

RAILROAD INDUSTRY JOB ANALYSIS

warehouseman / Material Handler

Jobs which are common throughout the railroad industry have major similarities from property to property. While minor variations do exist from railroad to railroad, and sometimes from location to location on the same railroad, the underlying personnel requirements of a specific job classification tend to remain relatively constant throughout the industry. With this fact in mind, the Railroad Personnel Association has developed this job analysis consisting of three basic parts:

PART A - Duties and Responsibilities; this is a list of core tasks which are normally the "backbone" of the job.

PART B - Critical Personnel Requirements; this list defines the underlying behaviors that are required of the incumbent to perform the core tasks.

PART C - Job Setting Characteristics; this part describes the conditions under which most incumbents perform the job.

Job information was supplied by a Task Force (PART D) made up of (1) job incumbents and (2) supervisors or others intimately familiar with the job; they were drawn from several different railroads professional direction was provided by C.H. Lawshe, PhD, Licensed Industrial Psychologist, 1005 Vine Street, West Lafayette, Indiana 47906. General procedures used and technical data are included in Part E.

Prior to release for distribution to the railroad industry, the document was reviewed and approved by the Job Analysis Project Steering Committee of the Railroad Personnel Association.

GENERAL OVERVIEW

Job Summary. Disburses supplies and materials utilized in the maintenance of railroad equipment and in the operation of the railroad and performs a variety of warehousing and shipping activities.

Dictionary of Occupational Titles. The DOT lists two related jobs: Warehouse Worker (any md.) 922.687-059 and Receiving Clerk 222.387-050.

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PART A - DUTIES AND RESPONSIBILITIES

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The statements in this part are work behaviors or actions performed to achieve the objectives of the job. They were identified by the Task Force and are sometimes called tasks or job activities. The Importance Degree following each statement was assigned by the Task Force and indicates its relative importance on an industry wide basis.
(5 = Most Important)

1. Opens bales, crates, and other containers, using steel cutters, crowbar, clawhammer or other hand tools (Importance Degree: 4)
2. Records amount of materials or items received or distributed (Importance Degree: 4)
3. May unload fuel, oil, or other liquids from tank cars or trucks, including attaching and removing hoses (Importance Degree: 3)
4. Removes samples of materials, labels with identifying information and takes samples to laboratory for analysis (Importance Degree: 1)
5. Attaches identifying tags or labels to materials or marks information on cases, bales, or other containers (Importance Degree: 4)
6. Sorts and places materials or items on racks, shelves, or in bins according to predetermined sequence, such as size, type style, color, or product code, giving special attention to hazardous material (Importance Degree: 5)
7. Lifts heavy objects by hand (Importance Degree: 4)
8. May operate industrial truck or electric hoist to assist in loading or moving materials and products (Importance Degree: 4)
9. Reads work order or -follows oral instructions to ascertain materials or containers to be moved (Importance Degree: 4)
10. Fills requisitions, work orders, or requests for materials, tools, or other stock items (Importance Degree: 4)
11. May secure lifting attachments to materials and convey load to destination, using hand operated crane or hoist, or signal crane or hoisting operator to move load to destination (Importance Degree: 2)
12. Assembles orders for other railroad locations from stock and places orders on pallets or shelves, or conveys orders to packing or shipping station (Importance Degree: 4)
13. Stacks or assembles bundles together, using banding machine and clincher (Importance Degree: 3)

1

2

14. Loads materials into vehicles, freight cars, and rail vans,

and installs strapping, bracing, or padding to prevent shifting or damage in transit, using hand tools (Importance Degree: 4)

15. Conveys materials to or from storage or worksites. to designated area, using handtruck, electric dolly, wheelbarrow, or other device (Importance Degree: 4)
16. Cleans work area, machines, and equipment, using broom, rags and cleaning compounds (Importance Degree: 2)
17. May prepare parcels for mailing (Importance Degree: 2)
18. May maintain inventory records (Importance Degree: 3)
19. May operate highway truck (Importance Degree: 3)

15

PART B - CRITICAL PERSONNEL REQUIREMENTS

Each numbered and underlined item in this part is a generic category of behavior (a) which can be observed and/or reported, (b) which is common to a variety of jobs, and (c) which was judged by the Task Force to be critical for performing this job in a safe and satisfactory manner. It is sometimes called a performance domain.

