminated areas.
2. Misc. support in pump room.
3. Breach manway, rinse tank, misc support in tank room and breach and clean pump strainer.

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***** ACTUALS *****				** PAD Settings **			
WORK Activity	Rad. Levels (mRem/Hr)	Contamination Levels (in units of Activity per 100cm2 K=1000 DPM)	Airb. Levels (DAC)	Minimum Dose (mRem)	Dose (mRem)	Rate (mR/hr)	Time (HH:MI)
1				100	50	50	16:00
2				200	100	200	16:00
3				300	200	1500	16:00

RWP Activity	1	2	3
DRESS REQUIREMENTS:	NO DRESS REQUIREMENTS	FULL PC'S	FULL PC'S & PAPERS
			Face Shield/Hood per HP (6)
RESPIRATORY PROTECTION:	NONE	NONE	NONE
HP COVERAGE:	INTERMITTENT	INTERMITTENT	CONSTANT
AIR SAMPLES:	NONE	PER BRIEFING	BZA
DOSIMETRY			
Extremity TLD:	NO	NO	NO
Special Dosimetry:			
Other:			
ENGINEERING CONTROLS			
HEPA:	NO	NO	NO
Shielding:	NO	Per HP	Per HP
Other:	NO	NO	(5)
HOLD POINT:	NO	(1), (2), (3)	(1), (2), (3)
OTHER REQUIREMENTS:	SEE SPECIAL INSTRUCTIONS	SEE SPECIAL INSTRUCTIONS	SEE SPECIAL INSTRUCTIONS

NOTICE: There is an ALARA pre-job review associated with this RWP. You are required to read the pre-job review when available if you did not attend the pre-job meeting prior to scanning this RWP. Contact HP for assistance if necessary.

Special Instructions for Worker:

- (1). A radiological briefing by HP is required prior to entering the phase separator complex. Explain work activities and locations in detail.
- (2). ALARA blocking IAW NDAP 00-0626 required. ACCESS IS LIMITED TO THE PUMP AND WASTE SLUDGE PHASE SEP TANK ROOMS.
- (3). HP must be present for initial shift entry, for breach of system.
- (4). Retreat to a low dose rate area whenever possible. Minimize time near the base of the waste sludge phase sep tank, piping and passage ways to the other phase sep tank rooms.
- (5). Contain any water / sludge released during breach and direct to the nearest floor drain. Bag used rags and parts separately from normal rad trash.
- (6). Face Shield required when rinsing tank.
- (7). NO ENTRY INTO THE RWCU PHASE SEP ROOMS IS PERMITTED ON THIS RWP. DO NOT PASS BEYOND THE WSPS TANK LADDER WHEN ACCESSING THE TANK WORK AREA WITHOUT SPECIFIC HP APPROVAL.
- (8). Ensure hoses can be really disconnected to allow door closure when necessary.

ALARA RWP Person Rem Estimate Worksheet

P: 2001-0037

Rev: 000

Alara Code A: DE

DECONTAMINATION

Work Code: 1

ROUTINE MAINTENANCE

Alara Code B: FH

FLUSHING/HYDROLAZING

LOCATION :

Unit: Common

Room

R-030 WASTE SLUDGE PHASE SEPARATOR

R-029 PHASE SEPARATOR PUMPS

Building

RWASTE

RWASTE

Elevation

646

646

Job Description:

WSPS: CLEAN OUT/RINSE OT331- WASTE SLUDGE PHASE SEP TANK; CLEAN BASKET STRAINER ON PMP OP332. INCLUDES PUMP RM AND NON-CONTAMINATED AREA SUPPORT.

Dose Rate are in mRem/hr

DDE = Person Hours X Est. Dose Rate

TEDE = DDE + CEDE

Dose is in Rem

CEDE = (Person Hours X DAC X CF) / PF

Description	Person Hours	Est. Rate DAC	CF PF	DDE CEDE	TEDE
1. Support work in non-contaminated areas.	24:00	0.40	2.5	0.010	0.010
		0.00	1	0.000	
2. Misc. support in pump room.	24:00	3.50	2.5	0.084	0.084
		0.00	1	0.000	
3. Breach manway, rinse tank, misc support in tank room and breach and clean pump strainer.	12:00	20.10	2.5	0.241	0.244
		0.10	1	0.003	

Total Hrs: 60:00

Total DDE: 0.335

Total CEDE: 0.003

Total TEDE: 0.338

ALARA Goal TEDE: 0.300

Total DAC Hrs.: 1.20

Effective mRem/Hr: 5.6

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ALARA PRE JOB REVIEW

RWP Number: 20010037

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Rev.: 000

Date: 02/21/2001

Pre Job Attendance Required: No

Job Description:

WSPS: CLEAN OUT / RINSE 0T331 – WASTE SLUDGE PHASE SEPARATOR TANK, AND CLEAN BASKET STRAINER ON PUMP 0P332. INCLUDES PUMP ROOM AND NON CONTAMINATED AREA SUPPORT.

