

ATTACHMENT 7

PERMITS:

**WORK PERMIT, CRITICAL LIFT REVIEW REQUEST FORM, AND
WARNING NOT WORK IN PROGRESS FORM**

0064

WORK PERMIT # BGRWP-569

ILR / Work Order # 411606 Construction Job # _____ Tracking # _____ Account # _____

1. Work requester fills out this section **STANDING WORK PERMIT**

Requester: M. LILIMPAKIS Date: 9-24-99 Ext. 7628 Dept/Div/Group: BGR
 Other Contact person (if different from requester): CLYDE NEWSON Ext. 2646
 Start Date _____ Estimated End Date _____
 Description of Work / Problem: PERFORM REQUIRED ACTIVITIES AS OUTLINED IN THE TECHNICAL WORK DOCUMENT FOR FILE FAN NO. 5 REMOVAL
 Building 704 Room CELL 45 Equipment FAN

2. Work requester, work provider, and ES&H (as necessary) jointly fill out this section or attach analysis

Hazard Analysis

RADIATION CONCERNS POSSIBLE NONE
 Activation Airborne Contamination Radiation OTHER _____
 Special nuclear materials involved (ES&H 3.7.0), notify Group Leader, Isotope Special Materials Group (SSD)
 Fissionable materials involved (ES&H 3.7.0), notify Laboratory Criticality Officer (DAT)

SAFETY CONCERNS NONE
 Adding / Removing Walls or Roofs Excavation (ES&H 1.18.0) Noise
 Asbestos Flammable (ES&H 4.10.2) Non-ionizing Radiation
 Biohazard Fumes/Mist/Dust Oxygen Deficiency
 Chemicals Heat/Cold Stress (ES&H 2.5.0) Penetrating Fire Wall
 Confined Space (ES&H 2.2.4) Hydraulic Pressurized Systems (ES&H 1.4.1)
 Corrosive Lasers (ES&H 2.3.1) Rigging/Critical Lift (ES&H 1.6.0)
 Cryogenic (ES&H 5.1.0) Lead Toxic
 Electrical (ES&H 1.5.0) Magnetic Field Vacuum
 Elevated Work Material Handling (ES&H 1.6.0) OTHER _____

ENVIRONMENTAL CONCERNS NONE OTHER _____
 Haz/rad materials will be released to the air via a new/modified ventilation system, hood, or stack (ES&H 6.1.4 and 6.1.5) Notify Project Engineer, E. P. O. (ES&H Services)
 New haz/rad materials will be released via the liquid effluent system to the sewage system or an impoundment (ES&H 6.1.2 and 6.1.3). Notify Regulatory Compliance Engineer, E. P. O. (ES&H Services) for permit.
 Acutely hazardous chemical

Waste Generated NONE Clean Waste PCB Hazardous Waste POSSIBLE Radioactive Waste Mixed Waste POSSIBLE
 Waste disposition by: WORKING CREW

Work Controls

WORK PRACTICES NONE Containment IH Survey Scaffolding - requires inspection
 Back-up Person/Watch Exhaust Ventilation Lockout/Tagout (ES&H 1.5.1) Time Limitation
 Barricades HP Coverage Posting/Warning Signs OTHER _____
PROTECTIVE EQUIPMENT NONE Ear Plugs Gloves Lab Coat Safety Glasses
 Coveralls Ear Muffs Goggles Respirator Safety Harness
 Disposable Clothing Face Shield Hard Hat Shoe covers Safety Shoes OTHER _____

PERMITS REQUIRED *Initial next to box to show who has responsibility to generate the permit*
 NONE Digging/Core Drilling (ES&H 1.18.0) Impair Fire Protection Sys. (ES&H 4.2.0)
 Confined Space Entry (ES&H 2.2.4) Electrical Working Hot (ES&H 1.5.0) Rad Work Permit (BNL RadCon Manual)
 Cutting/Welding (ES&H 4.3.0) Dept/Div Specific Permit

DOSIMETRY/ MONITORING NONE O₂/Combustible Gas Self-reading Dosimeter
 Heat Stress Monitor Passive Vapor Monitor Sorbent Tube/Filter Pump
 Noise Survey/Dosimeter Real Time Monitor TLD OTHER _____

Training Requirements (List below any location specific training requirements)

AS PER RWP

Based on analysis above, the Review Team determines the job hazard category:
JOB HAZARD CATEGORY: LOW MODERATE HIGH
 _____ Work Coordination Only Job Safety Analysis (JSA) Required? Yes No

If job is low hazard and skill-of-the-craft, the back side of the permit does not need to be filled out. Sign for concurrence.

Work Control Coordinator [Signature] Life # 0102 Work Provider _____ Life # _____

FILE CODE: _____

IN-O# 910413C

3. Both work requester and work pro coordinate on work plan (use attach s for detailed plans)

Work Plan (procedures, timing, personnel, etc): SEE ATTACHED FWD.
Technical Work Document Reclamation Removal
September 20, 1999

Special Working Conditions Required: N/A

Operational Limits Imposed: N/A

Post Work Testing Required: N/A

Configuration Control Review Required: Yes No Walkdown performed Yes No

Reviewed By: *Note: Primary facility reviewer will dictate the other required signatures. The level of review shall be determined by the details of the work plan, hazards, and work controls necessary to perform the activity. Review done: in series team

Title	Name (print)	Signature	Life #	Date
<input checked="" type="checkbox"/> Primary Reviewer	<u>E. LILIMPAKIS</u>	<u>[Signature]</u>	<u>01802</u>	<u>10/21/99</u>
<input checked="" type="checkbox"/> ES&H Services	<u>S. Musolino</u>	<u>[Signature]</u>	<u>15025</u>	<u>10/24/99</u>
<input type="checkbox"/> Requester/Contact	<u>R. SUGA</u>	<u>[Signature]</u>	<u>06095</u>	<u>10/24/99</u>
<input type="checkbox"/> Others *				

4. Job site personnel fills out this section

Note: Signature indicates personnel performing work have read and understand the hazards and permit requirements

Job Site Supervisor: [Signature] Contractor Supervisor: _____

Workers: [Signature] Life # 15918 Workers: John A Berry Life # 19649
[Signature] 15392 [Signature] 20784
[Signature] 12693 _____
[Signature] 14103 _____

5. Work Requester or designee fills out this section

Conditions are Appropriate to Start Work: (Work permit has been reviewed, work controls are in place, and site is ready for job.)
 Name: [Signature] Signature E. LILIMPAKIS Life # 01802 Date 10/27/99

6. Work Requester determines if Post Job Review is required Yes No (Fill in names of reviewers)

Post Job Review:
 Name: LILIMPAKIS Signature [Signature] Life #: 01802 Date: 1/26/00
 Name: _____ Signature _____ Life #: _____ Date: _____
 Name: _____ Signature _____ Life #: _____ Date: _____
 Close-out signature (as necessary): Signature _____ Life #: _____ Date: _____

7. Worker provides feedback

Worker Feedback:
 Is worker feedback required on this job? YES NO (attach feedback form)
 Worker: Any feedback on safety concerns or on ways to improve the job? YES NO (ask for form if not attached)

WORK PERMIT BGRWP 0068

ILR/Work Order # 411606 - Construction Job # _____ Tracking # _____ Account # _____