Listed under each general category is one or more specific job elements identified by the Task Force (a) as commonly occurring and (b) as representative of the category. Collectively, those under a particular category constitute an operational definition of that category and delineate a personnel requirement of the job.

1. Understanding Printed/Written Information

- Reads written descriptions in order to identify materials including: pick lists, purchase orders, packing slips, bin labels, requisitions, and freight bills
- Reads company stock lists or catalogs
- Reads company books of rules and regulations
- May read special bulletins and memoranda

This performance domain is a component of each of the following "Duties and Responsibilities" listed in PART A: No's. 2, 3, 4, 5, 6, 9, 10, 12, 17, 18, and 19.

2. Understands Oral Communications

- Receives oral assignments from supervisor
- Receives oral instructions and on-the-job training from supervisor
- Receives oral explanations from other railroad employees regarding items requisitioned
- Receives oral inquiries by telephone or loudspeaker regarding warehouse material
- participates in group meetings where effectiveness depends upon understanding others

This performance domain is a component of each of the "Duties and Responsibilities" listed in PART A.

3. Exercising Physical Strength/Endurance

- Lifts (sometimes with co-worker) angle iron, pipe, and bar stock, sometimes to eye level
- Lifts locomotive and car parts to waist height while receiving, storing, or issuing; included are: knuckles, water pumps, fuel pumps, and air brake material
- Lifts diesel, car, track, signal, and communications components and supplies
- Carries locomotive parts, car parts, and track materials, sometimes 30 feet or more

4

3. Exercising Physical Strength/Endurance (continued)

- Classified as very heavy work: defined by the United States Department of Labor as "lifting objects in excess of 100 pounds and/or carrying objects weighing 50 pounds or more." NOTE: An earlier Task Force classified this job as heavy work. Findings are presented in consulting Report No. 58, dated October 24, 1977, and distributed by the Association of American Railroads.

This performance domain is a component of each of the following "Duties and Responsibilities" listed in PART A: No's. 1, 3, 6, 7, 10, 11, 12, 13, 14, and 15.

4. Operating Motor Vehicles

- Drives highway motor vehicle to pick up and deliver material to local vendors and other warehouses
- Drives motor vehicle to transport material to using sites
- Drives motor vehicle to fuel tank sites at other locations to take readings
- Operates off-highway vehicles in warehouses and on other railroad property; included are: industrial trucks, forklifts, order pickers, and tractors
- May drive motor vehicle to transport mail

This performance domain is a component of each of the following "Duties and Responsibilities" listed in PART A: No's. 8, 12, 14, 15, and 19.

5. Exercising Eye-Muscle Coordination

- Exercises eye-muscle coordination while operating forklifts, cranes, and motorized vehicles
- Exercises eye-muscle coordination while storing or placing warehouse items
- Exercises eye-hand coordination when banding or unbanding materials

This performance domain is a component of each of the following "Duties and responsibilities" listed in PART A: No's. 1, 3, 6, 7, 8, 11, 12, 13, 14, 15, and 19.

PART C - JOB SETTING CHARACTERISTICS

Each item in this part is a job setting characteristic. It is a structural, physical, or psychological condition (normally extrinsic to the work behavior itself) which impinges on the comfort, safety, or well being of the job incumbent. Included are any conditions which elicit from the incumbent affective reactions which influence productivity/job performance or which otherwise have significant impact. The Task Force identified these as normally being characteristic of the job.

