

Industrial Hygiene Information Management System (IHIMS)

TIPS and FAQs

Installation Tips and Questions

Installation Instructions:

- Since IHIMS is an old program, it is not very forgiving. For installation on stand-alone, non-network drive on a computer, follow the installation instructions exactly and call if you have any questions or problems. 757-953-0724 or DSN 377-0724. If I can't help, I'll talk to the programmer.
- For installation on shared computers or networks, call for specialized instructions. 757-953-0724 or DSN 377-0724. If I can't help, I'll talk to the programmer.

Downloading And Extracting The Installation Files And Setting Up IHIMS For Stand-Alone, Non-Network Drives On A Computer:

- As explained in the installation instructions (but not in these same words), when you download IHIMS, put the UNZIP.ZIP in it's own empty directory. Then when you extract the files from UNZIP.ZIP, extract them to the same directory where UNZIP.ZIP is and run SETUP.EXE from that same directory. (For example: Download UNZIP.ZIP to the empty directory D:\IHIMSY2K. When you extract the files from UNZIP.ZIP, extract them to D:\IHIMSY2K as well. Then, also run SETUP.EXE from D:\IHIMSY2K.) Do not try to extract the files from UNZIP.ZIP directly to C:\DB4\IHIMS or run SETUP.EXE directly from C:\DB4\IHIMS instead, as it will cause a "File Open" error when you run SETUP.EXE.
- SETUP.EXE puts all the files where they need to go. SETUP.EXE creates C:\DB4 and it's subfolders if they do not already exist. If C:\DB4 already exists, SETUP.EXE will update the files by automatically overwriting existing files of the same name. To update the program you need to allow the overwriting of the existing files. SETUP.EXE also will ask if you want to overwrite existing printer files. However, you do not have to say yes to overwriting the existing printer files.
- While running SETUP.EXE, if you get a "Too Many Files Open" error, it is not an IHIMS problem, but an operating system problem. The problem is with the system not having memory settings to handle the files being open during the setup process. You most likely need to change the Config.sys file (or Config.nt for computers running Windows NT 4.0 or Windows 2000) with commands files=99 and buffers=150. The Config.sys file or Config.nt file can be found using the file search features through My Computer program (little computer icon, usually on your Windows Desktop). If you have this error and cannot find the Config.sys or Config.nt file, please call 757-953-0724 or DSN 377-0724 for further help.

Choosing Printers During Setup During Installation:

- The Setup program asks you many questions, including picking a printer from a list. Often you will not see your printer on that list. That list of printers is from the old days where everyone had a LPT 1 printer hooked directly to their computer. If you have that type of printer setup and can't find an appropriate choice from the list, please call.
- Nowadays, most people are on network printers. If you are on a network printer, it does not matter which printer you pick during Setup, since IHIMS will not use that choice.
- How to create and print tables is discussed in the Data Output Tips and Questions section of this document.

Data Entry/Editing Tips and Questions

Consistency and Searchability:

- The power of IHIMS is in the ability to search your data. In order to effectively search, consistency in data entry is key. A lot of the fields are free text fields. Therefore, you have to be careful about consistently entering in the data. For example, over the years you perform noise dosimetry on Sheet Metal Mechanics. In the Job Title field sometimes you enter Sheet Metal Mechanic or sometimes you enter Sheetmetal Mechanic or sometimes you enter SMM, etc.... Later, you want to search for all the noise dosimetry data for Sheet Metal Mechanics at a Command. This is now hard to do because data entry was not entered consistently.

Including Blanks And Quality Assurance (QA) Samples In IHIMS:

- Some users give sample numbers to Blanks or QA samples (or other not real data) and include them in IHIMS. (This does not need to be done, but some users want to.) If this is done, then you need to clearly mark these samples by entering IH Blank or IH QA in fields such as Last Name, First Name, Job Title, Material or Task (depending on the sample type). These samples should also be marked as XX, NX, GX, BB, or WX (depending on the sample type) to keep them from being included in data analysis and reports. Marking these samples clearly and consistently and having them with invalid sample types, aids in identifying these samples and keeps them from being included in data analysis and reports. It also helps when the IHIMS data is converted to the Navy Occupational Exposure Database (NOED), which does not typically include such blank or QA data.

Operation Codes (OPCODE) Dictionary In IHIMS:

- The purpose of the OPCODE Dictionary is to give a standardized list of work operations, which makes it easier to search for data in IHIMS.
- The OPCODE Dictionary is not as streamlined as it could be. Some OPCODEs might be present under more than one grouping (e.g. Weapons Firing is under IND-007- Protective Services, Security and MIL-001- Military Specific, Weapons groups.) or not be organized exactly as we might now wish. This is because the OPCODE dictionary was established in the late 1980s and has grown since then based on the needs of the Industrial Hygienists (IHs). At times, this may have caused it to not be as straightforward as we might like it to be now. However, we have tried very hard not to greatly change or reorganize the OPCODEs (unless we had to because there were conflicts), since some IHs have historical data and we do not want to make it so that they would need to edit large quantities of data.

