

REFERENCES:

ALARANTA, H. HURRI, H. HELÖVAARA, M. SOUKKA, A. HARJU, R. (1994). Non-dynamometric trunk performance tests: Reliability and normative data. *Scandinavian Journal of Rehabilitation Medicine*, 26: 211-215.

ALEXANDERSON, K.A.E. BORG, K.E. & HENSING, G.K.E. (2005). Sickness absence with low-back, shoulder or neck diagnoses: An 11-year follow-up regarding gender difference in sickness absence and disability pension. *Work*, 25(2): 115-124.

ALLAIRE, S.H. LI, W. & LA VALLEY, M.P. (2003). Work barriers experienced and job accommodations used by persons with arthritis and other rheumatic diseases. *Rehabilitation Counseling Bulletin*, 46(3): 147-156.

AMADOR-RODEZNO, R. (2005). An overview to CERSSO's self evaluation of the cost-benefit on the investment in occupational safety and health in the textile factories: "A step by step methodology". *Journal of Safety Research – ECON Proceedings*, 36: 215-229.

American College of Sports Medicine (1991). *Guidelines for Exercise Testing and Prescription (4th edition)*. Philadelphia: Lea & Febiger.

ARMSTRONG, T.J. BUCKLE, P. FINE, L.J. HAGBERG, M. JOHSSON, B. KILBOM, A. KUORINKA, I.A.A. SILVERSTEIN, B.A. SJOGAARD, G. VIKARI-JUNTURA, E.R.A. (1993). A conceptual model for work-related neck and upper-limb musculoskeletal disorders. *Scandinavian Journal of Work Environment Health*, 19: 73-84.

ARNHEIM, D.D. & PRENTICE, W.E. (1993). *Principles of Athletic Training (8th edition)*. St. Louis: Mosby-Year Book, Inc.

ARVEY, R.D. (2005). *Physical Ability Testing*. Boston: Blackwell Publishing Ltd.

ARVEY, R.D. & FALEY, R.H. (1988). *Fairness in Selecting Employees (2nd edition)*. Reading: Addison-Wesley.

ARWEDSON, I.L. ROOS, S. & BJÖRKLUND, A. (2007). Constituents of healthy workplaces. *Work*, 28(1): 3-11.

ASMUSSEN, E. & HEEBØLL-NIELSEN (1962). Isometric muscle strength in relation to age in men and women. *Ergonomics*, 5: 167-169.

BATES, K.R. (1999). Worksite accommodations for manufacturing employees in a pipe fabrication facility. *Work*, 12: 233-237.

BEMBEN, M.G. MASSEY, B.H. BEMBEN, D.A. MISNER, J.E. BOILEAU, J.E. (1991). Isometric muscle force production as a function of age in healthy 20- to 74-year old men. *Medicine and Science in Sports and Exercise*, 23: 1302-1310.

BERUBE, D.J. & BORAK, J. (2006). A physician's guide to return to work (book review). *Journal of Occupational and Environmental Medicine*, 48(2): 213-214.

BESTER, G.F. (2003). *Minimum Physical Requirements for the Physical Workers of an Electricity Supply Company by way of Work-specific Physical Assessments*. Unpublished Masters Thesis. University of Pretoria, Pretoria.

BESTER, G.F. & KRÜGER, P.E. (2004). Work-specific assessment of minimum physical fitness requirements for workers of an electricity supply company. *African Journal for Physical Health Education, Recreation and Dance*, 10(4): 281-294.

BIDDLE, D. & SILL, N.S. (1999). Protective service physical ability tests: Establishing pass / fail, ranking, and banding procedures. **Public Personnel Management**, 28(2): 217-225.

BINK, B. (1962). The physical working capacity in relation to working time and age. *Ergonomics*, 5: 25-28.

BJÖRKSTÉN, M.G. BOQUIST, B. TALBÄCK, M. EDLING, C. (2001). Reported neck and shoulder problems in female industrial workers: The importance of factors at work and at home. *International Journal of Industrial Ergonomics*, 27: 159-170.

BLANCK, P.D. (1997). The economics of the employment provisions of the Americans with disabilities act: Part 1 – workplace accommodations. *DePaul Law Review*, 46(4): 877-914.

BOTHA, A.T. HUYSER, R.F. & SCHONKEN, E. (2000). Managing the incapacitated worker. *Occupational Health South Africa*, 6(6): 23-27.

BOTHA, A.T. HUYSER, R.F. KRIEK, N. PUTTER, T. SCHONKEN, E. (1998). Pre-placement examination and the Labour Relations Act 66 of 1995. *Occupational Health South Africa*, 4(3): 22-25.

BRANNICK, M.T. & LEVINE, E.L. (2002). *Job Analysis: Methods, Research and Applications for Human Resource Management in the New Millenium*. California: Sage Publications, Inc.

BRU, E. MYKLETUN, R.J. & SVEBAK, S. (1994). Assessment of musculoskeletal and other health complaints in female hospital staff. *Applied Ergonomics*, 25: 101-105.

BURDORF, A. (1992). Sources of variance in exposure to postural load on the back in occupational groups. *Scandinavian Journal of Work Environment Health*, 18: 361-367.

BURKHAUSER, R.V. BUTLER, J.S. KIM, Y.W. & WEATHERS, R.R. (1999). The importance of accommodations on the timing of disability insurance applications: Results from the survey of disability and work and the health and retirement study. *Journal of Human Resources*, 34: 589-611.

BURNS, R.B. (2000). *Introduction to Research Methods*. London: SAGE Publications Ltd.

BURTON, A.K. (1997). Back injury and work loss: Biomechanical and psychosocial influences. *Spine*, 22: 2575-2580.

CALDWELL, L.S. CHAFFIN, D.B. DUKES-DOBOS, F.N. KROEMER, K.H.E. LAUBACH, L.L. SNOOK, S.H. WASSERMAN, D.E. (1974). A proposed standard procedure for static muscle strength testing. *American Industrial Hygiene Association Journal*, 35: 201.

CAMPION, M.A. (1983). Personnel selection for physically demanding jobs: Review and recommendations. *Personnel Psychology*, 36: 527-550.

CAMPOLIETI, M. (2005). How accommodations affect the duration of post-injury employment spells. *Journal of Labor Research*, XXVI (3): 485-499.

CAPODAGLIO, P. CAPODAGLIO, E.M. & BAZZINI, G. (1997). A field methodology for ergonomic analysis in occupational manual materials handling. *Applied Ergonomics*, 28(3): 203-208.

CARMEAN, G. (1998). Strength testing. *Occupational Health and Safety*, 67(8): 96-99.

CHAFFIN, D.B. (1974). Human strength capability and low-back pain. *Journal of Occupational Medicine*, 16: 248-254.

CHAFFIN, D.B. (1975). Ergonomics guide for the assessment of human static strength. *American Industrial Hygiene Association Journal*, 36: 505-511.

CHAFFIN, D.B. HERRIN, G.D. KEYSERLING, W.M. GARG, A. (1977). A method for evaluating the biomechanical stresses resulting from manual materials handling jobs. *American Industrial Hygiene Association Journal*, 38: 662-675.

CHAFFIN, D.B. HERRIN, G.D. & KEYSERLING, W.M. (1978). Preemployment strength testing. *Journal of Occupational Medicine*, 20(6): 403-408.

CHAVALINITIKUL, C. NOPTEEPKANGWAN, N. & KANJANOPAS, F. (1995). Improvement of lifting heavy objects work. *Journal of Human Ergology*, 24(1): 55-58.

CHEN, G. & HENDRICKS, K.J. (2001). Nonfatal occupational injuries among African American women by industrial group. *Journal of Safety Research*, 32(1): 75-84.

CHERRY, N.M. MEYER, J.D. CHEN, Y. HOLT, D.L. MCDONALD, J.C. (2001). The reported incidence of work-related musculoskeletal disease in the UK: MOSS 1997-2000. *Occupational Medicine*, 51(7): 450-455.

CINQUE, C. (1990). Fire fighter training boosts women's brawn. *The Physician and Sports Medicine*, 18: 43.

COHEN, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd edition)*. New Jersey: Lawrence Erlbaum Associates.

CORBIN, C.B. & LINDSEY, R. (1994). *Concepts of Physical Fitness with Laboratories (8th edition)*. Dubuque: Wm. C. Brown Communication, Inc.

COX, R.A.F. EDWARDS, F.C. & MCCALLUM, R.I. (1995). *Fitness for Work*. New York: Oxford Medical Publications.

COY, M.A. & DAVENPORT, M. (1991). Age changes in the older adult worker. *Work*, 2(1): 38-46.

CRAIG, B.N. CONGLETON, J.J. KERK, C.J. LAWLER, J.M. MCSWEENEY, K.P. (1998). Correlation of injury occurrence data with estimated maximal aerobic capacity and body composition in a high-frequency manual materials handling task. *American Industrial Hygiene Association Journal*, 59: 25-33.

DANE, F.C. (1990). *Research Methods*. Belmont: Wadsworth, Inc.

DAVIS, P.O. & DOTSON, C.O. (1987). Job performance testing: An alternative to age discrimination. *Medicine and Science in Sport and Exercise*, 19(2): 179-185.

DAWSON, P.M. & HELLEBRANDT, F.A. (1945). The influence of aging in man upon his capacity for physical work and upon his cardiovascular responses to exercise. *American Journal of Physiology*, 143: 420-427.

DENG, H. (2005). Does it matter if non-powerful significance tests are used in dissertation research? *Practical Assessment, Research & Evaluation*, 10(16): 1-13.

DE VAUS, D. (2001). *Research Design in Social Research*. London: Sage publications Ltd.

DE VRIES, H.A. (1986). *Physiology of Exercise for Physical Education and Athletics (4th edition)*. Dubuque: WMC Brown Publishers.

DE ZWART, B.C.H. FRINGS-DRESEN, M.H.W. & VAN DIJK, F.J.H. (1995). Physical workload and the ageing worker: A review of the literature. *Occupational and Environmental Health*, 68: 1-12.

DOWLER, D.L. HIRSH, A.E. KITTLE, R.D. HENDRICKS, D.J. (1996). Outcomes of reasonable accommodations in the workplace. *Technology and Disability*, 5: 345-354.

EDGINTON, C.R. HANSON, C.J. & EDGINTON, S.R. (1992). *Leisure Programming: Concepts, Trends, and Professional Practice*. Dubuque: Wm. C. Brown Communications, Inc.

Employment Equity Act, No. 55 of 1998. Section 5: Items 1, 2 and 4.

ENOKA, R.M. (2002). *Neuromechanics of Human Movement (3rd edition)*. United States of America: Human Kinetics.

ERASMUS, C. (1999). *The Significance of Physical Parameters for Evaluation and Selection of Candidates for the Special Units of the South African Police Service*. Unpublished Masters Thesis. University of Pretoria, Pretoria.

FABIANO, B. CURRO, F. & PASTORINO, R. (2001). Occupational injuries in Italy: Risk factors and long term trends (1951-1998). *Occupational and Environmental Medicine*, 58: 330-338.

FINE, S. & CRONSHAW, S. (1999). *Functional Job Analysis: A Foundation for Human Resources Management*. New Jersey: Lawrence Erlbaum Associates.

FLEISHMAN, E.A. (1964). *The Structure and Measurement of Physical Fitness*. New Jersey: Prentice Hall.

FLEISHMAN, E.A. (1979). Evaluating physical ability required by jobs. *The Personnel Administrator*, 24: 82-90.

FOSS, M.L. & KETEYIAN, S.J. (1998). *Fox's Physiological Basis for Exercise and Sport (6th edition)*. Boston: McGraw-Hill.

FOX, E.L. BOWERS, R.W. & FOSS, M.L. (1993). *The Physiological Basis for Exercise and Sport (5th edition)*. Dubuque: Brown & Benchmark, Inc.

FOX, S.I. (2006). *Human Physiology (9th edition)*. New York: McGraw-Hill.

FREEMAN, E.J. (2004). Union-management solutions for preventing workplace injury of older workers. *Work*, 22: 145-151.

FRONTERA, W.R. HUGHES, V.A. FIELDING, R.A. FIATARONE, M.A. EVANS, W.J. ROUBENOFF, R. (2000). Aging of skeletal muscle: A 12 year longitudinal study. *Journal of Applied Physiology*, 88: 1321-1326.

FRYMOYER, J.W. POPE, M.H. CLEMENTS, J.H. WILDER, D.G. MACPHERSON, B. ASHIKAGA, T. (1983). Risk factors in low back pain: An epidemiological survey. *The Journal of Bone and Joint Surgery*, 65(2): 213-218.

GAEL, S. (1988). *The Job Analysis Handbook for Business, Industry and Government: Volume 2*. United States of America: John Wiley & Sons, Inc.

GALLAGHER, J. (2002). Do muscles matter? – Women and physical strength: A reply to Xinyan Jiang. *Hypatia*, 17(1): 53-70.

GARG, A. MITAL, A. & ASFOUR, S.S. (1980). A comparison of isometric strength and dynamic lifting capability. *Ergonomics*, 23: 13-27.

GARG, A. & MOORE, J.S. (1992). Prevention strategies and the low back in industry. *Occupational Medicine*, 7(4): 629-640.

GHORPADE, J. (1988). *Job Analysis: A Handbook for the Human Resource Director*. New Jersey: Prentice Hall.

