
Henderson Construction Company

Case Project, Part 2

Case Background: Additional Information

Moving the project forward

Patrick, Bob, Mary and Frank met and discussed Melissa's initial ideas, and her decision that the EEOC compliance system should be the immediate focus. Following the decision to follow Melissa's recommendations, she was invited to attend the weekly planning meeting with Patrick, Bob, Frank and Mary. Melissa's plan to develop a database system was met with enthusiasm. This meeting was followed by extensive discussion of the capabilities that the database system could provide, not only for the short term but also for the future. For example, Frank saw the database as a means by which suppliers and equipment could be tracked throughout the company. At this point, Mary stepped in and reminded everyone of the importance of the EEOC system, but Melissa explained that once the EEOC system was up and running, then other modules could be added on fairly easily, which all utilize the same underlying database. One key design emphasis would be to build a system for which Mary could easily pick up enough skills to make incremental changes in the future. And further, it would be critical that Melissa fully document the system as she built it so another professional could make changes as the environment mandated.

Following the meeting, Mary and Melissa met to discuss the data requirements for the system. As Melissa was leaving, Mary handed Melissa a stack of forms that were directly related to the EEOC (and payroll) processing. Later that evening, she looked over the forms. The first (Exhibit A below), was a statement of Henderson's EEOC policies. State regulations required that this be posted at every job site where Henderson was completing a project. This form made clear to Melissa exactly the kind of regulatory environment that Henderson was facing.

The second form (Exhibit B) was the EEOC compliance form, which has to be submitted following each pay period for each job. Among other things, it specifies details about the project, and the details of hours worked overall, and hours worked by females and minorities. Melissa also remembered Mary's warning that the form might change in the future to provide a more detailed breakdown of minorities (such as Black, Hispanic, Asian, etc.). If this information became required, the form (and its data requirements) would change as well, becoming more complex. One interesting thing that Melissa noted about this form was that women could be counted under both their race and gender. For example, an Asian woman could be counted as a woman and a minority.

The next form (Exhibit C) was the wage scale form for one of Henderson's projects. On this form, the State specified what rate of pay would be required for each job skill classification at that particular job. This included the base pay, fringe benefits, and total gross compensation to be paid for each hour of work in the various job classifications. One of these forms would be generated by the state and submitted to Henderson for each job.

Another form (Exhibit D) was used to report the actual hours worked in each skill classification for each employee. This report includes the project identifier information, employee number (i.e., Social Security Number), regular hours and overtime hours. This report had to be generated and submitted to the state after each pay period.

Besides the state-required forms, there were some forms that Henderson planned to use for its own information. The first of these (Exhibit E) was an adaptation of one currently in use, and was used to gather information about the employees for the company files. Melissa noticed that Mary had already started gathering the more specific data that the state might require in the future, with respect to specific race.

In addition to the forms Mary provided, Melissa had done some work on developing a form for the weekly pay report to the workers (Exhibit F). While this wasn't precisely required for the EEOC system, it would be a good form to deal with the concern that Frank had mentioned regarding full information to the workers about their hours and pay. Besides, since they were gathering all of the very detailed information on payroll anyway, this would be a simple thing to add. One thing Melissa did notice was that the income tax calculation would require varying rates, based on marital status and weekly income. The database would have to accommodate that as well.

While Mary had been fairly thorough, she still had missed at least one item, Melissa thought to herself. That was a time card on which the workers could record their hours. As Melissa was thinking about this issue, she got an email from Mary that forwarded a letter about EEOC compliance (Exhibit G).

Your team's assignment

You have now been given more specific information. Is there any information in the description above or on the forms provided below that should be included but wasn't in your mid-semester deliverable? There may still be some uncertainty as to how to model the processes for this company's EEOC compliance system, so make and state assumptions where necessary. There is no specific, quantifiable, right solution, save for the outputs that the system will eventually generate, and the extent to which your model would lead eventually to these.

Although the equipment and inventory issue is still pressing, the focus for now is on the payroll and EEOC issues. Your data model should still retain the equipment/inventory related tables, but the database design and SQL that you write should focus on the payroll / EEOC tables.