1. Work requester fills out this section **STANDING WORK PERMIT**

Requester: M. LILIMPAKY Date: 12/7/99 Ext. 7628 Dept/Div/Group: BGR
 Other Contact person (if different from requester): CLYDE NEWSON Ext. 2646
 Start Date 12-7-99 Estimated End Date 2/15/2000
 Description of Work / Problem: PERFORM REQUIRED ACTIVITIES TO REMOVE BGR PRIMARY FAN NO 4, 3, 2, 1 AND SECONDARY AND EMERGENCY FANS -
 Building 704 Room EMERG. SEC. 1, 2, 3, 4 Equipment: FANS

2. Work requester, work provider, and ES&H (as necessary) jointly fill out this section or attach analysis

Hazard Analysis
 RADIATION CONCERNS POSSIBLE NONE
 Activation Airborne Contamination Radiation OTHER _____
 Special nuclear materials involved (ES&H 3.7.0), notify Group Leader, Isotope Special Materials Group (SSD)
 Fissionable materials involved (ES&H 3.7.0), notify Laboratory Criticality Officer (DAT)

SAFETY CONCERNS NONE
 Adding / Removing Walls or Roofs Excavation (ES&H 1.18.0) Noise
 Asbestos Flammable (ES&H 4.10.2) Non-ionizing Radiation
 Biohazard Fumes/Mist/Dust Oxygen Deficiency
 Chemicals Heat/Cold Stress (ES&H 2.5.0) Penetrating Fire Wall
 Confined Space (ES&H 2.2.4) Hydraulic Pressurized Systems (ES&H 1.4.1)
 Corrosive Lasers (ES&H 2.3.1) Rigging/Critical Lift (ES&H 1.6.0)
 Cryogenic (ES&H 5.1.0) Lead Toxic
 Electrical (ES&H 1.5.0) Magnetic Field Vacuum
 Elevated Work Material Handling (ES&H 1.6.0) OTHER _____

ENVIRONMENTAL CONCERNS NONE OTHER _____
 Hazrad materials will be released to the air via a new/modified ventilation system, hood, or stack (ES&H 6.1.4 and 6.1.5) New haz/rad materials will be released via the liquid effluent system to the sewage system or an impoundment (ES&H 6.1.2 and 6.1.3). Notify Regulatory Compliance Engineer, E. P. O. (ES&H Services) for permit.
 Acutely hazardous chemical

Waste Generated NONE Clean Waste PCB Hazardous Waste Radioactive Waste Mixed Waste
 Waste disposition by: WORKING CRANS

Work Controls
 WORK NONE Containment HI Survey Scaffolding - requires inspection
 PRACTICES Back-up Person/Watch Exhaust Ventilation Lockout/Tagout (ES&H 1.5.1) Time Limitation
 Barricades HP Coverage Posting/Warning Signs OTHER _____
 PROTECTIVE EQUIPMENT NONE Ear Plugs Gloves Lab Coat Safety Glasses
 Coveralls Ear Muffs Goggles Respirator Safety Harness
 Disposable Clothing Face Shield Hard Hat Shoe covers Safety Shoes OTHER _____
 PERMITS *Initial next to box to show who has responsibility to generate the permit*
 REQUIRED NONE Digging/Core Drilling (ES&H 1.18.0) Impair Fire Protection Sys. (ES&H 4.2.0)
 (Please attach) Confined Space Entry (ES&H 2.2.4) Electrical Working Hot (ES&H 1.5.0) Rad Work Permit (BNL RadCon Manual)
 Cutting/Welding (ES&H 4.3.0) Dept/Div Specific Permit
 DOSIMETRY/ MONITORING NONE O₂/Combustible Gas Self-reading Dosimeter
 Heat Stress Monitor Passive Vapor Monitor Sorbent Tube/Filter Pump
 Noise Survey/Dosimeter Real Time Monitor TLD OTHER _____

Training Requirements (List below any location specific training requirements)

AS PER RWP

Based on analysis above, the Review Team determines the job hazard category:
JOB HAZARD CATEGORY: _____ LOW MODERATE _____ HIGH

_____ Work Coordination Only Job Safety Analysis (JSA) Required? Yes No

*job is low hazard and skill-of-the-craft, the back side of the permit does not need to be filled out. Sign for concurrence.
 Work Control Coordinator JAN Life # 0190 Work Provider _____ Life # _____

FILE CODE:

3. Both work requester and work provider coordinate on work plan (use attachments for detailed plans)

Work Plan (procedures, timing, personnel, etc.): **WORK TO BE PERFORMED**
 A.S. PER: ERD - BGR - TP - 99-1 FOR FAN #4,
 ERD - BGR - TP - 99-4 FOR FAN #3
 ERD - BGR - TP - 99-3 FOR FAN #2
 ERD - BGR - TP - 99-2 FOR FAN #1, MOTOR, SECONDARY FAN
 AND ISOLATION OF EMERGENCY FAN

Special Working Conditions Required: N/A

Operational Limits Imposed: N/A

Post Work Testing Required: N/A

Configuration Control Review Required Yes No Walkdown performed Yes No

Reviewed By: *Note: Primary facility reviewer will dictate the other required signatures. The level of review shall be determined by the details of the work plan, hazards, and work controls necessary to perform the activity. Review done: in series team

Title	Name (print)	Signature	Life #	Date
<input checked="" type="checkbox"/> Primary Reviewer	E. LILIMPAKIS		01806	12/7/99
<input checked="" type="checkbox"/> ES&H Services	S. Musolino		15075	12/7/99
<input type="checkbox"/> Requester/Contact				
<input type="checkbox"/> Others *	R. SUGA		06295	12/7/99

4. Job site personnel fills out this section

Note: Signature indicates personnel performing work have read and understand the hazards and permit requirements

Job Site Supervisor	Contractor Supervisor _____
Workers: Anthony Manfrotto Life # 20784	Workers: Joe Dedue Life # 17184
Jim Amara Life # 21131	JOHN J BERRY Life # 19649
MARK BLANCIAK Life # 05903	Ed Diaz Life # 21122
GARY CONNELL Life # 14898	
Hugh Rhodes Life # 16006	

5. Work Requester or designee fills out this section

Conditions are Appropriate to Start Work: (Work permit has been reviewed, work controls are in place, and site is ready for job.)
 Name E. LILIMPAKIS Signature Life # 01806 Date 12/7/99

6. Work Requester determines if Post Job Review is required Yes No (Fill in names of reviewers)

Post Job Review:

Name: _____	Signature _____	Life #: _____	Date: _____
Name: _____	Signature _____	Life #: _____	Date: _____
Name: _____	Signature _____	Life #: _____	Date: _____
Close-out signature (as necessary): _____	Signature _____	Life #: _____	Date: _____

7. Worker provides feedback

Worker Feedback:
 Is worker feedback required on this job? YES NO (attach feedback form)
 Worker: Any feedback on safety concerns or on ways to improve the job? YES NO (ask for form if not attached)

Brookhaven National Laboratory
RADIOLOGICAL WORK PERMIT

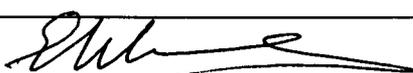
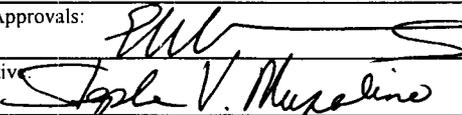
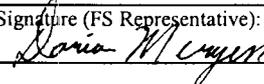
Start Date: _____

End Date: _____

Revised End Date: _____

(Shaded area to be completed by requester):