1. Job Schedule Characteristics

- Schedule for most incumbents includes day hours only, however, some assignments include night hours
- Schedule is regular with the same basic hours each week except for relief assignments; probability of overtime varies from property to property
- Schedule includes some Saturdays, Sundays, and holidays for a small proportion of incumbents

2. Physical Environment Characteristics

- Work for most assignments is performed indoors with occasional exposure to weather conditions while other assignments are frequently or constantly performed out-of-doors
- An earlier Task Force found no undesirable environmental conditions other than weather*

3. Job Characteristics with Safety Implications

- Work requires operating cherry-pickers, getting on and off railroad cars, and climbing piles of ties, rails, and other material, all of which involve the potential of falling *
- Work requires handling containers of creosote, weed killers, and other liquids which can result in personal injury if container leaks*
- Work requires lifting and carrying, sometimes on slippery surfaces, which may result in bodily injury*
- Work is frequently performed in the presence of moving equipment subjecting the incumbent to potential injury *

6

4. Other Job Setting Characteristics

- Work is performed in presence of others but productivity is largely a personal matter

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- Work is not highly repetitive but consists of essentially the same tasks which are performed from time-to-time
- Work assignments are frequently changed or revised prior to completion due to changed priorities
- Work is normally performed in the same building, shop, or location
- Work frequently involves meeting deadlines beyond control of incumbent
- Work frequently requires attention to several tasks at the same time
- Work frequently must be performed amidst distractions
- Work requires protective clothing/devices including: safety shoes, hard hats, protective gloves and, in some cases, safety glasses or goggles.

NOTE: Work involves the handling of a variety of materials which require specified protective clothing or devices.

*Items designated in this manner were identified by an earlier Task Force. Findings are presented in Consulting Report No. 58 by C.H. Lawshe, Ph.D., dated October 24, 1977, and distributed by the Association of American Railroads.

7

PART D - CERTIFICATE

We, the undersigned, met at the place and on the date indicated below to develop this job analysis. After extensive discussion we developed the attached document under the general guidance of Dr. C.H. Lawshe.

We individually and collectively certify that the duties and responsibilities, the critical personnel requirements, and the job setting characteristics presented in the document accurately and fairly describe the job as we know it.

BURLINGTON NORTHERN, INC.

M. H. Moore, Material Manager

Paul F. Wilgosiewicz, Material Handler

CHICAGO AND NORTH WESTERN TRANSPORTATION COMPANY

Ray F. Ney, Leader Order Filler

Eric L. Smith, Order Filler

CONSOLIDATED RAIL CORPORATION

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Chris Abell, Supervisor - Material

Ervin L. Fiedorowicz, Clerk Stockman

ELGIN, JOLIET, AND EASTERN RAILWAY COMPANY

Gordon Stamper, Division Storekeeper

FAMILY LINES RAIL SYSTEM

E.M. King, Regional Supervisor - Store Operations

ILLINOIS CENTRAL GULF RAILROAD

Richard J. LePenSke, Chief Clerk

Steven Donohue, Vacation Relief Clerk

MISSOURI PACIFIC RAILROAD COMPANY

James H. Blakeney, General Material Foreman

SANTA FE RAILWAY

Max C. Wicker, District Material Supervisor

SOUTHERN RAILWAY COMPANY

Woody L. Chilcoat, Assistant Director-Regional Materials
Centers

UNION PACIFIC RAILROAD COMPANY

R. L. Luttrell, Senior Training Officer

400 West Madison Street
Chicago, Illinois
April 1, 1981

This job analysis identifies the major duties/responsibilities, personnel requirements, and job setting characteristics which are common to most railroads. It has been reviewed and approved for distribution by the Job Analysis project Steering Committee of the Railroad personnel Association. It is the province of individual railroads to determine the completeness and adequacy of this description for their own property.

