WIN Learning

Job Analysis

Report for

McDonald Manufacturing

Machine Operator I Job
July 23, 2019

Prepared by:

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SAMPLE

I.	EXECUTIVE SUMMARY	3
II.	DESCRIPTION OF THE COMPANY	3-4
III.	DESCRIPTION OF THE JOB-MACHINE OPERATOR I	4
IV.	MACHINERY, TOOLING, AND EQUIPMENT USED	4
V.	JOB ANALYSIS LOCATION AND DATES	4
VI.	SUBJECT MATTER EXPERT CHARACTERISTICS	4
VII.	READY TO WORK SKILL AREA AND SKILL LEVEL	4-5
VIII.	ESSENTIAL SOFT SKILLS	5
IX.	TASK IDENTIFICATION	5-6
X.	SKILL AREA DEFINITIONS	6
XI.	SKILL AREAS REQUIRED	6
XII.	SKILL LEVEL DETERMINATION-APPLIED MATHEMATICS (AM)	6-7
XIII.	SKILL LEVEL DETERMINATION-LOCATING INFORMATION (LI)	7
IV.	SKILL LEVEL DETERMINATION-READING FOR INFORMATION (RFI)	7-8
XV.	ESSENTIAL SOFT SKILLS (ESS)	8
XVI.	ESS EXERCISE-Prioritization of the Soft Skill(s)	8-9
XVII.	RECOMMENDATIONS	10
XVIII.	WIN LEARNING ASSESSMENT VALIDITY DATA AND COMPLIANCE	10-11
XIX.	ABOUT THE JOB ANALYST	11

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I. EXECUTIVE SUMMARY (Inclusive of Sections I-VIII)

Purpose

McDonald Manufacturing requested that KC Associates, LLC, conduct a WIN Job Analysis of the Machine Operator I job at their Goose Creek, SC plant. Paul L. Connerty, MPA, KC Associates, LLC, conducted this job analysis.

McDonald Manufacturing presently recognizes and accepts WIN Learning and WorkKeys© assessments for several jobs and will for the Machine Operator I job.

The WIN Job Analysis Process involves analysis of the job tasks by subject matter experts (SME's) to make a reasoned determination of the WIN Learning Ready to Work skill areas (*Applied Mathematics, Locating Information, and Reading for Information*) and skill levels necessary to perform the subject job upon hire or promotion. The job analysis process considers information obtained through document review, observation, interview, and a job analysis session with subject matter expert (SME) employees performing the Machine Operator I job.

On June 6-7, 2019, Job Analyst Paul L. Connerty observed multiple McDonald Manufacturing employees, including Machine Operator I, Chayton Paul on June 6, 2019.

Mr. Connerty reviewed the following Machine Operator I work related documents and processes:

- Machine Operator I Job description
- Installation of tooling, load, and monitoring of the splicer machine
- Work Element Sheets
- Splice run
- Tensile strength test
- Machine set-up
- Machine operation
- Use of caliper to measure ID/OD
- Use of go-no go gauge
- Performance of routine maintenance check
- Verification of the laser gauge measuring device
- Calculation of upper and lower limit values
- Safety Guide, warning sign legend, and site map

The SME session was held on July 23, 2019.

The SME session determines what WIN Learning Ready to Work skills a particular job requires and what WIN Learning skill levels a prospective worker should possess or develop. It considers job duties, working conditions, possible hazards, and machines, tools, equipment, and materials to be used by an employee performing the job tasks.

The WIN Job Analysis Process also extends to identification, by the company's SME's, of the soft skills that are determined to be essential to succeed on the job. These include the WIN Learning Essential Soft Skills, resolving conflict, cooperating with others, taking responsibility for learning, solving problems and making decisions, and observing critically.

II. DESCRIPTION OF THE COMPANY

McDonald Manufacturing was founded in 1964 by Olsen McDonald, affectionally called Ol' McDonald by customers and friends alike. In 2014, daughter and son-in-law, Lara and Dasan McDonald, took over operations and expanded the business. An additional 20 full time machinists were hired and new, state-of-the-art equipment, such as the Milltronics RH30 CNC Bed Mill 30″x60″, and Tarnow –

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22″ swing, 120″ between centers, 31-1/2″ swing in gap, machinery was acquired enabling our company to increase production of high quality, precision pieces at a very cost effective price point.