GREENBERG, S.N. & BELLO, R.P. (1996). The work hardening program and subsequent return to work of a client with low back pain. *Journal of Orthopaedics, Sports & Physical Therapy*, 24(1): 37-45.

GRIFFIN, A.B. TROUP, J.D.G. & LLOYD, D.C.E.F. (1984). Tests of lifting and handling capacity, their repeatability and relationship to back symptoms. *Ergonomics*, 27: 305-320.

GROGAN, J. (1997). *Workplace Law*. Cape Town: Juta.

GUYTON, A.C. (1991). *Textbook of Medical Physiology (8th edition)*. Philadelphia: W.B. Saunders Company.

HADLER, N.M. (1997). Back pain in the work place: What you lift or how you lift matters far less than whether you lift or when. *Spine*, 22: 935-940.

HADLER, N.M. (2005). *Occupational Musculoskeletal Disorders (3rd edition)*. Philadelphia: Lippincott Williams & Wilkins.

HALPERN, M. (2003). The cost of job accommodations for employees with low back pain. *Work*, 21: 271-278.

HALPERN, M. HIEBERT, R. NORDIN, M. GOLDSHEYDER, D. CRANE, M. (2001). The test-retest reliability of a new occupational risk factor questionnaire for outcome studies of low back pain. *Applied Ergonomics*, 32: 39-46.

HANKEY, D.L. (2001). Use employment screening to ensure hiring the right people. *Maintenance Management*, May: 10-11.

HANSSON, G. BALOGH, I. OHLSSON, K. PALSSON, B. RYLANDER, L. SKERFVING, S. (2000). Impact of physical exposure on neck and upper limb disorders in female workers. *Applied Ergonomics*, 31: 301-310.

HARLAN, S.L. & ROBERT, P.M. (1998). The social construction of disability in organizations. *Work and Occupations*, 25 (4): 397-435.

HARLEY, A. & JAMES, C. (2006). Fire-fighter's perspective of the accuracy of the physical aptitude test (P.A.T.) as a pre-employment assessment. *Work*, 26(1): 29-35.

HEAD, L. BAKER, P.M.A. BAGWELL, B. MOON, N.W. (2006). Barriers to evidence based practice in accommodations for an aging workforce. *Work*, 27(4): 391-396.

HELM, R.E. POWELL, N.J. & NIEUWENHUIJSEN, E.R. (1999). A return to work program for injured workers: A reassignment model. *Work*, 12: 123-131.

HERRIN, G. & CHAFFIN, D.B. (1978). Effectiveness of strength testing. *Professional Safety*, 23: 39-43.

HERTZ, R.P. & EMMETT, E.A. (1986). Risk factors for occupational hand injury. *Occupational Medicine*, 18: 36-41.

HEYWARD, V.H. (1991). *Advanced Fitness Assessment and Exercise Prescription*. Illinois: Human Kinetics Books.

HEYWARD, V.H. (2006). *Advanced Fitness Assessment and Exercise Prescription (5th edition)*. United States of America: Human Kinetics.

HOFMANN, T. & KIELBLOCK, J. (2007). The assessment of functional work capacity in the South African mining industry. *Work*, 29(1): 5-11.

HOGAN, J.C. OGDEN, G.D. GEBHARDT, D.L. FLEISHMAN, E.A. (1980). Reliability and validity of methods for evaluating perceived physical effort. *Journal of Applied Psychology*, 65: 672-679.

HOGAN, J.C. & QUIGLEY, A.M. (1986). Physical standards for employment and the courts. *American Psychologist*, 41(11): 1193-1217.

HOGAN, J.C. & QUIGLEY, A.M. (1994). Effects of preparing for physical ability tests. *Public Personnel Management*, 23(1): 85-103.

HOUGH, L.M. OSWALD, F.L. & PLOYHART, R.E. (2001). Determinants, detection and amelioration of adverse impact in personnel selection procedures: Issues, evidence and lessons learned. *International Journal of Selection and Assessment*, 9(1 & 2): 152-165.

HUYSER, R.F. & BOTHA, A.T. (2007). *Integrated and Fair Management of Incapacity due to Ill Health or Injury in the South African Work-place*. Pretoria: Copyright© Huyser, R.F. and Botha, A.T.

INNES, E. & STRAKER, L. (1999). Validity of work-related assessments. *Work*, 13: 125-152.

ISERNHAGEN, D.D. (2000a). A model system: Integrated work injury prevention and disability management. *Work*, 15: 87-94.

ISERNHAGEN, S.J. (1995). *Job Analysis, the Comprehensive Guide to Work Injury Management*. Maryland: Aspen Publishers.

ISERNHAGEN, S.J. (2000b). Matching the worker and work benefits to the worker: Benefits to the employer. *Work*, 15: 125-132.

ISERNHAGEN, S.J. (2001). What functional analysis can do for work life. *Work*, 16: 53-55.

ISERNHAGEN, S.J. (2006). Job matching and return to work: Occupational rehabilitation as the link. *Work*, 26(3): 237-242.

ISERNHAGEN, S.J. HART, D.L. & MATHESON, L.M. (1997). The disillusioned employer and ergonomics: Suggestions for improvement. *Work*, 8: 109-112.

JACKSON, A.S. (1994). Preemployment physical evaluation. *Exercise and Sport Sciences Reviews*, 22: 53-90.

JANOWITZ, I.L. GILLEN, M. RYAN, G. REMPEL, D. TRUPIN, L. SWIG, L. MULLEN, K. RUGULIES, R. BLANC, P.D. (2006). Measuring the physical demands of work in hospital settings: Design and implementation of an ergonomics assessment. *Applied Ergonomics*, 37: 641-658.

JANSSON, I. & BJÖRKLUND, A. (2007). The experience of returning to work. *Work*, 28(2): 121-134.

JOHNSON, L.J. & MILLER, M. (2001). Functional testing: Approaches and injury management integration. *Work*, 16: 7-11.

JONES, G.R. SPITTER, D.L. SWAN, P.D. HAWKINS, J.D. (1989). Health and fitness assessment criteria for public service agencies. *JOPERD*, October: 12-16.

JONES, M.A. & PRIEN, E.P. (1978). A valid procedure for testing the physical abilities of job applicants. *Personnel Administrator*, 23(9): 33-38.

KAMON, E. KISER, D. & PYTEL, J.L. (1982). Dynamic and static lifting capacity and muscular strength of steelmill workers. *American Industrial Hygiene Association Journal*, 43: 853-857.

KARWOWSKI, W. & MITAL, A. (1986). Isometric and isokinetic testing of lifting strength of males in teamwork. *Ergonomics*, 29(7): 869-878.

KELSH, M.A. & SAHL, J.D. (1996). Sex differences in work-related injury rates among electric utility workers. *American Journal of Epidemiology*, 143(10): 1050-1058.

KEMMLERT, K. (1995). A method assigned for the identification of ergonomic hazards. *Applied Ergonomics*, 26: 199-211.

KEYSERLING, W.M. BIGELOW, A.B. BROUWER, M.L. MURPHY, L.A. (1990). *Ergonomic Job Analysis: Methods to Identify, Evaluate and Control Exposures to Risk Factors in the Workplace*. London: Taylor & Francis.

KEYSERLING, W.M. HERRIN, G.D. & CHAFFIN, D.B. (1980a). Isometric strength testing as a means of controlling medical incidents on strenuous jobs. *Journal of Occupational Medicine*, 22: 332-336.

KEYSERLING, W.M. HERRIN, G.D. CHAFFIN, D.B. ARMSTRONG, T.J. FOSS, M.L. (1980b). Establishing an industrial strength testing program. *American Industrial Hygiene Association Journal*, 41: 730-736.

KRAUS, H. (1967). Prevention of low back pain. *Journal of Occupational Medicine*, 9: 555-559.

KROEMER, K.H.E. (1983). An isoinertial technique to assess individual lifting capability. *Human Factors*, 25: 493-506.

KROEMER, K.H.E. (1985). Testing individual capability to lift material: Repeatability of a dynamic test compared with static testing. *Journal of Safety Research*, 16: 1-7.

KROEMER, K.H.E. KROEMER, H.B. & KROEMER-ELBERT, K.E. (1999). *Ergonomics: How to Design for Ease and Efficiency*. New Jersey: Prentice-Hall, Inc.

KRÜGER, P.E. & JANSEN VAN VUUREN, T.B.R. (1998). *Laboratorium Handleiding vir Endossemente Biokinetika en Sportkunde*. Universiteit van Pretoria, Pretoria.

KUNELIUSA, A. DARZINS, S. CROMIE, J. OAKMAN, J. (2007). Development of normative data for hand strength and anthropometric dimensions in a population of automotive workers. *Work*, 28(3): 267-278.

Labour Relations Act, No. 66 of 1995. Schedule 7: Items 2 and 3.

LARSON, B.A. (2001). The aging worker. *Work*, 16: 67-68.

LEGGE, J. & BURGESS-LIMERICK, R. (2007). Reliability of the jobfit system pre-employment functional assessment tool. *Work*, 28(4): 299-312.

LINDLE, R.S. METTER, E.J. & LYNCH, N.A. (1997). Age and gender comparisons of muscle strength in 654 women and men aged 20-93 years. *Journal of Applied Physiology*, 83: 1581-1587.

LOUHEVAARA, V. (1999). Is the physical work load equal for ageing and young blue-collar workers? *International Journal of Industrial Ergonomics*, 24: 559-564.

LUK, K.D.K. LU, W.W. KWAN, W.W. HU, Y. WONG, Y.W. LAW, K.K.P. LEONG, J.C.Y. (2003). Isokinetic and isometric lifting capacity of Chinese in relation to the physical demand of job. *Applied Ergonomics*, 34: 201-204.

LUKES, E.N. & BRATCHER, B.P. (1990). Pre-employment physical examinations report of a pilot program. *Journal of the American Association of Occupational Health Nurses*, 38(4): 174-179.

LYTH, J.R. (2001). Disability management and functional capacity evaluations: A dynamic resource. *Work*, 16: 13-22.

MAGILL, R.A. (1993). *Motor Learning: Concepts and Applications (4th edition)*. Dubuque: Wm. C. Brown Communications, Inc.

MALAN, D.D.J. (1992). *Fisieke Evaluering as Metode van Seleksie voor Indiensneming en Arbeidsplasing met die oog op Verbeterde Produktiwiteit en Verlaagde Beseringsrisiko*. Potchefstroomse Universiteit vir Christelike Hoër Onderwys.

MALAN, D.D.J. & KROON, J. (1992). Die waarde van fisieke seleksie in die voorkoming van werksbeserings. *SA Koöp*, Januarie: 11.

MALINA, R.M. BOUCHARD, C. & BAR-OR, O. (2004). *Growth, Maturation and Physical Activity (2nd edition)*. United States of America: Human Kinetics.

MAMANSARI, D.U. & SALOKHE, V.M. (1996). Static strength and physical work capacity of agricultural labourers in the central plain of Thailand. *Applied Ergonomics*, 27(1): 53-60.

MARTINI, F.H. (1995). *Fundamentals of Anatomy & Physiology (3rd edition)*. New Jersey: Prentice-Hall, Inc.

MARTINI, F.H. (2006). *Fundamentals of Anatomy & Physiology (7th edition)*. San Francisco: Pearson Education, Inc.

MCARDLE, W.D. KATCH, K.I. & KATCH, V.L. (1991). *Exercise Physiology: Energy, Nutrition & Human Performance (3rd edition)*. Philadelphia: Lea & Febiger.

MCARDLE, W.D. KATCH, K.I. & KATCH, V.L. (1996). *Exercise Physiology: Energy, Nutrition & Human Performance (4th edition)*. Baltimore: Lippincott, Williams & Wilkins.

MCBURNEY, D.H. (1994). *Research Methods (3rd edition)*. California: Brooks/Cole Publishing Company.

MCGWIN, J.G. TAYLOR, A.J. MACLENNAN, P.A. RUE III, L.W. (2005). Unusual job activities as a risk factor for occupational injuries. *Occupational Medicine*, 55: 66-68.

MCKENNEY, S. (2000). Working with industry: Matching the work and worker. *Work*, 15: 121-124.

MEIER, J.H. (1998). *Fisieke Standaarde vir die indiensneming in die Suid-Afrikaanse Polisie Diens*. Ongepubliseerde D.Phil.-tesis. Universiteit van Pretoria, Pretoria.

MEYER, B.J. & MEIJ, H.S. (1992). *Fisiologie van die Mens: Biochemiese, Fisiese en Fisiologiese Begrippe (3rd edition)*. Pretoria: HAUM.

MITAL, A. & AYOUB, M.M. (1980). Modeling of isometric strength and lifting capacity. *Human Factors*, 22: 285-290.

MITAL, A. & MANIVASAGAN, I. (1982). *Application of a Heuristic Technique in Polynomial Identification*. Proceedings of the international conference on cybernetics and society, IEEE systems, man and cybernetics society: 347-353.

MITAL, A. (1984). Prediction of human static and dynamic strength by modified basic GMDH algorithm. *IEEE Transactions on Systems, Man, and Cybernetics*, 14: 773-776.

MITAL, A. & MANIVASAGAN, I. (1984). Development of non-linear polynomials in identifying human isometric strength behaviour. *International Journal of Computers and Industrial Engineering*, 8: 1-9.

MITAL, A. AGHAZADEH, F. & RAMANAN, S. (1985). Use of non-linear polynomials to predict human dynamic strengths. *International Journal of Computers and Industrial Engineering*, 9: 371-377.