(continued on next page)

Complete the following:

1. Review all information in this document before commencing this project.
2. Update the E-R diagram and the text summary of relations in parenthetical format. Include any information that you think was initially missed, or information that you gather from the attached forms that you did not previously have. Also include FKs and intersection tables as necessary.
3. Explain in detail the changes that have been done in order to address any issues or concerns with the previous database model.
4. Implement the database design by developing the DDL SQL syntax to create the tables and insert dummy data (you supply the dummy data) in a DBMS. You can use Oracle (or another DBMS product) to create and/or test your SQL statements. (You can create the tables and dummy data using the GUI elements in Oracle and then generate the DDL from the tool; or you can write the DDL from scratch.) It is suggested that 2-3 records be included in the database per table in order to properly illustrate record keeping for Henderson (i.e., populate the tables with INSERT statements). You should also develop a set of DROP statements for these tables.
5. Write the SQL SELECT queries that would generate the necessary information to fill out the forms shown in Exhibits B, C, D, E, and F. There may be multiple queries involved (e.g., some forms have “Part A”, “Part B”, etc. and on those you can assume that a different SELECT query would be used to populate that information; even within a given part – e.g., Exhibit B, Part D – you could write multiple queries that together would provide the needed information). Note that calculated fields (e.g., federal and state tax and social security paycheck deductions) do not need to be included in the database or queries. For example, the query(ies) would show how many hours per project per skill, and then another computer program could take the results of the query and perform the calculations to supply the other fields. These queries could then be included in the programming of the front-end application that would be created in the future.
 - Specifically, you should have (at least) one SQL SELECT query for each of the following:
 - Exhibit B, Part C (equivalent to Exhibit C, Part A; Exhibit D, Part B)
 - Exhibit B, Part D
 - Exhibit C, Part C
 - Exhibit D, Part D
 - Exhibit D, Part E
 - Exhibit D, Part F
 - Exhibit E
 - Exhibit F, Regular Pay
 - Exhibit F, Overtime Pay
 - *(You may ignore the part of Exhibit F showing Gross, Deductions, Check#, etc. Assume that a separate payroll software application would take care of deductions, printing checks, etc.)*

NOTE: You only need to populate tables that are needed for the reports below. You do not need to create dummy data for tables that are not used in your SQL SELECT queries. However, you should keep all tables in your E-R diagram, and you should submit the DDL to create those tables. In your text summary (parenthetical format), highlight which tables have dummy data.

(instructions continued on next page)

Your final project deliverable should contain the following:**(1) A PDF file containing the following (not necessarily in this order):**

- a. Your updated list of tables, listed in parenthetical format, with primary and foreign keys designated.
- b. Your updated E-R diagram, now including FKs and intersection tables (in PDF, please do not submit the Visio file)
- c. A written summary (no page length limit or specific formatting expectations), explaining in detail the changes that were made to your design between the mid-semester deliverable and the final deliverable. Explain why each addition or change was made.

Note: It is preferable to have these combined to a single PDF. However, a set of separate PDF files will be accepted.

(2) One SQL Script (.sql file) containing the DDL SQL statements to create and populate the tables with dummy data. I should be able to run this script in Oracle (or SQL Server if you approve with me ahead of time) to create the full set of database tables. In other words, this single script should contain:

- a. The set of CREATE table statements
- b. The set of INSERT statements to add dummy data

(3) One SQL Script (.sql file) containing all SQL SELECT statements as described above. In addition, for each SQL SELECT statement, you should include (inside comment markings in the SQL file) a statement of what that SELECT query is and which Exhibit it corresponds to. For example:

```
/* The following SQL query generates the work hour breakdown shown in  
Part D of Exhibit B */
```

(4) One SQL Script (.sql file) containing DROP statements so that after I have tested all your work, I can drop all database objects that were created by running your scripts.Rubric (120 points total)