McDonald Manufacturing is a complete industrial job shop, with production capabilities as well as fabrication and manufacturing services. Located in Goose Creek, SC (near Charleston), we are proud of our tremendous growth and our growing reputation as a company that exceeds customers' expectations. Our 7200 square foot machine shop facility houses a highly trained team committed to meeting the needs of our customers no matter how small or large the project. Our machine shop consistently works to a Class A tolerance (.0005" – .002") and we are ISO Certified.

We are committed to quality in every aspect of our operation. In 2018, the Goose Creek Chamber of Commerce awarded McDonald Manufacturing the City's "Good Corporate Citizen" award for the company's commitment to environmental stewardship.

III. DESCRIPTION OF THE JOB-MACHINE OPERATOR I

The Machine Operator I is responsible for machine operation, including troubleshooting to keep tooling and machine in good working condition. The Machine Operator I keeps accurate documentation, and is responsible for quality of material, installation of proper tooling, and loads, preventive maintenance, keeping the work area clean and safe, and maintaining good communication within the department.

IV. MACHINERY, TOOLING, AND EQUIPMENT USED

The Machine Operator I is responsible for operating the assigned machine and using various hand tools. Measuring devices and equipment such as ruler, tape measure, micrometer, caliper, laser gauge, and go/no-go gauge are used by the Machine Operator I.

V. JOB ANALYSIS LOCATION AND DATES

The job analysis session was conducted at McDonald Manufacturing, 609 Venison Avenue, Goose Creek, SC 29445, on July 23, 2019.

VI. SUBJECT MATTER EXPERT(S) CHARACTERISTICS

SME 1-

Job Title-	Machine Operator I
Gender-	Female
Age-	36
Race/Ethnicity-	African American
Job Experience-	3 Yr(s) 6 Mo(s)

SME 2-

Job Title-	Machine Operator I
Gender-	Male
Age-	42
Race/Ethnicity-	Caucasian
Job Experience-	2 Yr(s) 9 Mo(s)

SME 3-

Job Title-	Machine Operator I
Gender-	Male
Age-	59
Race/Ethnicity-	Hispanic
Job Experience-	5 Yr(s) 6 Mo(s)

SME 4-

Job Title-	Machine Operator I
Gender-	Male

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Age- 32
Race/Ethnicity- African American
Job Experience- 2 Yr(s) 10 Mo(s)

VII. READY TO WORK SKILL AREA AND SKILL LEVEL

At the conclusion of the July 23, 2019, session, the SME's determined the following Ready to Work skill areas and skill levels were required to perform the Machine Operator I job:

SKILL AREA	SKILL LEVEL
Applied Mathematics	3
Locating Information	3
Reading for Information	3

Subsequent sections of the report will discuss the job analysis methodology, skill area definitions, how the SME's established the skill levels, and provide the job analyst's recommendations.

VIII. ESSENTIAL SOFT SKILLS

The following Essential Soft Skills were discussed and considered during the SME session:

- Work Ethic
- Attitude/Enthusiasm
- On Time/Attendance/Dependability
- Interpersonal Skills
- Communication
- Teamwork
- Customer Service/Business Etiquette
- Initiative/Implementing or Presenting Ideas
- Problem Solving/Critical Thinking
- Adaptability/Flexibility

The SMEs independently prioritized the following Essential Soft Skills they considered necessary to acquire and/or retain employment with McDonald Manufacturing:

- Work Ethic
- Attitude/Enthusiasm
- Problem Solving/Critical Thinking
- On Time/Attendance/Dependability
- Teamwork

IX. TASK IDENTIFICATION

The SME's provided the following examples of job-related tasks from their actual work experience.

- *Determines tooling set-up by calculating tooling size*
- *Determines OD (nominal +/-)*
- *Calculates the high and low cut length and keeps in spec*
- *Determines within +/- 1% how much product is required to complete the order*
- *Calculates OD when it is not provided*
- *Calculates ID tolerance when not given; add or subtract to given tolerance*
- *Measures cut length of raw material then adds/subtracts as required*
- *Calculate rate and yield for a job order*
- *Calculates amount of material to use per run*
- *Calculates FPM (feet per minute) speed- rate/60 minutes/yield*

