Jefferson Lab

THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY
12000 Jefferson Avenue
Newport News, VA 23606

HALL D SPECIFICATION NO.:
D00000-01-03-S002 Rev –

TITLE: CONDUCT OF OPERATIONS FOR FDC PRODUCTION AT THE BLUECRAB FACILITY

BY: DAVE BUTLER

Checked: BERT MANZLAK

Approved: 14/FEB/11

Title: Physics Div. ES&H

Approved: 14 FEB 11

Title: Hall D Lead Engineer

Approved: 11 FEB 11

Title: FDC Construction Coordinator

Approved: 14 Feb 11

Title: Hall D Work Coordinator

Approved: 02/22/2011

Title: Hall D Leader

Approved: Paul A. Cole 2/15/11

Title: 12GEV Safety Manager

Approved: 2/22/11

Title: Building Manager (12GEV PDC to Jlab FML Division)

**Contents**

1. Preface……3
2. Shift Personnel Training……3
3. Organization and Administration……4
   3.1.FDC Construction Coordinator……4
   3.2.FDC Technicians / Scientist……4
4. Facility Access……5

Appendix A - Hall D Forward Drift Chamber Production……6
Appendix B – Doing Business at Blue Crab……9

# Conduct of Operations for FDC Production at the Bluecrab Facility

## 1. Preface

FDC production activity at the Bluecrab facility must be conducted in a manner that ensures that environmental, health and safety (EH&S) concerns receive the highest consideration. At the same time quality products are expected and need to be produced efficiently. This document outlines how employees and contractors will operate in a safe and effective manner during the FDC production phase. It must be read, understood, and followed by all members of the FDC production team and contractors. It is also required reading for anyone working unescorted in the facility.

## 2. Shift Personnel Training

Personnel taking part in production will be trained in areas unique to the FDC construction by JLAB personnel that established the construction methods during prototype fabrication. Personnel will demonstrate the construction methods before being allowed to use them on a production basis. All personnel on shift are required to have successfully completed and be current in the following JLab safety training unless otherwise stated:

- EH&S Orientation (SAF 100)
- Lead Worker (SAF136) (anyone handling lead or using lead solder requires this training)
- Forklift Operator (SAF502) (If using the forklift – Bluecrab forklift requires special training)

Personnel should be familiar with the following documents:

- The Conduct of Operations for FDC Production (COO), the document you are now reading.
- ESH&Q Manual
- Hall D Forward Drift Chamber Production Task Hazard Analysis
- FDC Cleanroom Protocol (for personnel requiring access)

A Safety Walk-Through will be completed for personnel that will be working at the facility on a continuous or frequent basis. (See FDC Construction Coordinator to arrange dates/times). A list of personnel who have completed training will be posted at the work site. All work performed at the Bluecrab facility will be done per standard JLAB requirements.

## 3. Organization and Administration

3.1. FDC Construction Coordinator

The FDC Construction Coordinator is the primary contact for all FDC related activities in the Bluecrab facility. The FDC Work Coordinator's responsibilities are:

• To act as the single point of contact for all work in the facility.

• To determine if the scheduled activities in the facility can be done safely.

• To ensure that workers are properly trained, are familiar with all significant hazards.

• Schedule appropriate FDC construction activities.

• Create and maintain procedures and quality records (work will be tracked using travelers in the Pansophy system procedures will be available via OCE').

• Act as facility Safety Warden.

• Appoint an acting FDC Coordinator in his absence.

3.2. FDC Technicians / Scientist

The responsibilities of each technician are to:

• Carry out the FDC production in a safe and efficient manner under direction of the FDC Construction Coordinator.

• Monitor production and ancillary equipment for problems.

• Maintain adequate records of the progress of the shift.

• Keep all training up-to-date.

## 4. Facility Access

The Bluecrab facility is a shared work space that includes warehouse space for the SRF Group, Beam Transport Group and also includes the FDC production area (cleanroom and high bay work area). The main office is open for use to each of the three groups. The computers and phones (with the exception of the phone in the cleanroom) will be shared resources. Anyone requiring access can call the main office phone at x6500.

The FDC Cleanroom will have a restricted access list that will be posted at the entrance to the Bluecrab Cleanroom. Additional personnel may be added to the list by the FDC coordinator (or alternate) after proper instruction.

For entry into the cleanroom for personnel not on the access list permission must be attained from the FDC Construction Coordinator or Hall D Group Leader. Anyone entering the cleanroom must adhere to FDC CLEANROOM PROCEDURE D00000-01-03-P036.

