

---

# The Defense Occupational and Environmental Health Readiness System Identifying Ergonomic Hazards

---



---

# Objectives

- Provide Background on the DOEHRS
- Identify the 8-steps of the DoD Exposure Assessment Model that the DOEHRS-IH system is built upon.
- Demonstrate how Industrial Hygienists Identify Ergonomic Hazards.
- Review Ergonomics Data Captured for DoD
- Future initiatives

---

# What is DOEHRS ?

- A web based solution for IH Program Management
- A world class occupational exposure database system
- Supports data collection “out of the office”

---

# *Who Said This?*

“Every soldier, sailor, airman and marine will have a **comprehensive, life-long medical record** of all illnesses and injuries they suffer, the care and inoculations they receive and **their exposure to different hazards.** These records will help us **prevent** illness and identify and cure those that **occur.**”

---

# ***DoD Industrial Hygiene Program***



# How Does it Work? An Introduction



---

# DOD Exposure Assessment Model

## Business Process Model of DOEHRS-IH

- Define Scope of Support & Resources
- Basic Characterization
- Establish Similar Exposure Groups
- Develop Workplace Monitoring Plan
- Characterize Exposures
- Assess Exposure & Recommend Control
- Reporting
- Re-evaluation

# Identifying Ergonomic Hazards

Shop Name: PS DENTAC FM82DENTAL+ Process Name: DENTAL GENERAL+

## Potential Ergonomics Hazard Information

Potential Ergonomics Hazard \*  
(If uncertain, click the Answer Potential  
Ergonomic Hazard Questions icon for guidance)

No   Save

DOD Ergonomics work group  
wanted a reminder for Industrial  
Hygienist to consider ergonomics in  
every captured process

# Washington State Questions

**Hazards - Potential Ergonomic Hazard** [Help](#)

Answering Yes to any of the following questions indicates a potential Ergonomic Hazard.

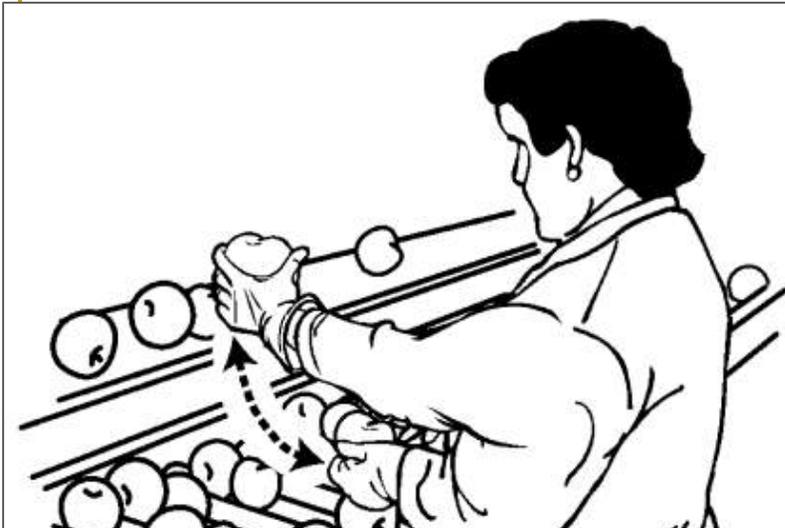
Close Window Continue

**Ergonomics Information**

Graphic Example	Question	Answer	
		Yes	No
	Does the task include performance of the same motion or motion pattern every few seconds for more than a total of 2 hours/day?	<input type="radio"/>	<input type="radio"/>
	Does the task include a fixed or awkward work posture (e.g., overhead work, twisted or bent back, bent wrist, kneeling, stooping, squatting) for more than a total of 2 hours/day?	<input type="radio"/>	<input type="radio"/>
	Does the task include Exposure to localized or whole body vibration (e.g., the use of vibrating or impact tools or equipment) for more than a total of 2 hours/day?	<input type="radio"/>	<input type="radio"/>
	Does the task include forceful hand exertions for more than a total of 2 hours/day?	<input type="radio"/>	<input type="radio"/>
	Does the task include unassisted frequent or forceful manual handling for more than a total of 2 hours/day?	<input type="radio"/>	<input type="radio"/>
	Have there been any employees or service members with work-related musculoskeletal disorders in the same or similar jobs recorded?	<input type="radio"/>	<input type="radio"/>

Close Window Continue

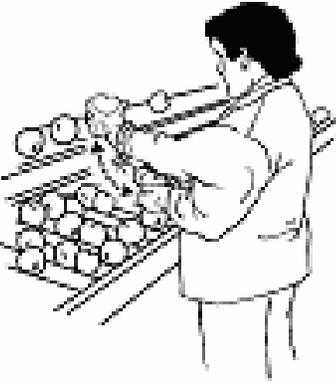
# DOEHRS-IH Ergonomics



## ■ Repetitive Motion

■ Does the task include performance of the same motion or motion pattern every few seconds for more than a total of 2 hours/day?