MITAL, A. & KARWOWSKI, W. (1985). *Use of Simulated Job Dynamic Strength (SJDS) in Screening Workers for Manual Lifting Tasks*. Proceedings of the human factors society 29th annual meeting: 513-516.

NEUMAN, W.L. (1997). *Social Research Methods: Qualitative and Quantitative Approaches (3rd edition)*. Boston: Allyn & Bacon.

NEWTON, M. & WADDELL, G. (1993). Trunk strength testing with iso-machines. Part 1: Review of a decade of scientific evidence. *Spine*, 18(7): 801-811.

NILSSON, I. FITINGHOFF, H. & LILJA, M. (2007). Continuing to work after the onset of rheumatoid arthritis. *Work*, 28(4): 335-342.

O'DONNELL, M.P. & HARRIS, J.S. (1994). *Health Promotion in the Workplace (2nd edition)*. New York: Delmar Publishers.

OLSON, D.L. (1999). An on-site ergonomic program: A model for industry. *Work*, 13: 229-238.

PARK, K.S. & CHAFFIN, D.B. (1975). Prediction of load-lifting limits for manual materials handling. *Professional Safety*, 20(5): 44-48.

PLOWMAN, S.A. & SMITH, D.L. (1997). *Exercise Physiology for Health, Fitness, and Performance*. Boston: Allyn & Bacon.

PLOWMAN, S.A. & SMITH, D.L. (2003). *Exercise Physiology for Health, Fitness, and Performance (2nd edition)*. San Francisco: Pearson Education, Inc.

POWERS, S.K. & HOWLEY, E.T. (1994). *Exercise Physiology: Theory and Application to Fitness and Performance (2nd edition)*. Dubuque: Brown & Benchmark Publ.

POWERS, S.K. & HOWLEY, E.T. (2001). *Exercise Physiology: Theory and Application to Fitness and Performance (4th edition)*. New York: McGraw-Hill.

POWERS, S.K. & HOWLEY, E.T. (2007). *Exercise Physiology: Theory and Application to Fitness and Performance (6th edition)*. New York: McGraw-Hill.

PROCTOR, D.N. & JOYNER, M.J. (1997). Skeletal muscle mass and the reduction of VO₂ max in trained older subjects. *Journal of Applied Physiology*, 82: 1411-1415.

PYTEL, J.L. & KAMON, E. (1981). Dynamic strength test as a predictor for maximal and acceptable lifting. *Ergonomics*, 24: 663-672.

RICE, V.J.B. CONNOLLY, V.L. PRITCHARD, A. BERGERON, A. MAYS, M.Z. (2007). Effectiveness of a screening tool to detect injuries during army health care specialist training. *Work*, 29(3): 177-188.

ROHMERT, W. & LANDAU, K. (1983). *A New Technique for Job Analysis*. London: Taylor & Francis.

ROSENBLUM, K.E. & SHANKAR, A. (2006). A study of the effects of isokinetic pre-employment physical capability screening in the reduction of musculoskeletal disorders in a labor intensive work environment. *Work*, 26(2): 215-228.

RUANE, J.M. (2005). *Essentials of Research Methods: A Guide to Social Science Research*. Malden: Blackwell Publishing Ltd.

SAARI, J.D. & LAHTELA, J. (1981). Work conditions and accidents in three industries. *Scandinavian Journal of Work Environment Health*, 7: 97-105.

SALADIN, K.S. (2007). *Anatomy and Physiology: The Unity of Form and Function (4th edition)*. New York: McGraw-Hill.

SAMSON, M.M. MEEUWSEN, I.B. CROWE, A. DESSENS, J.A. DUURSMA, S.A. VERHAAR, H.J. (2000). Relationships between physical performance measures, age, height and body weight in healthy adults. *Age and Ageing*, 29: 235-242.

SANFORD, J.A. & MILCHUS, K. (2006). Evidence-based practice in workplace accommodations. *Work*, 27(4): 329-332.

SAVINAINEN, M. NYGARD, C. & AROLA, H. (2004). Physical capacity and work ability among middle-aged women in physically demanding work – a 10-year follow-up study. *Advances in Physiotherapy*, 6: 110-121.

SCHARTZ, H.A. HENDRICKZ, D.J. & BLANCK, P. (2006). Workplace accommodations: Evidence based outcomes. *Work*, 27: 345-354.

SCHIBYE, B. HANSEN, A.F. SOGAARD, K. CHRISTENSEN, H. (2001). Aerobic power and muscle strength among young and elderly workers with and without physically demanding work tasks. *Applied Ergonomics*, 32: 425-431.

SCHONSTEIN, E. & KENNY, D.T. (2001). The value of functional and work place assessments in achieving a timely return to work for workers with back pain. *Work*, 16: 31-38.

SCHULT, M. SODERBACK, I. & JACOBS, K. (2000). Multidimensional aspects of work capability. *Work*, 15: 41-53.

SERRA, C. RODRIGUEZ, M.C. DELCLOS, G.L. PLANA, M. LÓPEZ, L.I.G. BENAVIDES, F.G. (2007). Criteria and methods used for the assessment of fitness for work: A systematic review. *Occupational and Environmental Medicine*, 64: 304-312.

SEVIER, T.L. WILSON, J.K. & HELFST, B. (2000). The industrial athlete?. *Work*, 15: 203-207.

SHAMBERG, S. (2005). Occupational therapy practitioner's role in the implementation of worksite accommodations. *Work*, 24(2): 185-194.

SHREY, D.E. & LACERTE, M. (1997). *Principles and Practices of Disability Management in Industry*. United States of America: G.R. Press, Inc.

SHUSTER, M.P. (2000). The physical and psychological stresses of women in firefighting. *Work*, 15: 77-82.

SKISAK, C.M. BHOJANI, F. & TSAI, S.P. (2006). Impact of a disability management program on employee productivity in a petrochemical company. *Journal of Occupational and Environmental Medicine*, 48(5): 497-504.

SLUITER, J.K. (2006). High-demand jobs: Age-related diversity in work ability. *Applied Ergonomics*, 37(4): 429-440.

SMITH, P.M. & MUSTARD, C.A. (2004). Examining the associations between physical work demands and work injury rates between men and women in Ontario, 1990-2000. *Occupational and Environmental Medicine*, 61: 750-756.

SOROCK, G.S. LOMBARDI, D.A. HAUSER, R. EISEN, E.A. HERRICK, R.F. MITTLEMAN, M.A. (2004). A case-crossover study of transient risk factors for occupational acute hand injury. *Occupational and Environmental Medicine*, 61: 305-311.

STEYN, H.S. & ELLIS, S.M. (2006). *Introductory Statistics*. Potchefstroom: North-West University.

SWAEN, G.M.H. VAN AMELSVOORT, L.G.P.M. BÜLTMANN, U. KANT, I.J. (2003). Fatigue as a risk factor for being injured in an occupational accident: Results from the Maastricht cohort study. *Occupational and Environmental Medicine*, 60: 88-92.

THOMAS, J.R. & NELSON, J.K. (2001). *Research Methods in Physical Activity (3rd edition)*. United States of America: Human Kinetics.

TOEPPEN-SPRIGG, B. (2000). Importance of job analysis with functional capacity matching in medical case management: A physician's perspective. *Work*, 15(2): 133-137.

TORGÉN, M. PUNNETT, L. ALFREDSSON, L. KILLBOM, Å. (1999). Physical capacity in relation to present and past physical load at work: A study of 484 men and women aged 41 to 58 years. *American Journal of Industrial Medicine*, 36: 388-400.

TUCKWELL, N.L. STRAKER, L. & BARRETT, T.E. (2002). Test-retest reliability on nine tasks of the physical work performance evaluation. *Work*, 19: 243-253.

UNGER, D. & KREGEL, J. (2003). Employer's knowledge and utilization of accommodations. *Work*, 21: 5-15.

VANDER, A.J. SHERMAN, J.H. & LUCIANO, D.S. (2001). *Human Physiology: The Mechanisms of Body Function (8th edition)*. United States of America: McGraw-Hill, Inc.

VAN NIFTRIK, J. (1996). Disability management in South Africa. *Occupational Health South Africa*, 2(3): 14-21.

VIITASALO, J.T. ERA, P. LESKINEN, A.L. HEIKKINEN, E. (1985). Muscular strength profiles and anthropometry in random samples of men aged 31-35, 51-55 and 71-75 years. *Ergonomics*, 28(11): 1563-1574.

WADDELL, G. (1998). *The Back Pain Revolution*. Edinburgh: Churchill-Livingstone.

WADDELL, G. & BURTON, A.K. (2001). Occupational health guidelines for the management of low back pain at work: Evidence review. *Occupational Medicine*, 51(2): 124-135.

WARDLE, M.G. (1976). Women's physiological reactions to physically demanding work. *Psychology of Women Quarterly*, 1(2): 151-159.

WASHBURN, R.A. & SAFRIT, M.J. (1982). Physical performance tests in job selection: A model for empirical validation. *Research Quarterly for Exercise and Sport*, 53(3): 267-270.

WESTMORLAND, M.G. & BUYS, N. (2004). A comparison of disability management practices in Australian and Canadian workplaces. *Work*, 23: 31-41.

WIKTORIN, C. KARLQVIST, L. & WINKEL, J. (1993). Validity of self-reported exposures to work postures and manual materials handling. *Scandinavian Journal of Work Environment Health*, 19: 208-214.

WILLIAMS, M. SABATA, D. & ZOLNA, J. (2006). User needs evaluation of workplace accommodations. *Work*, 27(4): 355-362.

WILLIAMS, R.M. & WESTMORLAND, M. (2002). Perspectives on workplace disability management: A review of the literature. *Work*, 19: 87-93.

WINKEL, J. & WESTGAARD, R.H. (1996). A model for solving work related musculoskeletal problems in a profitable way. *Applied Ergonomics*, 27(2): 71-77.

Annexure 1: Job Description Document

SA ELEC	JOB DESCRIPTION
Technician	
<p>JOB MISSION / PURPOSE</p> <p>To ensure the continuity of supply to customers by building, maintaining, and repairing infrastructure and plant in accordance with Policies, Directives, Standards, Procedures, Work practices, Guidelines and Service agreements.</p>	
<p>KEY PERFORMANCE AREAS</p> <ul style="list-style-type: none"> - Maintain - Repair - Build - Health and Safety - Customer Service - House Keeping 	

1. MAINTENANCE: PERFORMS PLANNED MAINTENANCE ON NETWORKS AND INFRASTRUCTURE IN ACCORDANCE WITH THE STANDARDS, PROCEDURES, DIRECTIVES, WORK PRACTICES AND GUIDELINES.

1.1. Perform Vegetation Control (In SA ELEC' s Servitudes) by:

- Operating vegetation control machines.
- Clearing vegetation encroaching on clearance distances and structures by manual labour.
(Environmental care)
- Applying prescribed growth control chemicals.

1.2. Maintain Access Routes and Security infrastructure by:

- Installing, inspecting and restoring fences and gates.
- Restoring, maintaining and reporting conditions of roads and drainage systems.

1.3. Maintain lines and structures by:

- Replacing, securing and cleaning line components, electrical connections and anti-oxidation measures (e.g. Insulators, cross arms, bolts and nuts, electrical connections, anti climbing devices, labels and identification markers).
- Conductor stringing, binding in and jointing including earthing.
- Excavating, back filling and compacting to secure structures and trenches.
- Executing foot and vehicle patrols to identify and report faulty plant.

1.4. Maintain Substations and control rooms by:

- Replacing, repairing, securing and cleaning plant and equipment in substations under guidance and supervision
- Inspecting, topping up with electrolyte, cleaning and testing the Specific Gravity of batteries
- Inspecting and reporting performance of security and safety lighting.
- Inspecting and reporting on condition of substation tools and equipment.
- Reporting any other abnormality found in/ on the network to appropriate person (e.g. Flags and status changes, oil leaks etc.)
- Executing vegetation control

1.5. Work order feedback and clearance



2. REPAIR : RESPOND TO CALL OUTS AND PROMPTS FROM THE DISPATCHER DURING ABNORMAL CONDITIONS AND POWER SUPPLY INTERRUPTIONS ON A 24 HOUR BASIS TO MINIMISE CUSTOMER OUTAGE BY :

- Being on standby
- Restoring equipment and structures on lines and substations by replacing, securing and cleaning plant and equipment under supervision.
- Executing foot and vehicle patrols to identify and report faulty plant.
- Switching on Low Volt networks

3. BUILD: CREATES ASSETS ON URBAN AND RURAL LINES BY:

- Dressing, erecting and installing poles and structures
- Dismantling poles and structures
- Installing/ dismantling reticulation and urban transformers, reclosers, sectionalisers, metering points, isolators and drop out fuse links.
- Conductor stringing, binding in and jointing (Including earthing)
- Excavating, back filling and compacting to secure trenches and structures

4. HEALTH AND SAFETY: ENSURE A SAFE WORKING ENVIRONMENT AND ELIMINATE UNSAFE ACTS BY:

- Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor.
- Inspecting and reporting non-conformance of tools and equipment immediately before use.
- Using and caring for personal protective equipment as per requirement.
- Effecting statutory and non-statutory appointment

5. CUSTOMER SERVICE: PROVIDE A ONE STOP CUSTOMER SERVICE BY:

- Reading and sealing cyclic and demand meters on small power users.
- Conforming to the Customer Service Charter.
- Giving milestone feedback.



