Base Off

DOE JOINT GENOME INSTITUTE
US DEPARTMENT OF ENERGY
OFFICE OF SCIENCE

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Ergonomic Improvements

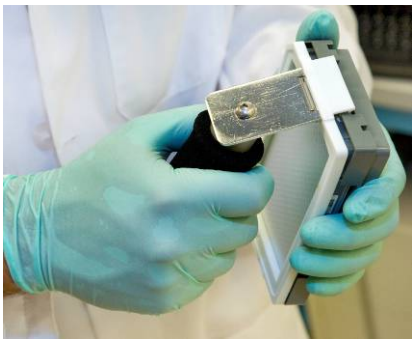
Administrative:
- Best Practice training

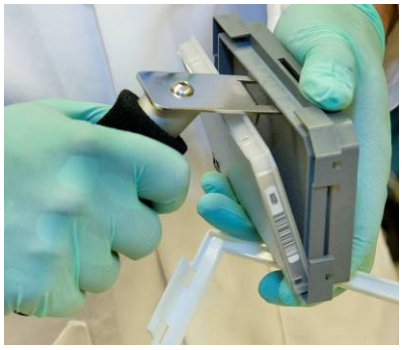
Off the Shelf:
- Handles for instrument door
- Stools for seated option

Custom Engineering:
- Lightweight hand tool to unlock lid and remove plate
- Shelf to raise working height

Results:
- Doubled "Safe" throughput
- Reduced workers strain

- 30 sec – 1 minute unloading/cycle
- Approx. 9 efforts/cycle
- Total processing time 30 minutes
- Process 420 plates per day



	Before	After
Safety	• Grip Force 53-107% of maximum voluntary contraction • Strain Index = 60.8	• Grip Force 15-18% of maximum voluntary contraction • Strain Index = 0.6
Quality		• The quality of the samples did not change.
Delivery/Efficiency	• Unload 40 plates per day manually in 15 minutes.	• Unload 80 plates per day with debasing tool in 30 minutes. • Productivity per person did not change.
Cost	• $254,000 for labor costs and injuries.	• $196,000 for labor costs with 50% reduction in injury costs.
Morale/Teamwork	• Common musculoskeletal complaints due to load on hands.	• Participatory process → production staff design concept. • The new workstations ↑ flexibility for multiple operators. • Increased morale due to the significant reduction of task difficulty.

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