QA:QA

MOL.20020509.0130

A Supplement to SN-M&O-SCI-024-V1 V2 CH 3-12-02

ATTACHMENT I
DOCUMENTATION OF OYO Data Reduction-Rev04.xlt

-03 not available but similar JOD 6-8-01

INTENTIONALLY LEFT BLANK

SPREADSHEET OYO Data Reduction-Rev04.xlt
USED FOR ANALYSES OF P-S SUSPENSION LOG DATA

The spreadsheet template, OYO Data Reduction Rev04.xlt, used for shear wave velocity, compressional wave velocity and Poisson's ratio analyses based on suspension logs, was created in Microsoft Excel 97, SR-2.

This spreadsheet template consists of the following 15 worksheets:

- Explanatory worksheets:
  Sheet: Instruction
  Sheet: Revision Log
- Data input worksheets:
  Sheet: Data, R1-R2
  Sheet: Data, S-R1
- Analysis worksheets:
  Sheet: Analysis, R1-R2
  Sheet: Analysis, S-R1
- Summary worksheets:
  Sheet: Summary, R1-R2
  Sheet: Summary, S-R1
  Sheet: Summary, All
- Plot worksheets:
  Sheet: R1-R2, Vs Plot
  Sheet: R1-R2, Vs&Vp Plot
  Sheet: R1-R2 and S-R1, Vs Plot
  Sheet: R1-R2 and S-R1, Vs&Vp Plot
  Sheet: Poisson's Ratio Plot
  Sheet: Travel Time vs. z

PROCEDURE

Input Data

Sheet: '**Data, R1-R2**' and Sheet: '**Data, S-R1**' were programmed to accommodate the required input data. Users need to import data to these two sheets per the following instructions:

(1) Input the data from the *.sps data file associated with the Near Receiver to Far Receiver travel times in Sheet: 'Data, R1-R2' beginning in Cell A1. The depth and arrival times for the shallowest measurement depth should appear in Row 14. The entries in columns I through M (velocities and miscellaneous) are not used in calculations. Travel times are in milliseconds. Depths in Column A are required to be input in feet. The depth input is the depth below ground surface of the midpoint between the receivers. A message about the unit used for depth appears in Cell N5. When Cell A9 is equal to 1, depth units in Column A are in feet, and the message "OK, depth units in column A are in feet." will show up in

Cell N5. Otherwise, the error message "ERROR: THIS SPREADSHEET REQUIRES DEPTHS TO BE INPUT IN FEET." will show up in Cell N5.

(2) Input the measured distance between the Receivers in inches in Cell N2 in Sheet: 'Data, R1-R2'.

(3) Input the data from the *.sps data file associated with the Source to the Near Reveiver travel times in Sheet: 'Data, S-R1', beginning in Cell A1. The depth and arrival times for the shallowest measurement depth should appear in Row 14. The entries in columns I through L (velocities and miscellaneous) are not used in calculations. Travel times are in milliseconds. Depths in Column A are required to be input in feet. The depth input is the depth below ground surface of the midpoint between the Source and the Near Receiver. A message about the unit used for depth appears in Cell N5. When Cell A9 equal to 1, depth units in Column A are in feet, and the message "OK, depth units in column A are in feet." will show up in Cell N5. Otherwise, error message "ERROR: THIS SPREADSHEET REQUIRES DEPTHS TO BE INPUT IN FEET." will show up in Cell N5.

(4) Input measured delay time in milliseconds in Cell N2 in Sheet: 'Data, S-R1', and measured distance from Source to Near Receiver in feet in Cell N3 in Sheet: 'Data, S-R1'.

(5) Input the offset times, if any, in Column F in milliseconds in Sheet: 'Analysis, S-R1' starting with Row 14. If no offset times are input, the default values are 0.

(6) There are four additional values that need to be input, which will be described in the following two analysis worksheets.

Receiver to Receiver Analysis

Sheet: '**Analysis, R1-R2**' was programmed to perform analysis on the Receiver to Receiver data automatically once the data are input. The following explains how this worksheet functions.

(7) Retrieve depth of midpoints between the Receivers. Column C retrieves depth of midpoints between the Receivers form Column A in Sheet: 'Data, R1-R1'.

(8) Retrieve wave travel times from Sheet: 'Data, R1-R2'. Columns E, F, I, and J retrieve shear wave (normal pulse) travel time from the Source to the Far Receiver, shear wave (reverse pulse) travel time from the Source to the Far Receiver, shear wave (normal pulse) travel time from the Source to the Near Receiver, and shear wave (reverse pulse) travel time from the Source to the Near Receiver from Columns C, D, F, and G in Sheet: 'Data, R1-R2', respectively. Shear wave (normal pulse) refers to the shear wave recorded from the first actuation of the solenoid. Shear wave (reverse pulse) refers to the shear wave recorded from the second actuation of the solenoid, which is in the direction opposite to the "normal" direction. Columns H and L retrieve compressional wave travel times from the Source to the Far Receiver and from the Source to the Near Receiver from Columns E and H in Sheet: 'Data, R1-R2', respectively. Logical tests are performed so that the missing travel times, identified by negative numbers (typically "-9999"), in Sheet: 'Data, R1-R2', are left blank in Sheet 'Analysis, R1-R2'.

Note: The term *travel time* is used to denote the time that elapses from the moment the signal is sent to the source to activate to the time when the wave of interest (shear or compression) arrives at the receivers. This travel time includes some "delay time" at the beginning of the test that must be accounted in the source-to-receiver analysis, but which cancels out in the receiver-to-receiver analysis.

(9) Calculate the depths of the Far and Near Receivers, as well as the depth of point A, in Columns A, B, and D, respectively. Point A is located midway between the midpoint between the Receivers for the current measurement depth and the midpoint between the Receivers for the next deeper measurement interval. American units are used throughout the analyses.

Depth of the Far Receiver
= Depth of midpoint between the Receivers – Measured Distance between the Receivers/2

Depth of the Near Receiver
= Depth of midpoint between the Receivers + Measured Distance between the Receivers/2

Depth of Point A
in Cell D13, for Point A right prior to the shallowest measurement
= Depth of the midpoint between the Receivers for the first depth interval- 0.5*(Depth of the midpoint between the Receivers for the second depth interval- Depth of the midpoint between the Receivers for the first depth interval)

starting from Cell D14,
= Average of the depths of the midpoints between the Receivers for the current and next depth intervals

(10) The average of the shear wave travel times from the Source to the Far Receiver for the normal and reverse source pulses is calculated in Column G, and the average shear wave travel times from the Source to the Near Receiver in Column K:

Average Shear Wave Travel Time, in milliseconds
= (Shear Wave Travel Time interpreted for the normal pulse + Shear Wave Travel Time interpreted for the reverse pulse)/2

(11) Shear wave velocity (v_s), compressional wave velocity (v_p), and Poisson's ratio (ν), are calculated in Columns O, P and S, respectively:

Shear Wave Velocity, v_s, in ft/sec
= 1000 * Measured Distance between the Receivers/(Average Shear Wave Travel Time from the Source to the Far Receiver – Average Shear Wave Travel Time from the Source to the Near Receiver)

Compressional Wave Velocity, v_p, in ft/sec
= 1000 * Measured Distance between the Receivers/(Compressional Wave Travel Time from the Source to the Far Receiver – Compressional Wave Travel Time from the Source to the Near Receiver)

Poisson's Ratio, v

$$= \frac{\left(\frac{V_s}{V_p}\right)^2 - 0.5}{\left(\frac{V_s}{V_p}\right)^2 - 1.0}$$

If the travel times are missing, the corresponding wave velocities can not be calculated. A message "Delete" in red color with yellow highlight will show up in the corresponding cell. If the calculated value of Poisson's ratio < 0.0, the number will appear in red color in the corresponding row in Column S. If the calculated value of Poisson's ratio > 0.5, the number will appear in blue color. In either case, the value of Poisson's ratio is unreasonable for a linearly elastic material and it may be appropriate to reexamine the arrival picks or to delete the data point.

(12) Simulate downhole wave travel times. In order to compare the suspension seismic results with downhole seismic results obtained at the same borehole, if any, the shear wave and compressional wave travel times calculated based on interval velocities obtained in this sheet from the suspension test data are accumulated from the ground surface to Point A according to the equations shown below. Figure I-1 illustrates the definition of Point A and the calculation of the accumulated travel time schematically.

Simulated Downhole Shear Wave Arrival Time, in milliseconds
= Simulated Downhole Shear Wave Arrival Time at the previous depth + (Depth of the midpoint between Receivers for next depth interval– Depth of the midpoint between Receivers for current depth interval)/Shear Wave Velocity associated with the current depth interval

Simulated Compressional Wave Downhole Arrival Time, in milliseconds
= Simulated Downhole Compressional Wave Arrival Time at the previous depth + (Depth of the midpoint between Receivers for the next depth interval– Depth of the midpoint between Receivers for the current depth interval)/Compressional Wave Velocity associated with the current depth interval

The simulated downhole shear wave arrival time corresponding to point A is based on the shear wave velocity in Column Y and is calculated in Column M. Note that the difference between Columns O and Y, which both contains shear wave velocity, is that Column O lists a shear wave velocity only when it is calculated from interpreted travel times at that depth and is blank when the supporting data is incomplete. On the other hand, Column Y replaces missing shear wave velocities with the velocity from the closest depth interval above or below for which a velocity was calculated based on time. The "closest" depth interval is determined by simply counting the number of intervals between the intervals without data and the first shallower interval with a velocity and the first deeper interval with a velocity, which is equivalent to distance for usual case where the distance between measurements is a constant. The counting of numbers of intervals between the depth with missing data and the shallower interval with a velocity and the deeper interval with a velocity is implemented in Columns V and W, respectively. In the case of a tie, the average of the velocities of the shallower and the deeper intervals is used. Note that the velocity values in Column Y are used only for the purpose of calculating the "simulated downhole" travel time in Column M.

The simulated downhole compressional wave arrival time corresponding to point A is based on the compressional wave velocity in Columns AD and is calculated in Column N. Note that the difference between Columns P and AD, which both contain compressional wave velocity, is that Column P lists a compressional wave velocity only when it is calculated from interpreted travel times at that depth and is blank when the supporting data is incomplete. On the other hand, Column AD replaces missing velocities with the velocity from the closest depth interval above or below for which a velocity was calculated based on time. The closest depth intervals are determined as discussed in the above paragraph. The counting of numbers of intervals between the depth with missing data and the shallower interval and the deeper interval is implemented in Columns AA and AB, respectively. In the case of a tie, the average of the velocities of the shallower and the deeper intervals is used. Note that the velocity values in Column AD are used only for the purpose of calculating the "simulated downhole" travel time in Column N.

(13) The first numbers in Columns M and N should be estimated so that the simulated downhole arrival time will match the actual downhole results <u>at some arbitrary depth</u>. Column M and N are programmed in such a manner that message "Enter Initial Estimate" will show up in red color with yellow highlight in the cells where the estimates need to be input. The second numbers and the subsequent numbers in Columns M and N will be calculated as discussed above.

<u>Source to Receiver Analysis</u>

Sheet: '**Analysis, S-R1**' was programmed to perform analysis on the Source to the Near Receiver data automatically once the data are input. The following explains how this worksheet functions.

(14) Retrieve depth of midpoints between the Receivers. Column C retrieves depth of midpoints between the Receivers form Column A in Sheet: 'Data, R1-R1'.

(15) Retrieve wave travel times from Sheet: 'Data, S-R1'. Column G retrieves shear wave (normal pulse) travel time from the Source to the Near Receiver from Column F in Sheet: 'Data, S-R1'. Columns H retrieves compressional wave travel times from the Source to the Near Receiver from Column H in Sheet: 'Data, R1-R2', respectively. Logical tests are performed so that the missing travel times, identified by negative numbers (typically "-9999") in Sheet: 'Data, S-R1', are left blank in Sheet 'Analysis, S-R1'.

Note: The term *travel time* is used to denote the time that elapses from the moment the signal is sent to the source to activate to the time when the wave of interest (shear or compression) arrives at the receivers. This travel time includes some "delay time" at the beginning of the test that must be accounted in the source-to-receiver analysis, but which cancels out in the receiver-to-receiver analysis.

(16) Calculate the depths of the Source, the Near Receiver, the midpoint between the Source and the Near Receiver, and point B in Columns A, B, C, and D, respectively. Point B is located midway between the midpoints between the Source and the Near Receiver, American units are used throughout the analyses.

Depth of the Source
= Depth of midpoint between the Receivers + Measured Distance between the Receivers/2 + Measured Distance between the Source and the Near Receiver

Depth of the Near Receiver
= Depth of midpoint between the Receivers + Measured Distance between the Receivers/2

Depth of midpoint between the Source and the Near Receiver
= Depth of midpoint between the Receivers + Measured Distance between the Receivers/2 + Measured Distance between the Source and the Near Receiver/2

Depth of Point B
in Cell D13, for Point B immediately above the shallowest measurement
= Depth of the midpoint between the Source to the Near Receiver for the first depth interval-0.5*(Depth of the midpoint between the Source to the Near Receiver for the second depth interval- Depth of the midpoint between the Source and the Near Receiver for the first depth interval)

starting from Cell D14,
= Average of the depths of the midpoints between the Source and the Near Receiver for the current and next measurement emplacements

(17) The shear wave and compressional wave travel times from the Source to the Near Receiver are corrected for both the delay time and offset time:

Corrected Shear Wave Travel Time (normal pulse)
= Shear Wave Travel Time interpreted from the normal pulse + Offset Time – Delay Time

Corrected Compressional Wave Travel Time
= Compressional Wave Travel Time interpreted from the vertical pulse + Offset Time – Delay Time

The offset is used to adjust for the effect of a significant change in spring characteristics during a logging run, such as would occur if the spring broke.

(18) Shear wave velocity v_s, compressional wave velocity v_p, and Poisson's ratio, ν, are calculated in Columns M, N and Q, respectively:

Shear Wave Velocity, v_s, in ft/sec

= 1000*Measured Distance between the Source and the Near Receiver/Corrected Shear Wave Travel Time from the Source to the Near Receiver (normal pulse)

Compressional Wave Velocity, v_p, in ft/sec

= 1000*Measured Distance between the Source and the Near Receiver/Corrected Compressional Wave Travel Time from the Source to the Near Receiver

Poisson's Ratio, ν

$$= \frac{\left(\frac{v_s}{v_p}\right)^2 - 0.5}{\left(\frac{v_s}{v_p}\right)^2 - 1.0}$$

If the travel times are missing, the corresponding wave velocities can not be calculated. A message "Delete" in red color with yellow highlight will show up in the corresponding cell. If the calculated value of Poisson's ratio < 0.0, the number will appear in red color in the corresponding row in Column Q. If the calculated value of Poisson's ratio > 0.5, the number will appear in blue color. In either case, the value of Poisson's ratio is unreasonable for a linearly elastic material and it may be appropriate to reexamine the arrival picks or to delete the data point.

(19) Simulate downhole wave travel time. In order to compare the suspension seismic results with downhole seismic results obtained at the same borehole, the shear wave and the compressional wave travel times calculated based on the shear wave and the compressional wave velocities obtained in this sheet from the suspension test data are accumulated from the ground surface to Point B in each measurement interval according to the equations shown below. Figure I-2 illustrates the definition of Point B and the calculation of the accumulated travel time schematically.

Simulated Downhole Shear Wave Arrival Time (normal pulse), in milliseconds

= Simulated Downhole Shear Wave Arrival Time at the previous depth + (Depth of the midpoint between the Source and the Near Receiver for the next depth interval – Depth of the midpoint between the Source and the Near Receiver for the current depth interval)/Shear Wave Velocity associated with the current depth interval

Simulated Downhole Compressional Wave Arrival Time, in milliseconds

= Simulated Downhole Compressional Wave Arrival Time at the previous depth + (Depth of the midpoint between the Source and the Near Receiver for the next depth interval – Depth of the midpoint between the Source and the Near Receiver for the current depth interval)/Compressional Wave Velocity associated with the current depth interval

The simulated downhole shear wave arrival time corresponding to point B is based on the shear wave velocity in Column W and is calculated in Column K. Note that the difference between Columns M and W, which both contain shear wave velocity, is that Column M lists a shear wave velocity only when it is calculated from interpreted travel times at that depth and is blank when the supporting data is incomplete. On the other hand, Column W replaces missing shear wave velocities with the velocity from the closest depth interval above or below for which a velocity was calculated based on time. The "closest" depth interval is determined as discussed in previous section describing the Receiver to Receiver Analysis. The counting of numbers of intervals without data and the first shallow interval with a velocity and the first deeper interval with a velocity is implemented in Columns T and U, respectively. In the case of a tie, the average of the velocities of the shallower and the deeper intervals is used. Note that the velocity values in Column W are used only for the purpose of calculating the "simulated downhole" travel time in Column K.

The simulated downhole compressional wave arrival time corresponding to point B is based on the compressional wave velocity in Column AB and is calculated in Column L. Note that the difference between Columns N and AB, which both contains compressional wave velocity, is that Column N lists a compressional wave velocity only when it is calculated from the interpreted travel time and is blank when the supporting data is incomplete. On the other hand, Column AB replaces missing compressional wave velocity with the velocity from the closest depth interval above or bellow for which a velocity was calculated based on time. The "closest" depth interval is determined as discussed in the previous section describing the Receiver to Receiver Analysis. The counting of the number of depth intervals between the intervals with missing data and the first shallower interval with a velocity and the first deeper interval with a velocity is implemented in Columns Y and Z, respectively. In the case of a tie, the average of the velocities of the shallower and the deeper intervals is used. Note that the velocity values in Column AB are used only for the purpose of calculating the "simulated downhole" travel time in Column L.

(20) The first numbers in Columns K and L should be estimated so that the simulated downhole arrival time will match the actual downhole results at some arbitrary depth. Columns K and L were programmed in such a manner that message "Enter Initial Estimate" will show up in red color with yellow highlight in the cells where the initial estimates need to be input. The second number and the subsequent number in Columns K and L will be calculated as discussed above.

User Manual Clean up

After all the required data are input and the analyses are performed automatically in the two analysis worksheets as discussed above, users need to do some cleaning up work manually.

(21) After entering the required data, click on the two Analysis Tabs and the three Summary tabs to edit the five sheets in Group Mode. Delete the rows between rows 14 and 619 that are not populated with data. For example, if there are 200 measurement depths, the data will populate rows 14 through 213. In this case, delete rows 214 through 619. Deleting these rows will adjust the plot ranges on all the plots, which will be discussed in the following section, to end with the last row populated with data, and will also eliminate unused rows on the two Analysis sheets and the three Summary sheets so that they can be printed easily. After deleting these rows, click on one of the other sheet tabs to exit the Group Mode (very important!).

Also, look for cells whose contents must be deleted, specifically, those cells with "#Ref" or "Delete". For example, where a travel time cannot be interpreted, the v_s/v_p ratio and Poisson's ratio cannot be calculated and the contents of these cells must be deleted. Be especially careful when a travel time is missing at either the deepest or the shallowest depth and delete the equations that refer to cells with missing data.

Summary

Results are summarized and presented automatically in the following three summary worksheets. Sheet: '**Summary, All**' is the sheet that presents data for figures plotted using Grapher (version 2.02).

(22) Tables that summarize the depths of midpoints between the receivers, shear wave velocities and compressional wave velocities in both American and Système International units, and Poisson's ratios, are presented in 'Summary, R1-R2' for data obtained from Receiver to Receiver analysis.

(23) Tables that summarize the depths of midpoints between the Source and the Near Receiver, shear wave velocities and compressional wave velocities in both American and Systeme International units, and Poisson's ratios are presented in Sheet: 'Summary, S-R1' for data obtained from the Source to Receiver analysis.

(24) Sheet: 'Summary, All' presents the results shown on Sheet: 'Summary, R1-R2' and Sheet: 'Summary, S-R1', as well as the simulated wave travel times for both Receiver to Receiver analysis and Source to Receiver analysis. This sheet was created primarily to facilitate the plotting of figures using commercial graphical software Grapher (Version 2.02).

Figures

Plots of v_s, v_p, Poisson's ratio, and simulated downhole travel time attached in this workbook are for the purposes of quick checking only.

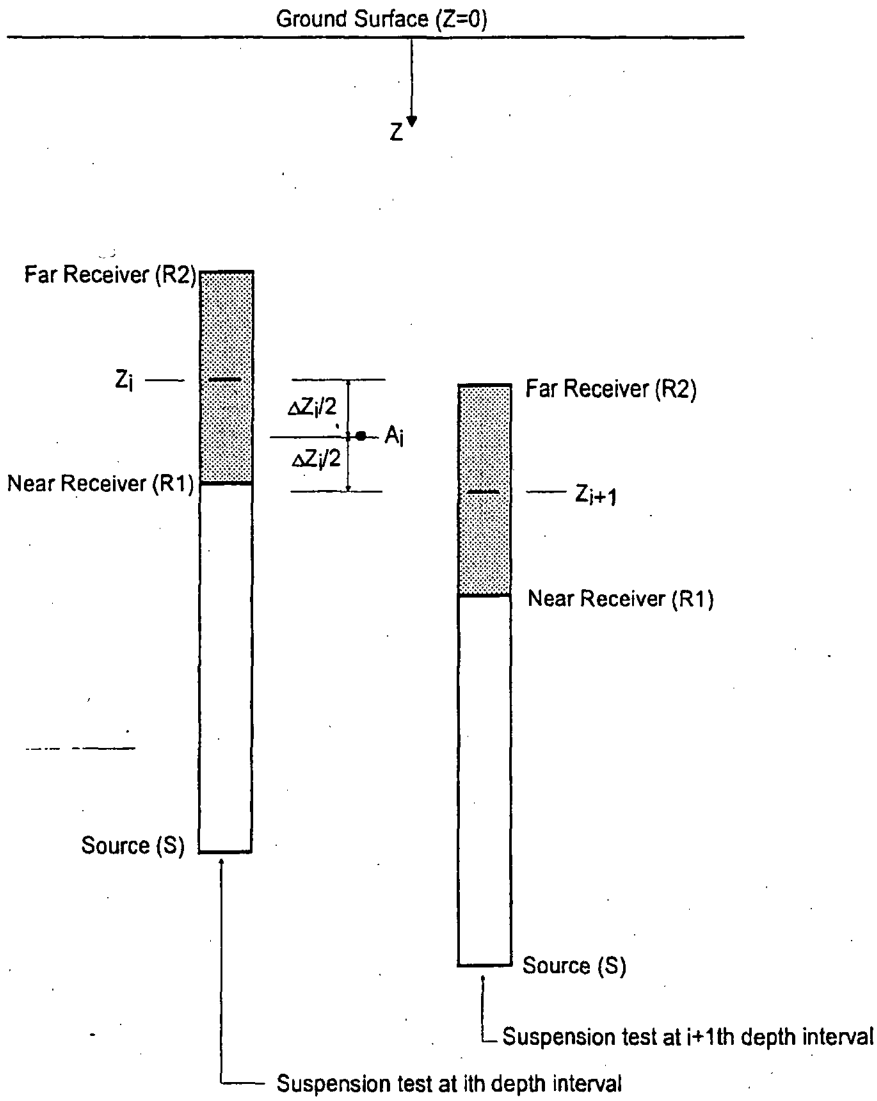
(25) Plot shear wave velocities and compressional wave velocities, as well as Poisson's ratio for quick checking:

- Shear wave velocity, v_s, obtained from the Near Receiver to the Far Receiver data are plotted versus depth in American units in Sheet: 'R1-R2, Vs Plot'. The x and y-coordinates correspond to data in Columns O and C in Sheet: 'Analysis, R1-R2', respectively.
- Both shear wave velocity, v_s, and compressional wave velocity, v_p, obtained from the Near Receiver to the Far Receiver data versus depth are plotted in American units in Sheet: 'R1-R2, Vs&Vp Plot'. The x-coordinates for the v_s and v_p curves correspond to data in Columns O and P in Sheet: 'Analysis, R1-R2', respectively. The y-coordinates for both curves correspond to data in Column C in the same sheet.
- Shear wave velocities v_s obtained from both the Near to Far Receivers data, and the Source to the Near Receiver data versus depth are plotted in American units in Sheet: 'R1-R2 and S-R1, Vs Plot'. The x and y-coordinates for the v_s curve obtained from the Near Receiver to the Far Receiver data correspond to data in Columns O and C in Sheet: 'Analysis, R1-R2', respectively. The x and y-coordinates for the v_s curve obtained from the Source to the Near Receiver data correspond to data in Columns M and C in Sheet: 'Analysis, S-R1', respectively.

- Both shear wave velocities, v_s, and compressional wave velocities, v_p, obtained from the Near Receiver to the Far Receiver data, and the Source to the Near Receiver data versus depth in American units are plotted in Sheet: 'R1-R2 and S-R1, Vs&Vp Plot'. The x and y-coordinates for the v_s curve obtained from the Near Receiver to the Far Receiver data correspond to data in Columns O and C in Sheet: 'Analysis, R1-R2', respectively. The x and y-coordinates for the v_p curve from the Near to the Far Receiver data correspond to data in Columns P and C in the same sheet, respectively. The x and y-coordinates for v_s curve obtained from the Source to the Near Receiver data correspond to data in Columns M and C in Sheet: 'Analysis, S-R1'. The x and y-coordinates for v_p curve obtained from the Source to the Near Receiver data correspond to data in Columns N and C in the same sheet, respectively.
- Poisson's Ratio derived from both the Near Receiver to the Far Receiver data and the Source and the Near Receiver data versus depth are plotted in Sheet: 'Poisson's Ratio Plot'. The x and y-coordinates correspond to data in Columns S and C in Sheet: 'Analysis, R1-R2' for the series associated with the Near Receiver to the Far Receiver data and Columns Q and C in Sheet: 'Analysis, S-R1' for the series associated with the Source to the Near Receiver data.

EXAMINATION

- Hand calculations shown in the following section "Hand Calculation Verification" and spot check are performed to ensure that equations and values obtained are correct.
- Figures I-3 through I-53 following the hand calculation shows values and equations in the cells in each worksheet, as well as the plots for checking purpose. Please note that only the first 30 to 50 rows are shown in order to save space. The equations in each column are identical unless otherwise noted.
- There are no macros present in any sheet. Only simple equations and logical statements exist in this workbook.

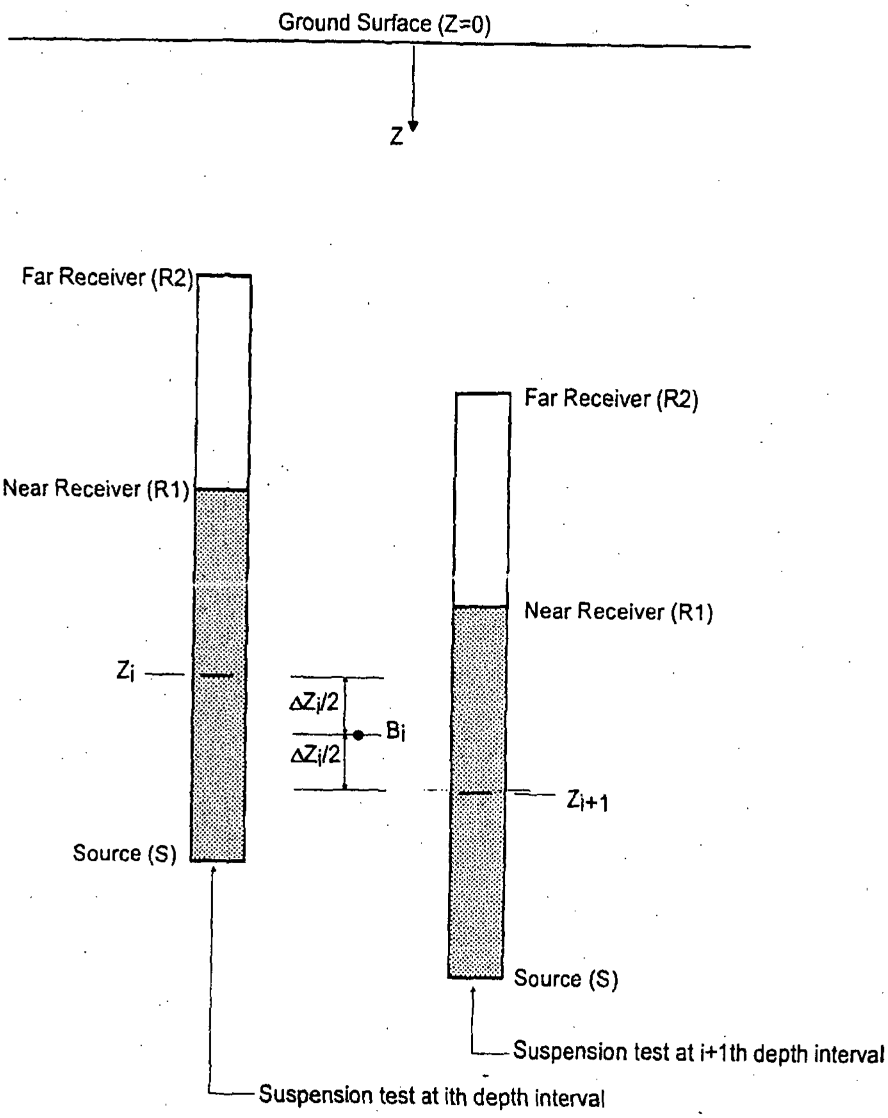


Z_i is depth below ground surface of the midpoint between receivers for suspension test at the ith depth interval

$\Delta Z_i = Z_{i+1} - Z_i$

Note: Athough the two tests are performed along a vertical line, they are shown with a horizontal offset for clarity.

Figure I-1 Schematic illustration of simulation of downhole wave travel time based on receiver to receiver data



Z_i is depth below ground surface of the midpoint between source and near receiver for suspension test at the ith depth interval

$\Delta Z_i = Z_{i+1} - Z_i$

Note: Although the two tests are performed along a vertical line, they are shown with a horizontal offset for clarity.

Figure I-2 Schematic illustration of simulation of downhole travel time based on source to near receiver data

HAND CALCULATION VERIFICATION

Sample calculation presented as follows are based on suspension test data acquired at Borehole UE-25 RF#13. Data for measurement depth interval 18.04 feet are used in the following hand-calculation verification, which corresponds to Row 17 in the worksheets. Copies of sheets from the workbook that show Row 17 are shown in Figures I-3 through I-53.