Date

PART E - PROCEDURAL AND TECHNICAL NOTES

The first three parts of this document include all of the information provided by members of the Task Force. PART

E does not contain additional data about the job itself; instead, (1) it outlines in general terms the procedures employed in generating the information and (2) it provides technical information that supports the validity of the results. More

detailed information on these topics is presented in the publication. The Railroad Industry Job Analysis Project: A Final Report, distributed by the Association of American Railroads.

Note No. 1: The Task Force

The Task Force which provided the job information for this job analysis was composed of four job incumbents and ten officers intimately familiar with the job from ten different railroads. They met April 1, 1981, at the offices of the Chicago and North Western Transportation Co., 400 West Madison Street, Chicago, Illinois.

Note No. 2: Task Analysis (PART A)

Members of the Task Force were supplied with a first draft list of tasks which had been developed in prior study of the job. In conference fashion, they reviewed and analyzed these statements. Indicated modifications and additions were made, and inappropriate ones were deleted. The resulting consensus of the group provided the nineteen tasks in PART A of this document.

Importance Rating. Once the list was finalized, members of the Task Force, independently, rated each task in terms of its importance to the job, using a zero to five rating scale.

Sub-

sequently, individual ratings for each task were averaged and rounded; these means appear as "Importance Degree" values after the listed tasks. Reliability coefficient: $r = .86$.

Note No. 3: Personnel Requirements Analysis (PART B)

Initial Criticality Rating. Members of the Task Force were supplied with a personnel requirements questionnaire listing the 36 "performance domains" which appear in Table 1 on the next page. They rated each of these as "C" (critical for the safe and satisfactory performance of the job), "H" (helpful but not critical) or "N" (not involved in the job). Ratings were tabulated and five of the domains were retained for further consideration. A domain was retained if at least ten of the fourteen members said "critical" and the remainder said "helpful." Reliability coefficient: $r = .94$.

Relative Criticality Rating. The five performance domains which survived the initial rating process were again submitted to

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members of the group. Following extensive discussion, each member distributed 100 points among the five domains based upon personal judgment of relative criticality. Individual point awards for each domain were averaged. Reliability coefficient: $r = .88$.

Table 1

10

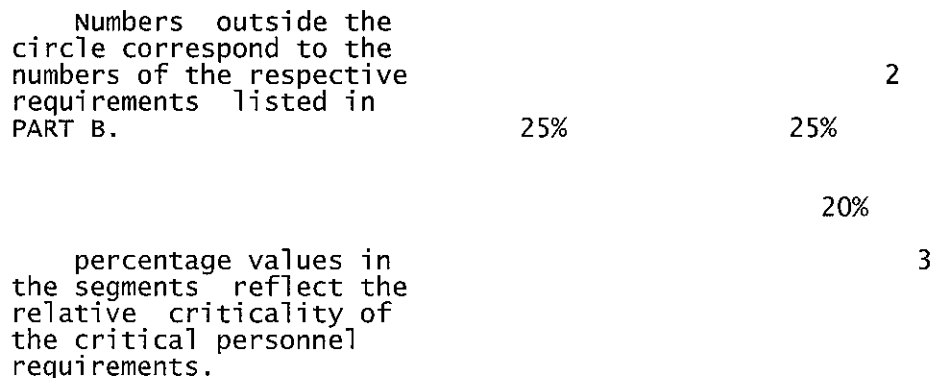
Results of Task Force Criticality Ratings

