

BAB 6

KESIMPULAN DAN SARAN

6.1. Kesimpulan

Berdasarkan hasil penelitian, maka dapat diambil beberapa kesimpulan sebagai berikut:

- a. Alat bantu berupa meja pahat dan kursi yang digunakan dapat membuat postur kerja para pekerja *Java Art Stone* menjadi lebih baik yang ditunjukkan melalui penurunan skor RULA dari pengukuran periode 1 ke periode 2. Data dan Analisis yang telah dilakukan menunjukkan bahwa terjadi penurunan skor RULA sebesar 21,875%.
- b. Perbaikan postur kerja dengan menambah alat bantu berupa meja pahat dan kursi dapat mengurangi keluhan muskuloskeletal dari para pekerja *Java Art Stone*. Hal tersebut ditunjukkan dengan penurunan total skor pada *kuesioner Nordic Body Map* sesudah kerja dari periode 1 ke periode 2. Data dan Analisis Data yang dilakukan menunjukkan bahwa terjadi penurunan total skor sebesar 10%.
- c. Perbaikan postur kerja melalui penambahan meja pahat dan kursi juga dapat mengurangi waktu proses pemahatan para pekerja *Java Art Stone*. Hal ini ditunjukkan melalui penurunan rata-rata waktu pemahatan yang telah diukur pada periode 1 dan periode 2 sebanyak 2,136%.

6.2. Saran

Pada penelitian ini disadari bahwa masih banyak kekurangan dalam memperbaiki postur kerja para pekerja *Java Art Stone*, oleh karena itu disarankan beberapa usulan pengembangan rancangan meja pahat dan kursi yang dapat digunakan sebagai bahan pertimbangan pada penelitian selanjutnya. Usulan-usulan tersebut antara lain:

- a. Melihat dari penempatan peralatan pahat yang masih tidak teratur, maka dapat dibuat suatu tempat untuk meletakkan peralatan-peralatan pahat yang dapat dipisahkan menurut jenisnya, sehingga pekerja dapat dengan mudah mencari alat tersebut dan dapat meminimalkan waktu proses mencari peralatan yang akan dipakai.

- b. Meja pahat yang telah dibuat ini memiliki keterbatasan ukuran benda kerja hingga ukuran 100X50 cm saja, oleh karena itu diusulkan pada penyangga meja pahat dibuat *adjustable* sehingga ukuran penyangga meja pahat dapat di perbesar sesuai dengan ukuran yang dibutuhkan.
- c. Dari pengamatan perilaku pekerja setelah menggunakan alat bantu, disarankan agar ukuran panjang Pantat ke Popliteal (PKP) pada rancangan kursi lebih diperpanjang, karena pekerja telah terbiasa menekuk kaki mereka, sehingga pada saat menggunakan kursi, mereka ingin menaikkan kaki mereka ke atas kursi. Penambahan ukuran PKP ini diikuti dengan rancangan sandaran yang dapat *adjustable* (dapat di maju mundurkan), sehingga pada saat kaki pekerja dinaikkan atau diturunkan, para pekerja masih tetap dapat bersandar dengan nyaman.

DAFTAR PUSTAKA

- Anizar, Joko, dan Suriadi. (2008). Analisa postur kerja operator pada bagian boiler dengan metode ovako working posture analysis system di PTPN V Sei Rokan Riau. (Makalah Seminar). Seminar Nasional Teknik Industri dan Kongres BKSTI V Makassar.
- Bluman, A.G. (2012). *Elementary Statistics: a step approach* (Ed. 8). New York: The McGraw-Hill Companies.
- Dickinson, C. E., Champion, K., Foster, A. F., Newman, S. J., O'rourke, A. M. T. and Thomas, P. G. 1992, Questionnaire development: an examination of the nordic musculoskeletal questionnaire, *Applied Ergonomics*, 23, 197 ± 201.
- Halim, E.H. (2010). Analisis postur kerja operator departemen *packing* PT Westapusaka Kusuma menggunakan metode OWAS. (Skripsi). Program Studi Teknik Industri, Fakultas Teknologi Industri, Universitas Atma Jaya Yogyakarta.
- Kuorinka, I., Jonsson, B., Kilbom, A. Ê ., Vinterberg, H., Biering-sé rensen, F., Andersson, G. and Jé rgemsem, K. 1987, Standardised Nordic questionnaires for the analysis of musculoskeletal symptoms, *Applied Ergonomics*, 18, 233 ± 237.
- Lueder, R., 1996. A proposed RULA for computer users. In *Proceedings of the Ergonomics Summer Workshop, UC Berkeley Center for Occupational & Environmental Health Continuing Education Program, San Francisco*
- Manuaba, A. 2000. *Ergonomi dalam industri*. Bali: Universitas Udayana.
- McAtamney, L. & Nigel Corlett, E., 1993. RULA: a survey method for the investigation of work-related upper limb disorders. *Applied ergonomics*, 24(2), pp.91–99.
- Nazlina, Buchari, dan Ria, S.I. (2008). Usulan perancangan postur kerja dengan menggunakan pendekatan biomekanika dan fisiologi pada aktivitas pencetakan batu bata. (Makalah Seminar). Seminar Nasional Teknik Industri dan Kongres BKSTI V Makassar.

- NIOSH Publication. (2007). *Ergonomic Guidelines for Manual Material Handling*. California: California Department of Industrial Relations.
- Nurmianto, E. (1996). *Ergonomi - konsep dasar dan aplikasinya* (Ed. 1). Jakarta: PT Guna Widya.
- Nurmianto, E. (2004). *Ergonomi - konsep dasar dan aplikasinya* (Ed. 2). Surabaya: PT Guna Widya.
- Oborne, D.J. (1995). *Ergonomics at work – human factors in design and development* (Ed. 3). England: John Wiley & Sons Ltd.
- Occupational Health and Safety Council of Ontario. (2007). Resource manual for the MSD prevention guideline for ontario.
- OHS. (2003). *Manual Handling*. Australia: Occupational Health and Safety.
- OSHA. (1997). *National Code of Practice for Manual Handling*. California: California Department of Industrial Relation.
- Pheasan, S. (1991). *Ergonomics, work, and health*. USA: Aspen Publisher Inc.
- Pochock, S. (2008). *Clinical trial a practical approach*. England: John Wiley & Sons.
- Pulat, B.M. (1992). *Fundamental of industrial ergonomics*. USA: Hall International, Englewood Clifts, New Jersey.
- Pulat, B.M. (1997). *Fundamental of industrial ergonomics* (Ed. 2). USA: Hall International, Englewood Clifts, New Jersey.
- Purnomo, H., Manuaba, A., dan Adiputra, N. (2006). Sistem kerja dengan pendekatan ergonomi total mengurangi keluhan muskuloskeletal, kelelahan dan beban kerja serta meningkatkan produktivitas pekerja industri gerabah di Kasongan, Bantul. (Makalah Penelitian). Program Pascasarjana Program Studi Ilmu Kedokteran, Universitas Udayana Denpasar.

- Siswantoro, A. T. (2013). Modifikasi gerinda tangan berbasis ergonomi memperbaiki respon fisiologis dan meningkatkan produktivitas serta kepuasan pengguna. (Desertasi). Program Pascasarjana Universitas Udayana Denpasar.
- Stanton, N.A., Salmon, P.M., Rafferty, L.A., Walker, G.H., Baber, C., Jenkins, D.P. (2005). *Handbook of human factors and ergonomics method*. USA: CRC Press.
- Subiantoro, Adi (2005). Hubungan teknik mengangkat beban dengan keluhan nyeri pinggang pada pekerja pengangkut barang di jalan beteng semarang. Diakses tanggal 10 Maret 2014 dari http://digi.lib.unnes.ac.id/gsd/collect/skripsi/a_rch_ives/HASH01_ce/09ddeb5d.dir/doc.pdf
- Sugiyono. (2004). Metode penelitian bisnis (ed. 9). Bandung: Alfabeta.
- Susila, I.G.N. (2002). Musculoskeletal disorders. *Majalah Kedokteran Udayana (MKU)*. 33(116): 78.
- Sutalaksana, I.Z., Anggawisastra, R., dan Tjakraatmadja, J.H. (2006). Teknik perancangan sistem kerja (Ed. 2). Bandung: ITB Bandung.
- Tarwaka, Solichul, H.B., Lilik, S. (2004). *Ergonomi untuk kesehatan kerja dan produktivitas*. Surakarta: Uniba Press.
- Velaga, P., & Telaprolu, N. (2013). Work posture and prevalence of musculoskeletal symptoms among women in packing activities of pharmaceutical industry. *International Journal of Current Research and Review*, 05(17), 57–65.
- Wardhana, D.S. (2013). Analisis postur kerja dan biomekanika pada aktivitas memintal daun pandan. (Skripsi). Program Studi Teknik Industri, Fakultas Teknologi Industri, Universitas Atma Jaya Yogyakarta.
- Watson, R. (2002). Anatomi dan fisiologi untuk perawat (Ed. 10) (terjemahan Syabariyah, S). Jakarta: EGC.

Widodo, E. M., Rosyidi, M. I., Widiastuti, R., Studi, P. (2009). Analisis postur kerja operator mesin split pada proses pembuatan kulit jenis wet blue menggunakan moskuloskeletal disorders (MSD) risk assessment methods Studi Kasus di Lembah Tidar Jaya Magelang, (Makalah Seminar). Seminar Nasional Ergonomi IX Semarang.

