

## Notable Event Worksheet

(See [ES&H Manual Chapter 5200 Appendix T1 Event Investigation and Causal Analysis](#) for Instructions)

Click  
For Word Doc

Title of Event			
<b>Event Title:</b>	Tooth Chipped Due to Bolt Shearing and Wrench Slipping		
<b>Date and Time of Occurrence:</b>	6/27/2012, 9:45am	<b>Notable Event Number:</b>	12GeV-12-0627
<b>Event Location:</b>	Behind Bldg. 8 addition(CHL2 )	<b>Date Notable Event Report is Due*:</b>	7/27/2012

\*The Notable Event Report is due to the ESH&Q Reporting Officer with 30 days of the Initial Fact Finding Meeting unless an extension is requested.

Categorization and Reporting (To be completed by ESH&Q Reporting Officer within two hours – unless essential information is still pending)			
<b>ORPS Determination:</b>	<b>Date:</b> 07/12/2012	<b>Time:</b> 0841 am	
See attached email.			
<b>10 CFR 851 Screen:</b>	<b>Date:</b> 07/12/2012	<b>Time:</b> 0841 am	
Negative: This event does not meet the NTS voluntary reporting criteria either as a discreet event or as a programmatic weakness.			

Unless otherwise specified the following is to be completed by the [Lead Investigator](#).

Step 1 Initial Fact-Finding Meeting			
<b>Date:</b>	6/27/2012	<b>Time:</b>	11:00am
<b>Location:</b>	Behind Bldg8 addition (CHL2 )		
Required Attendees:	Optional Attendees:		√ if Present
<b>Lead Investigator:</b>	<b>Associate Director:</b>		n
(Print Name): Henry Robertson	(Print Name): Will Oren		
<b>ESH&amp;Q Representative:</b>	<b>TJSO Observer:</b>		y
(Print Name): Tina Johnson	(Print Name): Patty Hunt		
<b>Supervisor of involved persons(s):</b>	<b>Subject Matter Expert(s), Facility/Equipment Owner</b> as applicable:		
(Print Name): ** Supervisor / Group Leader	(Print Name): Paul Collins (12GeV)		y
<b>Involved or impacted person(s):</b>	(Print Name):		
(Print Name): **Contractor	(Print Name):		
(Print Name):	(Print Name):		
<b>Witness(es):</b>	(Print Name):		

For questions or comments regarding this form contact the Technical Point-of-Contact [Tina Johnson](#)

# Notable Event & Lessons Learned Worksheet

(Print Name):

(Print Name):

Agenda <i>(Ensure the pace of the meeting allows time for accurate note taking.)</i>	√ if Complete
1. Introduction – Provide Event Title, Date and Time of Occurrence, and Location:	y
2. Attendance - Are Required Attendees present.	y
3. Purpose of Initial Fact-Finding meeting.	y
4. Event Reconstruction – Use information to complete Section 3. <a href="#">Summary of Event and/or Injuries</a> below.	y
a. Personnel and organizations involved in the event.	y
b. Conditions and actions preceding the event.	y
c. Chronology (timeline) of the event; and	y
d. Immediate actions taken in response to the event.	y
5. Clarify information – <a href="#">Subject-Matter Expert</a> (SME) confirms work conditions.	y
6. <a href="#">Stop Work</a> or the <a href="#">Tag Out</a> Required? If “Yes” – establish the restart criteria and inform the affected Management chain.	n
7. Compensatory Actions Required? If “Yes” determine responsibility and include confirmation documentation.	n
8. Records or documentation required to confirm, clarify, or complete information (i.e., work plans, work control documents, photos, etc).	y
9. Other Questions or Concerns: Ask attendees if there are any other questions, concerns, or information that they wish to provide.	y
10. Obtain TJSO Observer feedback on conduct of fact finding meeting and potential improvements.	y

Step 2 Investigation Team:		Date Convened:	
		(Within 24 hours of Fact Finding Meeting.)	
Role	Name	Department/Group	Phone
Lead Investigator	Henry Robertson	ENG/SSG	7285
Causal Analysis	Paul Collins	12GeV	5981
SME	John Kelly	ESH&Q	7531
<a href="#">TJSO Observer</a>	Patty Hunt	TJSO	7039

**Step 3 Summary of Event and / or Injuries, including Initial Fact Finding Meeting information:** determine the chain of events and timeline. Use attachment as necessary.