Also covers RWPs: N/A

JOB LOCATION:

Unit: 0

Building: RW

Elevation: 646'

Completed By: David A. Gallagher / Charles W. Madara
Health Physics Specialist ALARA

Outage: No

APPLICABLE	A. PERSON-REM ESTIMATE:
<input checked="" type="checkbox"/>	<p>1. Do the workers have sufficient available exposure to complete the job?</p> <p>Estimated: 60 Person-hrs Estimated: 0.335 Person-Rem Alara Goal TEDE: 0.300 Person-Rem</p> <p>Work group supervision shall ensure workers have sufficient available exposure to complete assigned tasks.</p>

APPLICABLE	B. WORK PLANNING/SCHEDULING:
<input checked="" type="checkbox"/>	<p>1. Is work properly scheduled accounting for downpowers, hydrogen injection reductions, outages, work windows, etc.?</p> <p>Waste Sludge Phase Separator work is power and hydrogen injection rate independent.</p>
<input checked="" type="checkbox"/>	<p>2. Is the work sequence optimized?</p> <p>Yes. – See "Work Flow".</p>
<input checked="" type="checkbox"/>	<p>3. Has the optimum work crew size been determined?</p> <p>The size of the work crew will vary depending on the task being performed. Normally 2 HPs, 3 Effluents, and a contractor to pump sludge from tank as it is being rinsed.</p>

ALARA PRE JOB REVIEW

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APPLICABLE	B. WORK PLANNING/SCHEDULING:
<input checked="" type="checkbox"/>	CREW SIZE 7 4. Are the workers experienced or familiar with the work? Workers performing these tasks have previously performed the same or similar tasks.
<input type="checkbox"/>	5. Can mock up or other training be utilized? N/A
<input checked="" type="checkbox"/>	6. Has the Job History File been reviewed? Should one be created? Yes. - JHF # 27
<input checked="" type="checkbox"/>	7. Can SSES/Industry experience be gained from previously performed similar jobs? Yes. - RWP 1999-0064 for installing a pipe patch on this section of pipe was reviewed to incorporate previous experience. Also, RWP 2000-0064 was reviewed.
<input checked="" type="checkbox"/>	8. Are photos, drawings, video tapes etc. available of installed equipment or actual work being performed, to aid in work briefing? HP photo library contains pictures of affected area, as does the JHF.
<input checked="" type="checkbox"/>	9. Are all required support groups identified or notified? Operations, Maintenance, HP, and Effluents are aware of activities as outlined on approved schedule.
<input checked="" type="checkbox"/>	10. Can waste generation be minimized? Will special waste be generated? Has Effluents Management been notified? Effluents Management will process waste in the WSPS prior to work starting.
<input type="checkbox"/>	11. Are funnels/hoses required to drain the system/component to an appropriate floor drain? No.

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APPLICABLE	C. EXTERNAL EXPOSURE REDUCTION CONTROLS:
<input checked="" type="checkbox"/>	<p>1. Can work be delayed until short lived isotopes have decayed? (e.g. schedule work during outages/isolating systems prior to work, etc.)</p> <p>Tank will be emptied of contents thus decay is not necessary.</p>
<input checked="" type="checkbox"/>	<p>2. Have ALARA blocking and Protective Tagging requirements been identified?</p> <p>ALARA blocking will be applied in accordance with NDAP-QA-0626 and NDAP-QA-0323.</p>
<input checked="" type="checkbox"/>	<p>3. Can communication devices, headsets or cameras be used to improve efficiency?</p> <p>Radios will be used for communications between the tank room, Operations, and the vendor during rinse and pump down evolutions. Cameras and communications equipment are available for use if the need is identified.</p>
<input checked="" type="checkbox"/>	<p>4. Are all necessary materials, tools, parts, etc. available?</p> <p>Parts, tools, equipment, and material are available for this work.</p>
<input checked="" type="checkbox"/>	<p>5. Are all required support services available? (lighting, power, air, water, drains, etc.)</p> <p>Yes.</p>
<input checked="" type="checkbox"/>	<p>6. Can equipment/parts be staged/setup or fabricated in an accessible low dose rate area? (outside radiation or contaminated areas)</p> <p>Hoses will be made-up and tested prior to work in the tank room.</p>
<input type="checkbox"/>	<p>7. Can the component be removed to a low dose rate area for work?</p> <p>No.</p>
<input checked="" type="checkbox"/>	<p>8. Can radioactive materials contributing to background or general area dose rates be removed from the work area or placed in shielded drums, lead pigs or water buckets?</p> <p>The contents of the Waste Sludge Phase Sep will be transferred to a HIC prior to the start of the tank rinsing evolution.</p>