Input:

(1) Data imported to Sheet: 'Data, R1-R2':

Depth of midpoint between the Receivers:
Cell A17 = 18.04 feet

Shear Wave (normal pulse) Travel Time from the Source to the Far Receiver:
Cell C17 = 8.75 milliseconds
Shear Wave (reverse pulse) Travel Time from the Source to the Far Receiver:
Cell D17 = 8.91 milliseconds
Compressional Wave Travel Time from the Source to the Far Receiver:
Cell E17 = 4.925 milliseconds

Shear Wave (normal pulse) Travel Time from the Source to the Near Receiver:
Cell F17 = 6.82 milliseconds
Shear Wave (reverse pulse) Travel Time from the Source to the Near Receiver:
Cell G17 = 6.93 milliseconds
Compressional Wave Travel Time from the Source to the Near Receiver:
Cell H17 = 4.12 milliseconds

Measured Distance between the Receivers:
Cell N2 = 39.37 inches
Correspondingly,
Cell N3 =Cell N2/12 =3.28 feet

(2) Data imported to Sheet: 'Data, S-R1':

Depth of midpoint between the Receivers:
Cell A17 = 18.04 feet

Shear Wave (normal pulse) Travel Time from the Source to the Near Receiver:
Cell F17 = 6.35 milliseconds
Compressional Wave Travel Time from the Source to the Near Receive:
Cell H17 = 4.43 milliseconds

Delay Time:
Cell N2 = 3.0 milliseconds

Measured Distance between the Source to the Near Receiver:
Cell N3 = 7.0 feet

(3) Data input to Sheet: 'Analysis, S-R1':
Offset Time:
Cell F17 = 0.0 milliseconds

Analyses Performed in Sheet: 'Analysis, R1-R2':

(1) Depth:

Depth of midpoint between the Receivers:
Cell C17 = Cell A17 (in Sheet: 'Data, R1-R2')
= 18.04 feet

Depth of the Far Receiver:
Cell A17 = Depth of midpoint between the Receivers – Measured Distance between the Receivers/2
= Cell A17 (in Sheet: 'Data, R1-R2') – Cell N3 (in Sheet: 'Data, R1-R2')/2
= 18.04 – 3.28/2 feet
= 16.3996 = 16.40 feet

Depth of the Near Receiver:
Cell B17 = Depth of midpoint between the Receivers + Measured Distance between the Receivers/2
= Cell A17 (in Sheet: 'Data, R1-R2') + Cell N3 (in Sheet: 'Data, R1-R2')/2
= 18.04+ 3.28/2 feet
= 19.6804 = 19.68 feet

Depth of Point A:
Cell D17 = Average of the depths of the midpoints between the Receivers for the current and next depth intervals
= 0.5*[Cell A17 (in Sheet: 'Data, R1-R2') + Cell C18]
= 0.5*(18.04 + 19.69) feet
= 18.8650 = 18.87 feet

(2) Travel Times:

Shear Wave (normal pulse) Travel Time from the Source to the Far Receiver:
Cell E17 = Cell C17 (in Sheet: 'Data, R1-R2')
= 8.75 milliseconds

Shear Wave (reverse pulse) Travel Time from the Source to the Far Receiver:
Cell F17 = Cell D17 (in Sheet: 'Data, R1-R2')
= 8.91 milliseconds

Average Shear Wave Travel Time from the Source to the Far Receiver:
Cell G17 = (Shear Wave Travel Time (normal pulse) + Shear Wave Travel Time (reverse pulse))/2
= [Cell C17 (in Sheet: 'Data, R1-R2')+ Cell D17 (in Sheet: 'Data, R1-R2')]/2
= (8.75 + 8.91)/2 milliseconds
= 8.83 milliseconds

Compressional Wave Travel Time from the Source to the Far Receiver:

Cell H17 = Cell E17 (in Sheet: 'Data, R1-R2')
= 4.93 milliseconds

Shear Wave (normal pulse) Travel Time from the Source to the Near Receiver:
Cell I17 = Cell F17 (in Sheet: 'Data, R1-R2')
= 6.82 milliseconds

Shear Wave (reverse pulse) Travel Time from the Source to the Near Receiver:
Cell J17 = Cell G17 (in Sheet: 'Data, R1-R2')
= 6.93 milliseconds

Average Shear Wave Travel Time from the Source to the Near Receiver:
Cell K17 = (Shear Wave Travel Time (normal pulse) + Shear Wave Travel Time (reverse pulse))/2
=[Cell F17 (in Sheet: 'Data, R1-R2')+ Cell G17 (in Sheet: 'Data, R1-R2')]/2
= (6.82 + 6.93)/2 milliseconds
= 6.875 = 6.88 milliseconds

Compressional Wave Travel Time from the Source to the Near Receiver:
Cell L17 = Cell H17 (in Sheet: 'Data, R1-R2')
= 4.12 milliseconds

(3) Wave velocities:

Shear Wave Velocity, v_s:
Cell O17 =1000*Measured Distance between the Receivers/(Average Shear Wave Travel Time from the Source to the Far Receiver – Average Shear Wave Travel Time from the Source to the Near Receiver)
=1000*Cell N3 (in Sheet: 'Data, R1-R2')/(Cell G17 – Cell K17)
=1000*3.28/(8.83 – 6.875)
=1678.2 = 1678 feet/second

Compressional Wave Velocity, v_p:
Cell P17 = 1000*Measured Distance between the Receivers/(Compressional Wave Travel Time from the Source to the Far Receiver – Compressional Wave Travel Time from the Source to the Near Receiver)
= 1000*Cell N3 (in Sheet: 'Data, R1-R2')/(Cell H17 – Cell L17)
= 1000*3.28/(4.925 – 4.12)
= 4075.6 = 4076 feet/second

(4) Calculations of Poisson's Ratio, ν:
Cell Q17 = v_s/v_p
= Cell O17/Cell P17
= 1678.2 / 4076.6
= 0.4118 = 0.41

Cell R17 = $(v_s/v_p)^2$
= $(\text{Cell Q17})^2$
= $(0.4118)^2$
= 0.1696 = 0.170

Poisson's Ratio, ν:

$$\text{Cell S17} = \frac{\left(\frac{v_s}{v_p}\right)^2 - 0.5}{\left(\frac{v_s}{v_p}\right)^2 - 1.0}$$

= (Cell R17 – 0.5)/(Cell R17 – 1.0)
= (0.1696 –0.5)/(0.1696 – 1.0)
= 0.3979 = 0.40

(5) Simulated Downhole Arrival Times:

Messages "Enter Initial Estimate" in Cells M15 and N15 indicate estimates of downhole travel time at the corresponding depth of Point A, which is 15.58 feet, need to be input. Messages "Delete" in red color with yellow highlight appear in the cells in Columns M and N prior to row 15 indicate those cells should be deleted. The numbers in Cells M15 and N15 are chosen so that the simulated downhole arrival time will match the actual downhole results at depth of 15.58. In this sample calculation:

Cell M15 = 18.40 milliseconds
Cell N15 = 8.74 milliseconds

Wave velocities, shown in Columns Y and AD, associated with this depth interval for the purpose of calculating the "simulated downhole" travel time in Columns M and N are determined as follows:

Since no travel time data missing for this depth interval,

Cell V16 = 0
Cell U17 = Cell O17 = 1678.2 feet/second
Cell Y17 = Cell U17 = 1678.2 feet/second
Cell AA16 = 0
Cell Z17 = Cell P17 = 4075.6 feet/second
Cell AD17 = Cell Z17 = 4075.6 feet/second

Simulated Downhole Shear Wave Arrival Time:

Cell M17 = Simulated Downhole Shear Wave Arrival Time at the previous depth + (Depth of the midpoint between Receivers for next depth interval– Depth of the midpoint between Receivers for current depth interval)/Shear Wave Velocity associated with the current depth interval
= Cell M16 + 1000*(Cell C18 – Cell C17)/CellY17
= 19.2448+1000*(19.69-18.04)/1678.2
= 20.2280 = 20.23 milliseconds

Simulated Downhole Compressional Wave Arrival Time:

Cell N17 = Simulated Downhole Compressional Wave Arrival Time at the previous depth + (Depth of the midpoint between Receivers for the next depth interval– Depth of the midpoint between Receivers for

the current depth interval)/Compressional Wave Velocity associated with the current depth interval
= Cell N16 + 1000*(Cell C18 – Cell C17)/Cell AD17
= 9.1324+1000*(19.69-18.04)/4075.6
= 9.5372 = 9.54 milliseconds

Analyses Performed in Sheet: 'Analysis, S-R1':

(1) Depth:

Depth of midpoint between the Receivers:

Cell E17 = Cell A17 (in Sheet: 'Data, R1-R2')
= 18.04 feet

Depth of the Source:

Cell A17 = Depth of midpoint between the Receivers + Measured Distance between the Receivers/2 + Measured Distance between the Source and the Near Receiver
= Cell A17 (in Sheet: 'Data, R1-R2') + Cell N3 (in Sheet: 'Data, R1-R2') /2 + Cell N2 (in Sheet: 'Data, S-R1')
=18.04 + 3.28/2 + 7.0
= 26.68 feet

Depth of the Near Receiver:

Cell B17 = Depth of midpoint between the Receivers + Measured Distance between the Receivers/2
= Cell A17 (in Sheet: 'Data, R1-R2') + Cell ~~N3~~ (in Sheet: 'Data, R1-R2')/2
= 18.04 + 3.28/2
= 19.68 feet

Depth of midpoint between the Source and the Near Receiver:

Cell C17 = Depth of midpoint between the Receivers + Measured Distance between the Receivers/2 + Measured Distance between the Source and the Near Receiver/2
= Cell A17 (in Sheet: 'Data, R1-R2') + Cell N3 (in Sheet: 'Data, R1-R2')/2 + Cell N3 (in Sheet: 'Data, S-R1') / 2
= 18.04 + 3.28/2 + 7.0/2
= 23.18 feet

Depth of Point B:

Cell D17 = Average of the depths of the midpoints between the Source and the Near Receiver for the current and next measurement emplacements
= (Cell C17 + Cell C18)/2
= (23.1804+24.8304)/2
= 24.01 = 24.0 feet

(2) Travel Times:

Shear Wave (normal pulse) Travel Time from the Source to the Near Receiver:

Cell G17 = Cell F17 (in Sheet: 'Data, S-R1')
= 6.35 milliseconds

Compressional Wave Travel Time from the Source to the Near Receiver:

Cell H17 = Cell H17 (in Sheet: 'Data, S-R1')
= 4.43 milliseconds

Corrected Shear Wave (normal pulse) Travel Time from the Source to the Near Receiver:

Cell I17 = Shear Wave Travel Time from the Source to the Near Receiver (normal pulse) + Offset Time – Delay Time
= Cell F17 (in Sheet: 'Data, S-R1') + Cell F17 – Cell N2 (in Sheet: 'Data, S-R1')
= 6.35 + 0.0 – 3.0
= 3.35 milliseconds

Corrected Compressional Wave Travel Time from the Source to the Near Receiver in Column J:

Cell J17 = Compressional Wave Travel Time from the Source to the Near Receiver + Offset Time – Delay Time
= Cell H17 (in Sheet: 'Data, S-R1') + Cell F17 – Cell N2 (in Sheet: 'Data, S-R1')
= 4.43 + 0.0 – 3.0
= 1.43 milliseconds

(3) Wave velocities:

Shear Wave Velocity, v_s:

Cell M17 = 1000*Measured Distance between the Source and the Near Receiver/Corrected Shear Wave Travel Time (normal pulse) from the Source to the Near Receiver
= 1000* Cell N3 (in Sheet: 'Data, S-R1')/Cell I17
= 1000*7.0/3.35
= 2089.6 = 2090 feet/second

Compressional Wave Velocity, v_p:

Cell N17= 1000*Measured Distance between the Source and the Near Receiver/Corrected Compressional Wave Travel Time from the Source to the Near Receiver
= 1000* Cell N3 (in Sheet: 'Data, S-R1')/Cell J17
= 1000* 7.0/1.43
= 4895.1 = 4895 feet/second

(4) Calculations for Poisson's Ratio, ν in Columns O, P, and Q :

Cell O17 = v_s/v_p
= Cell M17/Cell N17
= 2089.6/4895.1
= 0.4269 = 0.43

Cell P17 = $(v_s/v_p)^2$
= $(\text{Cell O17})^2$
= $(0.4269)^2$
= 0.1822 = 0.182

Poisson's Ratio, ν:

$$\text{Cell Q17} = \frac{\left(\frac{v_s}{v_p}\right)^2 - 0.5}{\left(\frac{v_s}{v_p}\right)^2 - 1.0}$$

= (Cell P17 – 0.5)/(Cell P17 – 1.0)
= (0.1822 –0.5)/(0.1822– 1.0)
= 0.3886 = 0.39

(5) Simulated Downhole Arrival Times:

Messages "Enter Initial Estimate" in Cells K13 and L13 indicate estimates of downhole travel time at the corresponding depth of Point B, which is 17.44 feet, need to be input. The numbers in Cells K13 and L13 are chosen so that the simulated downhole arrival time will match the actual downhole results at depth of 17.44. In this sample calculation:

Cell K13 = 19.64 milliseconds
Cell L13 = 9.33 milliseconds

Wave velocities, shown in Columns W and AB, associated with this depth interval for the purpose of calculating the "simulated downhole" travel time in Columns K and L are determined as follows:

Since no travel time data missing for this depth interval,
Cell T17 = 0
Cell S17 = Cell M17 = 2089.6 feet/second
Cell W17 = Cell S17 = 2089.6 feet/second
Cell Y17 = 0
Cell X17 = Cell N17 = 4895.1 feet/second
Cell AB17 = Cell X17 = 4895.1 feet/second

Simulated Downhole Shear Wave (normal pulse) Arrival Time:

Cell K17 = Simulated Downhole Shear Wave Arrival Time at the previous depth + (Depth of the midpoint between the Source and the Near Receiver for the next depth interval – Depth of the midpoint between the Source and the Near Receiver for the current depth interval)/Shear Wave Velocity associated with the current depth interval
= Cell K16+1000*(Cell C18-Cell C17)/Cell W17
= 21.8915+1000*(24.83-23.18)/2089.6
= 22.6811 = 22.68 milliseconds

Simulated Downhole Compressional Wave Arrival Time:

Cell L17 = Simulated Downhole Compressional Wave Arrival Time at the previous depth + (Depth of the midpoint between the Source and the Near Receiver for the next depth interval – Depth of the midpoint between the Source and the Near Receiver for the current depth interval)/Compressional Wave Velocity associated with the current depth interval

= Cell L16+1000*(Cell C18-Cell C17)/Cell AB17

= 10.2742+1000*(24.83-23.18)/4895.1

= 10.6112 = 10.61 milliseconds

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	@SUSP_PS		I.D.	for	Suspent	data	set	easured Distance from Receiver to Receiver in the Blue Field							
2	YUCCA MOUNTAIN PROJ		Project	name									From Receiver to Receiver:	39.37	inches
3	US DEPT OF ENERGY		Client	name										3.28	feet
4	WOODWARD-CLYDE FIEL		Contracto	name										1.00	meter
5	RF #13		Hole	name							OK, depth units in column A are in feet.				
6	12/15/98		Date												
7	TOTAL DEPTH 350FT, PV(		Note	-1											
8	LOGGED WITH 1M ISO TU		Note	-2											
9	1		unit,	0	=	meters,	1	=	feet						
10															
11	199		Number	of	data										
12															
13	!"Depth",	FileName,	Far-Hn,	Far-Hr,	Far-V,	Near-Hn,	Near-Hr,	Near-V,	Vs,	Vp					
14	13.12	SUSPE200.ORG	-9999	-9999	-9999	6.77	6.89	4.605	-9999	-9999					
15	14.76	SUSPE199.ORG	-9999	-9999	-9999	7.44	7.45	4.14	-9999	-9999					
16	16.4	SUSPE198.ORG	8.42	8.64	5.015	6.75	6.93	4.23	1941.3	4179.4					
17	18.04	SUSPE197.ORG	8.75	8.91	4.925	6.82	6.93	4.12	1678.2	4075.6					
18	19.69	SUSPE196.ORG	8.42	8.57	4.5	7.03	7.17	3.87	2351.9	5207.7					
19	21.33	SUSPE195.ORG	7.91	8.11	5.09	6.13	6.28	4.165	1817.6	3546.9					
20	22.97	SUSPE194.ORG	8.04	8.21	-9999	6.07	6.21	4.2	1652.8	-9999					
21	24.61	SUSPE193.ORG	7.45	7.61	4.835	6.1	6.23	4.255	2403.5	5656.6					
22	26.25	SUSPE192.ORG	7.75	7.81	5.36	6.26	6.34	4.615	2216.8	4403.8					
23	27.89	SUSPE191.ORG	8.26	8.42	5.405	5.91	6.21	4.29	1439	2942.5					
24	29.53	SUSPE190.ORG	7.2	7.43	4.47	6.19	6.43	3.96	3264.5	6433					
25	31.17	SUSPE189.ORG	7.08	7.08	4.735	5.58	5.66	4.275	2247.2	7132.3					
26	32.81	SUSPE188.ORG	7.1	7.27	5.07	5.69	5.9	4.4	2360.3	4896.8					
27	34.45	SUSPE187.ORG	7.64	7.9	4.84	5.88	6.15	4.005	1869.4	3929.1					
28	36.09	SUSPE186.ORG	7.77	7.99	4.99	6.05	6.3	4.245	1924.2	4403.8					
29	37.73	SUSPE185.ORG	7.62	7.71	4.975	6.21	6.3	4.38	2326.8	5514					
30	39.37	SUSPE184.ORG	7.67	7.67	4.88	6.38	6.39	4.35	2553.2	6190.3					
31	41.01	SUSPE183.ORG	8.15	8.3	5.08	5.99	6.14	4.245	1518.9	3929.1					
32	42.65	SUSPE182.ORG	7.65	7.79	5.19	6.76	6.91	4.74	3707.2	7290.8					
33	44.29	SUSPE181.ORG	7.87	8.01	5.02	5.98	6.19	4.3	1768.6	4556.7					
34	45.93	SUSPE180.ORG	7.81	8.2	-9999	6.8	7.12	4.67	3139.6	-9999					
35	47.57	SUSPE179.ORG	8.09	8.26	5.155	6.51	6.6	4.455	2025.2	4686.9					

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S

Ready

Figure I-3 Data input worksheet 'Data, R1-R2'

	A	B	C	D	E	F	G	H	I	J	K–M	N	O
1	**@SUSP_PS**		I.D.	for	Suspent	data	set		ENTER MEASURED VALUES IN THE BLUE FIELDS				
2	**YUCCA MOUNTAIN PROJEC**		Project	name							Measured Delay Time	3	msec
3	US DEPT OF ENERGY		Client	name					Measured Distance from Source to Near Receiver			7	feet
4	**WOODWARD-CLYDE FIELD**		Contractc	name								2.13	meters
5	RF #13		Hole	name							**OK, depth units in column A are in feet.**		
6	12/15/98		Date										
7	TOTAL DEPTH 350FT, PVC C		Note	-1									
8	LOGGED WITH 1M ISO TUBE		Note	-2									
9	1		unit,	0	=	meters,	1	=	feet				
10													
11	199		Number	of	data								
12													
13	"Depth",	FileName,	Far-Hn,	Far-Hr,	Far-V,	Near-Hn,	Near-Hr,	Near-V,	Vs,	Vp			
14	13.12	SUSPE200.ORG	-9999	-9999	-9999	6.09	6.89	4.335	-9999	-9999			
15	14.76	SUSPE199.ORG	-9999	-9999	-9999	6.27	7.45	4.165	-9999	-9999			
16	16.4	SUSPE198.ORG	8.42	8.64	5.015	6.25	6.93	4.53	1691	6765			
17	18.04	SUSPE197.ORG	8.75	8.91	4.925	6.35	6.93	4.43	1498	6628			
18	19.69	SUSPE196.ORG	8.42	8.57	4.5	6.39	7.17	4.525	1913	-9999			
19	21.33	SUSPE195.ORG	7.91	8.11	5.09	5.69	6.28	4.165	1620	3547			
20	22.97	SUSPE194.ORG	8.04	8.21	-9999	5.67	6.21	4.2	1502	-9999			
21	24.61	SUSPE193.ORG	7.45	7.61	4.835	5.67	6.23	4.255	2076	5657			
22	26.25	SUSPE192.ORG	7.75	7.81	5.36	5.81	6.34	4.205	1924	2841			
23	27.89	SUSPE191.ORG	8.26	8.42	5.405	5.59	6.21	4.145	1345	2604			
24	29.53	SUSPE190.ORG	7.2	7.43	4.47	5.83	6.43	4.31	2769	20505			
25	31.17	SUSPE189.ORG	7.08	7.08	4.735	5.34	5.66	4.25	2076	6765			
26	32.81	SUSPE188.ORG	7.1	7.27	5.07	5.34	5.9	4.275	2096	4127			
27	34.45	SUSPE187.ORG	7.64	7.9	4.84	5.66	6.15	4.255	1759	5608			
28	36.09	SUSPE186.ORG	7.77	7.99	4.99	5.84	6.3	4.245	1813	4404			
29	37.73	SUSPE185.ORG	7.62	7.71	4.975	5.88	6.3	4.29	2083	4790			
30	39.37	SUSPE184.ORG	7.67	7.67	4.88	6.03	6.39	4.305	2247	5706			
31	41.01	SUSPE183.ORG	8.15	8.3	5.08	5.71	6.14	4.245	1426	3929			
32	42.65	SUSPE182.ORG	7.65	7.79	5.19	6.33	6.91	4.615	2983	5706			
33	44.29	SUSPE181.ORG	7.87	8.01	5.02	5.6	6.19	4.095	1604	3547			
34	45.93	SUSPE180.ORG	7.81	8.2	-9999	6.35	7.12	4.67	2583	-9999			
35	47.57	SUSPE179.ORG	8.09	8.26	5.155	5.95	6.6	4.37	1727	4179			

Figure I-4 Data input worksheet 'Data, S-R1'

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

Arial 10 100%

L228

	A	B	C	D	E	F	G	H	I	J	K	L
5									Table			
6					Compressional Wave Velocity, Shear Wave Velocity, Simulated Downhole Arrival Time, and P							
7							Based on Receiver-to-Receiver Travel Time Data - Borehole UE-25 RF #13					
8												
9	Depth				Travel Time[4]							
10			Midpoint		Far Receiver				Near Receiver			
11	Far Receiver[1]	Near Receiver[2]	Between Receivers	At Point A[3]	Shear Wave (Normal)[5]	Shear Wave (Reverse)[6]	Shear Wave Average	Compression Wave	Shear Wave (Normal)	Shear Wave (Reverse)	Shear Wave Average	Compression Wave
12	(ft)	(ft)	(ft)	(ft)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)
13				12.30								
14	11.48	14.76	13.12	13.94					6.77	6.89	6.83	4.61
15	13.12	16.40	14.76	15.58					7.44	7.45	7.45	4.14
16	14.76	18.04	16.40	17.22	8.42	8.64	8.53	5.02	6.75	6.93	6.84	4.23
17	16.40	19.68	18.04	18.87	8.75	8.91	8.83	4.93	6.82	6.93	6.88	4.12
18	18.05	21.33	19.69	20.51	8.42	8.57	8.50	4.50	7.03	7.17	7.10	3.87
19	19.69	22.97	21.33	22.15	7.91	8.11	8.01	5.09	6.13	6.28	6.21	4.17
20	21.33	24.61	22.97	23.79	8.04	8.21	8.13		6.07	6.21	6.14	4.20
21	22.97	26.25	24.61	25.43	7.45	7.61	7.53	4.84	6.10	6.23	6.17	4.26
22	24.61	27.89	26.25	27.07	7.75	7.81	7.78	5.36	6.26	6.34	6.30	4.62
23	26.25	29.53	27.89	28.71	8.26	8.42	8.34	5.41	5.91	6.21	6.06	4.29
24	27.89	31.17	29.53	30.35	7.20	7.43	7.32	4.47	6.19	6.43	6.31	3.96
25	29.53	32.81	31.17	31.99	7.08	7.08	7.08	4.74	5.58	5.66	5.62	4.28
26	31.17	34.45	32.81	33.63	7.10	7.27	7.19	5.07	5.69	5.90	5.80	4.40
27	32.81	36.09	34.45	35.27	7.64	7.90	7.77	4.84	5.88	6.15	6.02	4.01
28	34.45	37.73	36.09	36.91	7.77	7.99	7.88	4.99	6.05	6.30	6.18	4.25
29	36.09	39.37	37.73	38.55	7.62	7.71	7.67	4.98	6.21	6.30	6.26	4.38
30	37.73	41.01	39.37	40.19	7.67	7.67	7.67	4.88	6.38	6.39	6.39	4.35
31	39.37	42.65	41.01	41.83	8.15	8.30	8.23	5.08	5.99	6.14	6.07	4.25
32	41.01	44.29	42.65	43.47	7.65	7.79	7.72	5.19	6.76	6.91	6.84	4.74
33	42.65	45.93	44.29	45.11	7.87	8.01	7.94	5.02	5.98	6.19	6.09	4.30
34	44.29	47.57	45.93	46.75	7.81	8.20	8.01		6.80	7.12	6.96	4.67
35	45.93	49.21	47.57	48.39	8.09	8.26	8.18	5.16	6.51	6.60	6.56	4.46
36	47.57	50.85	49.21	50.03	7.85	7.95	7.90	5.10	6.78	6.84	6.81	4.62

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S

Ready NUM

Figure I-5 Analysis worksheet 'Analysis, R1-R2' – Columns A through L

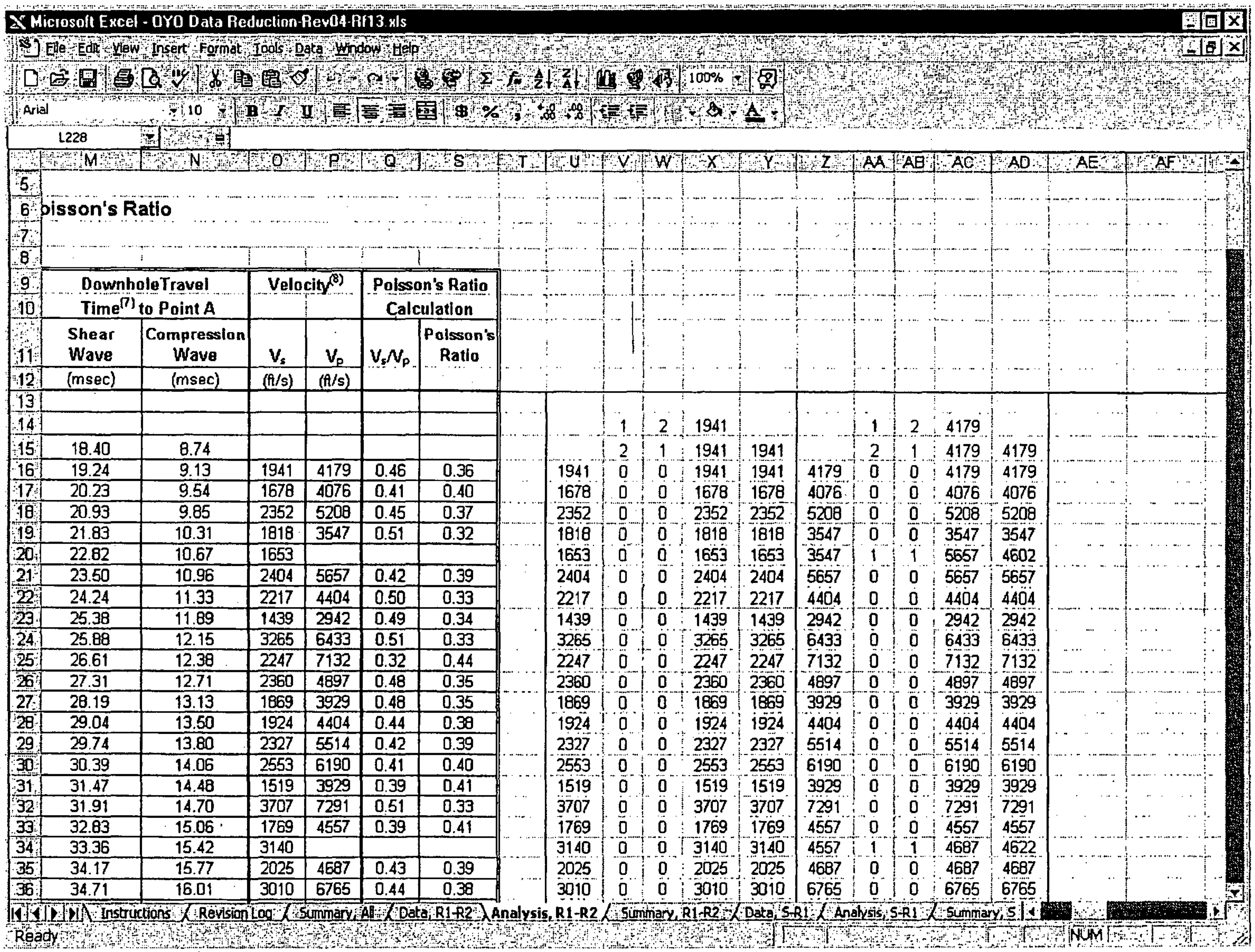
Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

Row	L	M	N	O	P	Q	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
5																			
6	Time, and Poisson's Ratio																		
7	5 RF #13																		
8																			
9		DownholeTravel		Velocity(8)		Poisson's Ratio													
10		Time(7) to Point A				Calculation													
11	Compression Wave	Shear Wave	Compression Wave	V_s	V_p	V_s/V_p	Poisson's Ratio												
12	(msec)	(msec)	(msec)	(ft/s)	(ft/s)														
13		Delete	Delete																
14	4.61	Delete	Delete							1	2	1941			1	2	4179		
15	4.14	Enter Initial Estimate	Enter Initial Estimate							2	1	1941	1941		2	1	4179	4179	
16	4.23	#VALUE!	#VALUE!	1941	4179	0.46	0.36		1941	0	0	1941	1941	4179	0	0	4179	4179	
17	4.12	#VALUE!	#VALUE!	1678	4076	0.41	0.40		1678	0	0	1678	1678	4076	0	0	4076	4076	
18	3.87	#VALUE!	#VALUE!	2352	5208	0.45	0.37		2352	0	0	2352	2352	5208	0	0	5208	5208	
19	4.17	#VALUE!	#VALUE!	1818	3547	0.51	0.32		1818	0	0	1818	1818	3547	0	0	3547	3547	
20	4.20	#VALUE!	#VALUE!	1653	Delete		Delete		1653	0	0	1653	1653	3547	1	1	5657	4602	
21	4.26	#VALUE!	#VALUE!	2404	5657	0.42	0.39		2404	0	0	2404	2404	5657	0	0	5657	5657	
22	4.62	#VALUE!	#VALUE!	2217	4404	0.50	0.33		2217	0	0	2217	2217	4404	0	0	4404	4404	
23	4.29	#VALUE!	#VALUE!	1439	2942	0.49	0.34		1439	0	0	1439	1439	2942	0	0	2942	2942	
24	3.96	#VALUE!	#VALUE!	3265	6433	0.51	0.33		3265	0	0	3265	3265	6433	0	0	6433	6433	
25	4.28	#VALUE!	#VALUE!	2247	7132	0.32	0.44		2247	0	0	2247	2247	7132	0	0	7132	7132	
26	4.40	#VALUE!	#VALUE!	2360	4897	0.48	0.35		2360	0	0	2360	2360	4897	0	0	4897	4897	
27	4.01	#VALUE!	#VALUE!	1869	3929	0.48	0.35		1869	0	0	1869	1869	3929	0	0	3929	3929	
28	4.25	#VALUE!	#VALUE!	1924	4404	0.44	0.38		1924	0	0	1924	1924	4404	0	0	4404	4404	
29	4.38	#VALUE!	#VALUE!	2327	5514	0.42	0.39		2327	0	0	2327	2327	5514	0	0	5514	5514	
30	4.35	#VALUE!	#VALUE!	2553	6190	0.41	0.40		2553	0	0	2553	2553	6190	0	0	6190	6190	
31	4.25	#VALUE!	#VALUE!	1519	3929	0.39	0.41		1519	0	0	1519	1519	3929	0	0	3929	3929	
32	4.74	#VALUE!	#VALUE!	3707	7291	0.51	0.33		3707	0	0	3707	3707	7291	0	0	7291	7291	
33	4.30	#VALUE!	#VALUE!	1769	4557	0.39	0.41		1769	0	0	1769	1769	4557	0	0	4557	4557	
34	4.67	#VALUE!	#VALUE!	3140	Delete		Delete		3140	0	0	3140	3140	4557	1	1	4687	4622	
35	4.46	#VALUE!	#VALUE!	2025	4687	0.43	0.39		2025	0	0	2025	2025	4687	0	0	4687	4687	

Instructions / Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S

Ready NUM

Figure I-6 Analysis worksheet 'Analysis, R1-R2' before manual clean up and entering estimates for downhole travel times – Columns L through AE



Poisson's Ratio (row 6)

Row	M	N	O	P	Q	S	U	V	W	X	Y	Z	AA	AB	AC	AD
9–10	Downhole Travel Time[7] to Point A		Velocity[8]		Poisson's Ratio Calculation											
11	Shear Wave	Compression Wave	V_s	V_p	V_s/V_p	Poisson's Ratio										
12	(msec)	(msec)	(ft/s)	(ft/s)												
13																
14								1	2	1941			1	2	4179	
15	18.40	8.74						2	1	1941	1941		2	1	4179	4179
16	19.24	9.13	1941	4179	0.46	0.36	1941	0	0	1941	1941	4179	0	0	4179	4179
17	20.23	9.54	1678	4076	0.41	0.40	1678	0	0	1678	1678	4076	0	0	4076	4076
18	20.93	9.85	2352	5208	0.45	0.37	2352	0	0	2352	2352	5208	0	0	5208	5208
19	21.83	10.31	1818	3547	0.51	0.32	1818	0	0	1818	1818	3547	0	0	3547	3547
20	22.82	10.67	1653				1653	0	0	1653	1653	3547	1	1	5657	4602
21	23.50	10.96	2404	5657	0.42	0.39	2404	0	0	2404	2404	5657	0	0	5657	5657
22	24.24	11.33	2217	4404	0.50	0.33	2217	0	0	2217	2217	4404	0	0	4404	4404
23	25.38	11.89	1439	2942	0.49	0.34	1439	0	0	1439	1439	2942	0	0	2942	2942
24	25.88	12.15	3265	6433	0.51	0.33	3265	0	0	3265	3265	6433	0	0	6433	6433
25	26.61	12.38	2247	7132	0.32	0.44	2247	0	0	2247	2247	7132	0	0	7132	7132
26	27.31	12.71	2360	4897	0.48	0.35	2360	0	0	2360	2360	4897	0	0	4897	4897
27	28.19	13.13	1869	3929	0.48	0.35	1869	0	0	1869	1869	3929	0	0	3929	3929
28	29.04	13.50	1924	4404	0.44	0.38	1924	0	0	1924	1924	4404	0	0	4404	4404
29	29.74	13.80	2327	5514	0.42	0.39	2327	0	0	2327	2327	5514	0	0	5514	5514
30	30.39	14.06	2553	6190	0.41	0.40	2553	0	0	2553	2553	6190	0	0	6190	6190
31	31.47	14.48	1519	3929	0.39	0.41	1519	0	0	1519	1519	3929	0	0	3929	3929
32	31.91	14.70	3707	7291	0.51	0.33	3707	0	0	3707	3707	7291	0	0	7291	7291
33	32.83	15.06	1769	4557	0.39	0.41	1769	0	0	1769	1769	4557	0	0	4557	4557
34	33.36	15.42	3140				3140	0	0	3140	3140	4557	1	1	4687	4622
35	34.17	15.77	2025	4687	0.43	0.39	2025	0	0	2025	2025	4687	0	0	4687	4687
36	34.71	16.01	3010	6765	0.44	0.38	3010	0	0	3010	3010	6765	0	0	6765	6765

Figure I-7 Analysis worksheet 'R1-R2' after manual clean up and entering the estimates for downhole travel times - Columns L through AF

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

AB224

	A	B	C	D	E	F	G	H	I	J	K	L
5	**Table**											
6	**Compressional Wave Velocity, Shear Wave Velocity, Simulated Downhole Arrival Time, and Poisson's Ra**											
7	**Based on Source-to-Receiver Travel Time Data - Borehole UE-25 RF #13**											
8												
9	**Depth**						**Travel Time(5)**				**Simulated Downhole Travel Time(8) to Point B**	
10			**Midpoint Between Source and Near Receiver**				**To Near Receiver**		**Corrected(7)**			
11	**Source(1)**	**Near Receiver(2)**		**At Point B(3)**	**Midpoint Between Receivers**	**Offset(4)**	**Shear Wave (Normal)(6)**	**Compression Wave**	**Shear Wave (Normal)**	**Compression Wave**	**Shear Wave Normal**	**Compression Wave**
12	(ft)	(ft)	(ft)	(ft)	(ft)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)
13				17.44							Enter Initial Estimate	Enter Initial Estimate
14	21.76	14.76	18.26	19.08	13.12	0.00	6.09	4.34	3.09	1.34	#VALUE!	#VALUE!
15	23.40	16.40	19.90	20.72	14.76	0.00	6.27	4.17	3.27	1.17	#VALUE!	#VALUE!
16	25.04	18.04	21.54	22.36	16.40	0.00	6.25	4.53	3.25	1.53	#VALUE!	#VALUE!
17	26.68	19.68	23.18	24.01	18.04	0.00	6.35	4.43	3.35	1.43	#VALUE!	#VALUE!
18	28.33	21.33	24.83	25.65	19.69	0.00	6.39	4.53	3.39	1.53	#VALUE!	#VALUE!
19	29.97	22.97	26.47	27.29	21.33	0.00	5.69	4.17	2.69	1.17	#VALUE!	#VALUE!
20	31.61	24.61	28.11	28.93	22.97	0.00	5.67	4.20	2.67	1.20	#VALUE!	#VALUE!
21	33.25	26.25	29.75	30.57	24.61	0.00	5.67	4.26	2.67	1.26	#VALUE!	#VALUE!
22	34.89	27.89	31.39	32.21	26.25	0.00	5.81	4.21	2.81	1.21	#VALUE!	#VALUE!
23	36.53	29.53	33.03	33.85	27.89	0.00	5.59	4.15	2.59	1.15	#VALUE!	#VALUE!
24	38.17	31.17	34.67	35.49	29.53	0.00	5.83	4.31	2.83	1.31	#VALUE!	#VALUE!
25	39.81	32.81	36.31	37.13	31.17	0.00	5.34	4.25	2.34	1.25	#VALUE!	#VALUE!
26	41.45	34.45	37.95	38.77	32.81	0.00	5.34	4.28	2.34	1.28	#VALUE!	#VALUE!
27	43.09	36.09	39.59	40.41	34.45	0.00	5.66	4.26	2.66	1.26	#VALUE!	#VALUE!
28	44.73	37.73	41.23	42.05	36.09	0.00	5.84	4.25	2.84	1.25	#VALUE!	#VALUE!
29	46.37	39.37	42.87	43.69	37.73	0.00	5.88	4.29	2.88	1.29	#VALUE!	#VALUE!
30	48.01	41.01	44.51	45.33	39.37	0.00	6.03	4.31	3.03	1.31	#VALUE!	#VALUE!
31	49.65	42.65	46.15	46.97	41.01	0.00	5.71	4.25	2.71	1.25	#VALUE!	#VALUE!
32	51.29	44.29	47.79	48.61	42.65	0.00	6.33	4.62	3.33	1.62	#VALUE!	#VALUE!
33	52.93	45.93	49.43	50.25	44.29	0.00	5.60	4.10	2.60	1.10	#VALUE!	#VALUE!
34	54.57	47.57	51.07	51.89	45.93	0.00	6.35	4.67	3.35	1.67	#VALUE!	#VALUE!
35	56.21	49.21	52.71	53.53	47.57	0.00	5.95	4.37	2.95	1.37	#VALUE!	#VALUE!