6/27/2012

08:30am - Started working in manlift to install operators (chain and hand wheels) on cryo valves behind the CHL.  
 Used combination of socket wrenches to tighten bolts.  
 Applied "anti-seize" lubricant to threads.  
 A few required extra effort to tighten completely.

09:30am - In the process of completing second valve one of the nuts became very tight.  
 The bolt sheared off and the wrench slipped back toward the worker and hit his tooth.

09:40am - After securing the operator so that it wouldn't fall, worker lowered manlift and reports to lead tech.

09:45am - Supervisor was called to work area behind CHL.

10:00am - After some discussion Supervisor instructed worker to report to Medical Services.  
 Supervisor also went to Medical Services to determine follow up.  
 Worker reported to his contractor and was sent to a dentist for evaluation.

Notes:

- The socket wrench handle appeared to be approximately 8" in length. A longer/larger handle might have provided more control of the work piece.
- This chain wheel was one of several being installed on new valves for the CHL expansion. It is a standardized type used by Cryo for this function.
- Location of the manlift/personnel position was limited by piping installed in the area.

## Notable Event Report

Emergency Notifications Made (Subsequent to the Event):	Date	Time
Fire, Rescue & Emergency Medical: (9-911)		
Guard Post: x4444; 269-5822		
Occupational Medicine 269-7539	6/27/2012	10:15am
ESH&Q Reporting Officer: 876-1750	6/27/2012	10:30am
Crew Chief 630-7050		
Industrial Hygiene: 269-7863:		
Other:		

**Witness Accounts:** (Use attachments as necessary. Box will expand as necessary)

See attachments. \*\* Names have been removed and replaced with generic titles.

## Environmental Aspects

Type of Material Released:

Quantity:

Source:

Time Flow was Halted or Controlled:

For Investigation Team (√ All That Apply):

Reportable Quantity

Impact Ground/Soil

Storm Water Channel/Drain

Sanitary Sewer

## Records, Documents, Pictures, and Other References: (Copy and paste, use attachments or document links as necessary)

### Medical Services Reports

Engineering NSC Technologies - Subcontractor Incident Notification Re: \*\*Contractor

Date/Time of Incident: June 27, 2012 @ 9:40 a.m.

Place: CHL2

Description: While putting on an operator behind CHL2, one of the bolts snapped before it was tight causing the ratchet to hit employee's tooth.

Diagnosis: Fractured upper right central incisor

Treatment: Contractor was evaluated by JLab Occupational Health Nurse and off site care was recommended following NSC Technologies' workers' compensation procedures.

Work Status: To be determined after off site evaluation.

Update re: Engineering NSC Technologies - Subcontractor Incident Notification Re: \*\*Contractor

Treatment: Evaluated by Taylor Made Diagnostics and referred to dentist.

Work Status: Returned to work with no restrictions.

If you have any further questions please feel free to contact me.

\*\* Names have been removed and replaced with Contractor, Group Leader, and Supervisor

## Causal Analysis: (Use attachment as necessary)

Root Cause:

Ineffective lesson learned applied in regards to worker's body position and potential hazards.  
 (See attachments for causal analysis.)

Contributing Causes:  
 (List as many as apply.)