6. HOUSE KEEPING : MAINTAIN AN ERGONOMICALLY SOUND AND HYGIENIC WORK PLACE BY:

- Cleaning of work sites, work stations and infrastructure.
- Executing site restoration in accordance with environmental control measures.
- Executing safe handling and economic stacking and storing of material.
- Assisting with site preparation under supervision by:
 - ⇒ Erecting barricades and danger notification.
 - ⇒ Preparing system earthing

Annexure 2: Informed Consent Form

Personal Details

Initials		Surname		
Department		Gender	Male	Female
Site location		Date of birth		
Job Title		Date		

I hereby voluntarily consent to undergo the Physical Ability Assessment. I confirm that I was fully informed with regards to the purpose and procedure of the evaluation.

- | | | |
|--|------------------------------|-----------------------------|
| 1. Do you suffer from high blood pressure? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 2. Have you ever been told that you have high blood pressure? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 3. Do you presently take any medication for high blood pressure? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 4. Have you injured your back in the last 6 months? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 5. Do you suffer from pain in your lower back at present? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 6. Have you ever been diagnosed with heart problems? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 7. Do you suffer from pain in the chest or heart? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 8. Do you have a hernia? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 9. Do you have osteoporosis? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| 10. Family history re: Cardiac diseases, osteoporosis, and chronic diseases? | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

If you have answered YES to any of the above questions, please specify:

Have you had any operations in any of the following?

Wrist		Arms		Legs		Back	
-------	--	------	--	------	--	------	--

Are there any other reasons why you can not perform the physical ability assessment? Please specify:

I declare that all the information regarding my health is true and correct. I give my consent that the results may be used for report and research purposes, knowing that all my information will be kept confidential. I expressly undertake that in the event of any unforeseen injury during the test, I shall not hold either the evaluator or the evaluator's employer, or my employer, liable for any claim I may have resulting from such test / injury. I am aware that I may withdraw my consent or discontinue with the assessment at any time.

Signature

Date



Annexure 3: Physical Ability Data Form

Physical Measurements

Comments

Height (cm)					
Weight (kg)					
Resting systolic BP (mmHg)					
Resting diastolic BP (mmHg)					
Flexibility (cm)					
3 minute step-up test (b / min)					
Grip Strength Right (kg)					
Grip Strength Left (kg)					
Arm / Shoulder Muscle Strength (kg)					
Back Muscle Strength (kg)					
Leg Muscle Strength (kg)					
Stomach Muscle Endurance (reps/min)					
Lifting strength above head (kg)					
Lifting strength from floor – right (kg)					
Lifting strength from floor – left (kg)					
Arm adduction strength (kg)					
Shoulder endurance – right (seconds)					
Shoulder endurance – left (seconds)					
Balance (seconds)					

Additional information

Annexure 4: Interview Questionnaire



University of Pretoria

Pretoria 0002 Republic of South Africa Tel 012-420-4111
Fax 012-420-2698 <http://www.up.ac.za>

Faculty of Humanities

Dept of Biokinetics, Sport and Leisure Sciences
Tel 012-420-6040 Faks 012-420-6099
www.bsl.up.ac.za

Informed consent - UP (interview)

Full name:

Unique number:

Department:

Job Title:

Contact number:

I,, hereby give my consent that all information shared during this interview may be used for the purposes of the following study: "A task specific approach to job accommodation in physically demanding positions".

I also confirm that the purpose of this interview, the information gained from it, and the applicable study, have been explained to me and that I agreed to participate out of my own free will.

Signed on this, the day of at
.....

Signature :

Informed consent – Researcher (interview)

MR GEORGE FRANCIS BESTER

A task specific approach to job accommodation in physically demanding positions

PURPOSE: A research project conducted by the University of Pretoria on behalf of Mr. G.F. Bester [95000292] aims to develop a task specific job accommodation tool for physically demanding positions. The result of this study may be of benefit to ESKOM biokineticists, ESKOM medical doctors, occupational health nurses, human resources practitioners, supervisors, and line managers.

PROCEDURES: Subjects who volunteer to be interviewed for this study will help in the development of the job accommodation tool. The job outputs in the identified job profile (in this case that of the “Technical Official”) will be broken down into specific tasks. Each task will then be discussed to gather information about frequency, duration, intensity and critical physical demands applicable to the specific task.

RISKS AND DISCOMFORTS: No physical risks or discomforts are associated with the interview.

BENEFITS: Benefits will include that the company as a whole could benefit from the implementation of the eventual tool in the mutual drive to increase productivity and reduce risk in the business. Supervisors could also benefit greatly due to easier and more specific job accommodation in the work place.

PARTICIPANTS' RIGHTS: Participation is voluntary; and you may withdraw from participation in the study at any time and without any negative consequences.

CONFIDENTIALITY: All information will be treated as confidential; your anonymity will be assured; and your data will be destroyed should you withdraw from the project. Only the University of Pretoria, the student and the promoter will have access to the research data.

I, _____ (full name of subject),
have read the abovementioned description, and have been informed of the procedures, requirements, benefits and risks of participating in this research project.



I therefore declare that I willingly cooperate in this project at my own risk, and will not withhold any information that may be of importance to the researchers or for my own safety. I am aware that I participate voluntarily, and may withdraw from this project at any time if I so wish, without any cost to myself.

I hereby also grant the researchers permission to use my results for publication and/or presentation purposes, with my anonymity being ensured.

Signature of subject

Signature of witness

Signature of researcher

Date



Interview Questionnaire:

Date: _____

Company: _____

Name: _____

Job title: _____

Scales:

Frequency		Duration (compared to other tasks)		Importance (compared to other tasks)	
1	1 to 4 times per year	1	Extremely small amount of time	1	Very low importance
2	Once every 2 months	2	Small amount of time	2	Low importance
3	Once or twice per month	3	Below-average amount of time	3	Moderately low importance
4	Once or twice every 2 weeks	4	Average amount of time	4	Average importance
5	Once or twice per week	5	Above-average amount of time	5	Moderately high importance
6	Almost every day	6	Large amount of time	6	High importance
		7	Extremely large amount of time	7	Very high importance



1. Maintenance:	
1.1. Maintenance: Perform vegetation control in company`s servitudes (F =) (D =) (I =)	
1.1.1. Operating veg. control machines: chainsaw	
1.1.2. Operating veg. control machines: brush cutter	
1.1.3. Operating veg. control machines: wheateater	
1.1.3. Manual veg. clearing: bow saw	
1.1.4. Manual veg. clearing: panga	
1.1.5. Manual veg. clearing: axe	
1.1.6. Manual veg. clearing: branch cutters (on link stick)	
1.1.7. Applying growth control chemicals with “spray gun”	
1.2. Maintenance: Maintain access routes and security infrastructure (F =) (D =) (I =)	
1.2.1. Installing fences and gates	
1.2.2. Inspecting fences and gates	
1.2.3. Restoring fences and gates	
1.2.4. Restoring & maintaining of roads and drainage systems	
1.2.5. Reporting conditions of roads and drainage systems	
1.3. Maintenance: Maintain lines and structures: Replacing and securing (F =) (D =) (I =)	
1.3.1. Replacing and securing insulators	
1.3.2. Replacing and securing cross arms	
1.3.3. Replacing and securing bolts and nuts	
1.3.4. Replacing and securing electrical connections	
1.3.5. Replacing and securing anti climbing devices	
1.3.6. Replacing and securing labels and identification markers (pole numbers)	
1.4. Maintenance: Maintain lines and structures: Cleaning (F =) (D =) (I =)	
1.4.1. Cleaning insulators	
1.4.2. Cleaning cross arms	
1.4.3. Cleaning bolts and nuts	
1.4.4. Cleaning electrical connections	
1.4.5. Cleaning anti climbing devices	
1.4.6. Cleaning labels	
1.4.7. Cleaning identification markers	
1.5. Maintenance: Maintain lines and structures: Conductor work (F =) (D =) (I =)	
1.5.1. Stringing	
1.5.2. Binding in	
1.5.3. Jointing	
1.5.4. Earthing	



1.6. Maintenance: Maintain lines and structures: Trenches and structures (F =) (D =) (I =)	
1.6.1. Excavating	
1.6.2. Back filling	
1.6.3. Compacting	
1.7. Maintenance: Maintain lines and structures: Foot patrols (F =) (D =) (I =)	
1.8. Maintenance: Maintain lines and structures: Vehicle patrols (F =) (D =) (I =)	
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting (F =) (D =) (I =)	
1.9.1. Inspecting performance	
1.9.2. Reporting performance	
1.10. Maintenance: Maintain substations and control rooms: Batteries (F =) (D =) (I =)	
1.10.1. Inspecting batteries	
1.10.2. Topping batteries up with electrolyte	
1.10.3. Cleaning of batteries	
1.10.4. Testing the Specific Gravity of batteries	
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found (F =) (D =) (I =)	
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control (F =) (D =) (I =)	
1.13. Maintenance: Work order feedback and clearance (F =) (D =) (I =)	
2. Repair	
2.1. Repair: Being on standby (F =) (D =) (I =)	
2.1.1. "Standby" could include any of the mentioned tasks	
2.2. Repair: Restoring equipment and structures on lines and substations (F =) (D =) (I =)	
2.2.1. Replacing plant and equipment under supervision	
2.2.2. Securing plant and equipment under supervision	



2.2.3. Cleaning plant and equipment under supervision	
2.2.4. Executing foot patrols to identify and report faulty plant	
2.2.5. Executing vehicle patrols to identify and report faulty plant	
2.2.6. Switching on Low Volt networks	
3. Building	
3.1. Building: Poles and structures (F =) (D =) (I =)	
3.1.1. Dressing poles and structures	
3.1.2. Erecting poles and structures	
3.1.3. Installing poles and structures	
3.1.4. Dismantling poles and structures	
3.2. Building: Installing and dismantling (F =) (D =) (I =)	
3.2.1. Installing and dismantling transformers	
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)	
3.2.3. Installing and dismantling metering points	
3.2.4. Installing and dismantling isolators	
3.2.5. Installing and dismantling drop out fuse links	
3.3. Building: Conductors (F =) (D =) (I =)	
3.3.1. Conductor stringing (cable pulling)	
3.3.2. Conductor binding (connecting two cables)	
3.3.3. Conductor jointing (attaching cable)	
3.3.4. Conductor earthing	
3.4. Building: Securing trenches and structures (F =) (D =) (I =)	
3.4.1. Excavating	
3.4.2. Back filling	
3.4.3. Compacting	
4. Health and Safety (F =) (D =) (I =)	
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor	
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use	
4.3. Using and caring for personal protective equipment as per requirement	
4.4. Effecting statutory and non-statutory appointment	
5. Customer service (F =) (D =) (I =)	
5.1. Reading cyclic and demand meters on small power users	
5.2. Sealing cyclic and demand meters on small power users	
5.3. Conforming to the Customer Service Charter	
5.4. Giving milestone feedback	



6. House keeping (maintain an ergonomically sound and hygienic workplace) (F =) (D =) (I =)

6.1. Cleaning of work sites, work stations and infrastructures: Sweeping	
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors	
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows	
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).	
6.5. Executing safe and economic handling, stacking and storing of material	
6.6. Erecting barricades and danger notification	
6.7. Preparing system earthing (securing high risk work area before working)	