### Ergonomics Information

Graphic Example	Question	Answer	
		Yes	No
	Does the task include performance of the same motion or motion pattern every few seconds for more than a total of 2 hours/day?	<input type="radio"/>	<input type="radio"/>

# Ergonomics Hazards Provided by DOD Ergonomics Working Group

### Find Hazard Result

Select a hazard to add to the form.

Search  **Hazard Name**

#### Hazard Search Results

Select	Hazard Name	Synonym	CAS #
<input type="radio"/>	Cold Surfaces		
<input type="radio"/>	Contact Stress		
<input type="radio"/>	Dynamic Posture		
<input type="radio"/>	Energy Expenditure		
<input type="radio"/>	Forceful Exertion		
<input type="radio"/>	Glare		
<input type="radio"/>	Impact/Jolt		
<input type="radio"/>	Lighting Level		
<input type="radio"/>	Psychosocial		
<input type="radio"/>	Segmental/Hand - Arm Vibration		
<input type="radio"/>	Static Posture		
<input type="radio"/>	Visual Demand		
<input type="radio"/>	Whole Body Vibration		
<input type="radio"/>	Work Rate/Repetition		

Page: 1 « Previous | Next »

# Defining Assessment

## Ergonomic Assessments

To edit/view Assessment Definition, click the Date link.

**SEG Name:** KCW Mechanical Grinding

### Assessments Defined for KCW Mechanical Grinding

Create WMP Ergonomic Evaluation Task

Make Recommendation

Select	<u>Date</u>	Process	Hazard	OEL	Exposure Level	Inva
<input type="radio"/>	<a href="#">2009/02/18</a>	PKK Mechanical Grinding	Forceful Exertion		<a href="#">Assess</a>	
			Segmental/Hand - Arm Vibration		<a href="#">Assess</a>	

Create WMP Ergonomic Evaluation Task

Make Recommendation

## Ergonomic Evaluation Level I - Industrial

\* Indicates Required Field

Other Actions -Ergonomic Evaluation Level 1-

Shop Name: PKK Welding Process Name: PKK Mechanical Grinding

General Survey Information			
Shop	PKK Welding (W313AA)	Shop Priority	High
Survey Date *	2009/02/18  (yyyy/mm/dd)	Survey Time	0733 (1500)
Detailed Evaluation/Follow-up	<input type="checkbox"/> Required <div style="border: 1px solid gray; height: 40px; width: 100%;"></div>		
Comments/Time Course of Events	<div style="border: 1px solid gray; height: 40px; width: 100%;"></div>		

Reason for Survey Information

Process Information

Performance Measure Information

PKK Mechanical Grinding Task Information +

Delete											
Select	Task	Lifting/Exertion	Task Frequency	Task Rating	Checklist	Body Region Scores					Highest Score
						Shoulder/Neck	Hand/Wrist/Arm	Back/Torso	Legs/Feet	Head/Eyes	
<input type="checkbox"/>	Assembling/Repairing- bench work	Yes	Medium	Medium	<a href="#">Create</a>						
Delete											

Employee Suggestion Information

Findings Information

Rating Summary Information

## Ergonomic Evaluation Level I - Industrial - Task Checklist

\* Indicates Required Field

**Shop Name:** PKK Welding **Process:** PKK Mechanical Grinding **Task:** Assembling/Repairing- bench work

Save Cancel

### Shoulder/Neck Job Factors

Graphic Example	Job Factor (*Must select a frequency for each)	Infrequently/never 0-9%	Sometimes 10-50%	Frequently 51-100%	Comments
	1.1a - Repeated reaching or arms held continuously away from body while unsupported below shoulder level (arms 30 -90 deg away from body)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
- OR -					
	1.1b - Repeated reaching or arms held continuously away from body while unsupported above shoulder level (arm > 90 deg away from body)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	1.2 - Repeated arm forces exceeding 10 lbs. (4.5kg.) (e.g., roughly equivalent to lifting a gallon of milk)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	1.3 - Holding/carrying materials exceeding 25 lbs. (11.3kg.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	1.4 - Head/neck bent, tilted, or twisted (e.g., display too high or too far away)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
	1.5 - High speed, sudden shoulder movements (e.g., opening a struck door, pulling and yanking on bed linens)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

### Hand/Wrist/Arm Job Factors

### Back/Torso Job Factors

### Legs/Feet Job Factors

### Head/Eyes Job Factors

Save Cancel

View Hazard Scores from Ergonomic Assessment Level 1.