Job Specific General

1. Initiator: M. Lilimpakis	2. Life #: 0180L	3. Phone: 7628	4. Bldg: 701
5. Job Location(s): Fan 5, Building 704			
6. Job Description: Remove and package for disposal Fan #5 and associated equipment.			
6a. Work Begins: 10/18/99		6b. Work Ends: 12/31/99	
7. Historical/Other Concerns: See attached Work Plan			
8. Signature of Initiator: 			
9. Conditions that will void RWP: 1. Unplanned breach of containment 2. Creation of a High Contamination or Airborne Radioactivity Area outside containment			
10. Job Review: <input type="checkbox"/> Pre-Job Review <input checked="" type="checkbox"/> Pre-Job Briefing <input type="checkbox"/> ALARA Review <input checked="" type="checkbox"/> Summary/Closeout <input type="checkbox"/> Other: <input type="checkbox"/> Not Applicable	11. Estimated Dose: <input checked="" type="checkbox"/> Per Job <input type="checkbox"/> Per Entry Highest Individual: < 10 mrem Collective: < 25 mrem <input type="checkbox"/> Not Applicable	12. Attachments: <input type="checkbox"/> Radiological Survey Form <input checked="" type="checkbox"/> Technical Work Document <input type="checkbox"/> Other: _____ <input type="checkbox"/> Not Applicable	13. Training Requirements <input checked="" type="checkbox"/> Radiation Worker I (RWT 002) <input type="checkbox"/> High/Very High Radiation (RWT 400) <input checked="" type="checkbox"/> Contamination (RWT 300, 300A) <input type="checkbox"/> Benchtop/Dispersables (RWT 500) <input type="checkbox"/> Activation (RWT 200) <input type="checkbox"/> Other: _____
Work Controls: FS Coverage <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Continuous <input checked="" type="checkbox"/> Hold Points <input checked="" type="checkbox"/> Air Monitoring <input type="checkbox"/> Shielding <input checked="" type="checkbox"/> Other - Containment on Joints <input type="checkbox"/> Not Applicable	15. Protective Equipment: <input checked="" type="checkbox"/> Gloves <u>see note 1b</u> <input checked="" type="checkbox"/> Shoe Covers <u>see note 1b</u> <input checked="" type="checkbox"/> Booties <u>see note 1b</u> <input checked="" type="checkbox"/> Coveralls <u>see note 1b</u> <input type="checkbox"/> Red Trim Lab Coat <input checked="" type="checkbox"/> Respirator <u>see note 1b</u> <input checked="" type="checkbox"/> Head Cover <u>see note 1b</u> <input type="checkbox"/> Other _____ <input type="checkbox"/> Not Applicable	16. Dosimetry: <input checked="" type="checkbox"/> TLD <input type="checkbox"/> Self Reading Dosimeter <input type="checkbox"/> Pencil <input type="checkbox"/> Digital <input type="checkbox"/> Alarming Dosimeter <input type="checkbox"/> Finger Dosimetry <input type="checkbox"/> Not Applicable	17. Check Out Instructions: <input type="checkbox"/> Whole Body Count <input type="checkbox"/> Urine Sample for Bioassay <input checked="" type="checkbox"/> Contamination Check <input checked="" type="checkbox"/> Personnel <input checked="" type="checkbox"/> Equipment <input type="checkbox"/> Equipment Return <input checked="" type="checkbox"/> Portal Monitor (see note 1a) <input checked="" type="checkbox"/> Tools <input checked="" type="checkbox"/> Post Job Survey <input type="checkbox"/> Not Applicable
18. Special Instructions (Hold Points, special dose limits, etc.): 1a. Whole body frisk for nuclides of concern may be substituted if PCM is not available or OOS. 1b. See addendum for PE requirements			
Hold Points 1. Any skin contamination. 2. Elevated airborne levels. 3. CAM Alarm 4. Poor adherence of fixative paint.			
Special Instructions 1. Verify that a baseline whole body count is on file 2. Follow-up WBC a skin contamination occurs. 3. CAMS should be in continuous operation. If CAM is unavailable or OOS continuous air sampling may be used. 4. Fixative paint shall be applied a minimum of 24 hours before work begins.			
19. Signature Approvals:		Department	Life Number
Representative: 		LDE	0180L
		RCD	15075
Other (Department Specific):			
20. Close-Out Signature (FS Representative):			Date
		RCD	11-1-99
			11/1/99
			1/4/2K

COPY

RWP ADDENDUM

RWP#: 990913-16 Rev. 1

Protective Equipment Requirements

1. For work in a high contamination area or contaminated system breach the following equipment is required

- Double Gloves,**
- Shoe Covers**
- Booties**
- Double Coveralls (Tyvek outer suit required if system has liquids)**
- Head Cover**
- Respirator**

2. For work in a contamination area the following equipment is required.

- Double Gloves**
- Shoe Covers**
- Booties**
- Coveralls**

3. For inspection or tours in a contamination area the following equipment is required.

- Booties**
- Gloves**

Note: RCD tech may adjust protective equipment requirements as radiological Conditions warrant.

RADIOLOGICAL WORK PERMIT

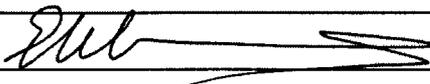
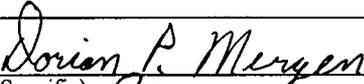
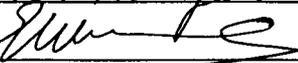
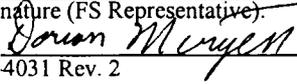
Start Date: 01-01-2K

(Shaded area to be completed by requester)