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- *Measures parts cut length by using the length gauge*
- *Measures the minimum/maximum cut depth by using micrometer*
- *Measures and verifies ID pins by using laser gauge*
- *Measures ID of pipe by using Go-No Go gauge*
- *Checks length of pipe by using digital measuring table*
- *Checks and measures part cut length by using calipers*
- *Reads and verifies machine pressure by using instrument gauge*
- *Checks drawing to verify material specification*
- *Sets the OD control limits by using the Zumbach laser monitor to verify mandrel size*
- *Checks specifications required to run the job by reading work element sheet*
- *Follows applicable safe work rules by reading safety regulations such as wear face mask when working in or around hot fluid, wear special PPE gear to enter clean room, etc.*
- *Learns company work rules, regulations, policies, and procedures by reading Employee Handbook*
- *Follows hazardous material handling guidelines by reading container labels*
- *Checks company bulletin board regularly for notices from human resources, such as leave policy, payroll notices, etc.*
- *Checks to make sure job is being set up correctly by reading product work sheet and machine set up specs*

X. SKILL AREA DEFINITIONS

After reviewing each of the WIN Learning skill area definitions separately, the SME's made their independent determination of whether the Applied Mathematics, Locating Information, and/or Reading for Information, skill(s) were required to perform the task.

APPLIED MATHEMATICS measures workplace mathematical reasoning and problem-solving skills from basic addition, subtraction, multiplication, and division to multiple math functions like calculating percentage discounts and markups.

LOCATING INFORMATION measures comprehension and application of workplace graphics such as charts, graphs, tables, forms, flowcharts, diagrams, floor plans, maps, and instrument gauges.

READING FOR INFORMATION measures reading comprehension and reasoning skills when using written text on the job including memos, letters, directions, signs, notices, bulletins, policies, and regulations.

XI. SKILL AREA(S) REQUIRED

The SME's determined that each of the skill areas listed below are required to perform job related tasks:

- Applied Mathematics
- Locating Information
- Reading for Information

XII. SKILL LEVEL DETERMINATION-APPLIED MATHEMATICS (AM)

Step 1.
The SME's described tasks that require the Applied Mathematics skill and agreed the following 5 tasks are an adequate sample:

- *Determines tooling set-up by calculating tooling size*
- *Determines OD (nominal +/-)*
- *Calculates the high and low cut length and keeps in spec*

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- *Determines within +/- 1% how much product is required to complete the order*
- *Calculates OD when it is not provided*

Step 2.
Next, the SME's reviewed and discussed AM Skill Level 3 (see below):

Solve problems that require a single type of mathematical operation (addition, subtraction, multiplication, division) using whole numbers;
Add or subtract negative numbers;
Change numbers from one form to another using whole numbers, fractions, decimals, or percentages;
Convert simple money and time units (e.g., hours to minutes).

Step 3.
The SME's decided that Skill Level 3 Applied Mathematics is needed to perform the Machine Operator I job.

Step 4.
The SMEs reviewed examples of AM Skill Level 4.

Step 5.
The SMEs affirmed their Skill Level 3 decision.

XIII. SKILL LEVEL DETERMINATION-LOCATING INFORMATION (LI)

Step 1.
The SME's described tasks that require the Locating Information skill and agreed the following 5 tasks are an adequate sample:

- *Checks length of pipe by using digital measuring table*
- *Checks and measures part cut length by using calipers*
- *Reads and verifies machine pressure by using instrument gauge*
- *Checks drawing to verify material specification*
- *Sets the OD control limits by using the Zumbach laser monitor to verify mandrel size*

Step 2.
Next, the SMEs reviewed the definition of LI Skill Level 3 (see below).

Find one or two pieces of information in a graphic;
Fill in one or two pieces of information that are missing from a graphic.

Step 3.
The SMEs decided that Skill Level 3 Locating Information is needed to perform the Machine Operator I job.

Step 4.
The SMEs reviewed examples of LI Skill Level 4.

Step 5.
The SMEs affirmed their Skill Level 3 decision.

XIV. SKILL LEVEL DETERMINATION-READING FOR INFORMATION (RfI)

Step 1.
The SME's described tasks that require the Reading for Information skill and agreed the following 5 tasks are an adequate sample:

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- *Follows applicable safe work rules by reading safety regulations such as wear face mask when working in or around hot fluid, wear special PPE gear to enter clean room, etc.*
- *Learns company work rules, regulations, policies, and procedures by reading Employee Handbook*
- *Follows hazardous material handling guidelines by reading container labels*
- *Checks company bulletin board regularly for notices from human resources, such as leave policy, payroll notices, etc.*
- *Checks to make sure job is being set up correctly by reading product work sheet and machine set up specs.*

Step 2.
Next, the SMEs reviewed and discussed Reading for Information Skill Level 3 (see below):

Identify main idea and clearly stated details;
Choose the correct meaning of a word that is clearly defined in the reading;
Choose the correct meaning of common, everyday workplace words;
Choose when to perform each step in a short series of steps;
Apply instructions to a situation that is the same as the one in the reading materials.