- In IHIMS, the OPCODE Dictionary is a file called OPSDICT.DBF and it has an index file called OPSDICT.MDX. These files are usually located in your IHDATA folder.
- The OPCODE Dictionary is periodically updated based on users' requests for new OPCODES. When the dictionary is updated, IHIMS does not have to be reinstalled. The existing OPDICT.DBF and OPSDICT.MDX only have to be replaced with the new updated files. Then go under MISC in IHIMS and reindex the database. If an update has been made since 08 July 2003 (when the full IHIMS update was posted), the latest versions of these files will be available on the Navy Environmental Health Center (NEHC) IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

The latest update to the OPCODE Dictionary was made on 25 February 2004.

If you downloaded the IHIMS update on or after 25 February 2004: The new updated files were added to the IHIMS download and you should not need to do anything.

If you downloaded the IHIMS update before 25 February 2004 but have not yet installed it: You will want to redownload the latest version of IHIMS.

If you already downloaded and installed the IHIMS between 08 July 2003 and 25 February 2004: You can add the updated files, OPDICT.DBF and OPSDICT.MDX, to your existing IHIMS. As mentioned previously, IHIMS does not have to be reinstalled. The existing OPDICT.DBF and OPSDICT.MDX files only have to be replaced with the new updated OPDICT.DBF and OPSDICT.MDX. Then go under MISC in IHIMS and reindex the database. The updated file is available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

- The OPCODE Dictionary is now available as a Microsoft® Excel (.xls) file. This Microsoft® Excel file is not used by the actual IHIMS program. (The IHIMS program needs the dBase (.DBF) version of this file.) However, the Microsoft® Excel file allows you to easily look at the OPCODE Dictionary and to print out the OPCODE and Description columns for a reference. Please call 757-953-0724 or DSN 377-0724 if you want a copy of that file.

Stressor Dictionary In IHIMS:

- The purpose of the Stressor Dictionary is to give a standardized list of chemical stressors, which makes it easier to search for data in IHIMS. However, the Stressor Dictionary also connects those chemical stressors to the Occupational Exposure Limits (OELs) against which they are evaluated. The Stressor Dictionary includes chemical stressors with Navy exposure standards, Occupational Safety And Health Administration (OSHA) 1989 Permissible Exposure Limits (PELs), Short Term

Exposure Limits (STELs) or Ceilings, OSHA special standards, American Conference Of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) or American Industrial Hygiene Association (AIHA) Workplace Environmental Exposure Levels (WEELs). Also, some chemicals are in the Stressor Dictionary because IHs were sampling for them, even if they did not have a specific standard.

- The unique identifier for a chemical stressor in the Stressor Dictionary is the Chemical Abstract Service (CAS) number. At times, you may not find the CAS number you want in the Stressor Dictionary. This is usually due to one of three reasons:
 1. The chemical has more than one CAS number and the other is used in the Stressor Dictionary.
 2. A PseudoCAS number is used. A PseudoCAS number is a made up "CAS number" or a real CAS number with a letter added to the end.
 - a. Sometimes, the OEL is not for a specific chemical (e.g. Fluorides, JP-5, Welding Fumes NOC, etc...) and a PseudoCAS number is used (e.g. FLUORIDES, JP-5, WELDING FUME, etc...).
 - b. Sometimes, the OEL is for a particular form (i.e. Soluble, Insoluble, Total, Respirable, Inhalable, Aerosol, Vapor, Fume, Non-Fume, Dust, etc...) of a chemical (e.g. Copper Fume versus Copper Dust And Mists) and a PseudoCAS number is used (e.g. 7440-50-8A and 7440-50-8B instead of 7440-50-8 for Copper).
 - c. Sometimes, a chemical has a CAS number of it's own, but instead of using that CAS number, the chemical is grouped using a PseudoCAS number with similar chemicals (e.g. Instead of being listed under it's own CAS number - 18540-29-9, Hexavalent Chromium is listed under the 7440-47-3 CAS number for Chromium using the PseudoCAS numbers 7440-47-3D and 7440-47-3E for soluble Hexavalent Chromium and insoluble Hexavalent Chromium. The reason for this is that is how it tends to be shown in the ACGIH Threshold Limit Values for Chemical Substances And Physical Agents And Biological Exposure Indices.)
 3. Sometimes, it is just not there. The Stressor Dictionary lists the chemicals for which there are current or historical OELs commonly used by Navy IHs or chemicals that the IHs have needed to sample.
- If you look at the Stressor Dictionary, there is information in there that is not used by IHIMS, such as additional OELs, whether the chemical is a sensitizer, carcinogen, reproductive hazard, etc... The Stressor Dictionary is not meant to be an all inclusive sensitizer list, carcinogen list or reproductive hazard list, etc... Therefore, there may be chemicals that are listed by some entities or referenced in the scientific literature as sensitizers, carcinogens or reproductive hazards, etc... that are not in the Stressor Dictionary.