End Date: 03-31-2K

Revised End Date: _____

Job Specific General

1. Initiator: Emmanuel Lilimpakis		2. Life #: 0180L	3. Phone: 7628	4. Bldg: 701
5. Job Location(s): Fans 4,3,2,1, Secondary Fan and Auxiliary Fan In Building 704				
6. Job Description: Remove and Package for Disposal; Fans 4,3,2,1,Secondary and Auxiliary Fans and Associated Equipment.				
6a. Work Begins:01/01/2K		6b. Work Ends: 03/31/2K		
7. Historical/Other Concerns: N/A				
8. Signature of Initiator: 				
9. Conditions that will void RWP: 1. Unplanned Breach of Containment. 2. Creation of High Contamination or Airborne radioactivity Area Outside of Containment.				
10. Job Review: <input type="checkbox"/> Pre-Job Review <input checked="" type="checkbox"/> Pre-Job Briefing <input type="checkbox"/> ALARA Review <input type="checkbox"/> Summary/Closeout <input type="checkbox"/> Other: <input type="checkbox"/> Not Applicable	11. Estimated Dose: <input checked="" type="checkbox"/> Per Job <input type="checkbox"/> Per Entry Highest Individual: <10 Collective: <25 Not Applicable	12. Attachments: <input type="checkbox"/> Radiological Survey Form <input checked="" type="checkbox"/> Technical Work Document <input type="checkbox"/> Other: _____ <input type="checkbox"/> Not Applicable	13. Training Requirements <input checked="" type="checkbox"/> Radiation Worker I (RWT 002) <input type="checkbox"/> High/Very High Radiation (RWT 400) <input checked="" type="checkbox"/> Contamination (RWT 300, 300A) <input type="checkbox"/> Benchtop/Dispersables (RWT 500) <input type="checkbox"/> Activation (RWT 200) <input type="checkbox"/> Other: _____	
14. Work Controls: <input type="checkbox"/> FS Coverage <input type="checkbox"/> Intermittent <input checked="" type="checkbox"/> Continuous <input checked="" type="checkbox"/> Hold Points <input checked="" type="checkbox"/> Air Monitoring <input type="checkbox"/> Shielding <input checked="" type="checkbox"/> Other note 3a <input type="checkbox"/> Not Applicable	15. Protective Equipment: <input checked="" type="checkbox"/> Gloves note 2a <input checked="" type="checkbox"/> Shoe Covers note 2a <input checked="" type="checkbox"/> Booties note 2a <input checked="" type="checkbox"/> Coveralls note 2a <input type="checkbox"/> Red Trim Lab Coat <input checked="" type="checkbox"/> Respirator note 2a <input checked="" type="checkbox"/> Head Cover note 2a <input type="checkbox"/> Other <input type="checkbox"/> Not Applicable	16. Dosimetry: <input checked="" type="checkbox"/> TLD <input type="checkbox"/> Self Reading Dosimeter <input type="checkbox"/> Pencil <input type="checkbox"/> Digital <input type="checkbox"/> Alarming Dosimeter <input type="checkbox"/> Finger Dosimetry <input type="checkbox"/> Not Applicable	17. Check Out Instructions: <input checked="" type="checkbox"/> Whole Body Count <input checked="" type="checkbox"/> Urine Sample for Bioassay <input checked="" type="checkbox"/> Contamination Check <input checked="" type="checkbox"/> Personnel <input checked="" type="checkbox"/> Equipment <input type="checkbox"/> Equipment Return <input checked="" type="checkbox"/> Portal Monitor note 1a <input checked="" type="checkbox"/> Tools <input checked="" type="checkbox"/> Post Job Survey <input type="checkbox"/> Not Applicable	
18. Special Instructions (Hold Points, special dose limits, etc.): 1a. Whole body frisk with pancake GM and Alpha Scintillator probe for nuclides of concern may be substituted if PCM-2 is not available or OOS. 2a. See addendum for PE requirements. 3a. Containment on joints. Hold Points 1b. Any skin contamination. 2b. Elevated airborne levels. 3b. CAM Alarm. 4b. Poor adherence of fixative paint. Special Instructions 1c. Verify that a baseline whole body count is on file. 2c. Follow-up WBC if a skin contamination occurs. 3c. CAMS should be in continuous operation for breaches. If CAM is unavailable or OOS, continuous air sampling may be used. 4c. Fixative Paint shall be applied a minimum of 24 hours before a breach occurs.				
19. Signature Approvals:		Department	Life Number	Date
Representative: 		RCD	21543	01-03-2K
Other (Department Specific): 		BGRR	0180L	01-03-00
20. Close-Out Signature (FS Representative): 		RCD	21543	4/5/2K

RWP ADDENDUM

RWP: Y2K-BGRR-04 rev. 1

1. For work in a high contamination area or contaminated system breach the following PPE shall be worn:

Double Gloves

Shoe Covers

Booties

Double Coveralls (Tyvek outer suit required if system has liquids)

Head Cover

Respirator (*based on survey results and previous air sample results HP Supervision may downgrade respiratory requirements.*)

2. For work in a contamination area the following PPE shall be worn:

Double Gloves

Shoe Covers

Booties

Coveralls

3. For inspections or tours in a contamination area the following PPE shall be worn:

Booties

Gloves

Note: RCT may adjust PPE requirements as radiological conditions warrant.



FS Representative

15075

Life Number

1/11/00

Date

By ESH & Quality
Date _____
Tracking # _____

CRITICAL LIFT REVIEW REQUEST FORM

Person Requesting Critical Lift

Print Name E. ULLMPAETIS Department/Division EFD/BGRR Phone 7628

PERSON IN CHARGE (PIC) *May be same person as person requesting Critical Lift.*

Print Name J. O'MALLEY

PIC Must meet the definitions of the DOE Hoisting and Rigging Handbook for appointed, designated and qualified. PIC shall be present at the lift site during the entire lifting operation.

ITEMS TO BE LIFTED

- 1) UPPER HOUSING w/ BELLOWS
- 2) MAIN FAN SECTION w/ MOTOR & PEDESTALS

DETERMINING FACTOR FOR CRITICAL LIFT

Unacceptable risk
Contamination - significant radioactive on internals

A lift shall be designated as a critical lift if collision, upset, or dropping could result in any one of the following.

- 1) Unacceptable risk of personnel injury or significant adverse health impact.*
- 2) Significant release of radioactive or other hazardous material or other undesirable conditions.*
- 3) Undetectable damage that would jeopardize future operations or the safety of a facility.*
- 4) Damage that would result in unacceptable delay to schedule or other significant program impact such as loss of vital data.*

A lift should also be designated as critical if the load requires exceptional care in handling because of size, weight, close-tolerance installation, high susceptibility to damage, or other unusual factors.

OPERATING EQUIPMENT TO BE USED

Type 2-overhead chainfalls Load Indicating Devices NO
Capacity 5 TONS Boom Length If applicable NO
Date Of Annual Inspection On BNL Cranes NO.

SPECIFICATIONS OF ITEMS TO BE MOVED

If specifications are to be shown on attached documents check here.

1. 5000 #

Weight 2. 20,000 # How Was Weight Determined thickness of material & dims
Dimensions _____

* USE A BOTTLE-JACK w/ SCALE TO VERIFY THE ACTUAL WEIGHT BEFORE RIG.

Center Of Gravity - Is CG Located In Approximate Center of Load YES

If not, attach a drawing showing CG location.

Hazardous, Radioactive Or Toxic Materials Present YES, RADIOACTIVE

RIGGING EQUIPMENT TO BE USED

If rigging equipment is to be shown on attached documents check here.

Type Of Slings 1. LIFTALL-EN150 2. LIFTALL-EN2A0 Rated Capacity 1. 26,400 (basket) 2. 92,400 (basket)
Spreader Bars / Below The Hook Lifting Devices Give BNL drawing number if available.

Connecting Accessories Items #1 & #2: 7/8 shackles Swivel hoistings 1" Rated Capacity 8.5 TONS / each 9,000# / 360°/ea

LIFTING OPERATION

If lifting operation details are to be shown on attached documents check here.

Method Of Connecting Rigging To Load 1) Using existing pad eyes
2) Connecting to structural pick points

Sling Angles 1. 70° 2. 90° Rated Load At These Angles 1. 23,760 2. 40,280

Mobile Crane Only - - - Operating Range	Point Of Lift	Point Of Delivery
Boom Radius	_____	_____
Crane Capacity	_____	_____
% Of Capacity	_____	_____

Other Factors That May Affect Safety Of Lifting Operation. NONE

CONTRACTOR EQUIPMENT

Safety Inspection Of Equipment Performed by BNL authorized person. Date N/A
Print Name Of Inspector _____ Comments _____

Operators Experience On This Type Equipment _____

SIGNATURE APPROVAL

BNL Inspector Of Contractor Equipment If applicable _____

Person In Charge (PIC) James K O'Reilly

Responsible Manager Or Designee A. C. Baulman

ESH And Quality Ram Singh 11/15/99

PRE-LIFT MEETING

Date _____ Time 10:00 Location Fan Room #5

11/17/99

consisting of heavy masonry, 6 inches of concrete or 1-inch thickness of steel plate. The separation is required to contain fan contamination and provide missile protection in the event of fan impeller breakage.

Each fan casing is drained at several points and drainage collected in a header conducting potentially "hot" drainage to the site hot waste handling facility.

