Guide to Understanding Pay Equity Compliance

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Local Government Pay Equity Webpage

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Guide to Understanding Pay Equity Compliance

This booklet gives a general overview of how data from the local government reports is analyzed and how the tests for compliance are conducted. Complete details of compliance requirements are in Minnesota Rules Chapter 3920.

This booklet also describes the computer software developed by MMB. This software calculates several of the tests for compliance and the reports produced by the software are explained on pages three through five.

Tests for Compliance

1. **Completeness and Accuracy Test -** determines whether jurisdictions have filed reports on time, included correct data and supplied all required information.

2. **Statistical Analysis Test -** described on pages three through five, compares salary data to determine if female classes are paid consistently below male classes of comparable work value (job points). MMB has developed software that calculates the results for this test. This test is generally applied to larger jurisdictions. For smaller jurisdictions, the alternative analysis is used.

3. **Alternative Analysis Test -** described on pages 14 through 17, compares salary data to determine if female classes are paid below male classes even though the female classes have similar or greater work value (job points). The software is not used for this test.

4. **Salary Range Test -** described on page 18, compares the average number of years it takes for individuals to move through salary ranges established for female classes compared to male classes. This test only applies to jurisdictions that have a system where there is an established number of years to move through salary ranges.

5. **Exceptional Service Pay Test -** described on page 19, compares how often individuals in male classes receive longevity or performance pay above the normal salary range compared to how often individuals in female classes receive this type of pay. This test applies only to jurisdictions that have a system that includes exceptional service pay.

Determining Whether the Alternative or Statistical Analysis Will Be Used

1. **Alternative analysis - jurisdiction has:**

   - Three or fewer male classes.

     NOTE: Jurisdictions with three or fewer male classes may want to skip over the information on pages two through seven describing the statistical analysis and computer reports.

2. **Statistical analysis - jurisdiction has:**

   - Six or more male classes and at least one class with an established salary range, or

   - Four or five male classes and an underpayment ratio of 80% or more. May or may not have classes with an established salary range.

3. **Start in statistical analysis but go to alternative analysis - jurisdiction has:**

   - Four or five male classes and an underpayment ratio below 80%, or

   - An underpayment ratio below 80%, six or more male classes, but no classes with a salary range.

Explanation of Computer Reports

Information contained in the next few pages is intended to explain the three reports produced by the Pay Equity Management System Software. Look at the sample reports as you read the following explanations. Each numbered explanation corresponds to a shaded number on the examples on pages three, five and six. For informational purposes, a sample of a graph produced with the Pay Equity Analysis software is shown on page seven.

Compliance Report

The statistical analysis, salary range and exceptional service pay test results are shown below. Part I is general information from the Pay Equity Implementation Report data. Parts II, III and IV of the Compliance Report give test results. For more detail on each test, refer to Minnesota Rules Chapter 3920.

I. GENERAL JOB CLASS INFORMATION

	Male Classes (1)	Female Classes (2)	Balanced Classes	All Job Classes
# Job Classes	8	4	2	14
# Employees	14	4	24	42
Avg. Max Monthly Pay Per Employee	1,537.22	1,796.87		1,656.86 (3)

II. STATISTICAL ANALYSIS TEST

A. Underpayment Ratio = 150.0* (4)

	Male Classes	Female Classes
a. # At or above Predicted Pay	5	3
b. # Below Predicted Pay	3	1
c. TOTAL	8	4
d. % Below Predicted Pay (b divided by c = d)	37.50 (5)	25.00 (6)

*(Result is % of male classes below predicted pay divided by % of female classes below predicted pay.)

B. T-test Results

Degrees of Freedom (DF) = 16 Value of T = -3.732 (7)

a. Avg. diff. in pay from predicted pay for male jobs = $2 (8)

b. Avg. diff. in pay from predicted pay for female jobs = $75 (9)

III. SALARY RANGE TEST = 105.71% (10) (Result is A divided by B)

A. Avg. # of years to max salary for male jobs = 5.29

B. Avg. # of years to max salary for female jobs = 5.00

IV. EXCEPTIONAL SERVICE PAY TEST = 50.00% (11) (Result is B divided by A)

A. % of male classes receiving ESP 50.00*

B. % of female classes receiving ESP 25.00

*(If 20% or less, test result will be 0.00.)

Compliance Report

Explanations below correspond to shaded numbers on page three.

1. **Average Maximum Monthly Salary for Employees in Male Classes**
2. **Average Maximum Monthly Salary for Employees in Female Classes**
3. **Overall Average Maximum Monthly Salary for an Employee**
4. **Underpayment Ratio**

   The minimum requirement to pass the statistical analysis test is an underpayment ratio of 80%. The underpayment ratio is calculated by dividing the percentage of male classes below predicted pay (item five) by the percentage of female classes below predicted pay (item six). In the example on page three, 37.5 ÷ 25 = 150%. Jurisdictions with an underpayment ratio below 80% can improve their score by increasing salaries for female classes to at or above predicted pay. More details regarding predicted pay are on pages six through 13.

   If the underpayment ratio is less than 80%, a jurisdiction may still pass the statistical analysis test if the t-test results (explained in item 7) are not statistically significant. The t-test measures the average dollar difference from predicted pay for male and female classes.

5. **Percentage of Male Classes Below Predicted Pay**

   This percentage is calculated by dividing the number of male classes below predicted pay by the overall total of male classes. In the example on page three, the total of male classes is eight, and three fall below predicted pay. Therefore, 3 ÷ 8 = 37.50%.

6. **Percentage of Female Classes Below Predicted Pay**

   This percentage is calculated by dividing the number of female classes below predicted pay by the overall total of female classes. In the example on page three, the total of female classes is four and one of those falls below predicted pay. Therefore, 1 ÷ 4 = 25%.

7. **T-Test & Degrees of Freedom**

   These numbers are used only for jurisdictions with an underpayment ratio below 80%, at least six male classes and at least one class with a salary range. If the underpayment ratio is 80% or more, these numbers are not used nor are they used for jurisdictions in the alternative analysis.

