

**NSLS ENVIRONMENTAL MANAGEMENT SYSTEM  
OPERATIONAL CONTROLS FORM**

<p><b>OPERATIONAL CONTROL FOR SIGNIFICANT ENVIRONMENTAL ASPECTS:</b>  <u>SILICON CRYSTAL CUTTING AND ETCHING:</u>  <u>INDUSTRIAL AND HAZARDOUS WASTE GENERATION, CHEMICAL STORAGE (SPILL)</u></p>	<p><b>COMPLETED BY:</b> <u>A. ACKERMAN, J. ALOI, D. BAUER</u>  <b>DATE:</b> <u>DECEMBER 13, 2006</u>          REV 3  <b>PAGE: 1 OF 1</b></p>
<p><b>1. Operation:</b></p> <p>NSLS Beamline Development and Support Group (BDS) Silicon Crystal Cutting and Etching.</p> <p>Process Assessment Forms (PAF): NSLS-591-CE          NSLS Glassware Cleaning Operation: NSLS-467-CE</p> <p>This activity includes all silicon crystal preparation operations, including crystal cutting (Bldg. 535 basement) and crystal etching (B. 725, Rm 2-190D). PAF 591 describes both processes in detail. PAF 467 describes glassware cleaning in general at the NSLS.</p>	
<p><b>2. Activities:</b></p> <ul style="list-style-type: none"> <li>1) Storage of chemicals</li> <li>2) Dispensing and use of chemicals</li> <li>3) Disposal of chemicals</li> </ul>	
<p><b>3. Operational Controls:</b></p> <p><b>Crystal Cutting</b></p> <ol style="list-style-type: none"> <li>1. Secondary containment for storage of all liquid reagents (trays, cabinets, etc...)</li> <li>2. Chemical Management System (CMS)</li> <li>3. Tier I inspection program</li> <li>4. Operational Control Form (OCF)</li> <li>5. NSLS ES&amp;H Policies and Requirements Manual             <ul style="list-style-type: none"> <li>• LS-ESH-PRM-7.0.0, Hazardous Waste Management</li> </ul> </li> <li>6. Subject Areas             <ul style="list-style-type: none"> <li>• Hazardous Waste Management</li> <li>• Spill Response</li> <li>• Pollution Prevention</li> <li>• Work Planning and Controls</li> </ul> </li> <li>7. Training as identified in the BTMS.</li> </ol> <p><b>Crystal Etching</b></p> <ol style="list-style-type: none"> <li>1. The operational controls identified above for crystal cutting.</li> <li>2. Internal procedure entitled "Procedure for the Acid Etching of Silicon Crystals" (LS-ES-</li> </ol>	

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0002). 3. Read and Sign Training Form "Crystal Etching" for the Crystal Etching Manager and all staff performing work.	
<b>4. Maintenance Plan:</b> Not Applicable	
<b>5. Actions to be Taken if Controls Fail:</b>  <b>Crystal Etching:</b> Described in the procedure entitled "Procedure for the Acid Etching of Silicon Crystals".	
<b>6. Records:</b>  1) Tier 1 database 2) CMS database 3) OCF 4) NSLS ES&H Policies and Requirements Manual 5) "Procedure for the Acid Etching of Silicon Crystals" (Etching only) 6) Waste disposal forms (Waste Management Facility maintains) 7) Brookhaven Training Management System (BTMS) records. 8) Signed Read and Sign training forms (Etching only) 9) PAF 591 10) PAF 467	
<b>7. Responsibilities:</b>	
<b>Name</b>	<b>Responsibility</b>

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<p>BDS Sr. Technical Supervisor</p>	<ul style="list-style-type: none"> <li>• Maintains procedure LS-ES-0002</li> <li>• Assure proper use of secondary containment, sink postings and CMS system.</li> <li>• Respond to Tier 1 findings and to required corrective actions.</li> <li>• Assure proper management of Industrial and Hazardous Waste.</li> </ul>
<p>BDS Technical Specialists</p>	<ul style="list-style-type: none"> <li>• Adhere to procedures and requirements for operations.</li> <li>• Adhere to BNL waste disposal requirements.</li> <li>• Act to control and report chemical spills.</li> </ul>
<p>NSLS Safety Engineer</p>	<ul style="list-style-type: none"> <li>• Complete Tier 1 inspections and report findings to the BDS Sr. Technical Supervisor. Track corrective actions.</li> <li>• Maintain supply of spill control materials.</li> </ul>
<p>NSLS Training Coordinator</p>	<ul style="list-style-type: none"> <li>• Maintains training database, tracks and reports training status to staff.</li> </ul>
<p>NSLS ECR</p>	<ul style="list-style-type: none"> <li>• Development and maintenance of OCF forms and PAFs.</li> <li>• Provide staff support to assure work is done in compliance with relevant regulations.</li> <li>• Assures that samples taken for waste characterization are collected and handled following proper Lab procedures.</li> </ul>
<p><b>8. Training:</b> Personnel have complete Job Training Assessments (JTA's).</p>	

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<b>Document Review Frequency</b>	
<b>3</b>	Years

Review signatures on file  
with master copy of  
controlled document

NSLS REVISION LOG		
<b>Subject:</b>		OCF - Silicon Crystal Cutting and Etching
Rev	Description	Date
3	Added Waste Management to the responsibility section for the BDS Sr. Technical Supervisor. Cleaned up document and removed all outdated information.	12/13/2006