Close Window

## Forceful Exertion Scores

Job Factor	Body Region	PKK Mechanical Grinding
		Assembling/Repairing-bench work
1.1a - Repeated reaching or arms held continuously away from body while unsupported below shoulder level (arms 30 - 90 deg away from body)	Shoulder/Neck	1.0
1.1b - Repeated reaching or arms held continuously away from body while unsupported above shoulder level (arm > 90 deg away from body)	Shoulder/Neck	3.0
1.2 - Repeated arm forces exceeding 10 lbs. (4.5kg.) (e.g., roughly equivalent to lifting a gallon of milk)	Shoulder/Neck	1.0
1.3 - Holding/carrying materials exceeding 25 lbs. (11.3kg.)	Shoulder/Neck	1.0
1.5 - High speed, sudden shoulder movements (e.g., opening a struck door, pulling and yanking on bed linens)	Shoulder/Neck	1.0
2.2 - Repeated hand, wrist, or arm movements (includes forearm rotation) (e.g. scanning groceries, washing dishes)	Hand/Wrist/Arm	1.0
2.3 - Repeated finger movements (e.g., repetitive computer keying tasks, operating buttons on handheld scanners)	Hand/Wrist/Arm	1.0
2.4 - Hyperextension of thumb/finger. (e.g., using small input devices, using pliers with a wide handle span)	Hand/Wrist/Arm	1.0
2.5 - Hand forces. Fingertip force: > 2 lb. (.9kg.) (e.g., 2 lb. Is roughly equal to holding fingernail clippers closed Full hand force: > 8 lb. (3.6kg.) (e.g., 8 lb. Is roughly equal to holding a 8 lb. Tool or holding a gallon of milk)	Hand/Wrist/Arm	1.0
3.2 - Repeated forward or side-ways bending (>20 degrees) (e.g. lifting from floor level)	Back/Torso	1.0
3.3 - Repeated twisting (e.g., rushing while lifting, pulling, open a stuck door)	Back/Torso	1.0
3.4 - Lifting forces - 50 lbs. (22.7 kg.) if upright w/ load close to body, or - 10 lbs. (4.5 kg.) if lift involves bending or reaching	Back/Torso	4.0
3.5 - High speed or sudden movements (e.g., lifting patients, lifting boxes larger than 30 in. (76 cm))	Back/Torso	1.0
3.6 - Pushing/Pulling >50 lbs. (22.7 fk) (e.g., pushing/pulling a full two-drawer file cabinet across a carpeted floor)	Back/Torso	1.0

Close Window

# Recommending Controls

## Make Recommendation - Step 2 of 2 - View Task Summary and Case Studies

Click the "View More Info" icon to view the Case Study for a Task.

**SEG Name:** KCW Mechanical Grinding **Hazard:** Lighting Level, Psychosocial, Forceful Exertion, Static Posture, Segmental/Hand - Arm Vibration, Glare **Process(es):** PKK Mechanical Grinding

Add Recommended Control

Cancel

### Task Summary for Ergonomic Evaluation

Task	Task Rating	Process	Body Region Scores				
			Shoulder/Neck	Hand Wrist/Arm	Back/Torso	Legs/Feet	Head/Eyes
Assembling/Repairing- bench work 	Medium	PKK Mechanical Grinding	Medium	Medium	High	Medium	Low

Add Recommended Control

Cancel

## Add Recommended Control

Please select a control type.

01

**SEG Name:** KCW Mechanical Grinding **Process(es):** PKK Mechanical Grinding

### Control Information

Control Type \*

Control Class \*

Control Name \*

Continue

Cancel

# Discoverer: Ad-Hoc Reporting

Ft. Eustis IHPO Report						
Shop => Process => Method => Hazards						
	Organization Name	Shop Name	Process Name	Common Process	Method	Hazard Name
1	DU9 USAALS CELL FT EUSTIS	FE2716A	EQUIP REPAIR/PM	Equipment Repair/Prev. Maintenance	Equipment repair/prev. maint., NOC	AROMATIC NAPHTHA
2						Propionic acid, 2-methyl-, monoester with 2,2,4-trimethyl-1,3-pentanediol
3						VINYL TOLUENE

## Army Personnel Requiring Audiometric Testing by Sampling Results Greater Than or Equal to 85 dBA

	Ihpo Id	Ihpo Name	Twa Value	Sample Date	Twa Id	Personnel Id	Worker Name
1	621	DE, Grafenwoehr	85	29-NOV-2006	1369	836940	[REDACTED]
2			85	29-MAR-2007	1310	437622	[REDACTED]
3			86	14-MAR-2007	1312	340896	[REDACTED]
4			89	28-MAR-2007	1308	436778	[REDACTED]

## SEGs Recommended for Audiometric Testing , Vision Conservation, Respirator User Certification Program Exam

Table

Tools [Layout](#) [Format](#) [Spotlight](#) [Sort](#) [Rows and Columns](#)