   These numbers show the average dollar amount that males and females are from predicted pay and answer the question: Are females paid less than males on average and, is the underpayment of females statistically significant?

   To determine if these numbers show statistical significance, they must be checked against the table on page five. Find the DF number in the "Degrees of Freedom" column and then look across for the "Value of T." If the "value of t" on the compliance report is less than the "value of t" on the table, it means that either there is no underpayment of female classes or that the underpayment is not statistically significant. If the t-test number is the same or more than the "value of t" on the table, the underpayment for female classes is statistically significant and the jurisdiction would not pass the test.

   Salary increases for female classes sufficient to eliminate statistical significance would allow a jurisdiction to pass the statistical analysis test even with an underpayment ratio below 80%.

In the example on page three, t-test results would not be used because the underpayment ratio is above 80%, but let's assume we needed to check these results. First, we would find 16 in the DF column and then look across to find the value of t at 1.746. Since our t-test number is -3.732, well below the value of t on the table, these results would show that on average, females are not underpaid compared to males.

T-Test Table
(5% Significance)

DF	Value of t	DF	Value of t	DF	Value of t
1	6.314	12	1.782	23	1.714
2	2.920	13	1.771	24	1.711
3	2.353	14	1.761	25	1.708
4	2.132	15	1.753	26	1.706
5	2.015	**16**	**1.746**	27	1.703
6	1.943	17	1.740	28	1.701
7	1.895	18	1.734	29	1.699
8	1.860	19	1.729	30	1.697
9	1.833	20	1.725	40	1.684
10	1.812	21	1.721	60	1.671
11	1.796	22	1.717	120	1.658
				Infinity	1.645

While the entire method for calculating t-test results cannot be explained here, it is a commonly accepted mathematical technique for measuring statistical significance. The formula is fairly complex, but basically it factors in predicted pay, the dollar difference from predicted pay and the number of employees. The DF number is the total number of employees in male or female dominated classes only, minus two.

8. Average Dollar Amount Male Classes are Above or Below Predicted Pay

In the example on page three, the maximum monthly salary for male classes, on average, is $2 above predicted pay.

9. Average Dollar Amount Female Classes are Above or Below Predicted Pay

In the example on page three, the maximum monthly salary for female classes, on average, is $75 above predicted pay.

10. Salary Range Test

This number must be either 0% or 80% or more to pass this test. In the example on page three, 105.71% is passing. Jurisdictions not passing this test can pass it by reducing the number of years it takes for female classes to reach maximum salaries, increasing the number of years for males to reach maximum salaries, or some combination of both. A result of 0% would mean that either there are no male classes with an established number of years to move through a salary range, no female classes with an established number of years to move through a salary range, or both. A description of how the salary range test is calculated is on page 18.

11. Exceptional Service Pay Test

This number must be either 0% or 80% or more to pass this test. In the example on page three, 50% is not passing. Jurisdictions not passing this test can pass it by either increasing the number of female classes that receive exceptional service pay, decreasing the number of male classes that receive exceptional service pay, or some combination of both. A result of 0% could mean that fewer than 20% of male classes receive exceptional service pay or that no female classes receive exceptional service pay. A description of how the exceptional service pay test is calculated is on page 19.

Statistical Analysis

Explanations correspond to shaded numbers below.

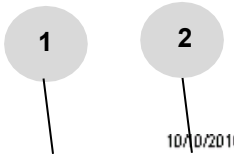
This report can be printed after the results are computed. The predicted pay and pay difference columns are helpful in analyzing the cost of adjusting the salary for any given class.

1. Predicted Pay

The most simplistic definition of predicted pay is that it is the average pay of male classes at any given point value. Predicted pay is calculated by averaging the maximum monthly salaries for male classes in the jurisdiction. It is the standard for comparing how males and females are compensated. Predicted pay is a mirror, or reflection, of the current compensation practice within a jurisdiction for male classes, but is not necessarily the salary that "should" be paid at any particular point level. Specific details of the method used to calculate predicted pay is explained in pages eight through 13. The graph on page seven shows a "predicted pay line" and how male and female classes scatter around that line. Predicted pay amounts are determined only from the jurisdiction itself, not from any external factors or salaries.

2. Pay Difference

Shows the dollar amount that maximum monthly salaries fall above or below predicted pay. If a jurisdiction does not pass the statistical test and needs to increase salaries for female classes, either to reach an underpayment ratio of 80% or eliminate the statistical significance of the t-test, this information is useful in calculating the cost. For example, the cost to increase the female class of "stage manager" to predicted pay would be $6.20 per month.