Annexure 5: Technician Job Accommodation Mask

Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
Physical Ability Tests	Lifting strength above head	Lifting strength from floor (Right & Left)	Arm adduc-tion strength	Shoulder endurance at eye level (Right & Left)	Balance test	Arm / Shoulder strength	Back strength	Leg strength	3 minute step test	Grip strength (Right & Left)	1 minute abdominal endurance test
Test Results (M = Meets min. requirement) (D = Does not meet requirement)											
1. Maintenance:											
1.1. Maintenance: Perform vegetation control in company`s servitudes (4.3%)											
1.1.1. Operating veg. control machines: chainsaw											
1.1.2. Operating veg. control machines: brush cutter											
1.1.3. Operating veg. control machines: wheateater											
1.1.4. Manual veg. clearing: bow saw											
1.1.5. Manual veg. clearing: panga											
1.1.6. Manual veg. clearing: axe											
1.1.7. Manual veg. clearing: branch cutters (on link stick)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.1.8 Applying growth control chemicals with “spray gun”											
1.2. Maintenance: Maintain access routes and security infrastructure (2.83%)											
1.2.1. Installing fences and gates											
1.2.2. Inspecting fences and gates											
1.2.3. Restoring fences and gates											
1.2.4. Restoring & maintaining of roads and drainage systems											
1.2.5. Reporting conditions of roads and drainage systems											
1.3. Maintenance: Maintain lines and structures: Replacing and securing (5.43%)											
1.3.1. Replacing and securing insulators											
1.3.2. Replacing and securing cross arms											
1.3.3. Replacing and securing bolts and nuts											
1.3.4. Replacing and securing electrical connections											
1.3.5. Replacing and securing anti climbing devices											
1.3.6. Replacing and securing labels and identification markers (pole numbers)											
1.4. Maintenance: Maintain lines and structures: Cleaning (4.13%)											
1.4.1. Cleaning insulators											
1.4.2. Cleaning cross arms											
1.4.3. Cleaning bolts and nuts											
1.4.4. Cleaning electrical connections											
1.4.5. Cleaning anti climbing devices											
1.4.6. Cleaning labels											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.4.7. Cleaning identification markers											
1.5. Maintenance: Maintain lines and structures: Conductor work (5.44%)											
1.5.1. Stringing											
1.5.2. Binding in											
1.5.3. Jointing											
1.5.4. Earthing											
1.6. Maintenance: Maintain lines and structures: Trenches and structures (4.06%)											
1.6.1. Excavating											
1.6.2. Back filling											
1.6.3. Compacting											
1.7. Maintenance: Maintain lines and structures: Foot patrols (2.46%)											
1.8. Maintenance: Maintain lines and structures: Vehicle patrols (5.08%)											
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting (2.65%)											
1.9.1. Inspecting performance											
1.9.2. Reporting performance											
1.10. Maintenance: Maintain substations and control rooms: Batteries (4.26%)											
1.10.1. Inspecting batteries											
1.10.2. Topping batteries up with electrolyte											
1.10.3. Cleaning of batteries											
1.10.4. Testing the Specific Gravity of batteries											
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found (4.19%)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control (4.52%)											
1.13. Maintenance: Work order feedback and clearance (5.34%)											
2. Repair											
2.1. Repair: Being on standby (5.3%)											
2.1.1. "Standby" could include any of the mentioned tasks											
2.2. Repair: Restoring equipment and structures on lines and substations (3.86%)											
2.2.1. Replacing plant and equipment under supervision											
2.2.2. Securing plant and equipment under supervision											
2.2.3. Cleaning plant and equipment under supervision											
2.2.4. Executing foot patrols to identify and report faulty plant											
2.2.5. Executing vehicle patrols to identify and report faulty plant											
2.2.6. Switching on Low Volt networks											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3. Building											
3.1. Building: Poles and structures (5.33%)											
3.1.1. Dressing poles and structures											
3.1.2. Erecting poles and structures											
3.1.3. Installing poles and structures											
3.1.4. Dismantling poles and structures											
3.2. Building: Installing and dismantling (5.19%)											
3.2.1. Installing and dismantling transformers											
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)											
3.2.3. Installing and dismantling metering points											
3.2.4. Installing and dismantling isolators											
3.2.5. Installing and dismantling drop out fuse links											
3.3. Building: Conductors (5.32%)											
3.3.1. Conductor stringing											
3.3.2. Conductor binding											
3.3.3. Conductor jointing											
3.3.4. Conductor earthing											
3.4. Building: Securing trenches and structures (4.97%)											
3.4.1. Excavating											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3.4.2. Back filling											
3.4.3. Compacting											
4. Health and Safety (5.04%)											
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor											
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use											
4.3. Using and caring for personal protective equipment as per requirement											
4.4. Effecting statutory and non-statutory appointment											
5. Customer service (5.31%)											
5.1. Reading cyclic and demand meters on small power users											
5.2. Sealing cyclic and demand meters on small power users											
5.3. Conforming to the Customer Service Charter											
5.4. Giving milestone feedback											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
6. House keeping: Maintain an ergonomically sound and hygienic workplace (4.99%)											
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping											
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors											
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows											
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).											
6.5. Executing safe and economic handling, stacking and storing of material											
6.6. Erecting barricades and danger notification											
6.7. Preparing system earthing (securing high risk work area before working)											

Percentage of total work outputs that can be performed by subject	%
--	----------

Annexure 6: Job Accommodation Report Form

SA ELEC	JOB ACCOMMODATION REPORT FORM
----------------	--------------------------------------

Initials and Surname	
Date of Birth	
Gender	
Job Title	
Department	
Site Location	
Date	

Comments

Conditions / Findings:

Test results below minimum physical requirements:

Percentage of total work outputs that can be performed by subject	%
--	----------



Task specific job accommodation recommendations:

(tasks NOT recommended are marked with “X”)

1. Maintenance:	
1.1. Maintenance: Perform vegetation control in company`s servitudes:	
1.1.1. Operating veg. control machines: chainsaw	
1.1.2. Operating veg. control machines: brush cutter	
1.1.3. Operating veg. control machines: wheateater	
1.1.4. Manual veg. clearing: bow saw	
1.1.5. Manual veg. clearing: panga	
1.1.6. Manual veg. clearing: axe	
1.1.7. Manual veg. clearing: branch cutters (on link stick)	
1.1.8 Applying growth control chemicals with “spray gun”	
1.2. Maintenance: Maintain access routes and security infrastructure:	
1.2.1. Installing fences and gates	
1.2.2. Inspecting fences and gates	
1.2.3. Restoring fences and gates	
1.2.4. Restoring & maintaining of roads and drainage systems	
1.2.5. Reporting conditions of roads and drainage systems	
1.3. Maintenance: Maintain lines and structures: Replacing and securing:	
1.3.1. Replacing and securing insulators	
1.3.2. Replacing and securing cross arms	
1.3.3. Replacing and securing bolts and nuts	
1.3.4. Replacing and securing electrical connections	
1.3.5. Replacing and securing anti climbing devices	
1.3.6. Replacing and securing labels and identification markers (pole numbers)	
1.4. Maintenance: Maintain lines and structures: Cleaning:	
1.4.1. Cleaning insulators	
1.4.2. Cleaning cross arms	
1.4.3. Cleaning bolts and nuts	
1.4.4. Cleaning electrical connections	
1.4.5. Cleaning anti climbing devices	
1.4.6. Cleaning labels	
1.4.7. Cleaning identification markers	
1.5. Maintenance: Maintain lines and structures: Conductor work:	
1.5.1. Stringing	
1.5.2. Binding in	
1.5.3. Jointing	
1.5.4. Earthing	
1.6. Maintenance: Maintain lines and structures: Trenches and structures:	



1.6.1. Excavating	
1.6.2. Back filling	
1.6.3. Compacting	
1.7. Maintenance: Maintain lines and structures: Foot patrols	
1.8. Maintenance: Maintain lines and structures: Vehicle patrols	
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting:	
1.9.1. Inspecting performance	
1.9.2. Reporting performance	
1.10. Maintenance: Maintain substations and control rooms: Batteries:	
1.10.1. Inspecting batteries	
1.10.2. Topping batteries up with electrolyte	
1.10.3. Cleaning of batteries	
1.10.4. Testing the Specific Gravity of batteries	
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found	
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control	
1.13. Maintenance: Work order feedback and clearance	
2. Repair:	
2.1. Repair: Being on standby:	
2.1.1. "Standby" could include any of the mentioned tasks	
2.2. Repair: Restoring equipment and structures on lines and substations:	
2.2.1. Replacing plant and equipment under supervision	
2.2.2. Securing plant and equipment under supervision	
2.2.3. Cleaning plant and equipment under supervision	
2.2.4. Executing foot patrols to identify and report faulty plant	
2.2.5. Executing vehicle patrols to identify and report faulty plant	
2.2.6. Switching on Low Volt networks	
3. Building:	
3.1. Building: Poles and structures:	
3.1.1. Dressing poles and structures	



3.1.2. Erecting poles and structures	
3.1.3. Installing poles and structures	
3.1.4. Dismantling poles and structures	
3.2. Building: Installing and dismantling:	
3.2.1. Installing and dismantling transformers	
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)	
3.2.3. Installing and dismantling metering points	
3.2.4. Installing and dismantling isolators	
3.2.5. Installing and dismantling drop out fuse links	
3.3. Building: Conductors:	
3.3.1. Conductor stringing (cable pulling)	
3.3.2. Conductor binding (connecting two cables)	
3.3.3. Conductor jointing (attaching cable)	
3.3.4. Conductor earthing	
3.4. Building: Securing trenches and structures:	
3.4.1. Excavating	
3.4.2. Back filling	
3.4.3. Compacting	
4. Health and Safety:	
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor	
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use	
4.3. Using and caring for personal protective equipment as per requirement	
4.4. Effecting statutory and non-statutory appointment	
5. Customer service:	
5.1. Reading cyclic and demand meters on small power users	
5.2. Sealing cyclic and demand meters on small power users	
5.3. Conforming to the Customer Service Charter	
5.4. Giving milestone feedback	
6. House keeping (maintain an ergonomically sound and hygienic workplace):	
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping	
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors	
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows	
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).	
6.5. Executing safe and economic handling, stacking and storing of material	
6.6. Erecting barricades and danger notification	
6.7. Preparing system earthing (securing high risk work area before working)	



Annexure 7: Informed Consent for Subject A

Personal Details

Initials	A	Surname	Συβφεχτ	
Department	ΦΣ	Gender	Male <input checked="" type="checkbox"/>	Female
Site location	Ματοοστερ	Date of birth	12 / 02 / 1972	
Job Title	Τεχνηνιχιαν	Date	30 / 08 / 2007	

I hereby voluntarily consent to undergo the Physical Ability Assessment. I confirm that I was fully informed with regards to the purpose and procedure of the evaluation.

- | | | |
|--|------------------------------|--|
| 1. Do you suffer from high blood pressure? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. Have you ever been told that you have high blood pressure? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 3. Do you presently take any medication for high blood pressure? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 4. Have you injured your back in the last 6 months? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 5. Do you suffer from pain in your lower back at present? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 6. Have you ever been diagnosed with heart problems? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 7. Do you suffer from pain in the chest or heart? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 8. Do you have a hernia? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 9. Do you have osteoporosis? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 10. Family history re: Cardiac diseases, osteoporosis, and chronic diseases? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> <input type="checkbox"/> |

If you have answered YES to any of the above questions, please specify:

	N/A
--	-----

Have you had any operations in any of the following?

Wrist	N/A	Arms	N/A	Legs	N/A	Back	N/A
-------	-----	------	-----	------	-----	------	-----

Are there any other reasons why you can not perform the physical ability assessment? Please specify:

Ηαδ σεριουστ ωριστ ινφυρψ. Ριγητ ωριστ, αρμ ανδ σηουλδερ ιστ περιψ ωεακ. Υνχονφορταβλε το υσε ριγητ αρμ.
--

I declare that all the information regarding my health is true and correct. I give my consent that the results may be used for report and research purposes, knowing that all my information will be kept confidential. I expressly undertake that in the event of any unforeseen injury during the test, I shall not hold either the evaluator or the evaluator's employer, or my employer, liable for any claim I may have resulting from such test / injury. I am aware that I may withdraw my consent or discontinue with the assessment at any time.

Signature ΣυβφεχτΑ

Date 30 / 08 / 2007

Annexure 8: Physical ability data form for Subject A

Physical Measurements

Comments

Height (cm)	1	7	4.	2		
Weight (kg)		8	3.	8		
Resting systolic BP (mmHg)		1	2	4		
Resting diastolic BP (mmHg)			8	4		
Flexibility (cm)		4	1.	5		
3 minute step-up test (b / min)		1	2	8	M	
Grip Strength Right (kg)		1	3.	9	D	Wrist injury
Grip Strength Left (kg)		3	8.	4	M	
Arm / Shoulder Muscle Strength (kg)		4	0.	5	D	Weak right arm and shoulder
Back Muscle Strength (kg)		8	5.	5	M	
Leg Muscle Strength (kg)		2	4	3	M	
Stomach Muscle Endurance (reps/min)			2	5	M	
Lifting strength above head (kg)		D	N	D	D	Did not do test (could not lift iron bars high enough)
Lifting strength from floor – right (kg)			3	8	D	Weak right arm and shoulder
Lifting strength from floor – left (kg)		6	3.	5	M	
Arm adduction strength (kg)		2	8.	9	D	Weak right arm and shoulder
Shoulder endurance – right (seconds)				0	D	Could not lift 5 kg weight to eye height
Shoulder endurance – left (seconds)			3	0	M	
Balance (seconds)				6	M	

Additional information

Very weak in right arm and shoulder

Annexure 9: Job Accommodation Mask for Subject A

Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
Physical Ability Tests	Lifting strength above head	Lifting strength from floor (Right & Left)	Arm adduc-tion strength	Shoulder endurance at eye level (Right & Left)	Balance test	Arm / Shoulder strength	Back strength	Leg strength	3 minute step test	Grip strength (Right & Left)	1 minute abdominal endurance test
Test Results (M = Meets min. requirement) (D = Does not meet requirement)	D	D	D	D	M	D	M	M	M	D	M

1. Maintenance:

1.1. Maintenance: Perform vegetation control in company's servitudes (4.3%)

1.1.1. Operating veg. control machines: chainsaw	X			X							
1.1.2. Operating veg. control machines: brush cutter											
1.1.3. Operating veg. control machines: wheateater										X	
1.1.4. Manual veg. clearing: bow saw						X				X	
1.1.5. Manual veg. clearing: panga										X	
1.1.6. Manual veg. clearing: axe	X					X				X	
1.1.7. Manual veg. clearing: branch cutters (on link stick)	X			X		X				X	