Yunida, N. (2013). Analisis postur kerja dan biomekanika pada aktivitas penggerakian logam di laboratorium fisika dasar dan material teknik Universitas Atma Jaya Yogyakarta. (Skripsi). Program Studi Teknik Industri, Fakultas Teknologi Industri, Universitas Atma Jaya Yogyakarta.



LAMPIRAN

Lampiran 1. Lembar RULA Pu Periode 1 pada Sisi Kanan

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...
If shoulder is relaxed: +1
If upper arm is abducted: +2
If arm is supported or person is leaning: -1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...
If arm is working across midline of the body: +1
If arm out to side of body: +1

Step 3: Locate Wrist Position

Step 3a: Adjust...
If wrist is bent from the midline: +1

Step 4: Wrist Twist
If wrist is twisted in mid-range = 1;
If twist at or near end of range = 2

Step 5: Look-up Posture Score in Table A

Use values from steps 1, 2, 3, 4 to locate Posture Score in Table A.

Step 6: Add Muscle Use Score

If posture mainly static (i.e. held for longer than 1 minute) or:
If action repeatedly occurs 4 times per minute or more: +1

Step 7: Add Force/load Score

If load less than 2 kg (instruments): +0;
If 2 kg to 10 kg (static or repeated): +1;
If 2 kg to 10 kg (static or repeated): +2;
If more than 10 kg held or repeated or shocks: +3

Step 8: Find Row in Table C

The completed score from the Arm/Wrist analysis is used to find the row on Table C.

B. Neck, Trunk & Leg Analysis

Steps: Locate Neck Position

Step 9a: Adjust...
If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...
If trunk is twisted: +1; If trunk is side-bending: +1

Step 11: Legs

If legs & feet supported and balanced: +1;
If not: +2

Table A

Upper Arm	Lower Arm	Wrist	Muscle Use	Force/load
1	1	1	1	1
1	2	2	2	2
1	3	3	3	3
1	4	4	4	4
2	1	1	1	1
2	2	2	2	2
2	3	3	3	3
2	4	4	4	4
3	1	1	1	1
3	2	2	2	2
3	3	3	3	3
3	4	4	4	4
4	1	1	1	1
4	2	2	2	2
4	3	3	3	3
4	4	4	4	4
5	1	1	1	1
5	2	2	2	2
5	3	3	3	3
5	4	4	4	4
6	1	1	1	1
6	2	2	2	2
6	3	3	3	3
6	4	4	4	4

Table B

Neck	Legs	Legs	Legs
1	1	1	1
1	2	2	2
1	3	3	3
1	4	4	4
2	1	1	1
2	2	2	2
2	3	3	3
2	4	4	4
3	1	1	1
3	2	2	2
3	3	3	3
3	4	4	4
4	1	1	1
4	2	2	2
4	3	3	3
4	4	4	4
5	1	1	1
5	2	2	2
5	3	3	3
5	4	4	4
6	1	1	1
6	2	2	2
6	3	3	3
6	4	4	4

Table C

1	2	3	4	5	6	7
1	1	2	3	4	5	6
2	2	3	4	5	6	7
3	3	4	5	6	7	8
4	4	5	6	7	8	9
5	5	6	7	8	9	10
6	6	7	8	9	10	11
7	7	8	9	10	11	12
8	8	9	10	11	12	13
9	9	10	11	12	13	14
10	10	11	12	13	14	15

Final Score Calculation:

Final Upper Arm Score = 3
Final Lower Arm Score = 2
Final Wrist Score = 4
Wrist Twist Score = 1
Posture Score A = 5
Muscle Use Score = 1
Force/load Score = 0
Final Wrist & Arm Score = 6

Final Neck Score = 3
Final Trunk Score = 4
Final Leg Score = 1
Final Posture Score = 5
Muscle Use Score = 1
Force/load Score = 0
Final Neck, Trunk & Leg Score = 6

Final Score: 7

Date: 3/6/14
Scorer: NOVITA
Department: PENGAJARAN
Subject: SAVAJA KANAN
Company: SAVAJA ART STONE

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

Lampiran 2. Lembar RULA Pu Periode 1 pada Sisi Kiri

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...
 If shoulder is abducted: +1
 If arm is supported or person is leaning: -1
 If arm out to side of body: +1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...
 If wrist is bent from the midline: +1
 If wrist is twisted in mid-range: +1
 If wrist at or near end of range: +2

Step 3: Locate Wrist Position

Step 3a: Adjust...
 If wrist is bent from the midline: +1

Step 4: Wrist Twist
 If wrist is twisted in mid-range: +1
 If wrist at or near end of range: +2

Step 5: Look-up Posture Score in Table A
 Use values from steps 1, 2, 3 & 4 to locate Posture Score in Table A.

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or:
 If action repeatedly occurs 4 times per minute or more: +1
 If action 4/minute or more: +1

Step 7: Add Force/load Score
 If load less than 2 kg (intermittent): +0;
 If 2 kg to 10 kg (intermittent): +1;
 If 2 kg to 10 kg (static or repeated): +2;
 If more than 10 kg load or repeated or shocks: +3

Step 8: Find Row in Table C
 The completed scores from the Neck/Trunk & Leg analysis is used to find the row on Table C.

B. Neck, Trunk & Leg Analysis

Step 9: Adjust...
 If neck is twisted: +1
 If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...
 If trunk is twisted: +1
 If trunk is side-bending: +1

Step 11: Legs
 If legs & feet supported and balanced: +1;
 If not: +2

Step 12: Look-up Posture Score in Table B
 Use values from steps 9, 10 & 11 to locate Posture Score in Table B.

Step 13: Add Muscle Use Score
 If posture mainly static or:
 If action 4/minute or more: +1

Step 14: Add Force/load Score
 If load less than 2 kg (intermittent): +0;
 If 2 kg to 10 kg (intermittent): +1;
 If 2 kg to 10 kg (static or repeated): +2;
 If more than 10 kg load or repeated or shocks: +3

Step 15: Find Column in Table C
 The completed scores from the Neck/Trunk & Leg analysis is used to find the column on Chart C.

SCORES

Upper Arm	Lower Arm	Wrist	Wrist Twist
1	1	1	1
1	2	2	2
1	3	3	3
2	1	1	1
2	2	2	2
2	3	3	3
3	1	1	1
3	2	2	2
3	3	3	3
4	1	1	1
4	2	2	2
4	3	3	3
5	1	1	1
5	2	2	2
5	3	3	3
6	1	1	1
6	2	2	2
6	3	3	3

Neck	Trunk	Legs
1	1	1
1	2	2
1	3	3
2	1	1
2	2	2
2	3	3
3	1	1
3	2	2
3	3	3
4	1	1
4	2	2
4	3	3
5	1	1
5	2	2
5	3	3
6	1	1
6	2	2
6	3	3

Posture Score A	Muscle Use Score	Force/load Score
1	1	1
1	2	2
1	3	3
2	1	1
2	2	2
2	3	3
3	1	1
3	2	2
3	3	3
4	1	1
4	2	2
4	3	3
5	1	1
5	2	2
5	3	3
6	1	1
6	2	2
6	3	3

Final Score 6

Final Score: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

Date: 11/6/14
 Subject: SAVA ART STONE
 Company: PEWAHATAU
 Department: PEWAHATAU
 Scorer: NOUTA

Lampiran 3. Lembar RULA Pu Periode 2 pada Sisi Kanan

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position
 -15° to 15° +1
 15° to 45° +2
 45° to 90° +3
 90° +4

Step 1a: Adjust...
 If shoulder is abducted: +1
 If shoulder is extended: +1
 If arm is supported or person is leaning: -1

Final Upper Arm Score = 1

Step 2: Locate Lower Arm Position
 0° to 90° +1
 90° +2
 90° +3

Step 2a: Adjust...
 If elbow is flexed: +1
 If forearm is pronated: +1
 If forearm is supinated: +1

Final Lower Arm Score = 1

Step 3: Locate Wrist Position
 15° +1
 15° to 45° +2
 45° to 60° +3
 60° to 75° +4
 75° to 90° +5

Step 3a: Adjust...
 If wrist is bent from the median: +1
 If wrist is extended: +1

Final Wrist Score = 4

Step 4: Wrist Twist
 If wrist is twisted in mid-range: 1
 If twist is at or near end of range: 2

Wrist Twist Score = 1

Step 5: Look-up Posture Score in Table A
 Use values from steps 1, 2, 3 & 4 to locate Posture Score in Table A.

Upper Arm	Lower Arm	Wrist	Final Score
1	1	1	1
1	1	2	2
1	1	3	3
1	1	4	4
1	1	5	5
1	2	1	2
1	2	2	3
1	2	3	4
1	2	4	5
1	2	5	6
1	3	1	3
1	3	2	4
1	3	3	5
1	3	4	6
1	3	5	7
1	4	1	4
1	4	2	5
1	4	3	6
1	4	4	7
1	4	5	8
1	5	1	5
1	5	2	6
1	5	3	7
1	5	4	8
1	5	5	9
2	1	1	2
2	1	2	3
2	1	3	4
2	1	4	5
2	1	5	6
2	2	1	3
2	2	2	4
2	2	3	5
2	2	4	6
2	2	5	7
2	3	1	4
2	3	2	5
2	3	3	6
2	3	4	7
2	3	5	8
2	4	1	5
2	4	2	6
2	4	3	7
2	4	4	8
2	4	5	9
2	5	1	6
2	5	2	7
2	5	3	8
2	5	4	9
2	5	5	10
3	1	1	3
3	1	2	4
3	1	3	5
3	1	4	6
3	1	5	7
3	2	1	4
3	2	2	5
3	2	3	6
3	2	4	7
3	2	5	8
3	3	1	5
3	3	2	6
3	3	3	7
3	3	4	8
3	3	5	9
3	4	1	6
3	4	2	7
3	4	3	8
3	4	4	9
3	4	5	10
3	5	1	7
3	5	2	8
3	5	3	9
3	5	4	10
3	5	5	11

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or if action repeatedly occurs 4 times per minute or more: +1

Muscle Use Score = 1

Step 7: Add Force/load Score
 If load less than 2 kg (intermittent): -0;
 If 2 kg to 10 kg (intermittent): +1;
 If 2 kg to 10 kg (static or repeated): +2;
 If more than 10 kg load or repeated or shocks: +3

Force/load Score = 0

Step 8: Find Row in Table C
 The completed scores from the Neck, Trunk & Leg analysis is used to find the row on Table C.