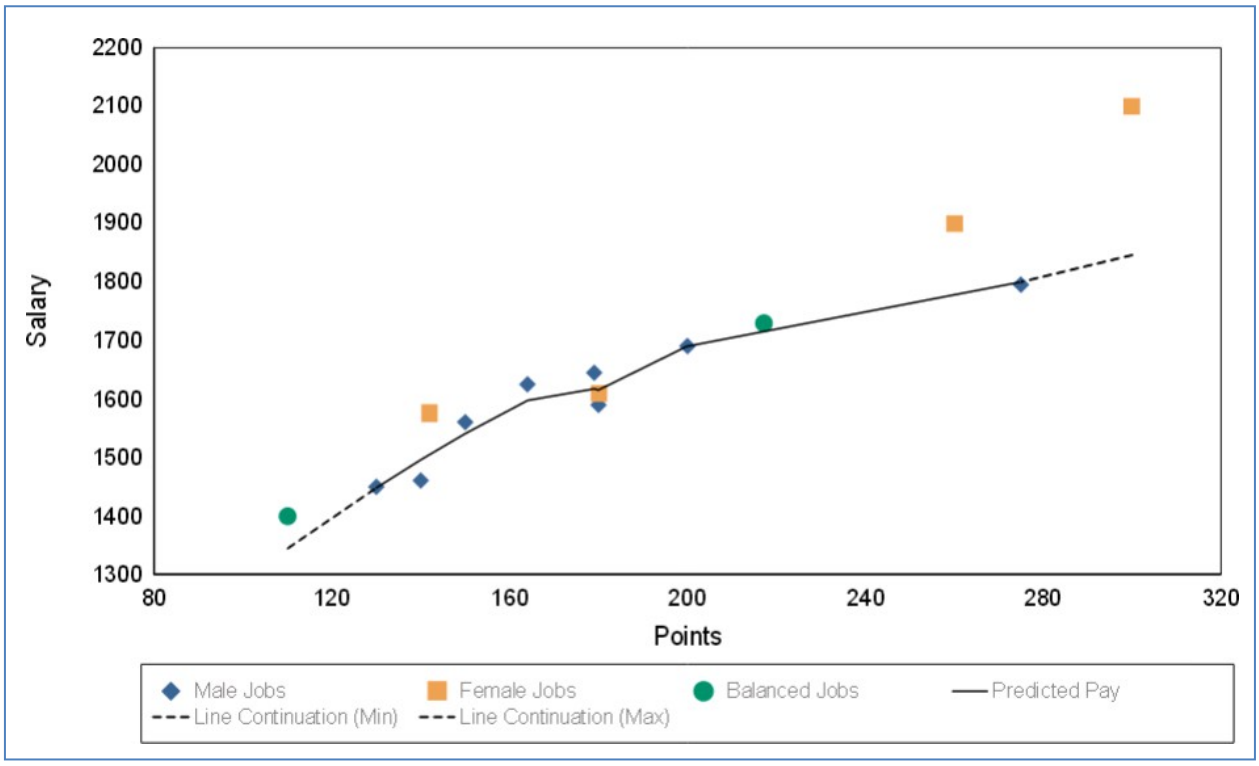


Predicted Pay Report for Stageville Theater First Step To Broadway! 10/10/2016
Case : 2011

Job Nbr	Job Title	Nbr Males	Nbr Females	Total Nbr	Job Type	Job Points	Max Mo Salary	Predicted Pay	Pay Difference
1	Box Office	1	1	2	Balanced	110	$1,400.41	$1,344.82	$55.59
2	Stage Crew	6	1	7	Male	130	$1,450.26	$1,447.15	$3.11
3	Props Chief	1	0	1	Male	140	$1,460.94	$1,495.59	($34.65)
4	Costume Designer	0	1	1	Female	142	$1,575.89	$1,505.17	$70.72
5	Set Tech.	1	0	1	Male	150	$1,560.75	$1,540.12	$20.63
6	Lighting Tech.	1	0	1	Male	164	$1,625.50	$1,598.54	$26.96
7	Effects Eng.	1	0	1	Male	179	$1,645.22	$1,617.17	$28.05
8	Stage Manager	0	1	1	Female	180	$1,610.30	$1,616.50	($6.20)
9	Writer	1	0	1	Male	180	$1,590.19	$1,616.50	($26.31)
10	Marketing Director	1	0	1	Male	200	$1,690.85	$1,689.43	$1.42
11	Actor/Actress	10	12	22	Balanced	217	$1,730.85	$1,748.34	($17.49)
13	Producer	0	1	1	Female	260	$1,900.00	$1,773.81	$126.19
12	Director	1	0	1	Male	275	$1,795.76	$1,800.99	($5.23)
14	General Manager	0	1	1	Female	300	$2,100.67	$1,846.29	$254.38

Job Number Count: 14

Predicted Pay Graph



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Job Class Data Entry List Report

Shows the data that has been entered for computation. This report should be carefully reviewed before computing the results. If any errors are found, they must be corrected before computing results.

Stageville Theater First Step To Broadway!

Job Class Data Entry Verification List LGID 1

Case: 2011

Job Nbr	Class Title	Nbr Males	Nbr Females	Class Type	Jobs Points	Min Mo Salary	Max Mo Salary	Yrs to Max Salary	Yrs of Service	Exceptional Service Pay
1	Box Office	1	1	B	110	$1,200.00	$1,400.41	4.00	0.00	
2	Stage Crew	6	1	M	130	$1,250.00	$1,450.26	5.00	0.00	Longevity
3	Props Chief	1	0	M	140	$1,260.00	$1,460.94	5.00	0.00	Longevity
4	Costume Designer	0	1	F	142	$1,375.00	$1,575.89	5.00	0.00	
5	Set Tech.	1	0	M	150	$1,360.00	$1,560.75	5.00	0.00	Longevity
6	Lighting Tech.	1	0	M	164	$1,400.00	$1,625.50	6.00	0.00	Longevity
7	Effects Eng.	1	0	M	179	$1,425.00	$1,645.22	6.00	0.00	
8	Stage Manager	0	1	F	180	$1,425.00	$1,610.30	5.00	0.00	Longevity
9	Writer	1	0	M	180	$1,400.00	$1,590.19	6.00	0.00	
10	Marketing Director	1	0	M	200	$1,490.00	$1,690.85	4.00	0.00	
11	Actor/Actress	10	12	B	217	$1,500.00	$1,730.85	4.00	0.00	Performance
13	Producer	0	1	F	260	$1,700.00	$1,900.00	0.00	1.00	
12	Director	1	0	M	275	$1,600.00	$1,795.76	0.00	3.00	
14	General Manager	0	1	F	300	$1,800.00	$2,100.67	0.00	5.00	

Job Number Count: 14

Method Used for Predicted Pay Calculation in the Statistical Analysis

The following explanation is a general description of how predicted pay is calculated but does not include all details of the formula in Minnesota Rules Chapter 3920.