number	Personnel Requirement	Critical
Joba	orig. b	yesc ~,
	1 Understanding/applying mechanical principles	x
	2 Understanding printed/written information	x
2	3 Understanding oral communication	x
	4 Making oneself understood orally	x
	5 Understanding quantitative information	x
	6 Understanding visual displays	x
	7 Judging condition or status of objects/parts	x
	8 Understanding graphic information	x
	9 Exercising fine physical coordination/dexterity	x
	10 Recognizing sounds/changes in sounds	x
	11 Climbing and balancing	x
	12 Making logical choices and/or drawing logical conclusions	x
	13 Exercising physical strength and/or endurance	x
	14 Taking actions and/or making decisions affecting security/well being of others	x
	15 Performing mathematical computations	x
	16 Recalling information required for work activity	x
	17 Making oneself understood in writing	x
	18 Recognizing colors	x
	19 Processing data/information (by hand)	x
	20 Judging speed and/or distance of moving objects! parts	x
	21 Estimating quantity/size without precise information	x
	22 Understanding/applying electrical and/or electronic principles	x
	23 Using mechanical measuring devices	x
	24 Dealing with customers/clients/public	x
	25 Handling money	x
	26 Using hand tools	x
	27 Operating motor vehicle	x
	28 Discriminating fine visual detail at eight inches or less	x
	29 Typewriting verbal and/or numerical material	x
	30 Performing stenographic activity	x
	31 Performing general clerical activity	x
	32 Performing administrative activities	x
	33 Operating office machines/equipment	x
	34 Performing computer related activities	x
	35 Exercising eye-hand coordination	x
	36 Planning/directing work of others	x

- a. These numbers correspond to those in PART B.
- b. These are the numbers in the original questionnaire.
- c. The relative criticality of each is reflected in the graph on the next page.

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Critical personnel Requirements. Each performance domain receiving five percent or more of the total points assigned was considered to be critical to the satisfactory performance of the job. Because all met this minimum, none was eliminated. Resulting percentages are shown in the graph below and reflect the relative criticality of the critical personnel requirements.



Operational Definition. Each performance domain is "a generic category of behavior that is common to a variety of jobs." For a particular job it needs to be "operationally defined"; that is, specific work behavior elements characterizing the performance domain need to be identified. Members of the group agreed on work behavior elements. (a) which are commonly occurring in this job and (b) which are representative of the generic category. These are listed under the several performance domains in PART B.

Component Analysis. Following the operational definition of a performance domain, each member independently examined that domain against the tasks in PART A. Using an answer sheet, each member recorded "is" or "is not" a component of each of the tasks. Results were subsequently tabulated, and a domain was considered to be a component of a specific task if eleven or more of the fourteen task force members so indicated. Results are recorded after the elements for each performance domain in PART B.

12

Note No. 4: Job Setting Analysis (PART C)

Those structural, physical, or psychological conditions in which or under which the job activity is performed were identified by the Task Force. This was accomplished with the aid of "a thought starter" check list of characteristics which were extensively discussed and analyzed. Those listed in PART C represent the group consensus as to what is normally characteristic in the job.

Note No. 5: Reliability of Results

Any job analysis activity is subjective in nature in that it utilizes the judgments and/or perceptions of human beings. For this reason, the consistency of the judgments of the Task Force members was examined. Members were assigned to two sub-groups, and the various statistical values discussed in the above notes were determined separately for each group. The degree of agreement between the sub-groups was examined by computing the Pearson

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product-moment coefficient of correlation between the two sets of values. The resulting coefficient can range from zero (no agreement between the groups) to 1.00 (perfect agreement between the groups) - A standard statistical adjustment (Spearman-Brown formula) was applied to the coefficient in order to estimate the degree of agreement between the entire group of fourteen and another group of the same size. Results obtained in this manner are reported as reliability coefficients (r) in Note 2 and Note 3 above. All obtained reliability coefficients (r's = .86, .94, and .88) and meet or exceed generally accepted professional standards. Coefficients of this magnitude indicate a high degree of rater consistency (or agreement), and lead to the conclusion that the Task Force members are either "all right" or "all wrong" in their judgments and/or perceptions about what is important in the job and what the critical personnel requirements are. With a Task Force composed of both incumbents and officers, with members drawn from several different railroad properties, and with the demonstrated high degree of agreement between the members, there is no reasonable basis upon which to refute their findings. All of these facts combine to give credibility to these job analysis results.

C. H. Lawshe, Ph.D.
Licensed Industrial Psychologist

April 15, 1981
West Lafayette, Indiana