Final Neck & Arm Score = 4

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position in extension
 0° to 15° +1
 15° to 20° +2
 20° to 30° +3
 30° to 45° +4

Step 9a: Adjust...
 If neck is twisted: +1; If neck is side-bending: +1

Final Neck Score = 2

Step 10: Locate Trunk Position
 0° to 20° +1
 20° to 30° +2
 30° to 45° +3
 45° to 60° +4
 60° +5

Step 10a: Adjust...
 If trunk is side-bending: +1

Final Trunk Score = 1

Step 11: Legs
 If legs & feet supported and balanced: +1;
 If not: +2

Final Leg Score = 1

Table B

Neck	Legs	Trunk	Final Score
1	1	1	1
1	1	2	2
1	1	3	3
1	1	4	4
1	1	5	5
1	2	1	2
1	2	2	3
1	2	3	4
1	2	4	5
1	2	5	6
1	3	1	3
1	3	2	4
1	3	3	5
1	3	4	6
1	3	5	7
1	4	1	4
1	4	2	5
1	4	3	6
1	4	4	7
1	4	5	8
1	5	1	5
1	5	2	6
1	5	3	7
1	5	4	8
1	5	5	9
2	1	1	2
2	1	2	3
2	1	3	4
2	1	4	5
2	1	5	6
2	2	1	3
2	2	2	4
2	2	3	5
2	2	4	6
2	2	5	7
2	3	1	4
2	3	2	5
2	3	3	6
2	3	4	7
2	3	5	8
2	4	1	5
2	4	2	6
2	4	3	7
2	4	4	8
2	4	5	9
2	5	1	6
2	5	2	7
2	5	3	8
2	5	4	9
2	5	5	10
3	1	1	3
3	1	2	4
3	1	3	5
3	1	4	6
3	1	5	7
3	2	1	4
3	2	2	5
3	2	3	6
3	2	4	7
3	2	5	8
3	3	1	5
3	3	2	6
3	3	3	7
3	3	4	8
3	3	5	9
3	4	1	6
3	4	2	7
3	4	3	8
3	4	4	9
3	4	5	10
3	5	1	7
3	5	2	8
3	5	3	9
3	5	4	10
3	5	5	11

Table C

Final Neck & Arm Score	Final Trunk & Leg Score	Final Score
1	1	1
1	2	2
1	3	3
1	4	4
1	5	5
1	6	6
1	7	7
1	8	8
1	9	9
1	10	10
1	11	11
2	1	2
2	2	3
2	3	4
2	4	5
2	5	6
2	6	7
2	7	8
2	8	9
2	9	10
2	10	11
2	11	12
3	1	3
3	2	4
3	3	5
3	4	6
3	5	7
3	6	8
3	7	9
3	8	10
3	9	11
3	10	12
3	11	13
4	1	4
4	2	5
4	3	6
4	4	7
4	5	8
4	6	9
4	7	10
4	8	11
4	9	12
4	10	13
4	11	14
4	12	15
5	1	5
5	2	6
5	3	7
5	4	8
5	5	9
5	6	10
5	7	11
5	8	12
5	9	13
5	10	14
5	11	15
5	12	16
6	1	6
6	2	7
6	3	8
6	4	9
6	5	10
6	6	11
6	7	12
6	8	13
6	9	14
6	10	15
6	11	16
6	12	17
7	1	7
7	2	8
7	3	9
7	4	10
7	5	11
7	6	12
7	7	13
7	8	14
7	9	15
7	10	16
7	11	17
7	12	18
8	1	8
8	2	9
8	3	10
8	4	11
8	5	12
8	6	13
8	7	14
8	8	15
8	9	16
8	10	17
8	11	18
8	12	19
9	1	9
9	2	10
9	3	11
9	4	12
9	5	13
9	6	14
9	7	15
9	8	16
9	9	17
9	10	18
9	11	19
9	12	20
10	1	10
10	2	11
10	3	12
10	4	13
10	5	14
10	6	15
10	7	16
10	8	17
10	9	18
10	10	19
10	11	20
10	12	21
11	1	11
11	2	12
11	3	13
11	4	14
11	5	15
11	6	16
11	7	17
11	8	18
11	9	19
11	10	20
11	11	21
11	12	22
12	1	12
12	2	13
12	3	14
12	4	15
12	5	16
12	6	17
12	7	18
12	8	19
12	9	20
12	10	21
12	11	22
12	12	23
13	1	13
13	2	14
13	3	15
13	4	16
13	5	17
13	6	18
13	7	19
13	8	20
13	9	21
13	10	22
13	11	23
13	12	24
14	1	14
14	2	15
14	3	16
14	4	17
14	5	18
14	6	19
14	7	20
14	8	21
14	9	22
14	10	23
14	11	24
14	12	25
15	1	15
15	2	16
15	3	17
15	4	18
15	5	19
15	6	20
15	7	21
15	8	22
15	9	23
15	10	24
15	11	25
15	12	26

Final Score = 3

Step 13: Add Muscle Use Score
 If action 4/minute or more: +1

Step 14: Add Force/load Score
 If load less than 2 kg (intermittent): -0;
 If 2 kg to 10 kg (intermittent): +1;
 If 2 kg to 10 kg (static or repeated): +2;
 If more than 10 kg load or repeated or shocks: +3

Step 15: Find Column in Table C
 The completed scores from the Neck, Trunk & Leg analysis is used to find the column on Chart C.

Final Neck, Trunk & Leg Score = 3

Final Score = 3

Subject: PU PUJI / KANAN
Company: JAWA AIR STONE
Date: 11/06/19
Scorer: NOLITA
Department: REHAHATAP

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

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Lampiran 4. Lembar RULA Pu Periode 2 pada Sisi Kiri

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...
 If shoulder is raised: +1;
 If elbow is flexed: +1;
 If upper arm supported or person is leaning: -1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...
 If arm is working across midline of the body: +1;
 If arm out to side of body: +1

Step 3: Locate Wrist Position

Step 3a: Adjust...
 If wrist is bent from the midline: +1

Step 4: Wrist Twist
 If wrist is twisted in mid-range = 1;
 If twist at or near end of range = 2

Step 5: Look-up Posture Score in Table A
 Use values from steps 1, 2, 3, & 4 to locate Posture Score in Table A.
 Posture Score A = 3

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or if action repeatedly occurs 4 times per minute or more: +1
 Muscle Use Score = 1

Step 7: Add Force/load Score
 If 2 kg to 10 kg (repetitive): +0;
 If 10 kg to 20 kg (repetitive): +1;
 If 2 kg to 10 kg (static or repeated): +2;
 If more than 10 kg load or repeated or shocks: +3
 Force/load Score = 0

Step 8: Find Row in Table C
 The final scores from the Arm & Wrist analysis is used to find the row on Table C.
 Final Arm & Wrist Score = 4

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position

Step 9a: Adjust...
 If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...
 If trunk is twisted: +1; If trunk is side-bending: +1

Step 11: Legs
 If legs & feet supported and balanced: -1;
 If not: +2
 Final Leg Score = 1

Table A

Upper Arm	Lower Arm	Wrist	Final Score
1	1	1	1
1	1	2	2
1	1	3	3
1	2	1	2
1	2	2	3
1	2	3	4
1	3	1	3
1	3	2	4
1	3	3	5
2	1	1	2
2	1	2	3
2	1	3	4
2	2	1	3
2	2	2	4
2	2	3	5
2	3	1	4
2	3	2	5
2	3	3	6
3	1	1	3
3	1	2	4
3	1	3	5
3	2	1	4
3	2	2	5
3	2	3	6
3	3	1	5
3	3	2	6
3	3	3	7

Table B

Neck	Legs	Trunk	Legs	Legs	Legs
1	1	1	1	1	1
1	1	2	1	2	1
1	1	3	1	3	1
1	2	1	2	1	2
1	2	2	2	2	2
1	2	3	2	3	2
1	3	1	3	1	3
1	3	2	3	2	3
1	3	3	3	3	3
2	1	1	2	1	2
2	1	2	2	2	2
2	1	3	3	3	3
2	2	1	2	1	2
2	2	2	2	2	2
2	2	3	3	3	3
2	3	1	3	1	3
2	3	2	3	2	3
2	3	3	3	3	3
3	1	1	2	1	2
3	1	2	2	2	2
3	1	3	3	3	3
3	2	1	2	1	2
3	2	2	2	2	2
3	2	3	3	3	3
3	3	1	3	1	3
3	3	2	3	2	3
3	3	3	3	3	3