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.1.8 Applying growth control chemicals with “spray gun”		X				X					
1.2. Maintenance: Maintain access routes and security infrastructure (2.83%)											
1.2.1. Installing fences and gates		X		X						X	
1.2.2. Inspecting fences and gates											
1.2.3. Restoring fences and gates		X		X						X	
1.2.4. Restoring & maintaining of roads and drainage systems						X					
1.2.5. Reporting conditions of roads and drainage systems											
1.3. Maintenance: Maintain lines and structures: Replacing and securing (5.43%)											
1.3.1. Replacing and securing insulators	X	X	X	X		X				X	
1.3.2. Replacing and securing cross arms	X	X	X	X		X				X	
1.3.3. Replacing and securing bolts and nuts				X						X	
1.3.4. Replacing and securing electrical connections	X	X	X	X		X				X	
1.3.5. Replacing and securing anti climbing devices	X	X	X	X		X				X	
1.3.6. Replacing and securing labels and identification markers (pole numbers)				X						X	
1.4. Maintenance: Maintain lines and structures: Cleaning (4.13%)											
1.4.1. Cleaning insulators				X							
1.4.2. Cleaning cross arms				X							
1.4.3. Cleaning bolts and nuts				X							
1.4.4. Cleaning electrical connections				X							
1.4.5. Cleaning anti climbing devices				X							
1.4.6. Cleaning labels				X							



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.4.7. Cleaning identification markers				X							
1.5. Maintenance: Maintain lines and structures: Conductor work (5.44%)											
1.5.1. Stringing										X	
1.5.2. Binding in	X			X		X				X	
1.5.3. Jointing	X		X	X		X				X	
1.5.4. Earthing										X	
1.6. Maintenance: Maintain lines and structures: Trenches and structures (4.06%)											
1.6.1. Excavating	X					X				X	
1.6.2. Back filling						X				X	
1.6.3. Compacting	X									X	
1.7. Maintenance: Maintain lines and structures: Foot patrols (2.46%)											
1.8. Maintenance: Maintain lines and structures: Vehicle patrols (5.08%)											
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting (2.65%)											
1.9.1. Inspecting performance											
1.9.2. Reporting performance											
1.10. Maintenance: Maintain substations and control rooms: Batteries (4.26%)											
1.10.1. Inspecting batteries											
1.10.2. Topping batteries up with electrolyte											
1.10.3. Cleaning of batteries											
1.10.4. Testing the Specific Gravity of batteries											
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found (4.19%)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control (4.52%)	X			X		X				X	
1.13. Maintenance: Work order feedback and clearance (5.34%)											
2. Repair											
2.1. Repair: Being on standby (5.3%)											
2.1.1. "Standby" could include any of the mentioned tasks	X	X	X	X		X				X	
2.2. Repair: Restoring equipment and structures on lines and substations (3.86%)											
2.2.1. Replacing plant and equipment under supervision	X	X	X	X		X				X	
2.2.2. Securing plant and equipment under supervision	X	X	X	X		X				X	
2.2.3. Cleaning plant and equipment under supervision	X	X		X		X				X	
2.2.4. Executing foot patrols to identify and report faulty plant											
2.2.5. Executing vehicle patrols to identify and report faulty plant											
2.2.6. Switching on Low Volt networks	X	X		X		X				X	



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3. Building											
3.1. Building: Poles and structures (5.33%)											
3.1.1. Dressing poles and structures				X							
3.1.2. Erecting poles and structures	X										
3.1.3. Installing poles and structures	X										
3.1.4. Dismantling poles and structures	X			X						X	
3.2. Building: Installing and dismantling (5.19%)											
3.2.1. Installing and dismantling transformers	X	X		X	X	X				X	
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)	X	X		X		X				X	
3.2.3. Installing and dismantling metering points		X		X						X	
3.2.4. Installing and dismantling isolators	X	X		X		X				X	
3.2.5. Installing and dismantling drop out fuse links	X	X		X		X				X	
3.3. Building: Conductors (5.32%)											
3.3.1. Conductor stringing										X	
3.3.2. Conductor binding	X			X		X				X	
3.3.3. Conductor jointing	X		X	X		X				X	
3.3.4. Conductor earthing										X	
3.4. Building: Securing trenches and structures (4.97%)											
3.4.1. Excavating	X					X				X	



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3.4.2. Back filling						X				X	
3.4.3. Compacting	X									X	
4. Health and Safety (5.04%)											
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor											
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use											
4.3. Using and caring for personal protective equipment as per requirement											
4.4. Effecting statutory and non-statutory appointment											
5. Customer service (5.31%)											
5.1. Reading cyclic and demand meters on small power users											
5.2. Sealing cyclic and demand meters on small power users											
5.3. Conforming to the Customer Service Charter											
5.4. Giving milestone feedback											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
6. House keeping: Maintain an ergonomically sound and hygienic workplace (4.99%)											
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping											
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors		X									
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows		X		X							
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).	X			X		X				X	
6.5. Executing safe and economic handling, stacking and storing of material	X	X				X				X	
6.6. Erecting barricades and danger notification	X			X		X				X	
6.7. Preparing system earthing (securing high risk work area before working)										X	

Percentage of total work outputs that can be performed by subject	34.33%
--	---------------



Annexure 10: Job Accommodation Report Form for Subject A

SA ELEC	JOB ACCOMMODATION REPORT FORM
----------------	--------------------------------------

Initials and Surname	A. Subject
Date of Birth	12 / 02 / 1972
Gender	M
Job Title	Technician
Department	FS
Site Location	Matooster
Date	30 / 08 / 2007

Comments

Conditions / Findings:
Initial injury: Fracture of right wrist & dislocation of right shoulder
Currently: Extreme weakness in right wrist, arm and shoulder. Using right arm causes discomfort in wrist and arm.

Test results BELOW minimum physical requirements:
Grip strength – right
Arm/shoulder muscle strength
Lifting strength above head
Lifting strength from floor - right
Arm adduction strength
Shoulder endurance - right

Percentage of total work outputs that can be performed by subject	34.33 %
--	----------------



Task specific job accommodation recommendations:

(tasks NOT recommended are marked with “X”)

1. Maintenance:	
1.1. Maintenance: Perform vegetation control in company`s servitudes:	
1.1.1. Operating veg. control machines: chainsaw	X
1.1.2. Operating veg. control machines: brush cutter	
1.1.3. Operating veg. control machines: wheateater	X
1.1.4. Manual veg. clearing: bow saw	X
1.1.5. Manual veg. clearing: panga	X
1.1.6. Manual veg. clearing: axe	X
1.1.7. Manual veg. clearing: branch cutters (on link stick)	X
1.1.8 Applying growth control chemicals with “spray gun”	X
1.2. Maintenance: Maintain access routes and security infrastructure:	
1.2.1. Installing fences and gates	X
1.2.2. Inspecting fences and gates	
1.2.3. Restoring fences and gates	X
1.2.4. Restoring & maintaining of roads and drainage systems	X
1.2.5. Reporting conditions of roads and drainage systems	
1.3. Maintenance: Maintain lines and structures: Replacing and securing:	
1.3.1. Replacing and securing insulators	X
1.3.2. Replacing and securing cross arms	X
1.3.3. Replacing and securing bolts and nuts	X
1.3.4. Replacing and securing electrical connections	X
1.3.5. Replacing and securing anti climbing devices	X
1.3.6. Replacing and securing labels and identification markers (pole numbers)	X
1.4. Maintenance: Maintain lines and structures: Cleaning:	
1.4.1. Cleaning insulators	X
1.4.2. Cleaning cross arms	X
1.4.3. Cleaning bolts and nuts	X
1.4.4. Cleaning electrical connections	X
1.4.5. Cleaning anti climbing devices	X
1.4.6. Cleaning labels	X
1.4.7. Cleaning identification markers	X
1.5. Maintenance: Maintain lines and structures: Conductor work:	
1.5.1. Stringing	X
1.5.2. Binding in	X
1.5.3. Jointing	X
1.5.4. Earthing	X
1.6. Maintenance: Maintain lines and structures: Trenches and structures:	



1.6.1. Excavating	X
1.6.2. Back filling	X
1.6.3. Compacting	X
1.7. Maintenance: Maintain lines and structures: Foot patrols:	
1.8. Maintenance: Maintain lines and structures: Vehicle patrols:	
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting:	
1.9.1. Inspecting performance	
1.9.2. Reporting performance	
1.10. Maintenance: Maintain substations and control rooms: Batteries:	
1.10.1. Inspecting batteries	
1.10.2. Topping batteries up with electrolyte	
1.10.3. Cleaning of batteries	
1.10.4. Testing the Specific Gravity of batteries	
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found:	
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control:	X
1.13. Maintenance: Work order feedback and clearance:	
2. Repair:	
2.1. Repair: Being on standby:	
2.1.1. "Standby" could include any of the mentioned tasks	X
2.2. Repair: Restoring equipment and structures on lines and substations:	
2.2.1. Replacing plant and equipment under supervision	X
2.2.2. Securing plant and equipment under supervision	X
2.2.3. Cleaning plant and equipment under supervision	X
2.2.4. Executing foot patrols to identify and report faulty plant	
2.2.5. Executing vehicle patrols to identify and report faulty plant	
2.2.6. Switching on Low Volt networks	X
3. Building:	
3.1. Building: Poles and structures:	



3.1.1. Dressing poles and structures	X
3.1.2. Erecting poles and structures	X
3.1.3. Installing poles and structures	X
3.1.4. Dismantling poles and structures	X
3.2. Building: Installing and dismantling:	
3.2.1. Installing and dismantling transformers	X
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)	X
3.2.3. Installing and dismantling metering points	X
3.2.4. Installing and dismantling isolators	X
3.2.5. Installing and dismantling drop out fuse links	X
3.3. Building: Conductors:	
3.3.1. Conductor stringing (cable pulling)	X
3.3.2. Conductor binding (connecting two cables)	X
3.3.3. Conductor jointing (attaching cable)	X
3.3.4. Conductor earthing	X
3.4. Building: Securing trenches and structures:	
3.4.1. Excavating	X
3.4.2. Back filling	X
3.4.3. Compacting	X
4. Health and Safety:	
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor	
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use	
4.3. Using and caring for personal protective equipment as per requirement	
4.4. Effecting statutory and non-statutory appointment	
5. Customer service:	
5.1. Reading cyclic and demand meters on small power users	
5.2. Sealing cyclic and demand meters on small power users	
5.3. Conforming to the Customer Service Charter	
5.4. Giving milestone feedback	
6. House keeping (maintain an ergonomically sound and hygienic workplace):	
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping	
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors	X
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows	X
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).	X
6.5. Executing safe and economic handling, stacking and storing of material	X
6.6. Erecting barricades and danger notification	X
6.7. Preparing system earthing (securing high risk work area before working)	X

Annexure 11: Informed Consent for Subject B

Personal Details

Initials	B	Surname	Συβφεχτ	
Department	ΦΣ	Gender	Male	Female ☒
Site location	Ροοσσενεκαλ	Date of birth	07 / 10 / 1983	
Job Title	Τεχνηνιχιαν	Date	14 / 09 / 2007	

I hereby voluntarily consent to undergo the Physical Ability Assessment. I confirm that I was fully informed with regards to the purpose and procedure of the evaluation.

- | | | | |
|-----|--|------------------------------|-----------------------------|
| 1. | Do you suffer from high blood pressure? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 2. | Have you ever been told that you have high blood pressure? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 3. | Do you presently take any medication for high blood pressure? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 4. | Have you injured your back in the last 6 months? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 5. | Do you suffer from pain in your lower back at present? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 6. | Have you ever been diagnosed with heart problems? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 7. | Do you suffer from pain in the chest or heart? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 8. | Do you have a hernia? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 9. | Do you have osteoporosis? | <input type="checkbox"/> Yes | <input type="checkbox"/> ☒ |
| 10. | Family history re: Cardiac diseases, osteoporosis, and chronic diseases? | <input type="checkbox"/> ☒ | <input type="checkbox"/> No |

If you have answered YES to any of the above questions, please specify:

10	Μη μοτηερ συφφερσ φρομ διαβετες ανδ ηιγη βλοοδ πρεσσυρε

Have you had any operations in any of the following?

Wrist	N/A	Arms	N/A	Legs	N/A	Back	N/A
-------	-----	------	-----	------	-----	------	-----

Are there any other reasons why you can not perform the physical ability assessment? Please specify:

N/A

I declare that all the information regarding my health is true and correct. I give my consent that the results may be used for report and research purposes, knowing that all my information will be kept confidential. I expressly undertake that in the event of any unforeseen injury during the test, I shall not hold either the evaluator or the evaluator's employer, or my employer, liable for any claim I may have resulting from such test / injury. I am aware that I may withdraw my consent or discontinue with the assessment at any time.