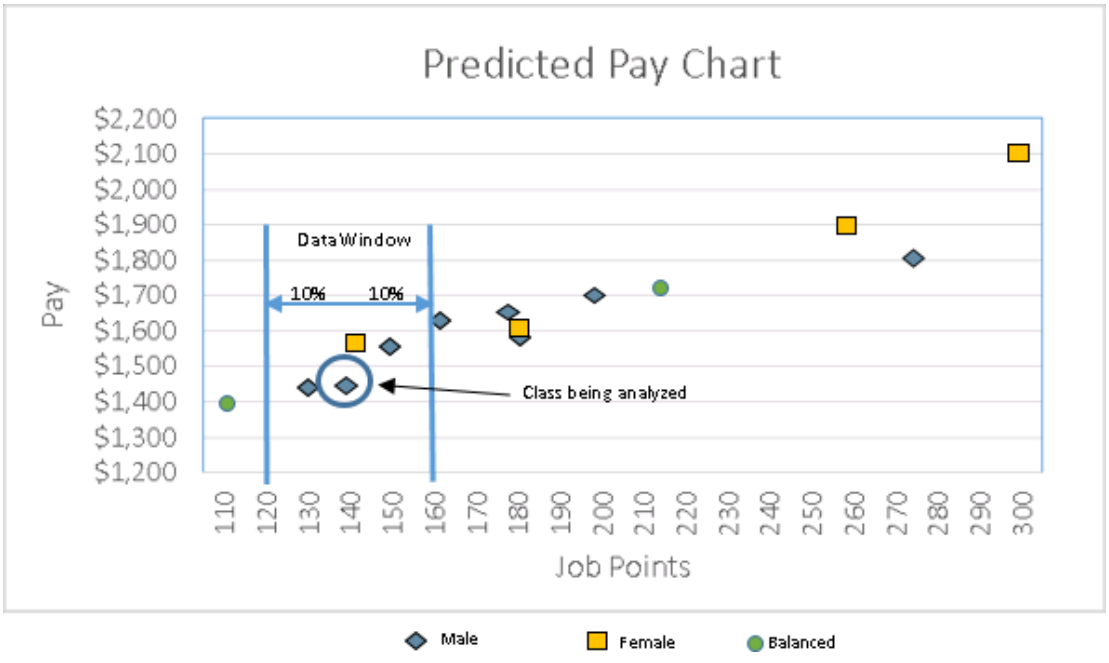
Basis of the Statistical Analysis

The definition in the Local Government Pay Equity Act for equitable compensation relationship says "...compensation for female-dominated classes is not consistently below the compensation for male-dominated classes of comparable value..."

The formula for the statistical analysis is based on three concepts found in the above definition: comparable value, male compensation and consistently below.

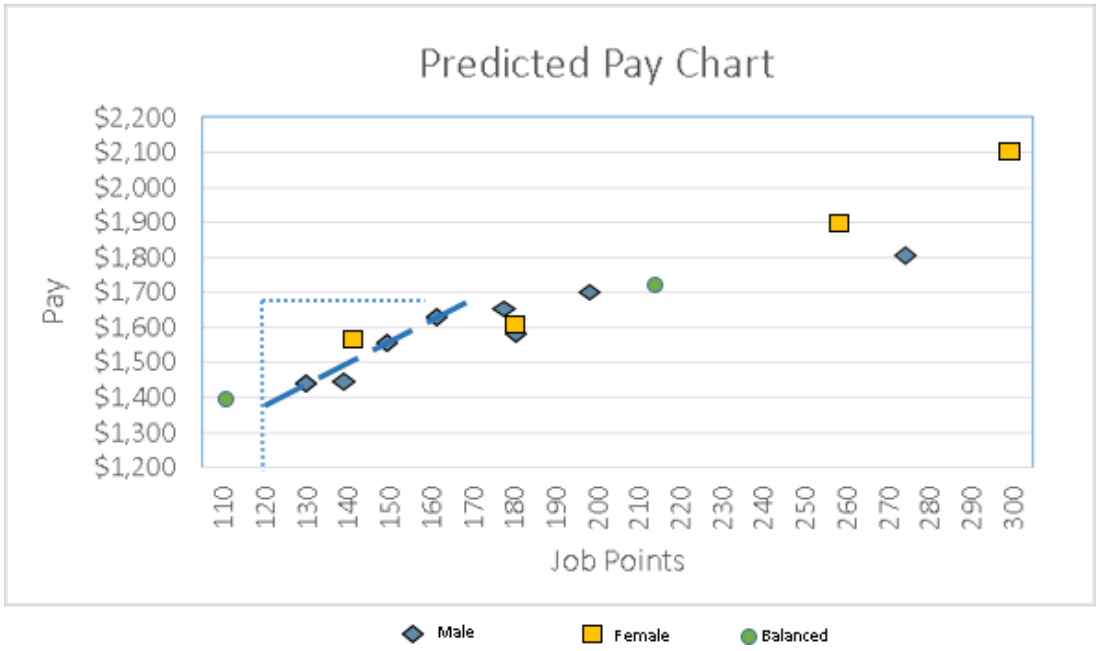
I. Defining "Comparable Value"

Except for classes in the lower and upper 10% of the point range, comparable value is defined by drawing a 20% window around the job class being analyzed. Each window extends 10% of the range of points on each side of the class. In the example, there is a range of 200 points from lowest to highest, so 10% would be 20 points. Each window must have at least three male classes (two of which have different points) and must include at least 20% of all male classes in the jurisdiction. If this criteria is not met, the window will expand at 5% increments on either side until the required number of male classes are included. The drawing below shows one window for one class.