Ventilation for each fan unit is provided and consists of a pair of ducts, each fitted with a control damper, leading from the lower sides of the motor and meeting in a single duct above the motor and discharging through a Robertson-type roof ventilator which houses a 30-inch-diameter exhaust fan rated at 6250 cfm @ 150° C driven by a one-horsepower vertical motor.

The fan units are driven by constant-speed motors and are each provided with pneumatically operated inlet vane control for regulating fan output. Manual control of the vanes is provided from either the Fan House or Reactor Building control room. In addition, isolation valves are provided in the suction and discharging ducts on each fan unit.

B. System Description

The primary air suction ducts for all five fan units are supported by the roof of the Fan House directly over the fans and a branch is taken off the duct at each fan as shown in Figures G06.04-1 and G06.04-2. This vertical branch line is provided with a butterfly valve for on-off operation. The main suction duct has a rectangular cross section, and tapers from 10 feet high by 12 feet wide at the first fan cubicle to 6 feet high by 8 feet wide at the fifth fan cubicle. The fans discharge downward through individual ducts, angled at 45 degrees, which enter the main discharge duct, located directly below the fans in the basement. The discharge duct for each fan is supported on its own foundation. The main discharge duct is also rectangular, and tapers from 5 feet square at the first fan to 10 feet wide by 11-1/2 feet high at the east end of the building.

The inlet valve, which is located above the inlet expansion joint at each fan, is a 48-inch R-S Products No. B 8327 automatically

operated butterfly damper. The valve shaft is extended through the cubicle wall to the motor room.

The discharge valve is a 48-inch Chapman gate valve, cast-iron body bronze mounted, with double-disc, nonrising stem and having flanged ends. The valve is equipped with bevel gears and ball-bearing yoke. The gear driving rod is equipped with two universal joints and a slip coupling to accommodate any lateral movement due to temperature. The rod extends to a Limitorque motor control unit mounted on the motor side of the cubicle wall. The valve is designed for low-pressure operation at temperatures up to 500° F. The maximum closing time by motor is 3-1/2 minutes.

All five primary air fan units are of the double-inlet, double-width, induced-draft, single-stage centrifugal type. The fan inlet boxes are equipped with three-corrugation, 48-inch-diameter Badger expansion joints and divided air intakes to deliver air to both sides of the fan impeller. Inlet air diffusers are of the volute type fabricated of cast iron. The discharge duct for each fan is also equipped with a 48-inch-diameter Badger expansion joint.

Vertical sections of the Green Fuel Economizer Company and Sturtevant fans are shown in Figures G06.04-3 and G06.04-4 respectively.

The Green Fuel Economizer Company fans are fabricated with 1/4-inch housing and inlet boxes reinforced and split for convenient impeller wheel removal and provided with access doors. The fan impellers are of the airfoil type with shrouds and center plates of forged steel machined to a fine finish and tapered and shaped for maximum strength. The impeller blades are of the backward curved design which limits the possibility of overloading the fan motor by causing the motor horsepower to decrease when the volumetric load exceeds the fan operating range. The fan shaft is forged steel with two ring-oiled, water-cooled, self-aligning sleeve bearings mounted on independent cast-iron pedestals with a sole plate. The bearings are equipped with thermocouples which are connected to indicating recorders on control panel M in the Reactor Building control room.

Each of the three fan units is equipped with a set of inlet louver dampers for flow control.

The drive motors for the above fans are Fairbanks Morse & Co. 1000-horsepower, squirrel-cage induction, 2300-volt, 3-phase, 60-cycle motors equipped with sleeve bearings, self-contained lubrication system, stator temperature detectors, bearing temperature thermocouples, split bearing arm on drive end, screens on the intake air openings and a separate pedestal sole plate.

A performance curve for the fan is shown in Figure G06.04-5.

Operating and construction features for the three normally operating fan units are delineated below:

1. Fan Manufacturer: Green Fuel Economizer Company
2. Catalogue No. 660A 5530XBD DWDI
3. Design Rating: 109,000 cfm air @ 56 inches H₂O @ 140° F
4. Brake Horsepower - 1050
5. Overall Efficiency - 92.8%
6. Static Efficiency - 91%
7. Polar Moment of Inertia WR² - 13,400 lb-ft² (Fan and Motor)
8. Normal Operating Speed - 1775 rpm
9. First Critical Speed - 2220 rpm
10. Second Critical Speed - 2840 rpm
11. Vane Control - Inlet louver control damper
12. Coupling - No. 4 Fast flexible type
13. Bearings - Self-aligning sleeve type
14. Lubrication System - Ring-oiled splash system, water cooled; self-contained
15. Bearing Temperature Probe included on each bearing
16. Fan Impeller Wheel Size - 68 inches diameter
17. Fan Wheel Type - Backward curved nonoverloading
- #1,2,3 → 18. Fan Weight - 21,000 pounds

19. Drive Motor Manufacturer - Fairbanks Morse
20. Motor Type - Squirrel Cage Induction, Type QZBK,
No. 94 Frame Size
21. Insulation Rating - Class A (40° C rise)
22. Synchronous Speed - 1800 rpm
23. Full Load Speed - 1775 rpm
24. Rated Voltage - 2300 volts, 3 phase, 60 cycle
25. Service Factor - 1.15
26. Full Load Current - 222 amps per phase
27. Locked Rotor KVA - 5370
28. Full Load Torque - 2965 ft-lb
29. Starting Torque - 2965 ft-lb
30. Pullout Torque - 7420 ft-lb
31. Number of Starts - 50 per year
32. Restarts Per Hour - 2 @ 15-minute intervals
33. Full Voltage Initial Acceleration Time - 35 seconds
34. Maximum allowable winding temperature - 120° C
35. Maximum stator temperature - 95° C
36. Efficiency at 1/2, 3/4, full load - 92.1%, 93.8%,
94.1%
37. Power Factor at 1/2, 3/4, full load - 86%, 90%, 91.5%
38. Insulation Resistance of Windings - 975 megohms
39. Bearings - Ring-oiled, sleeve bearings self-contained
40. Maximum Bearing Temperature - 185° F
41. Motor Weight - 12,000 pounds

The two Sturtevant primary air fans utilized for standby service are fabricated with housings of welded mild steel and the inlet vanes for inlet volume control are of Mayari-R steel as are the unshrouded impellers. The shafts on which the impellers are mounted are each supported by two, horizontally split, pressure-lubricated sleeve bearings located outside of the casing. The bearing on the motor side is a thrust bearing. The shafts are equipped with oil slingers and labyrinth shaft seals, and extend through the steel plate into the south wall of the cubicles and terminate in couplings for direct drive connection. The bearings are

supported on independent bearing pedestals. An auxiliary cooling air stream is fed to the shaft seals and leaks out in both directions.