Signature ΣυβφεχτB

Date 14 / 09 / 2007

Annexure 12: Physical Ability Data Form for Subject B

Physical Measurements

Comments

Height (cm)	1	6	5.	9	
Weight (kg)		7	6.	7	
Resting systolic BP (mmHg)		1	2	4	
Resting diastolic BP (mmHg)			8	0	
Flexibility (cm)		4	5.	2	
3 minute step-up test (b / min)		1	6	4	D
Grip Strength Right (kg)		3	9.	5	M
Grip Strength Left (kg)		4	1.	9	M
Arm / Shoulder Muscle Strength (kg)		7	4.	5	M
Back Muscle Strength (kg)			9	0	M
Leg Muscle Strength (kg)	2	0	2.	5	M
Stomach Muscle Endurance (reps/min)				7	D
Lifting strength above head (kg)		2	8.	5	M
Lifting strength from floor – right (kg)			5	4	M
Lifting strength from floor – left (kg)			5	4	M
Arm adduction strength (kg)		2	3.	3	D
Shoulder endurance – right (seconds)			2	5	M
Shoulder endurance – left (seconds)			2	5	M
Balance (seconds)				8	M

Additional information

N/A

Annexure 13: Job Accommodation Mask for Subject B

Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
Physical Ability Tests	Lifting strength above head	Lifting strength from floor (Right & Left)	Arm adduc-tion strength	Shoulder endurance at eye level (Right & Left)	Balance test	Arm / Shoulder strength	Back strength	Leg strength	3 minute step test	Grip strength (Right & Left)	1 minute abdominal endurance test
Test Results (M = Meets min. requirement) (D = Does not meet requirement)	M	M	D	M	M	M	M	M	D	M	D

1. Maintenance:

1.1. Maintenance: Perform vegetation control in company's servitudes (4.3%)

1.1.1. Operating veg. control machines: chainsaw											X
1.1.2. Operating veg. control machines: brush cutter											
1.1.3. Operating veg. control machines: wheateater											
1.1.4. Manual veg. clearing: bow saw									X		
1.1.5. Manual veg. clearing: panga									X		
1.1.6. Manual veg. clearing: axe									X		X
1.1.7. Manual veg. clearing: branch cutters (on link stick)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.1.8 Applying growth control chemicals with “spray gun”											
1.2. Maintenance: Maintain access routes and security infrastructure (2.83%)											
1.2.1. Installing fences and gates											
1.2.2. Inspecting fences and gates											
1.2.3. Restoring fences and gates											
1.2.4. Restoring & maintaining of roads and drainage systems											
1.2.5. Reporting conditions of roads and drainage systems											
1.3. Maintenance: Maintain lines and structures: Replacing and securing (5.43%)											
1.3.1. Replacing and securing insulators			X								X
1.3.2. Replacing and securing cross arms			X								X
1.3.3. Replacing and securing bolts and nuts											
1.3.4. Replacing and securing electrical connections			X								X
1.3.5. Replacing and securing anti climbing devices			X								X
1.3.6. Replacing and securing labels and identification markers (pole numbers)											
1.4. Maintenance: Maintain lines and structures: Cleaning (4.13%)											
1.4.1. Cleaning insulators											
1.4.2. Cleaning cross arms											
1.4.3. Cleaning bolts and nuts											
1.4.4. Cleaning electrical connections											
1.4.5. Cleaning anti climbing devices											
1.4.6. Cleaning labels											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.4.7. Cleaning identification markers											
1.5. Maintenance: Maintain lines and structures: Conductor work (5.44%)											
1.5.1. Stringing									X		X
1.5.2. Binding in											X
1.5.3. Jointing			X								X
1.5.4. Earthing											
1.6. Maintenance: Maintain lines and structures: Trenches and structures (4.06%)											
1.6.1. Excavating									X		
1.6.2. Back filling									X		
1.6.3. Compacting									X		X
1.7. Maintenance: Maintain lines and structures: Foot patrols (2.46%)									X		
1.8. Maintenance: Maintain lines and structures: Vehicle patrols (5.08%)											
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting (2.65%)											
1.9.1. Inspecting performance											
1.9.2. Reporting performance											
1.10. Maintenance: Maintain substations and control rooms: Batteries (4.26%)											
1.10.1. Inspecting batteries											
1.10.2. Topping batteries up with electrolyte											
1.10.3. Cleaning of batteries											
1.10.4. Testing the Specific Gravity of batteries											
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found (4.19%)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control (4.52%)									X		X
1.13. Maintenance: Work order feedback and clearance (5.34%)											
2. Repair											
2.1. Repair: Being on standby (5.3%)											
2.1.1. "Standby" could include any of the mentioned tasks			X						X		X
2.2. Repair: Restoring equipment and structures on lines and substations (3.86%)											
2.2.1. Replacing plant and equipment under supervision			X						X		X
2.2.2. Securing plant and equipment under supervision			X						X		X
2.2.3. Cleaning plant and equipment under supervision									X		X
2.2.4. Executing foot patrols to identify and report faulty plant									X		
2.2.5. Executing vehicle patrols to identify and report faulty plant											
2.2.6. Switching on Low Volt networks											X



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3. Building											
3.1. Building: Poles and structures (5.33%)											
3.1.1. Dressing poles and structures											
3.1.2. Erecting poles and structures											X
3.1.3. Installing poles and structures											X
3.1.4. Dismantling poles and structures											X
3.2. Building: Installing and dismantling (5.19%)											
3.2.1. Installing and dismantling transformers											X
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)											X
3.2.3. Installing and dismantling metering points											
3.2.4. Installing and dismantling isolators											X
3.2.5. Installing and dismantling drop out fuse links											X
3.3. Building: Conductors (5.32%)											
3.3.1. Conductor stringing									X		X
3.3.2. Conductor binding											X
3.3.3. Conductor jointing			X								X
3.3.4. Conductor earthing											
3.4. Building: Securing trenches and structures (4.97%)											
3.4.1. Excavating									X		



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3.4.2. Back filling									X		
3.4.3. Compacting									X		X
4. Health and Safety (5.04%)											
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor											
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use											
4.3. Using and caring for personal protective equipment as per requirement											
4.4. Effecting statutory and non-statutory appointment											
5. Customer service (5.31%)											
5.1. Reading cyclic and demand meters on small power users											
5.2. Sealing cyclic and demand meters on small power users											
5.3. Conforming to the Customer Service Charter											
5.4. Giving milestone feedback											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
6. House keeping: Maintain an ergonomically sound and hygienic workplace (4.99%)											
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping											X
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors											X
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows											X
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).									X		X
6.5. Executing safe and economic handling, stacking and storing of material											X
6.6. Erecting barricades and danger notification											
6.7. Preparing system earthing (securing high risk work area before working)											

Percentage of total work outputs that can be performed by subject	41.29%
--	---------------



Annexure 14: Job Accommodation Report Form for Subject B

SA ELEC	JOB ACCOMMODATION REPORT FORM
----------------	--------------------------------------

Initials and Surname	B. Subject
Date of Birth	07 / 10 / 1983
Gender	F
Job Title	Technician
Department	FS
Site Location	Roosenekal
Date	14 / 09 / 2007

Comments

Conditions / Findings:
Was referred by her supervisor because of insufficient physical ability to perform the tasks related to the technician position.

Test results BELOW minimum physical requirements:
Cardiovascular fitness
Stomach muscle endurance
Arm adduction strength

Percentage of total work outputs that can be performed by subject	41.29 %
--	----------------



Task specific job accommodation recommendations:

(tasks NOT recommended are marked with “X”)

1. Maintenance:	
1.1. Maintenance: Perform vegetation control in company`s servitudes:	
1.1.1. Operating veg. control machines: chainsaw	X
1.1.2. Operating veg. control machines: brush cutter	
1.1.3. Operating veg. control machines: wheateater	
1.1.4. Manual veg. clearing: bow saw	X
1.1.5. Manual veg. clearing: panga	X
1.1.6. Manual veg. clearing: axe	X
1.1.7. Manual veg. clearing: branch cutters (on link stick)	
1.1.8 Applying growth control chemicals with “spray gun”	
1.2. Maintenance: Maintain access routes and security infrastructure:	
1.2.1. Installing fences and gates	
1.2.2. Inspecting fences and gates	
1.2.3. Restoring fences and gates	
1.2.4. Restoring & maintaining of roads and drainage systems	
1.2.5. Reporting conditions of roads and drainage systems	
1.3. Maintenance: Maintain lines and structures: Replacing and securing:	
1.3.1. Replacing and securing insulators	X
1.3.2. Replacing and securing cross arms	X
1.3.3. Replacing and securing bolts and nuts	
1.3.4. Replacing and securing electrical connections	X
1.3.5. Replacing and securing anti climbing devices	X
1.3.6. Replacing and securing labels and identification markers (pole numbers)	
1.4. Maintenance: Maintain lines and structures: Cleaning:	
1.4.1. Cleaning insulators	
1.4.2. Cleaning cross arms	
1.4.3. Cleaning bolts and nuts	
1.4.4. Cleaning electrical connections	
1.4.5. Cleaning anti climbing devices	
1.4.6. Cleaning labels	
1.4.7. Cleaning identification markers	
1.5. Maintenance: Maintain lines and structures: Conductor work:	
1.5.1. Stringing	X
1.5.2. Binding in	X
1.5.3. Jointing	X
1.5.4. Earthing	
1.6. Maintenance: Maintain lines and structures: Trenches and structures:	



1.6.1. Excavating	X
1.6.2. Back filling	X
1.6.3. Compacting	X
1.7. Maintenance: Maintain lines and structures: Foot patrols:	X
1.8. Maintenance: Maintain lines and structures: Vehicle patrols:	
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting:	
1.9.1. Inspecting performance	
1.9.2. Reporting performance	
1.10. Maintenance: Maintain substations and control rooms: Batteries:	
1.10.1. Inspecting batteries	
1.10.2. Topping batteries up with electrolyte	
1.10.3. Cleaning of batteries	
1.10.4. Testing the Specific Gravity of batteries	
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found:	
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control:	X
1.13. Maintenance: Work order feedback and clearance:	
2. Repair:	
2.1. Repair: Being on standby:	
2.1.1. "Standby" could include any of the mentioned tasks	X
2.2. Repair: Restoring equipment and structures on lines and substations:	
2.2.1. Replacing plant and equipment under supervision	X
2.2.2. Securing plant and equipment under supervision	X
2.2.3. Cleaning plant and equipment under supervision	X
2.2.4. Executing foot patrols to identify and report faulty plant	X
2.2.5. Executing vehicle patrols to identify and report faulty plant	
2.2.6. Switching on Low Volt networks	X
3. Building:	
3.1. Building: Poles and structures:	



3.1.1. Dressing poles and structures	
3.1.2. Erecting poles and structures	X
3.1.3. Installing poles and structures	X
3.1.4. Dismantling poles and structures	X
3.2. Building: Installing and dismantling:	
3.2.1. Installing and dismantling transformers	X
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)	X
3.2.3. Installing and dismantling metering points	
3.2.4. Installing and dismantling isolators	X
3.2.5. Installing and dismantling drop out fuse links	X
3.3. Building: Conductors:	
3.3.1. Conductor stringing (cable pulling)	X
3.3.2. Conductor binding (connecting two cables)	X
3.3.3. Conductor jointing (attaching cable)	X
3.3.4. Conductor earthing	
3.4. Building: Securing trenches and structures:	
3.4.1. Excavating	X
3.4.2. Back filling	X
3.4.3. Compacting	X
4. Health and Safety:	
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor	
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use	
4.3. Using and caring for personal protective equipment as per requirement	
4.4. Effecting statutory and non-statutory appointment	
5. Customer service:	
5.1. Reading cyclic and demand meters on small power users	
5.2. Sealing cyclic and demand meters on small power users	
5.3. Conforming to the Customer Service Charter	
5.4. Giving milestone feedback	
6. House keeping (maintain an ergonomically sound and hygienic workplace):	
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping	X
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors	X
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows	X
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).	X
6.5. Executing safe and economic handling, stacking and storing of material	X
6.6. Erecting barricades and danger notification	
6.7. Preparing system earthing (securing high risk work area before working)	



Annexure 15: Informed Consent for Subject C

Personal Details

Initials	<i>C</i>	Surname	<i>Subject</i>	
Department	<i>FS</i>	Gender	Male <i>X</i>	Female
Site location	<i>Tlhabane</i>	Date of birth	<i>11 March 1959</i>	
Job Title	<i>Technician</i>	Date	<i>18 Sep 2007</i>	

I hereby voluntarily consent to undergo the Physical Ability Assessment. I confirm that I was fully informed with regards to the purpose and procedure of the evaluation.

- | | | |
|--|-------------------------------------|-------------------------------------|
| 1. Do you suffer from high blood pressure? | <input checked="" type="checkbox"/> | <input type="checkbox"/> No |
| 2. Have you ever been told that you have high blood pressure? | <input checked="" type="checkbox"/> | <input type="checkbox"/> No |
| 3. Do you presently take any medication for high blood pressure? | <input checked="" type="checkbox"/> | <input type="checkbox"/> No |
| 4. Have you injured your back in the last 6 months? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |
| 5. Do you suffer from pain in your lower back at present? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |
| 6. Have you ever been diagnosed with heart problems? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |
| 7. Do you suffer from pain in the chest or heart? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |
| 8. Do you have a hernia? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |
| 9. Do you have osteoporosis? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |
| 10. Family history re: Cardiac diseases, osteoporosis, and chronic diseases? | <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> |

If you have answered YES to any of the above questions, please specify:

1 - 3	<i>Diagnosed with high blood pressure in 2002. Have been on chronic medication for high blood pressure since then (under control).</i>

Have you had any operations in any of the following?

Wrist	<i>N/A</i>	Arms	<i>N/A</i>	Legs	<i>Yes</i>	Back	<i>N/A</i>
-------	------------	------	------------	------	------------	------	------------

Are there any other reasons why you can not perform the physical ability assessment? Please specify:

<i>My left lower leg have been amputated. I may struggle with some of the physical tests.</i>

I declare that all the information regarding my health is true and correct. I give my consent that the results may be used for report and research purposes, knowing that all my information will be kept confidential. I expressly undertake that in the event of any unforeseen injury during the test, I shall not hold either the evaluator or the evaluator's employer, or my employer, liable for any claim I may have resulting from such test / injury. I am aware that I may withdraw my consent or discontinue with the assessment at any time.