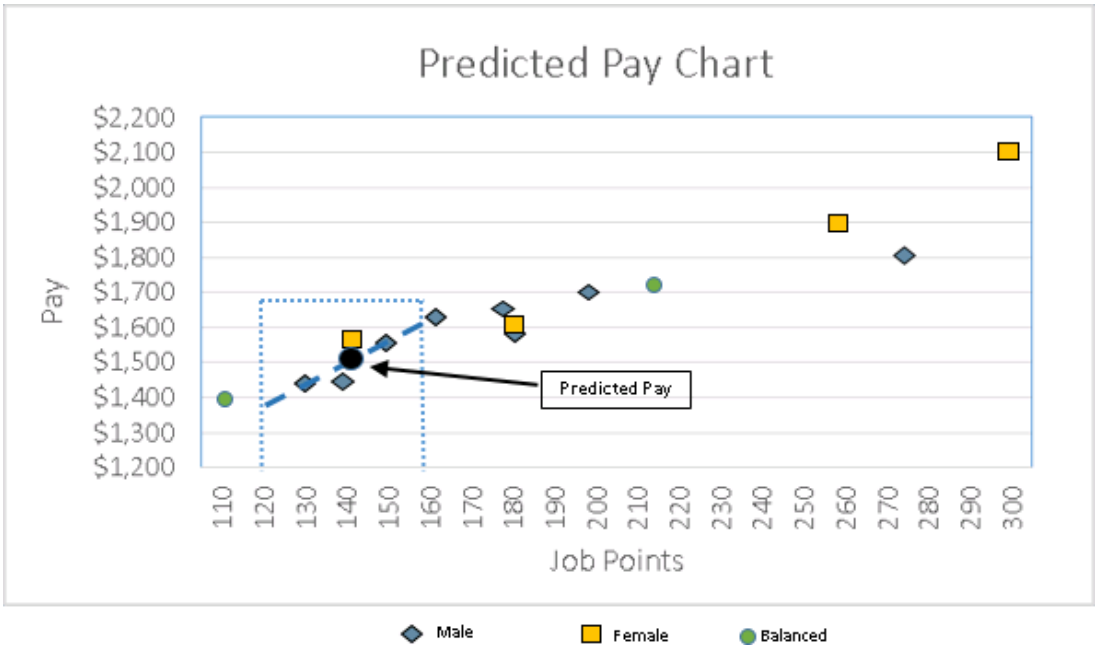


II. Defining "Male Compensation" or "Predicted Pay

A. The first step in defining male compensation is to draw a "mini" regression line through the male classes in the window.



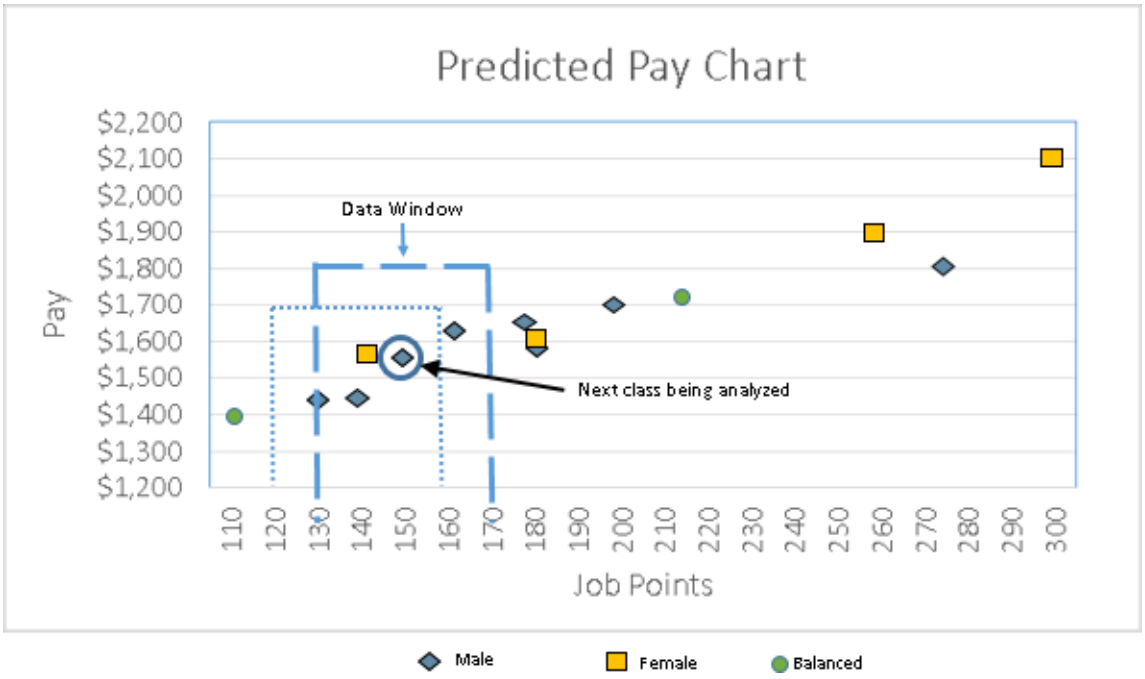
B. The second step in defining male compensation is to look at the class being analyzed and the same point on the mini regression line. This point is called predicted pay.