Table C

1	2	3	4	5	6	7
1	1	2	3	4	5	6
2	2	3	4	5	6	7
3	3	4	5	6	7	8
4	4	5	6	7	8	9
5	5	6	7	8	9	10
6	6	7	8	9	10	11
7	7	8	9	10	11	12
8	8	9	10	11	12	13
9	9	10	11	12	13	14
10	10	11	12	13	14	15
11	11	12	13	14	15	16
12	12	13	14	15	16	17
13	13	14	15	16	17	18
14	14	15	16	17	18	19
15	15	16	17	18	19	20

Final Score = 4

Subject: PAWATI KIRI Date: 11/05/14

Company: JAS Department: PEMERIKAWAN Scorer: NOVITA

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

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Lampiran 6. Lembar RULA Sa Periode 1 pada Sisi Kiri

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...
If shoulder is twisted: +1
If upper arm is abducted: +1
If arm is supported or person is leaning: -1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...
If arm is working against machine of the body: +1
If arm out to side of body: +1

Step 3: Locate Wrist Position

Step 3a: Adjust...
If wrist is bent from the midline: +1

Step 4: Wrist Twist
If wrist is twisted in mid-range = 1;
If twist at or near end of range = 2

Step 5: Look-up Posture Score in Table A

Upper Arm	Lower Arm	Wrist	Final Score
1	1	1	1
1	1	2	2
1	1	3	3
1	2	1	2
1	2	2	3
1	2	3	4
1	3	1	3
1	3	2	4
1	3	3	5
1	4	1	4
1	4	2	5
1	4	3	6
2	1	1	2
2	1	2	3
2	1	3	4
2	2	1	3
2	2	2	4
2	2	3	5
2	3	1	4
2	3	2	5
2	3	3	6
2	4	1	5
2	4	2	6
2	4	3	7
3	1	1	3
3	1	2	4
3	1	3	5
3	2	1	4
3	2	2	5
3	2	3	6
3	3	1	5
3	3	2	6
3	3	3	7
3	4	1	6
3	4	2	7
3	4	3	8
4	1	1	4
4	1	2	5
4	1	3	6
4	2	1	5
4	2	2	6
4	2	3	7
4	3	1	6
4	3	2	7
4	3	3	8
4	4	1	7
4	4	2	8
4	4	3	9

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position

Step 9a: Adjust...
If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...
If trunk is twisted: +1; If trunk is side-bending: +1

Step 11: Legs

Step 11a: Adjust...
If legs & feet supported and no leaning: +1; If not: -2

Step 12: Look-up Posture Score in Table B

Neck	Trunk	Legs	Final Score
1	1	1	1
1	1	2	2
1	1	3	3
1	2	1	2
1	2	2	3
1	2	3	4
1	3	1	3
1	3	2	4
1	3	3	5
1	4	1	4
1	4	2	5
1	4	3	6
2	1	1	2
2	1	2	3
2	1	3	4
2	2	1	3
2	2	2	4
2	2	3	5
2	3	1	4
2	3	2	5
2	3	3	6
2	4	1	5
2	4	2	6
2	4	3	7
3	1	1	3
3	1	2	4
3	1	3	5
3	2	1	4
3	2	2	5
3	2	3	6
3	3	1	5
3	3	2	6
3	3	3	7
3	4	1	6
3	4	2	7
3	4	3	8
4	1	1	4
4	1	2	5
4	1	3	6
4	2	1	5
4	2	2	6
4	2	3	7
4	3	1	6
4	3	2	7
4	3	3	8
4	4	1	7
4	4	2	8
4	4	3	9

Step 13: Add Muscle Use Score

Posture mainly static (i.e. held for longer than 1 minute) or:
If action repeatedly occurs 4 times per minute or more: +1

Step 14: Add Force/load Score

If load less than 2 kg (in intermittent): -1;
If 2 kg to 10 kg (intermittent): +1;
If 2 kg to 10 kg (static or repeated): +2;
If more than 10 kg (static or repeated) or shocks: +3

Step 15: Find Column in Table C

The completed scores from the Neck/Trunk & Leg analysis is used to find the row on Chart C.

SCORES

Table A: 4 + 3 + 2 = 9

Table B: 6 + 1 + 0 = 7

Final Score: 7

Subject: ILGAMING / KURI Date: 11/06/14

Company: JAVA ART STONE Scorer: NOVITA

Department: RENAHATAN

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

Lampiran 7. Lembar RULA Sa Periode 2 pada Sisi Kanan

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position



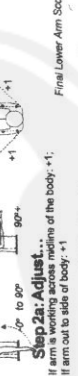
Final Upper Arm Score = 2

Step 1a: Adjust...



Final Lower Arm Score = 1

Step 2: Locate Lower Arm Position



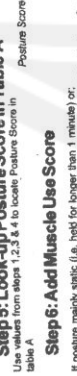
Final Wrist Score = 4

Step 3a: Adjust...



Wrist Twist Score = 1

Step 4: Wrist Twist



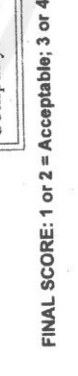
Posture Score A = 4

Step 5: Look-up Posture Score in Table A

Upper Arm	Lower Arm	Wrist	Twist
1	1	1	1
1	1	2	2
1	1	3	3
1	1	4	4
1	2	1	1
1	2	2	2
1	2	3	3
1	2	4	4
1	3	1	1
1	3	2	2
1	3	3	3
1	3	4	4
1	4	1	1
1	4	2	2
1	4	3	3
1	4	4	4
2	1	1	1
2	1	2	2
2	1	3	3
2	1	4	4
2	2	1	1
2	2	2	2
2	2	3	3
2	2	4	4
2	3	1	1
2	3	2	2
2	3	3	3
2	3	4	4
2	4	1	1
2	4	2	2
2	4	3	3
2	4	4	4
3	1	1	1
3	1	2	2
3	1	3	3
3	1	4	4
3	2	1	1
3	2	2	2
3	2	3	3
3	2	4	4
3	3	1	1
3	3	2	2
3	3	3	3
3	3	4	4
3	4	1	1
3	4	2	2
3	4	3	3
3	4	4	4

Final Wrist & Arm Score = 5

Step 6: Add Muscle Use Score



Muscle Use Score = 1

Step 7: Add Force/load Score



Force/load Score = 0

Step 8: Find Row in Table C

Final Wrist & Arm Score	Muscle Use Score	Force/load Score
1	1	1
1	1	2
1	1	3
1	1	4
1	1	5
1	2	1
1	2	2
1	2	3
1	2	4
1	2	5
1	3	1
1	3	2
1	3	3
1	3	4
1	3	5
1	4	1
1	4	2
1	4	3
1	4	4
1	4	5
2	1	1
2	1	2
2	1	3
2	1	4
2	1	5
2	2	1
2	2	2
2	2	3
2	2	4
2	2	5
2	3	1
2	3	2
2	3	3
2	3	4
2	3	5
2	4	1
2	4	2
2	4	3
2	4	4
2	4	5
3	1	1
3	1	2
3	1	3
3	1	4
3	1	5
3	2	1
3	2	2
3	2	3
3	2	4
3	2	5
3	3	1
3	3	2
3	3	3
3	3	4
3	3	5
3	4	1
3	4	2
3	4	3
3	4	4
3	4	5

SCORES

Table A

Upper Arm	Lower Arm	Wrist	Twist
1	1	1	1
1	1	2	2
1	1	3	3
1	1	4	4
1	2	1	1
1	2	2	2
1	2	3	3
1	2	4	4
1	3	1	1
1	3	2	2
1	3	3	3
1	3	4	4
1	4	1	1
1	4	2	2
1	4	3	3
1	4	4	4
2	1	1	1
2	1	2	2
2	1	3	3
2	1	4	4
2	2	1	1
2	2	2	2
2	2	3	3
2	2	4	4
2	3	1	1
2	3	2	2
2	3	3	3
2	3	4	4
2	4	1	1
2	4	2	2
2	4	3	3
2	4	4	4
3	1	1	1
3	1	2	2
3	1	3	3
3	1	4	4
3	2	1	1
3	2	2	2
3	2	3	3
3	2	4	4
3	3	1	1
3	3	2	2
3	3	3	3
3	3	4	4
3	4	1	1
3	4	2	2
3	4	3	3
3	4	4	4

Table C

Final Wrist & Arm Score	Muscle Use Score	Force/load Score
1	1	1
1	1	2
1	1	3
1	1	4
1	1	5
1	2	1
1	2	2
1	2	3
1	2	4
1	2	5
1	3	1
1	3	2
1	3	3
1	3	4
1	3	5
1	4	1
1	4	2
1	4	3
1	4	4
1	4	5
2	1	1
2	1	2
2	1	3
2	1	4
2	1	5
2	2	1
2	2	2
2	2	3
2	2	4
2	2	5
2	3	1
2	3	2
2	3	3
2	3	4
2	3	5
2	4	1
2	4	2
2	4	3
2	4	4
2	4	5
3	1	1
3	1	2
3	1	3
3	1	4
3	1	5
3	2	1
3	2	2
3	2	3
3	2	4
3	2	5
3	3	1
3	3	2
3	3	3
3	3	4
3	3	5
3	4	1
3	4	2
3	4	3
3	4	4
3	4	5

Final Score 5

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position



Final Neck Score = 2

Step 9a: Adjust...



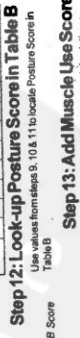
Final Trunk Score = 2

Step 10: Locate Trunk Position



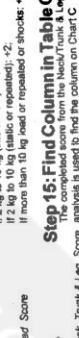
Final Trunk Score = 1

Step 10a: Adjust...