- Could the Stressor Dictionary be better? - Sure. It was established in the late 1980's and has grown and changed and reorganized as the various OELs have. If we were starting over again today, it would probably be different. However, we have tried very hard not to greatly change or reorganize the Stressor Dictionary (unless we had to due to OEL changes), since some IHs have historical data and we do not want to make it so that they would need to edit large quantities of data.
- In IHIMS, the Stressor Dictionary is a file called TLV.DBF and it has an index file called TLV.MDX. These files are usually located in your IHDATA folder.
- The Stressor Dictionary is updated based on OEL changes and users' requests. Our goal is to update it annually. However, as OELs change throughout a year, it may temporarily become out of date. Therefore, we provide it "as is" with no implied warranty. When the dictionary is updated, IHIMS does not have to be reinstalled. The existing TLV.DBF and TLV.MDX only have to be replaced with the new updated files. Then go under MISC in IHIMS and reindex the database. If an update has been made since 08 July 2003 (when the full IHIMS update was posted), the latest versions of these files will be available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.
- The Stressor Dictionary is now available as a Microsoft® Excel (.xls) file. This Microsoft® Excel file is not used by the actual IHIMS program. (The IHIMS program needs the dBase (.DBF) version of this file.) However, the Microsoft® Excel file allows you to easily look at the Stressor Dictionary and to print out the Substance, CAS Number and various OELs columns for a reference. Please call 757-953-0724 or DSN 377-0724 if you want a copy of that file.

Sample Number Format and Bulk And Wipe Sample Number Format Problem:

- If you downloaded and installed the IHIMS update between 08 July 2003 and 14 May 2004, you may notice a problem in entering the sample number as you would like for Bulk and Wipe samples. This is explained below.

Previous to the 08 July 2003 IHIMS update, IHIMS required you to completely fill in the Sample Number field (9 numbers and/or characters) when entering data for all the various Sample Types. Since different IH groups have their own sample numbering schemes, that restriction was removed for Breathing Zone Air, Noise Dosimetry and General Area Air sample data entry in the 08 July 2003 IHIMS update. However, this change was not made for Bulk and Wipe sample data entry. When entering Bulk and Wipe samples, you still need to completely fill the Sample Number field (9 numbers and/or characters).

- This problem has been fixed. Also found during this fix were problems with existing Sample Number checks in Breathing Zone Air, Noise Dosimetry and General Area Air sample data entry.

If you downloaded the IHIMS update on or after 14 May 2004: The new fixed files were added to the IHIMS download and you should not have this problem or need to do anything.

If you downloaded the IHIMS update before 14 May 2004 but have not yet installed it: You will want to redownload the latest version of IHIMS.

If you already downloaded and installed the IHIMS between 08 July 2003 and 14 May 2004: You can add the fixed files, WIPE_ADD.DBO, BULK_ADD.DBO, BULK_EDIT.DBO, DOS_ADD.DBO, DOS_EDIT.DBO, GEN_ADD.DBO, BZ_ADD.DBO and BZ_EDIT.DBO to your existing IHIMS. IHIMS does not have to be reinstalled. The existing WIPE_ADD.DBO, BULK_ADD.DBO, BULK_EDIT.DBO, DOS_ADD.DBO, DOS_EDIT.DBO, GEN_ADD.DBO, BZ_ADD.DBO and BZ_EDIT.DBO files only have to be replaced with the new fixed WIPE_ADD.DBO, BULK_ADD.DBO, BULK_EDIT.DBO, DOS_ADD.DBO, DOS_EDIT.DBO, GEN_ADD.DBO, BZ_ADD.DBO and BZ_EDIT.DBO. Then go under MISC in IHIMS and reindex the database. The fixed files are available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

Flowrate and Volume Number Format Problem:

- If you downloaded and installed the IHIMS update between 08 July 2003 and 14 May 2004, you may notice a problem if you wish to enter a higher sample flowrate and calculate a higher sample volume, such as for clearance sampling.
- This problem has been fixed.

If you downloaded the IHIMS update on or after 14 May 2004: The new fixed files were added to the IHIMS download and you should not have this problem or need to do anything.

If you downloaded the IHIMS update before 14 May 2004 but have not yet installed it: You will want to redownload the latest version of IHIMS.