- Poor manufacturer's instructions
- Worker's failure to anticipate the direction of travel in the event of material failure
- Employee's lack of experience with the particular fastener

# Notable Event & Lessons Learned Worksheet

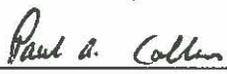
Extent of Condition Check	Responsible Person(s)	<u>JLab CATS Number</u>	Target Date
NA			

Corrective Action(s)	<u>JLab CATS Number</u>	Target Date
Conduct a Toolbox meeting in your work area that focuses on the importance of body positioning other potential hazards. Hunewill	NE-2012-18-01	08/31/2012

Lessons Learned (Confer with Division/Department Lessons-Learned Coordinator) (Use attachment as necessary)	<u>JLab COE Number</u>
Proper positioning of body and tools should be discussed as part of job planning particularly if the devices require non-standard work techniques.	-

### Investigation Team Confirmation:

The below signees, confirm to the best of their knowledge, that the information presented in this document is accurate and complete.

Role	Print	Signature	Date
Lead Investigator	Henry Robertson		7-12-12
SME / ESH&Q Representative	John Kelly		7-12-12
12GEV Safety / Causal Analysis	Paul Collins		7-12-12

Upon confirmation submit document to the ES&H Reporting Officer for completion and distribution.

### Documentation of Findings: (To be Completed by ESH&Q Reporting Officer)

<b>Notable Event Number:</b>	12GEV-12-0627
<b>CATS Number:</b>	NE- 2012-18-01
<b>JLab COE Number:</b>	-
<b>ORPS Number:</b>	-
<b>NTS Number:</b>	-
<b>CAIRS Entry:</b>	12-0627
<b>DOE Cause Code:</b>	A4 Management Methods LTA; B1 Management Methods LTA. Able Previous industry or in-house experience was not effectively used to prevent recurrence.
<b>ISM Code:</b>	Provide feedback & continuous improvement; analyze the hazards (see)

### Acceptance/Acknowledgement of Facts

	Print	Signature	Date:
Associate Director/ Department Manger	Tim Michalski		7/12/12

### Distribution:

- ES&H Reporting Officer (Original)
- Associate Director/Department Manager
- Division Safety Officer
- Investigation Team Members

### Form Revision Summary

- Revision 1.3 – 01/31/12** – Updated ESH&Q Reporting Officer assignment from SSmith to CJohnson per MLogue Edited to clarify process steps.
- Revision 1.2 – 10/20/11** – Updated ESH&Q Reporting Officer assignment from JKelly to SSmith per MLogue.
- Revision 1.1 – 05/24/11** - Edited to clarify process steps.
- Revision 1 – 11/23/10** – Updated to reflect current laboratory operations.

For questions or comments regarding this form contact the Technical Point-of-Contact [Tina Johnson](#)

ISSUING AUTHORITY	FORM TECHNICAL POINT-OF-CONTACT	APPROVAL DATE	EXPIRATION DATE	REV.
ESH&Q Division	<a href="#">Tina Johnson</a>	10/19/09	10/09/12	1.3

*This document is controlled as an on line file. It may be printed but the print copy is not a controlled document. It is the user's responsibility to ensure that the document is the same revision as the current on line file. This copy was printed on 7/12/2012.*

**Subject:** Update: ORPS Determination for 12GeV-12-6021- Chipped Tooth  
**From:** Tina Johnson <cjohnson@jlab.org>  
**Date:** 7/12/2012 8:41 AM  
**To:** Patty Hunt <phunt@jlab.org>  
**CC:** Steve Neilson <sneilson@jlab.org>, Mary Logue <logue@Jlab.org>

Patty/Steve:

The event below is not an ORPS reportable event. The contractor was not treated for a fractured tooth, he received a composite filling for one chipped tooth. If you have any questions or concerns , feel free to contact me.

Thank you in advance,

Tina

On 6/28/2012 8:39 AM, Tina Johnson wrote:

----- Original Message -----

**Subject:**CAIRS Determination: 12GeV-12-6021

**Date:**Thu, 28 Jun 2012 08:38:09 -0400

**From:**Tina Johnson <cjohnson@jlab.org>

**To:**Patty Hunt <phunt@jlab.org>, Steve Neilson <sneilson@jlab.org>

**CC:**Mary Logue <logue@Jlab.org>

Patty/Steve,

On June 27, 2012 at approximately 9:40 am, a contractor was injured while working in a lift to install a standard chain wheel kit on one of the transfer lines behind Building 8. While removing a bolt, the bolt broke, causing the ratchet to slip and hit the contractor in his tooth. The contractor's right incisor was chipped. The contractor was sent to Occupational Medicine and then referred off-site for further evaluation.