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APPLICABLE	C. EXTERNAL EXPOSURE REDUCTION CONTROLS:
<input type="checkbox"/>	9. Can remote handling tools or robotics be used to increase worker distance from the source, decrease the time in the area and/or limit extremity dose? N/A
<input checked="" type="checkbox"/>	10. Can system(s)/equipment be filled with water to reduce dose rates? No. - The system must be drained to accomplish the rinse.
<input checked="" type="checkbox"/>	11. Can the system(s)/equipment be drained and/or flushed to reduce dose rates and/or minimize airborne contamination? Flushing of the inside of the Phase Sep is the task at hand.
<input type="checkbox"/>	12. Can temporary shielding be used to lower whole body and/or skin dose rate? Not Required TSR #

APPLICABLE	D. INTERNAL EXPOSURE REDUCTION CONTROLS:
<input checked="" type="checkbox"/>	(RADIOLOGICAL RESPIRATORY PROTECTION CONSIDERATIONS) 1. Will activity be performed in a contaminated/airborne area or create a contaminated/airborne area? (If yes, see Attachment E, Respiratory Protection/ALARA review.) Room is currently contaminated. Levels of contamination were in the 10k to 15k range when work last completed in the room. The rinsing operation keeps tank internals wet. Airborne radioactivity has been shown to remain < 0.3 DAC when working in these conditions.
<input checked="" type="checkbox"/>	2. Can alternative tools be utilized that would minimize the generation of airborne contamination? (e.g. bandsaw in lieu of an air grinder) The only task is to rinse down the tank internals.

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APPLICABLE	D. INTERNAL EXPOSURE REDUCTION CONTROLS:
<input checked="" type="checkbox"/>	3. Can the system, area or component be decontaminated prior to work? Area decon, if required, will be accomplished after the tank is emptied and dose rates are lessened.
<input type="checkbox"/>	4. Can containment devices (e.g. glove box, tent, etc.) be utilized to isolate the component and/or area? No.
<input checked="" type="checkbox"/>	5. Can wetting or fixing agents be utilized to contain or minimize the generation of airborne contamination? Wetting of the tank internals will be performed as part of the task. Wetting of the tank room floor will only be required if tank room general contamination levels are >50k.
<input type="checkbox"/>	6. Can a HEPA ventilation unit be utilized to reduce or minimize the potential for airborne contamination from entering the breathing zone and/or reduce general area airborne levels? N/A
<input type="checkbox"/>	7. Can changes be made to the work process to minimize airborne generation? N/A
<input type="checkbox"/>	8. Can early warning Air Monitors be used? No. – dose rates are too high for proper operation of an AMS-3.
<input type="checkbox"/>	(INDUSTRIAL SAFETY RESPIRATORY PROTECTION CONSIDERATIONS) 9. Heat stress? N/A
<input type="checkbox"/>	10. Confined space entry? N/A

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APPLICABLE	D. INTERNAL EXPOSURE REDUCTION CONTROLS:
<input type="checkbox"/>	11. IDLH atmosphere? N/A
<input type="checkbox"/>	12. Asbestos work? N/A
<input type="checkbox"/>	13. Physical constraints? N/A
<input type="checkbox"/>	14. Visual impairments? N/A
<input type="checkbox"/>	15. Other? N/A
<input checked="" type="checkbox"/>	16. Is the use of respiratory protection justified? No. Basis: Historical data indicates that work of this nature will not result in an airborne radioactivity area.