If you already downloaded and installed the IHIMS between 08 July 2003 and 14 May 2004: You can add the fixed files, GEN_ADD.DBO, GEN_EDIT.DBO, BZ_ADD.DBO and BZ_EDIT.DBO to your existing IHIMS. Then go under MISC in IHIMS and reindex the database. The fixed files are available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

Why does the Dose % that IHIMS calculated not match with the Dose % or Projected 8 Hour Dose % shown on the noise dosimeter?

- The short answer is: The dosimeter makes its calculations for Dose , LAVG, TWA, Projected Dose, etc...and rounds and gives you the rounded results. Then since you start out inputting a rounded result in the IHIMS TWA field, when IHIMS makes it's calculations and rounds it's results, it gives you back a different Dose result.
- The long answer is: The person asking this question was using Metrosonics® noise dosimeters. Metrosonics® has a good write up of their calculations for their dB4000ez dosimeter at <http://www.metrosonics.com/PDFs/manuals/noise/db4000ez.pdf>. However, all the complicated calculations that the noise dosimeter performs for LAvg, 8 hour TWA, Dose %, etc... are not needed for this question. All we just need to explain the discrepancy between the noise dosimeter readout and the IHIMS calculation is the basic 8-hour TWA from Noise Dose % equation using the Navy criterion:

$$\text{TWA dBA} = 84 + 13.29 \log (\text{Dose \%}/100)$$

First some background information:

LAVg and TWA:

Metrosonics® noise dosimeters of course calculate the LAVg based on the actual Sample Duration.

Metrosonics® noise dosimeters calculate the 8 hour TWA by assuming the unsampled period = 0. Metrosonics® explains in their dB4000ez dosimeter manual and in their Frequently Asked Questions section of their website: http://www.metrosonics.com/Support/Faqs/dos_faq.htm that: “The Time Weighted Average represents a constant sound level lasting eight hours that would result in the equivalent sound energy as the noise that was sampled. TWA always averages the sampled sound over an 8-hour period. This average starts at zero and grows. It is less than the LAVG for a duration of less than eight hours, exactly equal to the LAVG at eight hours, and grows higher than LAVG after eight hours.

Example: Think of TWA as having a large 8-hour container that stores sound energy. If you run a dosimeter for two hours, your LAVG is the average level for those two hours - consider this a smaller 2-hour container filled with sound energy. For TWA, take the smaller 2-hour container and pour that energy into the larger 8-hour TWA container. The TWA level will be lower. Again, TWA is always based on the 8-hour container. When measuring using OSHA’s guidelines, TWA is the proper number to report if the full workshift was measured.”

In the Metrosonics® Frequently Asked Questions section of their website, they also explain, ”What is the difference between Lavg and TWA? Lavg is the

average sound level over the run time of your sample. If you ran the meter for 30 minutes, Lavg is the average sound level over that 30-minute period. TWA always assumes an 8-hour run time. So if you ran the meter for 30 minutes, TWA would assume 7 hours 30 minutes of silence and give the 8 hour average.” Therefore, in IHIMS, if you want to assume for the 8 hour TWA that unsampled period = 0 (no more noise for the unsampled period of the day), you enter the 8 hour TWA from your noise dosimeter into the TWA field in IHIMS. Or, in IHIMS, if you want to assume for the 8 hour TWA that unsampled period = sampled period (noise is equal to the average noise measured for the unsampled period of the day), you enter the LAvg from your noise dosimeter into the TWA field in IHIMS.

Dose % and Projected 8-Hour Dose %:

Metrosonics® noise dosimeters of course calculate the Dose % based on the actual Sample Duration.

Metrosonics® noise dosimeters calculate the Projected 8 Hour Dose % by assuming the unsampled period = sample period. Metrosonics® explains in their dB4000ez dosimeter manual and in their Frequently Asked Questions section of their website that: “Related to the Criterion Level, a dose reading of 100% is the maximum allowable exposure to accumulated noise. For OSHA, 100% dose occurs for an average sound level of 90 dB over an 8 hour period (or any equivalent exposure). By using a TWA reading rather than the average sound level, the time period is no longer explicitly needed. A TWA of 90 dB is the equivalent of 100% dose. The dose will double (halve) every time the TWA increases (decreases) by the Exchange Rate.

Example: OSHA uses an Exchange Rate of 5 dB. Suppose the TWA is 100 dB. The dose would double for each 5 dB increase over the Criterion Level of 90 dB. The resulting dose is therefore 400%. If the TWA was instead equal to 80 dB then the dose would halve for each 5 dB below the Criterion Level. The resulting dose would be 25%.

When taking noise samples less than the full workday, dose is an easy number to work with because it is linear with respect to time.

Example: If a 0.5 hour sample results in 9% dose and the workday is 7.5 hours long, then the dose for the full workday would be a 135% dose ($7.5 / 0.5 \times 9\%$). This is computed making the assumption that the sampled noise will continue at the same levels for the full 7.5 hour workday.”

In IHIMS, the Dose % that is calculated is based on the 8 Hour TWA entered and the Shift Length entered. Therefore, if you enter a Shift Length of 8 hours and if the 8 hour TWA entered in IHIMS is the 8 hour TWA from your noise dosimeter (assuming unsampled period = 0), the Dose % calculated by IHIMS should be the same as the Dose % from the noise dosimeter. Or, if you enter a Shift Length of 8

hours and if the 8 hour TWA entered in IHIMS is the LAvg from your noise dosimeter (assuming unsampled period = sampled period), the Dose % calculated by IHIMS should be the same as the Projected 8 hour Dose % from the noise dosimeter.

The Calculations And Answer:

We started with the following data from the noise dosimeter:

Sample Duration = 468 minutes

LAvg = 97dBA

8 hour TWA = 96.9dBA

Dose % = 940.29%

Projected 8 Hour Dose % = 960.67%

To verify how this relates to each other:

Once again, Metrosonics® noise dosimeters calculate the 8 hour TWA by assuming the unsampled period = 0. While the internal calculations used by the noise dosimeter are more complicated, this can be shown by the basic 8 hour TWA from Noise Dose % equation using the Navy criterion:

$$\text{TWA dBA} = 84 + 13.29 \log (\text{Dose \%}/100)$$

$\text{TWA dBA} = 84 + 13.29 \log (940.29\%/100) = 96.93465 \text{ dBA} \cong 96.9 \text{ dBA}$ (as stated above, this assumes that the unsampled time = 0.) By rounding, this matches with what the noise dosimeter showed for the 8 hour TWA.

In IHIMS, the 8 hour TWA from the noise dosimeter, 96.9dBA, was entered into the TWA field. This shows that the assumption was made that the unsampled time = 0. Therefore, we would expect the Dose % calculated by IHIMS to equal to the Dose % on the noise dosimeter. IHIMS uses the same equation shown above to calculate Dose % from the entered TWA when the entered Shift Length is 8 hours. The Dose % that IHIMS calculates is 935%:

$$\text{TWA dBA} = 84 + 13.29 \log (\text{Dose \%}/100)$$

$96.9\text{dBA} = 84 + 13.29 \log (\text{Dose \%}/100) = 934.66209\% \cong 935\%$ (as stated above, this assumes that the unsampled time = 0.) By rounding, this matches with what the IHIMS shows as being calculated for the Dose %.

So finally, we are back to the original question - **Why does the Dose % that IHIMS calculated not match with the Dose % or Projected 8 Hour Dose % shown on the noise dosimeter?** IHIMS – 935% and noise dosimeter – 940.29%? **The reason is rounding and decimal places.** The noise dosimeter makes it's LAvg, TWA, Dose % and Projected 8 Hour Dose % calculations then rounds the values to the one or two decimal places they have decided to display. IHIMS takes the TWA entered (up to four figures with one decimal place) and the Shift

Length and calculates the Dose % and rounds the value to a number with up to 5 figures and no decimal places.

Of course, it does not matter if you were to enter the noise dosimeter LAvg as the IHIMS TWA (assuming unsampled period = sampled period) and compared it to the noise dosimeter's Projected 8 Hour Dose %. The same thing happens. The numbers are "close" but not the same, due to the rounding and the number of decimal places displayed.

For the other example you gave:

Sample Duration = 489 minutes

LAvg = 97.6dBA

8 hour TWA = 97.7dBA

Dose % = 1080.13%

Projected 8 Hour Dose % = Not given since Sample Duration is over 8 hours

Even though Projected 8 Hour Dose % is not calculated by the noise dosimeter, the 8 Hour TWA is. Since the Sample Duration is over 480 minutes, the 489 minutes worth of "noise" is put into 480 minutes:

$TWA\ dBA = 84 + 13.29 \log (Dose\ \%/100)$

$TWA\ dBA = 84 + 13.29 \log (1080.13\%/100) = 97.734896\ dBA \cong 97.7\ dBA$ (as stated above, this assumes that the unsampled time = 0.) By rounding, this matches with what the noise dosimeter showed for the 8 hour TWA.

Of course, you would have the same situation with the IHIMS and the noise dosimeter's Dose % not matching due to the rounding and the number of decimal places displayed:

$TWA\ dBA = 84 + 13.29 \log (Dose\ \%/100)$

$97.7\ dBA = 84 + 13.29 \log (Dose\ \%/100) = 1073.6192\% \cong 1074\%$ (as stated above, this assumes that the unsampled time = 0.) By rounding, this matches with what the IHIMS shows as being calculated for the Dose %.

Shift Length:

If you enter other Shift Lengths in IHIMS, the difference between the Dose % calculated by IHIMS and the noise dosimeter's Dose % or Projected 8 hour Dose % would be even greater. Even if the noise dosimeter can be programmed for other Criterion Times or Projected Dose % times, the IHIMS Dose % would still not match up with the noise dosimeter's Dose % or Projected "X" Hour Dose %, due to the rounding and the number of decimal places displayed.

Just some information on the IHIMS Dose calculation using different Shift Lengths:

IHIMS uses the following equations:

$$L = 4 \times ((\log_{10}(16/t))/\log_{10}(2)) + 80$$

$$\text{mdose} = 100 \times 10^{((\text{mtwa}-L)/13.29)}$$

When the Shift Length is 8 hours, the $\text{mdose} = 100 \times 10^{((\text{mtwa}-L)/13.29)}$ equation is really just the $\text{TWA dBA} = 84 + 13.29 \log (\text{Dose \%}/100)$ equation rearranged.

To show this:

When $t = 8$ hours :

$$L = 4 \times ((\log_{10}(16/t))/\log_{10}(2)) + 80$$

$$L = 4 \times ((\log_{10}(16/8))/\log_{10}(2)) + 80 = 84$$

$$L=84$$

$$\text{mtwa} = \text{TWA dBA}$$

$$\text{mdose} = \text{DOSE \%}$$

$$\text{mdose} = 100 \times 10^{((\text{mtwa}-L)/13.29)}$$

$$\text{mdose} = 100 \times 10^{((\text{mtwa}-84)/13.29)} = \text{TWA dBA} = 84 + 13.29 \log (\text{Dose \%}/100)$$

When the Shift Length is something other than 8 hours, it affects the L parameter, which is the criterion level, thereby adjusting the calculation, so that for other Shift Lengths, a Dose of 100% is still the maximum allowable exposure to accumulated noise.

Editing or Deleting Breathing Zone Air Sample Data:

- When you edit or delete existing breathing zone air sample or result data, please keep in mind that the TWA record is not automatically changed. For example, if you change the OPCODE in the breathing zone air sample edit screen, this will not automatically update the OPCODE on the TWA record. Another example, if the result is changed or a stressor added or deleted for a breathing zone air sample, this will not automatically update the TWAs or stressors on the TWA record. Whenever you edit or delete breathing zone air sample or result data, you need to go back in and edit/recalculate the TWAs for the sample, making the necessary changes. Otherwise, you may have mismatched data that causes problems when you are searching.

Data Output Tips and Questions

**** **Creating and Printing Reports From IHIMS:**

- **IHIMS automatically puts all the reports you create in the C:\DB4\FILES directory. You can leave them there or move them wherever you want to.**

In Breathing Zone

Air Sample Tables for Reports -

- The printing choice is "Create MS Word (RTF) File". This choice automatically gives you a path C:\DB4\FILES and prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

Air Sample Result Analysis List -

- The printing choice for the result list is "List Results to RTF File". The printing choice for the statistical summaries is just choosing the summary you want to print. These choices automatically give you a path C:\DB4\FILES and prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

Print Air Sample SF600s -

- There is no printing choice. The printing for this report is automatic after you answer the questions to choose the SF600s you want to print. You are automatically given a path C:\DB4\FILES and it prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

In Noise Dosimetry

Standard Noise Dosimetry Sample Table or Noise Dosimetry Table (Dose) -

Both of these tables have the same printing choices - "Print Table From Dbase" and "Create MS Word (RTF) File".

- "Print Table From Dbase" choice is only for people who have the old LPT 1 printer hooked directly to their computer. This choice directly prints out the report.
- "Create MS Word (RTF) File" choice automatically gives you a path C:\DB4\FILES and prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

Noise Dosimetry Summary -

- Result List - The printing choices for the result list are "Print Noise Dosimetry Results (Dbase)" and "Noise Dosimetry Results (RTF File)".
 - ◆ "Print Noise Dosimetry Results (Dbase)" choice is only for people who have the old LPT 1 printer hooked directly to their computer. This choice directly prints out the report.
 - ◆ "Noise Dosimetry Results (RTF File)" choice automatically gives you a path C:\DB4\FILES and prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

- Statistical Summaries - The printing choice for the statistical summaries is just choosing the summary you want to print. These choices automatically give you a path C:\DB4\FILES and prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

Print Noise Dosimetry Sample SF600s -

- There is no printing choice. The printing for this report is automatic after you answer the questions to choose the SF600s you want to print. You are

automatically given a path C:\DB4\FILES and it prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

In General Area

General Area Sample Table -

- There is no printing choice. Once the query is entered and the question whether you want to do more is answered, a .rtf file is automatically generated and saved. The report you want to print is saved in C:\DB4\FILES with a computer generated filename. The computer generated filename starts with “ge” and has 8 characters and ends with .rtf.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here, you will probably want to rename it to something meaningful. (Windows does not have the 8 character restriction.) The file will open in Microsoft® Word. You can edit it just like any other Word document.

In Bulk/Wipe

Bulk Sample Table -

- There is no printing choice. Once the query is entered and the question whether you want to do more is answered, a .rtf file is automatically generated and saved. The report you want to print is saved in C:\DB4\FILES with a computer generated filename. The computer generated filename starts with “bt” and has 8 characters and ends with .rtf.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here, you will probably want

to rename it to something meaningful. (Windows does not have the 8 character restriction.) The file will open in Microsoft® Word. You can edit it just like any other Word document.

Wipe Sample Table -

- There is no printing choice. Once the query is entered and the question whether you want to do more is answered, a .rtf file is automatically generated and saved. The report you want to print is saved in C:\DB4\FILES with a computer generated filename. The computer generated filename starts with “wp” and has 8 characters and ends with .rtf.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here, you will probably want to rename it to something meaningful. (Windows does not have the 8 character restriction.) The file will open in Microsoft® Word. You can edit it just like any other Word document.

In Miscellaneous

Notification Letters - The printing choices for the notification letters are "Print Notification From IHIMS" and "Create MS Word (RTF) File" .

- "Print Notification From IHIMS" choice is only for people who have the old LPT 1 printer hooked directly to their computer. This choice directly prints out the report.
- "Create MS Word (RTF) File" choice automatically gives you a path C:\DB4\FILES and prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

Quality Assurance: List Logbook, List Missing Samples, List Missing Results, List Missing TWAs or Count By Sampletype -

- There is no printing choice. The printing for any of these reports is automatic after you answer the questions to choose exactly what you want to print. You are automatically given a path C:\DB4\FILES and it prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

List Command or List Command and Shop or OPCODE Task List for a Shop -

- There is no printing choice. The printing for any of these reports is automatic after you answer the questions to choose exactly what you want to print. You are automatically given a path C:\DB4\FILES and it prompts you for just a filename. The filename can be what you want but needs to end with .rtf. Since this is an old dBase program it wants the filename to be 8 characters. (If it is bigger it will still save it, but will truncate the name.) The report you want to print is saved in C:\DB4\FILES.

The report can be found using My Computer program (little computer icon, usually on your Windows Desktop) and going to the C: drive, the DB4 folder and the files subfolder. From here you can print the file, open the file, rename the file, move the file, copy the file, etc... From here if you want to rename it to a longer filename, you can. (Windows does not have the 8 character restriction.) If in IHIMS you put in too big of filename and it was truncated, from here you can rename it whatever you want ending with .rtf and open it just fine. The file will open in Microsoft® Word. You can edit it just like any other Word document.

General Area Table Labeling Problem:

- If you downloaded and installed the IHIMS update between 08 July 2003 and 18 August 2003, you may notice a problem in labeling of the General Area Table Historical Summary. (The Historical Summary was labeled as a "Current" Summary.)
- This problem has been fixed.

If you downloaded the IHIMS update on or after 18 August 2003: The new fixed files were added to the IHIMS download and you should not have this problem or need to do anything.

If you downloaded the IHIMS update before 18 August 2003 but have not yet installed it: You will want to redownload the latest version of IHIMS.

If you already downloaded and installed the IHIMS between 08 July 2003 and 18 August 2003: You can add the fixed file, GENTAB1.DBO, to your existing IHIMS. IHIMS does not have to be reinstalled. The existing GENTAB1.DBO file only has to be replaced with the new fixed GENTAB1.DBO. Then go under MISC in IHIMS and reindex the database. The fixed file is available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

Wipe Table Error Message Problem:

- If you downloaded and installed the IHIMS update between 08 July 2003 and 14 May 2004, you may notice a problem in getting error messages during some Wipe Table searches.
- This error message problem has been fixed.

If you downloaded the IHIMS update on or after 14 May 2004: The new fixed files were added to the IHIMS download and you should not have this problem or need to do anything.

If you downloaded the IHIMS update before 14 May 2004 but have not yet installed it: You will want to redownload the latest version of IHIMS.

If you already downloaded and installed the IHIMS between 08 July 2003 and 14 May 2004: You can add the fixed file, WIPETAB.DBO, to your existing IHIMS. IHIMS does not have to be reinstalled. The existing WIPETAB.DBO file only has to be replaced with the new fixed WIPETAB.DBO. Then go under MISC in IHIMS and reindex the database. The fixed file is available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

Notification Letter Error Message Problem:

- If you downloaded and installed the IHIMS update between 08 July 2003 and 14 May 2004, you may notice a problem in getting error messages when creating Notification Letters.
- This problem has been fixed. .

If you downloaded the IHIMS update on or after 14 May 2004: The new fixed files were added to the IHIMS download and you should not have this problem or need to do anything.

If you downloaded the IHIMS update before 14 May 2004 but have not yet installed it: You will want to redownload the latest version of IHIMS.

If you already downloaded and installed the IHIMS between 08 July 2003 and 14 May 2004: You can add the fixed file, NOTIFY.DBO, to your existing IHIMS. IHIMS does not have to be reinstalled. The existing NOTIFY.DBO file only has to be replaced with the new fixed NOTIFY.DBO. Then go under MISC in IHIMS and reindex the database. The fixed file is available on the NEHC IHIMS website: <http://www-nehc.med.navy.mil/ih/ihims.htm>. Please call 757-953-0724 or DSN 377-0724 if you have any questions or problems.

Notification Letter Mysterious Cover Letter Message:

- If you downloaded and installed the IHIMS update between 08 July 2003 and 14 May 2004, you may notice a message box about printing cover letters that come up after creating and accepting the file for the notification letter. The original IHIMS created cover letters for the notification letters. At some point over the years, this function no longer worked properly and was removed. However, the message still remains. We are currently trying to recover the cover letter function and get it working properly with the current IHIMS program. So, for now, you will get that message about cover letters, but there will be no cover letter files to print.

Backups Tips and Questions

Backing Up and Restoring Your Data:

- As I have said many times, backing up your hard work by backing up your data **properly** and **regularly** is very important. Accidental overwrites or deletions or hardware crashes can lose your data and cause a lot of rework.
- **If you are not sure how to properly back up your files, or do not find this information perfectly clear, please call for clarification.** You may reach me at 757-953-0724 or DSN 377-0724 and our technical support at 321-537-6551. Your local computer support staff should be able to help, as well.
- **We recommend that you DO NOT use the IHIMS Backup or Restore features.** They are outdated and usually require extra work and the rerunning of SETUP.EXE to restore full functionality.

Recommended Method

Using Windows To Make A Backup -

- It is probably much easier nowadays to use the copy and paste utilities of Windows to make backup copies of your data files to other local hard drives, floppy disks or server hard drives. Using My Computer program (little computer icon, usually on your Windows Desktop), go to your designated data directory (e.g. C:\IHDATA.) and copy the whole data folder by highlighting the IHDATA folder then right clicking and choosing “Copy”. Then, go to wherever you want to store it (another local hard drive, your A: or B: floppy drive or a server hard drive) and paste the whole IHDATA folder by highlighting the drive where you want to store it and right clicking and choosing “Paste”. Or, you can use a compact disc (CD) creation program to copy that folder to a CD. **Make a backup of your data folder regularly.**
 - ◆ I still always suggest having a separate backup on floppy disk or CD or a server hard drive (that is regularly backed up), even if you have it backed up on another local hard drive on your computer, just in case. Please keep in mind that sometimes, depending on how your computer is configured, your computer may show two local hard drives (C: and D:) under the My Computer program, but physically there is only one real hard drive in your computer; so if the hard drive crashed (since it is really only one piece of hardware), you would lose what is on both your “C:” and “D:” drives. If you have that type of computer configuration, make sure that you also make up a back up on a physically separate local hard drive on your computer, a floppy disk, a CD or a server hard drive.
 - ◆ If you are backing up to a server hard drive, please check with your local computer support staff to ensure that they regularly back up their server hard drive and to ensure that there is no security problem with you having personal

information (names and social security numbers of workers) on the server hard drive.

Using Windows To Restore From Your Backup –

- It is probably much easier nowadays to use the copy and paste utilities of Windows to restore from your backup copies of your data files to your designated data directory (e.g. C:\IHDATA). Using My Computer (little computer icon, usually on your Windows Desktop), go to wherever you stored your backup data folder (another local hard drive, your A: or B: floppy drive or a server hard drive) and copy the whole backup data folder by highlighting the IHDATA folder then right clicking and choosing “Copy”. Then, go to the drive or directory where your data folder is supposed to be and paste the IHDATA folder by highlighting the drive or directory where your data folder is supposed to be and right clicking and choosing “Paste”. (If an IHDATA folder already exists there, it will give you a message telling you that existing files with the same names will be replaced. However, if you are restoring from a backup I would assume that you are doing it for a reason and wanted to replace the files because they were bad or something.) After restoring the data files, check the Properties for the files (right click on the file then choose “Properties”) and make sure that the “Read Only” block is NOT checked. Since you backed up and restored the entire IHDATA folder, you should not need to reinstall IHIMS, unless you also lost all the program files located in C:\DB4 on your computer. (Reindexing (under Miscellaneous in IHIMS) does not hurt though.)