This event is OSHA recordable per the following OSHA interpretation below:

***Question 7-17. Are work-related cases involving chipped or broken teeth recordable?***

Yes, under section 1904.7(b)(7), these cases are considered a significant injury or illness when diagnosed by a physician or other health care professional. As discussed in the preamble of the final rule, work-related fractures of bones or teeth are recognized as constituting significant diagnoses and, if the condition is work-related, are appropriately recorded at the time of initial diagnosis even if the case does not involve any of the other general recording criteria.

Once we receive the the contractor's paperwork from his off-site evaluation, we will make an ORPS determination.

We will follow the Notable Event Process and we will complete the CAIRS entry within the 7 day time limit. Please call me with any questions or concerns.

Tina

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Tina Johnson  
Reporting Officer/  
Administrative Assistant  
JSA/Jefferson Lab  
12050 Jefferson Ave  
Suite 602  
Newport News, VA 23606  
757-269-7611

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757-269-7611



**Thoroughly Describe the Incident**

(Use the back if necessary.)

AT ≈ 9:45 AM Called to CHL By LEADMAN INSTRUCTING ME THAT WE MIGHT HAVE A SAFETY INCIDENT. UPON ARRIVAL TO CHL CONT \* EXPLAINED THE INCIDENT TO ME AS SUCH. HE WAS WORKING ALONE ATTACHING CHAIN DRIVES WHEN THE NUT BECAME DIFFICULT TO TIGHTEN. SEEING THAT THE NUTS WERE OF A SELF LOCKING NATURE HE CONTINUED TO TIGHTEN BELT, WHEN THE BELT SNAPPED AND WRENCH STRUCK HIM IN THE MOUTH, \* BACK \*

**Root Cause of the Incident**

UNDER INVESTIGATION

\* CONT = Contractor.

**Hazard Analysis Results**

UNDER INVESTIGATION

**Action Steps to prevent future Incidents of this Kind**

NOT DETERMINED

At this time, do you wish to seek medical treatment? Yes  No

If so, please state where you are going for treatment or may have received treatment. (Be specific with the facility's name, address, & phone number.)

N/A

**Falsification of this document is a violation of Company Policy and may lead to disciplinary action up to and including termination.**

Supervisor

Associate Printed Name

Supervisor's Signature

Associate Signature

6/28/2012

Date

Supervisor Initials



NSC TECHNOLOGIES, INC.

660 Mt. Vernon Avenue, Portsmouth, VA 23707

Phone: 757-399-1738 Fax: 757-399-3275

**Supervisor Accident Investigation**

- Supervisor - name removed @

<b>Reason for Report</b> <input checked="" type="checkbox"/> Injury <input type="checkbox"/> Vehicle Accident <input type="checkbox"/> Equipment Accident <input type="checkbox"/> Product Damage <input type="checkbox"/> Theft <input type="checkbox"/> Other	<b>Name of Associate(s) Involved</b> Contractor. name removed @
	<b>Occupation</b> Helper (Pipefitter)
	<b>Witnesses (Names &amp; Phone Numbers)</b>  NONE
<b>To Whom Did You Report</b> GROUP LEADER (NAME REMOVED) OCCUPATIONAL MEDICINE @	<b>Date of First Report</b> 6/27/2012
<b>Location of Incident (Be Specific)</b> IN ARIAL MANKIFT OUTSIDE BACK OF CHL II (BLDG 08)	

**Describe Events Leading Up to the Incident**

CONTRACTOR WAS ASSIGNED THE TASK OF INSTALLING CHIAN DRIVES ONTO JAMESBURY VALVE ON THE TRACKSIDE OF CHL (CENTRAL HELIUM LIQUIFIER). THIS WAS A CARRY OVER TASK FROM THE DAY BEFORE. THIS REQUIRED THE USE OF AN ARIAL MANLIFFAU AND HAND WRENCHES. DUE TO THE LOCATION OF THE WORK HARD HAT, SAFETY GLASSES, AND SAFETY HARNESS WERE THE REQUIRED PERSONAL PROTECTIVE EQUIPMENT (PPE).