APPLICABLE	E. HEALTH PHYSICS OPERATIONAL CONCERNS
<input checked="" type="checkbox"/>	1. Hot Spots identified? Hot spots are subject to change as rinsing/flushing progresses. The HP Technician providing job coverage will brief the workers on radiological conditions including the location of Hot Spots.
<input checked="" type="checkbox"/>	2. Low dose rate areas available and marked? Lower dose rate areas may vary as work progresses. The HP Technician providing job coverage will brief the workers as to the location of low dose rate waiting areas.

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APPLICABLE	E. HEALTH PHYSICS OPERATIONAL CONCERNS
<input type="checkbox"/>	3. Hot Particle Zones established where necessary? N/A
<input checked="" type="checkbox"/>	4. Special requirements for protective clothing? (e.g. facial PC's, face shields, etc.) Face shield and hood are required for Effluents worker while rinsing tank and may be required for other activities based on HP survey results.
<input type="checkbox"/>	5. Stay times required (Dose rate/Heat Stress)? MAX Stay Time: N/A

APPLICABLE	F. DOSIMETRY AND RADIOLOGICAL MONITORING (REFERENCE HP-TP-222)
<input checked="" type="checkbox"/>	1. Relocation of permanent whole body TLD? Not expected to be required. The job coverage HP Technician shall evaluate conditions and if relocation is required, have workers relocate as appropriate and make an RWP Remarks Log entry to document the relocation.
<input type="checkbox"/>	2. Multiple whole body TLD's/Dosimeters? No.
<input type="checkbox"/>	3. Telemetry or real time airborne monitoring system to monitor personnel exposures? N/A
<input type="checkbox"/>	4. Extremity: a) Monitoring? b) Tracking? N/A

ALARA PRE JOB REVIEW

RWP Number: 20010037

COPY

Rev.: 000

APPLICABLE	F. DOSIMETRY AND RADIOLOGICAL MONITORING (REFERENCE HP-TP-222)
<input checked="" type="checkbox"/>	5. Pocket Alarming Dosimeter? Required.
<input checked="" type="checkbox"/>	6. Has HP Instruments or Dosimetry been notified for support needs? N/A
<input type="checkbox"/>	7. Other: N/A

Anticipated Dose Rates/DACS:	
Whole Body:	to 1000 mR/hr
Skin:	as WB
Extremity:	as WB
Neutron:	0
Est. DAC Hours:	1.2

G. ADDITIONAL COMMENTS/INSTRUCTIONS

1. Water hoses should be taped together and fastened to a long pole to allow for easy rinsing of the tank internals.
2. The vent pipe on the top of the tank is normally a source of radiation, ensure dose rates are established on the vent pipe if entry to the top of the tank is required.

ALARA PRE JOB REVIEW

RWP Number: 20010037

COPY

Rev.: 000

H. WORK FLOW (SYNOPSIS OF WORK)

Include items such as evolutions with potential for airborne, tents, required notifications and time requirements for the notifications.

Tank Room Work

1. If not already done, perform a survey of the work area. Install a rope barricade just north of the ladder which provides access to the tank top. Post this barricade - High Radiation Area - Keep Out. This will require constant coverage to prevent access to a >1R/hr area (the entrance to "B" RWCU Phase Sep).
2. If general area contamination levels in the WSPS tank room are >150k ensure that the floor is wetted down immediately prior to the start of work.
3. Brief the Effluents work crew.
4. Effluents shall open hatch on top of the tank and have the System Engineer (or designee) examine the tank internal prior to rinse down. Take pictures of the tank internal, if reasonable.
5. If needed, Effluents rinse inner walls and top of tank to remove radioactive material.
6. Inspect the tank internal and if satisfactory, reinstall the hatch cover.
7. If general area contamination levels in the WSPS tank room are >50k, and dose rates are reasonable, decon room floor (and piping if necessary). Target should be < 50K.
8. When all work has been completed, remove tools and equipment.
9. The WSPS strainer should be cleaned when it best fits the work flow for the above evolution.

Pump Room Work (clean basket strainer for OP332)

1. Pin spring can hanger. Drain pump inlet and outlet.
2. Remove strainer.
3. Perform gross cleaning of strainer in bucket of water. Send strainer to decon shop if more decon is necessary.
4. Install cleaned strainer (or new strainer as necessary).
5. Unpin spring can hanger. Refill pump and piping for ISLI.