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / **Analysis, S-R1** / Summary, S

Ready NUM

Figure I-8 Analysis worksheet 'Analysis, S-R1' before entering the estimates for downhole travel times – Columns A through L

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

L231

Table

Compressional Wave Velocity, Shear Wave Velocity, Simulated Downhole Arrival Time, and Poisson's Ra

Based on Source-to-Receiver Travel Time Data - Borehole UE-25 RF #13

	A	B	C	D	E	F	G	H	I	J	K	L
9	Depth						Travel Time(5)				Simulated Downhole Travel	
10			Midpoint Between		Midpoint		To Near Receiver		Corrected(7)		Time(8) to Point B	
11	Source(1)	Near Receiver(2)	Source and Near Receiver	At Point B(3)	Between Receivers	Offset(4)	Shear Wave (Normal)(6)	Compression Wave	Shear Wave (Normal)	Compression Wave	Shear Wave Normal	Compression Wave
12	(ft)	(ft)	(ft)	(ft)	(ft)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)	(msec)
13				17.44							19.64	9.33
14	21.76	14.76	18.26	19.08	13.12	0.00	6.09	4.34	3.09	1.34	20.36	9.64
15	23.40	16.40	19.90	20.72	14.76	0.00	6.27	4.17	3.27	1.17	21.13	9.92
16	25.04	18.04	21.54	22.36	16.40	0.00	6.25	4.53	3.25	1.53	21.89	10.27
17	26.68	19.68	23.18	24.01	18.04	0.00	6.35	4.43	3.35	1.43	22.68	10.61
18	28.33	21.33	24.83	25.65	19.69	0.00	6.39	4.53	3.39	1.53	23.48	10.97
19	29.97	22.97	26.47	27.29	21.33	0.00	5.69	4.17	2.69	1.17	24.11	11.24
20	31.61	24.61	28.11	28.93	22.97	0.00	5.67	4.20	2.67	1.20	24.73	11.52
21	33.25	26.25	29.75	30.57	24.61	0.00	5.67	4.26	2.67	1.26	25.36	11.82
22	34.89	27.89	31.39	32.21	26.25	0.00	5.81	4.21	2.81	1.21	26.02	12.10
23	36.53	29.53	33.03	33.85	27.89	0.00	5.59	4.15	2.59	1.15	26.62	12.37
24	38.17	31.17	34.67	35.49	29.53	0.00	5.83	4.31	2.83	1.31	27.28	12.67
25	39.81	32.81	36.31	37.13	31.17	0.00	5.34	4.25	2.34	1.25	27.83	12.97
26	41.45	34.45	37.95	38.77	32.81	0.00	5.34	4.28	2.34	1.28	28.38	13.27
27	43.09	36.09	39.59	40.41	34.45	0.00	5.66	4.26	2.66	1.26	29.00	13.56
28	44.73	37.73	41.23	42.05	36.09	0.00	5.84	4.25	2.84	1.25	29.67	13.85
29	46.37	39.37	42.87	43.69	37.73	0.00	5.88	4.29	2.88	1.29	30.34	14.15
30	48.01	41.01	44.51	45.33	39.37	0.00	6.03	4.31	3.03	1.31	31.05	14.46
31	49.65	42.65	46.15	46.97	41.01	0.00	5.71	4.25	2.71	1.25	31.69	14.75
32	51.29	44.29	47.79	48.61	42.65	0.00	6.33	4.62	3.33	1.62	32.47	15.13
33	52.93	45.93	49.43	50.25	44.29	0.00	5.60	4.10	2.60	1.10	33.08	15.39
34	54.57	47.57	51.07	51.89	45.93	0.00	6.35	4.67	3.35	1.67	33.86	15.78
35	56.21	49.21	52.71	53.53	47.57	0.00	5.95	4.37	2.95	1.37	34.55	16.10
36	57.85	50.85	54.35	55.17	49.21	0.00	6.34	4.61	3.34	1.61	35.34	16.45

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / **Analysis, S-R1** / Summary, S

Ready NUM

Figure I-9 Analysis worksheet 'Analysis, S-R1' after entering the estimates for downhole travel times – Columns A through L

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

AF72

Row 6: tio

Row	M: Velocity[9] V_s (ft/s)	N: Velocity[9] V_p (ft/s)	O: Poisson's Ratio Calculation V_s/V_p	Q: Poisson's Ratio Calculation Poisson's Ratio	S: Shear wave	T: Shear wave	U: Shear wave	V: Shear wave	W: Shear wave	X: Compresional wave	Y: Compresional wave	Z: Compresional wave	AA: Compresional wave	AB: Compresional wave
13														
14	2265	5243	0.43	0.39	2265	0	0	2265	2265	5243	0	0	5243	5243
15	2141	6009	0.36	0.43	2141	0	0	2141	2141	6009	0	0	6009	6009
16	2154	4575	0.47	0.36	2154	0	0	2154	2154	4575	0	0	4575	4575
17	2090	4895	0.43	0.39	2090	0	0	2090	2090	4895	0	0	4895	4895
18	2065	4590	0.45	0.37	2065	0	0	2065	2065	4590	0	0	4590	4590
19	2602	6009	0.43	0.38	2602	0	0	2602	2602	6009	0	0	6009	6009
20	2622	5833	0.45	0.37	2622	0	0	2622	2622	5833	0	0	5833	5833
21	2622	5578	0.47	0.36	2622	0	0	2622	2622	5578	0	0	5578	5578
22	2491	5809	0.43	0.39	2491	0	0	2491	2491	5809	0	0	5809	5809
23	2703	6114	0.44	0.38	2703	0	0	2703	2703	6114	0	0	6114	6114
24	2473	5344	0.46	0.36	2473	0	0	2473	2473	5344	0	0	5344	5344
25	2991	5600	0.53	0.30	2991	0	0	2991	2991	5600	0	0	5600	5600
26	2991	5490	0.54	0.29	2991	0	0	2991	2991	5490	0	0	5490	5490
27	2632	5578	0.47	0.36	2632	0	0	2632	2632	5578	0	0	5578	5578
28	2465	5622	0.44	0.38	2465	0	0	2465	2465	5622	0	0	5622	5622
29	2431	5426	0.45	0.37	2431	0	0	2431	2431	5426	0	0	5426	5426
30	2310	5364	0.43	0.39	2310	0	0	2310	2310	5364	0	0	5364	5364
31	2583	5622	0.46	0.37	2583	0	0	2583	2583	5622	0	0	5622	5622
32	2102	4334	0.48	0.35	2102	0	0	2102	2102	4334	0	0	4334	4334
33	2692	6393	0.42	0.39	2692	0	0	2692	2692	6393	0	0	6393	6393
34	2090	4192	0.50	0.33	2090	0	0	2090	2090	4192	0	0	4192	4192
35	2373	5109	0.46	0.36	2373	0	0	2373	2373	5109	0	0	5109	5109
36	2096	4636	0.46	0.37	2096	0	0	2096	2096	4636	0	0	4636	4636

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / **Analysis, S-R1** / Summary, S

Ready NUM

Figure I-10 Analysis worksheet 'Analysis, S-R1' – Columns M through AG

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio
Based on Receiver-to-Receiver Travel Time Data - Borehole UE-25 RF #13

American Units				Metric Units			
Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio	Depth at Midpoint Between Receivers	Velocity		Poisson's Ratio
	V_s	V_p			V_s	V_p	
(ft)	(ft/s)	(ft/s)		(m)	(m/s)	(m/s)	
13.1	-	-	-	4.0	-	-	-
14.8	-	-	-	4.5	-	-	-
16.4	1940	4180	0.36	5.0	590	1270	0.36
18.0	1680	4080	0.40	5.5	510	1240	0.40
19.7	2350	5210	0.37	6.0	720	1590	0.37
21.3	1820	3550	0.32	6.5	550	1080	0.32
23.0	1650	-	-	7.0	500	-	-
24.6	2400	5660	0.39	7.5	730	1720	0.39
26.3	2220	4400	0.33	8.0	680	1340	0.33
27.9	1440	2940	0.34	8.5	440	900	0.34
29.5	3260	6430	0.33	9.0	1000	1960	0.33
31.2	2250	7130	0.44	9.5	680	2170	0.44
32.8	2360	4900	0.35	10.0	720	1490	0.35
34.5	1870	3930	0.35	10.5	570	1200	0.35
36.1	1920	4400	0.38	11.0	590	1340	0.38
37.7	2330	5510	0.39	11.5	710	1680	0.39
39.4	2550	6190	0.40	12.0	780	1890	0.40
41.0	1520	3930	0.41	12.5	460	1200	0.41
42.7	3710	7290	0.33	13.0	1130	2220	0.33
44.3	1770	4560	0.41	13.5	540	1390	0.41
45.9	3140	-	-	14.0	960	-	-
47.6	2030	4690	0.39	14.5	620	1430	0.39
49.2	3010	6760	0.38	15.0	920	2060	0.38
50.9	2560	-	-	15.5	780	-	-
52.5	2730	-	-	16.0	830	-	-
54.1	2870	6630	0.39	16.5	870	2020	0.39
55.8	2320	4030	0.25	17.0	710	1230	0.25

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S

Ready NUM

Figure I-11 Summary worksheet 'Summary, R1-R2'

Table

Summary of Compressional Wave Velocity, Shear Wave Velocity, and Poisson's Ratio

Based on Source-to-Receiver Travel Time Data - Borehole UE-25 RF #13

American Units				Metric Units			
Depth at Midpoint Between Source and Near Receiver	Velocity		Poisson's Ratio	Depth at Midpoint Between Source and Near Receiver	Velocity		Poisson's Ratio
	V_s	V_p			V_s	V_p	
(ft)	(ft/s)	(ft/s)		(m)	(m/s)	(m/s)	
18.3	2270	5240	0.39	5.6	690	1600	0.39
19.9	2140	6010	0.43	6.1	650	1830	0.43
21.5	2150	4560	0.36	6.6	660	1390	0.36
23.2	2090	4900	0.39	7.1	640	1490	0.39
24.8	2060	4590	0.37	7.6	630	1400	0.37
26.5	2600	6010	0.38	8.1	790	1830	0.38
28.1	2620	5830	0.37	8.6	800	1780	0.37
29.8	2620	5580	0.36	9.1	800	1700	0.36
31.4	2490	5810	0.39	9.6	760	1770	0.39
33.0	2700	6110	0.38	10.1	820	1860	0.38
34.7	2470	5340	0.36	10.6	750	1630	0.36
36.3	2990	5600	0.30	11.1	910	1710	0.30
38.0	2990	5490	0.29	11.6	910	1670	0.29
39.6	2630	5580	0.36	12.1	800	1700	0.36
41.2	2460	5620	0.38	12.6	750	1710	0.38
42.9	2430	5430	0.37	13.1	740	1650	0.37
44.5	2310	5360	0.39	13.6	700	1630	0.39
46.2	2580	5620	0.37	14.1	790	1710	0.37
47.8	2100	4330	0.35	14.6	640	1320	0.35
49.4	2690	6390	0.39	15.1	820	1950	0.39
51.1	2090	4190	0.33	15.6	640	1280	0.33
52.7	2370	5110	0.36	16.1	720	1560	0.36
54.4	2100	4640	0.37	16.6	640	1410	0.37
56.0	2640	5580	0.36	17.1	810	1700	0.36
57.6	2280	5020	0.37	17.6	690	1530	0.37
59.3	2680	5930	0.37	18.1	820	1810	0.37

Figure I-12 Summary worksheet 'Summary, S-R1'

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

L7 =

	A	B
5		
6		
7	=CONCATENATE("Based on Receiver-to-Receiver Travel Time	
8		
9		Depth
10		
11	Far Receiver(1)	Near Receiver(2)
12	(ft)	(ft)
13		
14	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
15	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
16	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
17	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
18	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
19	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
20	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
21	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
22	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
23	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
24	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
25	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
26	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
27	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
28	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
29	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
30	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
31	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
32	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
33	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
34	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
35	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2
36	=Depth_MiddleOfReceiverToReceiver-Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2

Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, \

Ready NUM

Figure I-13 Formulas in analysis worksheet 'Analysis, R1-R2'- Columns A through B

Microsoft Excel - OYO Data Reduction-Rev04-R13.xls

	C	D	E	F	
5					
6					
7					
8					
9					
10	Midpoint				
11	Between Receivers	At Point A(3)	Shear Wave (Normal)(5)	Shear Wave (Reverse)(6)	
12	(ft)	(ft)	(msec)	(msec)	
13		=C14-0.5*(C15-C14)			
14	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C15)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
15	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C16)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
16	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C17)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
17	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C18)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
18	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C19)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
19	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C20)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
20	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C21)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
21	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C22)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
22	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C23)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
23	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C24)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
24	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C25)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
25	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C26)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
26	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C27)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
27	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C28)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
28	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C29)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
29	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C30)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
30	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C31)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
31	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C32)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
32	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C33)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
33	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C34)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
34	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C35)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
35	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C36)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=
36	=Depth_MiddleOfReceiverToReceiver	=0.5*(Depth_MiddleOfReceiverToReceiver+C37)	=IF(Far_Hn<0,"",Far_Hn)	=IF(Far_Hr<0,"",Far_Hr)	=

Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, \

Ready NUM

Figure I-14 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns C through F

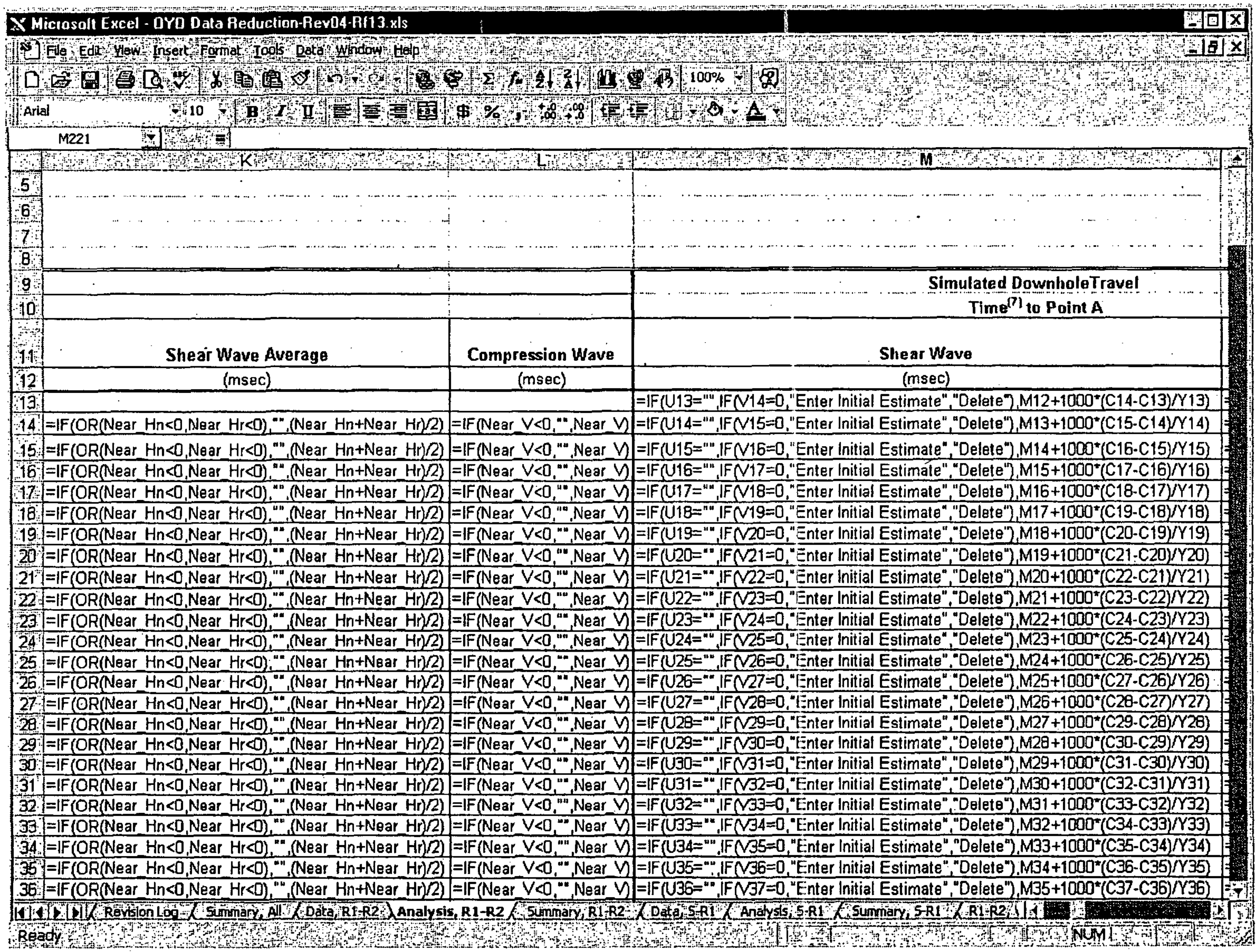
Microsoft Excel - OYO Data Reduction-Rev04-R13.xls

	G	H	I	J
5				
6				
7				
8				
9				
10				
11	**Shear Wave Average**	**Compression Wave**	**Shear Wave (Normal)**	**Shear Wave (Reverse)**
12	(msec)	(msec)	(msec)	(msec)
13				
14	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
15	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
16	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
17	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
18	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
19	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
20	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
21	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
22	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
23	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
24	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
25	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
26	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
27	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
28	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
29	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
30	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
31	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
32	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
33	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
34	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
35	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)
36	=IF(OR(Far_Hn<0,Far_Hr<0),"",(Far_Hn+Far_Hr)/2)	=IF(Far_V<0,"",Far_V)	=IF(Near_Hn<0,"",Near_Hn)	=IF(Near_Hr<0,"",Near_Hr)

Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2

Ready NUM

Figure I-15 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns G through J



Microsoft Excel - OYD Data Reduction-Rev04-Rf13.xls

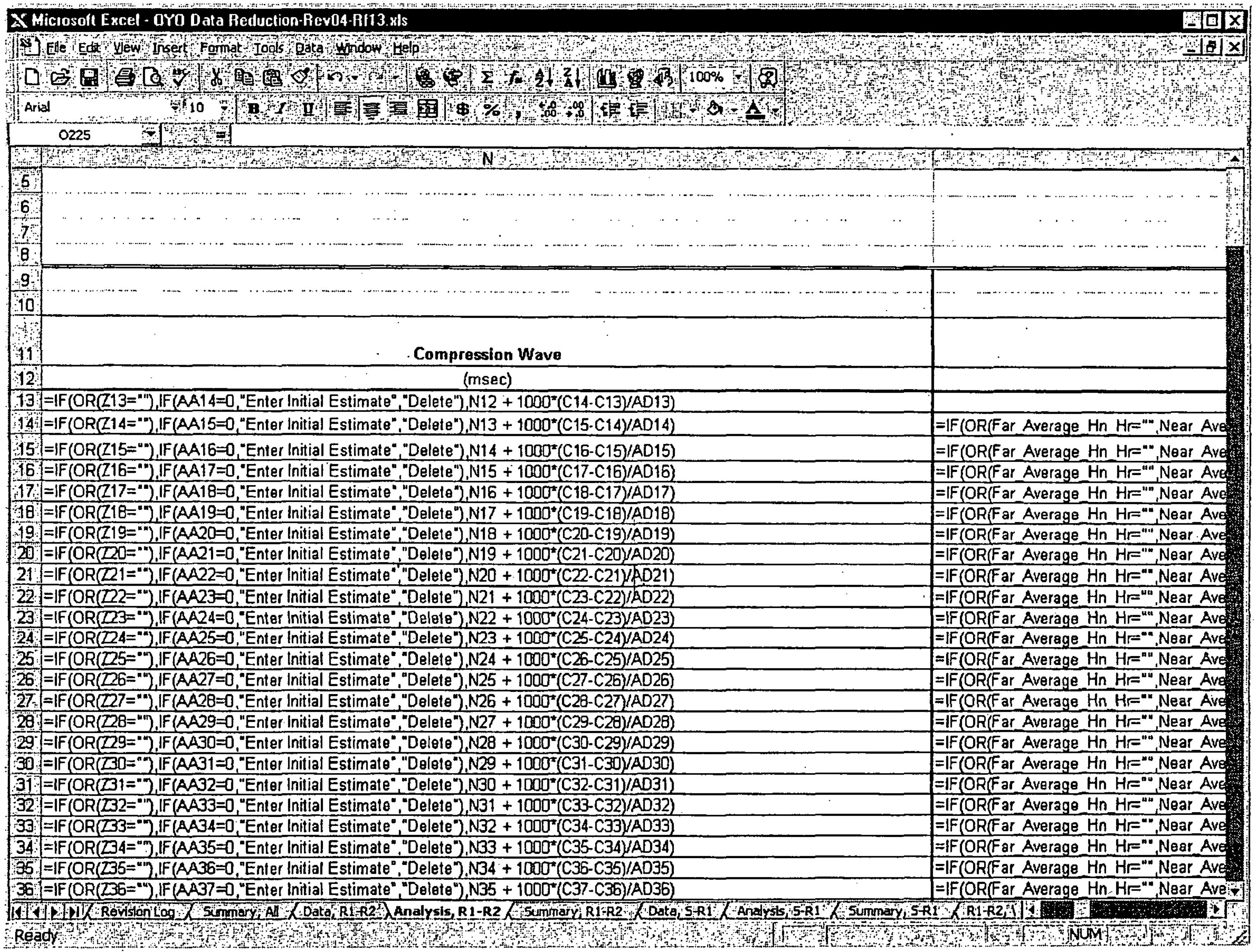
M221

	K	L	M
5			
6			
7			
8			
9			**Simulated DownholeTravel**
10			**Time(7) to Point A**
11	**Shear Wave Average**	**Compression Wave**	**Shear Wave**
12	(msec)	(msec)	(msec)
13			=IF(U13="",IF(V14=0,"Enter Initial Estimate","Delete"),M12+1000*(C14-C13)/Y13)
14	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U14="",IF(V15=0,"Enter Initial Estimate","Delete"),M13+1000*(C15-C14)/Y14)
15	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U15="",IF(V16=0,"Enter Initial Estimate","Delete"),M14+1000*(C16-C15)/Y15)
16	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U16="",IF(V17=0,"Enter Initial Estimate","Delete"),M15+1000*(C17-C16)/Y16)
17	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U17="",IF(V18=0,"Enter Initial Estimate","Delete"),M16+1000*(C18-C17)/Y17)
18	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U18="",IF(V19=0,"Enter Initial Estimate","Delete"),M17+1000*(C19-C18)/Y18)
19	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U19="",IF(V20=0,"Enter Initial Estimate","Delete"),M18+1000*(C20-C19)/Y19)
20	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U20="",IF(V21=0,"Enter Initial Estimate","Delete"),M19+1000*(C21-C20)/Y20)
21	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U21="",IF(V22=0,"Enter Initial Estimate","Delete"),M20+1000*(C22-C21)/Y21)
22	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U22="",IF(V23=0,"Enter Initial Estimate","Delete"),M21+1000*(C23-C22)/Y22)
23	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U23="",IF(V24=0,"Enter Initial Estimate","Delete"),M22+1000*(C24-C23)/Y23)
24	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U24="",IF(V25=0,"Enter Initial Estimate","Delete"),M23+1000*(C25-C24)/Y24)
25	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U25="",IF(V26=0,"Enter Initial Estimate","Delete"),M24+1000*(C26-C25)/Y25)
26	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U26="",IF(V27=0,"Enter Initial Estimate","Delete"),M25+1000*(C27-C26)/Y26)
27	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U27="",IF(V28=0,"Enter Initial Estimate","Delete"),M26+1000*(C28-C27)/Y27)
28	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U28="",IF(V29=0,"Enter Initial Estimate","Delete"),M27+1000*(C29-C28)/Y28)
29	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U29="",IF(V30=0,"Enter Initial Estimate","Delete"),M28+1000*(C30-C29)/Y29)
30	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U30="",IF(V31=0,"Enter Initial Estimate","Delete"),M29+1000*(C31-C30)/Y30)
31	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U31="",IF(V32=0,"Enter Initial Estimate","Delete"),M30+1000*(C32-C31)/Y31)
32	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U32="",IF(V33=0,"Enter Initial Estimate","Delete"),M31+1000*(C33-C32)/Y32)
33	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U33="",IF(V34=0,"Enter Initial Estimate","Delete"),M32+1000*(C34-C33)/Y33)
34	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U34="",IF(V35=0,"Enter Initial Estimate","Delete"),M33+1000*(C35-C34)/Y34)
35	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U35="",IF(V36=0,"Enter Initial Estimate","Delete"),M34+1000*(C36-C35)/Y35)
36	=IF(OR(Near_Hn<0,Near_Hr<0),"",(Near_Hn+Near_Hr)/2)	=IF(Near_V<0,"",Near_V)	=IF(U36="",IF(V37=0,"Enter Initial Estimate","Delete"),M35+1000*(C37-C36)/Y36)

Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, 5-R1 / Analysis, 5-R1 / Summary, 5-R1 / R1-R2