Final Leg Score = 1

Step 11: Legs



Final Leg Score = 2

Neck	Trunk	Legs	Legs	Legs	Legs
1	1	1	1	1	1
1	1	2	2	2	2
1	1	3	3	3	3
1	1	4	4	4	4
1	2	1	1	1	1
1	2	2	2	2	2
1	2	3	3	3	3
1	2	4	4	4	4
1	3	1	1	1	1
1	3	2	2	2	2
1	3	3	3	3	3
1	3	4	4	4	4
1	4	1	1	1	1
1	4	2	2	2	2
1	4	3	3	3	3
1	4	4	4	4	4
2	1	1	1	1	1
2	1	2	2	2	2
2	1	3	3	3	3
2	1	4	4	4	4
2	2	1	1	1	1
2	2	2	2	2	2
2	2	3	3	3	3
2	2	4	4	4	4
2	3	1	1	1	1
2	3	2	2	2	2
2	3	3	3	3	3
2	3	4	4	4	4
2	4	1	1	1	1
2	4	2	2	2	2
2	4	3	3	3	3
2	4	4	4	4	4
3	1	1	1	1	1
3	1	2	2	2	2
3	1	3	3	3	3
3	1	4	4	4	4
3	2	1	1	1	1
3	2	2	2	2	2
3	2	3	3	3	3
3	2	4	4	4	4
3	3	1	1	1	1
3	3	2	2	2	2
3	3	3	3	3	3
3	3	4	4	4	4
3	4	1	1	1	1
3	4	2	2	2	2
3	4	3	3	3	3
3	4	4	4	4	4

Table B

Use values from steps 9, 10 & 11 to locate Posture Score in Table B

Posture B Score = 3

Step 12: Look-up Posture Score in Table B

Posture B Score	Muscle Use Score	Force/load Score
1	1	1
1	1	2
1	1	3
1	1	4
1	1	5
1	2	1
1	2	2
1	2	3
1	2	4
1	2	5
1	3	1
1	3	2
1	3	3
1	3	4
1	3	5
1	4	1
1	4	2
1	4	3
1	4	4
1	4	5
2	1	1
2	1	2
2	1	3
2	1	4
2	1	5
2	2	1
2	2	2
2	2	3
2	2	4
2	2	5
2	3	1
2	3	2
2	3	3
2	3	4
2	3	5
2	4	1
2	4	2
2	4	3
2	4	4
2	4	5
3	1	1
3	1	2
3	1	3
3	1	4
3	1	5
3	2	1
3	2	2
3	2	3
3	2	4
3	2	5
3	3	1
3	3	2
3	3	3
3	3	4
3	3	5
3	4	1
3	4	2
3	4	3
3	4	4
3	4	5

Muscle Use Score = 1

Force/load Score = 0

Lampiran 9. Lembar RULA Su Periode 1 pada Sisi Kanan

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position
 -15° to 15° +1
 +15° to 45° +2
 +45° to 90° +3
 90°+ +4
 Final Upper Arm Score = **2**

Step 1a: Adjust...
 If upper arm is abducted: +1
 If arm is supported or person is leaning: -1

Step 2: Locate Lower Arm Position
 +1
 +2
 +3
 +4
 90°+ +5
 Final Lower Arm Score = **1**

Step 2a: Adjust...
 If awkward across palm of the body: +1
 If arm out to side of body: +1

Step 3: Locate Wrist Position
 -1
 +1
 +2
 +3
 +4
 +5
 +6
 +7
 +8
 +9
 +10
 Final Wrist Score = **4**

Step 3a: Adjust...
 If wrist is bent from the midline: +1

Step 4: Wrist Twist
 If wrist is twisted in mid-range (E):
 If wrist at or near end of range = 2
 Final Wrist Twist Score = **1**

Step 5: Look-up Posture Score in Table A
 Use values from steps 1, 2, 3 & 4 to locate Posture Score in Table A.
 Posture Score A = **4**

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or if action repeatedly occurs 4 times per minute or more: +1
 Muscle Use Score = **1**

Step 7: Add Force/load Score
 If load less than 2 kg (inherently): +1
 If 2 kg to 10 kg (inherently): +2
 If 2 kg to 10 kg (static or repeated): +2
 If more than 10 kg load or repeated or shocks: +3
 Force/load Score = **0**

Step 8: Find Row in Table C
 The combination of Posture Score A, Muscle Use Score and Force/load Score is used to find the row on Table C.
 Final Wrist & Arm Score = **5**

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position in extension
 0° to 10° +1
 10° to 20° +2
 20° to 30° +3
 30° to 45° +4
 Final Neck Score = **3**

Step 9a: Adjust...
 If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position
 0° to 20° +1
 20° to 30° +2
 30° to 45° +3
 45° to 60° +4
 60°+ +5
 Final Trunk Score = **3**

Step 10a: Adjust...
 If trunk is twisted: +1; If trunk is side-bending: +1

Step 11: Legs
 If legs & feet supported and balanced: +1; If not: -2
 Final Leg Score = **1**

Table A

Upper Arm	Lower Arm	Wrist	Posture Score	Muscle Use	Force/load
1	1	1	1	1	1
1	1	2	2	1	1
1	1	3	3	1	1
1	1	4	4	1	1
1	1	5	5	1	1
1	2	1	2	2	1
1	2	2	3	2	1
1	2	3	4	2	1
1	2	4	5	2	1
1	2	5	6	2	1
1	3	1	3	3	1
1	3	2	4	3	1
1	3	3	5	3	1
1	3	4	6	3	1
1	3	5	7	3	1
1	4	1	4	4	1
1	4	2	5	4	1
1	4	3	6	4	1
1	4	4	7	4	1
1	4	5	8	4	1
1	5	1	5	5	1
1	5	2	6	5	1
1	5	3	7	5	1
1	5	4	8	5	1
1	5	5	9	5	1
2	1	1	2	1	2
2	1	2	3	1	2
2	1	3	4	1	2
2	1	4	5	1	2
2	1	5	6	1	2
2	2	1	3	2	2
2	2	2	4	2	2
2	2	3	5	2	2
2	2	4	6	2	2
2	2	5	7	2	2
2	3	1	4	3	2
2	3	2	5	3	2
2	3	3	6	3	2
2	3	4	7	3	2
2	3	5	8	3	2
2	4	1	5	4	2
2	4	2	6	4	2
2	4	3	7	4	2
2	4	4	8	4	2
2	4	5	9	4	2
2	5	1	6	5	2
2	5	2	7	5	2
2	5	3	8	5	2
2	5	4	9	5	2
2	5	5	10	5	2
3	1	1	3	1	3
3	1	2	4	1	3
3	1	3	5	1	3
3	1	4	6	1	3
3	1	5	7	1	3
3	2	1	4	2	3
3	2	2	5	2	3
3	2	3	6	2	3
3	2	4	7	2	3
3	2	5	8	2	3
3	3	1	5	3	3
3	3	2	6	3	3
3	3	3	7	3	3
3	3	4	8	3	3
3	3	5	9	3	3
3	4	1	6	4	3
3	4	2	7	4	3
3	4	3	8	4	3
3	4	4	9	4	3
3	4	5	10	4	3
3	5	1	7	5	3
3	5	2	8	5	3
3	5	3	9	5	3
3	5	4	10	5	3
3	5	5	11	5	3

Table B

Neck	Trunk	Legs	Legs	Legs	Legs
1	1	1	1	1	1
1	2	1	2	1	2
1	3	1	3	1	3
1	4	1	4	1	4
1	5	1	5	1	5
2	1	2	2	2	2
2	2	2	3	2	3
2	3	2	4	2	4
2	4	2	5	2	5
2	5	2	6	2	6
3	1	3	3	3	3
3	2	3	4	3	4
3	3	3	5	3	5
3	4	3	6	3	6
3	5	3	7	3	7
4	1	4	4	4	4
4	2	4	5	4	5
4	3	4	6	4	6
4	4	4	7	4	7
4	5	4	8	4	8
5	1	5	5	5	5
5	2	5	6	5	6
5	3	5	7	5	7
5	4	5	8	5	8
5	5	5	9	5	9
6	1	6	6	6	6
6	2	6	7	6	7
6	3	6	8	6	8
6	4	6	9	6	9
6	5	6	10	6	10

Table C

1	2	3	4	5	6	7	8	9	10	11
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18
10	10	11	12	13	14	15	16	17	18	19
11	11	12	13	14	15	16	17	18	19	20

Step 12: Look-up Posture Score in Table B
 Use values from steps 9, 10 & 11 to locate Posture Score in Table B.
 Posture B Score = **4**

Step 13: Add Muscle Use Score
 If posture mainly static or if action 4 minutes or more: +1
 Muscle Use Score = **1**

Step 14: Add Force/load Score
 If load less than 2 kg (inherently): +1
 If 2 kg to 10 kg (inherently): +2
 If 2 kg to 10 kg (static or repeated): +2
 If more than 10 kg load or repeated or shocks: +3
 Force/load Score = **0**

Step 15: Find Column in Table C
 The combination of Posture B Score, Muscle Use Score and Force/load Score is used to find the column on Chart C.
 Final Neck, Trunk & Leg Score = **6**

Final Score = **6**

Subject: DIY SUDADI KEJARAN Date: 11/06/14
 Company: JAVA AET STONE Scorer: ADNITA
 Department: REPARASI

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

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Lampiran 10. Lembar RULA Su Periode 1 pada Sisi Kiri

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...
 If wrist is bent from the midline: +1
 If upper arm is abducted: +1
 If arm is supported or person is leaning: -1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...
 If arm is working against incline of the body: +1
 If arm out to side of body: +1

Step 3: Locate Wrist Position

Step 3a: Adjust...
 If wrist is bent from the midline: +1

Step 4: Wrist Twist
 If twist is twisted in mid-range = 1;
 If twist at or near end of range = 2

Step 5: Look-up Posture Score in Table A
 Use values from steps 1, 2 & 4 to locate Posture Score in Table A.