Step 3.
The SMEs decided that Skill Level 3 Reading for Information is needed to perform the Machine Operator I job.

Step 4.
The SMEs reviewed examples of Reading for Information Skill Level 4.

Step 5.
The SMEs affirmed their Skill Level 3 decision.

XV. ESSENTIAL SOFT SKILLS (ESS)

Soft skills are defined in various ways. Generally, employers and employees relate soft skills with personal attributes, including attitude, communication, creative thinking, work ethic, teamwork, decision making, positive outlook, time management, flexibility, problem solving, critical thinking, and conflict resolution. Employers and co-workers view soft skills as transferable skills, which means *they add value regardless of the job that an employee is performing*.

During the SME session, the group talked about the role soft skills have in the McDonald Manufacturing workplace. After talking about some workplace examples, such as how work ethic is learned, the role of work in developing work ethic, conflict resolution skills to manage or avoid a problem and how important cooperation is to achieving performance outcomes, the SMEs reviewed and discussed each of the ESS topics listed in the subsequent section (Section XVI).

XVI. ESS EXERCISE-Prioritization of the Soft Skills

For the SMEs to make a determination of the necessity for the specific soft skill(s), and then the prioritization of those soft skills, a robust discussion was important to the process. The job analysts structured the discussion of ESS around workplace examples, encouraging the SME's to engage each other.

The job analysts facilitated the discussion to include each of the 10 soft skills:

- Work Ethic
- Attitude/Enthusiasm
- On Time/Attendance/Dependability

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- Interpersonal Skills
- Communication
- Teamwork
- Customer Service/Business Etiquette
- Initiative/Implementing or Presenting Ideas
- Problem Solving/Critical Thinking
- Adaptability/Flexibility

All ten of the Essential Soft Skills listed above were separately posted on a white board/poster board. The SMEs were each provided ten (10) stickers of the same color, i.e., SME 1 received 10 green stickers, SME 2 received 10 yellow stickers, etc. The SMEs were instructed to use all ten stickers to prioritize the importance of the specific soft skill or skills to their job. For example, if SME 1 ranked "6. Teamwork" a high priority he/she might place 3 stickers on Teamwork. If "1. Work Ethic" was equally important to SME 1, he/she might also put 3 stickers on Work Ethic. SME 1 might place 2 stickers on "3. On Time/Attendance/Dependability", then 1 sticker each on "5. Communication" and "2. Attitude/Enthusiasm".

Independently, each SME placed their allocation of stickers on the soft skill(s) they ranked as most important to the job of Machine Operator I. The results are as follows:

SME 1-Green

- Work Ethic 2
- Attitude/Enthusiasm 3
- On Time/Attendance/Dependability 2
- Interpersonal Skills
- Communication
- Teamwork 1
- Customer Service/Business Etiquette
- Initiative/Implementing or Presenting Ideas
- Problem Solving/Critical Thinking 2
- Adaptability/Flexibility

SME 2- Yellow

- Work Ethic 1
- Attitude/Enthusiasm 3
- On Time/Attendance/Dependability 1
- Interpersonal Skills
- Communication
- Teamwork 2
- Customer Service/Business Etiquette 1
- Initiative/Implementing or Presenting Ideas
- Problem Solving/Critical Thinking 2
- Adaptability/Flexibility

SME 3-Blue

- Work Ethic 2
- Attitude/Enthusiasm 2
- On Time/Attendance/Dependability 2
- Interpersonal Skills
- Communication
- Teamwork 1
- Customer Service/Business Etiquette
- Initiative/Implementing or Presenting Ideas

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- Problem Solving/Critical Thinking 2
- Adaptability/Flexibility 1

SME 4-Red

- Work Ethic 4
- Attitude/Enthusiasm
- On Time/Attendance/Dependability 2
- Interpersonal Skills
- Communication
- Teamwork 1
- Customer Service/Business Etiquette
- Initiative/Implementing or Presenting Ideas
- Problem Solving/Critical Thinking 2
- Adaptability/Flexibility 1

The SMEs ranked Work Ethic, Attitude/Enthusiasm, Communication, On Time/Attendance/Dependability, and Teamwork their top 5 Essential Soft Skills for Machine Operator Is.