Falsification of this document is a violation of Company Policy and may lead to disciplinary action up to and including termination.

To whom it may concern;

I am the Lead Tech on the CHLTH project and I had instructed contractor to install the chain operator on a valve on the southside of CHLTH. I wasn't there, but it appears the bot he was installing broke and the socket wrench he was using hit him in the mouth when the bolt broke.

A Jones,

Group Leader

I went up in the man lift around 8:30 am  
6/27/2012 to put on operators and hand wheels for the  
10 in and 12 in pipes behind CH2. I used a 1/2 in combo  
wrench and a 1/2 in shallow socket and 3/8" ratchet.  
I tightened up one operator that <sup>Contractor</sup> 2, and I started  
the day before, I finished that one up and moved  
over to the 10 in pipe valve. I put the hand wheel on  
with out ~~any~~ a problem. I then put the operator on  
loosely to hold it in place. I used Anti-seize on all  
the bolts and began to snug them up. I was on  
the second one when the nut started getting tight  
half way down the bolt, <sup>Contractor</sup> 2, and I experienced  
similar issues with previous bolts and nuts on the  
other operators but was never anything more than a  
little hard to turn most the way, as I was tightening  
it the bolt sheered off causing the tension on the  
ratchet to come at me in which the head of  
it hit my Right Front tooth. I put another half  
in it so it wouldn't fall and then came down  
and reported it to <sup>Group</sup> Leader who then called Supervisor  
down to CH2.



6/27/2012

Causing a chipped tooth. He asked if he should go see his dentist. I INSTRUCTED him to proceed to medical for evaluation and made sure he was able to drive himself. AFTER NOTIFYING THE PROPER CHAIN OF Command here at the lab, I proceeded to medical where I was informed THAT CONT. 1 had chipped his tooth and should seek dental care. CONT. 1 contacted NSC TECHNOLOGIES AND WAS INSTRUCTED AS ~~HOW TO PROCEED. AFTER RETURNING FROM MEDICAL MET UP WITH FAST FINDING TEAM~~ to begin the investigation of the accident.

- Supervisor -  
②

# 1. Equipment/Material Worksheet

Applicable

Not Applicable

## Why was "Equipment/Material" a Cause?

Rate each subcategory cause:

D = Direct Cause

C = Contributing Cause

R = Root Cause

Equipment/Material Problem Subcategories	I	II	III	IV
1A = Defective or Failed Part	NA			
1B = Defective or Failed Material	D			
1C = Defective Weld, Braze, or Soldered Joint	NA			
1D = Error by Manufacturer in Shipping or Marking	NA			
1E = Electrical or Instrument Noise	NA			
1F = Contamination	NA			

### Cause Descriptions:

1B -The bolt failed during installation causing the wrench to strike worker in the mouth chipping teeth.

The design of the fasteners is such that it deforms the threads of the bolt to prevent "back out" from vibration or pressure. This function increases the resistance encountered during assembly.

### Recommended Corrective Actions:

## 2. Procedure Worksheet

Applicable

Not Applicable

### Why was "Procedures" a Cause?

Rate each subcategory cause:

D = Direct Cause

C = Contributing Cause

R = Root Cause

Procedure Problem Subcategory	I	II	III	IV
2A = Defective or Inadequate Procedure	C			
2B = Lack of Procedure				

#### Cause Descriptions:

2A - No special precautions about torque or other limiting factors were provided by the manufacturer.

Work was not complex and was properly assessed as "skill-of-the-craft". Manufacturer's installation instructions was provided with the material.