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or if action repeatedly occurs 4 times per minute or more: +1

Step 7: Add Force/load Score
 If load less than 2 kg (in intermittent): +0;
 If 2 kg to 10 kg (intermittent): +1;
 If 2 kg to 10 kg (static or repeated): +2;
 If more than 10 kg load or repeated or shocks: +3

Step 8: Find Row in Table C
 The completed scores from the Neck/Trunk & Leg analysis is used to find the row on Table C.

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position in extension

Step 9a: Adjust...
 If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...
 If trunk is twisted: +1; If trunk is side-bending: +1

Step 11: Legs
 If legs & feet supported and balanced: +1;
 If not: +2

Table A

Upper Arm	Lower Arm	Wrist	Final Score
1	1	1	1
1	2	2	2
1	3	3	3
1	4	4	4
2	1	1	2
2	2	2	3
2	3	3	4
2	4	4	5
3	1	1	3
3	2	2	4
3	3	3	5
3	4	4	6
4	1	1	4
4	2	2	5
4	3	3	6
4	4	4	7
5	1	1	5
5	2	2	6
5	3	3	7
5	4	4	8
6	1	1	6
6	2	2	7
6	3	3	8
6	4	4	9

Table B

Neck	Trunk	Legs	Final Score
1	1	1	1
1	2	2	2
1	3	3	3
1	4	4	4
2	1	1	2
2	2	2	3
2	3	3	4
2	4	4	5
3	1	1	3
3	2	2	4
3	3	3	5
3	4	4	6
4	1	1	4
4	2	2	5
4	3	3	6
4	4	4	7
5	1	1	5
5	2	2	6
5	3	3	7
5	4	4	8
6	1	1	6
6	2	2	7
6	3	3	8
6	4	4	9

Table C

Posture Score	Muscle Use Score	Force/load Score	Final Neck, Trunk & Leg Score	Final Score
1	1	0	2	2
1	2	0	3	3
1	3	0	4	4
1	4	0	5	5
2	1	0	3	3
2	2	0	4	4
2	3	0	5	5
2	4	0	6	6
3	1	0	4	4
3	2	0	5	5
3	3	0	6	6
3	4	0	7	7
4	1	0	5	5
4	2	0	6	6
4	3	0	7	7
4	4	0	8	8
5	1	0	6	6
5	2	0	7	7
5	3	0	8	8
5	4	0	9	9

Final Score = 6

Subject: P/SONADI/KIRI
Company: LAVA ART STONE
Date: 11/06/14
Scorer: NOVITA

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further and change soon; 5 or 6 investigate further and change immediately

Lampiran 11. Lembar RULA Su Periode 2 pada Sisi Kanan

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

 Final Upper Arm Score = 2

Step 2: Locate Lower Arm Position

 Final Lower Arm Score = 1

Step 3: Adjust...

 Final Wrist Score = 4

Step 4: Wrist Twist
 If wrist is twisted in mid-range = 1
 If twist at or near end of range = 2

Step 5: Look-up Posture Score in Table A

Upper Arm	Lower Arm	Wrist	Posture Score
1	1	1	1
1	1	2	2
1	1	3	3
1	2	1	2
1	2	2	3
1	2	3	4
1	3	1	3
1	3	2	4
1	3	3	5
2	1	1	2
2	1	2	3
2	1	3	4
2	2	1	3
2	2	2	4
2	2	3	5
2	3	1	4
2	3	2	5
2	3	3	6
3	1	1	3
3	1	2	4
3	1	3	5
3	2	1	4
3	2	2	5
3	2	3	6
3	3	1	5
3	3	2	6
3	3	3	7

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or if action repeatedly occurs 4 times per minute or more: +1
 If posture mainly static (i.e. held for longer than 1 minute) or if action repeatedly occurs 4 times per minute or more: +1

Step 7: Add Force/load Score
 If load less than 2 kg (inherently): -1
 If 2 kg to 10 kg (inherently): +1
 If 2 kg to 10 kg (static or repeated): +2
 If more than 10 kg load or repeated or shocks: +3

Step 8: Find Row in Table C
 The completed score from the Neck/Trunk & Leg analysis is used to find the row on Table C.

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position

 Final Neck Score = 3

Step 10: Adjust...
 If neck is twisted: +1; If neck is side-bending: +1

Step 11: Locate Trunk Position

 Final Trunk Score = 1

Step 12: Adjust...
 If trunk is twisted: +1; If trunk is side-bending: +1

Step 13: Legs
 If legs & feet supported and balanced: +1; If not: -2

Step 14: Add Muscle Use Score
 If load less than 2 kg (inherently): -1
 If 2 kg to 10 kg (inherently): +1
 If 2 kg to 10 kg (static or repeated): +2
 If more than 10 kg load or repeated or shocks: +3

Step 15: Find Column in Table C
 The completed score from the Neck/Trunk & Leg analysis is used to find the column on Chart C.

SCORES

Table A: 2 + 1 = 3

Table B: 3 + 1 = 4

Table C: 4 + 0 = 4

Final Score: 5

Subject: DA GADAI / KANAN Date: 11/06/14

Company: JAVA AET STONE Department: PEMAHAYAN Scorer: MOUTA

FINAL SCORE: 1 or 2 = Acceptable; 3 or 4 investigate further; 5 or 6 investigate further and change soon; 7 investigate and change immediately

Lampiran 12. Lembar RULA Su Periode 2 pada Sisi Kiri

Penilaian Postur Kerja RULA

RULA Employee Assessment Worksheet

Complete this worksheet following the step-by-step procedure below. Keep a copy in the employee's personnel folder for future reference.

A. Arm & Wrist Analysis

Step 1: Locate Upper Arm Position

Step 1a: Adjust...
 If shoulder is raised: +1;
 If arm is supported or person is leaning: -1
 If arm out to side of body: +1

Step 2: Locate Lower Arm Position

Step 2a: Adjust...
 If arm is working at bottom of the body: +1;
 If arm out to side of body: +1

Step 3: Locate Wrist Position

Step 3a: Adjust...
 If wrist is bent from the midline: +1
Step 4: Wrist Twist
 If wrist is twisted in mid-range = 1;
 If twist at or near end of range = 2

Step 5: Look-up Posture Score in Table A
 Use values from steps 1, 2, 3 & 4 to locate Posture Score in Table A

Step 6: Add Muscle Use Score
 If posture mainly static (i.e. held for longer than 1 minute) or:
 If action repeatedly occurs 4 times per minute or more: +1
Step 7: Add Force/load Score
 If load is more than 2 kg (intermittent): +1;
 If 2 kg to 10 kg (intermittent): +2;
 If more than 10 kg load or repeated or shocks: +3
Step 8: Find Row in Table C
 The completed scores from steps 5, 6, 7 & 8 are used to find the row on Table C

B. Neck, Trunk & Leg Analysis

Step 9: Locate Neck Position in Extension

Step 9a: Adjust...
 If neck is twisted: +1; If neck is side-bending: +1

Step 10: Locate Trunk Position

Step 10a: Adjust...
 If trunk is twisted: +1; If trunk is side-bending: +1
 If legs & feet supported and balanced: +1;
 If not: +2

Step 11: Legs

Step 11a: Adjust...
 If legs & feet supported and balanced: +1;
 If not: +2

Step 12: Look-up Posture Score in Table B
 Use values from steps 9, 10 & 11 to locate Posture Score in Table B

Step 13: Add Muscle Use Score
 If posture mainly static or:
 If action 4/minute or more: +1
Step 14: Add Force/load Score
 If load less than 2 kg (intermittent): +0;
 If 2 kg to 10 kg (intermittent): +1;
 If more than 10 kg load or repeated or shocks: +3
Step 15: Find Column in Table C
 The completed scores from the Neck/Trunk & Leg analysis is used to find the column on Chart C

SCORES

Upper Arm	Lower Arm	Wrist	Wrist Twist	Muscle Use	Force/load
1	1	1	1	1	1
1	1	1	2	1	1
1	1	1	3	1	1
1	1	2	1	1	1
1	1	2	2	1	1
1	1	2	3	1	1
1	1	3	1	1	1
1	1	3	2	1	1
1	1	3	3	1	1
1	2	1	1	1	1
1	2	1	2	1	1
1	2	1	3	1	1
1	2	2	1	1	1
1	2	2	2	1	1
1	2	2	3	1	1
1	2	3	1	1	1
1	2	3	2	1	1
1	2	3	3	1	1
1	3	1	1	1	1
1	3	1	2	1	1
1	3	1	3	1	1
1	3	2	1	1	1
1	3	2	2	1	1
1	3	2	3	1	1
1	3	3	1	1	1
1	3	3	2	1	1
1	3	3	3	1	1
2	1	1	1	1	1
2	1	1	2	1	1
2	1	1	3	1	1
2	1	2	1	1	1
2	1	2	2	1	1
2	1	2	3	1	1
2	1	3	1	1	1
2	1	3	2	1	1
2	1	3	3	1	1
2	2	1	1	1	1
2	2	1	2	1	1
2	2	1	3	1	1
2	2	2	1	1	1
2	2	2	2	1	1
2	2	2	3	1	1
2	2	3	1	1	1
2	2	3	2	1	1
2	2	3	3	1	1
2	3	1	1	1	1
2	3	1	2	1	1
2	3	1	3	1	1
2	3	2	1	1	1
2	3	2	2	1	1
2	3	2	3	1	1
2	3	3	1	1	1
2	3	3	2	1	1
2	3	3	3	1	1
3	1	1	1	1	1
3	1	1	2	1	1
3	1	1	3	1	1
3	1	2	1	1	1
3	1	2	2	1	1
3	1	2	3	1	1
3	1	3	1	1	1
3	1	3	2	1	1
3	1	3	3	1	1
3	2	1	1	1	1
3	2	1	2	1	1
3	2	1	3	1	1
3	2	2	1	1	1
3	2	2	2	1	1
3	2	2	3	1	1
3	2	3	1	1	1
3	2	3	2	1	1
3	2	3	3	1	1
3	3	1	1	1	1
3	3	1	2	1	1
3	3	1	3	1	1
3	3	2	1	1	1
3	3	2	2	1	1
3	3	2	3	1	1
3	3	3	1	1	1
3	3	3	2	1	1
3	3	3	3	1	1