All lubrication auxiliary equipment for the two standby fans equipment is located in the fan motor room. The main oil pump for each fan and motor is located on and driven by the outboard bearing on each motor. The temperature of the oil is maintained at proper level by circulation through a water-cooled cooler. Before the fan motor may be started, oil pressure must be present. A main pressure switch in the fan motor oil line prevents the starting of the fan motor before the oil system reaches the prescribed pressure. An auxiliary oil pump provided to supply the required oil pressure must be manually started at the Fan House. After the fan has reached operating speed, the main oil pump is capable of supplying oil pressure and the auxiliary oil pump is tripped out by a second set of contacts on the main pressure switch. At the same time an alarm is sounded in the Fan House which may be turned off locally. A subsequent failure of main oil pressure will cause an auxiliary pressure switch in the oil pump discharge to automatically restart the auxiliary pump without activating an alarm signal. Failure of the auxiliary pump will activate a Fan House annunciator drop in the Reactor Building control room and cause the fan to shut down automatically. The main oil line pressure switch is manufactured by Minneapolis-Honeywell and is Catalogue No. L404B14X3 with a range of 0-150 pounds per square inch. The auxiliary oil pump is a Browne & Sharpe positive acting gear pump Catalogue No. 103, page 18, Frame 103. The pump unit is rated at 18 gpm @ 900 rpm and is driven by a 1/2-horsepower, 440-volt, 3-phase, 60-cycle, 1725-rpm, totally enclosed motor manufactured by the Maltee Electric Company.

Fan cases are equipped with a removable cover plate for the introduction of liquid or other cleaning materials in the event of contamination. The casings and inlet boxes are drained to the semihot drainage system, through piping at the low points. The impeller and other interior surfaces of the fan are easily cleanable in case of contamination.

The fan drive motors are General Electric 1500-horsepower, standard squirrel-cage, drip-proof, normal-torque, across-the-line-starting, induction motors, synchronous speed 3600 rpm operating on 2300 volts, 3 phase, 60 cycles. The motors have sleeve bearings, pressure lubricated with oil supplied by a pump, filtered and water cooled.

A performance curve for the fan is shown in Figure G06.04-6.

Operating and construction features for the standby fan units are delineated below:

1. Fan Manufacturer: Sturtevant Division of the Westinghouse Corporation
2. Catalogue No. Size 250-440, Des. No. 14, DWDI
3. Design Rating: 380,000 cfm air @ 80 inches H₂O @ 140° F
4. Brake Horsepower - 1400
5. Normal Operating Speed - 3580 rpm
6. Vane Control - Inlet louver control damper
7. Coupling - No. 4 1/2 Fast flexible type
8. Bearings - Sleeve-type; forced feed lubrication by an external oil system
9. Fan Impeller Wheel Size: 44-inch diameter
10. Fan Wheel Type - Straight radial blades - paddle-wheel type
11. Fan Weight - 23,800 pounds
12. Drive Motor Manufacturer - General Electric Company
13. Motor Type - Squirrel Cage Open Induction, Model 31E376, Type K
14. Insulation Rating - Class A (40° C rise)
15. Synchronous Speed - 3600 rpm
16. Full Load Speed - 3580 rpm
17. Rated Voltage - 2300 volts, 3 phase, 60 cycle
18. Full Load Current - 337 amps per phase
19. Efficiency at 1/2, 3/4, Full Load - 93.5%, 94.4%, 95.5%
20. Power Factor at 1/2, 3/4, Full Load - 87.7%, 90.5%, 91.5%

OLD
FAN
ASSEMBLY # 415



ESTIMATION OF UPPER FAN SECTION HEIGHT
(w/ partial bellow)

11/2/99

- 4) UPPER JOINT : two plates : $t_1 = 3/8"$; $t_2 = 3/4"$ $\Rightarrow \Sigma t = 1.125"$
 O.D. = $R_1 = 5.000'$ $w_s = 495 \#/\text{CF}$
 I.D. : $R_2 = 4.000'$

$$wt = w_s \pi t (R_1^2 - R_2^2) = (495 \#/\text{CF}) (\pi) \left(\frac{1.125 \text{ in}}{12 \text{ in/ft}} \right) \left((5.000')^2 - (4.000')^2 \right) =$$

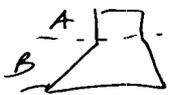
$$= \boxed{1312 \#}$$

- 2) LOWER JOINT : two plates : $t_1 = t_2 = 1/2"$ $\Rightarrow \Sigma t = 1"$
 O.D. : $R_1 = 7.500'$
 I.D. : $R_2 = 6.500'$

$$wt = w_s \pi t (R_1^2 - R_2^2) = (495 \#/\text{CF}) (\pi) \left(\frac{1.000 \text{ in}}{12 \text{ in/ft}} \right) \left((7.500')^2 - (6.500')^2 \right) \left[\frac{\text{ft}^2}{\text{ft}^2} \right] =$$

$$= \boxed{1814 \#}$$

- 3) "MAIN SECTION" : $t = \cancel{3/8} .375"$



A) $D = 4.000'$ $h = 4.000'$
 $wt = \pi D t h w_s = \pi (4.000') \left(\frac{.375 \text{ in}}{12 \text{ in/ft}} \right) (4.000') (495 \#/\text{ft}^3) =$
 $= \boxed{777 \#}$

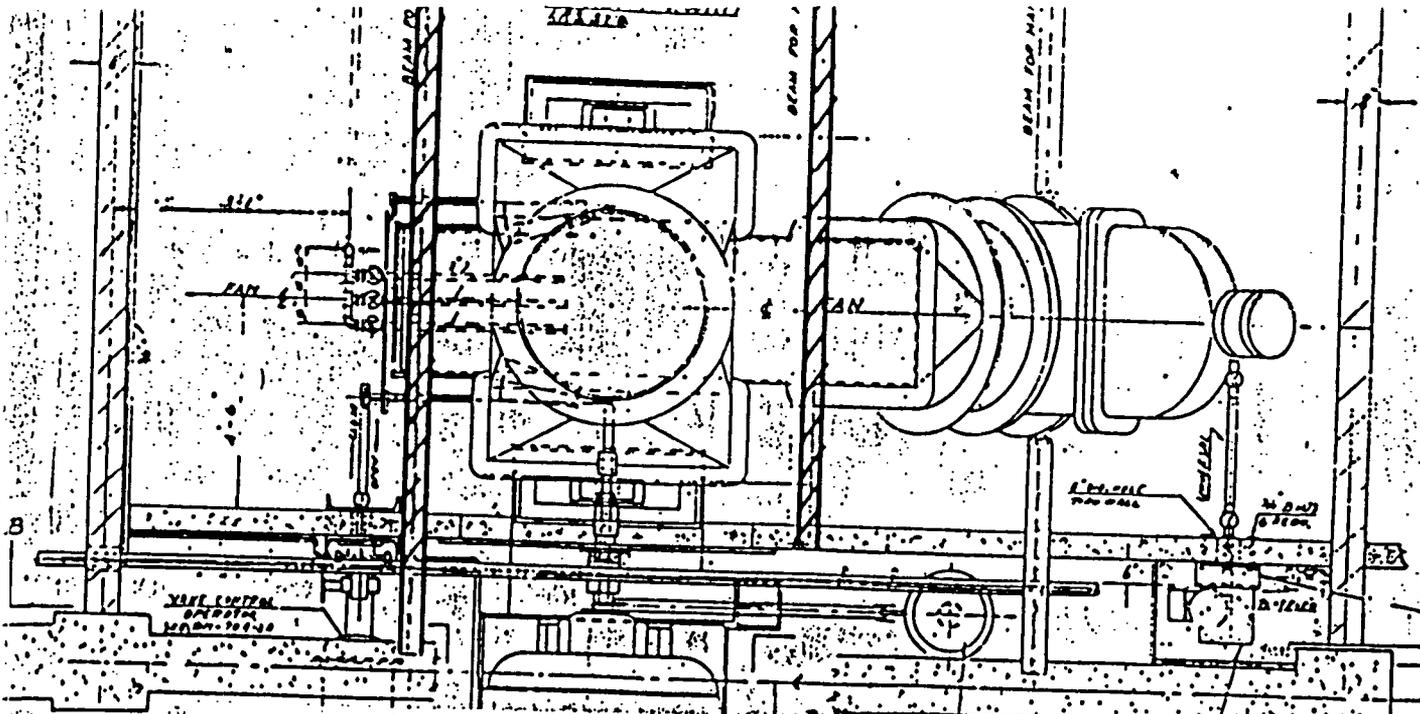
- B) $D = 5.250'$
 $h = 2.500'$

$$wt = \pi (5.250') \left(\frac{.375 \text{ in}}{12 \text{ in/ft}} \right) (2.500') (495 \#/\text{ft}^3) =$$

$$= \boxed{637 \#}$$

$$\Sigma wt = 4540 \#$$

\Rightarrow USE 5000 # as ref.