#### Recommended Corrective Actions:

### 3. Personnel Error Worksheet

Applicable

Not Applicable

#### Why was "Personnel Error" a Cause?

Rate each subcategory cause:

D = Direct Cause  
C = Contributing Cause  
R = Root Cause

Personnel Error Subcategory	I	II	III	IV
3A = Inadequate Work Environment	NA			
3B = Inattention to Detail	C			
3C = Violation of Requirement or Procedure	NA			
3D = Verbal Communication Problem	NA			
3E = Other Human Error	NA			

#### Cause Description:

3B - Worker failed to anticipate the hazard associated with the direction of force applied to the wrench in the event of material failure.

During an interview with the worker he stated that his previous experience was that just prior to failure there was a decrease in the amount of resistance felt prior to the failure. He did not have the same feedback in this event.

#### Recommended Corrective Actions:

## 4. Design Problem Worksheet

Applicable

Not Applicable

### Why was "Design" a Cause?

Rate each subcategory cause:

D = Direct Cause

C = Contributing Cause

R = Root Cause

Design Problem Subcategories	I	II	III	IV
4A = Inadequate Man-Machine Interface				
4B = Inadequate or Defective Design				
4C = Error in Equipment or Material Selection				
4D = Drawing, Specification, or Data Errors				

Cause Descriptions:

Recommended Corrective Actions:

## 5. Training Deficiency Worksheet

Applicable

Not Applicable

### Why was "Training Deficiency" a Cause?

Rate each subcategory cause:

D = Direct Cause

C = Contributing Cause

R = Root Cause

Training Deficiency Subcategories	I	II	III	IV
5A = No Training Provided	NA			
5B = Insufficient Practice or Hands-On Experience	C			
5C = Inadequate Content	NA			
5D = Insufficient Refresher Training	NA			
5E = Inadequate Presentation or Materials	NA			

#### Cause Descriptions:

This work was properly assessed as Skill-of-the-craft and as such no specialized training was required. The injured worker was not familiar with the particular type of lock nut used ,therefore it could be causally linked as a "Contributing Cause". It is recognized that there is a weak correlation between having a better understanding of the material and additional hands-on-experience and the event.

#### Recommended Corrective Actions:

## 6. Management Problem Worksheet

Applicable

Not Applicable

### Why was "Management Problem" a Cause?

Rate each subcategory cause:

D = Direct Cause

C = Contributing Cause

R = Root Cause

Management Problem Subcategories	I	II	III	IV
6A = Inadequate Administrative Control	NA			
6B = Work Organization/Planning Deficiency	NA			
6C = Inadequate Supervision	NA			
6D = Improper Resource Allocation	NA			
6E = Policy Not Adequately Defined, Disseminated, or Enforced	NA			
6D = Other	R			

#### Cause Descriptions:

6D - Lesson learned, regarding body positioning in relationship to potential hazards, has not been effective in increasing worker's awareness of hazard potential.

#### Recommended Corrective Actions:

## 7. External Phenomena Worksheet

Applicable

Not Applicable

### Why was "External Phenomena" a Cause?

Rate each subcategory cause:

D = Direct Cause

C = Contributing Cause

R = Root Cause

External Phenomena Subcategories	I	II	III	IV
7A = Weather or Ambient Condition				
7B = Power Failure or Transient				
7C = External Fire or Explosion				
7D = Theft, Tampering, Sabotage, Vandalism				

Cause Descriptions:

Recommended Corrective Actions:

## Worksheet Summary

Problem/Deficiency Category		Direct Cause	Root Cause	Contributing Cause
<b>Operational Readiness Problem</b>	<b>Equipment/ Material Problem</b>	X		
	<b>Procedure Problem</b>			X
	<b>Personnel Error</b>			X
<b>Management/Field Bridge Problem</b>	<b>Design Problem</b>			
	<b>Training Deficiency</b>			X
<b>Management Problem</b>			X	
<b>External Phenomenon</b>				

**Cause Description:**

The direct cause was the failure of the bolt. The root cause was ineffective lesson learned applied in regards to worker's body position and potential hazards. Contributing causes are manufacturer's instructions, worker's failure to anticipate the direction of travel in the event of material failure and employees lack of experience with the particular fasteners.

**Corrective Actions:**