Neck	Trunk	Legs	Legs	Legs	Legs
1	1	1	1	1	1
1	1	1	2	1	1
1	1	1	3	1	1
1	1	2	1	1	1
1	1	2	2	1	1
1	1	2	3	1	1
1	1	3	1	1	1
1	1	3	2	1	1
1	1	3	3	1	1
1	2	1	1	1	1
1	2	1	2	1	1
1	2	1	3	1	1
1	2	2	1	1	1
1	2	2	2	1	1
1	2	2	3	1	1
1	2	3	1	1	1
1	2	3	2	1	1
1	2	3	3	1	1
1	3	1	1	1	1
1	3	1	2	1	1
1	3	1	3	1	1
1	3	2	1	1	1
1	3	2	2	1	1
1	3	2	3	1	1
1	3	3	1	1	1
1	3	3	2	1	1
1	3	3	3	1	1
2	1	1	1	1	1
2	1	1	2	1	1
2	1	1	3	1	1
2	1	2	1	1	1
2	1	2	2	1	1
2	1	2	3	1	1
2	1	3	1	1	1
2	1	3	2	1	1
2	1	3	3	1	1
2	2	1	1	1	1
2	2	1	2	1	1
2	2	1	3	1	1
2	2	2	1	1	1
2	2	2	2	1	1
2	2	2	3	1	1
2	2	3	1	1	1
2	2	3	2	1	1
2	2	3	3	1	1
2	3	1	1	1	1
2	3	1	2	1	1
2	3	1	3	1	1
2	3	2	1	1	1
2	3	2	2	1	1
2	3	2	3	1	1
2	3	3	1	1	1
2	3	3	2	1	1
2	3	3	3	1	1
3	1	1	1	1	1
3	1	1	2	1	1
3	1	1	3	1	1
3	1	2	1	1	1
3	1	2	2	1	1
3	1	2	3	1	1
3	1	3	1	1	1
3	1	3	2	1	1
3	1	3	3	1	1
3	2	1	1	1	1
3	2	1	2	1	1
3	2	1	3	1	1
3	2	2	1	1	1
3	2	2	2	1	1
3	2	2	3	1	1
3	2	3	1	1	1
3	2	3	2	1	1
3	2	3	3	1	1
3	3	1	1	1	1
3	3	1	2	1	1
3	3	1	3	1	1
3	3	2	1	1	1
3	3	2	2	1	1
3	3	2	3	1	1
3	3	3	1	1	1
3	3	3	2	1	1
3	3	3	3	1	1

1	2	3	4	5	6	7
1	1	1	1	1	1	1
1	1	1	2	1	1	1
1	1	1	3	1	1	1
1	1	2	1	1	1	1
1	1	2	2	1	1	1
1	1	2	3	1	1	1
1	1	3	1	1	1	1
1	1	3	2	1	1	1
1	1	3	3	1	1	1
1	2	1	1	1	1	1
1	2	1	2	1	1	1
1	2	1	3	1	1	1
1	2	2	1	1	1	1
1	2	2	2	1	1	1
1	2	2	3	1	1	1
1	2	3	1	1	1	1
1	2	3	2	1	1	1
1	2	3	3	1	1	1
1	3	1	1	1	1	1
1	3	1	2	1	1	1
1	3	1	3	1	1	1
1	3	2	1	1	1	1
1	3	2	2	1	1	1
1	3	2	3	1	1	1
1	3	3	1	1	1	1
1	3	3	2	1	1	1
1	3	3	3	1	1	1
2	1	1	1	1	1	1
2	1	1	2	1	1	1
2	1	1	3	1	1	1
2	1	2	1	1	1	1
2	1	2	2	1	1	1
2	1	2	3	1	1	1
2	1	3	1	1	1	1
2	1	3	2	1	1	1
2	1	3	3	1	1	1
2	2	1	1	1	1	1
2	2	1	2	1	1	1
2	2	1	3	1	1	1
2	2	2	1	1	1	1
2	2	2	2	1	1	1
2	2	2	3	1	1	1
2	2	3	1	1	1	1
2	2	3	2	1	1	1
2	2	3	3	1	1	1
2	3	1	1	1	1	1
2	3	1	2	1	1	1
2	3	1	3	1	1	1
2	3	2	1	1	1	1
2	3	2	2	1	1	1
2	3	2	3	1	1	1
2	3	3	1	1	1	1
2	3	3	2	1	1	1
2	3	3	3	1	1	1
3	1	1	1	1	1	1
3	1	1	2	1	1	1
3	1	1	3	1	1	1
3	1	2	1	1	1	1
3	1	2	2	1	1	1
3	1	2	3	1	1	1
3	1	3	1	1	1	1
3	1	3	2	1	1	1
3	1	3	3	1	1	1
3	2	1	1	1	1	1
3	2	1	2	1	1	1
3	2	1	3	1	1	1
3	2	2	1	1	1	1
3	2	2	2	1	1	1
3	2	2	3	1	1	1
3	2	3	1	1	1	1
3	2	3	2	1	1	1
3	2	3	3	1	1	1
3	3	1	1	1	1	1
3	3	1	2	1	1	1
3	3	1	3	1	1	1
3	3	2	1	1	1	1
3	3	2	2	1	1	1
3	3	2	3	1	1	1
3	3	3	1	1	1	1
3	3	3	2	1	1	

Lampiran 13. Lembar NBM Pu pada Periode 1 Sebelum Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : POJI

Kelompok : Periode I / ~~Periode II~~

Hari, tanggal : Kamis, 29 Mei 2014

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN				
		A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan	✓			
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung	✓			
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang		✓		
8	Sakit di bokong	✓			
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan		✓		
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
 B = Agak Sakit
 C = Sakit
 D = Sakit Sekali

Lampiran 14. Lembar NBM Pu pada Periode 1 Sesudah Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : PUJI

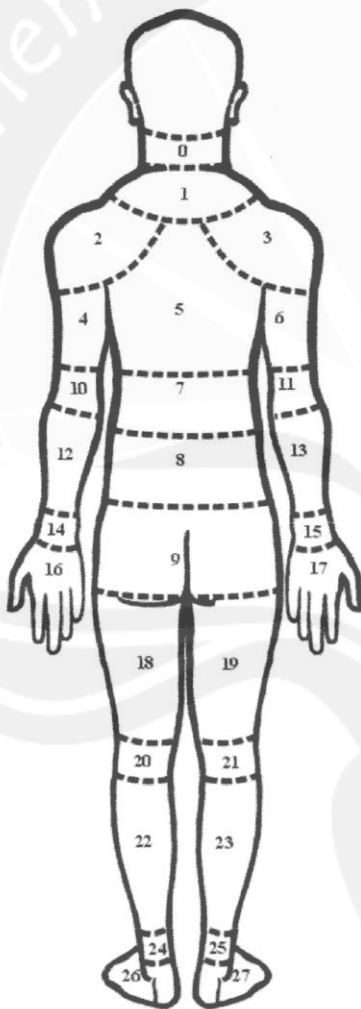
Kelompok : Periode I / ~~Periode II~~

Hari, tanggal : Kamis, 29 Mei 2014

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja



NO	JENIS KELUHAN	A	B	C	D
0	Sakit / kaku di leher bagian atas			✓	
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan	✓	✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung			✓	
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang				✓
8	Sakit di bokong	✓			
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan				✓
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan		✓		
20	Sakit di lutut kiri		✓		
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri				✓
23	Sakit di betis kanan				✓
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
C = Sakit

B = Agak Sakit
D = Sakit Sekali

Lampiran 15. Lembar NBM Pu pada Periode 2 Sebelum Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : Puji

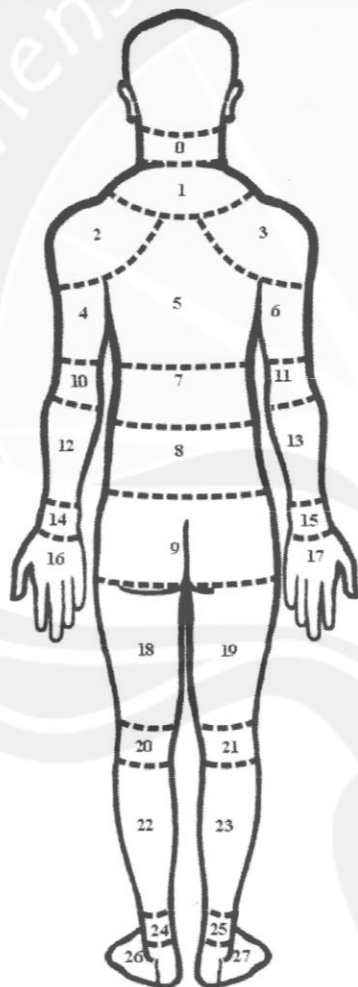
Kelompok : Periode I / Periode II

Hari, tanggal : Jumat, 30 Mei 2014

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja



NO	JENIS KELUHAN	A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan		✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung	✓			
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang		✓		
8	Sakit di bokong	✓			
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan			✓	
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri			✓	
23	Sakit di betis kanan			✓	
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
C = Sakit

B = Agak Sakit
D = Sakit Sekali

Lampiran 16. Lembar NBM Pu pada Periode 2 Sesudah Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : *Puji*.....