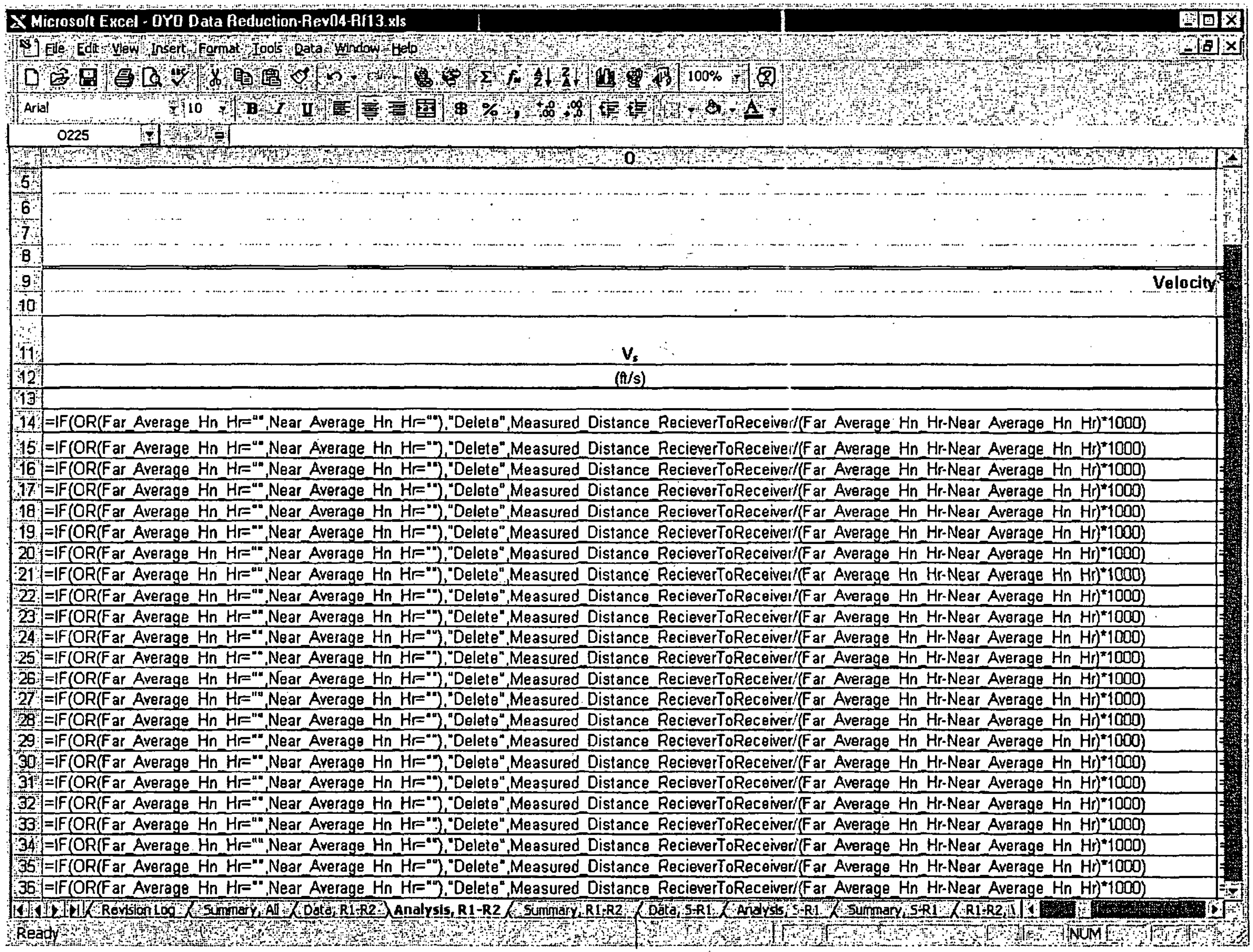
Ready NUM

Figure I-16 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns K through M



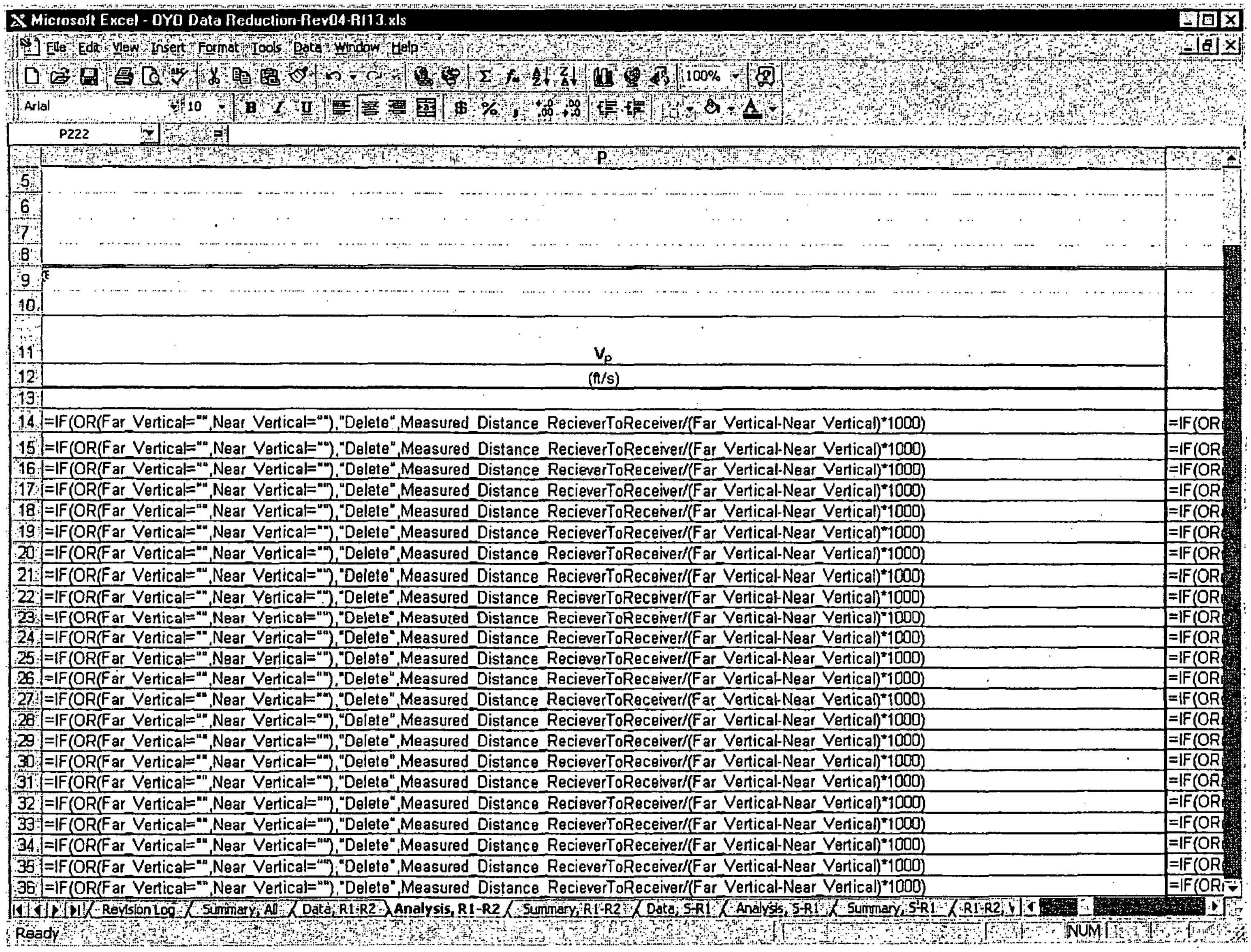
	N	
5		
6		
7		
8		
9		
10		
11	**Compression Wave**	
12	(msec)	
13	=IF(OR(Z13=""),IF(AA14=0,"Enter Initial Estimate","Delete"),N12 + 1000*(C14-C13)/AD13)	
14	=IF(OR(Z14=""),IF(AA15=0,"Enter Initial Estimate","Delete"),N13 + 1000*(C15-C14)/AD14)	=IF(OR(Far Average Hn Hr="",Near Ave
15	=IF(OR(Z15=""),IF(AA16=0,"Enter Initial Estimate","Delete"),N14 + 1000*(C16-C15)/AD15)	=IF(OR(Far Average Hn Hr="",Near Ave
16	=IF(OR(Z16=""),IF(AA17=0,"Enter Initial Estimate","Delete"),N15 + 1000*(C17-C16)/AD16)	=IF(OR(Far Average Hn Hr="",Near Ave
17	=IF(OR(Z17=""),IF(AA18=0,"Enter Initial Estimate","Delete"),N16 + 1000*(C18-C17)/AD17)	=IF(OR(Far Average Hn Hr="",Near Ave
18	=IF(OR(Z18=""),IF(AA19=0,"Enter Initial Estimate","Delete"),N17 + 1000*(C19-C18)/AD18)	=IF(OR(Far Average Hn Hr="",Near Ave
19	=IF(OR(Z19=""),IF(AA20=0,"Enter Initial Estimate","Delete"),N18 + 1000*(C20-C19)/AD19)	=IF(OR(Far Average Hn Hr="",Near Ave
20	=IF(OR(Z20=""),IF(AA21=0,"Enter Initial Estimate","Delete"),N19 + 1000*(C21-C20)/AD20)	=IF(OR(Far Average Hn Hr="",Near Ave
21	=IF(OR(Z21=""),IF(AA22=0,"Enter Initial Estimate","Delete"),N20 + 1000*(C22-C21)/AD21)	=IF(OR(Far Average Hn Hr="",Near Ave
22	=IF(OR(Z22=""),IF(AA23=0,"Enter Initial Estimate","Delete"),N21 + 1000*(C23-C22)/AD22)	=IF(OR(Far Average Hn Hr="",Near Ave
23	=IF(OR(Z23=""),IF(AA24=0,"Enter Initial Estimate","Delete"),N22 + 1000*(C24-C23)/AD23)	=IF(OR(Far Average Hn Hr="",Near Ave
24	=IF(OR(Z24=""),IF(AA25=0,"Enter Initial Estimate","Delete"),N23 + 1000*(C25-C24)/AD24)	=IF(OR(Far Average Hn Hr="",Near Ave
25	=IF(OR(Z25=""),IF(AA26=0,"Enter Initial Estimate","Delete"),N24 + 1000*(C26-C25)/AD25)	=IF(OR(Far Average Hn Hr="",Near Ave
26	=IF(OR(Z26=""),IF(AA27=0,"Enter Initial Estimate","Delete"),N25 + 1000*(C27-C26)/AD26)	=IF(OR(Far Average Hn Hr="",Near Ave
27	=IF(OR(Z27=""),IF(AA28=0,"Enter Initial Estimate","Delete"),N26 + 1000*(C28-C27)/AD27)	=IF(OR(Far Average Hn Hr="",Near Ave
28	=IF(OR(Z28=""),IF(AA29=0,"Enter Initial Estimate","Delete"),N27 + 1000*(C29-C28)/AD28)	=IF(OR(Far Average Hn Hr="",Near Ave
29	=IF(OR(Z29=""),IF(AA30=0,"Enter Initial Estimate","Delete"),N28 + 1000*(C30-C29)/AD29)	=IF(OR(Far Average Hn Hr="",Near Ave
30	=IF(OR(Z30=""),IF(AA31=0,"Enter Initial Estimate","Delete"),N29 + 1000*(C31-C30)/AD30)	=IF(OR(Far Average Hn Hr="",Near Ave
31	=IF(OR(Z31=""),IF(AA32=0,"Enter Initial Estimate","Delete"),N30 + 1000*(C32-C31)/AD31)	=IF(OR(Far Average Hn Hr="",Near Ave
32	=IF(OR(Z32=""),IF(AA33=0,"Enter Initial Estimate","Delete"),N31 + 1000*(C33-C32)/AD32)	=IF(OR(Far Average Hn Hr="",Near Ave
33	=IF(OR(Z33=""),IF(AA34=0,"Enter Initial Estimate","Delete"),N32 + 1000*(C34-C33)/AD33)	=IF(OR(Far Average Hn Hr="",Near Ave
34	=IF(OR(Z34=""),IF(AA35=0,"Enter Initial Estimate","Delete"),N33 + 1000*(C35-C34)/AD34)	=IF(OR(Far Average Hn Hr="",Near Ave
35	=IF(OR(Z35=""),IF(AA36=0,"Enter Initial Estimate","Delete"),N34 + 1000*(C36-C35)/AD35)	=IF(OR(Far Average Hn Hr="",Near Ave
36	=IF(OR(Z36=""),IF(AA37=0,"Enter Initial Estimate","Delete"),N35 + 1000*(C37-C36)/AD36)	=IF(OR(Far Average Hn Hr="",Near Ave

Figure I-17 Formulas in analysis worksheet 'Analysis, R1-R2' – Column N



	O
5	
6	
7	
8	
9	Velocity
10	
11	V_s
12	(ft/s)
13	
14	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
15	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
16	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
17	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
18	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
19	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
20	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
21	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
22	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
23	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
24	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
25	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
26	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
27	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
28	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
29	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
30	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
31	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
32	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
33	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
34	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
35	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)
36	=IF(OR(Far_Average_Hn_Hr="",Near_Average_Hn_Hr=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Average_Hn_Hr-Near_Average_Hn_Hr)*1000)

Figure I-18 Formulas in analysis worksheet 'Analysis, R1-R2' – Column O



Microsoft Excel - OYO Data Reduction-Rev04-R113.xls

File Edit View Insert Format Tools Data Window Help

P222 =

	P	
5		
6		
7		
8		
9		
10		
11	V_p	
12	(ft/s)	
13		
14	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
15	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
16	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
17	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
18	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
19	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
20	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
21	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
22	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
23	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
24	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
25	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
26	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
27	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
28	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
29	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
30	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
31	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
32	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
33	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
34	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
35	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR
36	=IF(OR(Far_Vertical="",Near_Vertical=""),"Delete",Measured_Distance_RecieverToReceiver/(Far_Vertical-Near_Vertical)*1000)	=IF(OR

Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2

Ready NUM

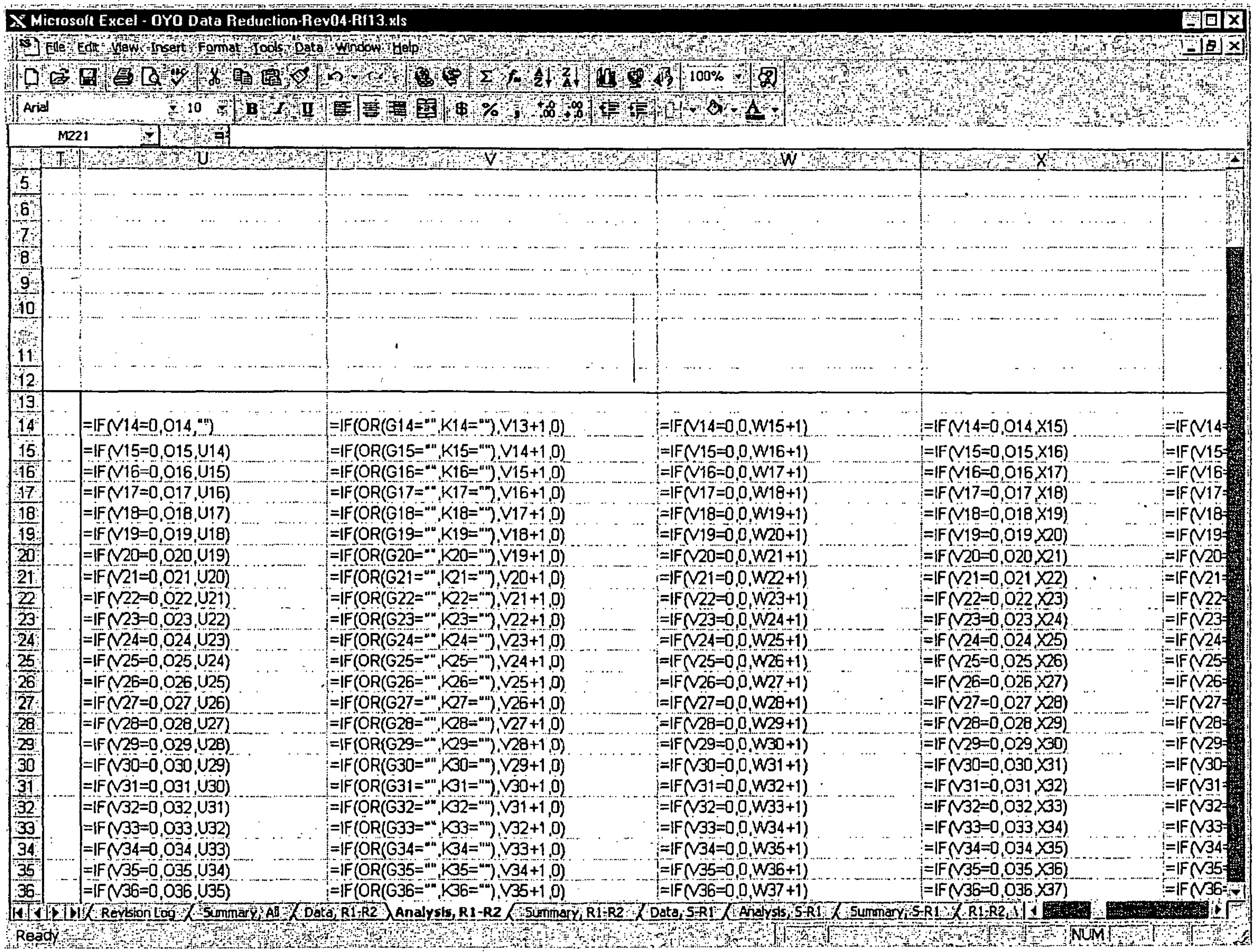
Figure I-19 Formulas in analysis worksheet 'Analysis, R1-R2' – Column P

Microsoft Excel - OYD Data Reduction-Rev04-R113.xls

	Q	R	S
9	Poisson's Ratio		
10	Calculation		
11	V_s/V_p	$(V_s/V_p)^2$	Poisson's Ratio
12			
13			
14	=IF(OR(O14="Delete",P14="Delete",O14="",P14=""),"",O14/P14)	=IF(Q14="","",Q14^2)	=IF(R14="","Delete",(R14-0.5)/(R14-1))
15	=IF(OR(O15="Delete",P15="Delete",O15="",P15=""),"",O15/P15)	=IF(Q15="","",Q15^2)	=IF(R15="","Delete",(R15-0.5)/(R15-1))
16	=IF(OR(O16="Delete",P16="Delete",O16="",P16=""),"",O16/P16)	=IF(Q16="","",Q16^2)	=IF(R16="","Delete",(R16-0.5)/(R16-1))
17	=IF(OR(O17="Delete",P17="Delete",O17="",P17=""),"",O17/P17)	=IF(Q17="","",Q17^2)	=IF(R17="","Delete",(R17-0.5)/(R17-1))
18	=IF(OR(O18="Delete",P18="Delete",O18="",P18=""),"",O18/P18)	=IF(Q18="","",Q18^2)	=IF(R18="","Delete",(R18-0.5)/(R18-1))
19	=IF(OR(O19="Delete",P19="Delete",O19="",P19=""),"",O19/P19)	=IF(Q19="","",Q19^2)	=IF(R19="","Delete",(R19-0.5)/(R19-1))
20	=IF(OR(O20="Delete",P20="Delete",O20="",P20=""),"",O20/P20)	=IF(Q20="","",Q20^2)	=IF(R20="","Delete",(R20-0.5)/(R20-1))
21	=IF(OR(O21="Delete",P21="Delete",O21="",P21=""),"",O21/P21)	=IF(Q21="","",Q21^2)	=IF(R21="","Delete",(R21-0.5)/(R21-1))
22	=IF(OR(O22="Delete",P22="Delete",O22="",P22=""),"",O22/P22)	=IF(Q22="","",Q22^2)	=IF(R22="","Delete",(R22-0.5)/(R22-1))
23	=IF(OR(O23="Delete",P23="Delete",O23="",P23=""),"",O23/P23)	=IF(Q23="","",Q23^2)	=IF(R23="","Delete",(R23-0.5)/(R23-1))
24	=IF(OR(O24="Delete",P24="Delete",O24="",P24=""),"",O24/P24)	=IF(Q24="","",Q24^2)	=IF(R24="","Delete",(R24-0.5)/(R24-1))
25	=IF(OR(O25="Delete",P25="Delete",O25="",P25=""),"",O25/P25)	=IF(Q25="","",Q25^2)	=IF(R25="","Delete",(R25-0.5)/(R25-1))
26	=IF(OR(O26="Delete",P26="Delete",O26="",P26=""),"",O26/P26)	=IF(Q26="","",Q26^2)	=IF(R26="","Delete",(R26-0.5)/(R26-1))
27	=IF(OR(O27="Delete",P27="Delete",O27="",P27=""),"",O27/P27)	=IF(Q27="","",Q27^2)	=IF(R27="","Delete",(R27-0.5)/(R27-1))
28	=IF(OR(O28="Delete",P28="Delete",O28="",P28=""),"",O28/P28)	=IF(Q28="","",Q28^2)	=IF(R28="","Delete",(R28-0.5)/(R28-1))
29	=IF(OR(O29="Delete",P29="Delete",O29="",P29=""),"",O29/P29)	=IF(Q29="","",Q29^2)	=IF(R29="","Delete",(R29-0.5)/(R29-1))
30	=IF(OR(O30="Delete",P30="Delete",O30="",P30=""),"",O30/P30)	=IF(Q30="","",Q30^2)	=IF(R30="","Delete",(R30-0.5)/(R30-1))
31	=IF(OR(O31="Delete",P31="Delete",O31="",P31=""),"",O31/P31)	=IF(Q31="","",Q31^2)	=IF(R31="","Delete",(R31-0.5)/(R31-1))
32	=IF(OR(O32="Delete",P32="Delete",O32="",P32=""),"",O32/P32)	=IF(Q32="","",Q32^2)	=IF(R32="","Delete",(R32-0.5)/(R32-1))
33	=IF(OR(O33="Delete",P33="Delete",O33="",P33=""),"",O33/P33)	=IF(Q33="","",Q33^2)	=IF(R33="","Delete",(R33-0.5)/(R33-1))
34	=IF(OR(O34="Delete",P34="Delete",O34="",P34=""),"",O34/P34)	=IF(Q34="","",Q34^2)	=IF(R34="","Delete",(R34-0.5)/(R34-1))
35	=IF(OR(O35="Delete",P35="Delete",O35="",P35=""),"",O35/P35)	=IF(Q35="","",Q35^2)	=IF(R35="","Delete",(R35-0.5)/(R35-1))
36	=IF(OR(O36="Delete",P36="Delete",O36="",P36=""),"",O36/P36)	=IF(Q36="","",Q36^2)	=IF(R36="","Delete",(R36-0.5)/(R36-1))

Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, ...

Figure I-20 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns Q through S

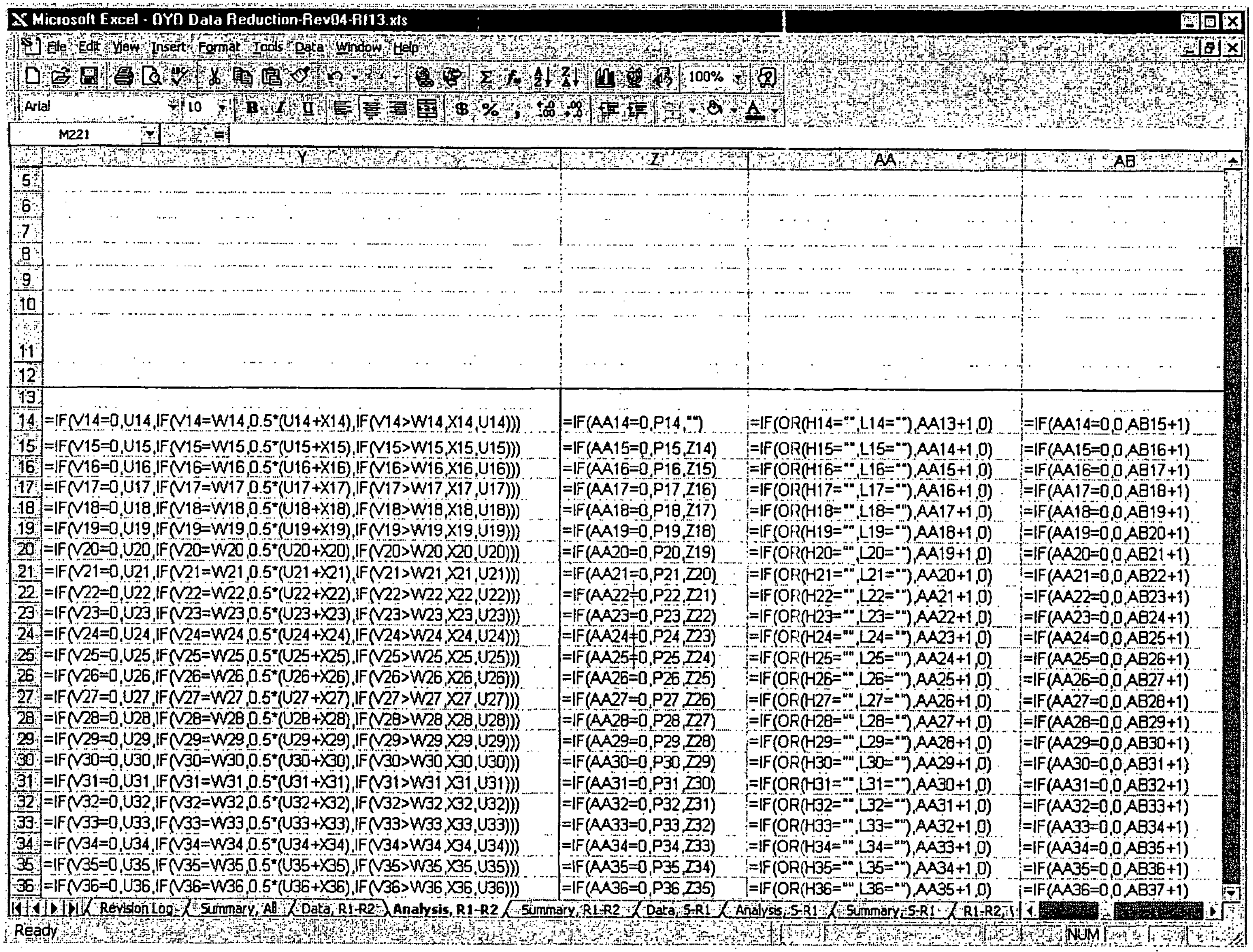


Microsoft Excel - OYO Data Reduction-Rev04-R113.xls

	T	U	V	W	X	
5						
6						
7						
8						
9						
10						
11						
12						
13						
14		=IF(V14=0,O14,"")	=IF(OR(G14="",K14=""),V13+1,0)	=IF(V14=0,0,W15+1)	=IF(V14=0,O14,X15)	=IF(V14=
15		=IF(V15=0,O15,U14)	=IF(OR(G15="",K15=""),V14+1,0)	=IF(V15=0,0,W16+1)	=IF(V15=0,O15,X16)	=IF(V15=
16		=IF(V16=0,O16,U15)	=IF(OR(G16="",K16=""),V15+1,0)	=IF(V16=0,0,W17+1)	=IF(V16=0,O16,X17)	=IF(V16=
17		=IF(V17=0,O17,U16)	=IF(OR(G17="",K17=""),V16+1,0)	=IF(V17=0,0,W18+1)	=IF(V17=0,O17,X18)	=IF(V17=
18		=IF(V18=0,O18,U17)	=IF(OR(G18="",K18=""),V17+1,0)	=IF(V18=0,0,W19+1)	=IF(V18=0,O18,X19)	=IF(V18=
19		=IF(V19=0,O19,U18)	=IF(OR(G19="",K19=""),V18+1,0)	=IF(V19=0,0,W20+1)	=IF(V19=0,O19,X20)	=IF(V19=
20		=IF(V20=0,O20,U19)	=IF(OR(G20="",K20=""),V19+1,0)	=IF(V20=0,0,W21+1)	=IF(V20=0,O20,X21)	=IF(V20=
21		=IF(V21=0,O21,U20)	=IF(OR(G21="",K21=""),V20+1,0)	=IF(V21=0,0,W22+1)	=IF(V21=0,O21,X22)	=IF(V21=
22		=IF(V22=0,O22,U21)	=IF(OR(G22="",K22=""),V21+1,0)	=IF(V22=0,0,W23+1)	=IF(V22=0,O22,X23)	=IF(V22=
23		=IF(V23=0,O23,U22)	=IF(OR(G23="",K23=""),V22+1,0)	=IF(V23=0,0,W24+1)	=IF(V23=0,O23,X24)	=IF(V23=
24		=IF(V24=0,O24,U23)	=IF(OR(G24="",K24=""),V23+1,0)	=IF(V24=0,0,W25+1)	=IF(V24=0,O24,X25)	=IF(V24=
25		=IF(V25=0,O25,U24)	=IF(OR(G25="",K25=""),V24+1,0)	=IF(V25=0,0,W26+1)	=IF(V25=0,O25,X26)	=IF(V25=
26		=IF(V26=0,O26,U25)	=IF(OR(G26="",K26=""),V25+1,0)	=IF(V26=0,0,W27+1)	=IF(V26=0,O26,X27)	=IF(V26=
27		=IF(V27=0,O27,U26)	=IF(OR(G27="",K27=""),V26+1,0)	=IF(V27=0,0,W28+1)	=IF(V27=0,O27,X28)	=IF(V27=
28		=IF(V28=0,O28,U27)	=IF(OR(G28="",K28=""),V27+1,0)	=IF(V28=0,0,W29+1)	=IF(V28=0,O28,X29)	=IF(V28=
29		=IF(V29=0,O29,U28)	=IF(OR(G29="",K29=""),V28+1,0)	=IF(V29=0,0,W30+1)	=IF(V29=0,O29,X30)	=IF(V29=
30		=IF(V30=0,O30,U29)	=IF(OR(G30="",K30=""),V29+1,0)	=IF(V30=0,0,W31+1)	=IF(V30=0,O30,X31)	=IF(V30=
31		=IF(V31=0,O31,U30)	=IF(OR(G31="",K31=""),V30+1,0)	=IF(V31=0,0,W32+1)	=IF(V31=0,O31,X32)	=IF(V31=
32		=IF(V32=0,O32,U31)	=IF(OR(G32="",K32=""),V31+1,0)	=IF(V32=0,0,W33+1)	=IF(V32=0,O32,X33)	=IF(V32=
33		=IF(V33=0,O33,U32)	=IF(OR(G33="",K33=""),V32+1,0)	=IF(V33=0,0,W34+1)	=IF(V33=0,O33,X34)	=IF(V33=
34		=IF(V34=0,O34,U33)	=IF(OR(G34="",K34=""),V33+1,0)	=IF(V34=0,0,W35+1)	=IF(V34=0,O34,X35)	=IF(V34=
35		=IF(V35=0,O35,U34)	=IF(OR(G35="",K35=""),V34+1,0)	=IF(V35=0,0,W36+1)	=IF(V35=0,O35,X36)	=IF(V35=
36		=IF(V36=0,O36,U35)	=IF(OR(G36="",K36=""),V35+1,0)	=IF(V36=0,0,W37+1)	=IF(V36=0,O36,X37)	=IF(V36=

Revision Log / Summary, All / Data, R1-R2 / **Analysis, R1-R2** / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2