At the end of each shift the office will be locked and all exterior doors will be secured.

Emergency Egress and Muster information will be posted in the facility and will be covered during the safety walkthrough.

Appendix B contains information for protocols for doing work at the Blue Crab facility. An emergency egress plan is included in this appendix.

**Appendix A – Hall D Forward Drift Chamber Production**

| Jefferson Lab Thomas Jefferson National Accelerator Facility | TITLE: | ES&H Manual |
|---|---|---|
| DOCUMENT ID: | 3210Appendix T2<br>Task Hazard Analysis (THA) Worksheet | |

| | | | | | |
|---|---|---|---|---|---|
| **Author:** | David Butler | | | | |
| **Date:** | 1/18/2011 | **Task #:** If applicable | N/A | **Frequency of use:** | Daily |
| **Complete all information. Use as many sheets as necessary** | | | | | |
| **Task Location:** | JLAB Bluecrab Facility | **Task Title:** | Hall D Forward Drift Chamber Production | | |
| **Division:** | Physics | **Department:** | Hall D (FDC Production) | | |
| **Lead Worker:** | David Butler | | | | |
| **Mitigation already in place:**<br>Standard Protecting Measures<br>Work Control Documents | Gluing: Safety Glasses and Latex or Nitrile gloves are utilized<br>Lead Weights: Lead Worker Training (SAF136) for each technician handling lead, gloves are required. Lead weights will be taped. | | | | |

| Sequence of Task Steps | Task Steps/Potential Hazards | Consequence Level | Probability Level | Risk Code (before mitigation) | Proposed Mitigation (Required for Risk Code >2) | Safety Procedures/ Practices/Controls/Training | Risk Code (after mitigation |
|---|---|---|---|---|---|---|---|
| 1 | Using Scotch Weld 1838 epoxy | L | L | 1 | Gloves and eye protection are required for this operation | Each FDC procedure list the appropriate safety equipment needed for the specific task | 1 |
| 2 | Using Lead Weights for FDC production | M | L | 2 | Lead Worker Training (SAF136) each technician handling lead, gloves are required. All lead weights will be taped. | Each applicable FDC procedure includes a warning statement and a list of required safety equipment for lead handling | 1 |
| 3 | Using Ethanol (reagent alcohol) to clean material | M | L | 2 | Gloves and eye protection are required for this operation | Each applicable FDC procedure includes a warning statement and required safety equipment for handling Ethanol | 1 |
| 4 | Using Hysol HD3561 and Hysol RE2039 epoxy for FDC production | M | L | 2 | Gloves and eye protection are required for this operation | Each applicable FDC procedure includes a warning statement and required safety equipment for handling epoxy | 1 |

| Sequence of Task Steps | Task Steps/Potential Hazards | Consequence Level | Probability Level | Risk Code (before mitigation) | Proposed Mitigation (Required for Risk Code >2) | Safety Procedures/ Practices/Controls/Training | Risk Code (after mitigation |
|---|---|---|---|---|---|---|---|
| 5 | Soldering during FDC production | M | L | 2 | Lead Worker Training (SAF136) is required to handle lead solder. Eye protection and is required during any soldering task. Gloves will be used while soldering. | Each applicable FDC procedure includes a warning statement and required safety equipment for soldering. | 1 |

| | | | | | |
|---|---|---|---|---|---|
| | **Highest Risk Code before Mitigation:** | 2 | | **Highest Risk Code after Mitigation:** | 1 |

When completed, if the analysis indicates that the Risk Code before mitigation for any steps is "medium" or higher (RC≥3), then a formal Work Control Document (WCD) is developed for the task and attach this completed Task Hazard Analysis Worksheet. Have the package reviewed and approved prior to beginning work. (See ES&H Manual Chapter 3310 Operational Safety Procedure Program.)

| ISSUING AUTHORITY | APPENDIX AUTHOR | APPROVAL DATE | EFFECTIVE DATE | EXPIRATION DATE | REV. | |
|---|---|---|---|---|---|---|
| ESH&Q Division | Harry Fanning | 10/05/09 | 01/01/09 | 10/05/12 | 0 | |