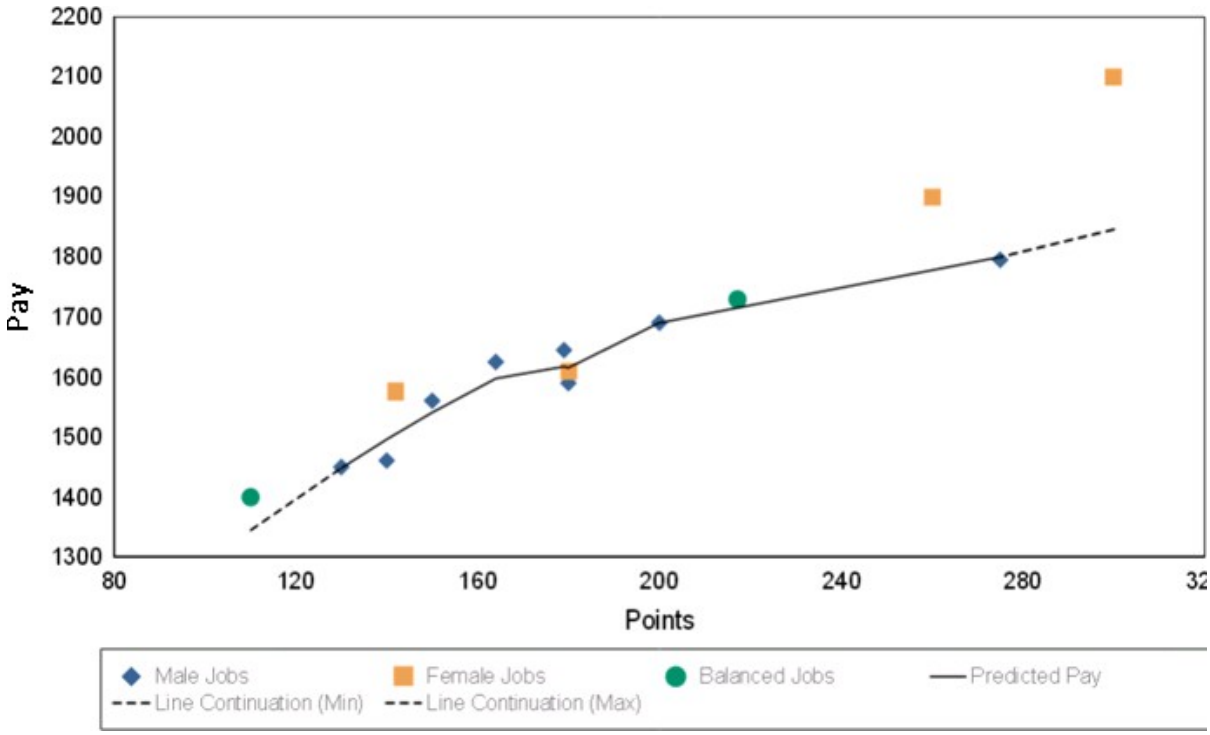
III. Defining "Consistently Below"

A. A determination is made as to whether the class being analyzed falls above or below predicted pay. In the example, the female class being analyzed is above predicted pay.

B. A new window is drawn when the next class is analyzed. This continues until all classes have been analyzed.



C. When all the classes have been analyzed, a predicted pay line is drawn.



D. The tabulation of the number of male and female classes above and below the predicted pay line is made.

For example:

F above	=	3	M above	=	5
F below	=	1	M below	=	3
Total	=	4	Total	=	8

E. The percentage of male and female classes below predicted pay is calculated by dividing the number of classes below by the total number of classes in each group.

Female classes:	1 ÷ 4	=	25.00%
Male classes:	3 ÷ 8	=	37.50%

F. The percentage of male classes below predicted pay is divided by the percentage of female classes below predicted pay. This produces the "underpayment ratio."

37.50% ÷ 25.00% = 150.00%

G. An underpayment ratio below 80% shows that female classes are compensated "consistently below" male classes of comparable value. If the underpayment ratio is below 80%, further analysis is done to determine if the underpayment of females is statistically significant. Using the t-test, a determination is made whether or not the dollar difference is statistically significant. Details of the t-test can be found on page four.

Alternative Analysis Test

The minimum requirement to pass this test is that:

a. there is no compensation disadvantage for at least 80% of female classes compared to male classes; or,
b. compensation differences can be accounted for by years of service or performance.

On the next few pages the four possibilities that exist for inequities or a compensation disadvantage are described.

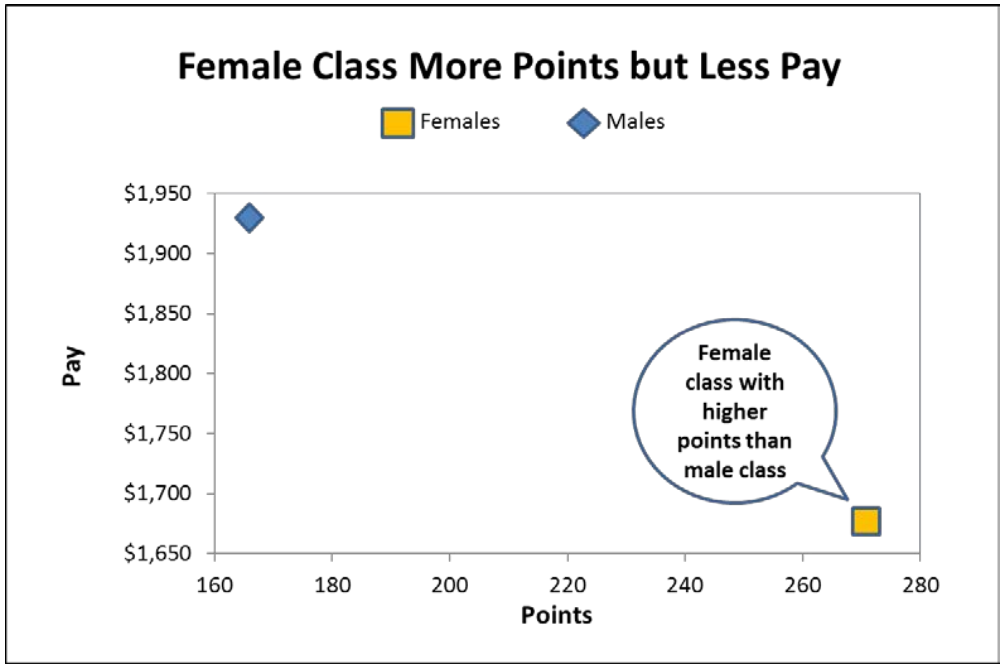
1. A female class with higher points has less compensation than a male class with lower points.

Example: In this case, the female job class of city clerk has more points but less pay than the male job class of maintenance supervisor.

Job Title	Type	Class Points	Max. Monthly Salary
City Clerk	F	275	$1665
Maint. Sup.	M	171	$1925

The minimum requirement to correct this inequity is that the female class must have a salary at least equal to that of the male class.

Graph illustrating inequity for female job class.



