Corrections to Applied Hydrogeology

When the 4th Edition of Applied Hydrogeology was published in 2001 there were a number of typographical errors. Thanks to many sharp-eyed readers, both faculty and students alike, these errors have been corrected in books currently being printed and sold. If you have an older copy, perhaps bought used, then some of the following corrections many be useful. However, those who purchased new books may skip this section.

(9/11/2001)

Page 19, 10th line from the bottom,

The correct answer to the example problem is 107,712 in. not 107,212 in.

(9/11/2001)

Page 22, Problem 8

The value of the precipitation should be 60.3 cm, not 60.6 cm

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Page 49, 6th line from the bottom should read:

"C is a runoff coefficient from Table 2.3 (dimensionless)"

(8/25/2001)

Page 52 - In the Example problem one of the unit conversion factors should be 1440 min/d not 1440 min/s and Q_0 is 760 m^3/s not m^3s. Also Q_0 for the start of the second year is 1000 m^3/s, not 1000 m^3.

Page 52 - Fourth line from the bottom should read:

$= 7.1 \times 10^9\ m^3$

Page 55 - The third line should read

$t_1 = 45$ d

Page 58

(2/6/2002)

Equation 2.16 B has an exponent of 3/2, not 2/3

Page 62 - Problem 8
The units for the recession constant are d^{-1}.

(9/2/2001)

Page 67 - The dimensions of the gravitational constant. g. should be L/T^2.

Page 72

(2/6/2002)

The caption of Figure 3.3 should read in part ..." in which ϕ is equal to - $\log_2 S$"....

Page 92 - The section starting just after Equation 3.26 and ending just before Equation 3.29 should read:

Equation 3.26 can be rearranged to yield:

$$\frac{dh}{h} = -K\frac{A_c}{A_t}\frac{1}{L}dt$$

(3.27)

The boundary conditions on this problem are that $h = h_o$ at $t = 0$. If we integrate dh/h on the left side of Equation 3.27 from h_o to h and dt the right side from 0 to t, we can obtain:

$$\ln h - \ln h_o = -K\frac{A_c}{A_t}\frac{1}{L}t$$

(3.28)

Equation 3.28 can be rearranged to isolate the hydraulic conductivity, K, on the left side and to eliminate the minus signs. In addition the cross-sectional areas are proportional to the square of the diameters of the falling head tube, d_t, and the sample chamber, d_c. The resulting simplified equation is:

(11/07/2001)

Page 107, Step 5 for the graphical method of finding the slope of a potentiometric surface should read:

5. Find map distance for each unit change in head for a well pair by dividing the map distance between the well pairs by the head difference.

Page 108 Item 9 on the list should read.

The gradient of the surface is in the direction of increasing head and perpendicular to the contour lines. It is opposite in direction to the slope which is shown on the figure.

Page 112 - The caption to figure 3.33 should read:
Grain-size distribution curve for Problems 17 and 18.

Page 123 -
The last line on the page should read:
"have turbulent ground-water flow, but only under conditions such that the Reynolds number"

Page 137
The third full sentence should read:
In stratum 1, it is dh_1; *in stratum 2 it is* dh_2.

The sentence below Equation 4.51 should read
Since the head loss between the two equipotential lines is the same in both strata, $dh_1 = dh_2$ and we can divide both sides of Equation 4.51 by dh_1.

Page 149 - The second sentence of Problem 17 should read:
"If the hydraulic conductivity of the material used in the dam is 0.22 ft/day. What is the seepage per unit width per day?"

Chapter 5, starting on Page 150

In this chapter I have generally specified time in days. In fact, the time can be in any unit so long as it is consistent with the time units of the pumping rate and the hydraulic conductivity.

Page 155 - Equation 5.11 should be:

$$h_o - h = \frac{Q}{4\pi T}\left[-0.5772 - \ln u + u - \frac{u^2}{2\cdot 2!} + \frac{u^3}{3\cdot 3!} - \frac{u^4}{4\cdot 4!} + \ldots\right]$$

Page 192

The X-axis of figure 5.19 has the units of Tt/r_c^2

Page 198 - Equation 5.93 should be:

$$\ln\frac{R_e}{R} = \left[\frac{1.1}{\ln(L_w/R)} + \frac{C}{(L_e/R)}\right]^{-1}$$

Page 214, Notation

The definition of μ should be:

$$\mu = r_s^2 S/r_c^2$$

Page 215, Analysis J - The second sentence should read:

The horizontal hydraulic conductivity is 1.87×10^{-2} cm/s and the vertical hydraulic conductivity is 3.34×10^{-3} cm/s.

Page 216, Problem 8

The fourth line should read:
0.034 ft/d, what would be the drawdown values

Page 216, Problem 14
The last line should read:
Hydraulic conductivity using the *Thiem* equation.

(8/25/2001)

Page 228
Add the word capacity to the end of the second full line, so as to make the phrase "field capacity".

Page 279 - The web site of C.J. Hemker can be found at
http://www.microfem.com/

(8/25/2001)

Page 338
The last line before Section 8.10 should read:
lag time increases linearly with distance

Page 345,
Problem 3 The last line should read:
Width of the coastline is 0.00345 m^2/d

Problem 4 The last line should read:
the coastline is 0.0127 m^2/d.

(8/25/2001)

Page 348
The line immediately below equation 9.5 should read:
In this type of reaction, the water molecule breaks down into H^+ and OH^- ions when

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(8/25/2001)

Page 350
Equation 9.16 should contain the parameter z_i^2 not z_1^2

(8/25/2001)

Page 351
Equation 9.17 should contain the parameter z_i^2 not z_1^2

(8/25/2001)

Page 352

Equation 9.18 should have the parameter $(\alpha_C)^2$ not $(a_C)^2$

Page 353, Equation 9.20 should be:

$$K = \frac{\alpha_{H+} \times \alpha_{OH-}}{\alpha_{H_2O}}$$

(8/25/2001)

Page 354

Equation 9.22B should be

$[H^+][CO_3^{2-}]/[HCO_3^-] = K_2$

(8/25/2001)

Page 356

Equation 9.23B should be (with the limitation that superscripts and subscripts of subscripts can't be shown)

$K_{CO2} = \alpha_{H2CO3} / P_{CO2}$

Equation 9.24B should be

$K_{H2CO3} = \alpha_{H+} \alpha_{HCO3-} / \alpha_{H2CO3}$

Equation 9.25B should be

$K_{HCO3-} = \alpha_{H+} \alpha_{CO3=} / \alpha_{HCO3-}$

(8/25/2001)

Page 360

The Debye-Huckel equation in step 2 of the example problem should have a negative sign. The answers are correct.

(8/25/2001)

Page 372

Line 15 from the top should read in part "recharge flux of 3.03 $\pm$ 0.3 in./yr"

(8/25/2001)

Page 383

Problem 1 should be:

1. 1. How much KCl is in <u>one liter</u> of a 0.26 molar solution.

Problem 2 should be:

2. 2. How much NaCl is in one liter of a 0.75 molar solution.
Problems 7 and 8 should specify a temperature of 25 Celsius.

(8/25/2001)
Page 384
Problems 15 and 16 should ask for a solubility product, not solubility as the answer.

Page 421 - third line from bottom should read:

spill. (Mendoza & McAlary 1990; Mendoza and Frind 1990a, 1990b).

Page 440 - Problem 3
The fourth line should read:
0.0040, and an effective porosity of 0.15. A down-

(8/25/2001)
Page 440, Problem 7
The hydraulic conductivity should be 920 ft/d, not 925 ft/day.

(9/7/2001)
Page 446, Third line from the bottom:

(Helwig 1978) should be (Helweg 1978)

(8/25/2001)
Page 542 and 543
Corrections to conversion tables:
Appendix 7
1 mm = 0.03937 in.
1 cm = 0.00001 km

Appendix 8
1 sq. in = 6.45×10^{-10} sq. km.
1 sq. in = 1.57×10^{-7} acres

Appendix 9

1 cubic in = 1.329×10^{-8} acre-ft
1 cubic ft = 7.48×10^{-6} million gallons
1 US gallon = 10^{-6} million gallons

Page 562

The answer to problem 2.1(d) is 4.3 mm/d

The answer to problem 2.1 (e) is 33.8 mm

The answer to problem 2.1 (f) is 44.5 mm

The answer to problem 2.1 (g) is 10.3 d

The answer to problem 2.9(b) is 400 m^3/s. (No answer is listed at all in the text.) (8/25/2001)

The units for the answer to problem 2-11 should be ft^3/s.

In Problem 3.15 $K_{h\ average}$ is 25 ft/d. No answer is listed.
(8/25/2001)

Page 564
The answer to problem 4.13d is h_{max} = 17.8 m.

The answer to problem 4.15 is 58 ft^3/day.

The answer to problem 5.1 at 3000 feet is 10.06 ft.
(8/25/2001)

(8/25/2001)
Page 565
Problem 5.7 has the following answers:

r(ft)	h_o-h (ft)	
50 50	14.29	
150	150	7.64
250	250	4.79
500	500	2.22
1000	1000	0.56
3000	3000	0.003
6000	6000	nil
10000	nil	

Problem 5.9 has the following answers

time	h_o-h (ft)
1 min	0.00

2 min	0.03
5 min	0.46
10 min	1.16

The remaining answers are correct.

(9/7/2001)

Page 575

The author of the fourth reference from the bottom of the page should be:
Helweg, O. J.

(8/25/2001)

Page 578

The authors of the last reference on the page should be
MAU, D.P. & T. C. WINTER

Page 579 - The second reference on the right hand column should read:

MENDOZA, C. A. & E. O. FRIND