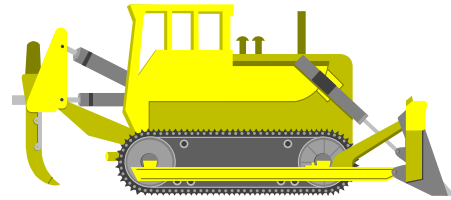
- Updated E-R Diagram: 10
- Updated text listing (parenthetical format): 10
- Written summary of changes: 10
- General format and correct file types submitted: 5
- SQL DDL file with CREATE and INSERT: 25
- SQL file with SELECT statements: 55
 - Runs without errors (5) + Comments included (5) + Correct results from each statement (9x5=45)
- SQL file with DROP statements: 5

(Exhibits listed below starting on following page)

EXHIBIT A-HENDERSON'S EEOC POLICY STATEMENT

Henderson Construction
Company

"State Qualified Contractors"



STATEMENT
of
Employment and Equal Employment Opportunity (EEO) Policies

- Our hiring is done, generally, at the job site, by each job site supervisor, as to his/her own needs. However, we do accept and file applications, at the main office in Knockemstiff, Indiana.
- We are an Equal Opportunity Employer. It is our intent to abide by all Laws, Rules, Regulations, and/or Executive Orders, both State and Federal, pertaining to Equal Employment Opportunity for all persons.
- We are not concerned about an individual's Color, Nationality, Past Activities/Associations, or Off Work Conduct.
- We maintain Single Facilities for the use of all employees. Each individual working for this company will be treated as an equal and is expected to conduct him/herself as such.
- No employee or applicant for employment will be discriminated against on the basis of Race, Color, Religion, National Origin, Ancestry, Age, Sex or Handicap.
- We do not sign contracts with Labor Organizations or others that require our employees to become members in order to work. We consider this an individual's choice.
- Our only Conditions of Employment are that an individual report for work on time (and sober), and that he/she does his/her work willingly and in harmony with the other employees.

Mary Henderson

Mary Henderson, EEO Compliance Officer
Henderson Construction Company

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EXHIBIT B-HENDERSON'S EEOC COMPLIANCE STATEMENT FORM

State of Indiana
Department of Transportation
Highway Division

Indiana Highway Construction Contract Information Reporting System

Form 29: For Contractors' Employment Utilization Reporting of Work Hour Data by Race and Gender

This report is required by the State EEO Coordinator, as provided in Section 901 of the implementing rules of the Governor's Executive Order. Failure to report can result in sanctions that include suspension, termination, or cancellation of contract, and/or revocation of bidding qualifications. Any falsification of this report may result in criminal charges being brought under Section 209 of the Governor's Executive Order.

Part A-Date							
This report is for the work period ending on: 12 May, 2018							
Part B- Contractor Information				Part C- Project Information			
Contractor Number 31-0646843 Name and Location of Contractor (include County) Henderson Construction Company Knockemstiff, Indiana 80286 Ross County EEO Compliance Certificate: (check one) <input type="checkbox"/> Yes <input type="checkbox"/> No Expires on: 31 December, 2020				Project Number IN-PIK-335-005 Project Location 5 miles south of Beaver, Indiana on SR 335 (Pike County). Project Description Replacement of single-span two-lane bridge (pre-stressed beam type).			
Part D-Detailed Work Hour Break Down							
	EEO Hours				Job Hours	% of job hours worked by	
	Minority		Non-Minority			Minority	Female
Job Classification	Male	Female	Male	Female			
LAB-Labor	23	12	33	12	80	43.8	30.0
CAR-Carpentry	3	5	22	5	35	22.9	28.6
MAS-Masonry	5	2	16	2	25	28.0	16.0
IRN-Iron Work	3	2	24	2	31	16.1	12.9
EQP-Equipment Operation	2	2	23	2	29	13.8	13.8
Total Hours	36	23	118	23	200	29.5	23.0
Part E-Compliance Officer Signature					Send Completed Form To:		
Name: Mary Henderson Telephone: 614-555-0386 Signature: <u>Mary Henderson</u>					State EEO Coordinator State Office Tower Columbus, Indiana 80586		

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EXHIBIT C- REPRESENTATIVE STATE WAGE SCALE FORM FOR A HENDERSON PROJECT

State of Indiana Department of Transportation Highway Division

Indiana Highway Construction Contract Information

Form 18: Pay Scales by Skill Classification for State Highway Projects
(To be provided to the primary contractor upon approval of its bid.)