Kelompok : *Periode I / Periode II*

Hari, tanggal : *Jumat, 30 Mei 2014*.....

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN				
		A	B	C	D
0	Sakit / kaku di leher bagian atas		✓		
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan		✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung	✓			
6	Sakit di lengan atas kanan		✓		
7	Sakit di pinggang			✓	
8	Sakit di bokong	✓			
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan		✓		
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit B = Agak Sakit
 C = Sakit D = Sakit Sekali

Lampiran 17. Lembar NBM Sa pada Periode 1 Sebelum Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : *Samino*

Kelompok : Periode I / ~~Periode II~~

Hari, tanggal : *Jumat, 30 Mei 2014*

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN	A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah		✓		
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan		✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung		✓		
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang		✓		
8	Sakit di bokong		✓		
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
 C = Sakit
 B = Agak Sakit
 D = Sakit Sekali

Lampiran 18. Lembar NBM Sa pada Periode 1 Sesudah Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : ...*Femino*.....

Kelompok : Periode I / ~~Periode II~~

Hari, tanggal : *Jumat, 30 Mei 2014*

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN				
		A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah			✓	
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan			✓	
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung		✓		
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang				✓
8	Sakit di bokong				✓
9	Sakit di pantat		✓		
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan				✓
12	Sakit di lengan bawah kiri				✓
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
 B = Agak Sakit
 C = Sakit
 D = Sakit Sekali

Lampiran 19. Lembar NBM Sa pada Periode 2 Sebelum Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : *Samino*

Kelompok : ~~Periode I~~ / Periode II

Hari, tanggal : *Sabtu, 31 Mei 2014*

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN				
		A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan	✓			
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung		✓		
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang		✓		
8	Sakit di bokong		✓		
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit B = Agak Sakit
 C = Sakit D = Sakit Sekali

Lampiran 20. Lembar NBM Sa pada Periode 2 Sesudah Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : *Samino*

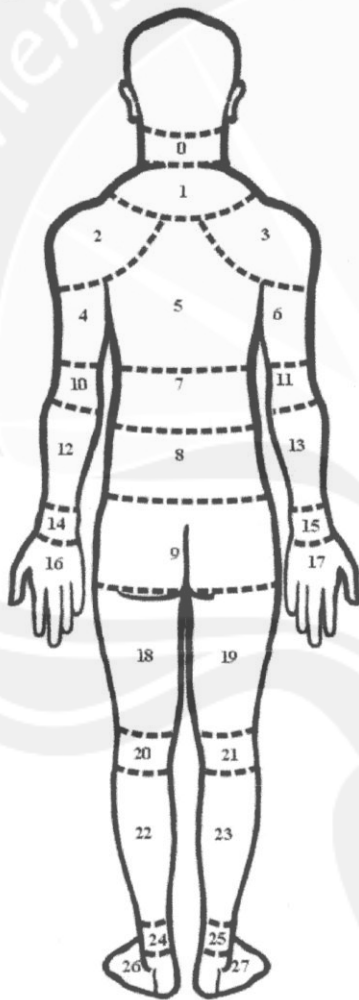
Kelompok : *Periode I / Periode II*

Hari, tanggal : *Sabtu, 31 Mei 2014*

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja



NO	JENIS KELUHAN	A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan	✓			
4	Sakit di lengan atas kiri		✓		
5	Sakit di punggung	✓			
6	Sakit di lengan atas kanan			✓	
7	Sakit di pinggang		✓		
8	Sakit di bokong		✓		
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri	✓			
21	Sakit di lutut kanan	✓			
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
C = Sakit

B = Agak Sakit
D = Sakit Sekali

Lampiran 21. Lembar NBM Su pada Periode 1 Sebelum Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : Sudardi

Kelompok : Periode I / ~~Periode II~~

Hari, tanggal : Sabtu, 31 Mei 2014

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN	A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan	✓			
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung		✓		
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang			✓	
8	Sakit di bokong			✓	
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri		✓		
21	Sakit di lutut kanan		✓		
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
 B = Agak Sakit
 C = Sakit
 D = Sakit Sekali

Lampiran 22. Lembar NBM Su pada Periode 1 Sesudah Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : Sudadi

Kelompok : Periode I / ~~Periode II~~

Hari, tanggal : Sabtu, 31 Mei 2014

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN				
		A	B	C	D
0	Sakit / kaku di leher bagian atas		✓		
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan		✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung			✓	
6	Sakit di lengan atas kanan			✓	
7	Sakit di pinggang			✓	
8	Sakit di bokong			✓	
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri			✓	
21	Sakit di lutut kanan			✓	
22	Sakit di betis kiri			✓	
23	Sakit di betis kanan			✓	
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit B = Agak Sakit
 C = Sakit D = Sakit Sekali

Lampiran 23. Lembar NBM Su pada Periode 2 Sebelum Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : Sudadi

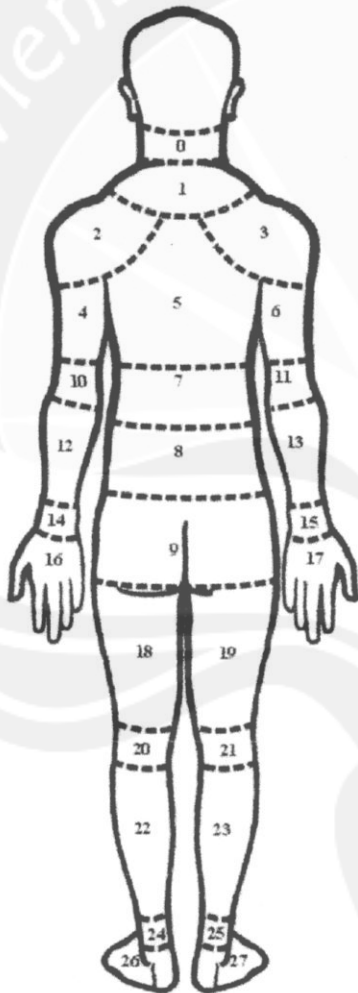
Kelompok : Periode I / Periode II

Hari, tanggal : Sabtu Minggu , 1 Juni 2014

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja



NO	JENIS KELUHAN	A	B	C	D
0	Sakit / kaku di leher bagian atas	✓			
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan		✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung		✓		
6	Sakit di lengan atas kanan	✓			
7	Sakit di pinggang		✓		
8	Sakit di bokong	✓			
9	Sakit di pantat	✓			
10	Sakit di siku kiri				
11	Sakit di siku kanan				
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri		✓		
21	Sakit di lutut kanan		✓		
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit
C = Sakit

B = Agak Sakit
D = Sakit Sekali

Lampiran 24. Lembar NBM Su pada Periode 2 Sesudah Kerja

Kuesioner Keluhan Muskuloskeletal

NORDIC BODY MAP

Nama subjek : Sadadi

Kelompok : ~~Periode I~~ / Periode II

Hari, tanggal : Minggu, 1 Juni

Petunjuk : Berilah tanda silang (X) pada kolom yang tersedia sesuai dengan kondisi yang Saudara rasakan

Sebelum kerja

Sesudah kerja

NO	JENIS KELUHAN				
		A	B	C	D
0	Sakit / kaku di leher bagian atas		✓		
1	Sakit / kaku di leher bagian bawah	✓			
2	Sakit di bahu kiri	✓			
3	Sakit di bahu kanan		✓		
4	Sakit di lengan atas kiri	✓			
5	Sakit di punggung		✓		
6	Sakit di lengan atas kanan		✓		
7	Sakit di pinggang		✓		
8	Sakit di bokong	✓			
9	Sakit di pantat	✓			
10	Sakit di siku kiri	✓			
11	Sakit di siku kanan	✓			
12	Sakit di lengan bawah kiri	✓			
13	Sakit di lengan bawah kanan	✓			
14	Sakit di pergelangan tangan kiri	✓			
15	Sakit di pergelangan tangan kanan	✓			
16	Sakit di tangan kiri	✓			
17	Sakit di tangan kanan	✓			
18	Sakit di paha kiri	✓			
19	Sakit di paha kanan	✓			
20	Sakit di lutut kiri		✓		
21	Sakit di lutut kanan		✓		
22	Sakit di betis kiri		✓		
23	Sakit di betis kanan		✓		
24	Sakit di pergelangan kaki kiri	✓			
25	Sakit di pergelangan kaki kanan	✓			
26	Sakit di kaki kiri	✓			
27	Sakit di kaki kanan	✓			

Keterangan : A = Tidak Sakit B = Agak Sakit
 C = Sakit D = Sakit Sekali