Empowering Employees in Ergonomics

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Production Supervisor
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Ms. Miranda Harmon-Smith is a production technical and administrative supervisor working at the Joint Genome Institute in Walnut Creek, CA. She is currently responsible for managing the daily operation of the 454 sequencing platform and the staff working in the production line. She has worked at the Joint Genome Institute for the past 7 years. She has made significant contributions to safety as the Chair of the Safety Culture Committee working toward building a strong safety culture through dissemination of information and improving the overall safety awareness level of employees. She also serves on the Emergency Response Team and works closely with the Deputy Director of Business Operations and Production to review and set Safety policies and guidelines. Ms. Harmon-Smith holds a Bachelor of Science degree in Biology from Syracuse University.
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Objectives

• Overview of JGI Organization
• Ergonomic Program prior to Dec. 2007
• The Culture Shift – Safety Stand down
• Ergonomic Program post Stand down
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Mission:
DOE JGI, Serving as a genomic user facility in support of the DOEmissions:

- Bioenergy
- Biogeochemistry
- Carbon Cycling

Walnut Creek, CA
PGF opened in 1999
~250 employees
~$60M annual budget

The Human Genome 2003
**Work Environments**

<table>
<thead>
<tr>
<th>Office/Computer Workstations</th>
<th>Laboratory/Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>60% staff in computer-intensive office settings</td>
<td>40% staff in production tasks and R&amp;D</td>
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</tbody>
</table>
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- **Safety Department**
  - 1 individual, no ergonomist
  - Focus on meeting laboratory safety standards (chemicals and hazards)
  - Reactive rather than proactive

- **Nature of the work**
  - Manually intensive repetitive tasks
  - High force, awkward pinching, gripping and grasping postures

- **Equipment/instruments**
  - Used what was available in the market
  - Designed for small batches/single plates
  - Used for high throughput operation

- **Culture**
  - Staff were uncomfortable bringing up issues
  - Limited employee input on process improvements; lack of ownership
  - Faster is better mentality
  - One size fits all approach; limited options

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**Ergonomic Program Prior to December 2007**

<table>
<thead>
<tr>
<th>Year</th>
<th>Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
</tbody>
</table>

# Recordable Injuries

2007
December Stand down - 2007

- Shut down production for 1 month
- Brought in Ergonomic/Management consultant
- Management Team
  - Communication Model
  - Morale and Teamwork (team building exercises)
  - Defined Roles and Responsibilities
  - Set Clear Work Expectations
  - Reviewed Internal Safety Policies and Procedures
- Received Education/Training
  - Ergonomics in the Workplace
  - Observation training
  - Chevron Corporation – bench marking
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December Stand down - 2007

• Staffing Team
  • Received Education/Training
    • Ergonomics in the workplace
    • How to perform peer observations
    • Improving Communication skills
    • Stress Reduction
      • Time management
      • Organizational skills

• Formed into Process Working Groups
  • Reviewed all aspects of process areas

• Applied Core Functions of ISM to work
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**Applied ISM Core Functions**

- **Project description**
  - Employee roundtables
  - Weekly staff meetings
  - 1x1s
  - Six Sigma/Lean Ideas
  - Suggestion boxes
  - Recognition

- **Define scope of work**
  - Reviewed SOPs
  - Reviewed training materials
  - Defined workload-batches/plates
  - Defined work expectations
  - Developed Process Flow Charts

- **Feedback and improve**
  - Ergonomic risks
  - Safety risks
  - Workload
  - Workflow
  - Space allocation

- **Work Safely!**
  - Ergo limits
  - Checklists
  - Walk-thrus
  - Best practices
  - Sign-offs
  - Stretch Breaks
  - Observations

- **Perform work**
  - 1 shift – 1 batch
  - 1 shift – 2 batches
  - 2 shifts – 1 batch
  - Perform and observe

- **Develop/Implement controls**

**Work output**
• Celebration and Commitment Ceremony to close out the month
• Goal moving forward was “Zero Ergonomic Injuries”
Was this easy... no way!

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Best Practices: Loading/Unloading Centrifuge

• Try not to bend your back
• Avoid reaching or using awkward hand postures
• Use neutral posture
• Load buckets closest to you
• Rotate the carousel to bring slots closer to the front
• Use the tray for more work space

Bad

Better
Employee Driven Designs and Solutions for Best Practices

Too full, awkward pinch grip

Less plates, better grip

Tray for loading/unloading
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Tool for lifting out
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Employee Led Solutions for High Risk Tasks (2007)

Thermal Cycler Loading

Peeling Seals

Freezer Rack Lifting
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Employee Led Solutions for High Risk Tasks (2010)

Pipetting

Capping/uncapping

Vortexing

Multiple Options

Automation

Multiple Options

Multiple Options

Multiple Options
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- **Safety Department**
  - 3 individuals including an ergonomist
  - Ergonomics education/training required
  - Proactive approach
    - Early intervention program
  - Ergo points/comfort surveys
  - Remedy Interactive/ RSI guard

- **Nature of the work**
  - Still manual and high force but minimized
  - Work well defined: Improved Documentation
  - Required/ Best Practices
  - Supervisor and peer observations

- **Equipment/instruments**
  - Automation where possible
  - Employee led designs of various tools

- **Culture**
  - Improved communication – open dialogue
  - Employee led process improvements
  - Faster is not better; work smart
  - One size does not fit all; options
  - Focus on Continuous Improvement
  - Available to the whole JGI not just production

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**Recordable Injuries 2007-2010**

- Stand down 12/07
- Remedy Interactive 05/08
- RSI Guard 08/08
- 3 Rec. Injuries 2009
- No injuries YTD
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Safety Culture Working Group
- Promotion
- Awareness
- Communication
- Employee led Safety Fair

Early intervention
- Targets employees with discomfort
- Includes bi-weekly review meeting

Proactive Efforts
- Labs and offices
- Monitoring
- Walk-abouts
- Comfort surveys

Training/education
- Risk targeted classes
- Stretch break programs
- Potty training
- Lessons Learned
- Website resources

Relaxation/Rejuvenation Room

Work tools and practices
- Ergo Points, Ergo Limits
- Required Practices
- Stretchware, RSI guard

Engineering designs and solutions
- tools and automation
- Engineering designs and solutions
- tools and automation

Ergonomics Demo Room

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FOR…the Ergonomic Program Improvement Initiatives category: “Empowering Employees in Ergonomics,” which focused on the employee-driven elements of the JGI Ergonomics Program.
Thank You

- DOE ISM Champions Workshop Organizers
- JGI Management and Staff
- JGI Ergonomist – Melanie Alexandre
- JGI Ergo Cup Team Members
  - Nicole Shapiro  Megan Kennedy
  - Angela Tarver  Bridget Swift
  - Martin Pollard  Christine Naca
Questions?

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