Figure I-21 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns T through X

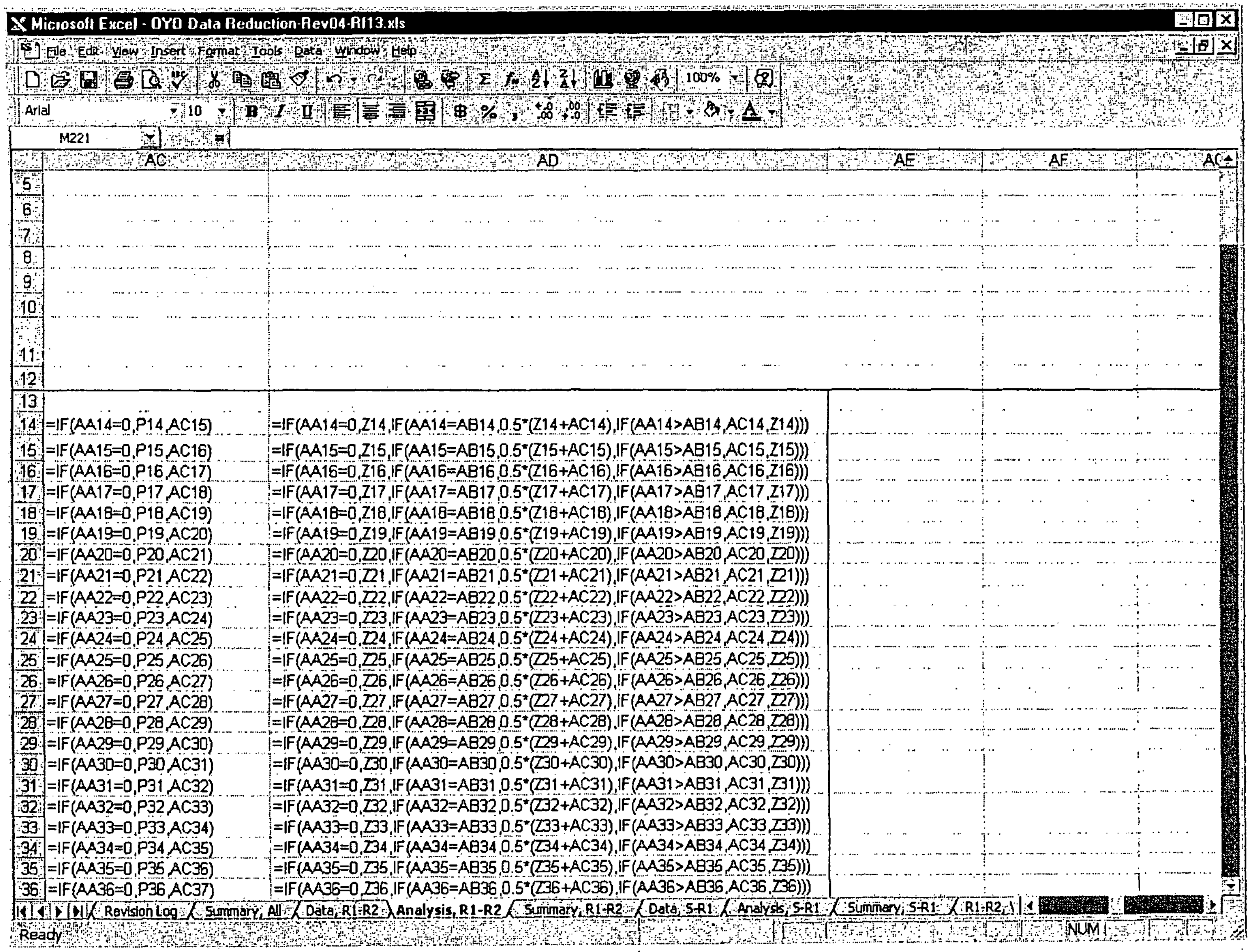


Microsoft Excel - OYO Data Reduction-Rev04-R13.xls

	Y	Z	AA	AB
14	=IF(V14=0,U14,IF(V14=W14,0.5*(U14+X14),IF(V14>W14,X14,U14)))	=IF(AA14=0,P14,"")	=IF(OR(H14="",L14=""),AA13+1,0)	=IF(AA14=0,0,AB15+1)
15	=IF(V15=0,U15,IF(V15=W15,0.5*(U15+X15),IF(V15>W15,X15,U15)))	=IF(AA15=0,P15,Z14)	=IF(OR(H15="",L15=""),AA14+1,0)	=IF(AA15=0,0,AB16+1)
16	=IF(V16=0,U16,IF(V16=W16,0.5*(U16+X16),IF(V16>W16,X16,U16)))	=IF(AA16=0,P16,Z15)	=IF(OR(H16="",L16=""),AA15+1,0)	=IF(AA16=0,0,AB17+1)
17	=IF(V17=0,U17,IF(V17=W17,0.5*(U17+X17),IF(V17>W17,X17,U17)))	=IF(AA17=0,P17,Z16)	=IF(OR(H17="",L17=""),AA16+1,0)	=IF(AA17=0,0,AB18+1)
18	=IF(V18=0,U18,IF(V18=W18,0.5*(U18+X18),IF(V18>W18,X18,U18)))	=IF(AA18=0,P18,Z17)	=IF(OR(H18="",L18=""),AA17+1,0)	=IF(AA18=0,0,AB19+1)
19	=IF(V19=0,U19,IF(V19=W19,0.5*(U19+X19),IF(V19>W19,X19,U19)))	=IF(AA19=0,P19,Z18)	=IF(OR(H19="",L19=""),AA18+1,0)	=IF(AA19=0,0,AB20+1)
20	=IF(V20=0,U20,IF(V20=W20,0.5*(U20+X20),IF(V20>W20,X20,U20)))	=IF(AA20=0,P20,Z19)	=IF(OR(H20="",L20=""),AA19+1,0)	=IF(AA20=0,0,AB21+1)
21	=IF(V21=0,U21,IF(V21=W21,0.5*(U21+X21),IF(V21>W21,X21,U21)))	=IF(AA21=0,P21,Z20)	=IF(OR(H21="",L21=""),AA20+1,0)	=IF(AA21=0,0,AB22+1)
22	=IF(V22=0,U22,IF(V22=W22,0.5*(U22+X22),IF(V22>W22,X22,U22)))	=IF(AA22=0,P22,Z21)	=IF(OR(H22="",L22=""),AA21+1,0)	=IF(AA22=0,0,AB23+1)
23	=IF(V23=0,U23,IF(V23=W23,0.5*(U23+X23),IF(V23>W23,X23,U23)))	=IF(AA23=0,P23,Z22)	=IF(OR(H23="",L23=""),AA22+1,0)	=IF(AA23=0,0,AB24+1)
24	=IF(V24=0,U24,IF(V24=W24,0.5*(U24+X24),IF(V24>W24,X24,U24)))	=IF(AA24=0,P24,Z23)	=IF(OR(H24="",L24=""),AA23+1,0)	=IF(AA24=0,0,AB25+1)
25	=IF(V25=0,U25,IF(V25=W25,0.5*(U25+X25),IF(V25>W25,X25,U25)))	=IF(AA25=0,P25,Z24)	=IF(OR(H25="",L25=""),AA24+1,0)	=IF(AA25=0,0,AB26+1)
26	=IF(V26=0,U26,IF(V26=W26,0.5*(U26+X26),IF(V26>W26,X26,U26)))	=IF(AA26=0,P26,Z25)	=IF(OR(H26="",L26=""),AA25+1,0)	=IF(AA26=0,0,AB27+1)
27	=IF(V27=0,U27,IF(V27=W27,0.5*(U27+X27),IF(V27>W27,X27,U27)))	=IF(AA27=0,P27,Z26)	=IF(OR(H27="",L27=""),AA26+1,0)	=IF(AA27=0,0,AB28+1)
28	=IF(V28=0,U28,IF(V28=W28,0.5*(U28+X28),IF(V28>W28,X28,U28)))	=IF(AA28=0,P28,Z27)	=IF(OR(H28="",L28=""),AA27+1,0)	=IF(AA28=0,0,AB29+1)
29	=IF(V29=0,U29,IF(V29=W29,0.5*(U29+X29),IF(V29>W29,X29,U29)))	=IF(AA29=0,P29,Z28)	=IF(OR(H29="",L29=""),AA28+1,0)	=IF(AA29=0,0,AB30+1)
30	=IF(V30=0,U30,IF(V30=W30,0.5*(U30+X30),IF(V30>W30,X30,U30)))	=IF(AA30=0,P30,Z29)	=IF(OR(H30="",L30=""),AA29+1,0)	=IF(AA30=0,0,AB31+1)
31	=IF(V31=0,U31,IF(V31=W31,0.5*(U31+X31),IF(V31>W31,X31,U31)))	=IF(AA31=0,P31,Z30)	=IF(OR(H31="",L31=""),AA30+1,0)	=IF(AA31=0,0,AB32+1)
32	=IF(V32=0,U32,IF(V32=W32,0.5*(U32+X32),IF(V32>W32,X32,U32)))	=IF(AA32=0,P32,Z31)	=IF(OR(H32="",L32=""),AA31+1,0)	=IF(AA32=0,0,AB33+1)
33	=IF(V33=0,U33,IF(V33=W33,0.5*(U33+X33),IF(V33>W33,X33,U33)))	=IF(AA33=0,P33,Z32)	=IF(OR(H33="",L33=""),AA32+1,0)	=IF(AA33=0,0,AB34+1)
34	=IF(V34=0,U34,IF(V34=W34,0.5*(U34+X34),IF(V34>W34,X34,U34)))	=IF(AA34=0,P34,Z33)	=IF(OR(H34="",L34=""),AA33+1,0)	=IF(AA34=0,0,AB35+1)
35	=IF(V35=0,U35,IF(V35=W35,0.5*(U35+X35),IF(V35>W35,X35,U35)))	=IF(AA35=0,P35,Z34)	=IF(OR(H35="",L35=""),AA34+1,0)	=IF(AA35=0,0,AB36+1)
36	=IF(V36=0,U36,IF(V36=W36,0.5*(U36+X36),IF(V36>W36,X36,U36)))	=IF(AA36=0,P36,Z35)	=IF(OR(H36="",L36=""),AA35+1,0)	=IF(AA36=0,0,AB37+1)

Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2

Figure I-22 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns Y through AB



	AC	AD	AE	AF
5				
6				
7				
8				
9				
10				
11				
12				
13				
14	=IF(AA14=0,P14,AC15)	=IF(AA14=0,Z14,IF(AA14=AB14,0.5*(Z14+AC14),IF(AA14>AB14,AC14,Z14)))		
15	=IF(AA15=0,P15,AC16)	=IF(AA15=0,Z15,IF(AA15=AB15,0.5*(Z15+AC15),IF(AA15>AB15,AC15,Z15)))		
16	=IF(AA16=0,P16,AC17)	=IF(AA16=0,Z16,IF(AA16=AB16,0.5*(Z16+AC16),IF(AA16>AB16,AC16,Z16)))		
17	=IF(AA17=0,P17,AC18)	=IF(AA17=0,Z17,IF(AA17=AB17,0.5*(Z17+AC17),IF(AA17>AB17,AC17,Z17)))		
18	=IF(AA18=0,P18,AC19)	=IF(AA18=0,Z18,IF(AA18=AB18,0.5*(Z18+AC18),IF(AA18>AB18,AC18,Z18)))		
19	=IF(AA19=0,P19,AC20)	=IF(AA19=0,Z19,IF(AA19=AB19,0.5*(Z19+AC19),IF(AA19>AB19,AC19,Z19)))		
20	=IF(AA20=0,P20,AC21)	=IF(AA20=0,Z20,IF(AA20=AB20,0.5*(Z20+AC20),IF(AA20>AB20,AC20,Z20)))		
21	=IF(AA21=0,P21,AC22)	=IF(AA21=0,Z21,IF(AA21=AB21,0.5*(Z21+AC21),IF(AA21>AB21,AC21,Z21)))		
22	=IF(AA22=0,P22,AC23)	=IF(AA22=0,Z22,IF(AA22=AB22,0.5*(Z22+AC22),IF(AA22>AB22,AC22,Z22)))		
23	=IF(AA23=0,P23,AC24)	=IF(AA23=0,Z23,IF(AA23=AB23,0.5*(Z23+AC23),IF(AA23>AB23,AC23,Z23)))		
24	=IF(AA24=0,P24,AC25)	=IF(AA24=0,Z24,IF(AA24=AB24,0.5*(Z24+AC24),IF(AA24>AB24,AC24,Z24)))		
25	=IF(AA25=0,P25,AC26)	=IF(AA25=0,Z25,IF(AA25=AB25,0.5*(Z25+AC25),IF(AA25>AB25,AC25,Z25)))		
26	=IF(AA26=0,P26,AC27)	=IF(AA26=0,Z26,IF(AA26=AB26,0.5*(Z26+AC26),IF(AA26>AB26,AC26,Z26)))		
27	=IF(AA27=0,P27,AC28)	=IF(AA27=0,Z27,IF(AA27=AB27,0.5*(Z27+AC27),IF(AA27>AB27,AC27,Z27)))		
28	=IF(AA28=0,P28,AC29)	=IF(AA28=0,Z28,IF(AA28=AB28,0.5*(Z28+AC28),IF(AA28>AB28,AC28,Z28)))		
29	=IF(AA29=0,P29,AC30)	=IF(AA29=0,Z29,IF(AA29=AB29,0.5*(Z29+AC29),IF(AA29>AB29,AC29,Z29)))		
30	=IF(AA30=0,P30,AC31)	=IF(AA30=0,Z30,IF(AA30=AB30,0.5*(Z30+AC30),IF(AA30>AB30,AC30,Z30)))		
31	=IF(AA31=0,P31,AC32)	=IF(AA31=0,Z31,IF(AA31=AB31,0.5*(Z31+AC31),IF(AA31>AB31,AC31,Z31)))		
32	=IF(AA32=0,P32,AC33)	=IF(AA32=0,Z32,IF(AA32=AB32,0.5*(Z32+AC32),IF(AA32>AB32,AC32,Z32)))		
33	=IF(AA33=0,P33,AC34)	=IF(AA33=0,Z33,IF(AA33=AB33,0.5*(Z33+AC33),IF(AA33>AB33,AC33,Z33)))		
34	=IF(AA34=0,P34,AC35)	=IF(AA34=0,Z34,IF(AA34=AB34,0.5*(Z34+AC34),IF(AA34>AB34,AC34,Z34)))		
35	=IF(AA35=0,P35,AC36)	=IF(AA35=0,Z35,IF(AA35=AB35,0.5*(Z35+AC35),IF(AA35>AB35,AC35,Z35)))		
36	=IF(AA36=0,P36,AC37)	=IF(AA36=0,Z36,IF(AA36=AB36,0.5*(Z36+AC36),IF(AA36>AB36,AC36,Z36)))		

Figure I-23 Formulas in analysis worksheet 'Analysis, R1-R2' – Columns AC through AD

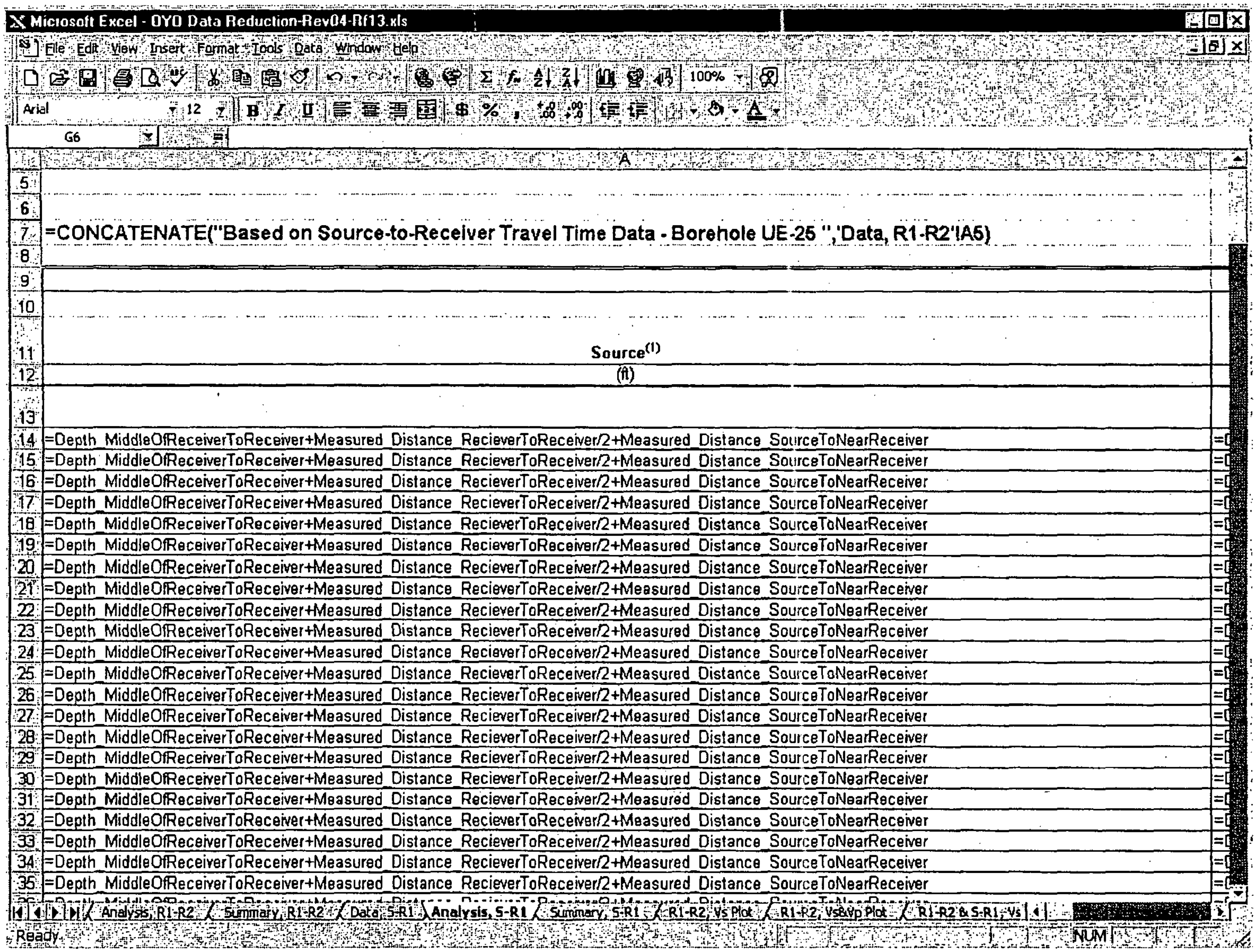


Figure I-24 Formulas in analysis worksheet 'Analysis, S-R1' – Column A

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

	B	
5		
6		
7		
8		
9		
10		
11	**Near Receiver(2)**	
12	(ft)	
13		
14	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
15	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
16	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
17	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
18	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
19	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
20	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
21	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
22	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
23	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
24	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
25	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
26	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
27	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
28	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
29	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
30	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
31	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
32	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
33	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
34	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured
35	=Depth_MiddleOfReceiverToReceiver+Measured_Distance_RecieverToReceiver/2	=Depth_MiddleOfReceiverToReceiver+Measured

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / **Analysis, S-R1** / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-25 Formulas in analysis worksheet 'Analysis, S-R1' – Column B

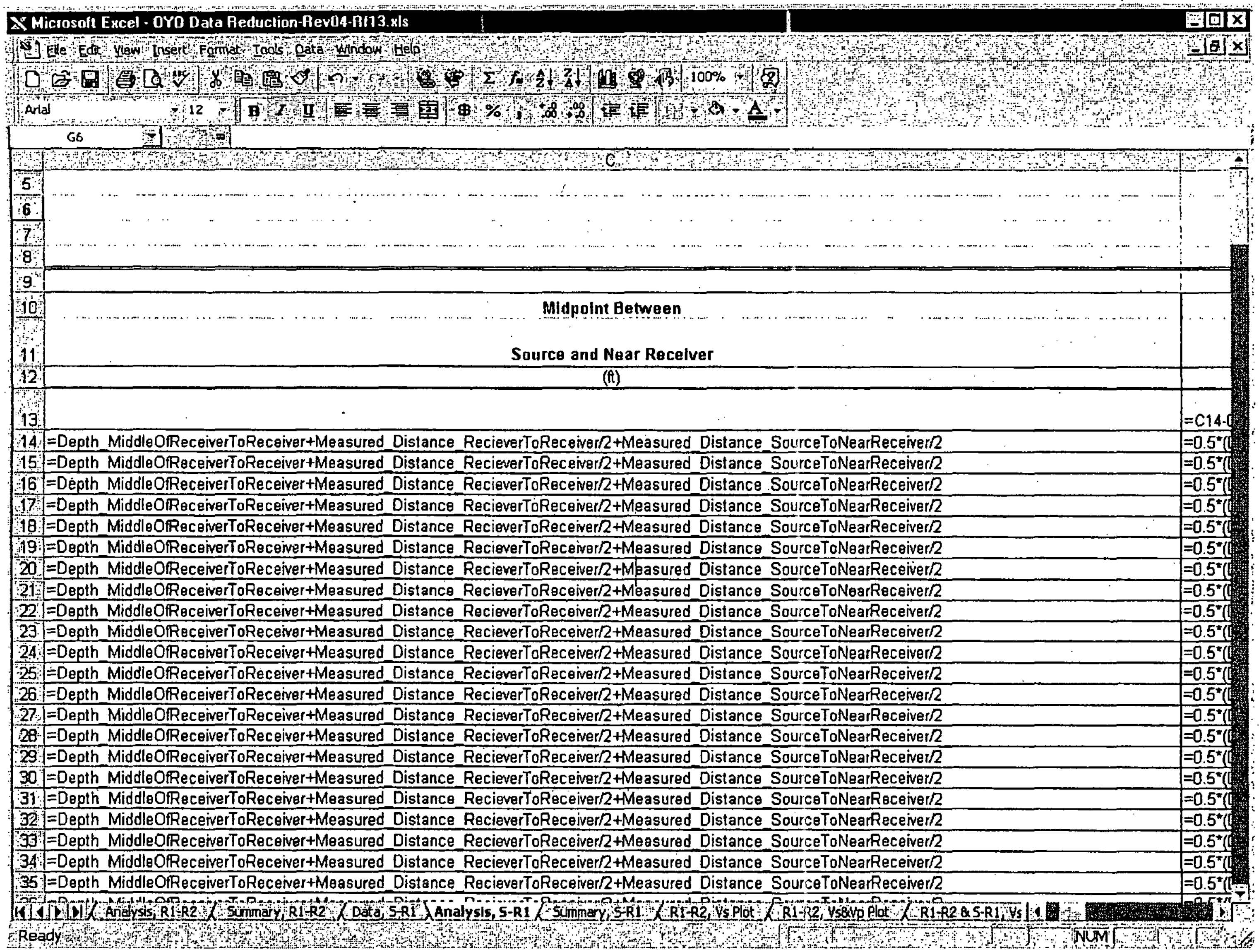
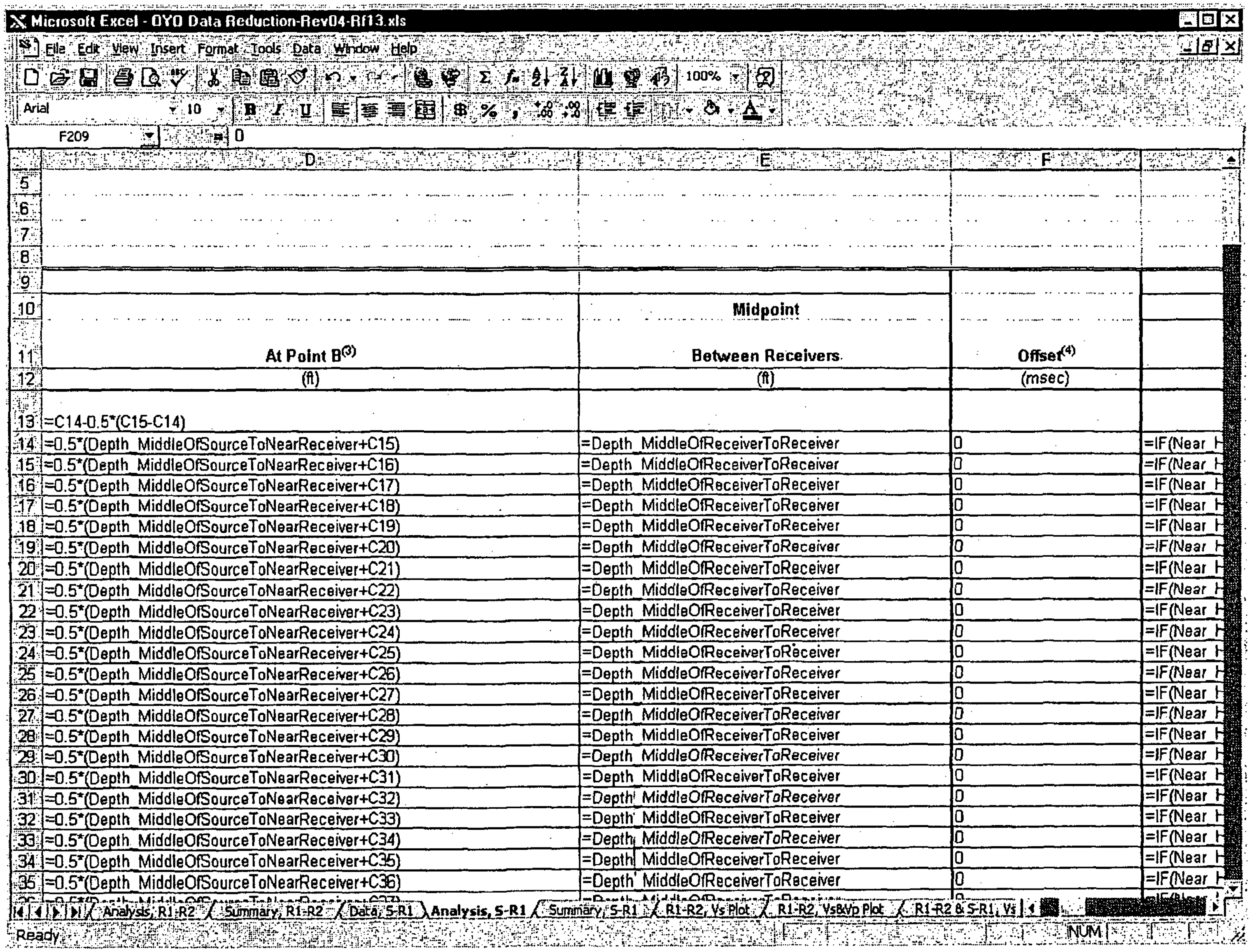


Figure I-26 Formulas in analysis worksheet 'Analysis, S-R1' – Column C


Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

F209 = 0

	D	E	F	
10		Midpoint		
11	At Point B(3)	Between Receivers	Offset(4)	
12	(ft)	(ft)	(msec)	
13	=C14-0.5*(C15-C14)			
14	=0.5*(Depth_MiddleOfSourceToNearReceiver+C15)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
15	=0.5*(Depth_MiddleOfSourceToNearReceiver+C16)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
16	=0.5*(Depth_MiddleOfSourceToNearReceiver+C17)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
17	=0.5*(Depth_MiddleOfSourceToNearReceiver+C18)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
18	=0.5*(Depth_MiddleOfSourceToNearReceiver+C19)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
19	=0.5*(Depth_MiddleOfSourceToNearReceiver+C20)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
20	=0.5*(Depth_MiddleOfSourceToNearReceiver+C21)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
21	=0.5*(Depth_MiddleOfSourceToNearReceiver+C22)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
22	=0.5*(Depth_MiddleOfSourceToNearReceiver+C23)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
23	=0.5*(Depth_MiddleOfSourceToNearReceiver+C24)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
24	=0.5*(Depth_MiddleOfSourceToNearReceiver+C25)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
25	=0.5*(Depth_MiddleOfSourceToNearReceiver+C26)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
26	=0.5*(Depth_MiddleOfSourceToNearReceiver+C27)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
27	=0.5*(Depth_MiddleOfSourceToNearReceiver+C28)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
28	=0.5*(Depth_MiddleOfSourceToNearReceiver+C29)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
29	=0.5*(Depth_MiddleOfSourceToNearReceiver+C30)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
30	=0.5*(Depth_MiddleOfSourceToNearReceiver+C31)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
31	=0.5*(Depth_MiddleOfSourceToNearReceiver+C32)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
32	=0.5*(Depth_MiddleOfSourceToNearReceiver+C33)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
33	=0.5*(Depth_MiddleOfSourceToNearReceiver+C34)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
34	=0.5*(Depth_MiddleOfSourceToNearReceiver+C35)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H
35	=0.5*(Depth_MiddleOfSourceToNearReceiver+C36)	=Depth_MiddleOfReceiverToReceiver	0	=IF(Near_H

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-27 Formulas in analysis worksheet 'Analysis, S-R1' – Columns D through F

Microsoft Excel - OYO Data Reduction-Rev04-R(13.xls

F209 = 0

Row	G	H
5		
6		
7		
8		
9		Travel
10	To Near Receiver	
11	Shear Wave (Normal)[6]	Compression Wave
12	(msec)	(msec)
13		
14	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
15	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
16	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
17	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
18	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
19	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
20	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
21	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
22	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
23	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
24	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
25	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
26	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
27	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
28	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
29	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
30	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
31	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
32	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
33	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
34	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)
35	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver)

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / **Analysis, S-R1** / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-28 Formulas in analysis worksheet 'Analysis, S-R1' – Columns G through H

	I	J
10	Corrected[7]	
11	Shear Wave (Normal)	Compression Wave
12	(msec)	(msec)
13		
14	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
15	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
16	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
17	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
18	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
19	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
20	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
21	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
22	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
23	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
24	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
25	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
26	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
27	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
28	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
29	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
30	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
31	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
32	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
33	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
34	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)
35	=IF(Near_Hn_SourceToReceiver<0,"",Near_Hn_SourceToReceiver+Offset-Delay)	=IF(Near_V_SourceToReceiver<0,"",Near_V_SourceToReceiver+Offset-Delay)

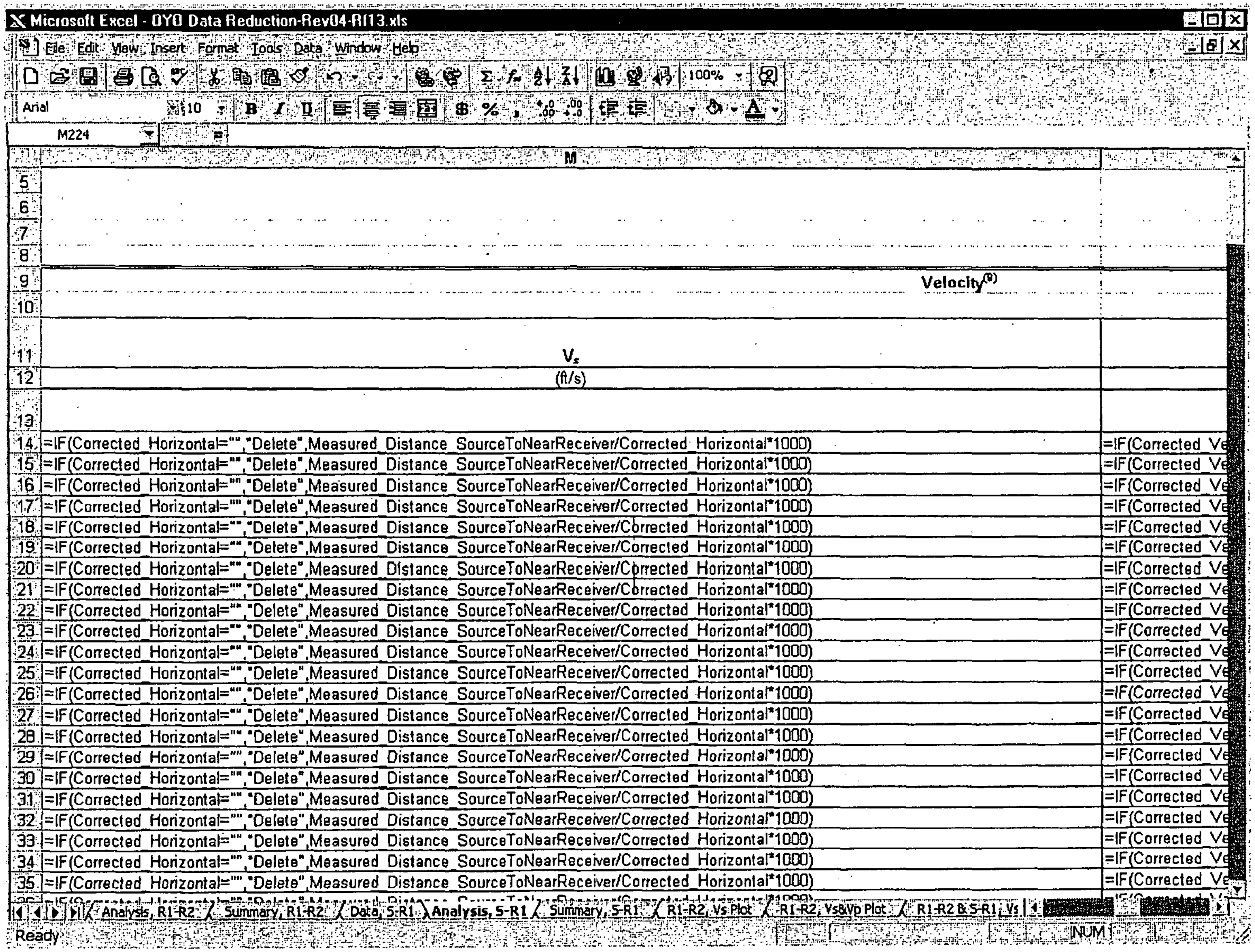
Figure I-29 Formulas in analysis worksheet 'Analysis, S-R1' – Columns I through J

Microsoft Excel - DYO Data Reduction-Rev04-R13.xls

	K	L
9	Simulated Downhole Travel	
10	Time[8] to Point B	
11	Shear Wave Normal	Compression Wave
12	(msec)	(msec)
13	=IF(S13="",IF(T14=0,"Enter Initial Estimate","Delete"),K12+1000*(C14-C13)/W13)	=IF(X13="",IF(Y14=0,"Enter Initial Estimate","Delete"),L12+1000*(C14-C13)/AB13)
14	=IF(S14="",IF(T15=0,"Enter Initial Estimate","Delete"),K13+1000*(C15-C14)/W14)	=IF(X14="",IF(Y15=0,"Enter Initial Estimate","Delete"),L13+1000*(C15-C14)/AB14)
15	=IF(S15="",IF(T16=0,"Enter Initial Estimate","Delete"),K14+1000*(C16-C15)/W15)	=IF(X15="",IF(Y16=0,"Enter Initial Estimate","Delete"),L14+1000*(C16-C15)/AB15)
16	=IF(S16="",IF(T17=0,"Enter Initial Estimate","Delete"),K15+1000*(C17-C16)/W16)	=IF(X16="",IF(Y17=0,"Enter Initial Estimate","Delete"),L15+1000*(C17-C16)/AB16)
17	=IF(S17="",IF(T18=0,"Enter Initial Estimate","Delete"),K16+1000*(C18-C17)/W17)	=IF(X17="",IF(Y18=0,"Enter Initial Estimate","Delete"),L16+1000*(C18-C17)/AB17)
18	=IF(S18="",IF(T19=0,"Enter Initial Estimate","Delete"),K17+1000*(C19-C18)/W18)	=IF(X18="",IF(Y19=0,"Enter Initial Estimate","Delete"),L17+1000*(C19-C18)/AB18)
19	=IF(S19="",IF(T20=0,"Enter Initial Estimate","Delete"),K18+1000*(C20-C19)/W19)	=IF(X19="",IF(Y20=0,"Enter Initial Estimate","Delete"),L18+1000*(C20-C19)/AB19)
20	=IF(S20="",IF(T21=0,"Enter Initial Estimate","Delete"),K19+1000*(C21-C20)/W20)	=IF(X20="",IF(Y21=0,"Enter Initial Estimate","Delete"),L19+1000*(C21-C20)/AB20)
21	=IF(S21="",IF(T22=0,"Enter Initial Estimate","Delete"),K20+1000*(C22-C21)/W21)	=IF(X21="",IF(Y22=0,"Enter Initial Estimate","Delete"),L20+1000*(C22-C21)/AB21)
22	=IF(S22="",IF(T23=0,"Enter Initial Estimate","Delete"),K21+1000*(C23-C22)/W22)	=IF(X22="",IF(Y23=0,"Enter Initial Estimate","Delete"),L21+1000*(C23-C22)/AB22)
23	=IF(S23="",IF(T24=0,"Enter Initial Estimate","Delete"),K22+1000*(C24-C23)/W23)	=IF(X23="",IF(Y24=0,"Enter Initial Estimate","Delete"),L22+1000*(C24-C23)/AB23)
24	=IF(S24="",IF(T25=0,"Enter Initial Estimate","Delete"),K23+1000*(C25-C24)/W24)	=IF(X24="",IF(Y25=0,"Enter Initial Estimate","Delete"),L23+1000*(C25-C24)/AB24)
25	=IF(S25="",IF(T26=0,"Enter Initial Estimate","Delete"),K24+1000*(C26-C25)/W25)	=IF(X25="",IF(Y26=0,"Enter Initial Estimate","Delete"),L24+1000*(C26-C25)/AB25)
26	=IF(S26="",IF(T27=0,"Enter Initial Estimate","Delete"),K25+1000*(C27-C26)/W26)	=IF(X26="",IF(Y27=0,"Enter Initial Estimate","Delete"),L25+1000*(C27-C26)/AB26)
27	=IF(S27="",IF(T28=0,"Enter Initial Estimate","Delete"),K26+1000*(C28-C27)/W27)	=IF(X27="",IF(Y28=0,"Enter Initial Estimate","Delete"),L26+1000*(C28-C27)/AB27)
28	=IF(S28="",IF(T29=0,"Enter Initial Estimate","Delete"),K27+1000*(C29-C28)/W28)	=IF(X28="",IF(Y29=0,"Enter Initial Estimate","Delete"),L27+1000*(C29-C28)/AB28)
29	=IF(S29="",IF(T30=0,"Enter Initial Estimate","Delete"),K28+1000*(C30-C29)/W29)	=IF(X29="",IF(Y30=0,"Enter Initial Estimate","Delete"),L28+1000*(C30-C29)/AB29)
30	=IF(S30="",IF(T31=0,"Enter Initial Estimate","Delete"),K29+1000*(C31-C30)/W30)	=IF(X30="",IF(Y31=0,"Enter Initial Estimate","Delete"),L29+1000*(C31-C30)/AB30)
31	=IF(S31="",IF(T32=0,"Enter Initial Estimate","Delete"),K30+1000*(C32-C31)/W31)	=IF(X31="",IF(Y32=0,"Enter Initial Estimate","Delete"),L30+1000*(C32-C31)/AB31)
32	=IF(S32="",IF(T33=0,"Enter Initial Estimate","Delete"),K31+1000*(C33-C32)/W32)	=IF(X32="",IF(Y33=0,"Enter Initial Estimate","Delete"),L31+1000*(C33-C32)/AB32)
33	=IF(S33="",IF(T34=0,"Enter Initial Estimate","Delete"),K32+1000*(C34-C33)/W33)	=IF(X33="",IF(Y34=0,"Enter Initial Estimate","Delete"),L32+1000*(C34-C33)/AB33)
34	=IF(S34="",IF(T35=0,"Enter Initial Estimate","Delete"),K33+1000*(C35-C34)/W34)	=IF(X34="",IF(Y35=0,"Enter Initial Estimate","Delete"),L33+1000*(C35-C34)/AB34)
35	=IF(S35="",IF(T36=0,"Enter Initial Estimate","Delete"),K34+1000*(C36-C35)/W35)	=IF(X35="",IF(Y36=0,"Enter Initial Estimate","Delete"),L34+1000*(C36-C35)/AB35)

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Figure I-30 Formulas in analysis worksheet 'Analysis, S-R1' – Columns K through L



Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

M224 =

	M	
5		
6		
7		
8		
9	Velocity(9)	
10		
11	V_s	
12	(ft/s)	
13		
14	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
15	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
16	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
17	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
18	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
19	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
20	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
21	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
22	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
23	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
24	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
25	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
26	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
27	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
28	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
29	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
30	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
31	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
32	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
33	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
34	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve
35	=IF(Corrected_Horizontal="","Delete",Measured_Distance_SourceToNearReceiver/Corrected_Horizontal*1000)	=IF(Corrected_Ve

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-31 Formulas in analysis worksheet 'Analysis, S-R1' – Column M

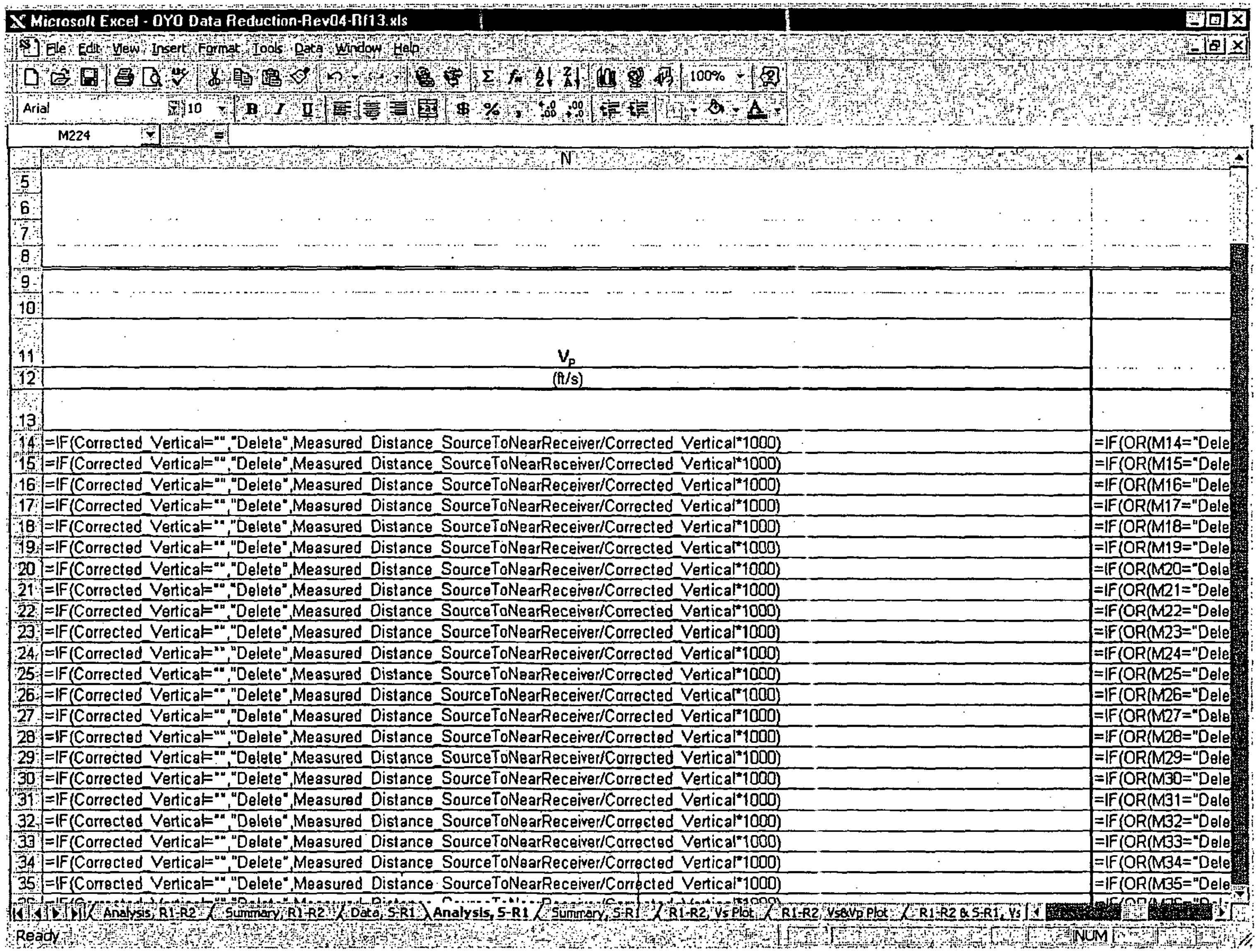
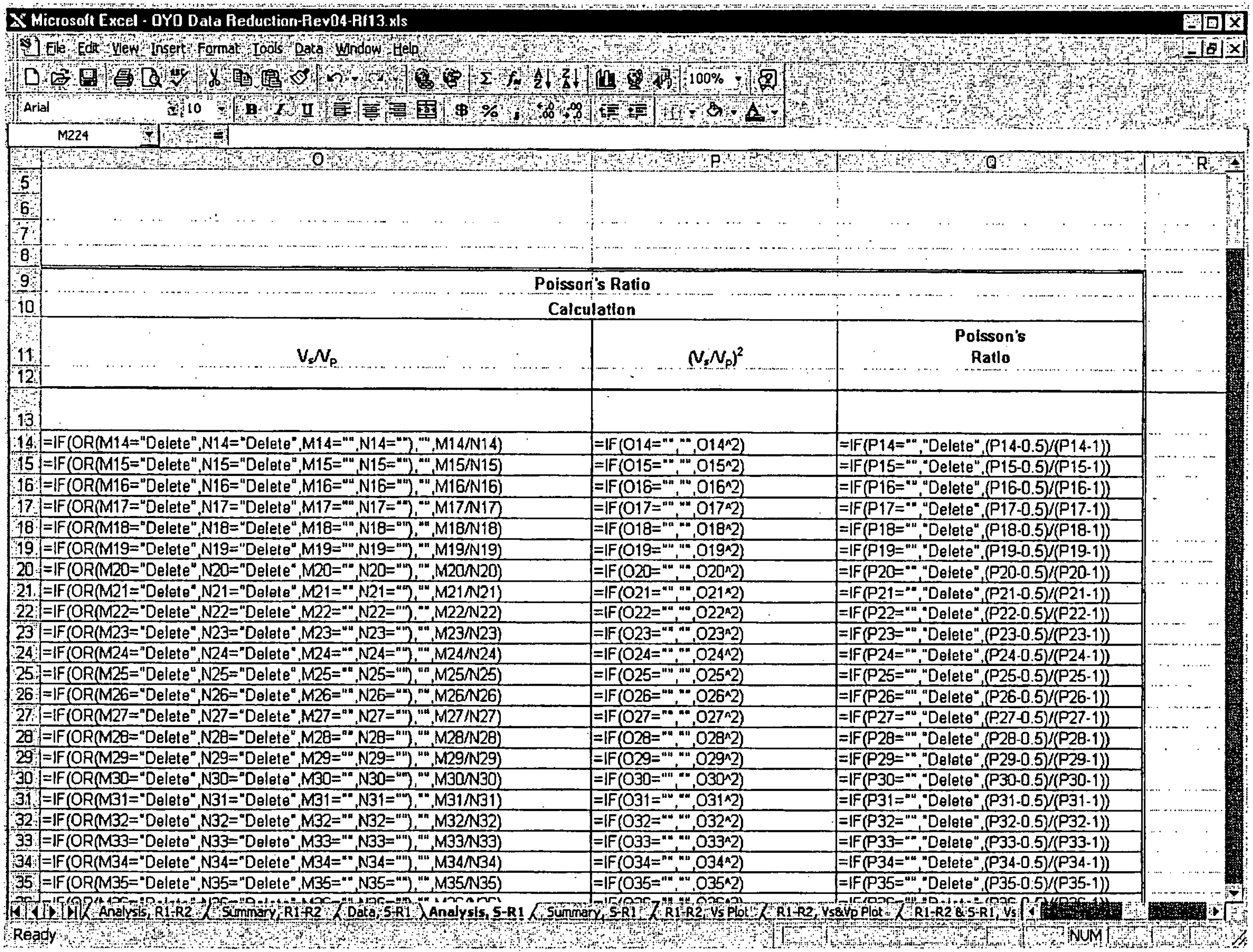
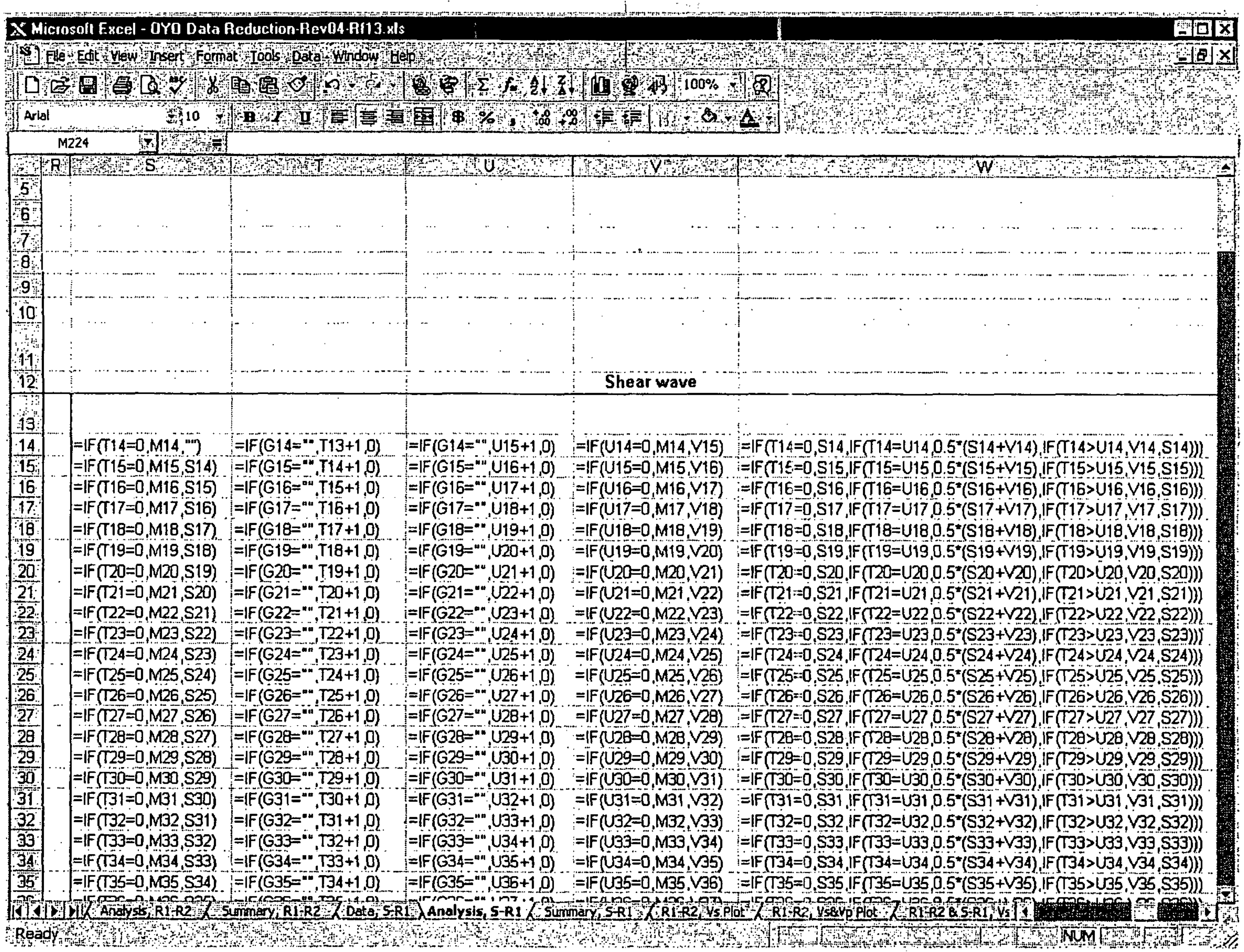


Figure I-32 Formulas in analysis worksheet 'Analysis, S-R1' – Column N



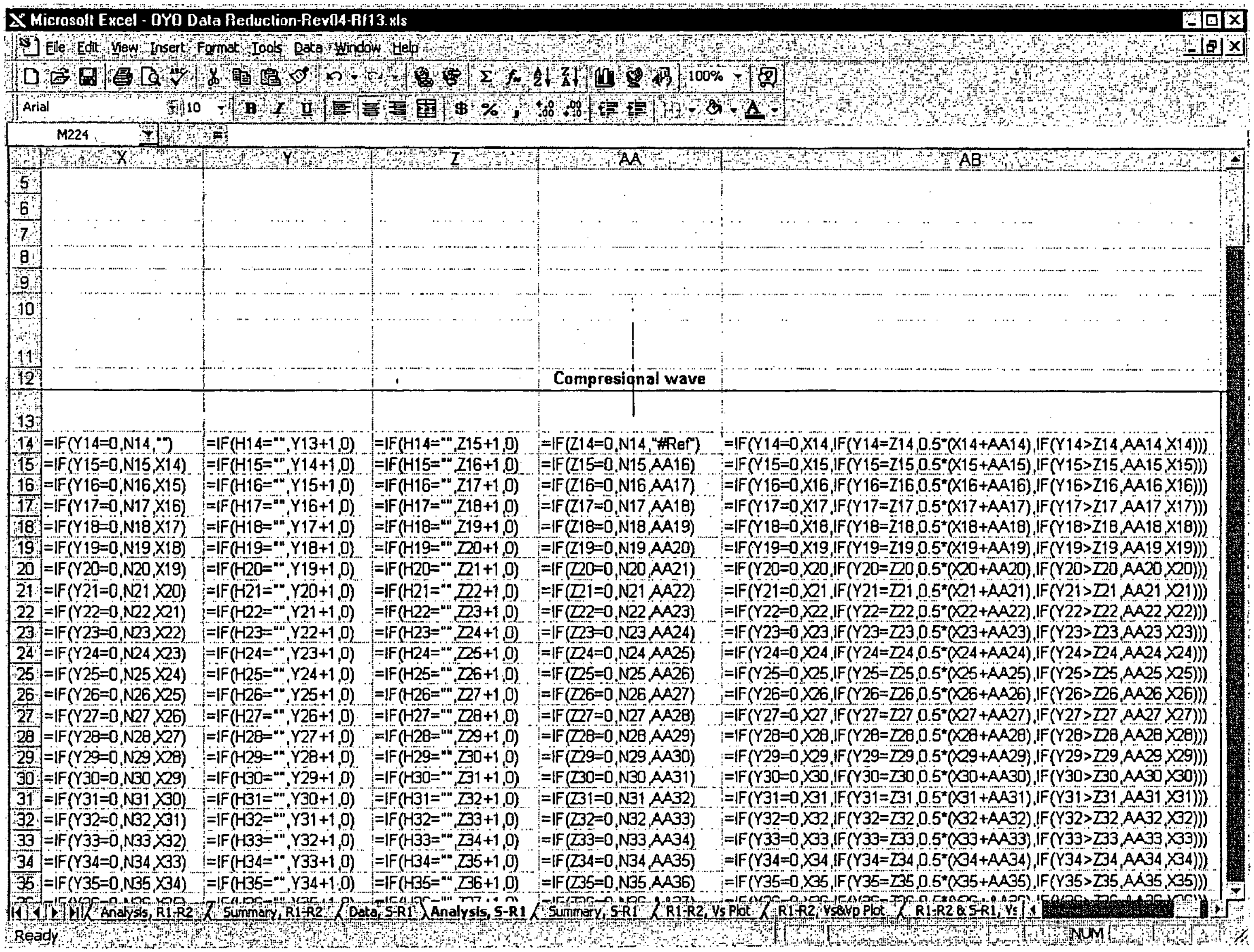
	O	P	Q
9	Poisson's Ratio		
10	Calculation		
11	V_s/V_p	$(V_s/V_p)^2$	Poisson's Ratio
14	=IF(OR(M14="Delete",N14="Delete",M14="",N14=""),"",M14/N14)	=IF(O14="","",O14^2)	=IF(P14="","Delete",(P14-0.5)/(P14-1))
15	=IF(OR(M15="Delete",N15="Delete",M15="",N15=""),"",M15/N15)	=IF(O15="","",O15^2)	=IF(P15="","Delete",(P15-0.5)/(P15-1))
16	=IF(OR(M16="Delete",N16="Delete",M16="",N16=""),"",M16/N16)	=IF(O16="","",O16^2)	=IF(P16="","Delete",(P16-0.5)/(P16-1))
17	=IF(OR(M17="Delete",N17="Delete",M17="",N17=""),"",M17/N17)	=IF(O17="","",O17^2)	=IF(P17="","Delete",(P17-0.5)/(P17-1))
18	=IF(OR(M18="Delete",N18="Delete",M18="",N18=""),"",M18/N18)	=IF(O18="","",O18^2)	=IF(P18="","Delete",(P18-0.5)/(P18-1))
19	=IF(OR(M19="Delete",N19="Delete",M19="",N19=""),"",M19/N19)	=IF(O19="","",O19^2)	=IF(P19="","Delete",(P19-0.5)/(P19-1))
20	=IF(OR(M20="Delete",N20="Delete",M20="",N20=""),"",M20/N20)	=IF(O20="","",O20^2)	=IF(P20="","Delete",(P20-0.5)/(P20-1))
21	=IF(OR(M21="Delete",N21="Delete",M21="",N21=""),"",M21/N21)	=IF(O21="","",O21^2)	=IF(P21="","Delete",(P21-0.5)/(P21-1))
22	=IF(OR(M22="Delete",N22="Delete",M22="",N22=""),"",M22/N22)	=IF(O22="","",O22^2)	=IF(P22="","Delete",(P22-0.5)/(P22-1))
23	=IF(OR(M23="Delete",N23="Delete",M23="",N23=""),"",M23/N23)	=IF(O23="","",O23^2)	=IF(P23="","Delete",(P23-0.5)/(P23-1))
24	=IF(OR(M24="Delete",N24="Delete",M24="",N24=""),"",M24/N24)	=IF(O24="","",O24^2)	=IF(P24="","Delete",(P24-0.5)/(P24-1))
25	=IF(OR(M25="Delete",N25="Delete",M25="",N25=""),"",M25/N25)	=IF(O25="","",O25^2)	=IF(P25="","Delete",(P25-0.5)/(P25-1))
26	=IF(OR(M26="Delete",N26="Delete",M26="",N26=""),"",M26/N26)	=IF(O26="","",O26^2)	=IF(P26="","Delete",(P26-0.5)/(P26-1))
27	=IF(OR(M27="Delete",N27="Delete",M27="",N27=""),"",M27/N27)	=IF(O27="","",O27^2)	=IF(P27="","Delete",(P27-0.5)/(P27-1))
28	=IF(OR(M28="Delete",N28="Delete",M28="",N28=""),"",M28/N28)	=IF(O28="","",O28^2)	=IF(P28="","Delete",(P28-0.5)/(P28-1))
29	=IF(OR(M29="Delete",N29="Delete",M29="",N29=""),"",M29/N29)	=IF(O29="","",O29^2)	=IF(P29="","Delete",(P29-0.5)/(P29-1))
30	=IF(OR(M30="Delete",N30="Delete",M30="",N30=""),"",M30/N30)	=IF(O30="","",O30^2)	=IF(P30="","Delete",(P30-0.5)/(P30-1))
31	=IF(OR(M31="Delete",N31="Delete",M31="",N31=""),"",M31/N31)	=IF(O31="","",O31^2)	=IF(P31="","Delete",(P31-0.5)/(P31-1))
32	=IF(OR(M32="Delete",N32="Delete",M32="",N32=""),"",M32/N32)	=IF(O32="","",O32^2)	=IF(P32="","Delete",(P32-0.5)/(P32-1))
33	=IF(OR(M33="Delete",N33="Delete",M33="",N33=""),"",M33/N33)	=IF(O33="","",O33^2)	=IF(P33="","Delete",(P33-0.5)/(P33-1))
34	=IF(OR(M34="Delete",N34="Delete",M34="",N34=""),"",M34/N34)	=IF(O34="","",O34^2)	=IF(P34="","Delete",(P34-0.5)/(P34-1))
35	=IF(OR(M35="Delete",N35="Delete",M35="",N35=""),"",M35/N35)	=IF(O35="","",O35^2)	=IF(P35="","Delete",(P35-0.5)/(P35-1))

Figure I-33 Formulas in analysis worksheet 'Analysis, S-R1' – Columns O through R



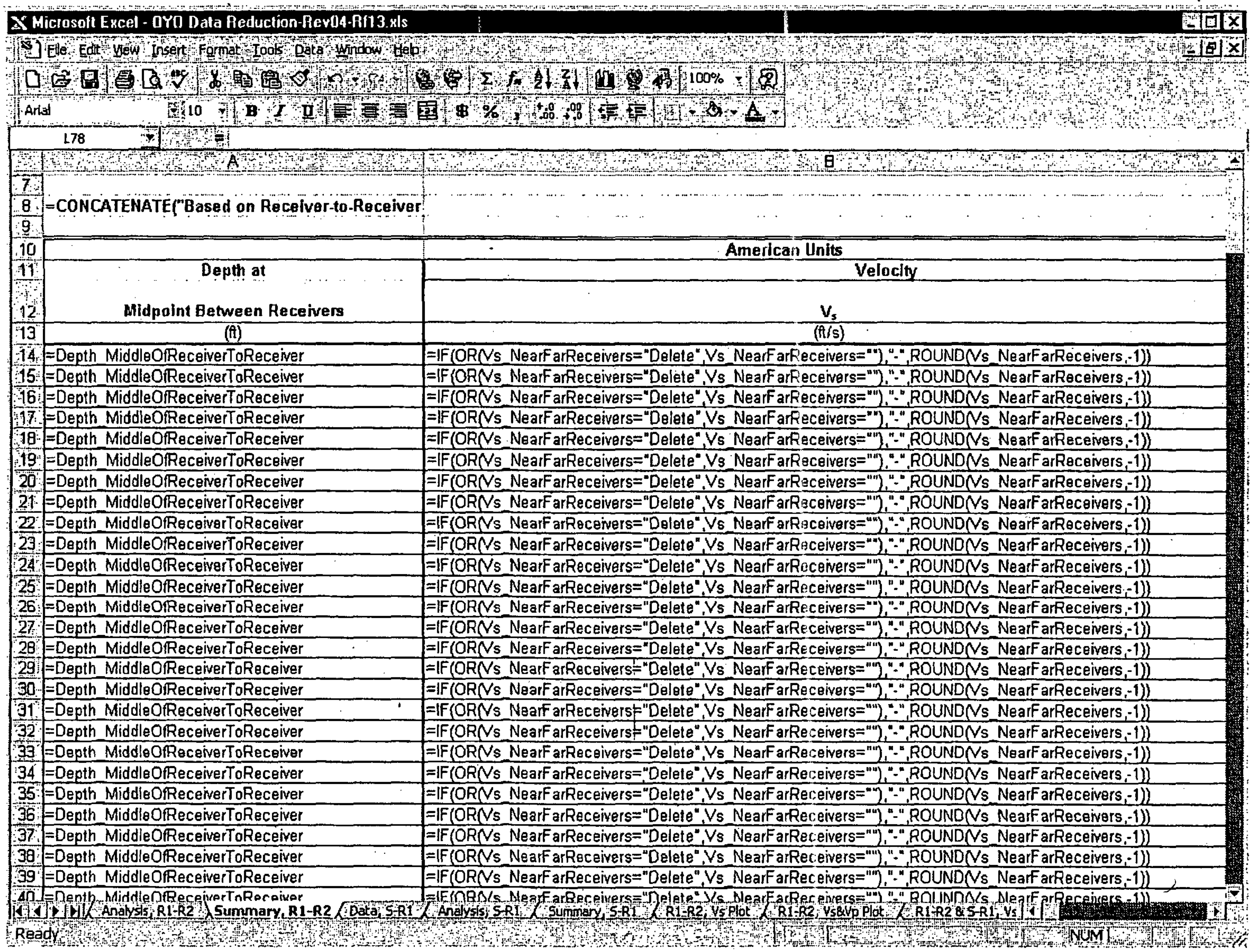
	R	S	T	U	V	W
12					Shear wave	
14		=IF(T14=0,M14,"")	=IF(G14="",T13+1,0)	=IF(G14="",U15+1,0)	=IF(U14=0,M14,V15)	=IF(T14=0,S14,IF(T14=U14,0.5*(S14+V14),IF(T14>U14,V14,S14)))
15		=IF(T15=0,M15,S14)	=IF(G15="",T14+1,0)	=IF(G15="",U16+1,0)	=IF(U15=0,M15,V16)	=IF(T15=0,S15,IF(T15=U15,0.5*(S15+V15),IF(T15>U15,V15,S15)))
16		=IF(T16=0,M16,S15)	=IF(G16="",T15+1,0)	=IF(G16="",U17+1,0)	=IF(U16=0,M16,V17)	=IF(T16=0,S16,IF(T16=U16,0.5*(S16+V16),IF(T16>U16,V16,S16)))
17		=IF(T17=0,M17,S16)	=IF(G17="",T16+1,0)	=IF(G17="",U18+1,0)	=IF(U17=0,M17,V18)	=IF(T17=0,S17,IF(T17=U17,0.5*(S17+V17),IF(T17>U17,V17,S17)))
18		=IF(T18=0,M18,S17)	=IF(G18="",T17+1,0)	=IF(G18="",U19+1,0)	=IF(U18=0,M18,V19)	=IF(T18=0,S18,IF(T18=U18,0.5*(S18+V18),IF(T18>U18,V18,S18)))
19		=IF(T19=0,M19,S18)	=IF(G19="",T18+1,0)	=IF(G19="",U20+1,0)	=IF(U19=0,M19,V20)	=IF(T19=0,S19,IF(T19=U19,0.5*(S19+V19),IF(T19>U19,V19,S19)))
20		=IF(T20=0,M20,S19)	=IF(G20="",T19+1,0)	=IF(G20="",U21+1,0)	=IF(U20=0,M20,V21)	=IF(T20=0,S20,IF(T20=U20,0.5*(S20+V20),IF(T20>U20,V20,S20)))
21		=IF(T21=0,M21,S20)	=IF(G21="",T20+1,0)	=IF(G21="",U22+1,0)	=IF(U21=0,M21,V22)	=IF(T21=0,S21,IF(T21=U21,0.5*(S21+V21),IF(T21>U21,V21,S21)))
22		=IF(T22=0,M22,S21)	=IF(G22="",T21+1,0)	=IF(G22="",U23+1,0)	=IF(U22=0,M22,V23)	=IF(T22=0,S22,IF(T22=U22,0.5*(S22+V22),IF(T22>U22,V22,S22)))
23		=IF(T23=0,M23,S22)	=IF(G23="",T22+1,0)	=IF(G23="",U24+1,0)	=IF(U23=0,M23,V24)	=IF(T23=0,S23,IF(T23=U23,0.5*(S23+V23),IF(T23>U23,V23,S23)))
24		=IF(T24=0,M24,S23)	=IF(G24="",T23+1,0)	=IF(G24="",U25+1,0)	=IF(U24=0,M24,V25)	=IF(T24=0,S24,IF(T24=U24,0.5*(S24+V24),IF(T24>U24,V24,S24)))
25		=IF(T25=0,M25,S24)	=IF(G25="",T24+1,0)	=IF(G25="",U26+1,0)	=IF(U25=0,M25,V26)	=IF(T25=0,S25,IF(T25=U25,0.5*(S25+V25),IF(T25>U25,V25,S25)))
26		=IF(T26=0,M26,S25)	=IF(G26="",T25+1,0)	=IF(G26="",U27+1,0)	=IF(U26=0,M26,V27)	=IF(T26=0,S26,IF(T26=U26,0.5*(S26+V26),IF(T26>U26,V26,S26)))
27		=IF(T27=0,M27,S26)	=IF(G27="",T26+1,0)	=IF(G27="",U28+1,0)	=IF(U27=0,M27,V28)	=IF(T27=0,S27,IF(T27=U27,0.5*(S27+V27),IF(T27>U27,V27,S27)))
28		=IF(T28=0,M28,S27)	=IF(G28="",T27+1,0)	=IF(G28="",U29+1,0)	=IF(U28=0,M28,V29)	=IF(T28=0,S28,IF(T28=U28,0.5*(S28+V28),IF(T28>U28,V28,S28)))
29		=IF(T29=0,M29,S28)	=IF(G29="",T28+1,0)	=IF(G29="",U30+1,0)	=IF(U29=0,M29,V30)	=IF(T29=0,S29,IF(T29=U29,0.5*(S29+V29),IF(T29>U29,V29,S29)))
30		=IF(T30=0,M30,S29)	=IF(G30="",T29+1,0)	=IF(G30="",U31+1,0)	=IF(U30=0,M30,V31)	=IF(T30=0,S30,IF(T30=U30,0.5*(S30+V30),IF(T30>U30,V30,S30)))
31		=IF(T31=0,M31,S30)	=IF(G31="",T30+1,0)	=IF(G31="",U32+1,0)	=IF(U31=0,M31,V32)	=IF(T31=0,S31,IF(T31=U31,0.5*(S31+V31),IF(T31>U31,V31,S31)))
32		=IF(T32=0,M32,S31)	=IF(G32="",T31+1,0)	=IF(G32="",U33+1,0)	=IF(U32=0,M32,V33)	=IF(T32=0,S32,IF(T32=U32,0.5*(S32+V32),IF(T32>U32,V32,S32)))
33		=IF(T33=0,M33,S32)	=IF(G33="",T32+1,0)	=IF(G33="",U34+1,0)	=IF(U33=0,M33,V34)	=IF(T33=0,S33,IF(T33=U33,0.5*(S33+V33),IF(T33>U33,V33,S33)))
34		=IF(T34=0,M34,S33)	=IF(G34="",T33+1,0)	=IF(G34="",U35+1,0)	=IF(U34=0,M34,V35)	=IF(T34=0,S34,IF(T34=U34,0.5*(S34+V34),IF(T34>U34,V34,S34)))
35		=IF(T35=0,M35,S34)	=IF(G35="",T34+1,0)	=IF(G35="",U36+1,0)	=IF(U35=0,M35,V36)	=IF(T35=0,S35,IF(T35=U35,0.5*(S35+V35),IF(T35>U35,V35,S35)))

Figure I-34 Formulas in analysis worksheet 'Analysis, S-R1' – Columns R through W



	X	Y	Z	AA	AB
5					
6					
7					
8					
9					
10					
11					
12				**Compresional wave**	
13					
14	=IF(Y14=0,N14,"")	=IF(H14="",Y13+1,0)	=IF(H14="",Z15+1,0)	=IF(Z14=0,N14,"#Ref")	=IF(Y14=0,X14,IF(Y14=Z14,0.5*(X14+AA14),IF(Y14>Z14,AA14,X14)))
15	=IF(Y15=0,N15,X14)	=IF(H15="",Y14+1,0)	=IF(H15="",Z16+1,0)	=IF(Z15=0,N15,AA16)	=IF(Y15=0,X15,IF(Y15=Z15,0.5*(X15+AA15),IF(Y15>Z15,AA15,X15)))
16	=IF(Y16=0,N16,X15)	=IF(H16="",Y15+1,0)	=IF(H16="",Z17+1,0)	=IF(Z16=0,N16,AA17)	=IF(Y16=0,X16,IF(Y16=Z16,0.5*(X16+AA16),IF(Y16>Z16,AA16,X16)))
17	=IF(Y17=0,N17,X16)	=IF(H17="",Y16+1,0)	=IF(H17="",Z18+1,0)	=IF(Z17=0,N17,AA18)	=IF(Y17=0,X17,IF(Y17=Z17,0.5*(X17+AA17),IF(Y17>Z17,AA17,X17)))
18	=IF(Y18=0,N18,X17)	=IF(H18="",Y17+1,0)	=IF(H18="",Z19+1,0)	=IF(Z18=0,N18,AA19)	=IF(Y18=0,X18,IF(Y18=Z18,0.5*(X18+AA18),IF(Y18>Z18,AA18,X18)))
19	=IF(Y19=0,N19,X18)	=IF(H19="",Y18+1,0)	=IF(H19="",Z20+1,0)	=IF(Z19=0,N19,AA20)	=IF(Y19=0,X19,IF(Y19=Z19,0.5*(X19+AA19),IF(Y19>Z19,AA19,X19)))
20	=IF(Y20=0,N20,X19)	=IF(H20="",Y19+1,0)	=IF(H20="",Z21+1,0)	=IF(Z20=0,N20,AA21)	=IF(Y20=0,X20,IF(Y20=Z20,0.5*(X20+AA20),IF(Y20>Z20,AA20,X20)))
21	=IF(Y21=0,N21,X20)	=IF(H21="",Y20+1,0)	=IF(H21="",Z22+1,0)	=IF(Z21=0,N21,AA22)	=IF(Y21=0,X21,IF(Y21=Z21,0.5*(X21+AA21),IF(Y21>Z21,AA21,X21)))
22	=IF(Y22=0,N22,X21)	=IF(H22="",Y21+1,0)	=IF(H22="",Z23+1,0)	=IF(Z22=0,N22,AA23)	=IF(Y22=0,X22,IF(Y22=Z22,0.5*(X22+AA22),IF(Y22>Z22,AA22,X22)))
23	=IF(Y23=0,N23,X22)	=IF(H23="",Y22+1,0)	=IF(H23="",Z24+1,0)	=IF(Z23=0,N23,AA24)	=IF(Y23=0,X23,IF(Y23=Z23,0.5*(X23+AA23),IF(Y23>Z23,AA23,X23)))
24	=IF(Y24=0,N24,X23)	=IF(H24="",Y23+1,0)	=IF(H24="",Z25+1,0)	=IF(Z24=0,N24,AA25)	=IF(Y24=0,X24,IF(Y24=Z24,0.5*(X24+AA24),IF(Y24>Z24,AA24,X24)))
25	=IF(Y25=0,N25,X24)	=IF(H25="",Y24+1,0)	=IF(H25="",Z26+1,0)	=IF(Z25=0,N25,AA26)	=IF(Y25=0,X25,IF(Y25=Z25,0.5*(X25+AA25),IF(Y25>Z25,AA25,X25)))
26	=IF(Y26=0,N26,X25)	=IF(H26="",Y25+1,0)	=IF(H26="",Z27+1,0)	=IF(Z26=0,N26,AA27)	=IF(Y26=0,X26,IF(Y26=Z26,0.5*(X26+AA26),IF(Y26>Z26,AA26,X26)))
27	=IF(Y27=0,N27,X26)	=IF(H27="",Y26+1,0)	=IF(H27="",Z28+1,0)	=IF(Z27=0,N27,AA28)	=IF(Y27=0,X27,IF(Y27=Z27,0.5*(X27+AA27),IF(Y27>Z27,AA27,X27)))
28	=IF(Y28=0,N28,X27)	=IF(H28="",Y27+1,0)	=IF(H28="",Z29+1,0)	=IF(Z28=0,N28,AA29)	=IF(Y28=0,X28,IF(Y28=Z28,0.5*(X28+AA28),IF(Y28>Z28,AA28,X28)))
29	=IF(Y29=0,N29,X28)	=IF(H29="",Y28+1,0)	=IF(H29="",Z30+1,0)	=IF(Z29=0,N29,AA30)	=IF(Y29=0,X29,IF(Y29=Z29,0.5*(X29+AA29),IF(Y29>Z29,AA29,X29)))
30	=IF(Y30=0,N30,X29)	=IF(H30="",Y29+1,0)	=IF(H30="",Z31+1,0)	=IF(Z30=0,N30,AA31)	=IF(Y30=0,X30,IF(Y30=Z30,0.5*(X30+AA30),IF(Y30>Z30,AA30,X30)))
31	=IF(Y31=0,N31,X30)	=IF(H31="",Y30+1,0)	=IF(H31="",Z32+1,0)	=IF(Z31=0,N31,AA32)	=IF(Y31=0,X31,IF(Y31=Z31,0.5*(X31+AA31),IF(Y31>Z31,AA31,X31)))
32	=IF(Y32=0,N32,X31)	=IF(H32="",Y31+1,0)	=IF(H32="",Z33+1,0)	=IF(Z32=0,N32,AA33)	=IF(Y32=0,X32,IF(Y32=Z32,0.5*(X32+AA32),IF(Y32>Z32,AA32,X32)))
33	=IF(Y33=0,N33,X32)	=IF(H33="",Y32+1,0)	=IF(H33="",Z34+1,0)	=IF(Z33=0,N33,AA34)	=IF(Y33=0,X33,IF(Y33=Z33,0.5*(X33+AA33),IF(Y33>Z33,AA33,X33)))
34	=IF(Y34=0,N34,X33)	=IF(H34="",Y33+1,0)	=IF(H34="",Z35+1,0)	=IF(Z34=0,N34,AA35)	=IF(Y34=0,X34,IF(Y34=Z34,0.5*(X34+AA34),IF(Y34>Z34,AA34,X34)))
35	=IF(Y35=0,N35,X34)	=IF(H35="",Y34+1,0)	=IF(H35="",Z36+1,0)	=IF(Z35=0,N35,AA36)	=IF(Y35=0,X35,IF(Y35=Z35,0.5*(X35+AA35),IF(Y35>Z35,AA35,X35)))

Figure I-35 Formulas in analysis worksheet 'Analysis, S-R1' – Column X through AB



Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

	A	B
7		
8	=CONCATENATE("Based on Receiver-to-Receiver	
9		
10		**American Units**
11	**Depth at**	**Velocity**
12	**Midpoint Between Receivers**	**V_s**
13	(ft)	(ft/s)
14	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
15	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
16	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
17	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
18	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
19	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
20	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
21	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
22	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
23	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
24	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
25	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
26	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
27	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
28	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
29	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
30	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
31	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
32	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
33	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
34	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
35	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
36	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
37	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
38	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
39	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))
40	=Depth_MiddleOfReceiverToReceiver	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers,-1))

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Figure I-36 Formulas in summary worksheet 'Summary, R1-R2' – Columns A through B

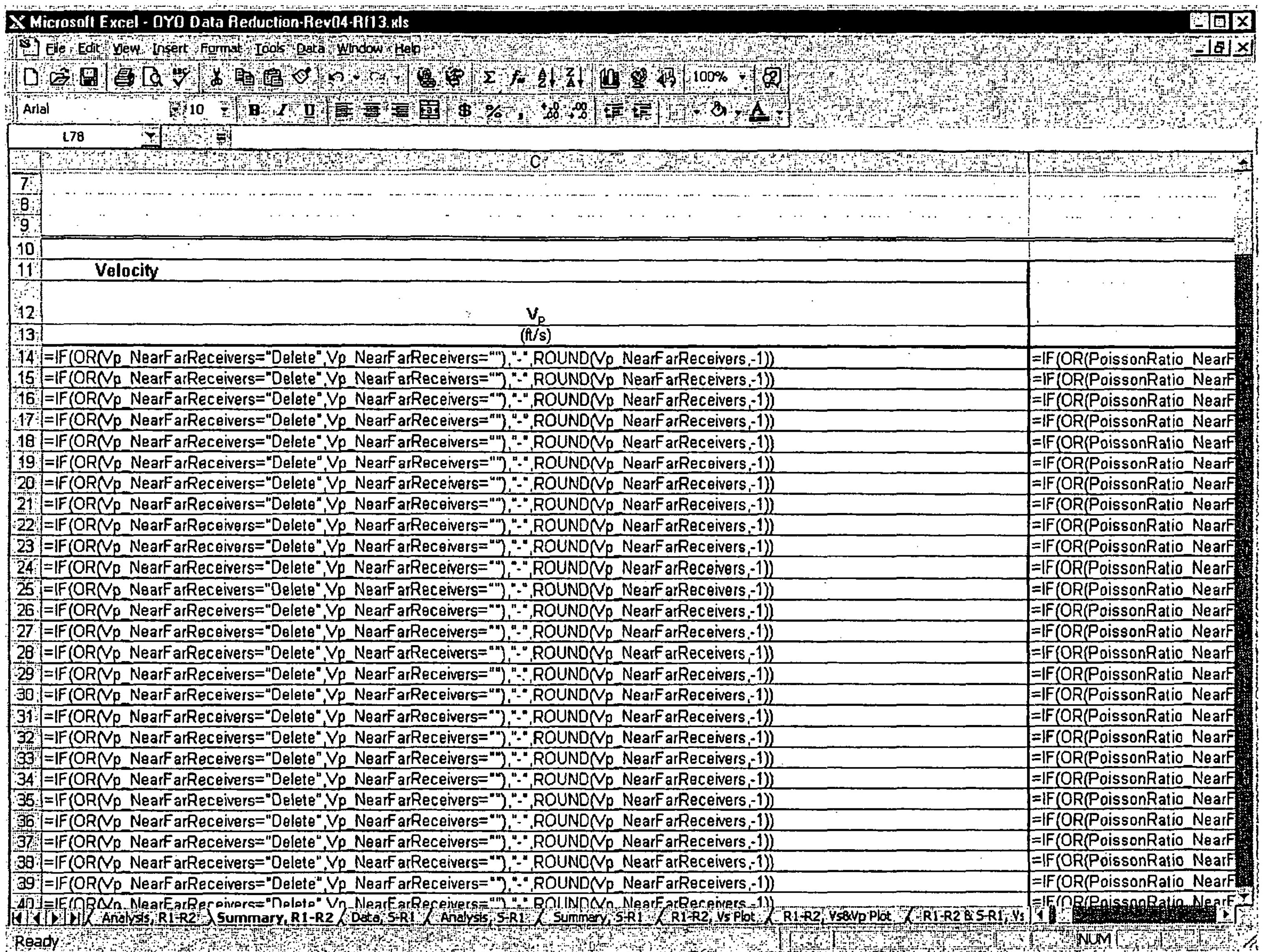


Figure I-37 Formulas in summary worksheet 'Summary, R1 – R2' – Column C

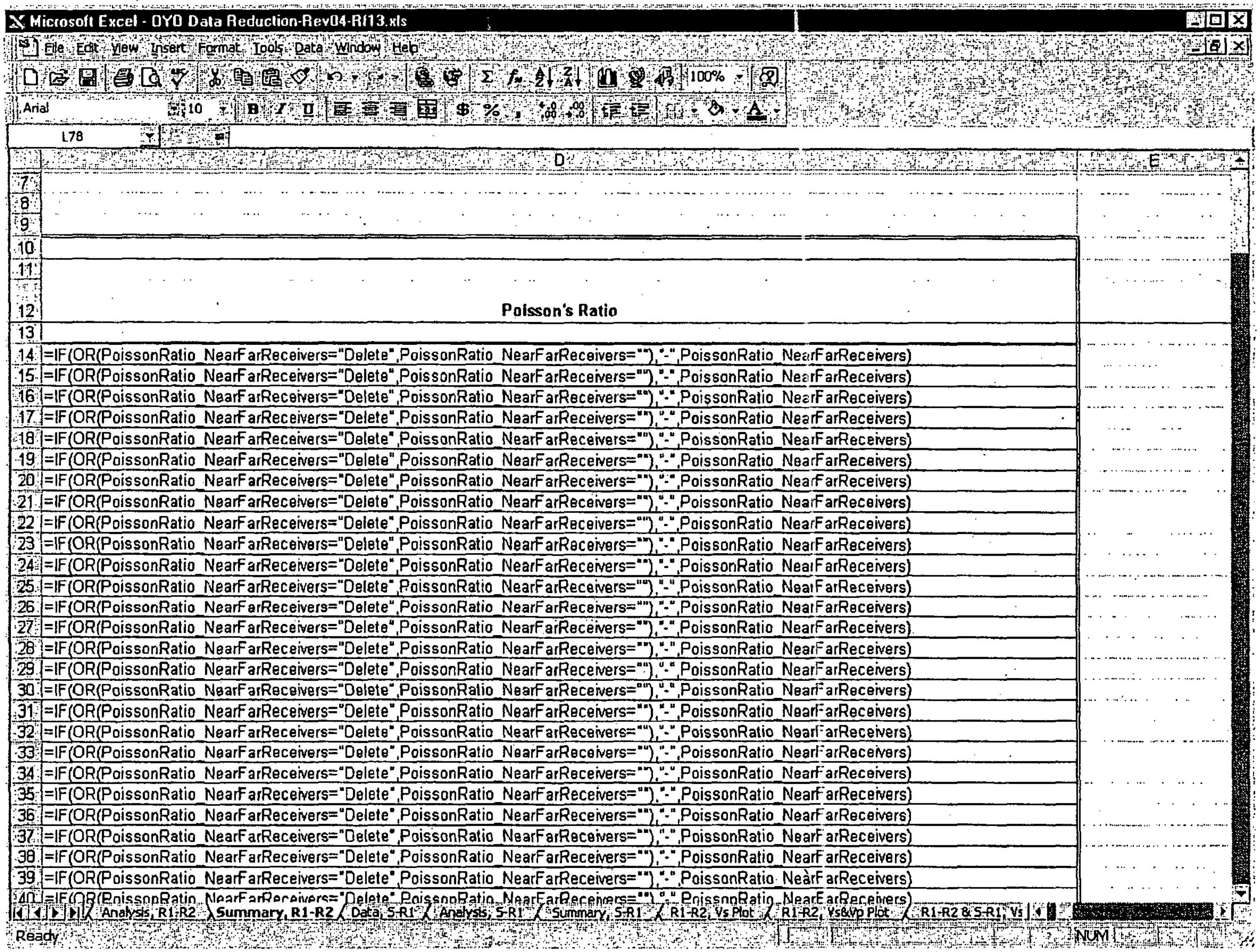


Figure I-38 Formulas in summary worksheet 'Summary, R1-R2' – Columns D through E

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

Arial 10 100%

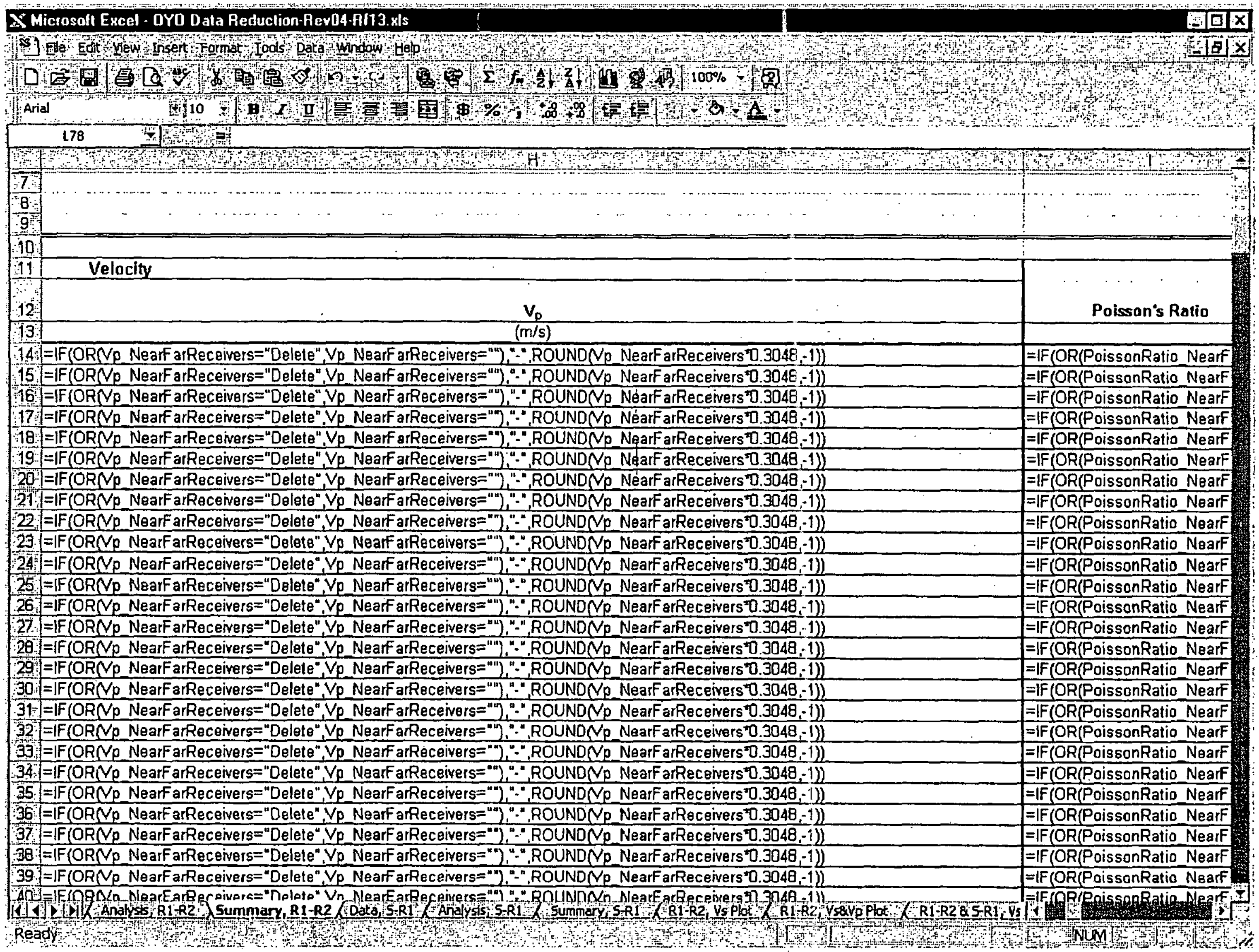
C221

	F	G
7		
8		
9		
10		Metric Units
11	**Depth at**	**Velocity**
12	**Midpoint Between Receivers**	**V_s**
13	(m)	(m/s)
14	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
15	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
16	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
17	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
18	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
19	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
20	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
21	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
22	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
23	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
24	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
25	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
26	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
27	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
28	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
29	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
30	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
31	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
32	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
33	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
34	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
35	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
36	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
37	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
38	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
39	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))
40	=Depth_MiddleOfReceiverToReceiver*0.3048	=IF(OR(Vs_NearFarReceivers="Delete",Vs_NearFarReceivers=""),"-",ROUND(Vs_NearFarReceivers*0.3048,-1))

Instructions / Revision Log / Summary, All / Data, R1-R2 / Analysis, R1-R2 / **Summary, R1-R2** / Data, S-R1 / Analysis, S-R1 / Summary, S

Ready NUM

Figure I-39 Formulas in summary worksheet 'Summary, R1-R2' – Columns F through G



	H	I
7		
8		
9		
10		
11	**Velocity**	
12	**V_p**	**Poisson's Ratio**
13	(m/s)	
14	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
15	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
16	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
17	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
18	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
19	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
20	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
21	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
22	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
23	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
24	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
25	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
26	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
27	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
28	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
29	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
30	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
31	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
32	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
33	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
34	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
35	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
36	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
37	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
38	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
39	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF
40	=IF(OR(Vp_NearFarReceivers="Delete",Vp_NearFarReceivers=""),"-",ROUND(Vp_NearFarReceivers*0.3048,-1))	=IF(OR(PoissonRatio_NearF

Figure I-40 Formulas in summary worksheet 'Summary, R1-R2' – Column H

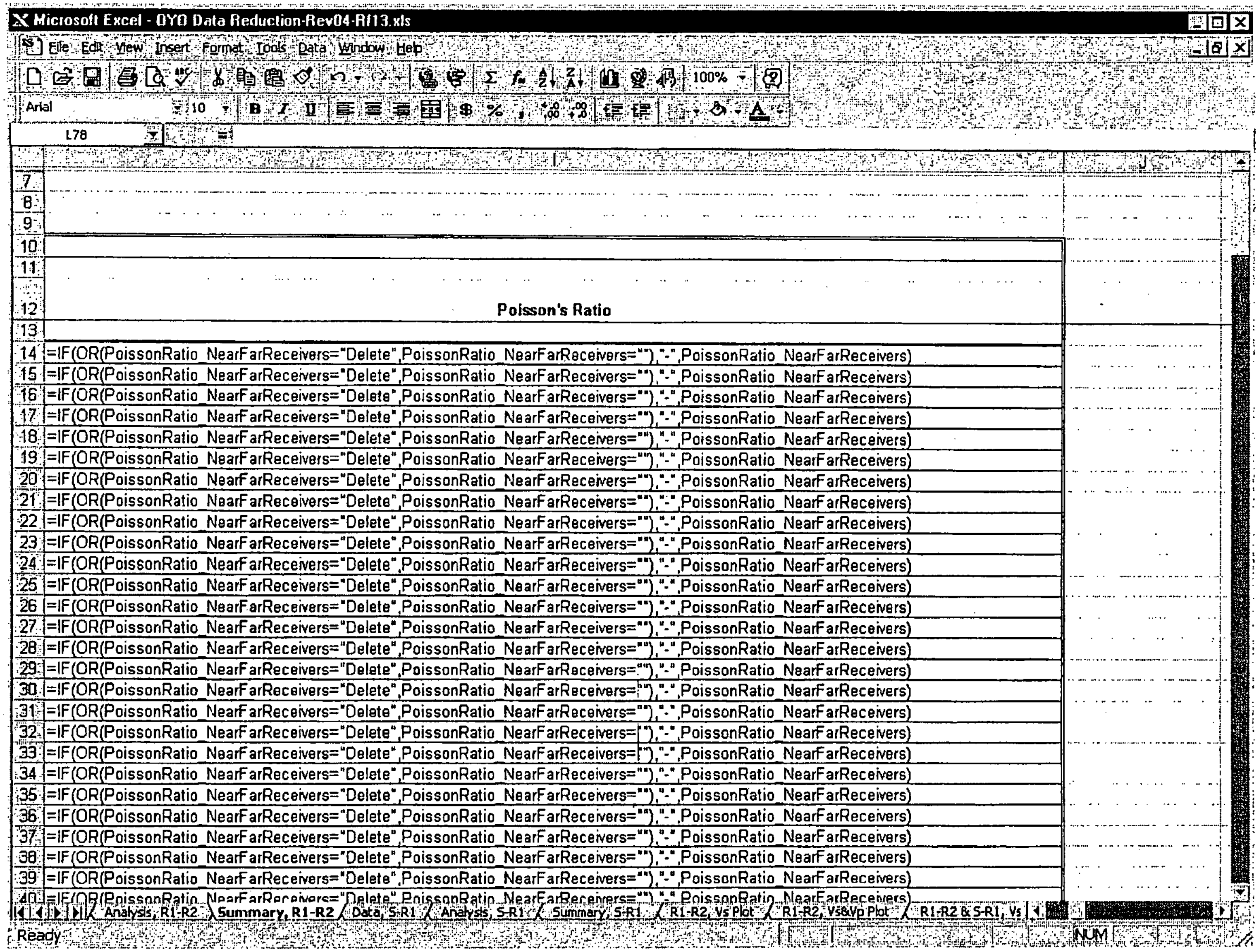


Figure I-41 Formulas in summary worksheet 'Summary, R1-R2' – Column I

Microsoft Excel - OYO Data Reduction-Rev04-R13.xls

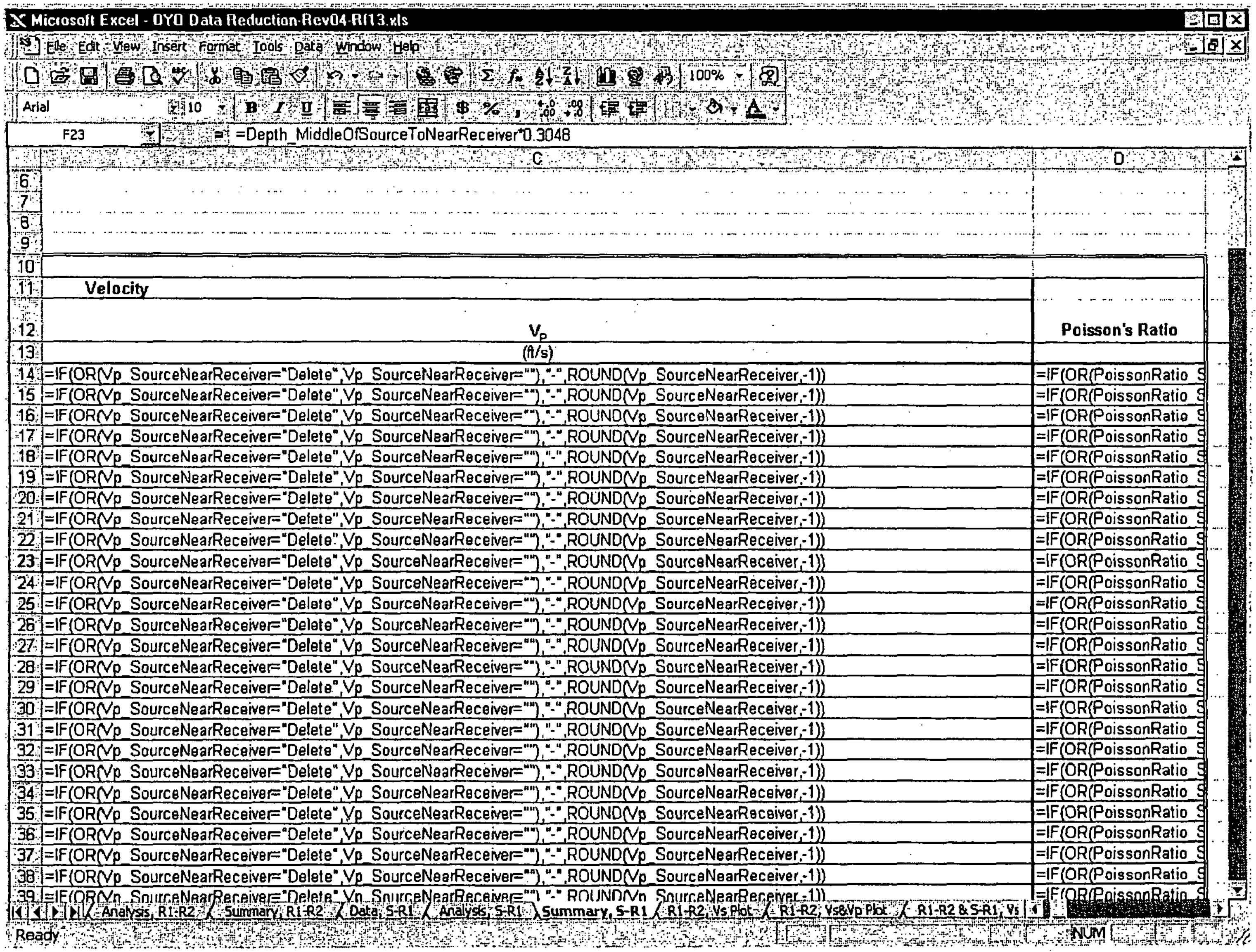
F23 =Depth_MiddleOfSourceToNearReceiver*0.3048

	A	B
6		Table
7		
8	=CONCATENATE("Based on Source-to-Rece	
9		
10		American Units
11	Depth at Midpoint	Velocity
12	Between Source and Near Receiver	V_s
13	(ft)	(ft/s)
14	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
15	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
16	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
17	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
18	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
19	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
20	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
21	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
22	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
23	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
24	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
25	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
26	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
27	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
28	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
29	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
30	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
31	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
32	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
33	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
34	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
35	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
36	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
37	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
38	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))
39	=Depth_MiddleOfSourceToNearReceiver	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver,-1))

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-42 Formulas in summary worksheet 'Summary, S-R1' – Columns A through B



Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

F23 = =Depth_MiddleOfSourceToNearReceiver*0.3048

	C	D
6		
7		
8		
9		
10		
11	Velocity	
12	V_p	Poisson's Ratio
13	(ft/s)	
14	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
15	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
16	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
17	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
18	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
19	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
20	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
21	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
22	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
23	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
24	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
25	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
26	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
27	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
28	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
29	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
30	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
31	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
32	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
33	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
34	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
35	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
36	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
37	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
38	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S
39	=IF(OR(Vp_SourceNearReceiver="Delete",Vp_SourceNearReceiver=""),"-",ROUND(Vp_SourceNearReceiver,-1))	=IF(OR(PoissonRatio_S

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-43 Formulas in summary worksheet 'Summary, S-R1' – Column C

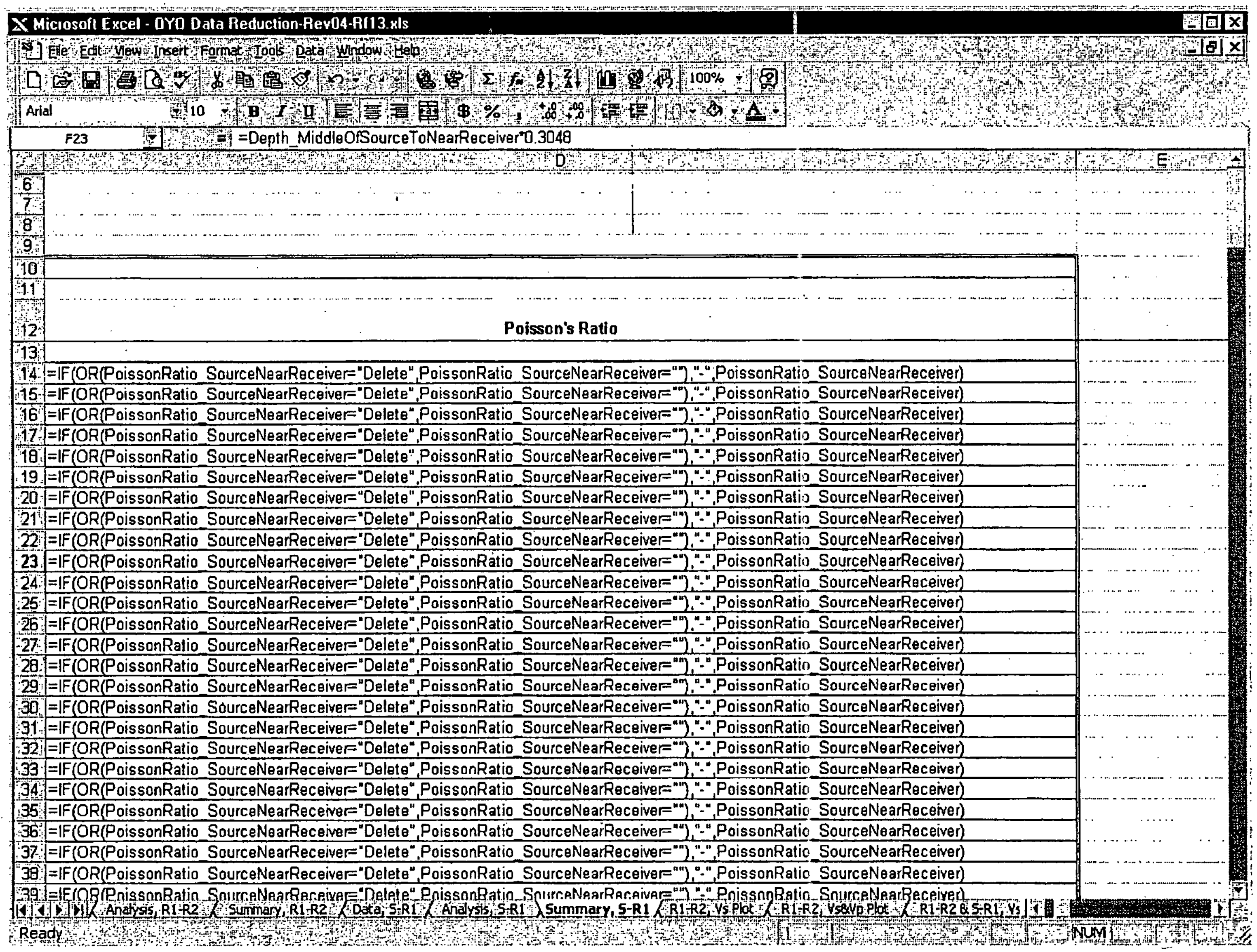


Figure I-44 Formulas in summary worksheet 'Summary, S-R1' – Columns D through E

Microsoft Excel - OYO Data Reduction-Rev04-Rf13.xls

File Edit View Insert Format Tools Data Window Help

Arial 10 100%

F228 =

	F	G
6		
7		
8		
9		
10		
11	**Depth at Midpoint**	**Velocity**
12	**Between Source and Near Receiver**	**V_s**
13	(m)	(m/s)
14	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
15	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
16	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
17	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
18	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
19	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
20	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
21	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
22	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
23	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
24	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
25	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
26	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
27	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
28	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
29	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
30	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
31	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
32	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
33	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
34	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
35	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
36	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
37	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
38	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))
39	=Depth_MiddleOfSourceToNearReceiver*0.3048	=IF(OR(Vs_SourceNearReceiver="Delete",Vs_SourceNearReceiver=""),"-",ROUND(Vs_SourceNearReceiver*0.3048,-1))

Analysis, R1-R2 / Summary, R1-R2 / Data, S-R1 / Analysis, S-R1 / Summary, S-R1 / R1-R2, Vs Plot / R1-R2, Vs&Vp Plot / R1-R2 & S-R1, Vs

Ready NUM

Figure I-45 Formulas in summary worksheet 'Summary, S-R1' – Columns F through G

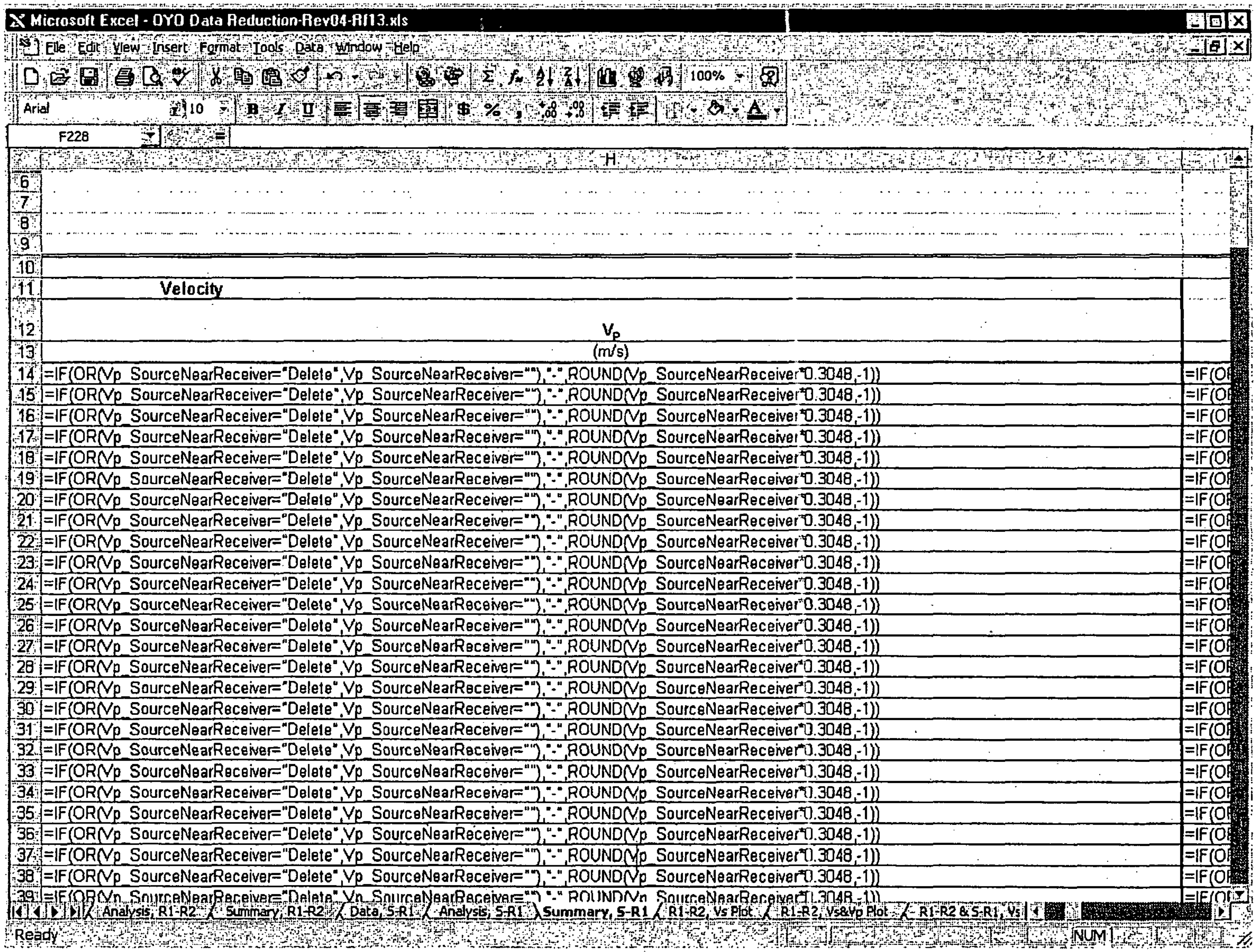


Figure I-46 Formulas in summary worksheet 'Summary, S-R1' – Column H

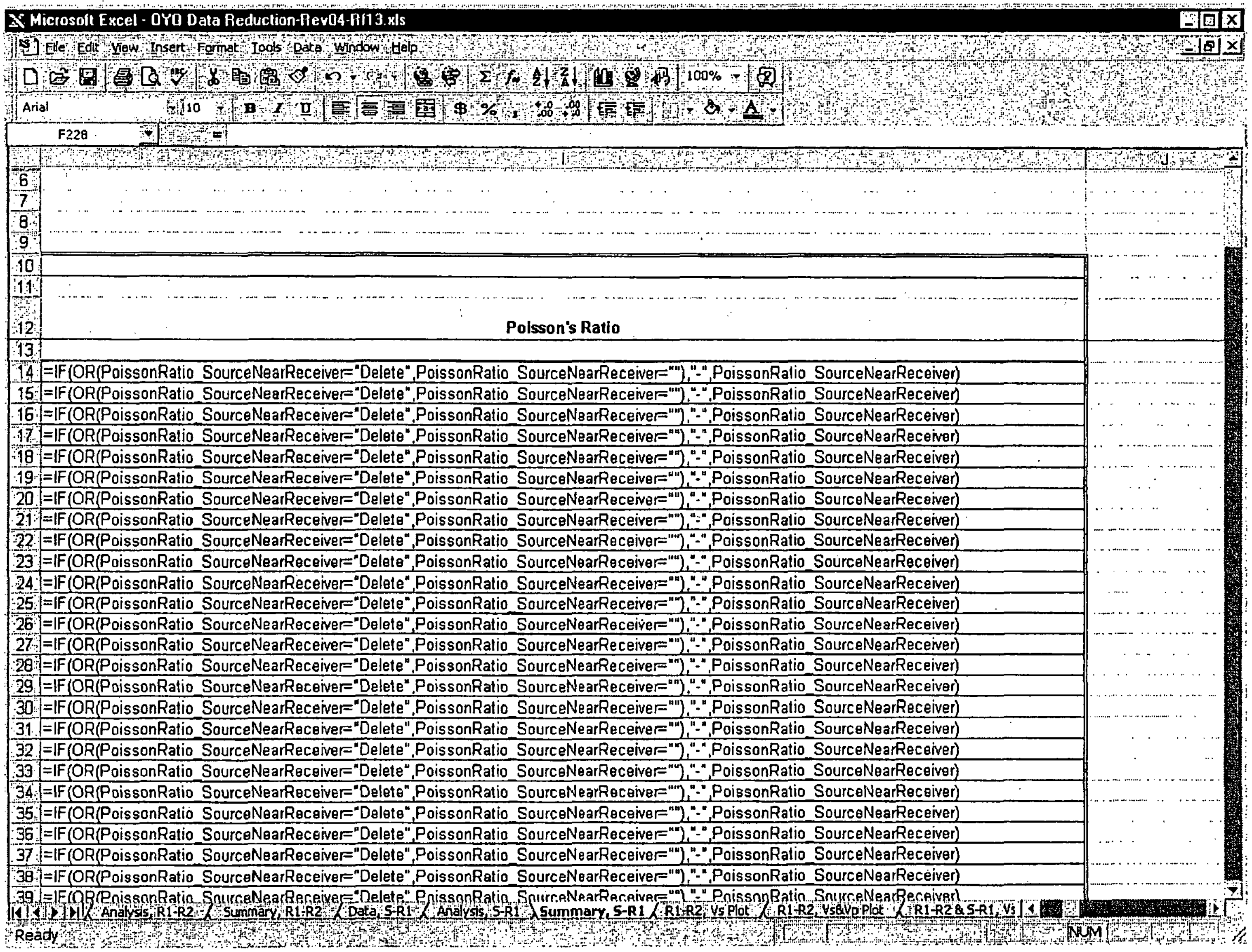


Figure I-47 Formulas in summary worksheet 'Summary, S-R1' – Columns I through J

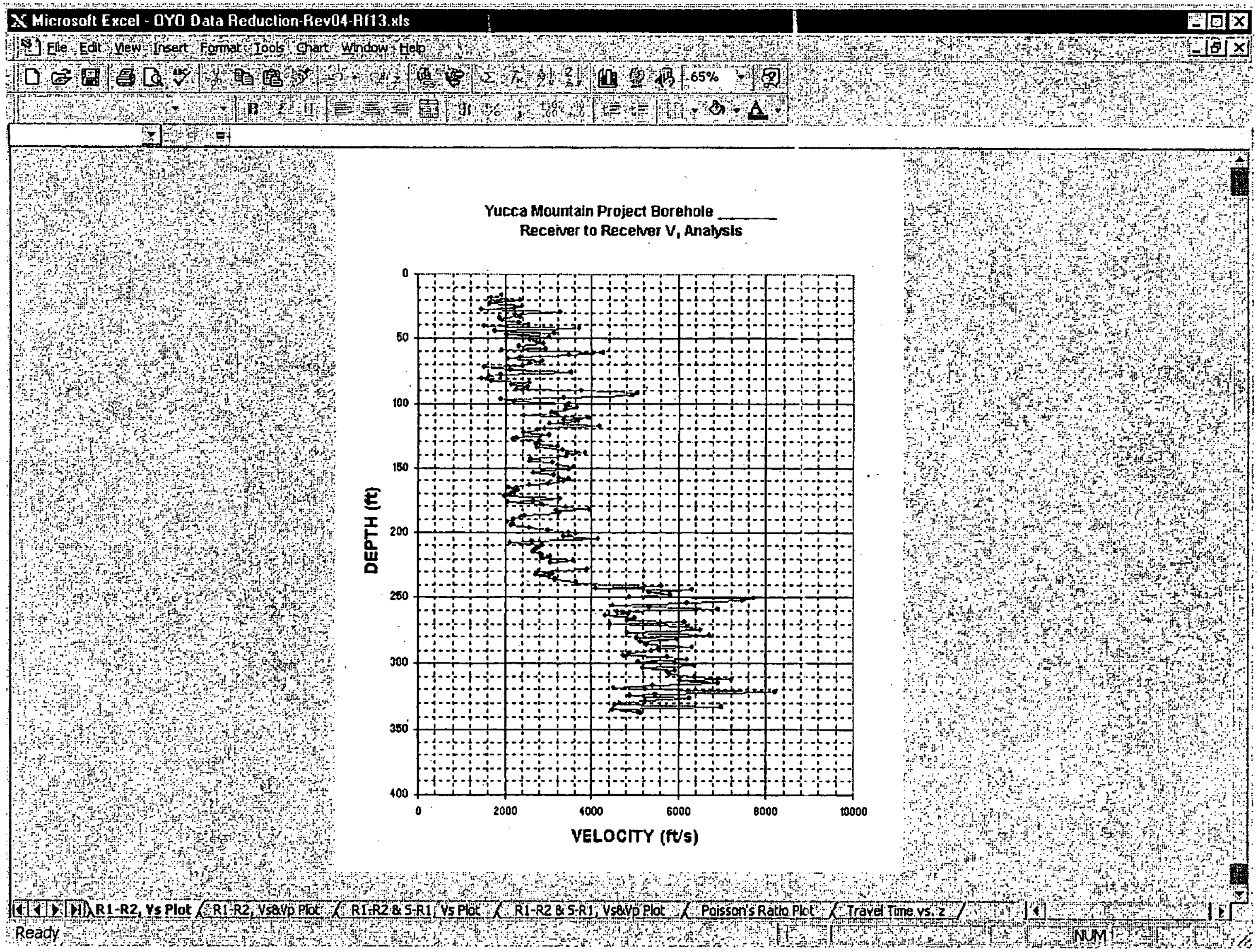


Figure I-48 Plot worksheet 'R1-R2, Vs Plot'

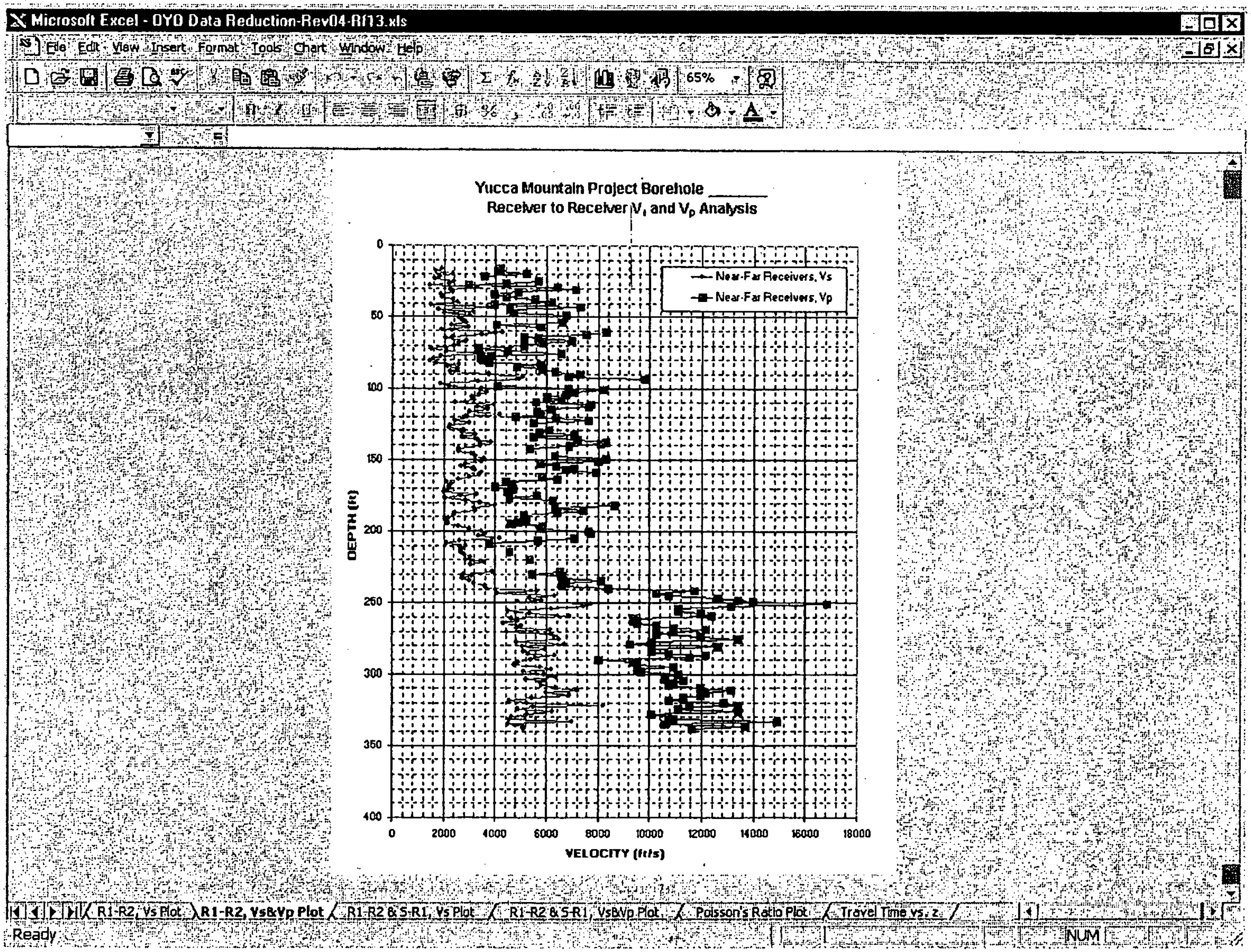


Figure I-49 Plot worksheet ‘R1-R2, Vs&Vp Plot’

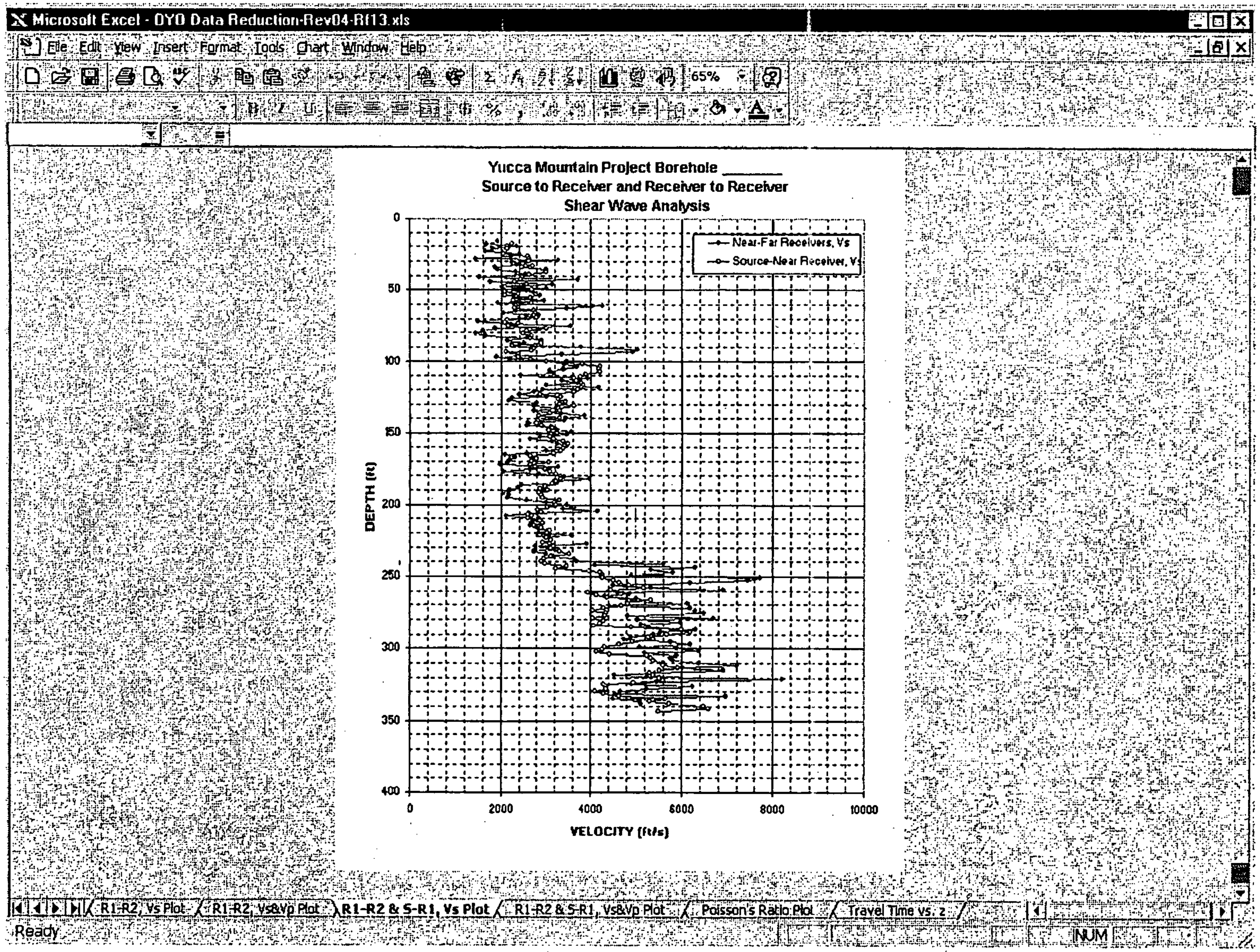


Figure I-50 Plot worksheet 'R1-R2 & S-R1, Vs Plot'

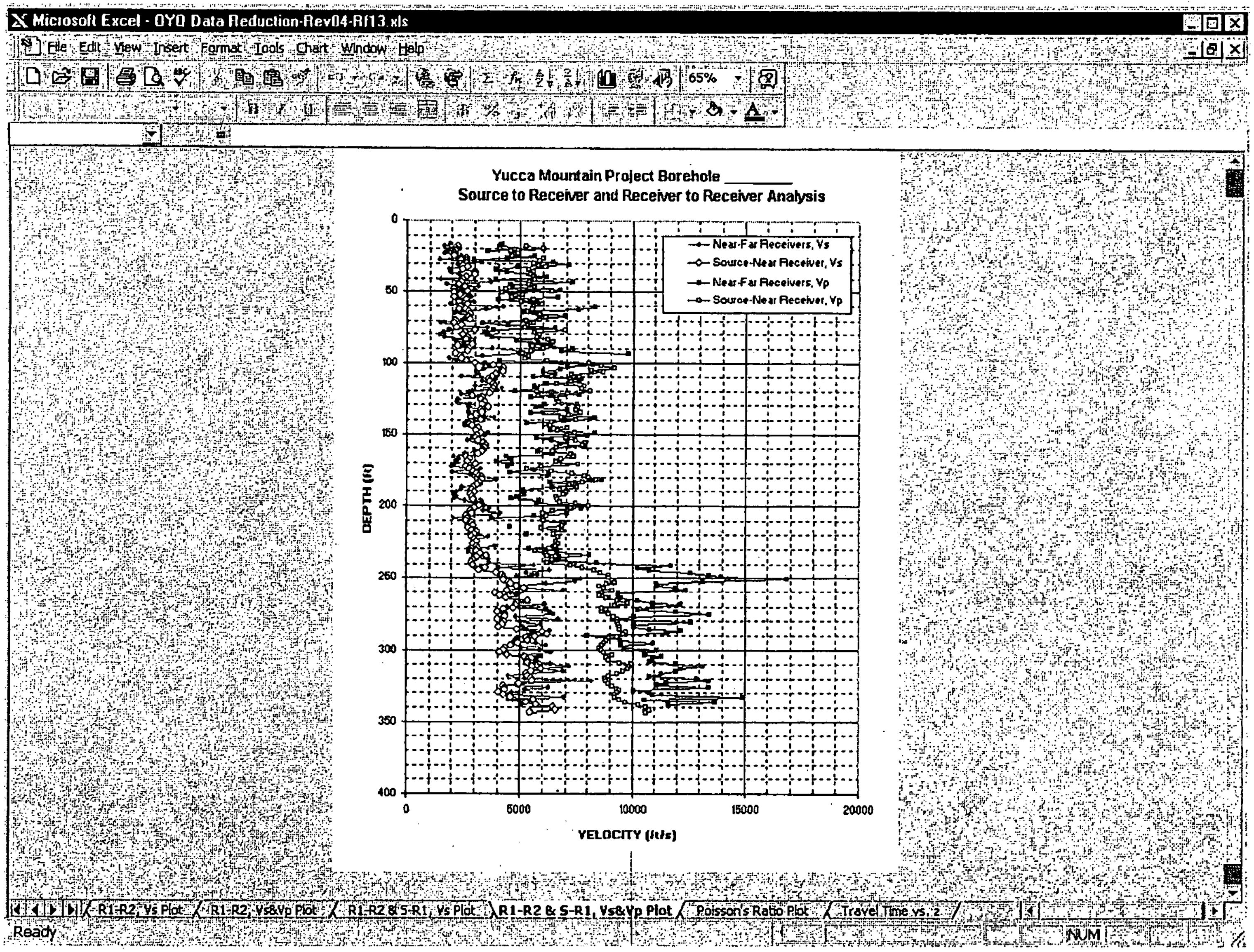


Figure I-51 Plot worksheet 'R1-R2 & S-R1, Vs&Vp Plot'

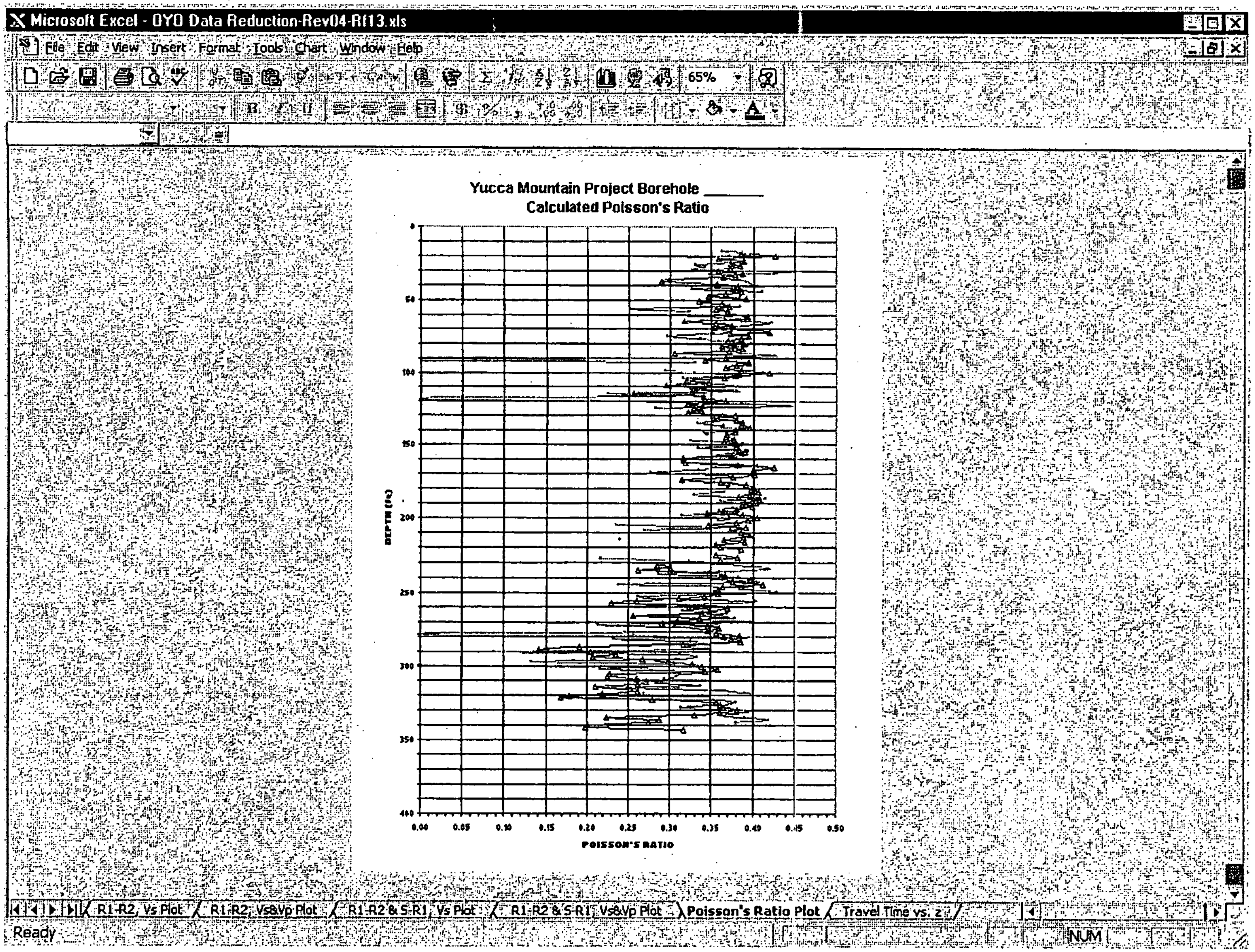


Figure I-52 Plot worksheet 'Poisson's Ratio Plot'

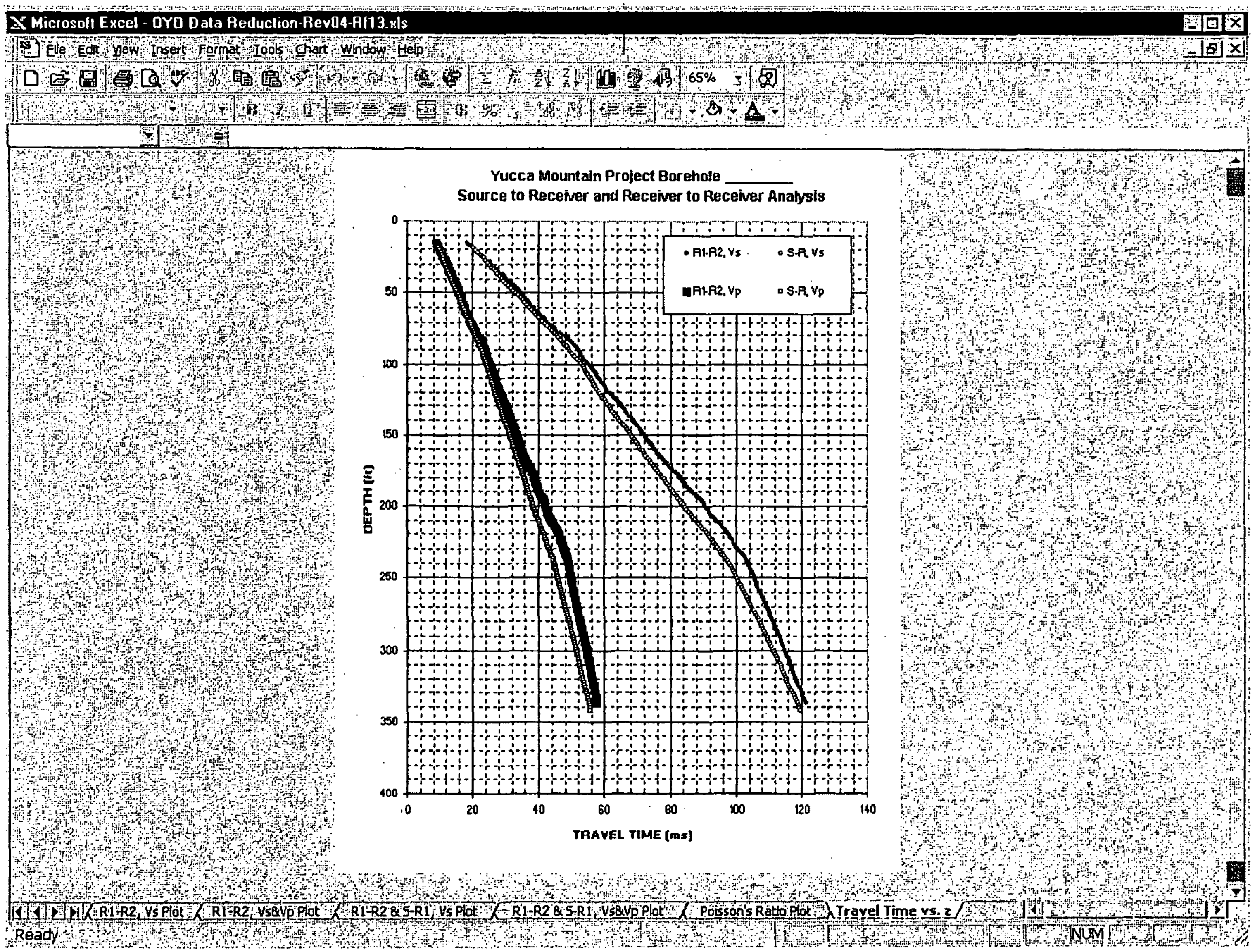


Figure I-53 Plot worksheet 'Travel Time vs. z'