BETA & GAMMA AIR SAMPLE ANALYSIS FORM

RWP Number(s): 01-0037

Area: N/A RW 646 WSPS PP complex
Unit Building Elevation Room

Description of Work: CLEAN SUCTION STRAIN ON PUMP OP-332

A/S Model P4LC A/S HP # 1106 Cal Due Date: 4-26-01

Beta Counter HP # 797 Date / Time Counted: 3-26-01 1 0930

Counted by A. Lozinski
HP Technician

Sample Volume		Gross Beta Particulate Activity	
A/S Start Date:	<u>3-26-01</u>	Time:	<u>0845</u>
A/S Stop Date:	<u>↓</u>	Time:	<u>0915</u>
Total Minutes:	<u>30</u>		
Flow Rate:	<u>2</u>	LPM	
Total Volume:	<u>60</u>	Liters	
		Gross Counts:	<u>115</u>
		(1) Count Time:	<u>5 min</u>
		Gross CPM:	<u>23</u>
		Background CPM:	<u>22</u>
		Net CPM:	<u>1</u>
		Counter Efficiency:	<u>16.0 %</u>
		(2) Beta Activity:	<u>4.75E-11</u> $\mu\text{Ci/cc}$

Is Particulate Filter Beta-to-Gamma Ratio ≥ 10 ? $\left(\frac{\text{beta activity}}{\text{gamma activity}} \right)$ YES NO ~~N/A~~ (Circle one)

(3) **Gamma Isotopic I D:** Part - DET ID: HP-_____ Acquisition Date/Time _____/_____
(Complete this section ONLY if Gamma Iodine - DET ID: HP-_____ Acquisition Date/Time _____/_____
Analysis is performed.) Gas - DET ID: HP-_____ Acquisition Date/Time _____/_____

Gamma Analysis:
(Complete this section if Grand Total Fractional DAC on the Gamma Printout is ≥ 0.3 DAC.)

Total Tracking DAC's: _____ DAC

Total Posting DAC's: _____ DAC

(4) See Page 2 of this form for required actions.

If Page 1 of Gamma printout contains unidentified peaks ≥ 25 counts, complete Form HP-TP-720-4.
If Page 3 of Gamma printout contains Nonstochastic nuclides, complete Form HP-TP-720-4.
If Particulate Filter Beta-to-Gamma Ratio is ≥ 10 after the second count, complete Form HP-TP-720-7.

Reviewed: _____
Health Physics Supervision Date

ORIGINAL

SUSQ SES - AREA SURVEY MAP

Rx PWR *N/A* %

RADWASTE BUILDING

Elev. 646'

PHASE SEPARATOR PUMPS

R-29

RWP# 01-0037 DATE: 3-26-01 TIME: 0900 SURVEY BY: A. Lezinski/D. Watson
 RAD. INST. Ro-2 HP # 922 AIR SAMPLER P4LC HP # 1106 ACT. 4.75-11 $\mu\text{Ci/cc}$
 CONTAMINATION INST. RM-20 HP # 457 EFF. 10 % BKGD. 80
 SMEAR RESULTS (DPM/100cm²)
 1. SK o/s piping 5. SK floor 9. N/A 14. N/A
 2. 100R STRAINER 6. NO HOT PARTICLES DETECTED 10. N/A 15. N/A
 3. 10R floor 7. N/A 11. N/A 16. N/A
 4. 10R floor 8. N/A 12. N/A 17. N/A
 13. N/A 18. N/A

REVIEWED: _____

Health Physics

/ Date

PP&L FORM 3104

SMEAR LOCATIONS CIRCLED. RAD READINGS IN mR/hr. UNDERLINE = CONTACT RAD READINGS ■ = S.O.P.