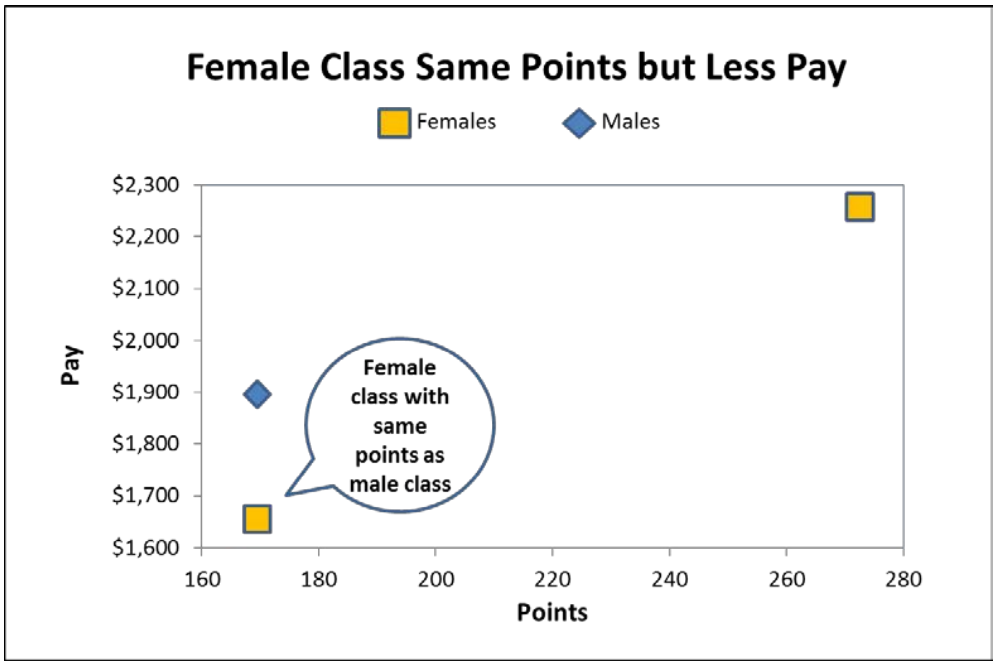
2. **A female class has the same points as a male class but less compensation**.

Example: In this case, the female job class of secretary and the male job class of maintenance have the same points but the secretary receives less pay.

Job Title	Type	Class Points	Max. Monthly Salary
City Clerk	F	275	$2265
Maintenance	M	171	$1900
Secretary	F	171	$1630

The minimum requirement to correct this inequity is that the female class must have a salary at least equal to the male class.

Graph illustrating inequity for female job class.



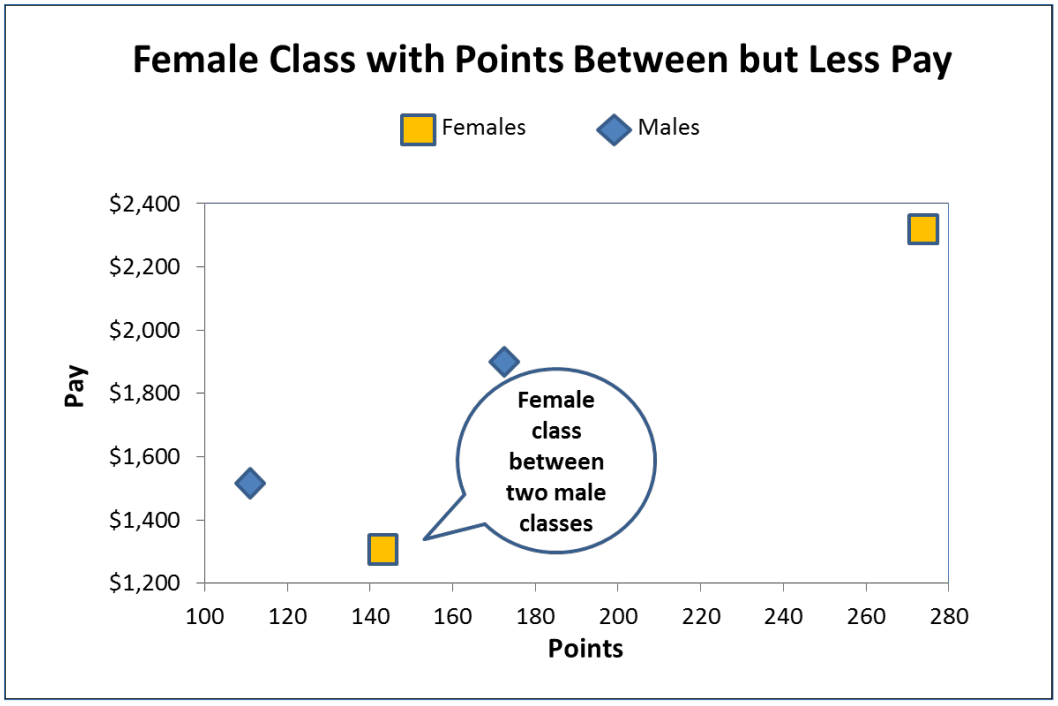
3. A female class has points between two male classes but compensation is not between or above the two male classes.

Example: In this case, the female job class of receptionist has points between two male classes but receives less pay than either of them.

Job Title	Type	Class Points	Max. Monthly Salary
City Clerk	F	275	$2370
Maintenance	M	171	$1900
Receptionist	F	141	$1250
Custodian	M	111	$1500

The minimum requirement to correct this inequity is that the female class must have a salary somewhere between the two male classes.

Graph illustrating inequity for female job class.