## Appendix B – Doing Business at Blue Crab

**Doing Business at 12 GeV Blue Crab Warehouse**
D. Napier
22 February 2011

1. **Blue Crab Layout & Emergency Egress**
   a. Blue Crab Warehouse is a shared warehouse for 12GeV Beam Transport Group, 12GeV Cryomodules (SRF) Group, and 12GeV Hall D Physics Group.
   b. 12GeV Hall D Physics section of the facility consists of the Cleanroom that has been constructed within the facility, while 12GeV Cryomodules and Beam Transport sections are the remainder of the facility consisting of shelving and workspace.
   c. 12GeV Hall D Physics has established a conduct of operations (COO) for the construction of the FDC in their cleanroom. This COO must be read and signed for work conducted to support the FDC at Blue Crab. Dave Butler is the FDC work coordinator and responsibility party of the COO.
   d. The inner office is a shared office between all three groups. See office section below for details.
   e. Emergency Egress aisle ways have been established and must be kept clear of equipment. See layout at end of this document.

2. **FML will NOT manage this building** like they manage all other buildings/storage facilities for the lab. Meaning that they will leave the responsibility of the items in this building to all users of the building.
   a. Any infrastructure associated with the building (lights, HVAC, etc) will be handled through FML if equipment is not functional. Put in a work request:
      i. http://www.jlab.org/fm/
      ii. Click "work request system" button on the left side of the page.
      iii. After logging in --> click "12GeV Project"
      iv. Then select "Go"
      v. Fill out the form and submit the request. This system is managed for 12GeV FML supported work by D. Napier, R. Yasky, B. Sperlazza, and R. Sprouse. We review and approve/cancel within a day and route to the appropriate lead to fix the problem.
   b. Please copy D. Napier on blue crab requests/emails to FML as she is the 12GeV POC to FML and can support you best when in the loop.

3. **Keys**
    a. submit a key work request in the FML work order system: http://www.jlab.org/fm/
    b. Click "work request system" button on the left side of the page.
    c. After logging in --> click "12GeV Project"
    d. Then select "Go"
    e. Fill out the form and submit the request. This system is managed for 12GeV FML supported work by D. Napier, R. Yasky, B. Sperlazza, and R. Sprouse. We review and approve/cancel within a day for key requests. Approval is based on approval from project managers sharing this bldg (J. Hogan for Cryomodules (SRF), M. Bevins for Beam Transport, and Dave Butler for Hall D Physics)
    f. D. Napier will generate a key report once a month (around the first of each month) and send to all for review/edit.

4. **Property Forms**
    a. FML DOES NOT require a property storage form for materials in this building.
    b. They do require a property pass application (good for one year) for any item with an "F" tag (states Jefferson lab property with a bar code and an Fxxx number assigned). These tags are white or green. They are typically on items such as laptops and other property over $xK that will NOT be installed in the machine/hall.
    c. Property Pass application can be found at: http://www.jlab.org/fm/property/
    d. FML and D. Napier will inspect the building every 3 months to ensure items with an F tag have a property pass application form.

5. **Waste/Scrap at Blue Crab:**
    a. FML collects cardboard, wood and all metal (including wire) scraps here on site.
    b. We are required to recycle all scrap materials listed and not throw them away. If you anticipate large scrap/waste materials at blue crab during your FDC construction, please let D. Napier know and arrangements will be made with FML for a centralized dumping spot that they can pick up from on a weekly/biweekly basis.
    c. Keep combustible/flammable materials to a minimum and recycle/trash as needed (this includes wood crates, wood pallets – try using aluminum instead, cardboard boxes.

6. **Activity hazard analysis/task hazard analysis & Safety Wardens**
    a. Safety Wardens:
        i. David Butler is the safety warden for the Blue Crab Facility with Anthony Dipette as the POC for the beam transport area and Chad Johnson as the POC for the cryomodule (SRF) area.
    b. AHAs/THAs are required for work planned in this building (IE - for the FDC construction work). They should be reviewed by the safety warden/POC of the area and FML.
    c. FML reviews the safety document to ensure the FML support for your work is in place (i.e., eye wash stations if needed, fire rated cabinets for flammable materials, etc....).
    d. Please copy D. Napier on blue crab requests/emails to FML as she is the 12GeV POC to FML and can support you best when in the loop.

7. **Storage on Shelves**
    a. Storage above 12ft is not permitted even though the shelves are higher than 12ft. This is fire bldg code and we cannot obstruct the fire sprinkler heads.