Signature *SubjectC*

Date *18 Sep 2007*

Annexure 16: Physical Ability Data Form for Subject C

Physical Measurements

Comments

Height (cm)		1	8	3		
Weight (kg)		8	9.	5		
Resting systolic BP (mmHg)		1	3	8		
Resting diastolic BP (mmHg)			8	6		
Flexibility (cm)		3	3.	9		
3 minute step-up test (b / min)		D	N	D	D	Could not perform step test due to amputation / prosthesis
Grip Strength Right (kg)		5	8.	2	M	
Grip Strength Left (kg)		5	5.	9	M	
Arm / Shoulder Muscle Strength (kg)	1	0	2.	5	M	
Back Muscle Strength (kg)		1	0	6	M	
Leg Muscle Strength (kg)	1	7	5.	5	M	
Stomach Muscle Endurance (reps/min)			1	7	M	
Lifting strength above head (kg)			3	9	M	
Lifting strength from floor – right (kg)			6	5	M	
Lifting strength from floor – left (kg)		5	1.	5	M	
Arm adduction strength (kg)		4	4.	4	M	
Shoulder endurance – right (seconds)			3	7	M	
Shoulder endurance – left (seconds)			4	0	M	
Balance (seconds)		D	N	D	D	Did not perform balance test due to amputation / prosthesis

Additional information

Annexure 17: Job Accommodation Mask for Subject C

Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
Physical Ability Tests	Lifting strength above head	Lifting strength from floor (Right & Left)	Arm adduc-tion strength	Shoulder endurance at eye level (Right & Left)	Balance test	Arm / Shoulder strength	Back strength	Leg strength	3 minute step test	Grip strength (Right & Left)	1 minute abdominal endurance test
Test Results (M = Meets min. requirement) (D = Does not meet requirement)	M	M	M	M	D	M	M	M	D	M	M
1. Maintenance:											
1.1. Maintenance: Perform vegetation control in company`s servitudes (4.3%)											
1.1.1. Operating veg. control machines: chainsaw					X						
1.1.2. Operating veg. control machines: brush cutter											
1.1.3. Operating veg. control machines: wheateater											
1.1.4. Manual veg. clearing: bow saw									X		
1.1.5. Manual veg. clearing: panga									X		
1.1.6. Manual veg. clearing: axe									X		
1.1.7. Manual veg. clearing: branch cutters (on link stick)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.1.8 Applying growth control chemicals with “spray gun”											
1.2. Maintenance: Maintain access routes and security infrastructure (2.83%)											
1.2.1. Installing fences and gates											
1.2.2. Inspecting fences and gates											
1.2.3. Restoring fences and gates											
1.2.4. Restoring & maintaining of roads and drainage systems											
1.2.5. Reporting conditions of roads and drainage systems											
1.3. Maintenance: Maintain lines and structures: Replacing and securing (5.43%)											
1.3.1. Replacing and securing insulators					X						
1.3.2. Replacing and securing cross arms					X						
1.3.3. Replacing and securing bolts and nuts					X						
1.3.4. Replacing and securing electrical connections					X						
1.3.5. Replacing and securing anti climbing devices					X						
1.3.6. Replacing and securing labels and identification markers (pole numbers)											
1.4. Maintenance: Maintain lines and structures: Cleaning (4.13%)											
1.4.1. Cleaning insulators					X						
1.4.2. Cleaning cross arms					X						
1.4.3. Cleaning bolts and nuts					X						
1.4.4. Cleaning electrical connections					X						
1.4.5. Cleaning anti climbing devices					X						
1.4.6. Cleaning labels											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.4.7. Cleaning identification markers											
1.5. Maintenance: Maintain lines and structures: Conductor work (5.44%)											
1.5.1. Stringing									X		
1.5.2. Binding in					X						
1.5.3. Jointing					X						
1.5.4. Earthing					X						
1.6. Maintenance: Maintain lines and structures: Trenches and structures (4.06%)											
1.6.1. Excavating									X		
1.6.2. Back filling									X		
1.6.3. Compacting									X		
1.7. Maintenance: Maintain lines and structures: Foot patrols (2.46%)									X		
1.8. Maintenance: Maintain lines and structures: Vehicle patrols (5.08%)											
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting (2.65%)											
1.9.1. Inspecting performance											
1.9.2. Reporting performance											
1.10. Maintenance: Maintain substations and control rooms: Batteries (4.26%)											
1.10.1. Inspecting batteries											
1.10.2. Topping batteries up with electrolyte											
1.10.3. Cleaning of batteries											
1.10.4. Testing the Specific Gravity of batteries											
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found (4.19%)											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control (4.52%)					X				X		
1.13. Maintenance: Work order feedback and clearance (5.34%)											
2. Repair											
2.1. Repair: Being on standby (5.3%)											
2.1.1. "Standby" could include any of the mentioned tasks					X				X		
2.2. Repair: Restoring equipment and structures on lines and substations (3.86%)											
2.2.1. Replacing plant and equipment under supervision					X				X		
2.2.2. Securing plant and equipment under supervision					X				X		
2.2.3. Cleaning plant and equipment under supervision					X				X		
2.2.4. Executing foot patrols to identify and report faulty plant									X		
2.2.5. Executing vehicle patrols to identify and report faulty plant											
2.2.6. Switching on Low Volt networks					X						



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3. Building											
3.1. Building: Poles and structures (5.33%)											
3.1.1. Dressing poles and structures					X						
3.1.2. Erecting poles and structures											
3.1.3. Installing poles and structures											
3.1.4. Dismantling poles and structures					X						
3.2. Building: Installing and dismantling (5.19%)											
3.2.1. Installing and dismantling transformers					X						
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)					X						
3.2.3. Installing and dismantling metering points											
3.2.4. Installing and dismantling isolators					X						
3.2.5. Installing and dismantling drop out fuse links					X						
3.3. Building: Conductors (5.32%)											
3.3.1. Conductor stringing									X		
3.3.2. Conductor binding					X						
3.3.3. Conductor jointing					X						
3.3.4. Conductor earthing					X						
3.4. Building: Securing trenches and structures (4.97%)											
3.4.1. Excavating									X		



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
3.4.2. Back filling									X		
3.4.3. Compacting									X		
4. Health and Safety (5.04%)											
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor											
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use											
4.3. Using and caring for personal protective equipment as per requirement											
4.4. Effecting statutory and non-statutory appointment											
5. Customer service (5.31%)											
5.1. Reading cyclic and demand meters on small power users											
5.2. Sealing cyclic and demand meters on small power users											
5.3. Conforming to the Customer Service Charter											
5.4. Giving milestone feedback											



Critical physical demands	Lifting above head with two hands	One handed lifting from floor	Arm ad-duction	Shoulder endurance at eye level	Balance	Arm flexion strength	Back extension strength	Leg extension strength	Cardio (walking, climbing, etc.)	Grip strength	Trunk stability
6. House keeping: Maintain an ergonomically sound and hygienic workplace (4.99%)											
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping											
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors											
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows					X						
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).					X				X		
6.5. Executing safe and economic handling, stacking and storing of material					X						
6.6. Erecting barricades and danger notification					X						
6.7. Preparing system earthing (securing high risk work area before working)					X						

Percentage of total work outputs that can be performed by subject	37.16%
--	---------------



Annexure 18: Job Accommodation Report Form for Subject C

SA ELEC	JOB ACCOMMODATION REPORT FORM
----------------	--------------------------------------

Initials and Surname	C. Subject
Date of Birth	11 / 03 / 1959
Gender	M
Job Title	Technician
Department	FS
Site Location	Thlabane
Date	18 / 09 / 2007

Comments

Conditions / Findings:
Left lower leg was amputated just below the knee. Subject is using a prosthesis. Subject is fairly mobile
and could perform most of the physical ability tests. Some of the tests did cause discomfort and this may have influenced performance. Subject could not perform step test and balance test.

Test results BELOW minimum physical requirements:
Cardiovascular fitness test – did not perform test
Balance test – did not perform test

Percentage of total work outputs that can be performed by subject	37.16 %
--	----------------

Task specific job accommodation recommendations:

(tasks NOT recommended are marked with “X”)

1. Maintenance:	
1.1. Maintenance: Perform vegetation control in company`s servitudes:	
1.1.1. Operating veg. control machines: chainsaw	X
1.1.2. Operating veg. control machines: brush cutter	
1.1.3. Operating veg. control machines: wheateater	
1.1.4. Manual veg. clearing: bow saw	X
1.1.5. Manual veg. clearing: panga	X
1.1.6. Manual veg. clearing: axe	X
1.1.7. Manual veg. clearing: branch cutters (on link stick)	
1.1.8 Applying growth control chemicals with “spray gun”	
1.2. Maintenance: Maintain access routes and security infrastructure:	
1.2.1. Installing fences and gates	
1.2.2. Inspecting fences and gates	
1.2.3. Restoring fences and gates	
1.2.4. Restoring & maintaining of roads and drainage systems	
1.2.5. Reporting conditions of roads and drainage systems	
1.3. Maintenance: Maintain lines and structures: Replacing and securing:	
1.3.1. Replacing and securing insulators	X
1.3.2. Replacing and securing cross arms	X
1.3.3. Replacing and securing bolts and nuts	X
1.3.4. Replacing and securing electrical connections	X
1.3.5. Replacing and securing anti climbing devices	X
1.3.6. Replacing and securing labels and identification markers (pole numbers)	
1.4. Maintenance: Maintain lines and structures: Cleaning:	
1.4.1. Cleaning insulators	X
1.4.2. Cleaning cross arms	X
1.4.3. Cleaning bolts and nuts	X
1.4.4. Cleaning electrical connections	X
1.4.5. Cleaning anti climbing devices	X
1.4.6. Cleaning labels	
1.4.7. Cleaning identification markers	
1.5. Maintenance: Maintain lines and structures: Conductor work:	
1.5.1. Stringing	X
1.5.2. Binding in	X
1.5.3. Jointing	X
1.5.4. Earthing	X
1.6. Maintenance: Maintain lines and structures: Trenches and structures:	



1.6.1. Excavating	X
1.6.2. Back filling	X
1.6.3. Compacting	X
1.7. Maintenance: Maintain lines and structures: Foot patrols:	X
1.8. Maintenance: Maintain lines and structures: Vehicle patrols:	
1.9. Maintenance: Maintain substations and control rooms: Security and safety lighting:	
1.9.1. Inspecting performance	
1.9.2. Reporting performance	
1.10. Maintenance: Maintain substations and control rooms: Batteries:	
1.10.1. Inspecting batteries	
1.10.2. Topping batteries up with electrolyte	
1.10.3. Cleaning of batteries	
1.10.4. Testing the Specific Gravity of batteries	
1.11. Maintenance: Maintain substations and control rooms: Reporting any other abnormality found:	
1.12. Maintenance: Maintain substation and control rooms: Executing vegetation control:	X
1.13. Maintenance: Work order feedback and clearance:	
2. Repair:	
2.1. Repair: Being on standby:	
2.1.1. "Standby" could include any of the mentioned tasks	X
2.2. Repair: Restoring equipment and structures on lines and substations:	
2.2.1. Replacing plant and equipment under supervision	X
2.2.2. Securing plant and equipment under supervision	X
2.2.3. Cleaning plant and equipment under supervision	X
2.2.4. Executing foot patrols to identify and report faulty plant	X
2.2.5. Executing vehicle patrols to identify and report faulty plant	
2.2.6. Switching on Low Volt networks	X
3. Building:	
3.1. Building: Poles and structures:	



3.1.1. Dressing poles and structures	X
3.1.2. Erecting poles and structures	
3.1.3. Installing poles and structures	
3.1.4. Dismantling poles and structures	X
3.2. Building: Installing and dismantling:	
3.2.1. Installing and dismantling transformers	X
3.2.2. Installing and dismantling reclosers and sectionalisers (breakers)	X
3.2.3. Installing and dismantling metering points	
3.2.4. Installing and dismantling isolators	X
3.2.5. Installing and dismantling drop out fuse links	X
3.3. Building: Conductors:	
3.3.1. Conductor stringing (cable pulling)	X
3.3.2. Conductor binding (connecting two cables)	X
3.3.3. Conductor jointing (attaching cable)	X
3.3.4. Conductor earthing	X
3.4. Building: Securing trenches and structures:	
3.4.1. Excavating	X
3.4.2. Back filling	X
3.4.3. Compacting	X
4. Health and Safety:	
4.1. Reporting all safety incidents, unsafe conditions and abnormal conditions to immediate supervisor	
4.2. Inspecting and reporting non-conformance of tools and equipment immediately before use	
4.3. Using and caring for personal protective equipment as per requirement	
4.4. Effecting statutory and non-statutory appointment	
5. Customer service:	
5.1. Reading cyclic and demand meters on small power users	
5.2. Sealing cyclic and demand meters on small power users	
5.3. Conforming to the Customer Service Charter	
5.4. Giving milestone feedback	
6. House keeping (maintain an ergonomically sound and hygienic workplace):	
6.1. Cleaning of work sites, work stations and infrastructures: Sweeping	
6.2. Cleaning of work sites, work stations and infrastructures: cleaning floors	
6.3. Cleaning of work sites, work stations and infrastructures: cleaning windows	X
6.4. Executing site restoration in accordance with environmental control measures (restoration in cases of plant growth, storm damage, etc.).	X
6.5. Executing safe and economic handling, stacking and storing of material	X
6.6. Erecting barricades and danger notification	X
6.7. Preparing system earthing (securing high risk work area before working)	X