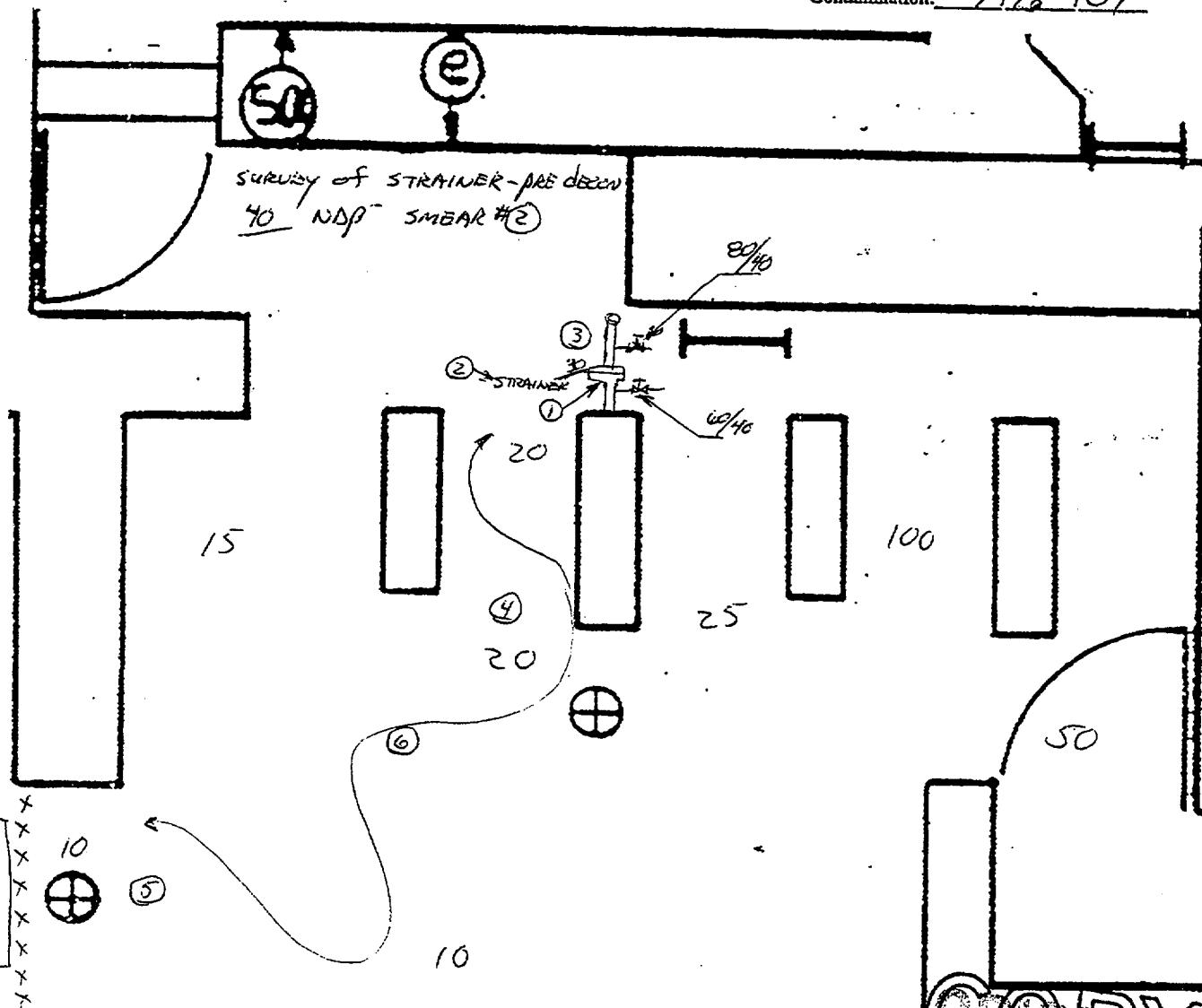
--- = RAD TAPE -X-X- = RAD TAPE & ROPE XXXX = RAD ROPE @ = A/S LOCATION → N

⊙ = elec. outlet

NO HOT PARTICLES DETECTED ON FLOOR, WORKER

INSTRUMENT SOURCE OR STRAINER

CALIBRATION DUE DATE

CHECKED SAT. DLRadiation: 5122 101Air Sampler: 4126 101Contamination: 7118 101

**PENNSYLVANIA POWER & LIGHT COMPANY
JOB PERFORMANCE MEASURE
APPROVAL AND ADMINISTRATIVE DATA SHEET**

S/RO EP.PS.126.101 0 05/01/01 206000 4.1
Appl To JPM Number Rev No. Date NUREG 1123 Sys. No. K/A

Task Title: Make Initial Notifications to Off-site Agencies and Emergency Personnel per EP-PS-126.

Completed By:

Phil Ballard
Writer

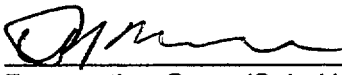
0614/01
Date

Reviews:


Instructor/Writer

6/26/01
Date

Approval:


Requesting Supv./C.A. Head

6-28-01
Date


Nuclear Training Supv.

6/26/01
Date

Date of Performance:

 20 Min.
Allowed Time (Min)

Time Taken (Min)

JPM Performed By:

Last First M.I.

Employee #/S.S. #

Performance Evaluation: () Satisfactory () Unsatisfactory

Evaluator Name:

Signature

Typed or Printed

Comments:

**REQUIRED TASK INFORMATION
JOB PERFORMANCE MEASURE
RO EP.PS.126.101**

I. SAFETY CONSIDERATIONS

- A. All Operations personnel are responsible for maintaining their radiation exposure As Low As Reasonably Achievable in accordance with OP-AD-001, Operations Shift Policies.
- B. All applicable safety precautions shall be taken in accordance with established PP&L safety policies and the Safety Rule Book, for example:
 - 1. Whenever any electrical panel is opened for inspection during JPM performance.
 - 2. Whenever entering any plant area where specific safety equipment; such as hearing or eye protection, safety shoes, hardhats, etc; is required and/or posted as being necessary.

II. REFERENCES

- A. EP-PS-126-001

III. REACTIVITY MANIPULATIONS

This JPM satisfies the requirements of Reactivity Manipulation(s):

None

IV. TASK CONDITIONS

- A. A Unit 1 reactor scram occurred and all control rods are NOT fully inserted into the reactor core.
- B. The US has entered EO-100-113, Level/Power Control.
- C. The SS declared an ALERT at 1200 due to the failure of RPS to shutdown the reactor.
- D. The TSC is NOT activated.
- E. The completed EMERGENCY NOTIFICATION REPORT is provided as Attachment A.
- F. You are the PCO on Unit 2.
- G. The SS has determined that a Site Evacuation and accountability is NOT required.
- H. The SS has determined that there are NO routing instructions for personnel responding.
- I. The Centrex Telephone Network (CTN) "191" capability is NOT functioning.

V. INITIATING CUE

Make the required notifications per EP-PS-126 and complete the required documentation per EP-PS-126. (Note: Actions are to be simulated)

PERFORMANCE CHECKLIST

Page 3 of 5

Appl. To/JPM No.: RO EP.PS126.101

Student Name: _____

1.	<p>Obtain a controlled copy of EP-PS-126.</p> <p>Note: Because the CTN "191" capability is NOT functioning, the student is required to use the narrative procedure (Tab 4) in addition to the CONTROL ROOM COMMUNICATOR FLOWCHART (Tab 1) to obtain the backup phone numbers.</p>	<p>Obtains a controlled copy of EP-PS-126.</p> <p>Reference: Tab 1 (CONTROL ROOM COMMUNICATOR FLOWCHART) <u>and/or</u> Tab 4 (narrative procedure).</p> <p>Obtains a EMERGENCY NOTIFICATION LOG SHEET (Tab 5).</p>		
2.	<p>Warn plant personnel of the Emergency Declaration.</p>	<p>Press the activate button on the PA phone handle and announce the following: <i>"Attention all personnel, a Alert has been declared at SSES."</i></p> <p>Repeats the announcement.</p>		

*Critical Step

#Critical Sequence

STCP-QA-125B

Rev. 2, (9/93)

Page 1 of 1

PERFORMANCE CHECKLIST

Page 4 of 5

Appl. To/JPM No.: RO EP.PS126.101

Student Name: _____

Step	Action	Standard	Eval	Comments
*3.	<p>Request activation of the Nuclear Emergency Response Organization (NERO).</p> <p>Evaluator: When the Alternate Security Control Center (ASCC) is called:</p> <ul style="list-style-type: none"> • Answer the call as the ASCC and acknowledge that activation of the NERO is requested for an Alert and that there are NO routing instructions. 	<p>Contact the ASCC to activate the NERO by either:</p> <ul style="list-style-type: none"> • Press "Hotline" Button • Dial 8-254-3115 (Primary) • Dial 8-254-3000 (Backup) <p>Request activation of NERO. Inform ASCC to indicate Alert (B). Provide routing instructions as NONE.</p>		
*4.	<p>Notify off-site agencies (PEMA - Pennsylvania Emergency Management Agency, LCEMA - Luzerne County Emergency Management Agency, and CCDPS- Columbia County Department Public Safety).</p> <p>Evaluator: When PEMA is called: Acknowledge report.</p> <p>When LCEMA is called: Acknowledge report.</p> <p>When CCDPS is called: Acknowledge report.</p> <p>NOTE: Completion of the EMERGENCY NOTIFICATION LOG SHEET (Tab 5) is NOT required to satisfy the Critical Task.</p>	<p>Within 15 minutes of accepting the task to make notifications, notify PEMA, LCEMA, and CCDPS as follows:</p> <p>NOTE: CTN "191" is inoperable. If 4191 is called, inform student the phone line is "dead."</p> <p>PEMA: Dial 4960, 4961, or 8-1-717-651-2001 and report alert.</p> <p>LCEMA: Dial 8-353-4906/4907/4908, or 8-1-800-821-3715, and report alert.</p> <p>CCDPS: Dial 8-353-4955/4956, or 8-1-570-389-5734 and report alert.</p> <p>Enter agency contact, time of notification, and initial for ENR FROM transmittal on the EMERGENCY NOTIFICATION LOG SHEET (Tab 5).</p>		

