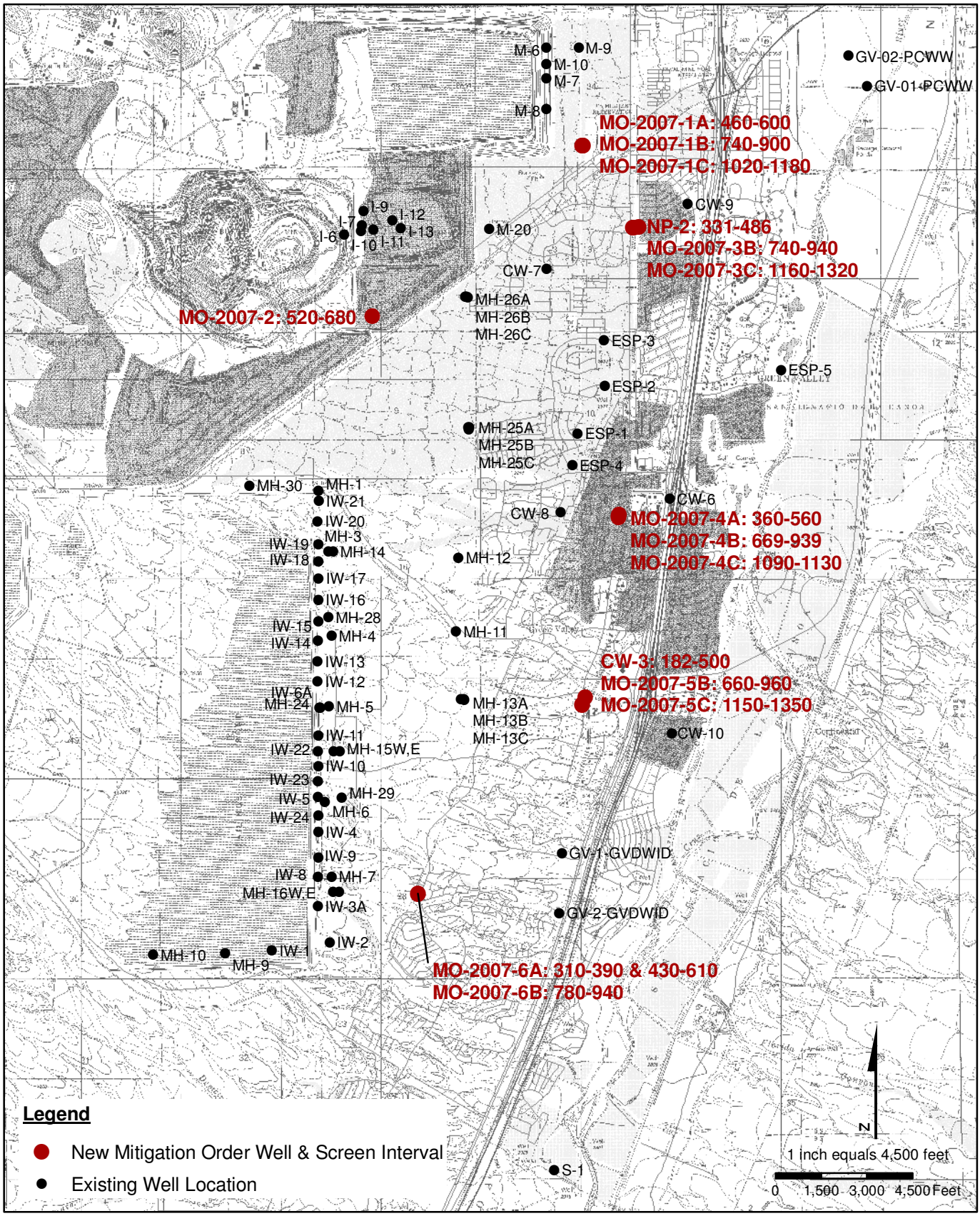
APPENDIX E

EVALUATION OF HYDRAULIC TESTS AT MO-2007-SERIES WELLS

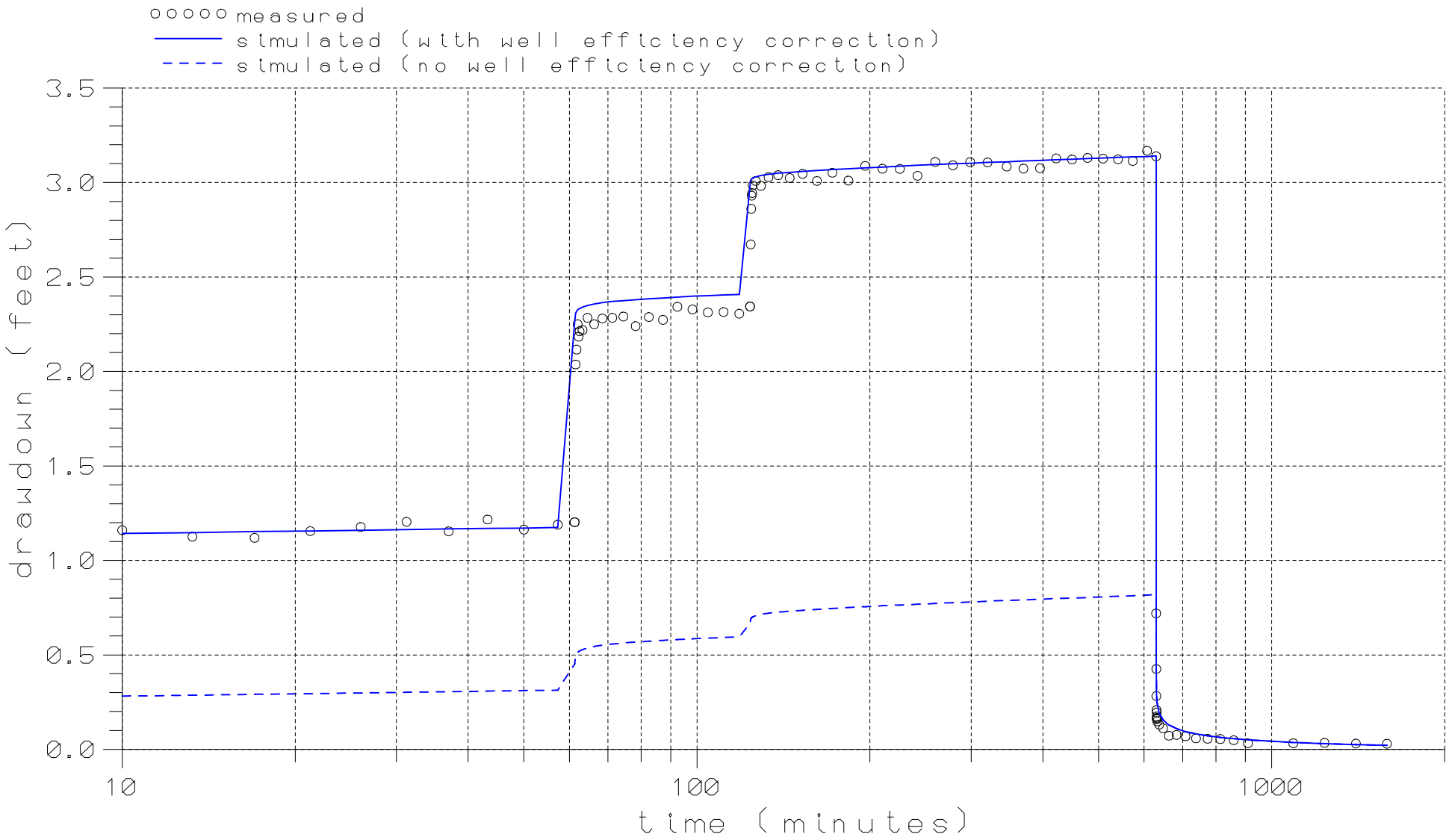
TASK 2.4 OF AQUIFER CHARACTERIZATION PLAN



HYDRO GEO CHEM, INC.

APPROXIMATE LOCATIONS OF WELL NESTS

Approved	Date	Author	Date	File Name	Figure
SS	10/18/07	RAM	10/18/07	7830108G	E.1



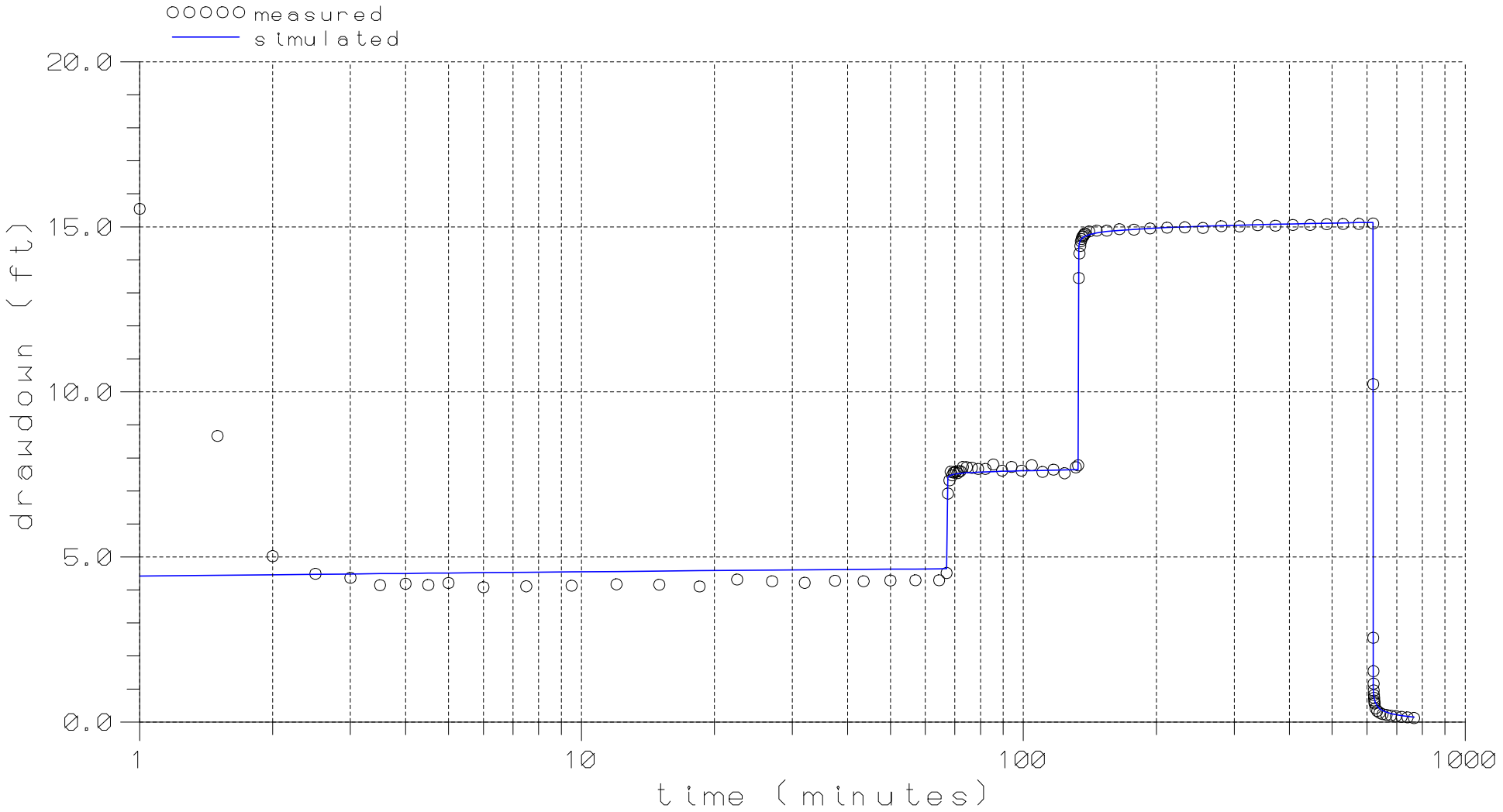
RESULTS

Transmissivity = 13000 ft2/day
Storage coefficient = 0.001
skin factor= 15
well loss constant = 0.004
well loss exponent = 1.52
aquifer thickness = 110 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-2 DURING PUMPING AT 16.4, 30.5, AND 37.5 GPM SHOWING EFFECT OF WELL EFFICIENCY CORRECTION
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/Pumping Tests MO-2 Pump Test/whip/mo2eff.srf	**E.2**



RESULTS

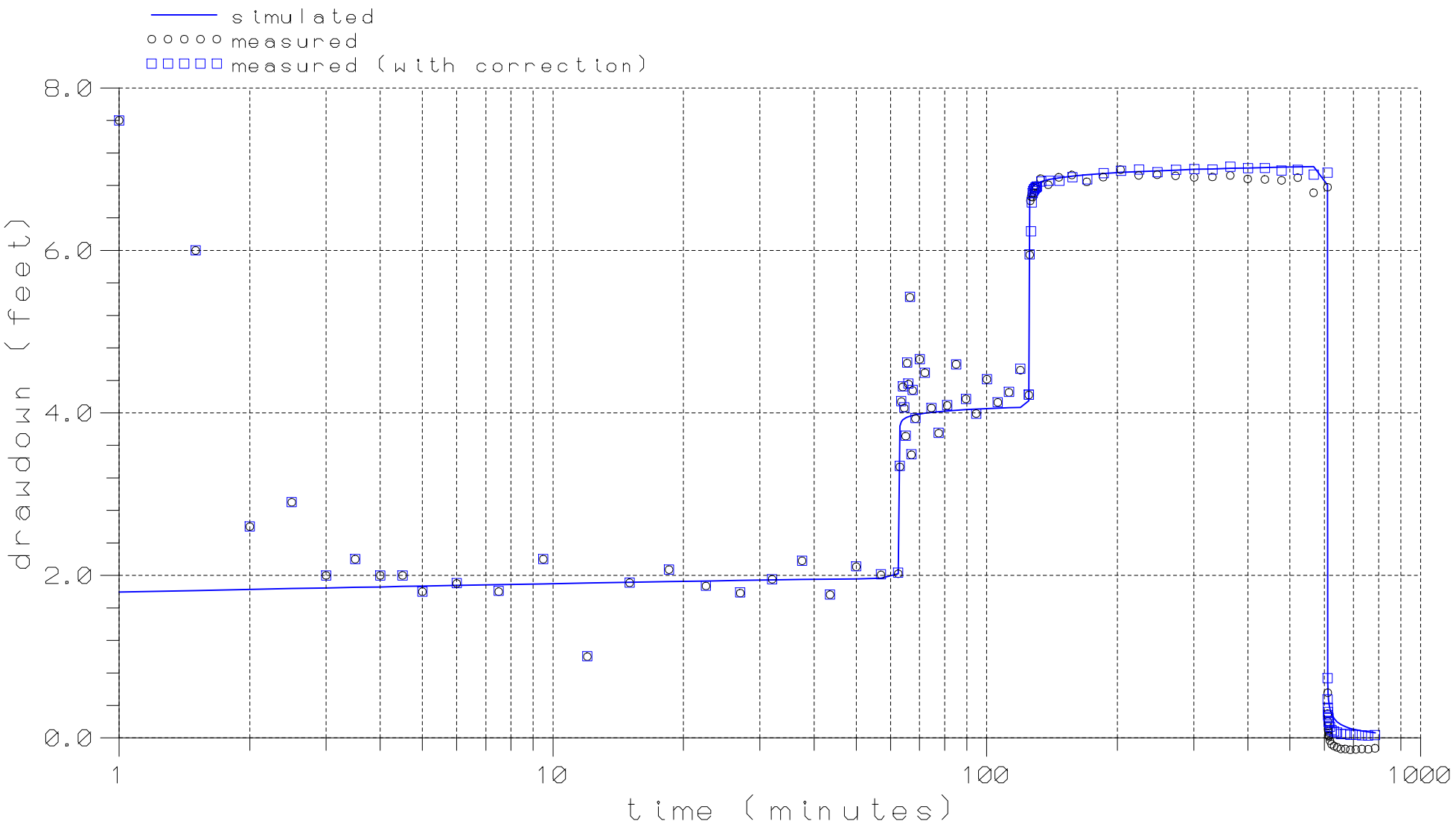
Transmissivity = 20000 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.27
well loss exponent = 0.96
assumed aquifer thickness = 755 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-1A DURING PUMPING AT 15, 25, AND 50 GPM

(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/Pump tests MO-1/MO-1A/whip/mo1a.srf	E.3



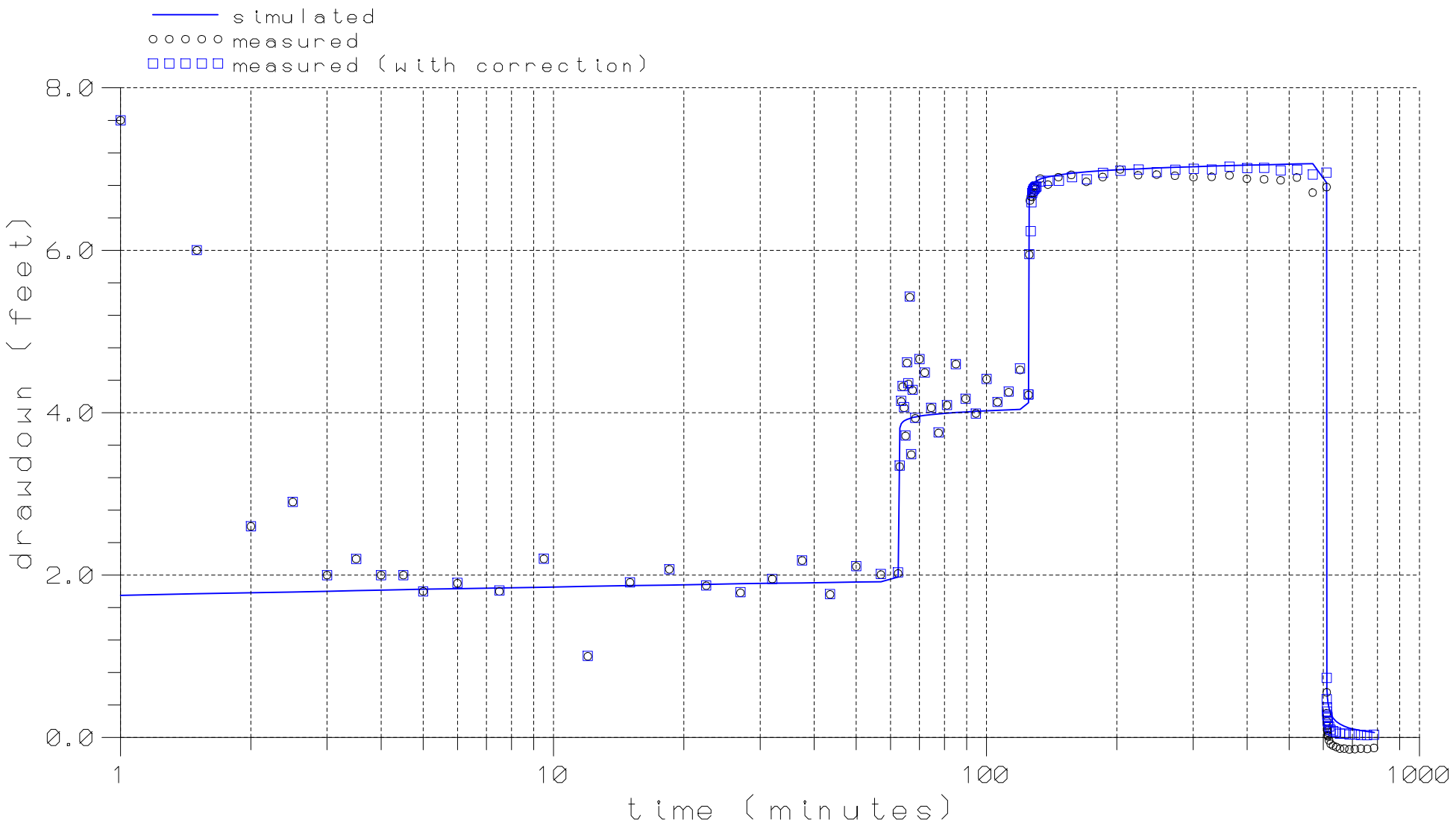
RESULTS

Transmissivity = 25,000 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.036
well loss exponent = 1.25
assumed aquifer thickness = 815 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-1B DURING PUMPING AT 16, 30, AND 47.5 GPM (data corrected for regional water level increase and barometric pressure change)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-1/MO-1B/whip/mo1bcor.srf	E.4



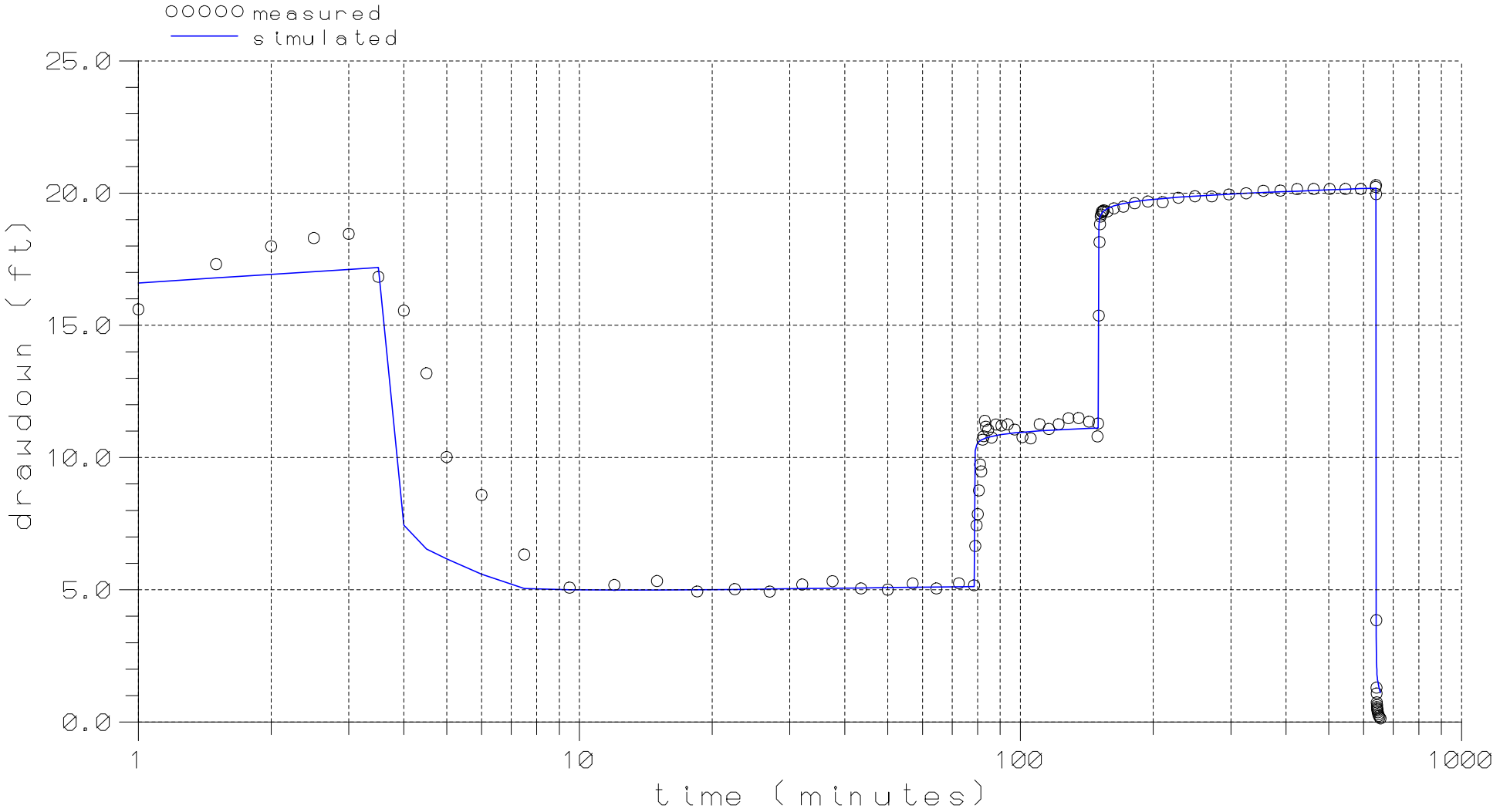
RESULTS

Transmissivity = 25,000 ft2/day
Storage coefficient = 0.01
Vertical Hydraulic Conductivity = 1.0 ft/day
well loss constant = 0.036
well loss exponent = 1.27
assumed aquifer thickness = 815 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-1B DURING PUMPING AT 16, 30, AND 47.5 GPM (data corrected for regional water level increase and barometric pressure change)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-1/MO-1B/whip/mo1bc2.srf	E.5



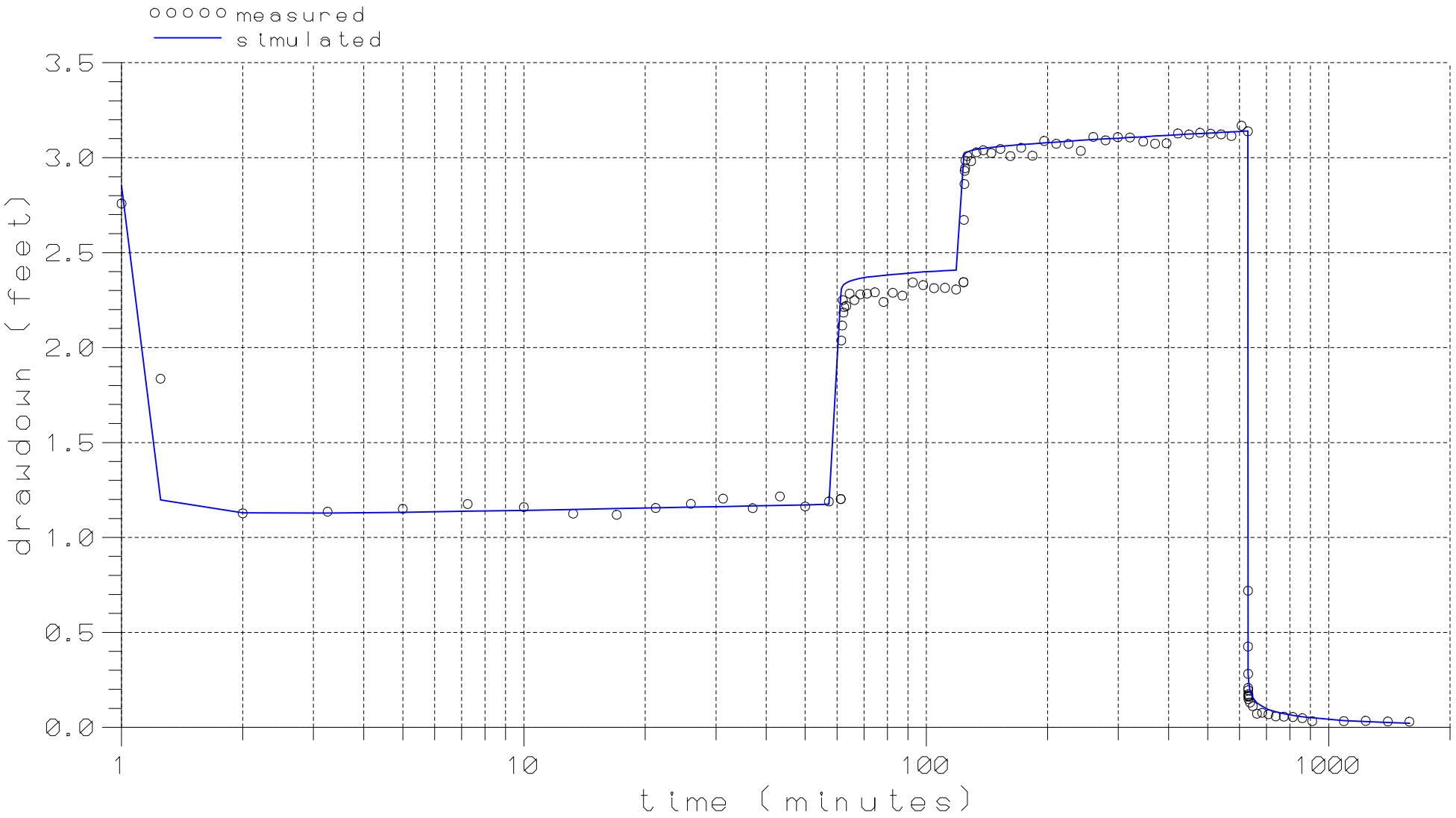
RESULTS

Transmissivity = 7000 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.042
well loss exponent = 1.46
assumed aquifer thickness = 756 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-1C DURING PUMPING AT 16, 30, AND 47.5 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-1/MO-1C/whip/mo1c.srf	E.6



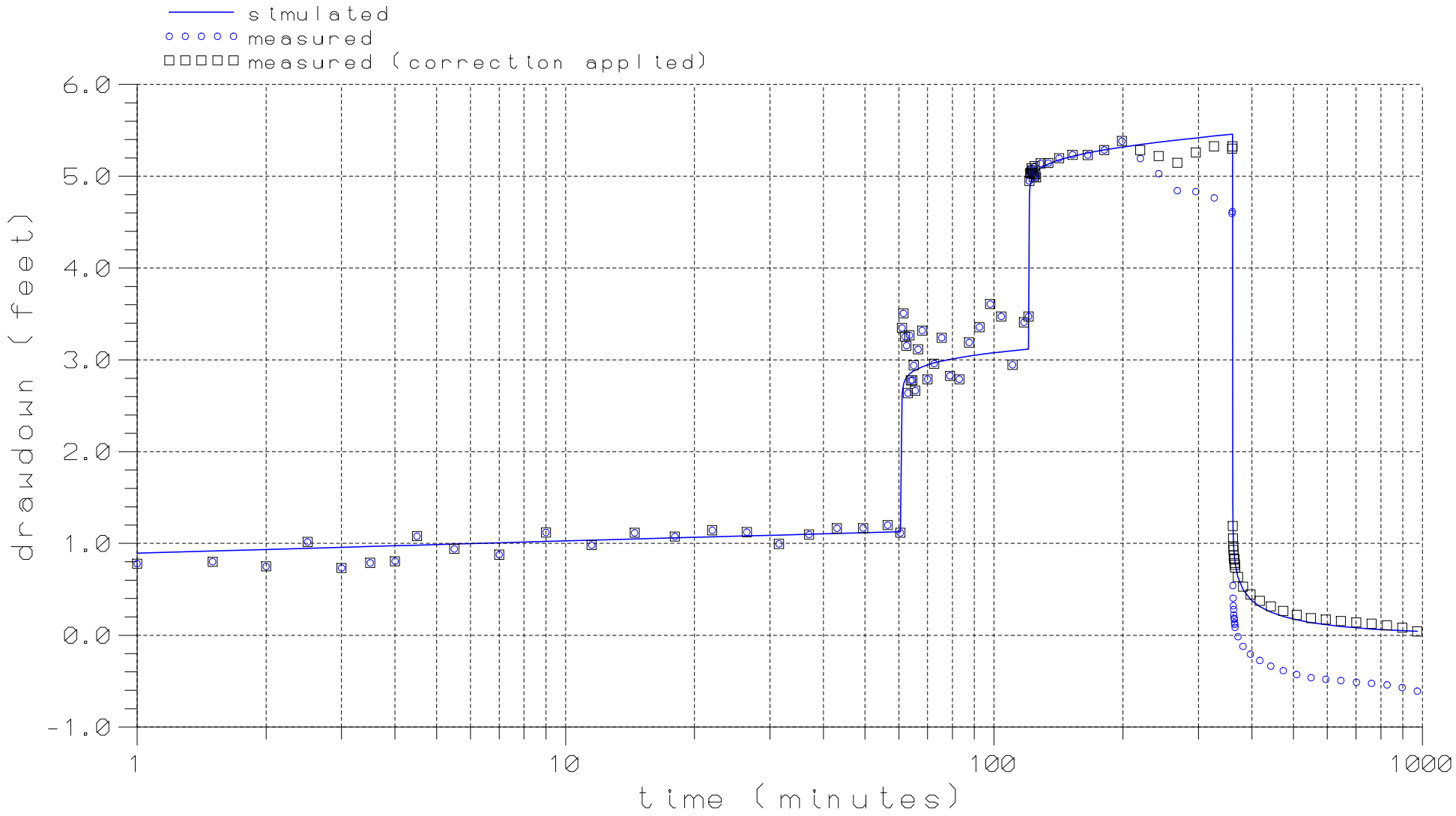
RESULTS

Transmissivity = 13000 ft2/day
Storage coefficient = 0.001
well loss constant = 0.03
well loss exponent = 1.2
aquifer thickness = 110 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-2 DURING PUMPING AT 16.4, 30.5, AND 37.5 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-2 Pump Test/whip/mo2nsk.srf	**E.7**



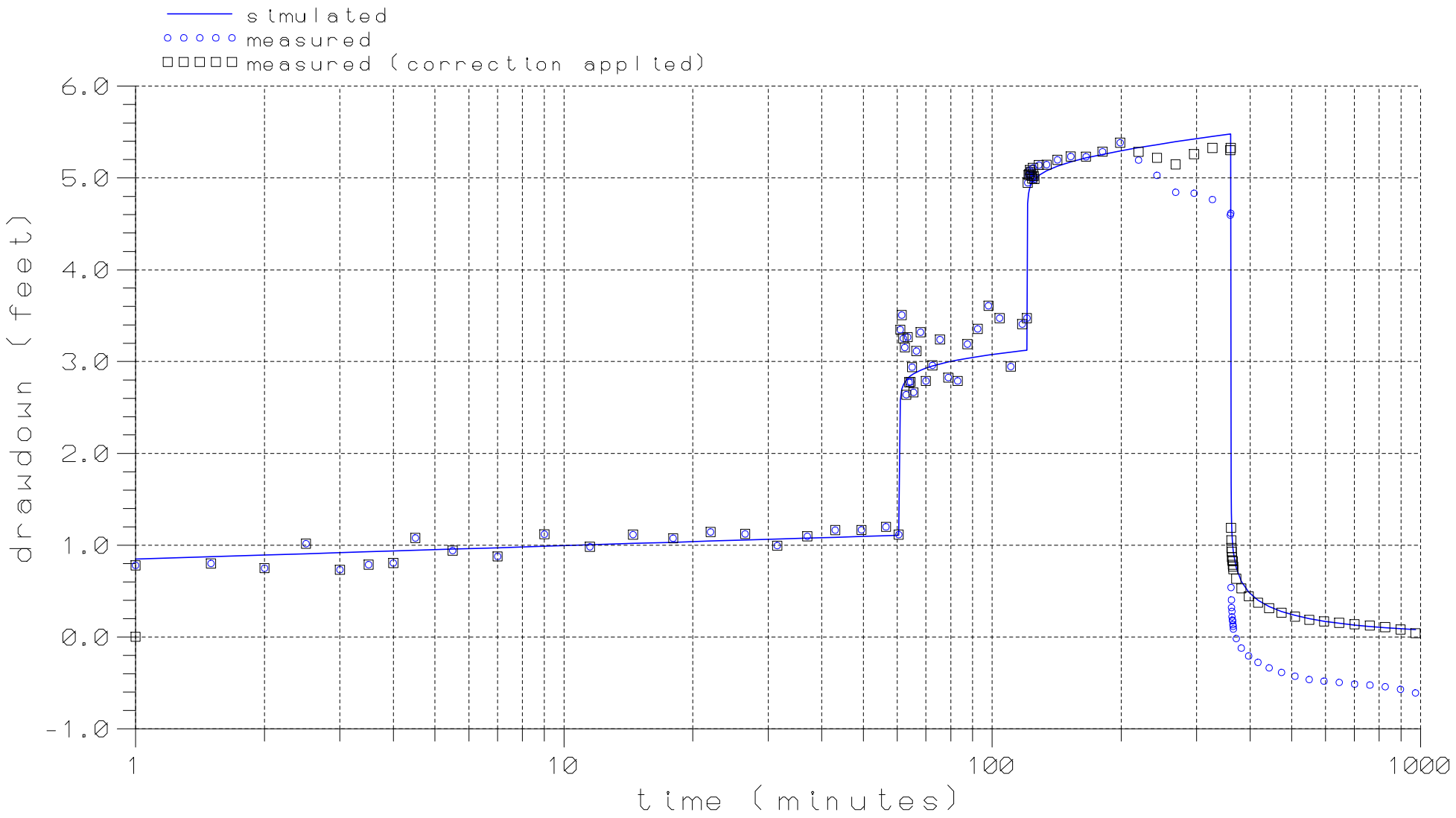
RESULTS

Transmissivity = 17,700 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.02 ft/day
well loss constant = 0.001
well loss exponent = 1.88
assumed aquifer thickness = 1060 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-3B DURING PUMPING AT 14, 33.5, AND 51 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-3 Pump Test/ MO-2007-3B Pump Test/whip/mo3bcor.srf	**E.8**



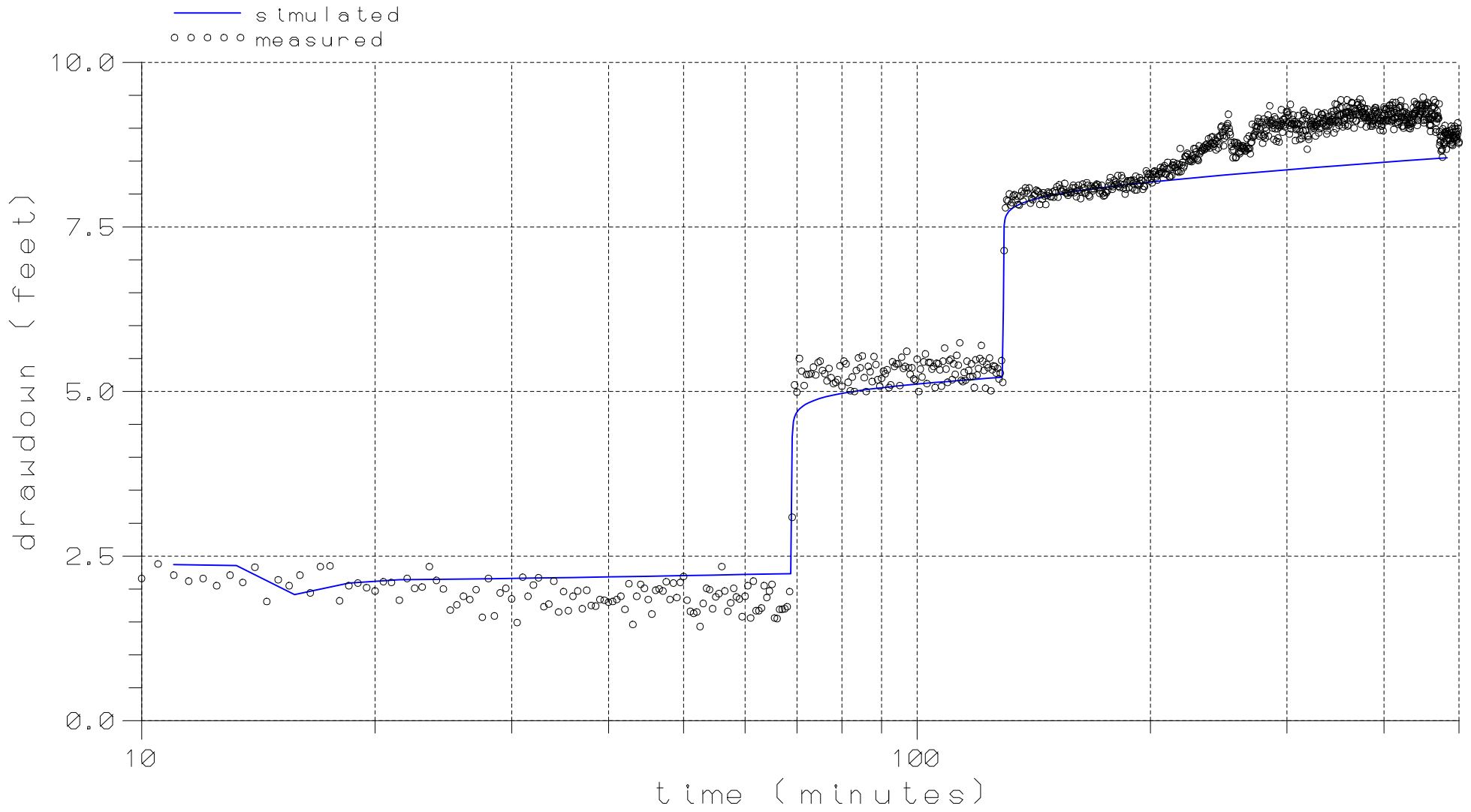
RESULTS

Transmissivity = 17,700 ft2/day
Storage coefficient = 0.1
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.006
well loss exponent = 1.51
assumed aquifer thickness = 1060 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-3B DURING PUMPING AT 14, 33.5, AND 51 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-3 Pump Test/ MO-2007-3B Pump Test/whip/mo3bc2.srf	**E.9**



RESULTS

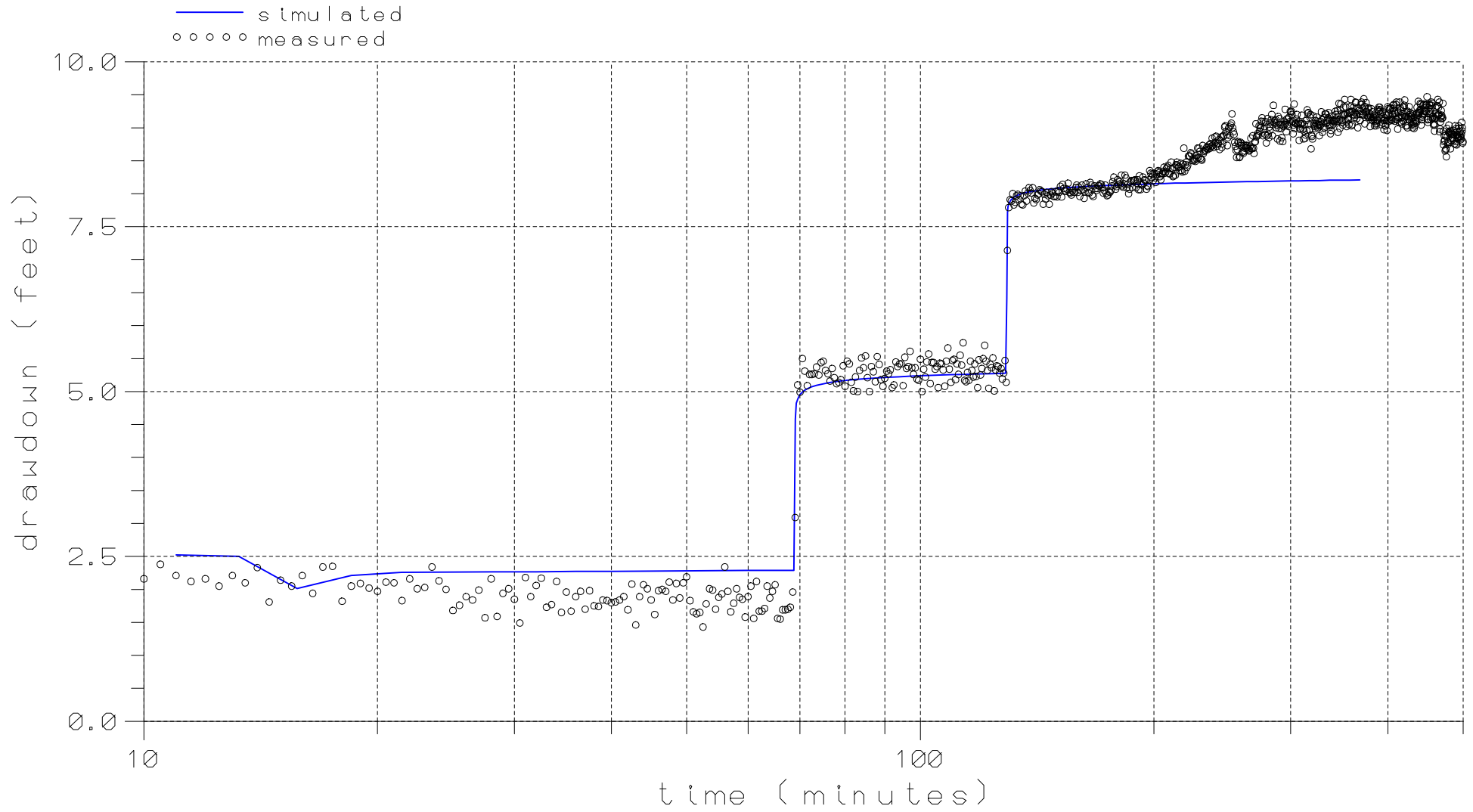
Transmissivity = 11600 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 1e-4 ft/day
well loss constant = 0.001
well loss exponent = 2.16
assumed aquifer thickness = 1060 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-3C DURING PUMPING AT 13.8, 27.6, AND 38.3 GPM

(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-3 PumpTest/mo-3c/whip/mo3c.srf	**E.10**



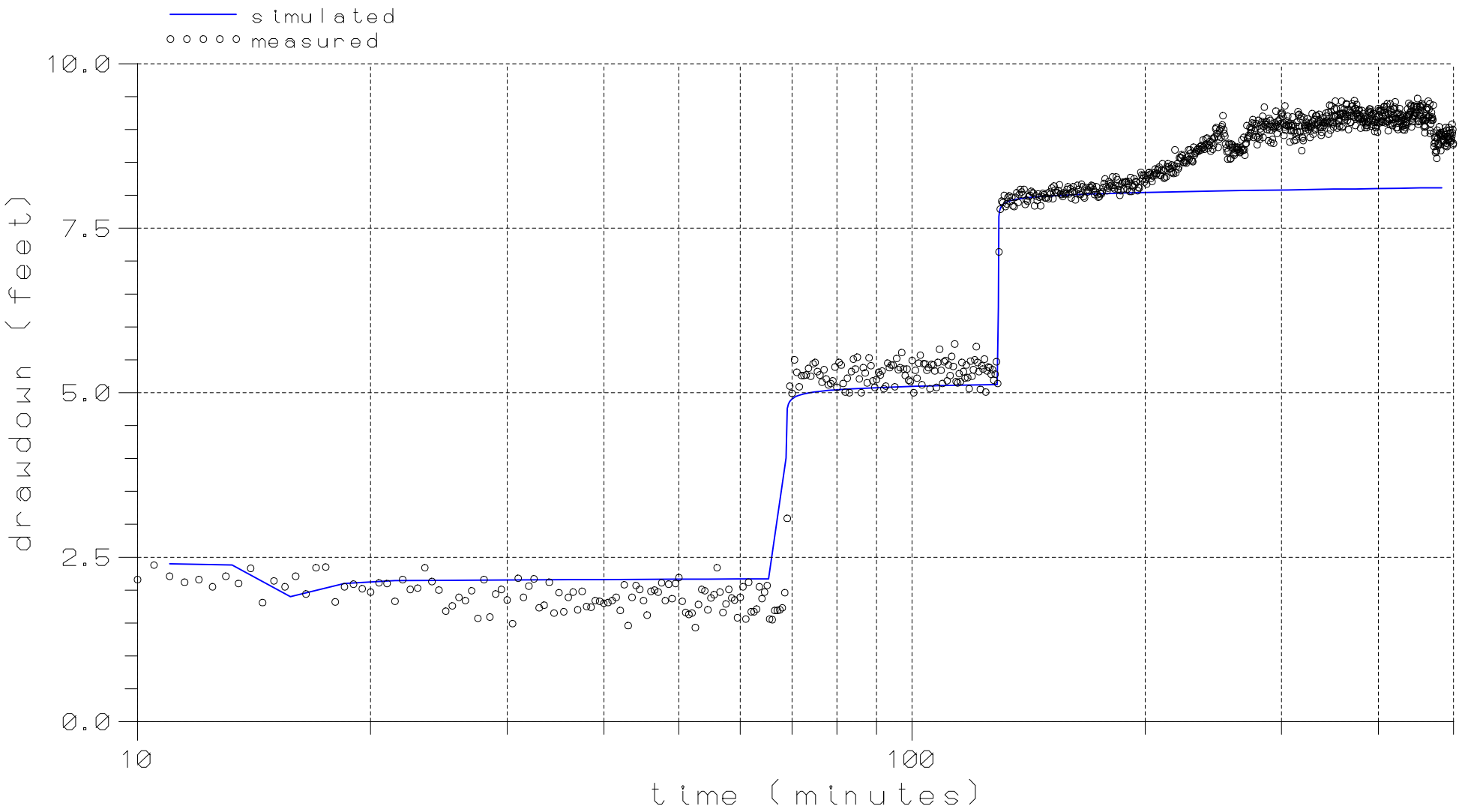
RESULTS

Transmissivity = 11,500 ft2/day
Storage coefficient = 1.6e-4
Vertical Hydraulic Conductivity = 0.25 ft/day
well loss constant = 0.001
well loss exponent = 2.17
assumed aquifer thickness = 1060 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-3C DURING PUMPING AT 13.8, 27.6, AND 38.3 GPM (based on analysis of first portion of step3) (analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-3 PumpTest/mo-3c/whip/st123.srf	E.11



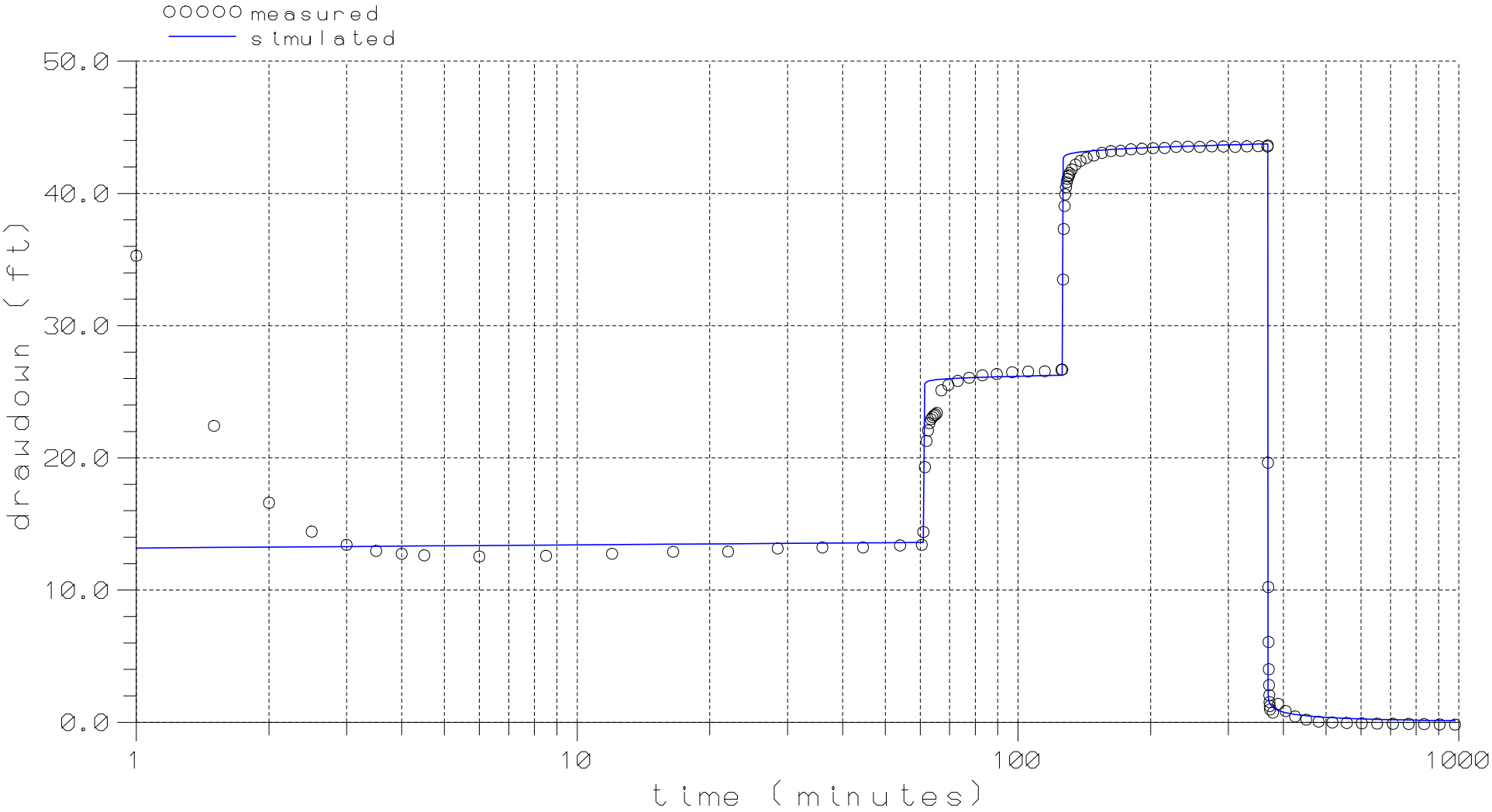
RESULTS

Transmissivity = 10,100 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 2.63 ft/day
well loss constant = 0.001
well loss exponent = 2.18
assumed aquifer thickness = 1060 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-3C DURING PUMPING AT 13.8, 27.6, AND 38.3 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-3 PumpTest/mo-3c/whip/mo3cl.srf	E.12



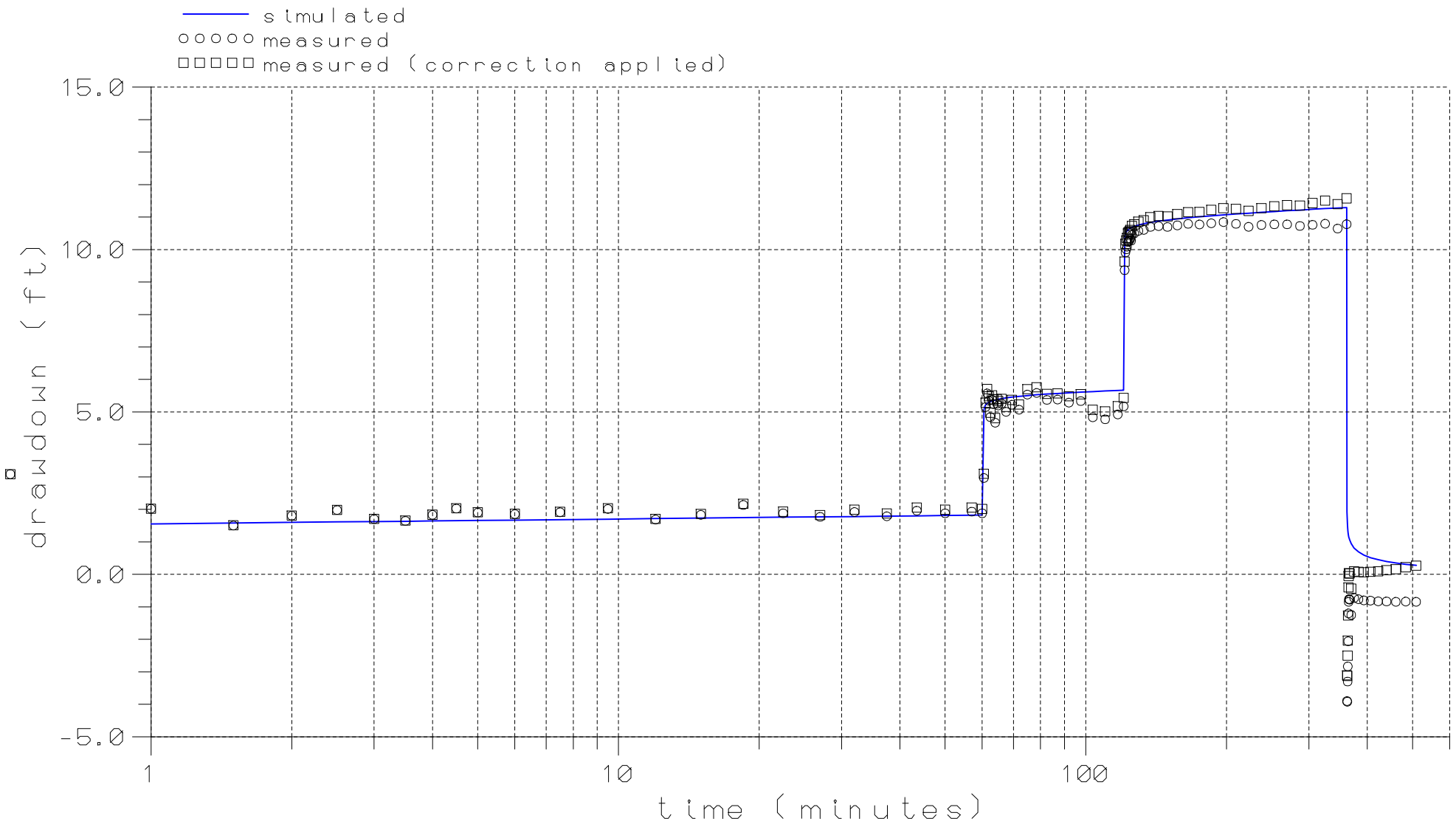
RESULTS

Transmissivity = 7500 ft2/day
Storage coefficient = 0.005
Vertical Hydraulic Conductivity = 0.01 ft/day
well loss constant = 0.90
well loss exponent = 0.998
assumed aquifer thickness = 835 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4A DURING PUMPING AT 13.5, 26, AND 43 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4A/whip/mo4a.srf	E.13



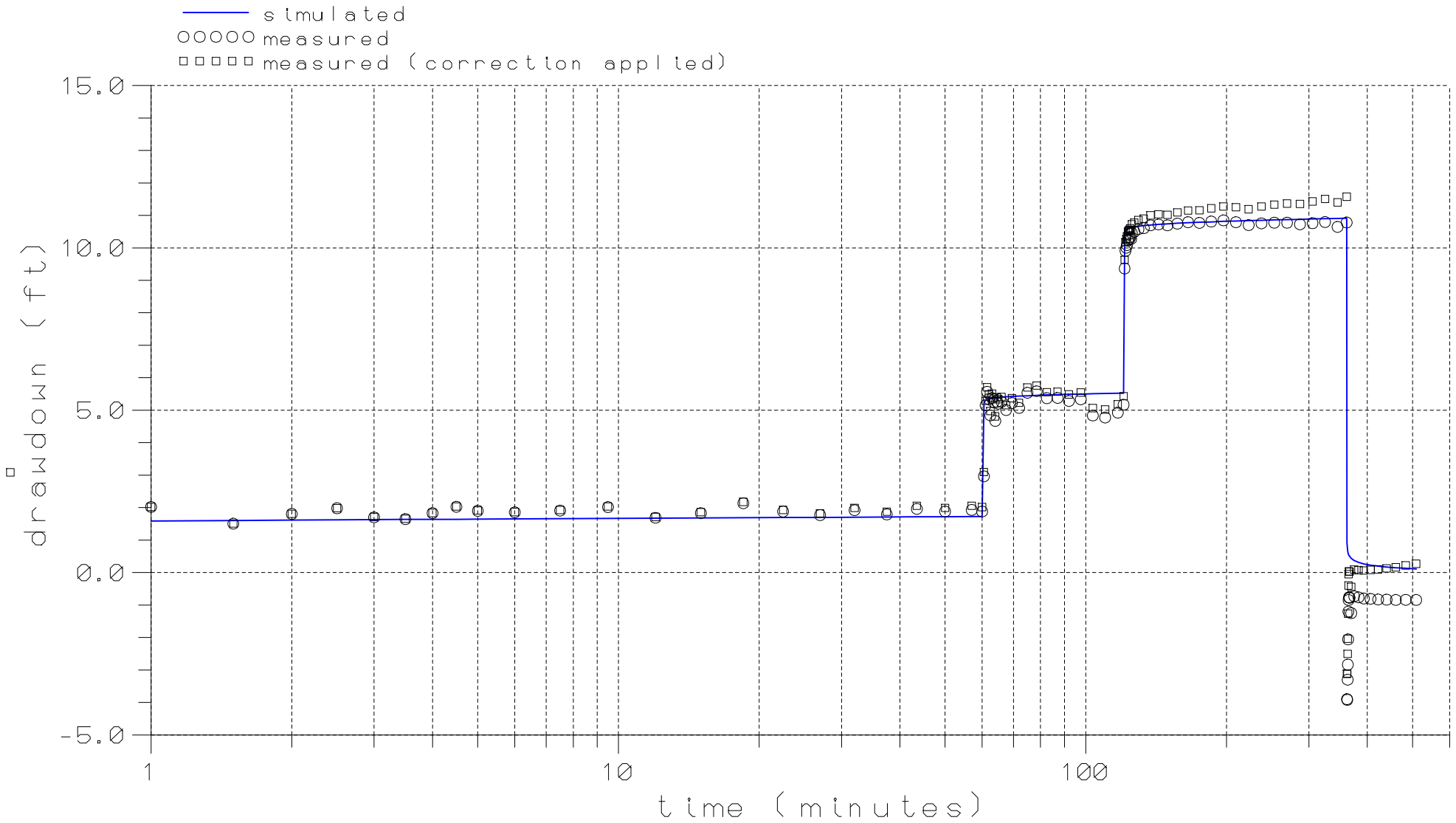
RESULTS

Transmissivity = 10,000 ft2/day
Storage coefficient = 0.005
Vertical Hydraulic Conductivity = 0.01 ft/day
well loss constant = 0.0169
well loss exponent = 1.52
assumed aquifer thickness = 830 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4B DURING PUMPING AT 13, 31.5, AND 52 GPM (corrected for regional water level change) (analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-4/MO-4B/whip/mo4bcor.srf	E.14



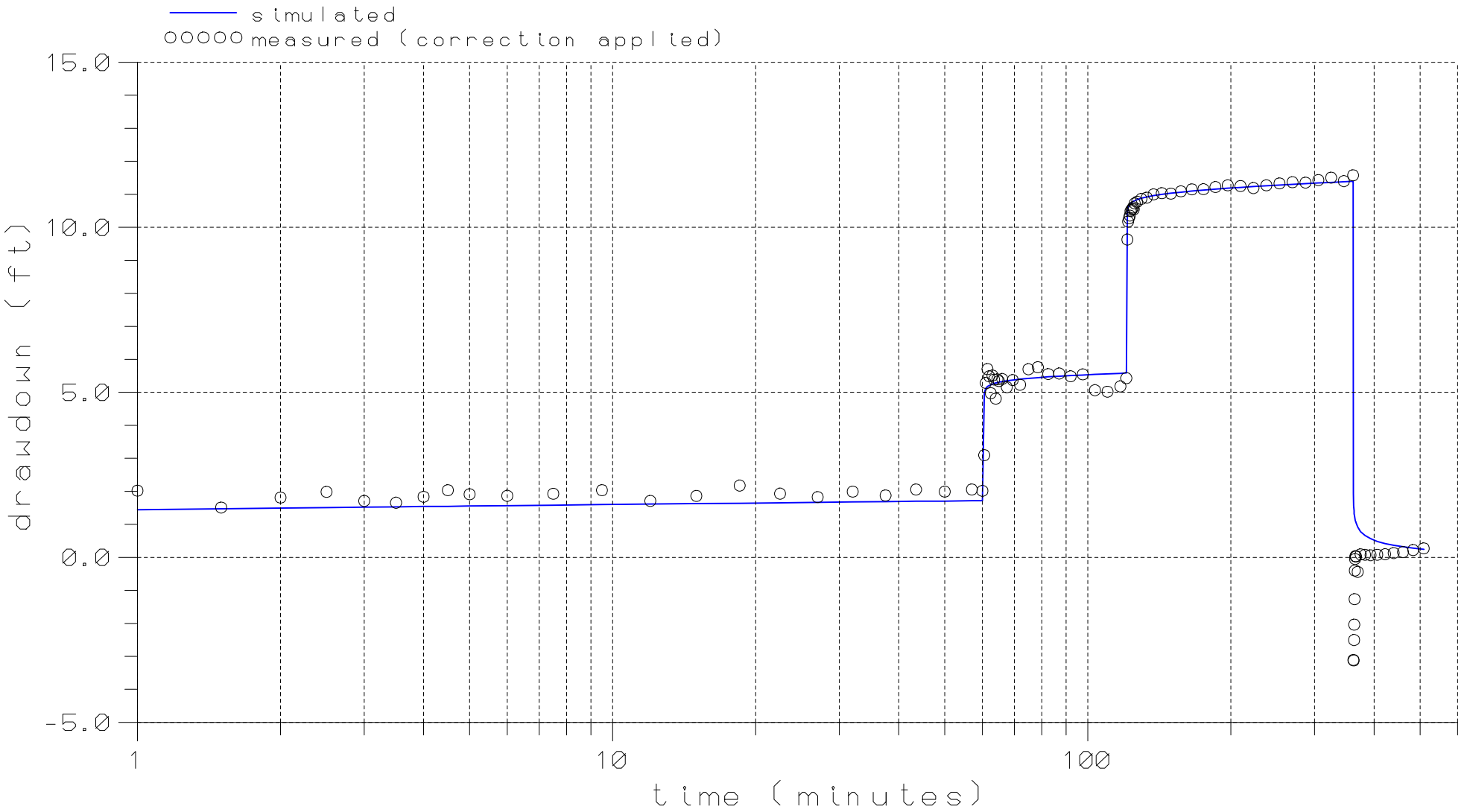
RESULTS

Transmissivity = 20,000 ft2/day
Storage coefficient = 0.005
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.0318
well loss exponent = 1.42
assumed aquifer thickness = 830 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4B DURING PUMPING AT 13, 31.5, AND 52 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4B/whip/mo4b.srf	**E.15**



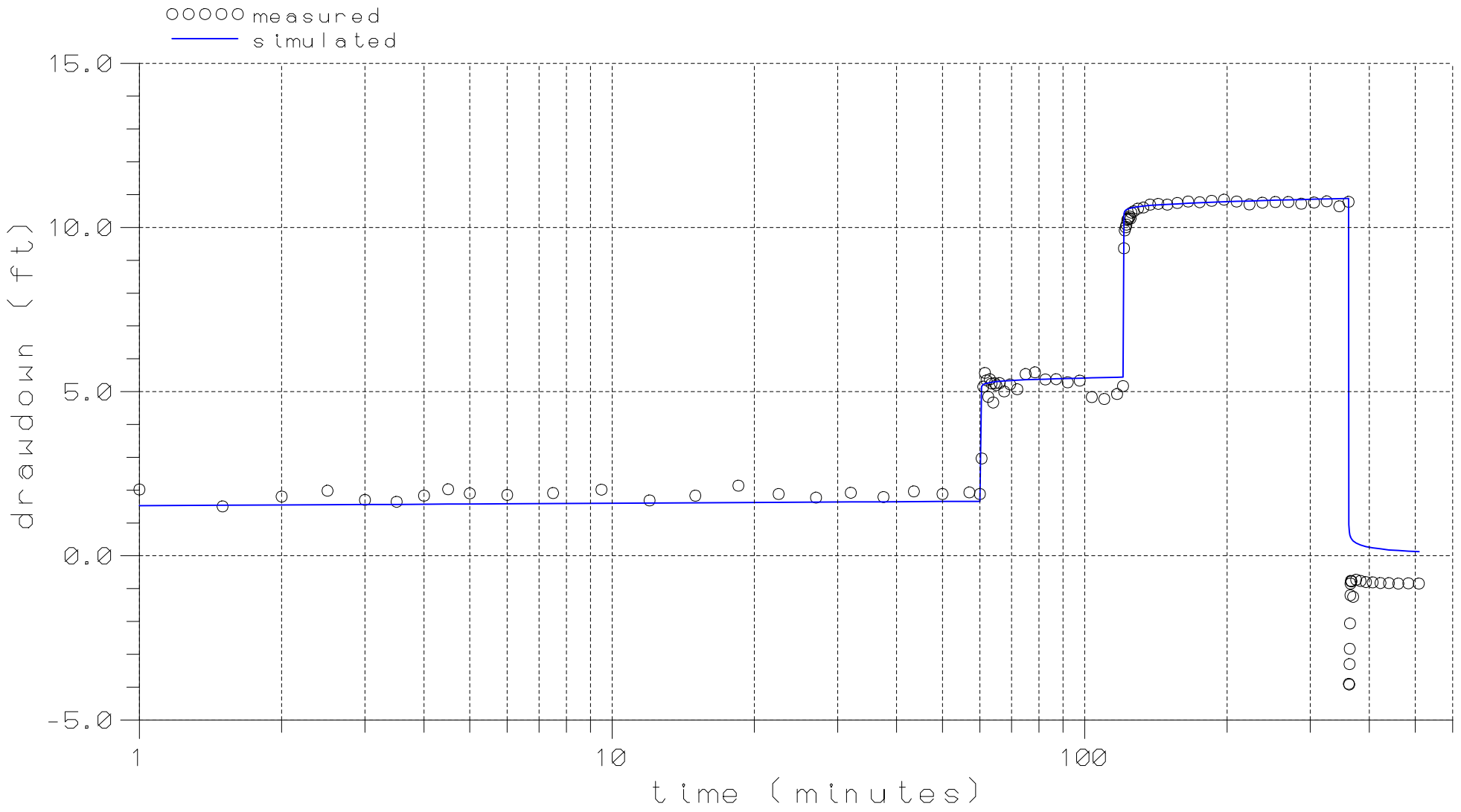
RESULTS

Transmissivity = 10,000 ft2/day
Storage coefficient = 0.1
Vertical Hydraulic Conductivity = 1.0 ft/day
well loss constant = 0.017
well loss exponent = 1.55
assumed aquifer thickness = 835 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4B DURING PUMPING AT 13, 31.5, AND 52 GPM (corrected for regional water level change) (analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-4/MO-4B/whip/mo4bc2.srf	E.16



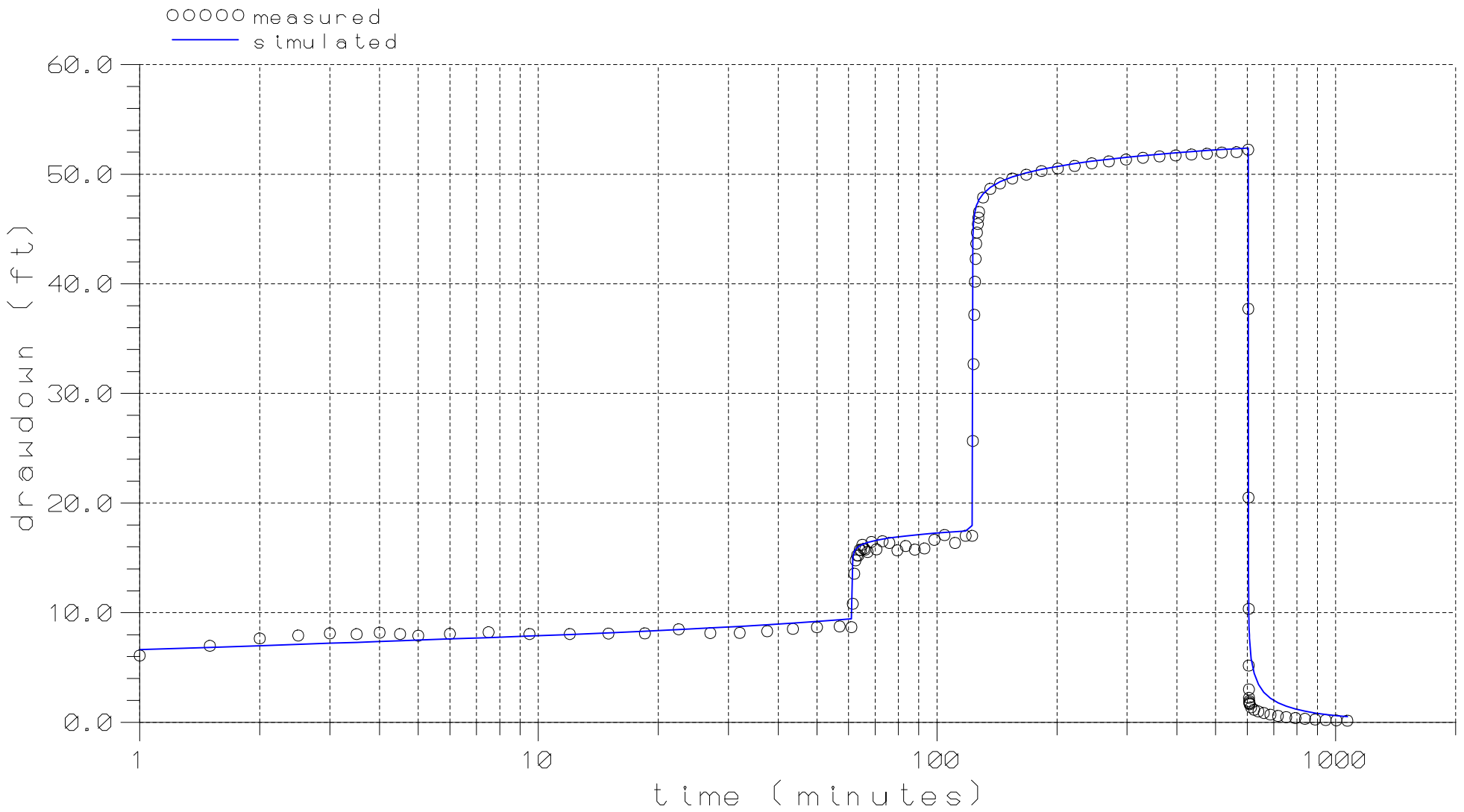
RESULTS

Transmissivity = 20,000 ft2/day
Storage coefficient = 0.1
Vertical Hydraulic Conductivity = 1.0 ft/day
well loss constant = 0.0318
well loss exponent = 1.43
assumed aquifer thickness = 830 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4B DURING PUMPING AT 13, 31.5, AND 52 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4B/whip/mo4b2.srf	**E.17**



RESULTS

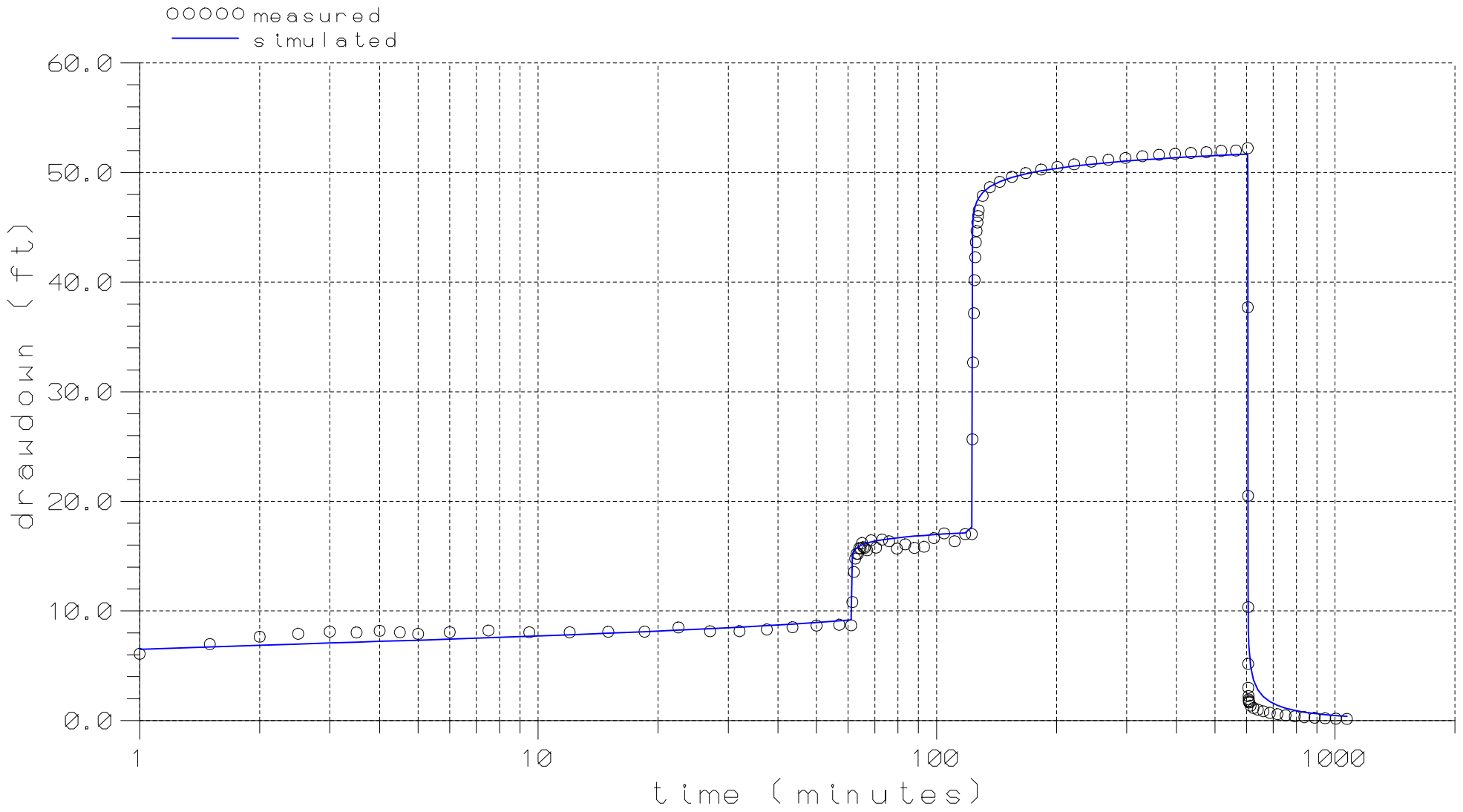
Transmissivity = 8680 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.0114 ft/day
well loss constant = 8.e-5
well loss exponent = 3.02
assumed aquifer thickness = 835 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4C DURING PUMPING AT 15-16.5, 28, AND 60 GPM

(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4C/whip/mo4c.srf	**E.18**



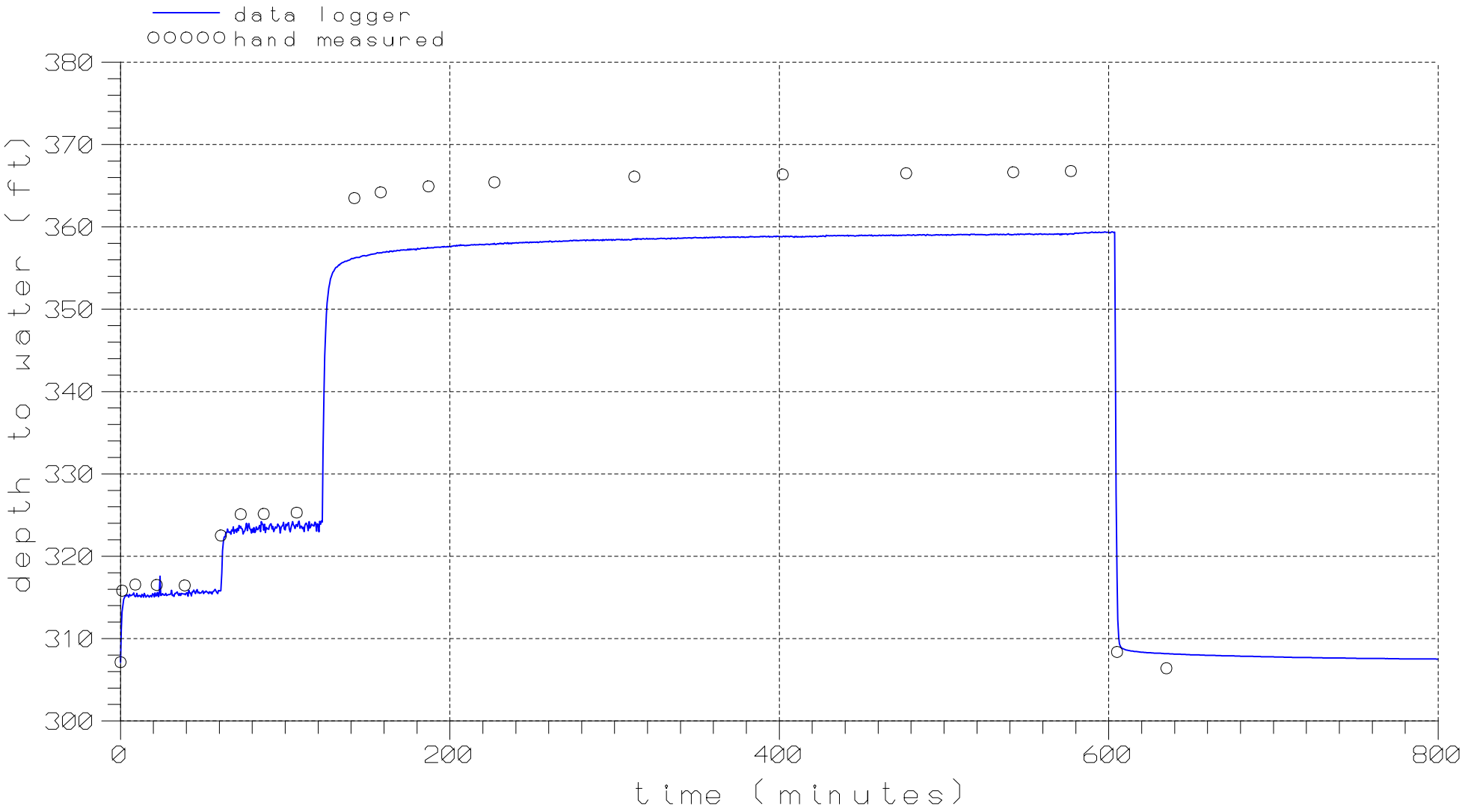
RESULTS

Transmissivity = 9000 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.02 ft/day
well loss constant = 1.8e-4
well loss exponent = 2.82
assumed aquifer thickness = 835 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4C DURING PUMPING AT 15-16.5, 28, AND 60 GPM
(analysis using WHIP)

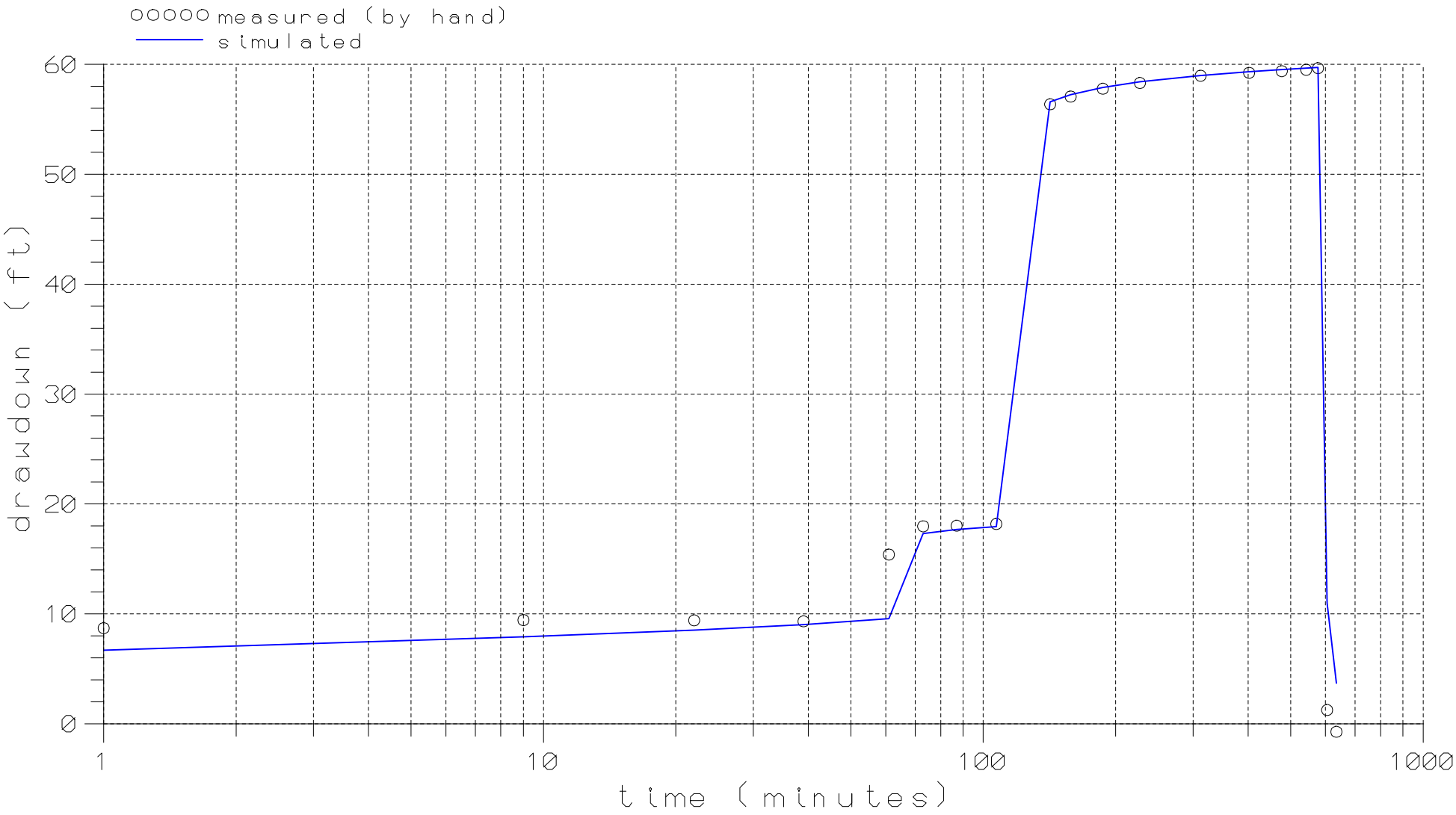
APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4C/whip/mo4c2.srf	**E.19**



HYDRO GEO CHEM, INC.

COMPARISON OF DEPTHS TO WATER AT MO-4C MEASURED BY HAND (USING A SOUNDER) AND COMPUTED FROM AUTOMATICALLY LOGGED DATA
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4C/whip/mo4dtw.srf	**E.20**



RESULTS

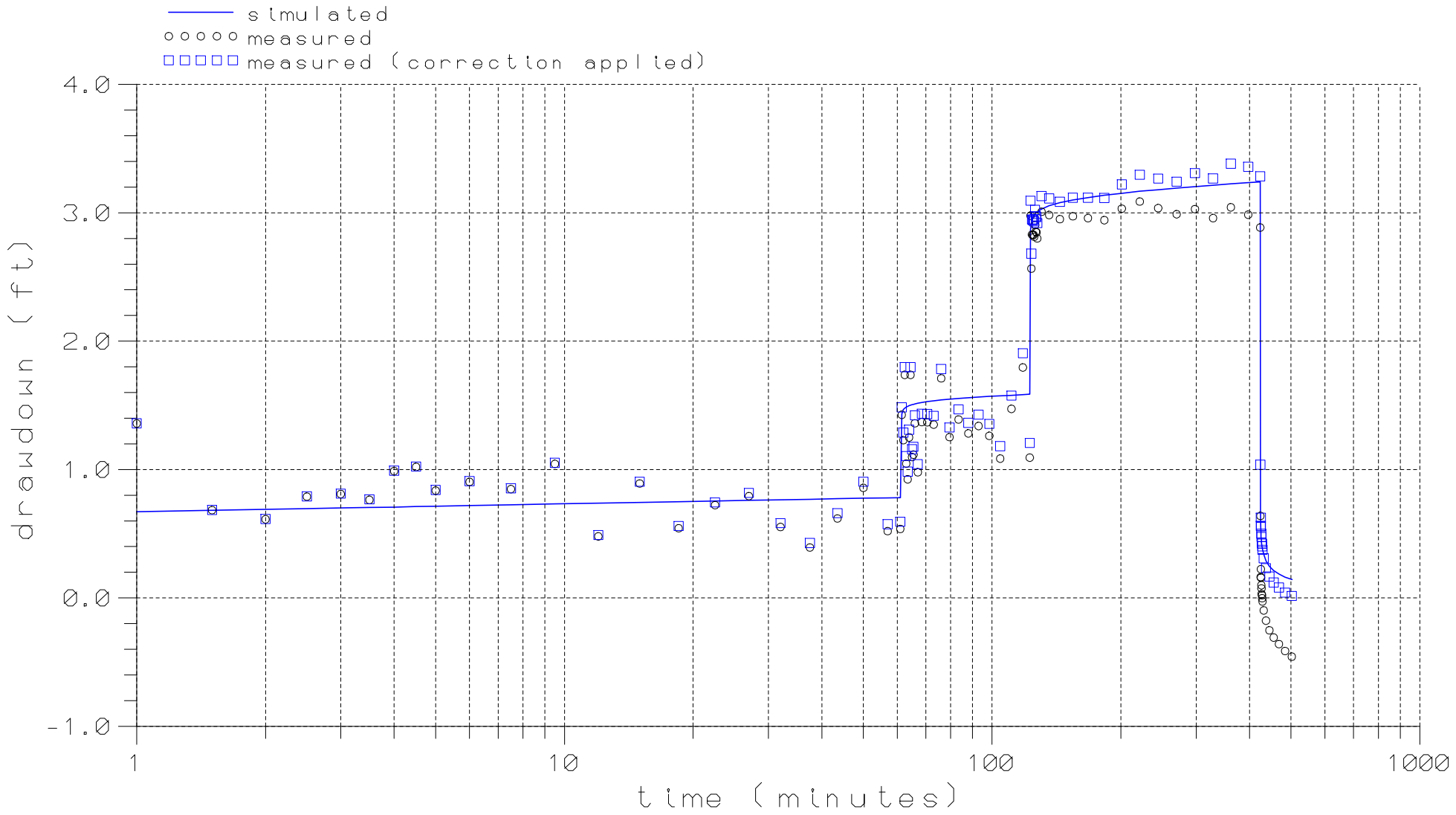
Transmissivity = 8680 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.0114 ft/day
well loss constant = 8.4e-5
well loss exponent = 3.09
assumed aquifer thickness = 835 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-4C DURING PUMPING AT 15-16.5, 28, AND 60 GPM (HAND COLLECTED DATA)

(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-4/MO-4C/whip/mo4ch.srf	**E.21**



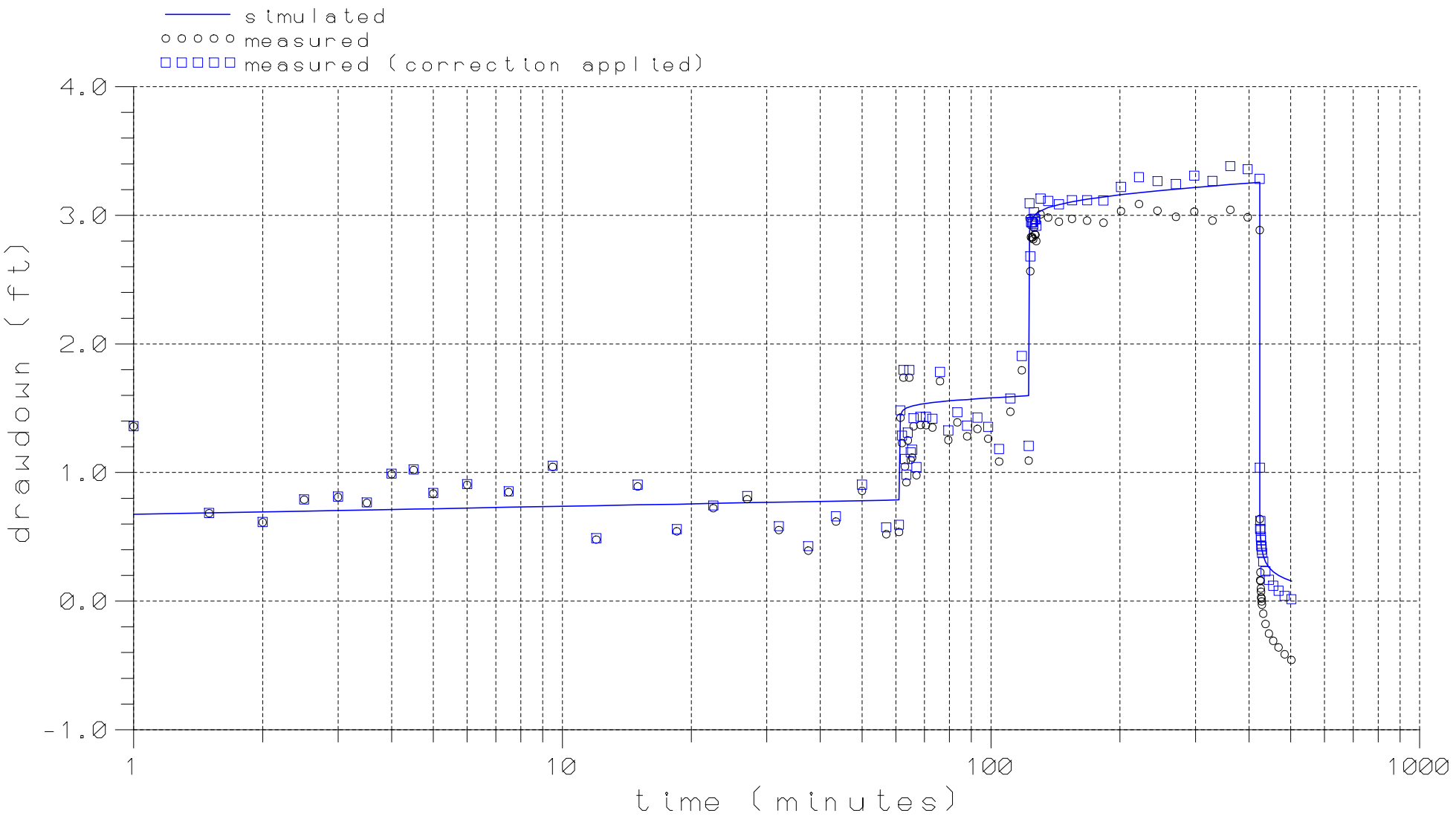
RESULTS

Transmissivity = 31,200 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.01 ft/day
well loss constant = 0.0091
well loss exponent = 1.27
assumed aquifer thickness = 1085 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-5B DURING PUMPING AT 16, 30, AND 55 GPM (with linear correction for regional water level change) (analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-5/MO-5B/whip/mo5bcor.srf	E.22



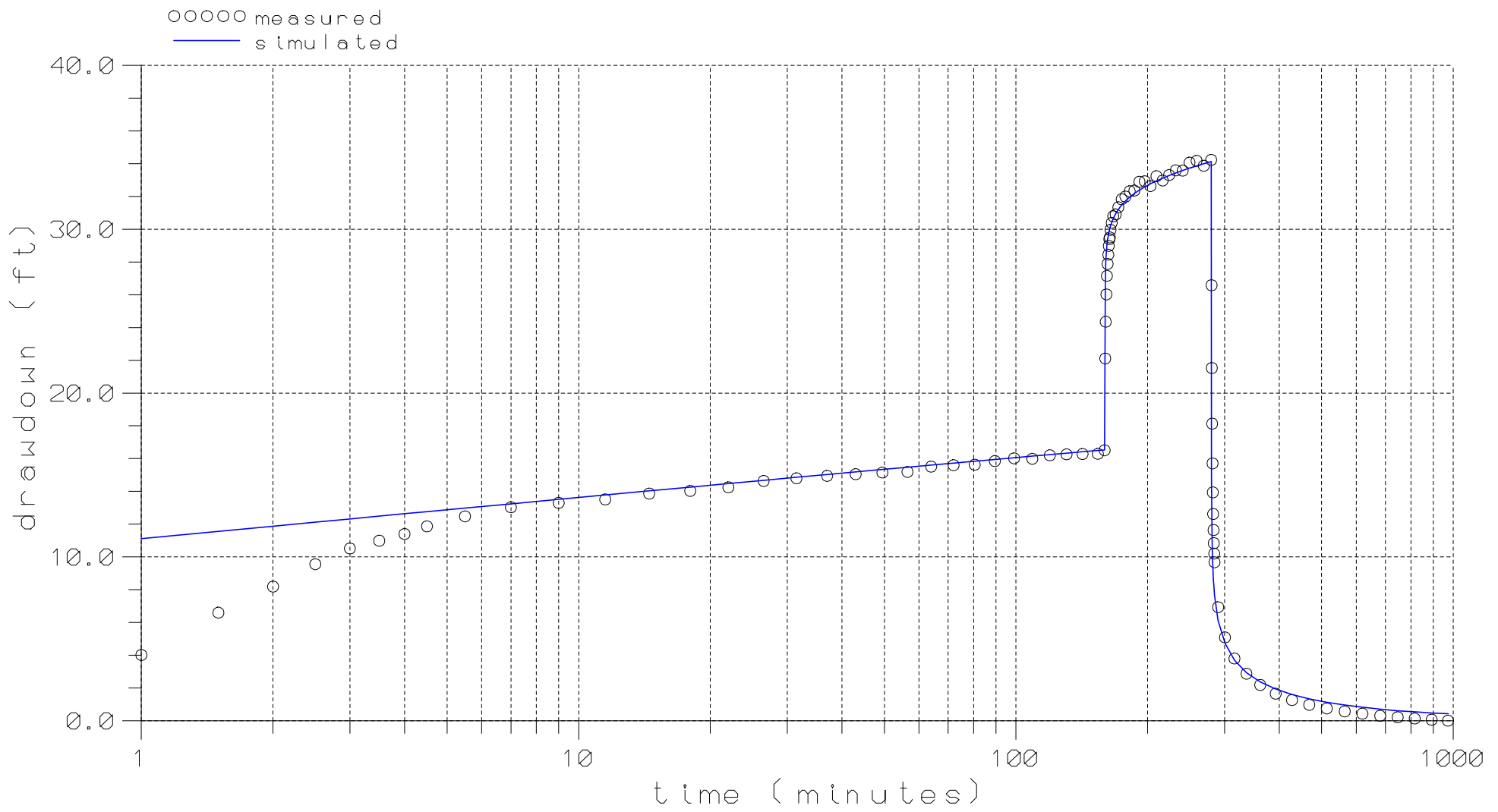
RESULTS

Transmissivity = 31,200 ft2/day
Storage coefficient = 0.1
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.016
well loss exponent = 1.19
assumed aquifer thickness = 1085 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-5B DURING PUMPING AT 16, 30, AND 55 GPM
(with linear correction for regional water level change)
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/MO-5/MO-5B/whip/mo5bc2.srf	E.23



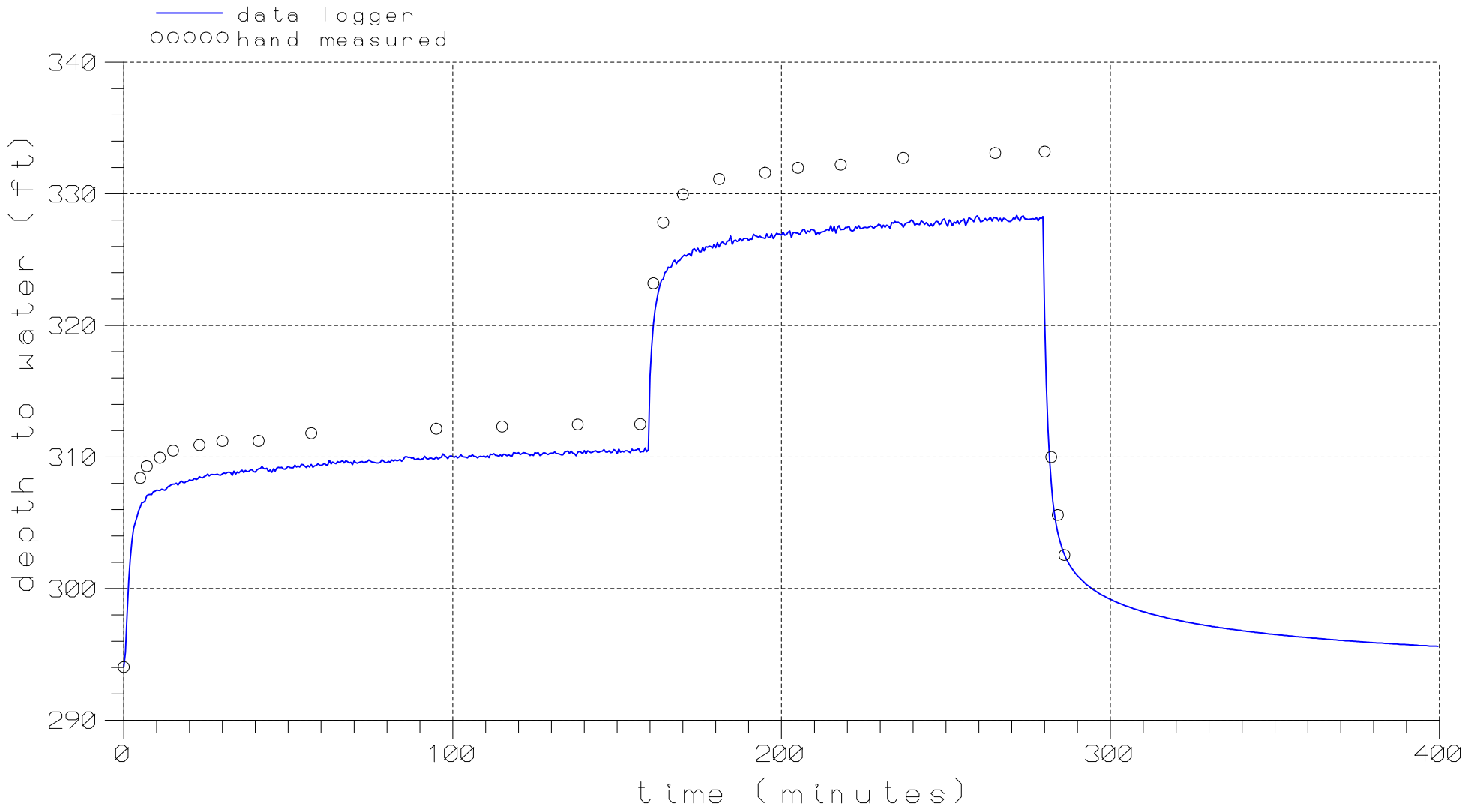
RESULTS

Transmissivity = 785 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.0114 ft/day
well loss constant = 0.003
well loss exponent = 2.05
assumed aquifer thickness = 1085 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-5C DURING PUMPING AT 10.5 AND 21 GPM
(analysis using WHIP)

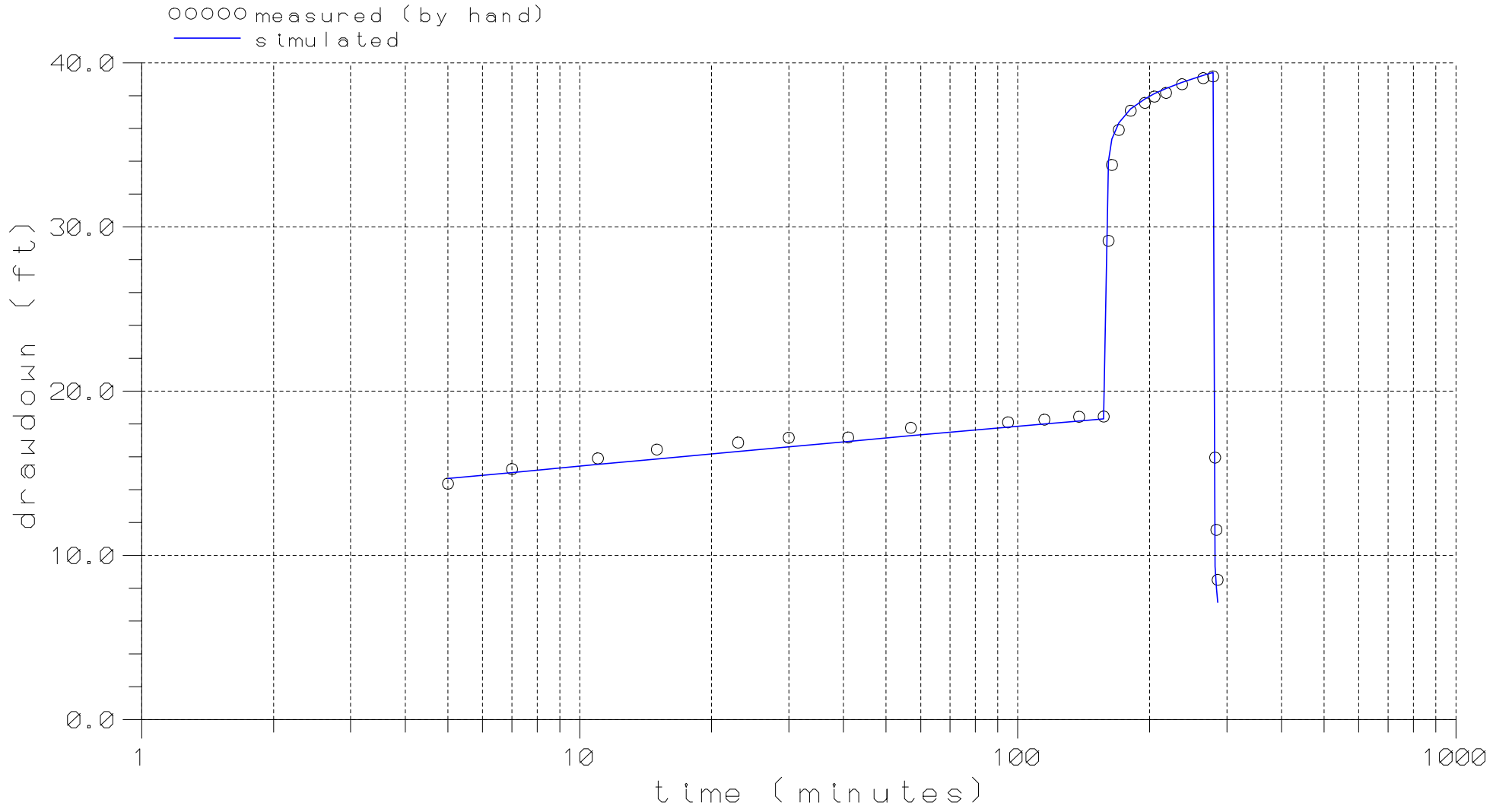
APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-5/MO-5C/whip/mo5c.srf	**E.24**



HYDRO GEO CHEM, INC.

COMPARISON OF DEPTHS TO WATER AT MO-5C MEASURED BY HAND (USING A SOUNDER) AND COMPUTED FROM AUTOMATICALLY LOGGED DATA
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-5/MO-5C/whip/mo5cdtw.srf	E.25



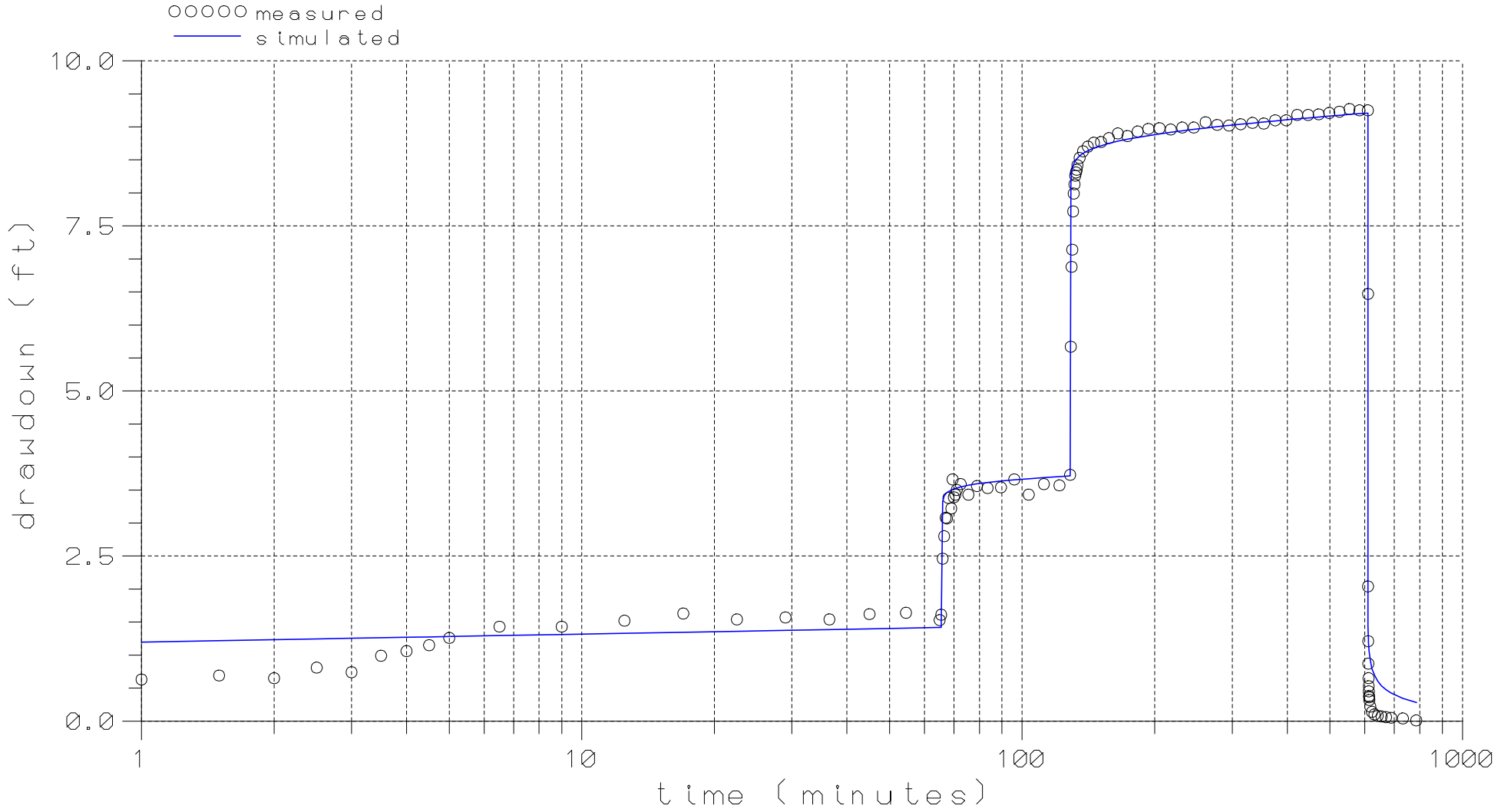
RESULTS

Transmissivity = 785 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.0114 ft/day
well loss constant = 0.045
well loss exponent = 1.65
assumed aquifer thickness = 1085 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-5C DURING PUMPING AT 10.5 AND 21 GPM (HAND COLLECTED DATA)
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-5/MO-5C/whip/mo5ch.srf	**E.26**



RESULTS

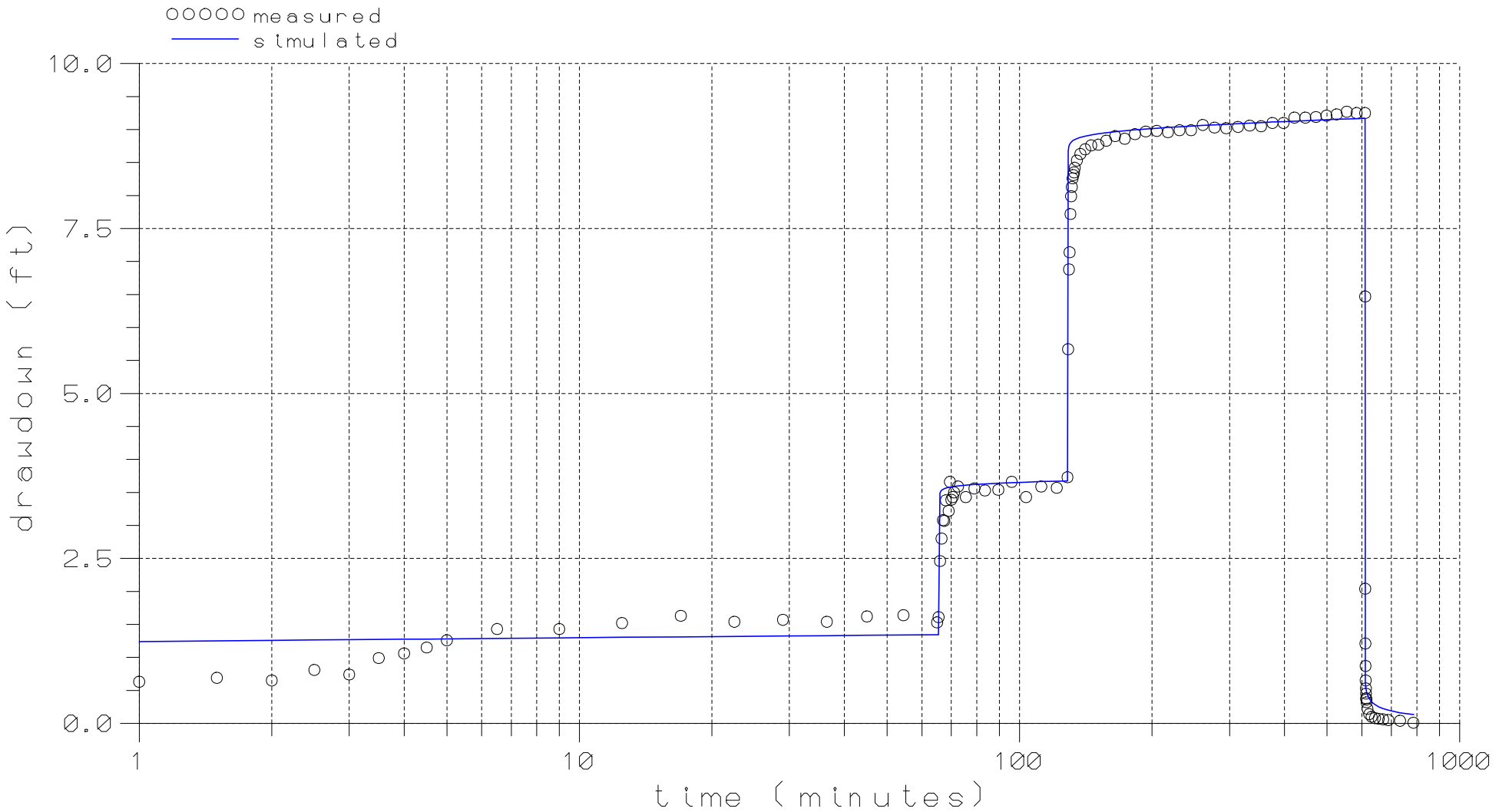
Transmissivity = 8,000 ft2/day
Storage coefficient = 0.0057
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.014
well loss exponent = 1.49
assumed aquifer thickness = 655 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-6A DURING PUMPING AT 13, 28, AND 55 GPM

(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-6/MO-6A/whip/mo6a.srf	**E.27**



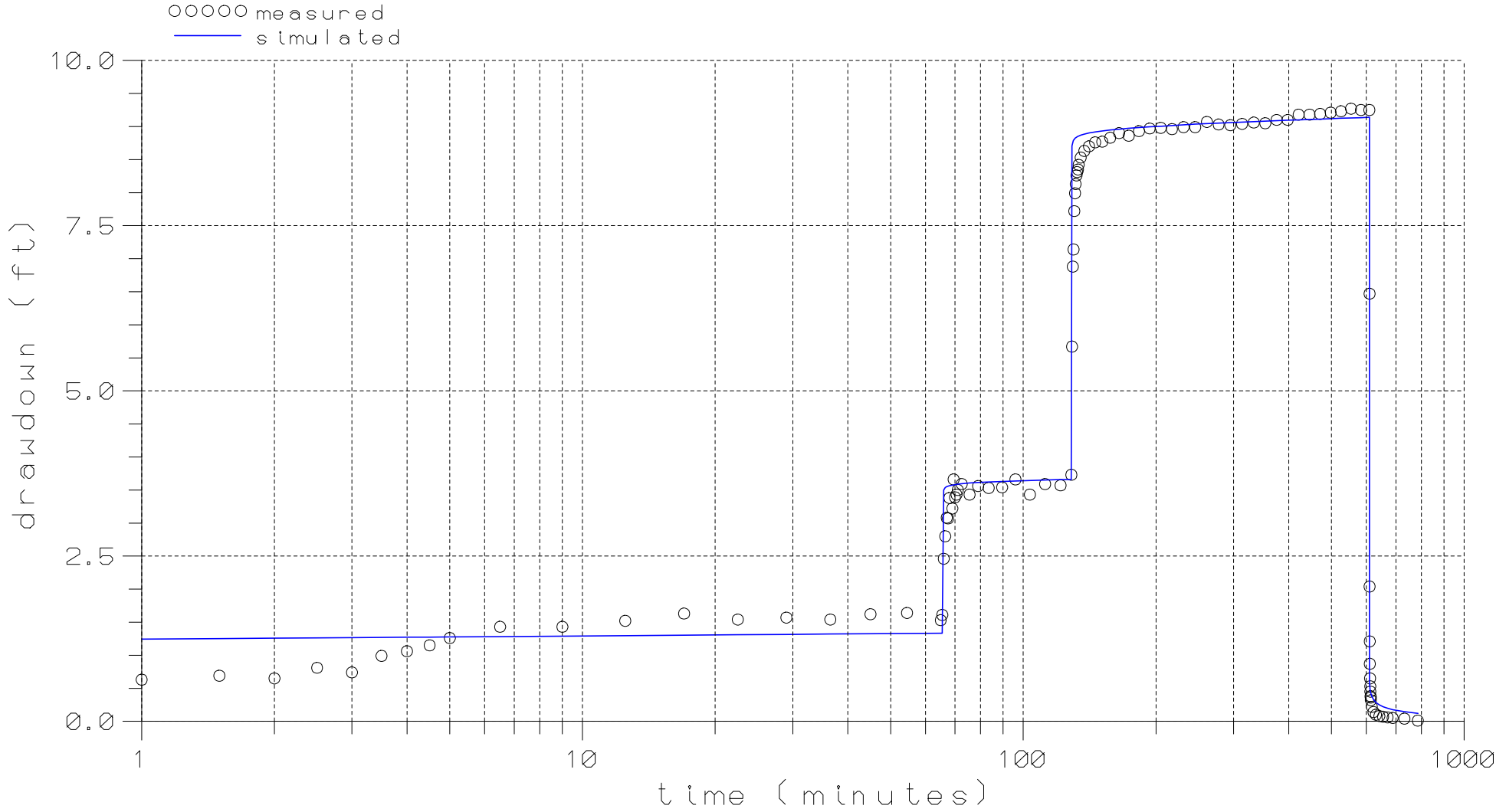
RESULTS

Transmissivity = 17,000 ft2/day
Storage coefficient = 0.0057
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.0258
well loss exponent = 1.41
assumed aquifer thickness = 655 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-6A DURING PUMPING AT 13, 28, AND 55 GPM (FIT TO RECOVERY DATA)
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-6/MO-6A/whip/mo6alt.srf	**E.28**



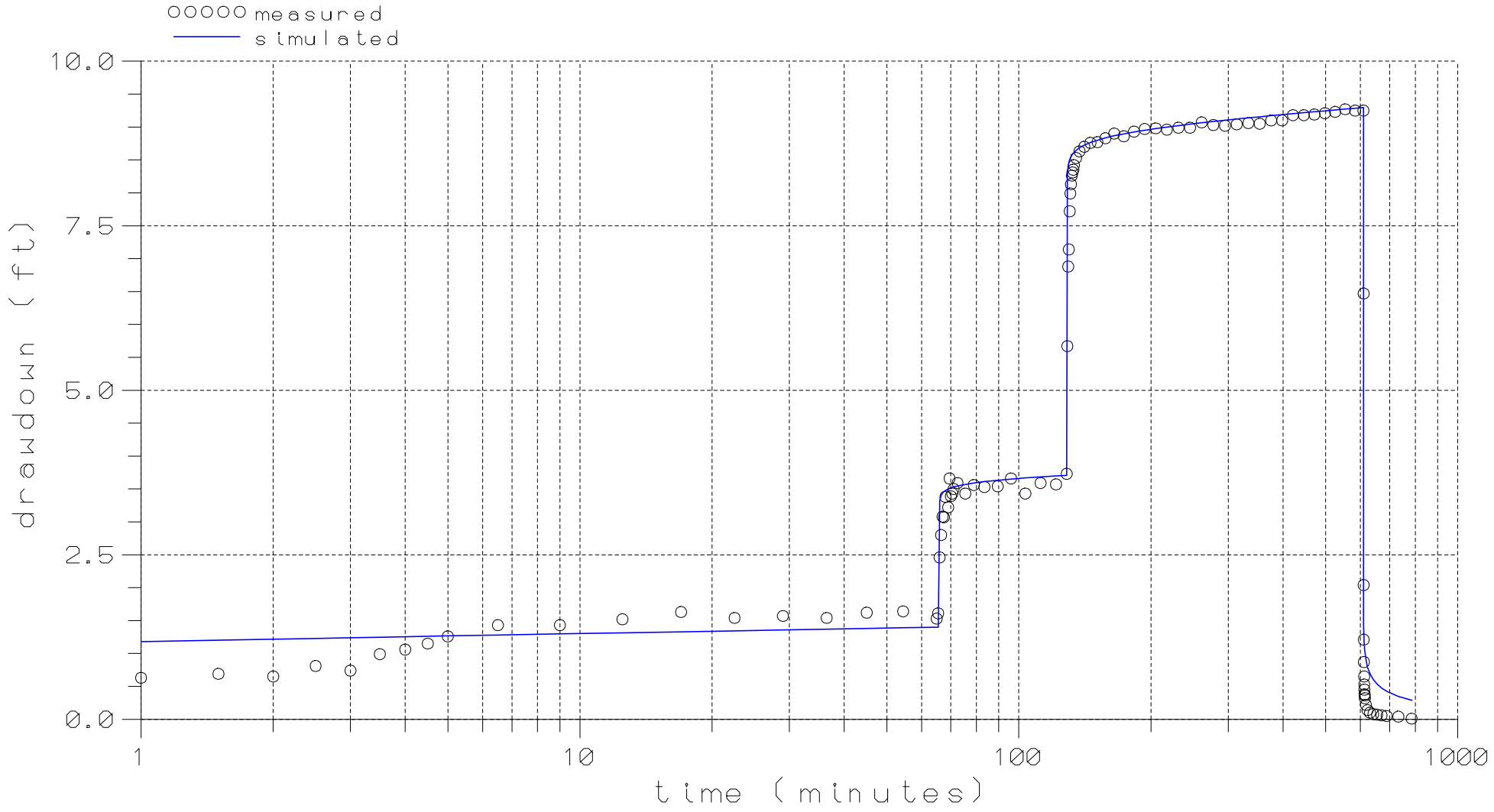
RESULTS

Transmissivity = 10,000 ft2/day
Storage coefficient = 0.0057
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.0277
well loss exponent = 1.40
assumed aquifer thickness = 325 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-6A DURING PUMPING AT 13, 28, AND 55 GPM (ASSUMES AQUIFER BASE AT 630 FT BLS)
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-6/MO-6A/whip/mo6afp.srf	**E.29**



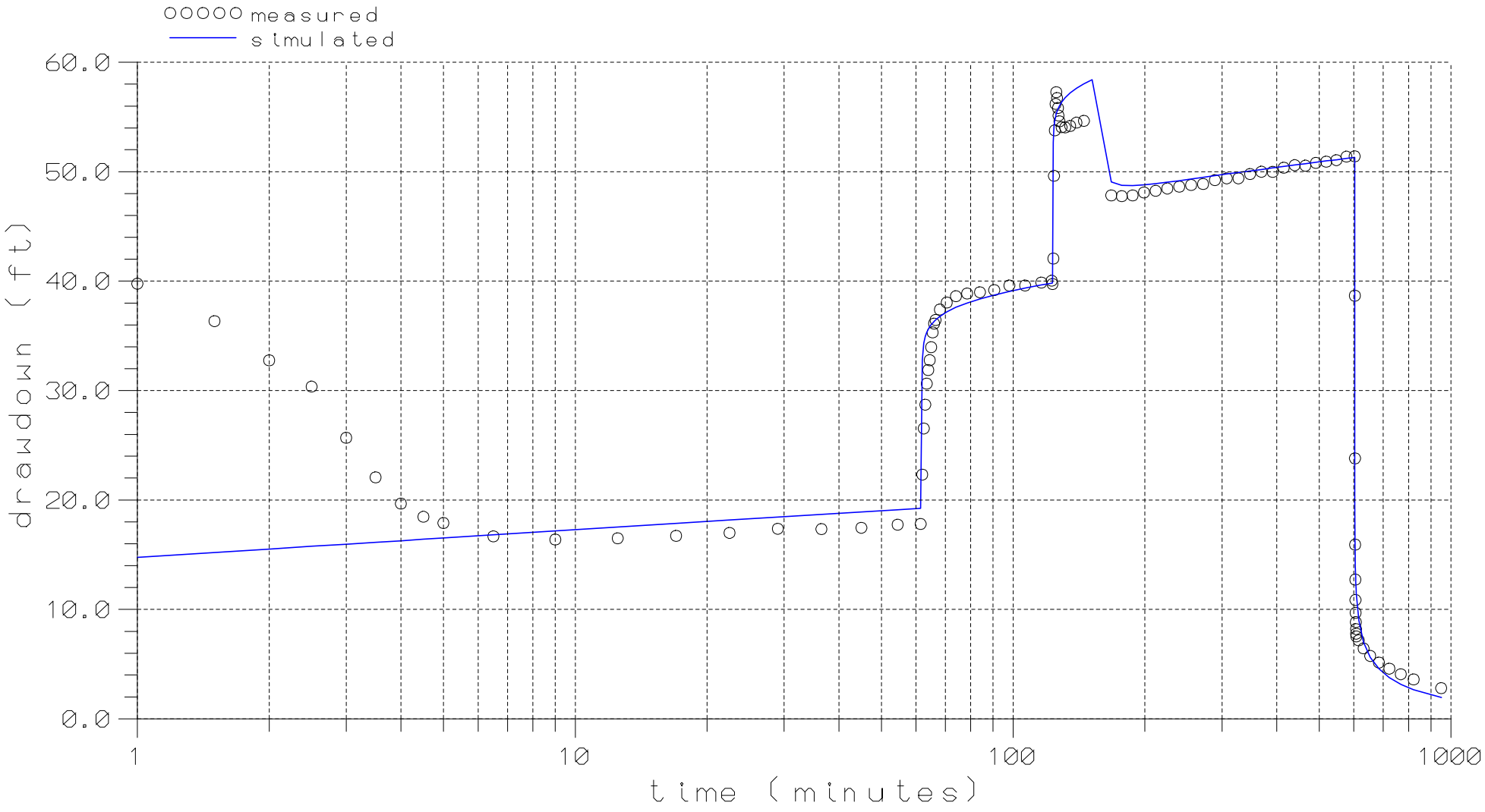
RESULTS

Transmissivity = 4,150 ft2/day
Storage coefficient = 0.0057
Vertical Hydraulic Conductivity = 0.1 ft/day
well loss constant = 0.014
well loss exponent = 1.50
assumed aquifer thickness = 325 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-6A DURING PUMPING AT 13, 28, AND 55 GPM (ASSUMES AQUIFER BASE AT 630 FT BLS)
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-6/MO-6A/whip/mo6af2.srf	E.30



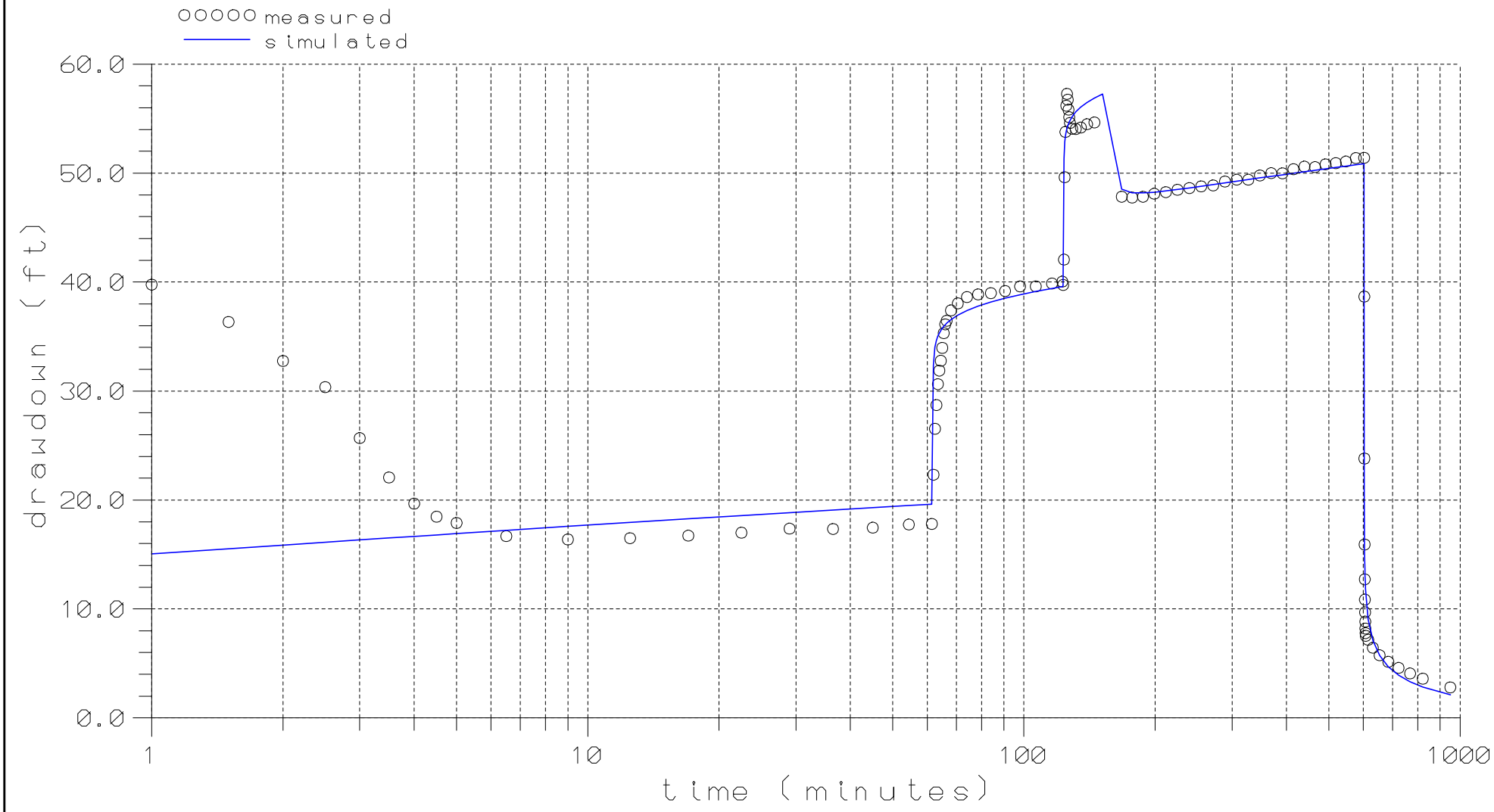
RESULTS

Transmissivity = 750 ft2/day
Storage coefficient = 0.001
Vertical Hydraulic Conductivity = 0.01 ft/day
well loss constant = 0.2
well loss exponent = 1.12
assumed aquifer thickness = 655 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-6B DURING PUMPING AT 14, 28, 40, AND 33 GPM
(analysis using WHIP)

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-6/MO-6B/whip/mo6b.srf	**E.31**



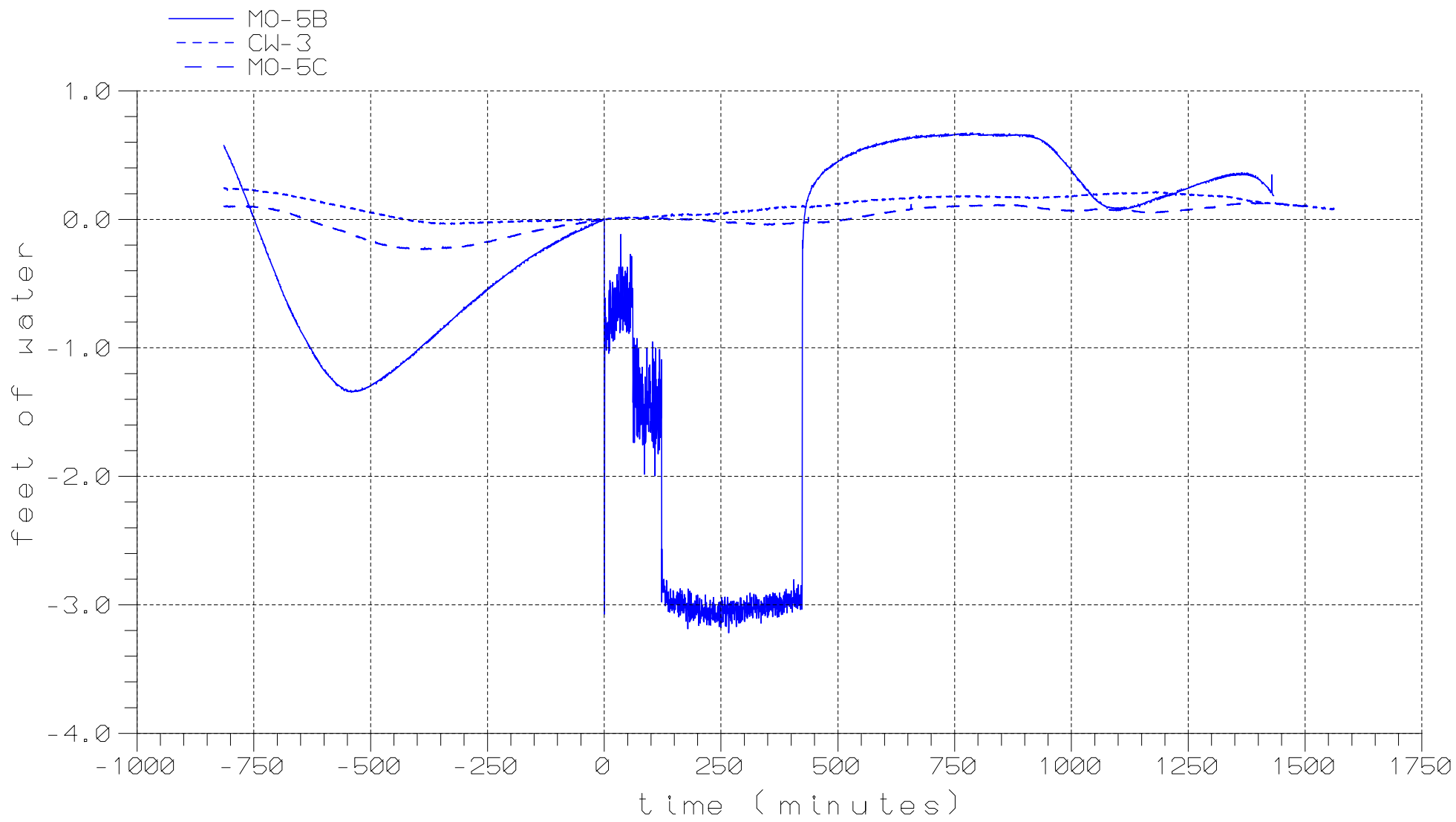
RESULTS

Transmissivity = 210 ft2/day
Storage coefficient = 0.001
Aquitard Specific Storage = 1.e-4/ft
Vertical Hydraulic Conductivity = 0.1 ft/day
Aquitard Hydraulic Conductivity = 0.001 ft/day
well loss constant = 0.4
well loss exponent = 0.95
assumed aquifer thickness = 190 ft

HYDRO GEO CHEM, INC.