FAN HOUSE #5 PLAN

3

1/4" = 1'-0"

JOB NO.	SHEET NO.	NO.	REVISION	DATE	DWN.	APP'D.	QA	

BROOKHAVEN NATIONAL LABORATORY

PLANT ENGINEERING E&CS DIVISION
 UPTON, NEW YORK 11973



BROOKHAVEN SCIENCE ASSOCIATES
 UNDER CONTRACT WITH
 UNITED STATES DEPARTMENT OF ENERGY

JOB TITLE		DWG. TITLE	
		RIGGING PLAN - FAN UNIT AT FANHOUSE#5	
ILR, GPP, LNI, IHM	DATE 11/03/99	ACCT. NO.	SHEET OF 1 1
SCALE AS NOTED	DWN. BY MS	JOB NO. 9655	DWG. NO.
PROJ. QA	APP'D. BY	BLDG. NO. 705	9655-R1

By ESH & Quality
Date _____
Tracking # _____

CRITICAL LIFT REVIEW REQUEST FORM

Person Requesting Critical Lift

Print Name E. LILIMPAKIS Department/Division ERD/BGRR Phone 7628

PERSON IN CHARGE (PIC) *May be same person as person requesting Critical Lift.*

Print Name J. O'MALLEY

PIC Must meet the definitions of the DOE Hoisting and Rigging Handbook for appointed, designated and qualified. PIC shall be present at the lift site during the entire lifting operation.

ITEMS TO BE LIFTED

- ① UPPER HOUSING W/O BELLOWS AND ONE FLANGE
- ② MAIN FAN SECTION W/O MOTOR & PEDESTALS
- ③ PIECE #2, NORTH INLET BOX VOLUTE. ④ MAIN FAN SECTION W/O PIECE #2

DETERMINING FACTOR FOR CRITICAL LIFT

UNACCEPTABLE RISK
CONTAMINATION - RADIOACTIVE ON INTERNALS

A lift shall be designated as a critical lift if collision, upset, or dropping could result in any one of the following.

- 1) *Unacceptable risk of personnel injury or significant adverse health impact.*
- 2) *Significant release of radioactive or other hazardous material or other undesirable conditions.*
- 3) *Undetectable damage that would jeopardize future operations or the safety of a facility.*
- 4) *Damage that would result in unacceptable delay to schedule or other significant program impact such as loss of vital data.*

A lift should also be designated as critical if the load requires exceptional care in handling because of size, weight, close-tolerance installation, high susceptibility to damage, or other unusual factors.

OPERATING EQUIPMENT TO BE USED

Type 2 OVERHEAD CHAINFALLS Load Indicating Devices NO
Capacity 5 TONS Boom Length *If applicable* NO
Date Of Annual Inspection On BNL Cranes NO

SPECIFICATIONS OF ITEMS TO BE MOVED

If specifications are to be shown on attached documents check here.

#1 6000# #2+3 = 19000# #3 16000#

Weight #2 3,000# How Was Weight Determined THICKNESS OF MATERIAL
Dimensions _____

USE A BOTTLE JACK W/SCALE TO VERIFY ACTUAL WEIGHT FOR PIECE #2;3

Center Of Gravity - Is CG Located In Approximate Center of Load YES

If not, attach a drawing showing CG location.

Hazardous, Radioactive Or Toxic Materials Present RADIOACTIVE

RIGGING EQUIPMENT TO BE USED

If rigging equipment is to be shown on attached documents check here.

Type Of Slings LIFTALL Rated Capacity _____ PIECE # 1 MORE THAN 10K BASKET.
TOTAL 4 SLINGS.

Spreader Bars / Below The Hook Lifting Devices Give BNL drawing number if available. #2, > 26,000# BASKET,
16000#

Connecting Accessories S/O SWIVEL HOISTING Rated Capacity _____ GRATER THAN BASKET
ON EACH
USE TWO ON WEST
SIDE

LIFTING OPERATION

If lifting operation details are to be shown on attached documents check here.

Method Of Connecting Rigging To Load 1) PIECE # 1 AS PER OUTLINE
(USE STRUCTURAL PICK POINTS)

2) CONNECTING TO STRUCTURAL PICK POINTS

Sling Angles _____ Rated Load At These Angles _____

Mobile Crane Only - - - Operating Range	Point Of Lift	Point Of Delivery
Boom Radius	_____	_____
Crane Capacity	_____	_____
% Of Capacity	_____	_____

Other Factors That May Affect Safety Of Lifting Operation. NONE

CONTRACTOR EQUIPMENT

Safety Inspection Of Equipment Performed by BNL authorized person. Date 1/11

Print Name Of Inspector _____ Comments _____

Operators Experience On This Type Equipment _____

SIGNATURE APPROVAL

BNL Inspector Of Contractor Equipment If applicable N/A

Person In Charge (PIC) ROY McWilliams / Pleyland

Responsible Manager Or Designer [Signature]

ESH And Quality [Signature] 12/21/99

PRE-LIFT MEETING

Date 12/29/99 Time 1055 Location Room # 3 @ 204

www 1/27/4:
Dip

Building 130
P.O. Box 5000
Upton, NY 11973-5000
Phone 516 344-5456
Fax 516 344-5999
hynanj@bnl.gov

BROOKHAVEN
NATIONAL LABORATORY

managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

Date: July 28, 1999
To: M. Lilimpakis
From: J. Hynan 
Subject: LOAD TEST of SUPPORT BEAMS at Bldg. 701

On Monday July 26, I witnessed the load test at Fan Room #5. Two new 5 ton trolleys were installed on two ceiling beams on either side of the fan unit. The riggers placed a 5-ton chain hoist on both trolleys. A load of 12,500 lbs., which is 125% of rated capacity, was lifted by each hoist individually, and held for 10 min. No deflection of the beams was noted.

If there are any questions or concerns please call my office at 5456.
Thank You.
JH

cc: S. Hoey
R. Sugar
File

Memo

Date: December 15, 1999
To: M. Lillimpakis
From: J. Hynan 
Subject: Load Test of Fan House Ceiling Beams

The ceiling beams that are to be used as the hoist support for the fan removal project were load tested to ensure that they are in sound condition.

The tests took place on 12/09/99 in Fan House # 3, - 12/10/99 in Fan House # 4, - and on 12/14&15/99 in Fan House # 2.

At Fan House # 4 a 12040 lb. shielding block was used, this would be 120 % of the rated 5-Ton Hoists and Trolleys that are to be used. The load was raised and held for 10 minutes with no defects noted.