\* Rows  \* Columns    
(1 - 999) (1 - 999)

Page Items Agency Name  Ihpo Name  Med Surv Program

Up  Down

Rows 1-25 of 152

Agency Id Ihpo Id Seg Name Responsible Ih Last Name First Name Dod Edi Pn Id Med Surv Program Id

	Agency Id	Ihpo Id	Seg Name	Responsible Ih	Last Name	First Name	Dod Edi Pn Id	Med Surv Program Id
1	2	236	DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1228513101	94
2			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1183540161	
3			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1155513477	
4			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1229431940	
5			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1163824171	
6			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1231559600	
7			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1058841958	
8			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1231710252	
9			DOL IMD Class IX Welding	40	[REDACTED]	[REDACTED]	1184355414	

# Top 20 Army Hazards in DOEHRS

	Hazard Name	Counts
1	NOISE	52123
2	EYE HAZARDS	39753
3	FOOT HAZARDS	28740
4	Forceful Exertion	27069
5	FLYING PROJECTILES	17885
6	OIL MISTS, MINERAL	15587
7	CARBON MONOXIDE	14911
8	Visual Demand	13069
9	SHARP OBJECTS (CUTS)	12617
10	HOT OBJECTS (BURNS)	9367
11	LEAD AND INORGANIC COMPOUNDS	8643
12	Lighting Level	8622
13	DIESEL FUEL (AS TOTAL HYDROCARBONS)	7853
14	ELECTRIC SHOCK	7472
15	NUISANCE PARTICULATES, TOTAL DUST	7124
16	TOLUENE	6915
17	FLAMMABLE/EXPLOSIVE	6596
18	ACETONE	6479
19	HEAT STRESS	6472
20	STODDARD SOLVENT	6444

# Where Ergo Hazards Rank

Hazard Name	Counts
4 Forceful Exertion	27069
8 Visual Demand	13069
12 Lighting Level	8622
37 Dynamic Posture	3499
49 Contact Stress	2636
51 Work Rate/Repetition	2416
56 Static Posture	2331
62 Segmental/Hand - Arm Vibration	2046
73 Whole Body Vibration	1375
96 Energy Expenditure	963
113 Illumination	758
160 Impact/Jolt	462
180 Glare	370
231 Cold Surfaces	239

# Count of Personnel with Identified Potential Exposure

Hazard Name	Potential Personnel
NOISE	4611
EYE HAZARDS	3863
Dynamic Posture	2775
Contact Stress	2620
Forceful Exertion	2233
FOOT HAZARDS	2097
Static Posture	1948
Work Rate/Repetition	1578
CARBON MONOXIDE	1294
Segmental/Hand - Arm Vibration	955
Energy Expenditure	949
NITROGEN DIOXIDE	937
Visual Demand	933
FLYING PROJECTILES	919

# Forceful Exertion

Process Category	Common Process	Method	Counts
Industrial	Storage of Materials	Storage of materials, NOC	4507
Industrial	Equipment Repair/Prev. Maintenance	Preventive maintenance	1455
Industrial	Equipment Repair/Prev. Maintenance	Equipment assembly/disassembly	970
Industrial	NOC	NOC	963
Industrial	Supplies/Materials Handling	Loading/unloading	904
Industrial	Vehicle Maintenance	Vehicle testing/tuning	835
Administrative	Administrative	Administrative, NOC	751
Industrial	Miscellaneous Operations	Miscellaneous, multiple operations	681
Industrial	Laboratory Operations	Research and development, NOC	659
Industrial	Supplies/Materials Handling	Forklift operation	552
Industrial	Medical	Medical, general or operations	489
Industrial	Metal Machining	Metal machining, NOC	473
Industrial	Equipment Repair/Prev. Maintenance	Equipment repair/prev. maint., NOC	453
Industrial	Electrical/Electronics	Electrical parts repair	451
Industrial	Brazing/Soldering/Welding/Cutting	Welding, NOC	378
Industrial	Food Preparation/Handling	Food preparation and handling	333
Industrial	Electrical/Electronics	Electrical, battery charging	332
Industrial	Equipment Repair/Prev. Maintenance	NOC, brake/gearbox/clutch work	331
Industrial	Woodworking	Woodworking, multiple operations	328
Industrial	Vehicle Maintenance	Vehicle repair, multiple operations	320
Industrial	Supplies/Materials Handling	Tool and parts issue	305

---

## Next Steps

- Identify IH Program Offices that don't identify Ergonomic Hazards
- Evaluate the tasks where Ergonomic Hazards have been identified.
- Develop tools to evaluate the Ergonomic Hazards

---

# Questions



Kevin Wisniewski

Army Functional Representative DOEHRS-IH  
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE