Appendix 4
City of Portland
Recordkeeping and Reporting Program (RRP)
Age Related Hearing Loss
(Optional)

Age correction cannot be used for determining:

1. Whether an employee has reached the 25 dB threshold above audiometric zero, and
2. A Standard Threshold Shift (STS) for purposes of OAR 437-002-1910.95, "Occupational Noise Exposure."

When determining whether an STS must be recorded on the OSHA 300 Log, the contribution of aging by adjusting the current audiogram is allowed. The procedure described below must be used.

Calculation Procedure:
For each ear,

1. Determine from Tables F-1 (for males) and Table F-2 (for females) the age correction values for the employee by:
   a. Finding the age at which the current audiogram was taken and recoding the corresponding values of age corrections at 2000 Hz, 3000 Hz, and 4000 Hz;
   b. Finding the age at which the baseline audiogram was taken and recording the corresponding values of age corrections at 2000 Hz, 3000 Hz, and 4000 Hz.
2. Subtract the values in the baseline from the values in the current audiogram.
3. The calculated difference represents the portion of the change in hearing that may be due to aging.
4. An STS is a loss of 10 dB as an average of the 2000 Hz, 3000 Hz, and 4000 Hz between the baseline audiogram and the current audiogram. Once the age correction has been done, add up the results of the age-corrected audiogram and divide by three. If the result is 10 or larger, there it is still an STS. An example is provided after Table F-2.

TABLE F-1 - AGE CORRECTION VALUES IN DECIBELS FOR MALES

Years	Audiometric Test Frequency (Hz)			Years	Audiometric Test Frequency (Hz)		
	2000	3000	4000		2000	3000	4000
20 or younger	3	4	5	41	6	10	14
21	3	4	5	42	7	11	16
22	3	4	5	43	7	12	16
23	3	4	6	44	7	12	17
24	3	5	6	45	7	13	18
25	3	5	7	46	8	13	19
26	4	5	7	47	8	14	19
27	4	6	7	48	8	14	20
28	4	6	8	49	9	15	21
29	4	6	8	50	9	16	22
30	4	6	9	51	9	16	23
31	4	7	9	52	10	17	24
32	5	7	10	53	10	18	25
33	5	7	10	54	10	18	26
34	5	8	11	55	11	19	27
35	5	8	11	56	11	20	28
36	5	9	12	57	11	21	29
37	6	9	12	58	12	22	31
38	6	9	13	59	12	22	32
39	6	10	14	60 or older	13	23	33
40	6	10	14				

TABLE F-2 - AGE CORRECTION VALUES IN DECIBELS FOR FEMALES

Years	Audiometric Test Frequency (Hz)			Years	Audiometric Test Frequency (Hz)		
	2000	3000	4000		2000	3000	4000
20 or younger	4	3	3	41	8	8	8
21	4	4	3	42	8	9	9
22	4	4	4	43	8	9	9
23	5	4	4	44	8	9	9
24	5	4	4	45	8	10	10
25	5	4	4	46	9	10	10
26	5	5	4	47	9	10	11
27	5	5	5	48	9	11	11
28	5	5	5	49	9	11	11
29	5	5	5	50	10	11	12
30	6	5	5	51	10	12	12
31	6	6	5	52	10	12	13
32	6	6	6	53	10	13	13
33	6	6	6	54	11	13	14
34	6	6	6	55	11	14	14
35	6	7	7	56	11	14	15
36	7	7	7	57	11	15	15
37	7	7	7	58	12	15	16
38	7	7	7	59	12	16	16
39	7	8	8	60 or older	12	16	17
40	7	8	8				

Example:
Employee is a 32-year old male. The audiometric history for his right ear is shown in decibels, below:

Employee's age	Audiometric test frequency (Hz)		
	2000	3000	4000
*27	0	0	5
28	0	0	10
29	0	5	15
30	5	10	20
31	10	20	15
*32	10	10	25

The audiogram at age 27 is considered the baseline and current audiogram. A threshold shift of 10 dB exists at both the 2000 Hz and 3000 Hz, and a 20 dB shift exists at 4000 Hz between the audiograms taken at ages 27 and 32.

The threshold shift is computed by subtracting the hearing threshold at age 27, which was 0, 0, 5, from the hearing threshold at age 32, which is 10, 10, 25. A retest audiogram confirmed the shift. The contribution of aging to this change in hearing may be estimated in the following manner:

Age Correction Values for Males from Table F-1

	Frequency (Hz)		
	2000	3000	4000
Age 32	5	7	10
Age 27	4	6	7
Difference	1	1	3

The difference represents the amount of hearing loss that may be attributed to aging in the time period in between the baseline audiogram and the current audiogram.
In the example, the difference at 2000 Hz is 1 dB, the difference at 3000 Hz is 1 dB, and the difference at 4000 Hz is 3 dB. These values are subtracted from the respective hearing levels of the current audiogram.

Once the age correction has been done, complete the age-corrected audiogram to the baseline to determine the severity of the shift. There is no need to age-correct the baseline for this purpose because the calculation above already took that into consideration.

	Frequency (Hz)		
	2000	3000	4000
Age-corrected Current Audiogram	9	9	22
Baseline Audiogram	0	0	5
Shift	9	9	17

An STS is present when the difference between the current audiogram and the baseline audiogram is 10 dB averaged from the 200 Hz, 3000 Hz, and 4000 Hz readings. In this instance, the average of 9 dB (from the 2000 Hz reading), 9 dB (from the 3000 Hz reading) and 17 dB(from the 4000 Hz reading) is 11.7 dB.
This is an STS because the shift is more than 10 dB, even after the age correction.