Wage Scale--The wage rates for this project have been predetermined by the Secretary of Labor in accordance with Section 113 of the Federal Highway Act of 1968.

Part A- Project Information	Part B- Contractor Information
Project Number IN-PIK-335-005 Project Location 5 miles south of Beaver, Indiana on SR 335 (Pike County). Project Description Replacement of single-span two-lane bridge (pre-stressed beam type).	Contractor Number 31-0646843 Name and Location of Contractor (include County) Henderson Construction Company Knockemstiff, Indiana 80286 Ross County EEO Compliance Certificate: (check one) <input type="checkbox"/> Yes <input type="checkbox"/> No Expires on: 31 December, 2020

(Contractors shall use only the classification set forth herein when submitting payrolls and payroll-related information to the Highway Division). The above mentioned project requires the payment of the total of the “basic hourly rates” plus the “fringe benefits payments” for each classification listed below, all in accordance with U.S. Department of Labor Regulations, Title 29, Subtitle A, Part 5, Sections 5.31 and 5.32, dated March 1, 1966. The contractor/subcontractor **must pay all wages and fringe benefits by check.**

The contractor must submit its payrolls in a form that shall clearly and separately show the “basic hourly rates” paid and the amount and manner in which each “fringe benefits payment” has been irrevocably made. Submit this information using **Form 19 “Contractors’ Statement of Employee Hours and Compensation”** following every pay period.

Part C-Detailed Pay Scale Breakdown for Regular Hours (Overtime =1.5 X the Basic Rate)				
Code	Job Classification	Basic Hourly Rate	Fringe Benefits Payments	Total Compensation
LAB	Labor	15.00	3.00	18.00
CAR	Carpentry	16.00	3.00	19.00
MAS	Masonry	17.00	3.00	20.00
IRN	Iron Work	17.00	3.00	20.00
EQP	Equipment Operation	20.00	3.00	23.00

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EXHIBIT D- SAMPLE STATE COMPENSATION & HOURS WORKED FORM

State of Indiana
Department of Transportation
Highway Division

Indiana Highway Construction Contract Information Reporting System

Form 19: Contractors' Statement of Employee Hours and Compensation
(To be completed and submitted every pay period.)

Part A-Date	
This report is for the work period ending on: 10 March, 2018	
Part B-Project Information	Part C-Contractor Information
Project Number IN-PIK-335-005 Project Location 5 miles south of Beaver, Indiana on SR 335 (Pike County). Project Description Replacement of single-span two-lane bridge (pre-stressed beam type).	Contractor Number 31-0646843 Name and Location of Contractor (include County) Henderson Construction Company Knockemstiff, Indiana 80286 Ross County EEO Compliance Certificate: (check one) <input type="checkbox"/> Yes <input type="checkbox"/> No Expires on: 31 December, 2020

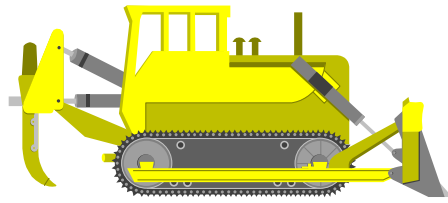
Part D-Regular Hours							
Employee Number	Skill Code	Rate	Fringe	Total	Hours	Gross	
390 05 4489	LAB	15	3	18	25	450.00	
	MAS	17	3	20	5	100.00	
Part E-Overtime Hours				Note: For overtime, base rates (but not fringe) are multiplied by 1.5 when calculating Gross pay			
Employee Number	Skill Code	Rate	Fringe	Total	Hours	Gross	
275 50 6921	EQP	20	3	33	3	99.00	
Part F-Total Hours Worked Per Skill Classification							
Job Skill Code	LAB	CAR	MAS	IRN	EQP		
Regular	25	-	5	-	-		
Overtime	-	-	-	-	3		
Total	25	-	5	-	3		
Part G-Paymaster Signature				Send Completed Form To:			
Name: Mary Henderson Telephone: 614-555-0386 Signature: <u>Mary Henderson</u>				Indiana Department of Transportation, Highway Division Payroll Verification State Office Tower			

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EXHIBIT E- HENDERSON GENERAL EMPLOYEE INFORMATION FORM

Henderson Construction
Company

"State Qualified Contractors"

**General Employee Information Form**

Please print neatly.