At Fan Houses # 2 & 3, we used the same 12040-lb. block, but in order not to put the hoists through the stress of lifting above its rated load constantly we used a load indicator. The load indicator was attached to the hoist chain and the 12040lb-shielding block and a 10,000-lbs. load was simulated on the beams. This 10,000 lbs. is 100 % of the rated load of the hoists and trolleys that are to be used. The load was held for 10 minutes with no defects noted.

If there are any questions or concerns please call my office a 5456. Thank You JH

cc: S. Hoey
J. O'Malley
R. Sugar
File

BROOKHAVEN
NATIONAL LABORATORY

Building 130
P.O. Box 5000
Upton, NY 11973-5000
Phone 516 344-5456
Fax 516 344-5999
hynan@bnl.gov

Managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

Date: January 03, 2000
To: M. Lillimpakis
From: J. Hynan 
Subject: Load Test at Fan House # 1

On Tuesday December 28, 1999 we conducted the final load test of the support beams for the fan removal project. Prior to and after the load test all equipment was inspected. The test was completed with the use of a 12,040-lb. block and a dynamometer to achieve the 10,000 lbs. needed for the load weight.

The west support beam was tested first, a sling was attached to the support beam with a 5-ton chain hoist, and load indicator anchored to the 12,040lb block. The chain was raised to achieve the 10,000 lbs. needed for 100 % testing of the beam. The simulated load was held for ten minutes with no deficiencies noted.

The east support beam was tested in the same manner with no deficiencies noted.

If there are any questions or concerns please call my office at 5456. Thank You, JH.

cc: w/attachments R. Sugar
File
cc: S. Hoey

WARNING!

HOT WORK IN PROGRESS

WATCH FOR FIRE!

PART 2

INSTRUCTIONS

1. Person doing Hot Work: Indicate time started and post permit at Hot Work location. After Hot Work, indicate time completed and leave permit posted for Fire Watch.
2. Fire watch: Prior to leaving area, do final inspection, sign, leave permit posted and notify Firesafety Officer.
3. Monitor: After 4 hours, do final inspection, sign and return to Firesafety Officer.

HOT WORK BEING DONE BY:

EMPLOYEE _____ LIFE NO. _____

CONTRACTOR _____ CO. _____

DATE: 11/12/99 JOB NO. _____

LOCATION/BUILDING & FLOOR: 7th - East Street

NATURE OF JOB: Welding

NAME OF PERSON DOING FIRE WATCH: John Berry

I verify the above location has been examined, and permission is authorized for this work.

SIGNED: (FIRE/SAFETY OFFICER) [Signature] DATE: 11/12/99

PERMIT EXPIRES	DATE	TIME	
	<u>11/12/99</u>		AM PM

I verify that the List of Precautions is Understood and work will proceed only if precautions are followed.

Signed: (Supervisor) [Signature]

FIRE WATCH SIGNOFF

Work area and adjacent areas to which sparks and heat might have spread were inspected during the fire watch period and were found fire safe.

Signed: [Signature]

FINAL CHECKUP

Work area was monitored following Hot Work and found fire safe.

Signed: [Signature] 11/12/99
1700

Required Precautions Checklist

MAY BE RETAINED AS RECORD OF HOT WORK ACTIVITY

- Available sprinklers, hose streams and extinguishers are in service/operable.
- Hot Work equipment in good repair.
- Requirements within 35 ft (10m) of work
- Flammable liquids, dust, lint and oil deposits removed.
- Explosive atmosphere in area eliminated.
- Floors swept clean.
- Combustible floors wet down, covered with damp sand or fire-resistive sheets.
- Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.
- All wall and floor openings covered.
- Fire-resistive tarpaulins suspended beneath work.
- Work on walls or ceilings**
- Construction is noncombustible and without combustible covering or insulation.
- Combustibles on other side of walls moved away.
- Work on enclosed equipment**
- Enclosed equipment cleaned of all combustibles.
- Containers purged of flammable liquids/vapors and monitored for vapor buildup.
- Fire watch/Hot Work area monitoring**
- Fire watch contractor/department will supply during and for 60 minutes after work, including any coffee or lunch breaks.
- Fire watch is supplied with suitable extinguishers, charged small hose.
- Fire watch is trained in use of this equipment and in sounding alarm (telephone, alarm box, radio).
- Fire watch may be required for adjoining areas, above, and below (see other precautions).
- Monitor Hot Work area for 4 hours after job is completed.
- Other Precautions Taken**
- False alarm with detection systems considered.
- _____

No. 1402

WARNING!

HOT WORK IN PROGRESS

WATCH FOR FIRE!

PART 2

INSTRUCTIONS

1. Person doing Hot Work: Indicate time started and post permit at Hot Work location. After Hot Work, indicate time completed and leave permit posted for Fire Watch.
2. Fire watch: Prior to leaving area, do final inspection, sign, leave permit posted and notify Firesafety Officer.
3. Monitor: After 4 hours, do final inspection, sign and return to Firesafety Officer.

HOT WORK BEING DONE BY: 06095
 EMPLOYEE Regue Surja LIFE NO. _____
 CONTRACTOR _____ CO. _____

DATE 11/18/99 JOB NO. _____

LOCATION/BUILDING & FLOOR 704 - Outpost

NATURE OF JOB Cable

NAME OF PERSON DOING FIRE WATCH J.S.B. / K. Williams

I verify the above location has been examined, and permission is authorized for this work.

SIGNED: (FIRE/SAFETY OFFICER) [Signature] DATE: 11/19/99

PERMIT EXPIRES	DATE	TIME	AM PM
	<u>11/19/99</u>		

I verify that the List of Precautions is Understood and work will proceed only if precautions are followed:

Signed: (Supervisor) [Signature]

FIRE WATCH SIGNOFF

Work area and all adjacent areas to which sparks and heat might have spread were inspected during the fire watch period and were found fire safe.

Signed: John J. Berry LIFE # 19649

FINAL CHECKUP

Work area was monitored following Hot Work and found fire safe.

Signed: John J. Berry

Required Precautions Checklist

MAY BE RETAINED AS RECORD OF HOT WORK ACTIVITY

- Available sprinklers, hose streams and extinguishers are in service/operable.
- Hot Work equipment in good repair.
- Requirements within 35 ft (10m) of work**
- Flammable liquids, dust, lint and oil deposits removed.
- Explosive atmosphere in area eliminated.
- Floors swept clean.
- Combustible floors wet down, covered with damp sand or fire-resistive sheets.
- Remove other combustibles where possible. Otherwise protect with fire-resistive tarpaulins or metal shields.
- All wall and floor openings covered.
- Fire-resistive tarpaulins suspended beneath work.
- Work on walls or ceilings**
- Construction is noncombustible and without combustible covering or insulation.
- Combustibles on other side of walls moved away.
- Work on enclosed equipment**
- Enclosed equipment cleaned of all combustibles.
- Containers purged of flammable liquids/vapors and monitored for vapor buildup.
- Fire watch/Hot Work area monitoring**
- Fire watch contractor/department will supply during and for 60 minutes after work, including any coffee or lunch breaks.
- Fire watch is supplied with suitable extinguishers, charged small hose.
- Fire watch is trained in use of this equipment and in sounding alarm (telephone, alarm box, radio).
- Fire watch may be required for adjoining areas, above, and below (see other precautions).
- Monitor Hot Work area for 4 hours after job is completed.
- Other Precautions Taken**
- False alarm with detection systems considered.
- _____

No. 1411