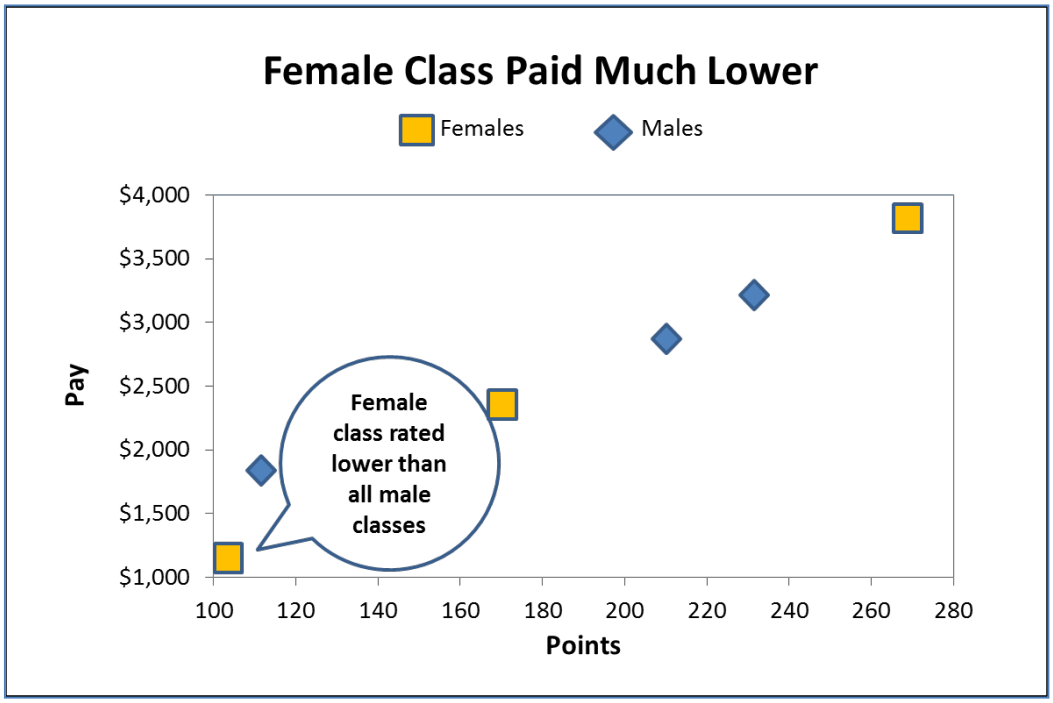
4. A female class, rated lower than all male classes, is not compensated as reasonably proportionate to points as other classes.

Example: In this case, the retail clerk has a salary of $700 per month below the custodian but only six fewer points. For all other job classes where there is a salary difference, there is a larger difference in points. For example, the maintenance supervisor's salary is $300/month less than the police officer and there is a difference of 23 points.

Job Title	Type	Class Points	Max. Monthly Salary
City Clerk/Admin	F	275	$3800
Police Officer	M	236	$3200
Maintenance Sup	M	213	$2900
Admin. Sec.	F	173	$2400
Custodian	M	111	$1800
Retail Clerk	F	105	$1100

While some difference in salary is acceptable due to the point difference, the salary for the retail clerk with 105 points must be much closer to the salary for the custodian with 111 points. When there is a question regarding the salary for female class or classes rated lower than all male classes, the judgment is made on a case-by-case basis, and the main considerations are the relationship of points and pay between other classes in the jurisdiction and past history of pay relationships that were previously in compliance. In this case, the minimum requirement to correct this inequity would be that the salary for the retail clerk would be approximately $1,650/month.

Graph illustrating inequity for female class.



Salary Range Test

This is an example to show how the salary range test is calculated. It is not necessary to calculate this test manually if the software is being used. If the software is not being used, the following steps will produce a result for this test. Information is recorded for male or female classes only, not balanced classes. The information for this example is taken from the Data Entry List Report on page seven.

JURISDICTION: Stageville Theatre

Step 1

Look at the "years to max" column and identify male classes with an established number of years to move through a salary range.

Title	Years to Max
Stage Crew	5
Props Chief	5
Set Tech	5
Lighting Tech	6
Effects Tech	6
Writer	6
Marketing Director	4
7 total classes	***37 total years***

Step 2

Calculate the average years to reach maximum salary for male classes:

A. Total years from Step 1		37	
B. Total classes from Step 1		7	
C. Divide 2A by 2B	37 ÷ 7 =	***5.28***	***average years to max***

Step 3

Look at the "years to max" column and identify female classes with an established number of years to move through a salary range.

Title	Years to Max
Costume Designer	5
Stage Manager	5
2 total classes	***10 total years***

Step 4

Calculate the average years to reach maximum salary for female classes:

A. Total years from Step 3		10	
B. Total classes from Step 3		2	
C. Divide 4A by 4B	10 ÷ 2 =	***5***	***average years to max***

Step 5

Divide 2C by 4C and multiply by 100. 5.28 ÷ 5 = 1.05 x 100 = 105%

Enter this result in Part C of the Pay Equity Implementation Report.

Exceptional Service Pay Test

This is an example to show how the exceptional service pay test is calculated. It is not necessary to calculate this test manually if the software is being used. If the software is not being used, the following steps will produce a result for this test. The information for this example is taken from the Data Entry List Report on page seven. Information is recorded for male or female classes only, not balanced classes.

Step 1

Look at the "exceptional service pay" column and calculate the percentage of male classes receiving exceptional service pay.

A. Total number of male classes where an employee receives exceptional service pay.			**4**
B. Total number of male classes in the jurisdiction.			**8**
C. Divide 1A by 1B and multiply by 100.	4 ÷ 8 = .50 x 100	=	**50%**

If result of 1C is 20% or less, stop here and check appropriate box in Part D of report form.

If result is more than 20%, go on to Step 2.

Step 2

Look at the "exceptional service pay" column and calculate the percentage of female classes receiving exceptional service pay.

A. Total number of female classes where an employee receives exceptional service pay.			**1**
B. Total number of female classes.			**4**
C. Divide 2A by 2B and multiply by 100.	1 ÷ 4 = .25 x 100	=	**25%**

Step 3

Calculate the ratio of female/male classes receiving exceptional service pay.

Divide 2C by 1C and multiply by 100.	.25 ÷ .50 = .50 x 100	=	**50%**