XVII. **RECOMMENDATIONS** (From Sections XI-XIV and XVI)

The WIN Job Analysis Process is designed to support the use of the WIN Ready to Work assessments (*Applied Mathematics, Locating Information, and Reading for Information*) as one part of the recruitment and selection process for new hires and for training and advancement. The process entails observing the job to be analyzed, collecting and reviewing job related documents, and consulting with subject matters experts to link a sample of their job tasks to the WIN Ready to Work skill areas.

Once the SME's have established their job requires the use of one or more of the WIN Ready to Work skill areas to perform job tasks, they then begin the process of determining the skill level necessary to learn and/or perform the job. During a facilitated session with a WIN trained and authorized job analyst, the SME's establish the skill level required to perform the job. When the SME session is completed, the employer can confidently use the WIN Ready to Work assessments listed below as one tool in their selection process toolbox.

Recommendation 1: Integrate the WIN Ready to Work assessments into the McDonald Manufacturing selection process for the Machine Operator I job requiring the skill areas and skill levels below-

SKILL AREA	SKILL LEVEL
Applied Mathematics	3
Locating Information	3
Reading for Information	3

Because the WIN Essential Soft Skills are introduced during the job analysis process, the SMEs are asked to prioritize any or all of the WIN Essential Soft Skills considered essential to successful job performance.

This is significant because candidates can earn the WIN Essential Soft Skills Credential prior to applying for the Machine Operator I job, and incumbent workers can identify skill gaps then work to improve and earn the credential.

Employers benefit from having employees earn a WIN Essential Soft Skills Credential in important ways, such as in reducing turnover, improving productivity, and maximizing on-the-job

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training. With the Essential Soft Skills Credential, employees are more likely to work in teams to achieve mutual goals and objectives, demonstrate willingness to work, show initiative, and display responsible behaviors at work, including avoiding absenteeism and demonstrating promptness.

Recommendation 2: Encourage applicants to earn the WIN Essential Soft Skills Credential prior to applying for the Machine Operator I position or during their orientation and training period.

XVIII. WIN LEARNING ASSESSMENT VALIDITY DATA AND COMPLIANCE

The assessments are designed in accordance with the nationally accepted Standards for Educational and Psychological Testing developed by the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education. To support the use of the assessments as indicators of foundational skill readiness for career education/training program placement, industry certification, apprenticeship and/or employment the assessments are further designed in accordance with the Uniform Guidelines for Employee Selection Procedures adopted by the U.S. Equal Employment Opportunity Commission, the Civil Service Commission, the U.S. Department of Labor, and the U.S. Department of Justice.

The *WIN Ready to Work Assessments, Validity and Reliability Technical Summary*, Interim Version 5.2018, and *WIN Essential Soft Skills Technical Manual*, can be reviewed using this link: https://tinyurl.com/WINAssessmentTechManual

For the EEOC *Fact Sheet on Employment Tests and Selection Procedures, go to* https://www.eeoc.gov/policy/docs/factemployment_procedures.html

For *29 CFR 1607 Uniform Guidelines on Employee Selection Procedures (1978), go to* https://www.govinfo.gov/content/pkg/CFR-2009-title29-vol4/pdf/CFR-2009-title29-vol4-part1607.pdf

XIX. ABOUT THE JOB ANALYST

This job analysis was conducted by Paul L. Connerty, MPA, an authorized WIN Job Analyst. Mr. Connerty has been engaged in the workforce and training field for more than 25 years. During his career he specialized in job analysis as an authorized job analyst and, in collaboration with other experts in the field, he developed the WIN Job Analysis Process.

In 2011, Mr. Connerty retired from his position as Executive Director of the Trident Workforce Investment Board. He is the owner of KC Associates, LLC, a consulting and training firm located in Goose Creek, SC. He earned a Bachelor of Science degree from Henderson State University, Arkansas; a Master of Public Administration from the University of Alaska-Anchorage; and attended graduate school at Marshall University, Huntington, WV. He completed the National Judicial College, Administrative Law Practitioners Program, at the University of Nevada-Reno, in 1984, and the South Carolina Economic Developers' Association (SCEDA), "The Institute" program in 2005.

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