*Critical Step

#Critical Sequence

STCP-QA-125B

Rev. 2, (9/93)

Page 1 of 1

PERFORMANCE CHECKLIST

Page 5 of 5

Appl. To/JPM No.: RO EP.PS126.101

Student Name: _____

Step	Action	Standard	Eval	Comments
5.	<p>Notify the Transmission Power Dispatcher.</p> <p><u>Evaluator:</u> When TPD is called: Acknowledge report.</p>	<p>Activate the TPD "hotline" or dial 8-220-5090 or dial 8-220-5091.</p> <p>Report the emergency.</p>		
*6.	<p>Notify the NRC.</p> <p><u>Evaluator:</u> When NRC is called: Acknowledge report.</p> <p>NOTE: Completion of the EMERGENCY NOTIFICATION LOG SHEET (Tab 5) is NOT required to satisfy the Critical Task.</p>	<p>Within 1 hour of accepting the task to notify the NRC as follows:</p> <p>Pickup the ENS phone to activate auto dial or dial 301-816-5100 or 310-951-0550 or dial 301-415-0550 and report an alert.</p>		

*Critical Step

#Critical Sequence

TASK CONDITIONS

- A. A Unit 1 reactor scram occurred and all control rods are NOT fully inserted into the reactor core.
- B. The US has entered EO-100-113, Level/Power Control.
- C. The SS declared an ALERT at 1200 due to the failure of RPS to shutdown the reactor.
- D. The TSC is NOT activated.
- E. The completed EMERGENCY NOTIFICATION REPORT is provided as Attachment A.
- F. You are the PCO on Unit 2.
- G. The SS has determined that a Site Evacuation and accountability is NOT required.
- H. The SS has determined that there are NO routing instructions for personnel responding.
- I. The Centrex Telephone Network (CTN) "191" capability is NOT functioning.

INITIATING CUE

Make the required notifications per EP-PS-126 and complete the required documentation per EP-PS-126. (Note: Actions are to be simulated)

TASK CONDITIONS

- A. A Unit 1 reactor scram occurred and all control rods are NOT fully inserted into the reactor core.
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INITIATING CUE

Make the required notifications per EP-PS-126 and complete the required documentation per EP-PS-126. (Note: Actions are to be simulated)

EMERGENCY NOTIFICATION REPORT

☒ **This is a Drill**☐ **This is NOT a Drill**

1. This is: Shift Supervisor Bob Knoll at Susquehanna Steam Electric Station.
My phone number is: 570-542-3904; the time is 1200.

2. EMERGENCY CLASSIFICATION:

- ☐ Unusual Event ☐ Site Area Emergency
☒ Alert ☐ General Emergency
☐ The Event has been Terminated

UNIT: 1 TIME: 1200 DATE: 8/14/01

THIS REPRESENTS AN ☒ Initial Declaration }
 ☐ Escalation } IN CLASSIFICATION STATUS
 ☐ No Change }

3. BRIEF NON-TECHNICAL DESCRIPTION OF THE EVENT:

An automatic reactor scram occurred and all control rods did NOT fully insert
into the reactor core. Reactor power is currently at 8%.

4. THERE IS

- ☒ NO }
☐ AN AIRBORNE } NON-ROUTINE RADIOLOGICAL RELEASE IN PROGRESS
☐ A LIQUID }

5. WHEN GENERAL EMERGENCY IS THE INITIAL EVENT, PROVIDE PROTECTIVE ACTION RECOMMENDATIONS BELOW:

NOT APPLICABLE.

6. Wind Direction is From: Not Applicable Wind Speed is: Not Applicable
(Data is obtained from 10 meter meteorological tower>)

☒ **This is a Drill**☐ **This is NOT a Drill**

Approved: Bob Knoll TIME: 1200 DATE: 8/14/01