390 05 4489	Worker	James	E.
Social Security #	Last Name	First Name	M.I.
1253 Chopping Block Lane	Knockemstiff	Indiana	80286
Street	City	State	Zip Code
Telephone Number		<u>555-4897</u>	
Date of Birth		<u>16 November 83</u>	
Gender	<input type="checkbox"/> Female <input type="checkbox"/> Male		
Marital Status (for Tax Purposes)	<input type="checkbox"/> Single <input type="checkbox"/> Married		
EEO Code (see table)	<u>2</u>		

EEO Code Table

- | |
|--|
| 1. Black not of Hispanic Origin
2. Hispanic
3. Asian/Pacific Islander
4. American Indian or Alaskan Native
5. Non-Minority (White) |
|--|

Employee Signature: I certify that the above is true and correct.

James E. Worker
Signature

17 June, 2018
Date

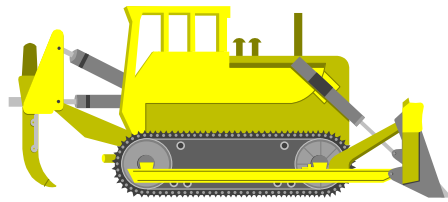
Main office: 8088 Red Hollow Road, Knockemstiff, Indiana 80286
(614) 555-0386 (office); (614) 555-0486 (fax)

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EXHIBIT F- SAMPLE PROPOSED HENDERSON WEEKLY PAY INFORMATION FORM

Henderson Construction
Company

"State Qualified Contractors"



Statement of Earnings and Deductions

Employee Name	James E. Worker	Weekly Deductions	Amount
Social Security #	390 05 4489	<i>Federal Tax</i>	156.20
Date	20 October, 2018	<i>State Tax</i>	23.43
Pay Period (Week of)	October 9, 2018	<i>Social Security</i>	49.51
Tax Year	2018	<i>Other</i>	0.00
EEO Status	M-2	Total Deductions	229.14

Gross Pay this Week \$ 798.50

Less Deductions \$ 229.14

Net Pay this Week \$ 569.36

Check # 8933

		Regular Pay		Total	Hours	Gross
Job	Skill	Rate	Fringe			
Pike	Labor	15.00	3.00	18.00	25	450.00
Pike	Masonry	17.00	3.00	20.00	5	100.00
Ross	Labor	15.00	3.00	18.00	5	90.00
Scioto	Labor	15.00	3.00	18.00	3	54.00
Scioto	Equipment Operation	20.00	3.00	23.00	2	46.00

Total Regular Pay Hours (all skills, all jobs) 40

Total Regular Pay (all skills, all jobs) \$ 740.00

		Overtime Pay		Total*	Hours	Gross
Job	Skill	Rate	Fringe			
Lawrence	General Labor	15.00	3.00	25.50	1	25.50
Scioto	Equip Operation	20.00	3.00	33.00	1	33.00

Total Overtime Pay Hours (all skills, all jobs) 2

Total Overtime Pay (all skills, all jobs) \$ 58.50

*Total overtime rate = (base rate * 1.5) + Fringe

Any questions about this form or its preparation should be expressed in writing to the Paymaster, Mary Henderson.

Main office: 8088 Red Hollow Road, Knockemstiff, Indiana 80286
(614) 555-0386 (office); (614) 555-0486 (fax)

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EXHIBIT G- THE LETTER MARY FAXED TO MELISSA

State of Indiana
Department of Transportation
Highway Division

September 20, 2018

Mary Henderson, Office Manager
Henderson Construction Company
8088 Red Hollow Road
Knockemstiff, Indiana 80286

Dear Ms. Henderson:

This letter is to inform you of a recent clarification by the Indiana Legislature that specifically affects EEOC compliance reporting.

The Legislature does not require breakdowns by specific race. The implication of this is that only minority/non-minority or male/female classifications are necessary for EEOC compliance reporting.

We hope this simplifies your compliance reporting.

Sincerely,

Jon

Jon Q. Public, Director
Highway Division
EEOC Compliance Reporting Office

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