8. **Office Space**
    a. The offices (small and large) are shared with all three groups (Cryomodules (SRF), beam transport, and hall d physics).
    b. The small office is used for storage as it has an air handler inside.
    c. The key to the small office cannot be re-keyed as the building manager we are leasing from needs access to the air handling unit.
    d. The large office is re-keyed and a request can be made to FML (see “Keys” section at the top)

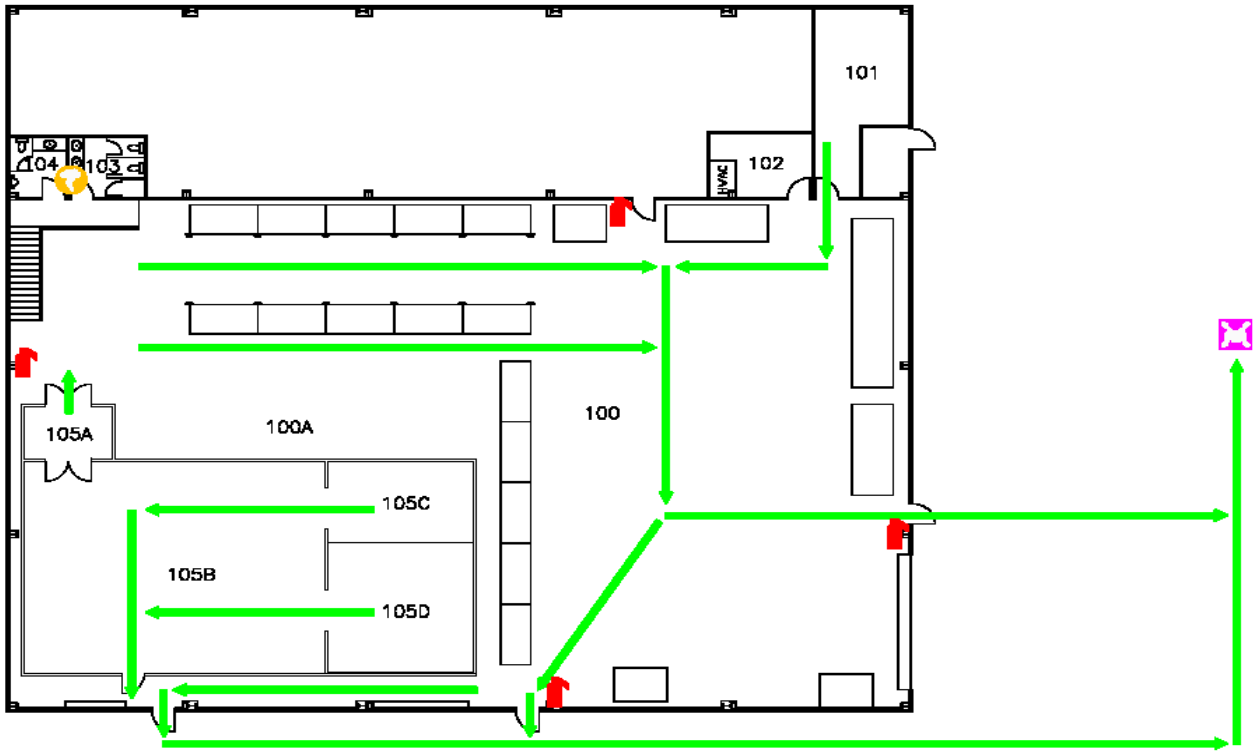
9. **Restrooms**
    a. The restrooms are under a janitorial contract funded by 12GeV.
    b. They will be cleaned and stocked with supplies twice a week.

**BUILDING BC2, FLOOR 1**
**EMERGENCY PLAN**

**IN CASE OF FIRE:**
- STAY CALM
- WALK, DO NOT RUN
- CLOSE YOUR DOOR
- ACTIVATE NEAREST PULL BOX, FOLLOW ARROWS IN DIAGRAM, & MEET AT MUSTER POINT

**IN CASE OF SEVERE WIND:**
IF A TORNADO WARNING IS ISSUED BY THE NATIONAL WEATHER SERVICE, AND THIS BUILDING IS WITHIN THE WARNING AREA, MOVE QUICKLY TO ONE OF THE DESIGNATED SEVERE WIND "TAKE COVER" AREAS.

**LEGEND**
- EGRESS PATH
- FIRE EXTINGUISHER
- SEVERE WIND "TAKE COVER" AREA
- MUSTER POINT



THOMAS JEFFERSON NATIONAL ACCELERATOR FACILITY
12000 Jefferson Avenue
Newport News, VA 23606

HALL D SPECIFICATION NO.:
D00000-01-03-S002 Rev –

I have read the Conduct of Operations for FDC Production at the Bluecrab Facility and understand my responsibilities.

| Name | Signature | Date |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |



Click to Certify