MEASURED AND SIMULATED DRAWDOWNS AT MO-6B DURING PUMPING AT 14, 28, 40, AND 33 GPM (ASSUMES AQUITARD FROM 630-770 FT BLS)
(analysis using WHIP)

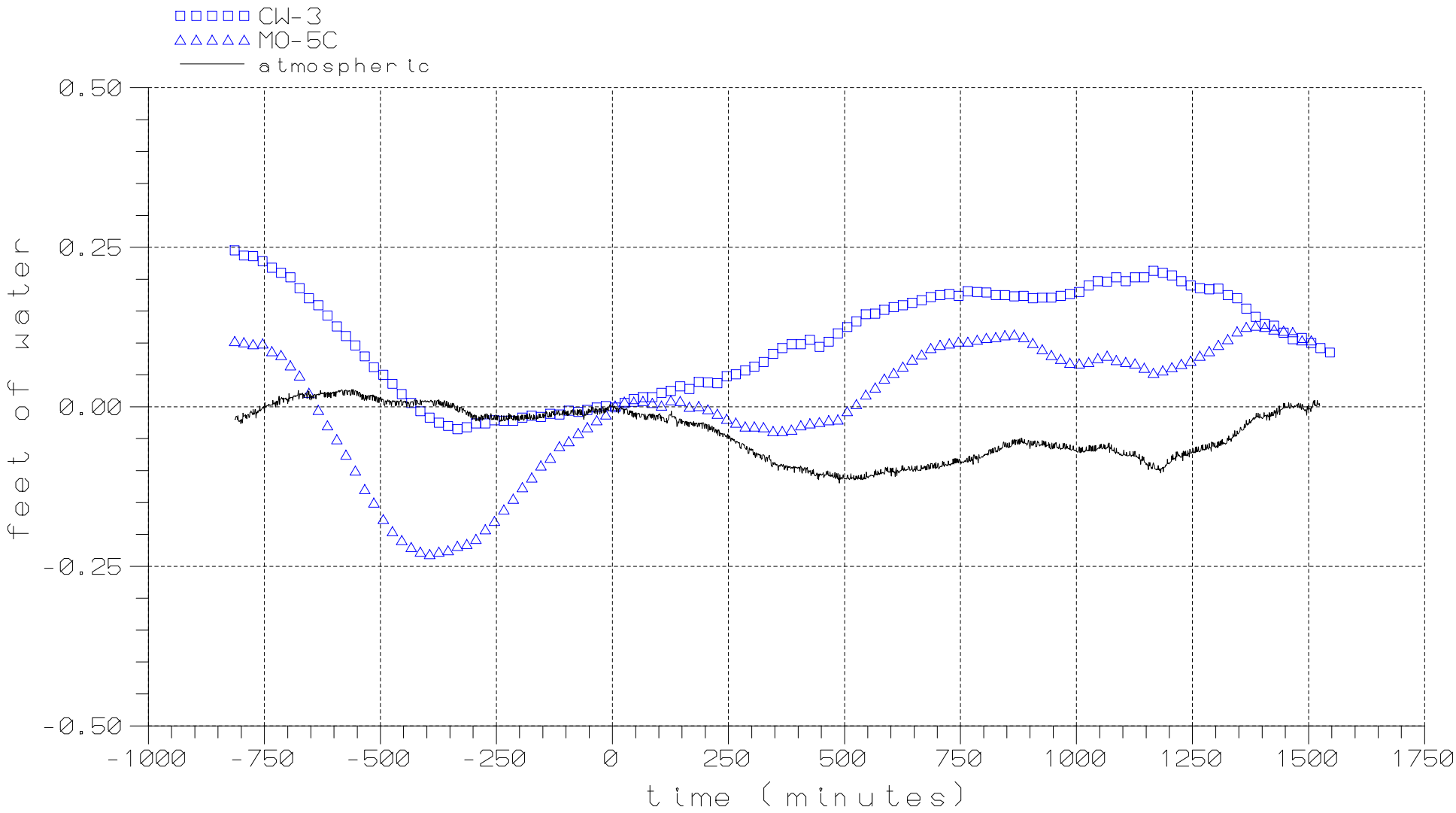
APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-6/MO-6B/whip/mo6bl.srf	E.32



HYDRO GEO CHEM, INC.

COMPARISON OF WATER LEVEL CHANGES AT MO-5 WELL NEST PRIOR TO, DURING, AND AFTER PUMPING OF MO-5B

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-5/MO-5B/preschg.srf	**E.33**



HYDRO GEO CHEM, INC.

COMPARISON OF WATER LEVEL CHANGES AT CW-3 AND MO-5C WITH CHANGE IN ATMOSPHERIC PRESSURE PRIOR TO, DURING, AND AFTER PUMPING OF MO-5B

APPROVED	DATE	REFERENCE	FIGURE
SJS	10/30/07	H:/78300/78306.4/ MO-5/MO-5B/preschg2.srf	**E.34**

APPENDIX F

RESULTS OF INITIAL WATER QUALITY SAMPLING AT OFFSITE MONITORING WELLS

TASK 2.4 OF AQUIFER CHARACTERIZATION PLAN

HYDRO GEO CHEM, INC.

INITIAL SAMPLING

Groundwater Sampling Form

Well No: MO-2007-1A

Well Name: American Legion Well

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 8/8/2007

Recorder/Sampler: M.A

WELL INFORMATION

Total Well Depth ("a", ft): _____

Casing Diameter ("d", in.): _____ Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): _____

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _____ Gallons, (3 Casing Volumes _____ gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 1300 Time Completed: _____ Total Purge Time: _____ min

Purge Method: _____ Pump Setting (depth): _____ Total Purge Volume: _____ gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (uhos/cm)	pH	Other	D.O. (mg/L)	Odor	Notes
1300		29.0	370	7.17				

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1300 Time Completed: 1302

Sampling Method, Type of Sampling Pump or Bailer: _____

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW-MO-2007-1A	1300	PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
UGW-MO-2007-1A		PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC.

INITIAL SAMPLING

Groundwater Sampling Form

Well No: MO-2007-1B

Well Name: American Legion Well

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 9/12/2007

Recorder/Sampler: Mark Arneson

WELL INFORMATION

Total Well Depth ("a", ft): _____ No Purge Read - Test In Progress

Casing Diameter ("d", in.): _____ Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): _____

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _____ Gallons, (3 Casing Volumes_____ gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 1445 Time Completed: _____ Total Purge Time: _____ min

Purge Method: Grundfos Pump Setting (depth):_____ Total Purge Volume: _____gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (uhos/cm)	pH	Other	D.O. (mg/L)	Odor	Notes
1445		30.7	321	7.41				

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1445 Time Completed: 1447

Sampling Method, Type of Sampling Pump or Bailer: _____

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW- MO-2007-1B	1445	PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
UGW- MO-2007-1B	1445	PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC.

INITIAL SAMPLING

Groundwater Sampling Form

Well No: MO-2007-1C

Well Name: American Legion Well

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 7 / 31 /2007

Recorder/Sampler: Kim Garcia

WELL INFORMATION

Total Well Depth ("a", ft): 1190

Casing Diameter ("d", in.): _____ Screened Interval (ft): From: ~~NA~~ 1180 To: ~~NA~~ 1020

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): (Static @ 835 AM) 423.58'

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _____ Gallons, (3 Casing Volumes _____ gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Initial meter: 68208 Final meter: 81905

Time Started: 0921 Time Completed: 1520 Total Purge Time: _____ min

Purge Method: 10Hp Grundfos Pump Setting (depth): _____ Total Purge Volume: 13,700 gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C / °F)	Conductivity (~~mhos/cm~~) µS/cm	pH	Other NTU	D.O. (mg/L)	Odor	Notes
~~1020~~ 1005	~~46~~ 50	31.2	420	~~7.35~~ 7.52	4.03			well running prior to arrival & on during sampling
1115	X 30	31.7	484	7.41	6.09			
1245	46 → 48	31.3	508	7.23	2.92			
1400		30.2	518	7.35	5.47			
1410	↓	NA	1411	6.98/4.03	2.62			pH EC Temp - calib check
1520	~48	27.9	523	7.35	7.51			

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1520 Time Completed: 1520

Sampling Method, Type of Sampling Pump or Bailer: grab fr. sample point @ wellhead

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
MO-2007-1C-F	1520	PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
MO-2007-1C-U	1520	PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

INITIAL SAMPLING

HYDRO GEO CHEM, INC.

Groundwater Sampling Form

Well No: MO-2

Well Name: _____

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 6 1/4/2007

Recorder/Sampler: N H

WELL INFORMATION

Total Well Depth ("a", ft): _____

Casing Diameter ("d", in.): _____ Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): _____

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _____ Gallons, (3 Casing Volumes _____ gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 1550 Time Completed: _____ Total Purge Time: _____ min

Purge Method: _____ Pump Setting (depth): _____ Total Purge Volume: _____ gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (uhos/cm)	pH	Other	D.O. (mg/L)	Odor	Notes
1550	37.5	32.2	1372	7.05				

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1550 Time Completed: 1581

Sampling Method, Type of Sampling Pump or Bailer: _____

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW- MO-2FJ		PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
UGW- MO-2UJ		PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC.

Groundwater Sampling Form

Well No: GW-605898-051407

Well Name: CW-2/NP-2

Project Name/Number: SIERRITA GW MONITORING (78306.2)

Date: 6.4.07 ~~6/5/2007~~ 5/7/07

Recorder/Sampler: ~~KG/JSV~~ MA

WELL INFORMATION

Total Well Depth ("a", ft): 515

Casing Diameter ("d", in.): 12 Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): [ADWR = 314] 351 (351.45 on dtw07 @1259)

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = 964 Gallons, (3 Casing Volumes 2891 gal) infld initially

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 1407 Time Completed: 1452 Total Purge Time: 45 min

Purge Method: GrundFos Pump Pump Setting (depth): 446' Total Purge Volume: 4500 gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C / °F)	Conductivity (mhos/cm)	pH	Other Turbidity	D.O. (mg/L)	Odor	Notes
1410	120	25.6	390	7.80	779		Slight	rusty
1417	100	25.7	405	7.70	1000		None	rusty
1426	100	25.9	413	7.75	355		None	somewhat clear
1438	100	25.9	410	7.70	271		None	milky
1445	100	26.0	408	7.13	40.41		None	more clear/fairly clear
1455	100	25.9	411	7.20	27.48		None	fairly clear

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1455 Time Completed: 1458

Sampling Method, Type of Sampling Pump or Bailer: GrundFos

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
UF-605898-060407	1455	~~Poly~~	250 ml	1	SO_4	None	
FGW-605898-060407	1455	Poly	250 ml	1	Anions	None	Filtered
FGW-605898-060407	1455	Poly	250 ml	1	Metals	HNO_3	Filtered
UF-605898-060407	1440	Glass	1L	1	Oil/Grease	HCl	unfiltered

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

INITIAL SAMPLING

HYDRO GEO CHEM, INC.

Groundwater Sampling Form

ADWR Well No: 55-906816

Well Name: MO-2007-3B

Project Name/Number: PDSI Sierrita GW Monitoring (78306.4)

Date: 9 /10 /2007

Sampler: M. Arnesen

WELL INFORMATION

Total Well Depth ("a", ft): 950

Casing Diameter ("d", in.): 5"

Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA

Depth to Water ("b", ft): 359.38

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _ Gallons, (3 Casing Volumes_____gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: _____ Time Completed: _____ Total Purge Time: _____min

Purge Method: _____ Pump Setting (depth):_____ Total Purge Volume: _____gal

Time (min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (µhos/cm)	pH (SU)	D.O. (mg/l)	Odor	Notes
1415	51	28.7	375	7.53		None	Pumping began at 1100
1423	51	28.7	373	7.53			

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1426 Time Completed: 1426

Sampling Method, Type of Sampling Pump or Bailer: Submersable

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW-MO-2007-3B	1426	PLASTIC	125 ml/250 ml	2	300.1/200.7	NONE/HNO3	FILTERED
UGW-MO-2007-3B	1426	PLASTIC	250 ml	1	300.0	NONE	UNFILTERED

QUALITY CONTROL SAMPLE RECORD

Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC.

INJECTION SAMPLING

Groundwater Sampling Form

Well No: MW-3-1

Well Name: MW-2007-3C

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 6/28/2007

Recorder/Sampler: GS/MA

WELL INFORMATION

PUMP TEST

Total Well Depth ("a", ft): _____

Casing Diameter ("d", in.): _____ Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): _____

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _____ Gallons, (3 Casing Volumes _____ gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: _____ Time Completed: _____ Total Purge Time: _____ min

Purge Method: _____ Pump Setting (depth): _____ Total Purge Volume: _____ gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (uhos/cm)	pH	Other	D.O. (mg/L)	Odor	Notes
16:00		32.2	570	7.93				

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: _____ Time Completed: _____

Sampling Method, Type of Sampling Pump or Bailer: _____

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW- MW-3-1FGW	16:00	PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
UGW- MW-3 1GW	16:05	PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC.

INITIAL SAMPLE

Groundwater Sampling Form

Project Name/Number: ~~[illegible]~~ PDSI-783000

Well No: Mo-2007-4A
Date: 10-9-07
Recorder/Sampler: N.J. Babb

WELL INFORMATION

Total Well Depth: 570 ft
Casing Diameter ("d", in.): 5"
Well/Packer Depth ("a", ft): 570
Screened Interval (ft) From: 360 To: 560
Depth to Water & Time ("b", ft btic): 307.67
One Wetted Casing Volume: (a - b) * d^2 * 0.0408 = 267.6 gallons, (3 Casing Volumes ~~[illegible]~~ 803 gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

45 MINS

Time Started: 14:00 Time Completed: 14:45 Total Purge Time: ~~[illegible]~~
Purge Method: 10-hp grundfos Pump Depth & Setting: 533 ft btoc Total Purge Volume: ~~[illegible]~~ 2,025 gals

Actual or Elapsed Time (Min)	Extraction Rate/Vol	pH	Conductivity (mS/cm)	Turbidity (NTU)	D.O. (mg/l)	Temp (°C)	Odor	Notes
14:15	45 gpm	7.49	415	11.7	N/A	27.3	No	Discharge clear
14:30	"	7.39	409	9.46	"	28.0	"	" "
14:40	"	7.46	412	—	"	27.5	"	" "

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 14:45 Time Completed: 14:45
Sampling Method: Pump or Bailer:

Sample No	Time	Container Type	Volume	No of Containers	Analysis Method	Preservative	Notes
Mo-2007-4A	14:45			2	Anions & Cations		
" " "	"			1	1	None	

QUALITY CONTROL SAMPLE RECORD N/A

Orig. Sample No	Type	QC Sample No	Time

TRANSDUCER RECORD

Transducer #: 109089 Battery Remaining: 95% Memory Remaining: _____ Replace Time: _____ WL/Time: ~~[illegible]~~ ft btic _____
Notes: measurement is depth of transducer below H2O 66.070 @ 9:15 AM

HYDRO GEO CHEM, INC.

INITIAL SAMPLE

Groundwater Sampling Form

Project Name/Number: ~~Praxair Kent/64000~~ PDSI - 783000

Well No: MO-2007-4B
Date: 10-11-07
Recorder/Sampler: NJ, Bahh

WELL INFORMATION

Total Well Depth: 950 ft
Casing Diameter ("d", in.): 5" ipd
Well/Packer Depth ("a", ft): 950
Screened Interval (ft) From: 700 To: 940
Depth to Water & Time ("b", ft btic): 308.72 @ 7:30AM
One Wetted Casing Volume: (a - b) * d^2 * 0.0408 = 653.3 gallons, (3 Casing Volumes 1960 gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 7:48 Time Completed: 8:20 Total Purge Time: 40 MINS
Purge Method: 10-hp-GRUNDFOS Pump Depth & Setting: 533' ftbgs Total Purge Volume: 2000-GALLONS

Actual or Elapsed Time (Min)	Extraction Rate/Vol	pH	Conductivity (mS/cm)	Turbidity (NTU)	D.O. (mg/l)	Temp (°C)	Odor	Notes
~~7:52~~	~~50 GPM~~	~~8.26~~						
14:35	50	7.88	381	8.43	N/A	26.9	No	Discharge clear
7:54	50	8.25	376	10.93	"	22.1	"	" "
8:01	"	8.03	382	22.4	"	25.0	"	" "
8:16	"	7.93	376	5.12	"	26.4	"	" "

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 8:20 Time Completed: 8:20
Sampling Method: Pump or Bailer:

Sample No	Time	Container Type	Volume	No of Containers	Analysis Method	Preservative	Notes
MO-2007-4B-F	8:20			2			Filtered green dot white dot
MO-2007-4B	"			1			Raw

QUALITY CONTROL SAMPLE RECORD N/A

Orig. Sample No	Type	QC Sample No	Time

TRANSDUCER RECORD

Transducer #:_____ Battery Remaining:_____ Memory Remaining:_____ Replace Time:_____ WL/Time:_____ft btic_____
Notes:_____

HYDRO GEO CHEM, INC.

INITIAL SAMPLING

Groundwater Sampling Form

Well No: GW-907211

Well Name: MO-2007-4C

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 08 / 16 /2007

Recorder/Sampler: N.J. Babb

WELL INFORMATION

Total Well Depth ("a", ft): 1140' btocc

Casing Diameter ("d", in.): 5" in. Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA 1140 btocc Depth to Water ("b", ft): 307.13' ft btocc

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = 849.5 Gallons, (3 Casing Volumes 2550 gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 7:48 Time Completed: 11:50 Total Purge Time: 182 min

Purge Method: 4" in. 10-hp grundfos Pump Setting (depth): 429' ft btocc Total Purge Volume: ~~9147~~ gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (uhos/cm)	pH	Other turbidity	D.O. (mg/L)	Odor	Notes
7:48	155gpm	26.0	467	7.58	12.2 NTU	N/A	No	clear Discharge 900
8:27	"	28.7	471	7.83	8.52	"	"	" 60 ~~60~~ mins @ 155gpm = ~~9300~~ 9300 gals
9:49	27gpm	30.1	477	7.75	7.95	"	"	clear Discharge
9:15	"	31.5	473	7.70	5.06	"	"	" "
9:50	55gpm	32.1	474	7.71	4.72	"	"	" " 61mins @ 27gpm = 1647 gals
10:22	"	33.7	"	7.63	9.61	"	"	clear Discharge
11:36	"	35.2	472	7.62	4.87	"	"	
11:50	"							Obtained Samples: (SO4, Anions,
	2hrs @ 55gpm = 6600							metals) 120 mins @ 55gpm = 6600

Total Time = 3hr 2min

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 11:50 Time Completed: 11:50

Sampling Method, Type of Sampling (Pump) or Bailer: 4" in. 10-hp grundfos w/sampling port

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW-907211	11:50	PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
UGW-907211	"	PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time
N/A			

HYDRO GEO CHEM, INC.

Groundwater Sampling Form

Well No: GW-627483-051407

Well Name: CW-3

Project Name/Number: SIERRITA GW MONITORING (78306.2)

Date: ~~05/14/2007~~ 6/6/07 5/17/07

Recorder/Sampler: ~~KG/JSV~~ KG MAB

WELL INFORMATION

Total Well Depth ("a", ft): 501

Casing Diameter ("d", in.): 16 Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): [ADWR = 260] 265.35 @ 1445

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = 246.1 Gallons, (3 Casing Volumes 738.4 gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 0650 Time Completed: ~~2461~~ 0750 Total Purge Time: 60 min

Purge Method: GrundFos Pump Setting (depth): 363' Total Purge Volume: 9000 gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C / °F)	Conductivity (mhos/cm)	pH	Other turbidity	D.O. (mg/L)	Odor	Notes
~~0~~ 0650	150	24.8	444	7.40	9.99		None	clear
0700	150	25.3	453	7.64	9.52			
0715	150	25.2	448	7.73	8.34			
0725	150	25.3	449	7.72	0.00			Turb reading was done twice for confirm
0740	150	25.3	448	7.74	3.19			
0745	150	25.3	449	7.74	0.00			

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 0750 Time Completed: 0753

Sampling Method, Type of Sampling Pump or Bailer: Pump

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
OGW-627483-060607	0740	Glass	1L	1	1664	HCl	Oil/Grease
UGW-627483-060607	0752	Poly	250	1	300.0	Raw	SO4
FGW-627483-060607	0752	Poly	250	1	200.7	HNO_3	Metals/Filtered
FGW-627483-060607	0752	Poly	250	1	300.0	None	Anions/Filtered

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC.

Groundwater Sampling Form

INITIAL SAMPLE

Project Name/Number: ~~Hercules/Kent 64800~~ PDSI-783060

Well No: MO-2007-5B
Date: 10-12-07
Recorder/Sampler: N.J. Rabb

WELL INFORMATION

Total Well Depth: 970 ft
Casing Diameter ("d", in.): 5"in
Well/Packer Depth ("a", ft): 970
Screened Interval (ft) From: 660 To: 960'
Depth to Water & Time ("b", ft btic): 268.27 @ 8:04
One Wetted Casing Volume: (a - b) * d^2 * 0.0408 = 716 gallons, (3 Casing Volumes 2148 gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 8:04 Time Completed: 10:30 Total Purge Time: 2hrs 26 mins
Purge Method: 10-hp-grundos Pump Depth & Setting: 533ft 655 Total Purge Volume: 4150-gallons

8:04
51 mins @ 16gpm = 976gals

Actual or Elapsed Time (Min)	Extraction Rate/Vol	pH	Conductivity (mS/cm)	Turbidity (NTU)	D.O. (mg/l)	Temp (°C)	Odor	Notes
8:05	16	8.41	1072	14.5	N/A	24.4	No	slightly cloudy
8:35	"	8.35	928	25.2	"	27.7	"	" "
8:55	"	8.22	1030	5.31	"	28.7	"	clear 9:05 Increased flow 61mins @ 16gpm = 976
9:10	30	8.18	1058	2.45	"	29.3	"	clear 30spm based @ 9:05
9:40	30	"	1130	3.04	"	29.4	"	" re-calibrated Horiba probe
9:47	"	7.56	1114	N/A	"	29.5	"	clear, Increased flow @ 10:06
10:15	56gpm	7.65	1133	16.7	"	29.8	"	clear
10:25	"	7.63	1150	3.48	"	29.9	"	clear
10:30	Obtained	Samples						

9:05
61 mins @ 18gpm = 1830gals
10:06
24 mins @ 56gpm => 1344
61 mins x 30 = 1830 + 976 =>

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 10:30 Time Completed: 10:30
Sampling Method: Pump or Bailer:

Sample No	Time	Container Type	Volume	No of Containers	Analysis Method	Preservative	Notes
MO-2007-5B-F	10:30	Small plastic	8	1	Anions	HNO3	green dot
MO-2007-5B-F	"	Small plastic	8	1	cations		white dot
MO-2007-5B	"	large plastic	8	1		Raw	

QUALITY CONTROL SAMPLE RECORD N/A

Orig. Sample No	Type	QC Sample No	Time

TRANSDUCER RECORD

Transducer #:_____ Battery Remaining:_____ Memory Remaining:_____ Replace Time:_____ WL/Time:_____ft btic_____
Notes:_____

HYDRO GEO CHEM, INC.

INITIAL SAMPLING

Groundwater Sampling Form

Well No: GW-

Well Name: MO-2007-5C

Project Name/Number: SIERRITA GW MONITORING (78306.2) Date: 8/23/2007

Recorder/Sampler: M. Arneson

WELL INFORMATION

Total Well Depth ("a", ft): 1370

Casing Diameter ("d", in.): 5 Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA Depth to Water ("b", ft): 294.04

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _____ Gallons, (3 Casing Volumes_____ gal)

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: _____ Time Completed: _____ Total Purge Time: _____ min

Purge Method: _____ Pump Setting (depth):_____ Total Purge Volume: _____gal

Actual or Elapsed Time (Min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (uhos/cm)	pH	Other Turb (NTU)	D.O. (mg/L)	Odor	Notes
1625	21	32.5	930	7.47	4.10			Sample was collected
1702		33.0	952	7.43	5.52			during aquifer testing
1730		33.2	956	7.47	2.93			

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1430 Time Completed: 1432

Sampling Method, Type of Sampling Pump or Bailer: _____

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
FGW-MO-2007-5C	1430	PLASTIC	125 mL/250 mL	2	300.1/200.7	NONE/HNO3	FILTERED
UGW-MO-2007-5C	1430	PLASTIC	250 mL	1	300.0	NONE	RAW

QUALITY CONTROL SAMPLE RECORD

Orig. Sample No.	Type	QC Sample No.	Time

Initial Sample

HYDRO GEO CHEM, INC.

Groundwater Sampling Form

ADWR Well No: 55-907607

Well Name: MO-2007-6A

Project Name/Number: PDSI Sierrita GW Monitoring (78306.2)

Date: 10/2/2007

Sampler: M. Arneson

WELL INFORMATION

Total Well Depth ("a", ft): 620

Casing Diameter ("d", in.): 5"

Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA

Depth to Water ("b", ft): 303.60

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _ Gallons, (3 Casing Volumes _____ gal) No Purg Req

Aquifer test in Progress

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: _____ Time Completed: _____ Total Purge Time: _____ min

Purge Method: _____ Pump Setting (depth): _____ Total Purge Volume: _____ gal

Time (min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (µhos/cm)	pH (SU)	D.O. (mg/l)	Odor	Notes
1422	55	28.7	406	7.54			
1426	55	28.6	405	7.53			
1435	55	28.5	405	7.52			

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: _____ Time Completed: _____

Sampling Method, Type of Sampling Pump or Bailer: _____

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
MO-2007-6AF	1455	PLASTIC	125ml / 250 ml	2	300.0 / 200.7	NONE / HNO3	FILTERED
MO-2007-6A	1455	PLASTIC	250 ml	1	300.0	NONE	UNFILTERED
mo-2007-DUPF	1500	"	125/250	2	300.0/200.7	None/HNO3	Filtered
mo-2007-DUP	1500	"	250/	1	300.0	NONE	Unfiltered

QUALITY CONTROL SAMPLE RECORD

Sample No.	Type	QC Sample No.	Time

HYDRO GEO CHEM, INC. Initial Sample

Groundwater Sampling Form

ADWR Well No: 55-907606

Well Name: MO-2007-6B

Project Name/Number: PDSI Sierrita GW Monitoring (78306.2)

Date: 10 / 4 / 2007

Sampler: M. Arneson

WELL INFORMATION

Total Well Depth ("a", ft): 950

Casing Diameter ("d", in.): 5"

Screened Interval (ft): From: NA To: NA

Well/Packer Depth ("a", ft): NA

Depth to Water ("b", ft): 319.17 (NB)

One Wetted Casing Volume: (a-b) • d2 • 0.0408 = _ Gallons, (3 Casing Volumes _____ gal) Aquifer test in Progress

PURGE INFORMATION AND FIELD MEASUREMENTS

Time Started: 1322 Time Completed: 1400 Total Purge Time: 38 min

Purge Method: Pump Pump Setting (depth): — Total Purge Volume: 129 gal

Time (min)	Extraction Rate/Vol (gpm)	Temp (°C)	Conductivity (µhos/cm)	pH (SU)	D.O. (mg/l)	Odor	Notes
1322	34	33.5	479	7.63		None	Tan, Turbidity is 190 NTU
1330	"	33.2	486	7.64			
1337	"	33.2	484	7.71			Water color is still greyish tan
1350	"	33.2	483	7.69			
1356		33.1	483	7.70			

SAMPLING INFORMATION AND SAMPLE RECORD

Time Started: 1400 Time Completed: 1402

Sampling Method, Type of Sampling Pump or Bailer: Pump

Sample No.	Time	Container Type	Volume	No. of Containers	Analysis Method	Preservative	Notes
MO-2007-6BF	1400	PLASTIC	125ml / 250 ml	2	300.0 / 200.7	NONE / HNO3	FILTERED
MO-2007-6B	1400	PLASTIC	250 ml	1	300.0	NONE	UNFILTERED

QUALITY CONTROL SAMPLE RECORD

Sample No.	Type	QC Sample No.	Time

APPENDIX F.2

ANALYTICAL DATA REPORTS FROM ACZ LABORATORIES, INC.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

June 19, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Kim Garcia

Project ID: OJ03Z5
ACZ Project ID: L63026

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 05, 2007. This project has been assigned to ACZ's project number, L63026. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L63026. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after July 19, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: UF-605898-060407

ACZ Sample ID: ***L63026-01***
Date Sampled: *06/04/07 14:55*
Date Received: *06/05/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	41.3		*	mg/L	0.5	3	06/12/07 3:09	jlf

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: FGW-605898-060407

ACZ Sample ID: ***L63026-02***
Date Sampled: *06/04/07 14:55*
Date Received: *06/05/07*
Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	50.3			mg/L	0.2	1	06/15/07 20:11	djt
Magnesium, dissolved	M200.7 ICP	10.9			mg/L	0.2	1	06/15/07 20:11	djt
Potassium, dissolved	M200.7 ICP	3.9			mg/L	0.3	2	06/15/07 20:11	djt
Sodium, dissolved	M200.7 ICP	31.7			mg/L	0.3	2	06/15/07 20:11	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		169			mg/L	2	20	06/14/07 0:00	cas
Carbonate as CaCO3			U		mg/L	2	20	06/14/07 0:00	cas
Hydroxide as CaCO3			U		mg/L	2	20	06/14/07 0:00	cas
Total Alkalinity		169			mg/L	2	20	06/14/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		4.3			%			06/19/07 0:00	calc
Sum of Anions		4.5			meq/L	0.1	0.5	06/19/07 0:00	calc
Sum of Cations		4.9			meq/L	0.1	0.5	06/19/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	9.1		*	mg/L	0.5	3	06/12/07 3:27	jlf
Fluoride	M300.0 - Ion Chromatography	0.2	B	*	mg/L	0.1	0.5	06/12/07 3:27	jlf
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.34			mg/L	0.02	0.1	06/19/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.34		*	mg/L	0.02	0.1	06/05/07 18:59	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	06/05/07 18:59	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	280			mg/L	10	20	06/11/07 13:44	aeh
Sulfate	300.0 - Ion Chromatography	41.2		*	mg/L	0.5	3	06/12/07 3:27	jlf
TDS (calculated)	Calculation	250			mg/L	10	50	06/19/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.12						06/19/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63026***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226491													
WG226491PBW1	PBW	06/14/07 13:05				U	mg/L		-20	20			
WG226491LCSW2	LCSW	06/14/07 13:16	WC070601-1	820		795.7	mg/L	97	90	110			
L63038-02DUP	DUP	06/14/07 16:25			378	375.9	mg/L				0.6	20	
WG226491PBW2	PBW	06/14/07 16:31				U	mg/L		-20	20			
WG226491LCSW5	LCSW	06/14/07 16:44	WC070601-1	820		816.8	mg/L	99.6	90	110			
WG226491PBW3	PBW	06/14/07 21:05				U	mg/L		-20	20			
WG226491LCSW8	LCSW	06/14/07 21:16	WC070601-1	820		821.3	mg/L	100.2	90	110			
WG226491PBW4	PBW	06/15/07 0:31				U	mg/L		-20	20			
WG226491LCSW11	LCSW	06/15/07 0:44	WC070601-1	820		820.5	mg/L	100.1	90	110			
WG226491LCSW14	LCSW	06/15/07 3:13	WC070601-1	820		821.3	mg/L	100.2	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226498													
WG226498ICV	ICV	06/15/07 18:28	II070612-3	100		102.28	mg/L	102.3	95	105			
WG226498ICB	ICB	06/15/07 18:31				U	mg/L		-0.6	0.6			
WG226498LFB	LFB	06/15/07 18:44	II070601-2	67.99189		74.02	mg/L	108.9	85	115			
L63006-05AS	AS	06/15/07 19:34	II070601-2	67.99189	125	186.34	mg/L	90.2	85	115			
L63006-05ASD	ASD	06/15/07 19:37	II070601-2	67.99189	125	190.11	mg/L	95.8	85	115	2	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250LFB1	LFB	06/11/07 14:28	IC070205-3	30		30.76	mg/L	102.5	90	110			
WG226250LFB2	LFB	06/11/07 23:13	IC070205-3	30		30.82	mg/L	102.7	90	110			
L62993-03DUP	DUP	06/11/07 23:50			8	8.05	mg/L				0.6	20	
L62993-04AS	AS	06/12/07 0:26	IC070205-3	30	10.8	33.52	mg/L	75.7	90	110			M2
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250LFB1	LFB	06/11/07 14:28	IC070205-3	1.5		1.58	mg/L	105.3	90	110			
WG226250LFB2	LFB	06/11/07 23:13	IC070205-3	1.5		1.57	mg/L	104.7	90	110			
L62993-03DUP	DUP	06/11/07 23:50			.2	.11	mg/L				58.1	20	RA
L62993-04AS	AS	06/12/07 0:26	IC070205-3	1.5	.2	1.36	mg/L	77.3	90	110			M2
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63026***

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226498													
WG226498ICV	ICV	06/15/07 18:28	II070612-3	100		104.21	mg/L	104.2	95	105			
WG226498ICB	ICB	06/15/07 18:31				U	mg/L		-0.6	0.6			
WG226498LFB	LFB	06/15/07 18:44	II070601-2	54.96149		60.39	mg/L	109.9	85	115			
L63006-05AS	AS	06/15/07 19:34	II070601-2	54.96149	129	178.88	mg/L	90.8	85	115			
L63006-05ASD	ASD	06/15/07 19:37	II070601-2	54.96149	129	183.06	mg/L	98.4	85	115	2.31	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG225946													
WG225946ICV	ICV	06/05/07 18:01	WI070308-3	2.416		2.346	mg/L	97.1	90	110			
WG225946ICB	ICB	06/05/07 18:02				U	mg/L		-0.06	0.06			
WG225946LFB1	LFB	06/05/07 18:07	WI070307-9	2		1.989	mg/L	99.5	90	110			
WG225946LFB2	LFB	06/05/07 18:45	WI070307-9	2		1.942	mg/L	97.1	90	110			
L63006-07AS	AS	06/05/07 18:51	WI070307-9	2	.5	2.477	mg/L	98.9	90	110			
L63006-08DUP	DUP	06/05/07 18:53			.11	.108	mg/L				1.8	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG225946													
WG225946ICV	ICV	06/05/07 18:01	WI070308-3	.609		.616	mg/L	101.1	90	110			
WG225946ICB	ICB	06/05/07 18:02				U	mg/L		-0.03	0.03			
WG225946LFB1	LFB	06/05/07 18:07	WI070307-9	1		1.021	mg/L	102.1	90	110			
WG225946LFB2	LFB	06/05/07 18:45	WI070307-9	1		1.002	mg/L	100.2	90	110			
L63006-07AS	AS	06/05/07 18:51	WI070307-9	1	U	1.032	mg/L	103.2	90	110			
L63006-08DUP	DUP	06/05/07 18:53			.02	.023	mg/L				14	20	RA

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226498													
WG226498ICV	ICV	06/15/07 18:28	II070612-3	20		20.01	mg/L	100.1	95	105			
WG226498ICB	ICB	06/15/07 18:31				U	mg/L		-0.9	0.9			
WG226498LFB	LFB	06/15/07 18:44	II070601-2	99.69893		104.95	mg/L	105.3	85	115			
L63006-05AS	AS	06/15/07 19:34	II070601-2	99.69893	1.9	108.67	mg/L	107.1	85	115			
L63006-05ASD	ASD	06/15/07 19:37	II070601-2	99.69893	1.9	115.95	mg/L	114.4	85	115	6.48	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226260													
WG226260PBW	PBW	06/11/07 13:20				U	mg/L		-20	20			
WG226260LCSW	LCSW	06/11/07 13:21	PCN27107	261		278	mg/L	106.5	80	120			
L63045-02DUP	DUP	06/11/07 13:54			3650	3648	mg/L				0.1	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63026***

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226498													
WG226498ICV	ICV	06/15/07 18:28	II070612-3	100		100.99	mg/L	101	95	105			
WG226498ICB	ICB	06/15/07 18:31				U	mg/L		-0.9	0.9			
WG226498LFB	LFB	06/15/07 18:44	II070601-2	98.01954		103.97	mg/L	106.1	85	115			
L63006-05AS	AS	06/15/07 19:34	II070601-2	98.01954	84.6	180.7	mg/L	98	85	115			
L63006-05ASD	ASD	06/15/07 19:37	II070601-2	98.01954	84.6	187.73	mg/L	105.2	85	115	3.82	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250LFB1	LFB	06/11/07 14:28	IC070205-3	30		30.86	mg/L	102.9	90	110			
WG226250LFB2	LFB	06/11/07 23:13	IC070205-3	30		30.57	mg/L	101.9	90	110			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
L62993-03DUP	DUP	06/12/07 17:42			390	388	mg/L				0.5	20	
L62993-04AS	AS	06/12/07 18:18	IC070205-3	600	1120	1606	mg/L	81	90	110			M2

ACZ Laboratories, Inc.
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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L63026***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L63026-01	WG226250	Sulfate	300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
L63026-02	WG226250	Chloride	M300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
		Fluoride	M300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG225946	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG226250	Sulfate	300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.

ACZ Laboratories, Inc.
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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L63026***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63026
Date Received: 6/5/2007
Received By:
Date Printed: 6/5/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA3706		4.2	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63026
Date Received: 6/5/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L63026-01	UF-605898-060407									X		
L63026-02	FGW-605898-060407		Y									

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

L63026

CHAIN of CUSTODY

Report to:

Name: Kim Gracia
Company: Hydro Geo Chem Inc
E-mail: klmg@hgcinc.com

Address: 51 W Wetmore Rd
Tucson AZ 85705-1678
Telephone: 520) 293-1500 x 123

Copy of Report to:

Name: Ned Hall/Bill Davis/Jim Norris
Company: PDSI/HGC

E-mail: JimN@hgcinc.com, billydavis@FMI.com
Telephone: 293-1500 x 123 648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: ned-hall@fmi.com

Address: 6200 W. Duval Mine Rd
PO Box 527 Green Valley, AZ 85622
Telephone: 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES ✓
NO

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJQ375
Reporting state for compliance testing: AZ
Sampler's Name: Mark Arneson
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	SO_4^{2-}	Ca Mg Na K	Alk, TDS, SO_4^{2-}, Cl^-, F^-, NO_3^--N		pH	EC	Temp °C	
UF-605898-060407	6/4/07 : 1455	GW	1	X				7.20	411	25.9	
FGW-605898-060407	6/4/07 : 1455	GW	2		X	X		7.20	411	25.9	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

UF = unFiltered
FGW = Filtered Groundwater sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	6/4/07: 1715		6/5/07 11:40

White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

June 19, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Kim Garcia, Jim Norris, Bill Dorris

Project ID: OJ03Z5
ACZ Project ID: L63094

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 07, 2007. This project has been assigned to ACZ's project number, L63094. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L63094. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after July 19, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: UGW-627483-060607

ACZ Sample ID: ***L63094-01***
Date Sampled: *06/06/07 07:50*
Date Received: *06/07/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	58.7			mg/L	0.5	3	06/14/07 18:02	jlf

Arizona license number: AZ0102

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487(800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: FGW-627483-060607

ACZ Sample ID: ***L63094-02***
Date Sampled: *06/06/07 07:50*
Date Received: *06/07/07*
Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	56.1			mg/L	0.2	1	06/15/07 2:26	djt
Magnesium, dissolved	M200.7 ICP	10.9		*	mg/L	0.2	1	06/15/07 2:26	djt
Potassium, dissolved	M200.7 ICP	3.0			mg/L	0.3	2	06/15/07 2:26	djt
Sodium, dissolved	M200.7 ICP	30.5			mg/L	0.3	2	06/15/07 2:26	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		140			mg/L	2	20	06/14/07 0:00	cas
Carbonate as CaCO3			U		mg/L	2	20	06/14/07 0:00	cas
Hydroxide as CaCO3			U		mg/L	2	20	06/14/07 0:00	cas
Total Alkalinity		140			mg/L	2	20	06/14/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		4.1			%			06/19/07 11:04	calc
Sum of Anions		4.7			meq/L	0.1	0.5	06/19/07 11:04	calc
Sum of Cations		5.1			meq/L	0.1	0.5	06/19/07 11:04	calc
Chloride	M300.0 - Ion Chromatography	17.7			mg/L	0.5	3	06/14/07 18:38	jlf
Fluoride	M300.0 - Ion Chromatography	0.3	B	*	mg/L	0.1	0.5	06/14/07 18:38	jlf
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	2.92			mg/L	0.02	0.1	06/19/07 11:04	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	2.92		*	mg/L	0.02	0.1	06/07/07 22:06	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	06/07/07 22:06	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	300		*	mg/L	10	20	06/13/07 11:35	aeh
Sulfate	300.0 - Ion Chromatography	57.9			mg/L	0.5	3	06/14/07 18:38	jlf
TDS (calculated)	Calculation	273			mg/L	10	50	06/19/07 11:04	calc
TDS (ratio - measured/calculated)	Calculation	1.10						06/19/07 11:04	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

ACZ Laboratories, Inc.
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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63094***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226491													
WG226491PBW1	PBW	06/14/07 13:05				U	mg/L		-20	20			
WG226491LCSW2	LCSW	06/14/07 13:16	WC070601-1	820		795.7	mg/L	97	90	110			
WG226491PBW2	PBW	06/14/07 16:31				U	mg/L		-20	20			
WG226491LCSW5	LCSW	06/14/07 16:44	WC070601-1	820		816.8	mg/L	99.6	90	110			
WG226491PBW3	PBW	06/14/07 21:05				U	mg/L		-20	20			
WG226491LCSW8	LCSW	06/14/07 21:16	WC070601-1	820		821.3	mg/L	100.2	90	110			
L63094-02DUP	DUP	06/14/07 22:47			140	138.9	mg/L				0.8	20	
WG226491PBW4	PBW	06/15/07 0:31				U	mg/L		-20	20			
WG226491LCSW11	LCSW	06/15/07 0:44	WC070601-1	820		820.5	mg/L	100.1	90	110			
WG226491LCSW14	LCSW	06/15/07 3:13	WC070601-1	820		821.3	mg/L	100.2	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226522													
WG226522ICV	ICV	06/15/07 1:15	II070612-3	100		98.57	mg/L	98.6	95	105			
WG226522ICB	ICB	06/15/07 1:19				U	mg/L		-0.6	0.6			
WG226522LFB	LFB	06/15/07 1:36	II070601-2	67.99189		68.69	mg/L	101	85	115			
L63071-02AS	AS	06/15/07 1:44	II070601-2	67.99189	135	198.46	mg/L	93.3	85	115			
L63071-02ASD	ASD	06/15/07 1:48	II070601-2	67.99189	135	196.18	mg/L	90	85	115	1.16	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG226534													
WG226534ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226534ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226534ICV1	ICV	06/14/07 16:31	IC070606-1	20		20.3	mg/L	101.5	90	110			
WG226534ICB1	ICB	06/14/07 16:49				U	mg/L		-1.5	1.5			
WG226534LFB	LFB	06/14/07 17:07	IC070205-3	30		30	mg/L	100	90	110			
L63014-01DUP	DUP	06/14/07 17:43			49.3	49.1	mg/L				0.4	20	
L63094-01AS	AS	06/14/07 18:20	IC070205-3	30	18	46.28	mg/L	94.3	90	110			
WG226534ICV2	ICV	06/18/07 11:10	IC070606-1	20		20.25	mg/L	101.3	90	110			
WG226534ICB2	ICB	06/18/07 11:28				U	mg/L		-1.5	1.5			

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63094***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG226534													
WG226534ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226534ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226534ICV1	ICV	06/14/07 16:31	IC070606-1	3.984		4.12	mg/L	103.4	90	110			
WG226534ICB1	ICB	06/14/07 16:49				U	mg/L		-0.3	0.3			
WG226534LFB	LFB	06/14/07 17:07	IC070205-3	1.5		1.55	mg/L	103.3	90	110			
L63014-01DUP	DUP	06/14/07 17:43			.3	.29	mg/L				3.4	20	RA
L63094-01AS	AS	06/14/07 18:20	IC070205-3	1.5	.2	1.77	mg/L	104.7	90	110			
WG226534ICV2	ICV	06/18/07 11:10	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226534ICB2	ICB	06/18/07 11:28				.11	mg/L		-0.3	0.3			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226522													
WG226522ICV	ICV	06/15/07 1:15	II070612-3	100		99.9	mg/L	99.9	95	105			
WG226522ICB	ICB	06/15/07 1:19				U	mg/L		-0.6	0.6			
WG226522LFB	LFB	06/15/07 1:36	II070601-2	54.96149		54.94	mg/L	100	85	115			
L63071-02AS	AS	06/15/07 1:44	II070601-2	54.96149	11.9	71.91	mg/L	109.2	85	115			
L63071-02ASD	ASD	06/15/07 1:48	II070601-2	54.96149	11.9	76.64	mg/L	117.8	85	115	6.37	20	MA

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226127													
WG226127ICV	ICV	06/07/07 21:06	WI070308-3	2.416		2.331	mg/L	96.5	90	110			
WG226127ICB	ICB	06/07/07 21:07				U	mg/L		-0.06	0.06			
WG226127LFB1	LFB	06/07/07 21:12	WI070307-9	2		2.008	mg/L	100.4	90	110			
WG226127LFB2	LFB	06/07/07 21:50	WI070307-9	2		1.938	mg/L	96.9	90	110			
L63089-08AS	AS	06/07/07 21:56	WI070307-9	2	U	1.981	mg/L	99.1	90	110			
L63089-09DUP	DUP	06/07/07 21:59			U	U	mg/L				0	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226127													
WG226127ICV	ICV	06/07/07 21:06	WI070308-3	.609		.61	mg/L	100.2	90	110			
WG226127ICB	ICB	06/07/07 21:07				U	mg/L		-0.03	0.03			
WG226127LFB1	LFB	06/07/07 21:12	WI070307-9	1		1.017	mg/L	101.7	90	110			
WG226127LFB2	LFB	06/07/07 21:50	WI070307-9	1		.992	mg/L	99.2	90	110			
L63089-08AS	AS	06/07/07 21:56	WI070307-9	1	U	1.026	mg/L	102.6	90	110			
L63089-09DUP	DUP	06/07/07 21:59			U	U	mg/L				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63094***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226522													
WG226522ICV	ICV	06/15/07 1:15	II070612-3	20		20.56	mg/L	102.8	95	105			
WG226522ICB	ICB	06/15/07 1:19				U	mg/L		-0.9	0.9			
WG226522LFB	LFB	06/15/07 1:36	II070601-2	99.69893		102.15	mg/L	102.5	85	115			
L63071-02AS	AS	06/15/07 1:44	II070601-2	99.69893	28.5	135.22	mg/L	107	85	115			
L63071-02ASD	ASD	06/15/07 1:48	II070601-2	99.69893	28.5	132.62	mg/L	104.4	85	115	1.94	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226419													
WG226419PBW	PBW	06/13/07 11:20				U	mg/L		-20	20			
WG226419LCSW	LCSW	06/13/07 11:21	PCN27107	261		296	mg/L	113.4	80	120			
L63119-03DUP	DUP	06/13/07 11:38			60	70	mg/L				15.4	20	RA

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226522													
WG226522ICV	ICV	06/15/07 1:15	II070612-3	100		101.88	mg/L	101.9	95	105			
WG226522ICB	ICB	06/15/07 1:19				U	mg/L		-0.9	0.9			
WG226522LFB	LFB	06/15/07 1:36	II070601-2	98.01954		100.11	mg/L	102.1	85	115			
L63071-02AS	AS	06/15/07 1:44	II070601-2	98.01954	91.3	189.06	mg/L	99.7	85	115			
L63071-02ASD	ASD	06/15/07 1:48	II070601-2	98.01954	91.3	188.61	mg/L	99.3	85	115	0.24	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG226534													
WG226534ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226534ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226534ICV1	ICV	06/14/07 16:31	IC070606-1	50.15		51.2	mg/L	102.1	90	110			
WG226534ICB1	ICB	06/14/07 16:49				U	mg/L		-1.5	1.5			
WG226534LFB	LFB	06/14/07 17:07	IC070205-3	30		30.14	mg/L	100.5	90	110			
L63094-01AS	AS	06/14/07 18:20	IC070205-3	30	58.7	85.95	mg/L	90.8	90	110			
WG226534ICV2	ICV	06/18/07 11:10	IC070606-1	50.15		50.97	mg/L	101.6	90	110			
WG226534ICB2	ICB	06/18/07 11:28				U	mg/L		-1.5	1.5			
L63014-01DUP	DUP	06/18/07 12:05			385	385.9	mg/L				0.2	20	

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L63094***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L63094-02	WG226522	Magnesium, dissolved	M200.7 ICP	MA	Recovery for either the spike or spike duplicate was outside of the acceptance limits; the RPD was within the acceptance limits.
	WG226534	Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG226127	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG226419	Residue, Filterable (TDS) @180C	160.1 / SM2540C	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L63094***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63094
Date Received: 6/7/2007
Received By:
Date Printed: 6/8/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA3729		2.5	14

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63094
Date Received: 6/7/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L63094-01	UGW-627483-060607									X		
L63094-02	FGW-627483-060607		Y									

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

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L63094

CHAIN of CUSTODY

Report to:

Name: Kim Garcia
Company: Hydro Geo Chem Inc.
E-mail: kimg@hgcinc.com
Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520) 293-1500 x123

Copy of Report to:

Name: Ned Hall, Bill Davis, Jim Norris
Company: PDSL/HGC
E-mail: JimN@hgcinc.com billydavis@fmi.com
Telephone: 293-1500 x123 648-9873

Invoice to:

Name: Ned Hall
Company: PDSL
E-mail: ned-hall@fmi.com
Address: 6200 W. Duval Mine Rd
PO Box 527 Green Valley, AZ 85622
Telephone: 520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES ✓
NO

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJ0325
Reporting state for compliance testing: AZ
Sampler's Name: Mark Aneson
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	SO_4^{2-}	Ca Mg Na K	Alk, TDS SO_4^{2-} Cl^- F^- NO_3-NO_2		pH	EC	Temp °C	
UGW-627483-060607	6/6/07 : 0750	GW	1	X				7.74	449	25.3	
FGW-627483-060607	6/6/07 : 0750	GW	2		X	X		7.74	449	25.3	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

Please Rush Results

UGW = UnFiltered Groundwater Sample
FGW = Filtered Ground Water Sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Mark Aneson	6/6/07:1558	KL	6/7/07 12:17

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

June 26, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Rick Zimmerman

Project ID: OJ03Z5
ACZ Project ID: L63262

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 16, 2007. This project has been assigned to ACZ's project number, L63262. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L63262. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after July 26, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2PT

ACZ Sample ID: ***L63262-01***
Date Sampled: *06/14/07 15:50*
Date Received: *06/16/07*
Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	196			mg/L	0.2	1	06/22/07 1:48	msh
Magnesium, dissolved	M200.7 ICP	35.5			mg/L	0.2	1	06/22/07 1:48	msh
Potassium, dissolved	M200.7 ICP	7.7			mg/L	0.3	2	06/22/07 1:48	msh
Sodium, dissolved	M200.7 ICP	73.5			mg/L	0.3	2	06/22/07 1:48	msh

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		108			mg/L	2	20	06/20/07 0:00	cas
Carbonate as CaCO3			U		mg/L	2	20	06/20/07 0:00	cas
Hydroxide as CaCO3			U		mg/L	2	20	06/20/07 0:00	cas
Total Alkalinity		108		*	mg/L	2	20	06/20/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.2			%			06/26/07 0:00	calc
Sum of Anions		15.4			meq/L	0.1	0.5	06/26/07 0:00	calc
Sum of Cations		16.1			meq/L	0.1	0.5	06/26/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	28.3			mg/L	0.5	3	06/20/07 23:58	jlf
Fluoride	M300.0 - Ion Chromatography	0.3	B	*	mg/L	0.1	0.5	06/20/07 23:58	jlf
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.94			mg/L	0.02	0.1	06/26/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.94			mg/L	0.02	0.1	06/16/07 15:33	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	06/16/07 15:33	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	1060			mg/L	10	20	06/20/07 14:49	seb
Sulfate	300.0 - Ion Chromatography	591			mg/L	5	30	06/21/07 16:45	jlf
TDS (calculated)	Calculation	1000			mg/L	10	50	06/26/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.06						06/26/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2PT(RAW)

ACZ Sample ID: ***L63262-02***
Date Sampled: *06/14/07 15:50*
Date Received: *06/16/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	596			mg/L	5	30	06/21/07 17:03	jlf

Arizona license number: AZ0102

ACZ Laboratories, Inc.
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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita

Project ID: OJ03Z5

ACZ Project ID: ***L63262***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226816													
WG226816PBW1	PBW	06/19/07 15:52				U	mg/L		-20	20			
WG226816LCSW2	LCSW	06/19/07 16:04	WC070614-1	820		819	mg/L	99.9	90	110			
WG226816PBW2	PBW	06/19/07 18:54				U	mg/L		-20	20			
WG226816LCSW5	LCSW	06/19/07 19:06	WC070614-1	820		821.1	mg/L	100.1	90	110			
WG226816PBW3	PBW	06/19/07 22:17				U	mg/L		-20	20			
WG226816LCSW8	LCSW	06/19/07 22:30	WC070614-1	820		822.5	mg/L	100.3	90	110			
WG226816PBW4	PBW	06/20/07 1:19				U	mg/L		-20	20			
WG226816LCSW11	LCSW	06/20/07 1:32	WC070614-1	820		825.2	mg/L	100.6	90	110			
L63272-09DUP	DUP	06/20/07 4:36			54	53.7	mg/L				0.6	20	
WG226816LCSW14	LCSW	06/20/07 4:48	WC070614-1	820		825.4	mg/L	100.7	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226818													
WG226818ICV	ICV	06/21/07 23:38	II070612-3	100		98.44	mg/L	98.4	95	105			
WG226818ICB	ICB	06/21/07 23:42				U	mg/L		-0.6	0.6			
WG226818LFB	LFB	06/21/07 23:58	II070615-2	67.97008		68.98	mg/L	101.5	85	115			
L63114-01AS	AS	06/22/07 1:03	II070615-2	339.8504	1100	1431.5	mg/L	97.5	85	115			
L63114-01ASD	ASD	06/22/07 1:07	II070615-2	339.8504	1100	1428.9	mg/L	96.8	85	115	0.18	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG226894													
WG226894ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226894ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226894ICV1	ICV	06/20/07 15:49	IC070606-1	20		20	mg/L	100	90	110			
WG226894ICB1	ICB	06/20/07 16:07				U	mg/L		-1.5	1.5			
WG226894LFB	LFB	06/20/07 16:25	IC070205-3	30		30.39	mg/L	101.3	90	110			
L63250-05DUP	DUP	06/20/07 21:15			80.2	80.3	mg/L				0.1	20	
WG226894ICV2	ICV	06/21/07 11:55	IC070606-1	20		20.72	mg/L	103.6	90	110			
WG226894ICB2	ICB	06/21/07 12:13				U	mg/L		-1.5	1.5			
L63250-06AS	AS	06/21/07 16:27	IC070205-3	600	80	675	mg/L	99.2	90	110			

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63262***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG226894													
WG226894ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226894ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226894ICV1	ICV	06/20/07 15:49	IC070606-1	3.984		4.07	mg/L	102.2	90	110			
WG226894ICB1	ICB	06/20/07 16:07				.12	mg/L		-0.3	0.3			
WG226894LFB	LFB	06/20/07 16:25	IC070205-3	1.5		1.54	mg/L	102.7	90	110			
L63250-05DUP	DUP	06/20/07 21:15			3.3	3.31	mg/L				0.3	20	
L63250-06AS	AS	06/20/07 21:51	IC070205-3	1.5	2.7	3.94	mg/L	82.7	90	110			M2
WG226894ICV2	ICV	06/21/07 11:55	IC070606-1	3.984		4.09	mg/L	102.7	90	110			
WG226894ICB2	ICB	06/21/07 12:13				U	mg/L		-0.3	0.3			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226818													
WG226818ICV	ICV	06/21/07 23:38	II070612-3	100		99.49	mg/L	99.5	95	105			
WG226818ICB	ICB	06/21/07 23:42				U	mg/L		-0.6	0.6			
WG226818LFB	LFB	06/21/07 23:58	II070615-2	54.96908		55.39	mg/L	100.8	85	115			
L63114-01AS	AS	06/22/07 1:03	II070615-2	274.8454	2360	2610.8	mg/L	91.3	85	115			
L63114-01ASD	ASD	06/22/07 1:07	II070615-2	274.8454	2360	2609.2	mg/L	90.7	85	115	0.06	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226660													
WG226660ICV	ICV	06/16/07 15:27	WI070609-1	2.416		2.318	mg/L	95.9	90	110			
WG226660ICB	ICB	06/16/07 15:28				U	mg/L		-0.06	0.06			
L63262-01DUP	DUP	06/16/07 15:34			.94	.943	mg/L				0.3	20	
L63262-01AS	AS	06/16/07 15:35	WI070307-9	2	.94	3.002	mg/L	103.1	90	110			
WG226660LFB	LFB	06/16/07 15:38	WI070307-9	2		2.036	mg/L	101.8	90	110			

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226660													
WG226660ICV	ICV	06/16/07 15:27	WI070609-1	.609		.609	mg/L	100	90	110			
WG226660ICB	ICB	06/16/07 15:28				U	mg/L		-0.03	0.03			
L63262-01DUP	DUP	06/16/07 15:34			U	U	mg/L				0	20	RA
L63262-01AS	AS	06/16/07 15:35	WI070307-9	1	U	1.042	mg/L	104.2	90	110			
WG226660LFB	LFB	06/16/07 15:38	WI070307-9	1		.995	mg/L	99.5	90	110			

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63262***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226818													
WG226818ICV	ICV	06/21/07 23:38	II070612-3	20		20.1	mg/L	100.5	95	105			
WG226818ICB	ICB	06/21/07 23:42				.4	mg/L		-0.9	0.9			
WG226818LFB	LFB	06/21/07 23:58	II070615-2	99.76186		101.28	mg/L	101.5	85	115			
L63114-01AS	AS	06/22/07 1:03	II070615-2	498.8093	138	703.2	mg/L	113.3	85	115			
L63114-01ASD	ASD	06/22/07 1:07	II070615-2	498.8093	138	706.8	mg/L	114	85	115	0.51	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226892													
WG226892PBW	PBW	06/20/07 14:28				U	mg/L		-20	20			
WG226892LCSW	LCSW	06/20/07 14:30	PCN27102	260		274	mg/L	105.4	80	120			
L63276-04DUP	DUP	06/20/07 15:00			150	144	mg/L				4.1	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226818													
WG226818ICV	ICV	06/21/07 23:38	II070612-3	100		101.29	mg/L	101.3	95	105			
WG226818ICB	ICB	06/21/07 23:42				U	mg/L		-0.9	0.9			
WG226818LFB	LFB	06/21/07 23:58	II070615-2	98.21624		100.19	mg/L	102	85	115			
L63114-01AS	AS	06/22/07 1:03	II070615-2	491.0812	841	1360.5	mg/L	105.8	85	115			
L63114-01ASD	ASD	06/22/07 1:07	II070615-2	491.0812	841	1367.2	mg/L	107.2	85	115	0.49	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG226894													
WG226894ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226894ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226894ICV1	ICV	06/20/07 15:49	IC070606-1	50.15		50.43	mg/L	100.6	90	110			
WG226894ICB1	ICB	06/20/07 16:07				U	mg/L		-1.5	1.5			
WG226894LFB	LFB	06/20/07 16:25	IC070205-3	30		30.38	mg/L	101.3	90	110			
WG226894ICV2	ICV	06/21/07 11:55	IC070606-1	50.15		50.81	mg/L	101.3	90	110			
WG226894ICB2	ICB	06/21/07 12:13				U	mg/L		-1.5	1.5			
L63250-05DUP	DUP	06/21/07 15:14			305	305.3	mg/L				0.1	20	
L63250-06AS	AS	06/21/07 16:27	IC070205-3	600	750	1329	mg/L	96.5	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L63262***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L63262-01	WG226894	Fluoride	M300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
	WG226660	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG226816	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L63262***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63262
Date Received: 6/16/2007
Received By:
Date Printed: 6/18/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA3792		5.5	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita

ACZ Project ID: L63262
Date Received: 6/16/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L63262-01	MO-2PT		Y									
L63262-02	MO-2PT(RAW)									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparatior

Sample IDs Reviewed By: _____

L63262

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Rick Zimmerman
Company: Hydro Geo Chem
E-mail: rickz@hgcinc.com
Address: 51 W. Wetmore Rd., Suite 101 Tucson, AZ 85705
Telephone: (520) 293-1500

Copy of Report to:

Name: Ned Hall / Billy Dorris / Jim Norris
Company: PDSI / HGC
E-mail: Jimn@hgcinc.com, billydorris@fmi.com
Telephone: (520) 293-1500 x 123, (520) 648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: ned_hall@fmi.com
Address: 6200 W. Duval Mine Rd PO Box 527 Green Valley, AZ 85622
Telephone: (520) 648-8854

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ✓ / NO
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualifled.

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJ0375
Reporting state for compliance testing: AZ
Sampler's Name: NATHAN HAWS
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca, Mg, Na, K	Alk, TDS, SO4, Cl, F, NO3-N	SO4		pH	EC (uS)	Temp (°C)	
MO-2 PT	6-14-07 1550	GW	2					7.05	1372	32.2	
MO-2 PT (Raw)	6-14-07 1550	GW	1					7.05	1372	32.2	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

RUSH

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[signature]	6-15-07 9:[illegible]	MS	6-16-07 11:03

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

July 18, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Kim Garcia

Project ID: OJ03Z5
ACZ Project ID: L63562

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on June 30, 2007. This project has been assigned to ACZ's project number, L63562. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 11.0. The enclosed results relate only to the samples received under L63562. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after August 18, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
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Case Narrative

Phelps Dodge Sierrita

July 18, 2007

Project ID: OJ03Z5
ACZ Project ID: L63562

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 2 ground water samples from Phelps Dodge Sierrita on June 30, 2007. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L63562. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Samples were received outside the EPA recommended temperature of 0-6 degrees C.

Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-3-1FGW

ACZ Sample ID: ***L63562-01***
Date Sampled: *06/28/07 16:00*
Date Received: *06/30/07*
Sample Matrix: *Ground Water*

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	28.2			mg/L	0.2	1	07/13/07 18:00	msh
Magnesium, dissolved	M200.7 ICP	1.4			mg/L	0.2	1	07/13/07 18:00	msh
Potassium, dissolved	M200.7 ICP	3.3			mg/L	0.3	2	07/13/07 18:00	msh
Sodium, dissolved	M200.7 ICP	93.4			mg/L	0.3	2	07/13/07 18:00	msh

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		103			mg/L	2	20	07/05/07 0:00	jlf/lcp
Carbonate as CaCO3			U		mg/L	2	20	07/05/07 0:00	jlf/lcp
Hydroxide as CaCO3			U		mg/L	2	20	07/05/07 0:00	jlf/lcp
Total Alkalinity		103			mg/L	2	20	07/05/07 0:00	jlf/lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.7			%			07/18/07 11:01	calc
Sum of Anions		5.4			meq/L	0.1	0.5	07/18/07 11:01	calc
Sum of Cations		5.7			meq/L	0.1	0.5	07/18/07 11:01	calc
Chloride	M300.0 - Ion Chromatography	11.4		*	mg/L	0.5	3	07/16/07 22:04	jag
Fluoride	M300.0 - Ion Chromatography	3.1		*	mg/L	0.1	0.5	07/16/07 22:04	jag
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.30			mg/L	0.02	0.1	07/18/07 11:01	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.30	H	*	mg/L	0.02	0.1	06/30/07 16:16	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		HU	*	mg/L	0.01	0.05	06/30/07 16:16	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	380			mg/L	10	20	07/05/07 13:42	kmc
Sulfate	300.0 - Ion Chromatography	136		*	mg/L	3	10	07/17/07 12:21	jag
TDS (calculated)	Calculation	340			mg/L	10	50	07/18/07 11:01	calc
TDS (ratio - measured/calculated)	Calculation	1.12						07/18/07 11:01	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-3-1GW

ACZ Sample ID: ***L63562-02***
Date Sampled: *06/28/07 16:00*
Date Received: *06/30/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	136		*	mg/L	3	10	07/17/07 12:40	jag

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63562***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG228017													
WG228017PBW1	PBW	07/05/07 10:52				U	mg/L		-20	20			
WG228017LCSW1	LCSW	07/05/07 11:01	WC070628-1	820		816.9	mg/L	99.6	90	110			
L63561-01DUP	DUP	07/05/07 14:24			125	125.5	mg/L				0.4	20	
WG228017PBW2	PBW	07/05/07 14:43				U	mg/L		-20	20			
WG228017LCSW2	LCSW	07/05/07 14:53	WC070628-1	820		828.6	mg/L	101	90	110			
WG228017PBW3	PBW	07/05/07 18:25				U	mg/L		-20	20			
WG228017LCSW3	LCSW	07/05/07 18:35	WC070628-1	820		823.4	mg/L	100.4	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG228215													
WG228215ICV	ICV	07/13/07 17:16	II070703-2	100		100.2	mg/L	100.2	95	105			
WG228215ICB	ICB	07/13/07 17:20				U	mg/L		-0.6	0.6			
WG228215LFB	LFB	07/13/07 17:34	II070709-3	67.97008		71.72	mg/L	105.5	85	115			
L63470-01AS	AS	07/13/07 17:45	II070709-3	67.97008	45.5	117.35	mg/L	105.7	85	115			
L63470-01ASD	ASD	07/13/07 17:49	II070709-3	67.97008	45.5	118.43	mg/L	107.3	85	115	0.92	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG228384													
WG228384ICV	ICV	06/11/07 13:52	IC070710-1	20		20.34	mg/L	101.7	90	110			
WG228384ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG228384ICV1	ICV	07/16/07 13:37	IC070710-1	20		20.13	mg/L	100.7	90	110			
WG228384ICB1	ICB	07/16/07 13:55				U	mg/L		-1.5	1.5			
WG228384LFB1	LFB	07/16/07 14:13	IC070205-3	30		31.26	mg/L	104.2	90	110			
L63539-03DUP	DUP	07/16/07 19:03			.6	.62	mg/L				3.3	20	RA
L63539-04AS	AS	07/16/07 19:39	IC070205-3	30	1.5	30.9	mg/L	98	90	110			
WG228384LFB2	LFB	07/16/07 22:58	IC070205-3	30		31.37	mg/L	104.6	90	110			

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63562***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG228384													
WG228384ICV	ICV	06/11/07 13:52	IC070710-1	3.984		4.13	mg/L	103.7	90	110			
WG228384ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG228384ICV1	ICV	07/16/07 13:37	IC070710-1	3.984		4.08	mg/L	102.4	90	110			
WG228384ICB1	ICB	07/16/07 13:55				U	mg/L		-0.3	0.3			
WG228384LFB1	LFB	07/16/07 14:13	IC070205-3	1.5		1.58	mg/L	105.3	90	110			
L63539-03DUP	DUP	07/16/07 19:03			.1	.12	mg/L				18.2	20	RA
L63539-04AS	AS	07/16/07 19:39	IC070205-3	1.5	.2	1.7	mg/L	100	90	110			
WG228384LFB2	LFB	07/16/07 22:58	IC070205-3	1.5		1.63	mg/L	108.7	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG228215													
WG228215ICV	ICV	07/13/07 17:16	II070703-2	100		101.15	mg/L	101.2	95	105			
WG228215ICB	ICB	07/13/07 17:20				U	mg/L		-0.6	0.6			
WG228215LFB	LFB	07/13/07 17:34	II070709-3	54.96908		58.16	mg/L	105.8	85	115			
L63470-01AS	AS	07/13/07 17:45	II070709-3	54.96908	21	82.02	mg/L	111	85	115			
L63470-01ASD	ASD	07/13/07 17:49	II070709-3	54.96908	21	82.9	mg/L	112.6	85	115	1.07	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG227541													
WG227541ICV	ICV	06/30/07 15:19	WI070609-1	2.416		2.314	mg/L	95.8	90	110			
WG227541ICB	ICB	06/30/07 15:20				U	mg/L		-0.06	0.06			
WG227541ICV1	ICV	06/30/07 15:42	WI070609-1	2.416		2.268	mg/L	93.9	90	110			
WG227541ICB1	ICB	06/30/07 15:44				U	mg/L		-0.06	0.06			
WG227543													
WG227543ICV	ICV	06/30/07 15:55	WI070609-1	2.416		2.336	mg/L	96.7	90	110			
WG227543ICB	ICB	06/30/07 15:56				U	mg/L		-0.06	0.06			
WG227543LFB	LFB	06/30/07 15:57	WI070307-9	2		2.065	mg/L	103.3	90	110			
L63526-02AS	AS	06/30/07 16:00	WI070307-9	2	.1	2.07	mg/L	98.5	90	110			
L63559-01DUP	DUP	06/30/07 16:02			U	.022	mg/L				200	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG227543													
WG227543ICV	ICV	06/30/07 15:55	WI070609-1	.609		.621	mg/L	102	90	110			
WG227543ICB	ICB	06/30/07 15:56				U	mg/L		-0.03	0.03			
WG227543LFB	LFB	06/30/07 15:57	WI070307-9	1		1.031	mg/L	103.1	90	110			
L63526-02AS	AS	06/30/07 16:00	WI070307-9	1	U	1.02	mg/L	102	90	110			
L63559-01DUP	DUP	06/30/07 16:02			U	U	mg/L				0	20	RA

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L63562***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG228215													
WG228215ICV	ICV	07/13/07 17:16	II070703-2	20		19.92	mg/L	99.6	95	105			
WG228215ICB	ICB	07/13/07 17:20				U	mg/L		-0.9	0.9			
WG228215LFB	LFB	07/13/07 17:34	II070709-3	99.76186		103.41	mg/L	103.7	85	115			
L63470-01AS	AS	07/13/07 17:45	II070709-3	99.76186	20.1	123.34	mg/L	103.5	85	115			
L63470-01ASD	ASD	07/13/07 17:49	II070709-3	99.76186	20.1	124.18	mg/L	104.3	85	115	0.68	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG227774													
WG227774PBW	PBW	07/05/07 12:45				U	mg/L		-20	20			
WG227774LCSW	LCSW	07/05/07 12:47	PCN27105	261		278	mg/L	106.5	80	120			
L63562-01DUP	DUP	07/05/07 13:45			380	376	mg/L				1.1	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG228215													
WG228215ICV	ICV	07/13/07 17:16	II070703-2	100		101.02	mg/L	101	95	105			
WG228215ICB	ICB	07/13/07 17:20				U	mg/L		-0.9	0.9			
WG228215LFB	LFB	07/13/07 17:34	II070709-3	98.21624		102.85	mg/L	104.7	85	115			
L63470-01AS	AS	07/13/07 17:45	II070709-3	98.21624	38.7	135.71	mg/L	98.8	85	115			
L63470-01ASD	ASD	07/13/07 17:49	II070709-3	98.21624	38.7	137.01	mg/L	100.1	85	115	0.95	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG228384													
WG228384ICV	ICV	06/11/07 13:52	IC070710-1	50.15		51.51	mg/L	102.7	90	110			
WG228384ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG228384ICV1	ICV	07/16/07 13:37	IC070710-1	50.15		50.8	mg/L	101.3	90	110			
WG228384ICB1	ICB	07/16/07 13:55				U	mg/L		-1.5	1.5			
WG228384LFB1	LFB	07/16/07 14:13	IC070205-3	30		31.21	mg/L	104	90	110			
L63539-03DUP	DUP	07/16/07 19:03			2.7	2.75	mg/L				1.8	20	RA
L63539-04AS	AS	07/16/07 19:39	IC070205-3	30	3	32.31	mg/L	97.7	90	110			
WG228384LFB2	LFB	07/16/07 22:58	IC070205-3	30		31.13	mg/L	103.8	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L63562***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L63562-01	WG228384	Chloride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG227543	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG228384	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L63562-02	WG228384	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L63562***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63562
Date Received: 6/30/2007
Received By:
Date Printed: 6/30/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA3885		8.5	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L63562
Date Received: 6/30/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L63562-01	MO-3-1FGW		Y									
L63562-02	MO-3-1GW									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L63562

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Greg Schnaar
Company: Hydro Geo Chem, Inc.
E-mail: gregs@hgcinc.com
Address: 51 W. Wetmore Rd
Tucson AZ 85705-1678
Telephone: 520-293-1500 ext. 118

Copy of Report to:

Name: Ned Hall / Billy Doris / Jim Norris
Company: PDSI / HGC
E-mail: JimN@hgcinc.com, BillyDoris@FMI.com
Telephone: 293-1500, ext 118, 648-8073

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: Ned-Hall@fmi.com
Address: 6200 W. Duval Mine Rd.
PO Box 527 Green Valley AZ 85622
Telephone: 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ✓ / NO
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: 05Ø325
Reporting state for compliance testing: AZ
Sampler's Name: Greg Schnaar
Are any samples NRC licensable material? NO

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca, Mg, Na, K	Alk, TDS, SO4, Cl, F, NO3, NO2	SO4		pH	EC	Temp	
MO-3-1FGW	6.28.07 16:00	GW	2	X	X			7.93	570	32.2	
MO-3-1GW	6.28.07 16:00	GW	1			X		↓	↓	↓	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

FGW = Filtered groundwater
GW = Unfiltered groundwater

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	6.28.07 16:30		6.30.07 12:49

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

August 13, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Dan Simpson, Bill Dorris, Jim Norris

Project ID: OJ03Z5
ACZ Project ID: L64202

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 01, 2007. This project has been assigned to ACZ's project number, L64202. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L64202. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after September 13, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill DriveSteamboat Springs, CO 80487(800) 334-5493

Case Narrative

Phelps Dodge Sierrita

August 13, 2007

Project ID: OJ03Z5
ACZ Project ID: L64202

Sample Receipt

ACZ Laboratories, Inc. (ACZ) received 2 ground water samples from Phelps Dodge Sierrita on August 1, 2007. The samples were received in good condition. Upon receipt, the sample custodian removed the samples from the cooler, inspected the contents, and logged the samples into ACZ's computerized Laboratory Information Management System (LIMS). The samples were assigned ACZ LIMS project number L64202. The custodian verified the sample information entered into the computer against the chain of custody (COC) forms and sample bottle labels.

Samples were received outside the EPA recommended temperature of 0-6 degrees C.

Holding Times

Any analyses not performed within EPA recommended holding times have been qualified with an "H" flag.

Sample Analysis

These samples were analyzed for inorganic parameters. The individual methods are referenced on both, the ACZ invoice and the analytical reports. The extended qualifier reports may contain footnotes qualifying specific elements due to QC failures.

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-IC-F

ACZ Sample ID: ***L64202-01***
Date Sampled: *07/31/07 15:20*
Date Received: *08/01/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	523			mS/cm			07/31/07 15:20	kg
pH (Field)	Field Measurement	7.4			units			07/31/07 15:20	kg
Temperature (Field)	Field Measurement	27.9			C			07/31/07 15:20	kg

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	57.5			mg/L	0.2	1	08/09/07 3:47	djt
Magnesium, dissolved	M200.7 ICP	9.3			mg/L	0.2	1	08/09/07 3:47	djt
Potassium, dissolved	M200.7 ICP	4.8			mg/L	0.3	2	08/09/07 3:47	djt
Sodium, dissolved	M200.7 ICP	49.3			mg/L	0.3	2	08/09/07 3:47	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		124		*	mg/L	2	20	08/06/07 0:00	lcp/jlf
Carbonate as CaCO3			U	*	mg/L	2	20	08/06/07 0:00	lcp/jlf
Hydroxide as CaCO3			U	*	mg/L	2	20	08/06/07 0:00	lcp/jlf
Total Alkalinity		124		*	mg/L	2	20	08/06/07 0:00	lcp/jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		3.5			%			08/13/07 0:00	calc
Sum of Anions		5.5			meq/L	0.1	0.5	08/13/07 0:00	calc
Sum of Cations		5.9			meq/L	0.1	0.5	08/13/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	22.4			mg/L	0.5	3	08/03/07 22:52	jag
Fluoride	M300.0 - Ion Chromatography	0.5		*	mg/L	0.1	0.5	08/03/07 22:52	jag
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.82			mg/L	0.02	0.1	08/13/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.82		*	mg/L	0.02	0.1	08/01/07 18:08	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	08/01/07 18:08	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	380			mg/L	10	20	08/07/07 9:18	aeh
Sulfate	300.0 - Ion Chromatography	112			mg/L	5	30	08/08/07 20:47	jag
TDS (calculated)	Calculation	334			mg/L	10	50	08/13/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.14						08/13/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for detail*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-IC-U

ACZ Sample ID: ***L64202-02***
Date Sampled: *07/31/07 15:20*
Date Received: *08/01/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	114			mg/L	5	30	08/08/07 21:42	jag

Arizona license number: AZ0102

ACZ Laboratories, Inc.
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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64202***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229683													
WG229683PBW1	PBW	08/06/07 11:12				U	mg/L		-20	20			
WG229683LCSW2	LCSW	08/06/07 11:23	WC070723-9	820		816.7	mg/L	99.6	90	110			
WG229683PBW2	PBW	08/06/07 14:13				U	mg/L		-20	20			
WG229683LCSW5	LCSW	08/06/07 14:26	WC070723-9	820		823.2	mg/L	100.4	90	110			
WG229683PBW3	PBW	08/06/07 17:41				U	mg/L		-20	20			
WG229683LCSW8	LCSW	08/06/07 17:54	WC070723-9	820		822.9	mg/L	100.4	90	110			
L64210-01DUP	DUP	08/06/07 20:48			99	99.1	mg/L				0.1	20	
WG229683PBW4	PBW	08/06/07 20:54				U	mg/L		-20	20			
WG229683LCSW11	LCSW	08/06/07 21:06	WC070723-9	820		824.7	mg/L	100.6	90	110			
WG229683LCSW14	LCSW	08/06/07 23:51	WC070723-9	820		825.4	mg/L	100.7	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229899													
WG229899ICV	ICV	08/09/07 1:29	II070725-7	100		97.05	mg/L	97.1	95	105			
WG229899ICB	ICB	08/09/07 1:33				U	mg/L		-0.6	0.6			
WG229899LFB	LFB	08/09/07 1:50	II070806-9	67.97008		68.56	mg/L	100.9	85	115			
L64189-10AS	AS	08/09/07 2:57	II070806-9	67.97008	113	179.72	mg/L	98.2	85	115			
L64189-10ASD	ASD	08/09/07 3:01	II070806-9	67.97008	113	175.95	mg/L	92.6	85	115	2.12	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG229613													
WG229613ICV	ICV	06/11/07 13:52	IC070710-1	20		20.34	mg/L	101.7	90	110			
WG229613ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG229613ICV1	ICV	08/03/07 14:25	IC070710-1	20		20.22	mg/L	101.1	90	110			
WG229613ICB1	ICB	08/03/07 14:44				U	mg/L		-1.5	1.5			
WG229613LFB	LFB	08/03/07 15:02	WI070727-1	30		31.38	mg/L	104.6	90	110			
L63999-07DUP	DUP	08/03/07 19:51			27.8	27.75	mg/L				0.2	20	
L64014-01AS	AS	08/03/07 20:28	WI070727-1	30	66	95.08	mg/L	96.9	90	110			
WG229613ICV1	ICV	08/08/07 17:28	IC070710-1	20		20.11	mg/L	100.6	90	110			
WG229613ICB1	ICB	08/08/07 17:46				U	mg/L		-1.5	1.5			
L64014-01AS	AS	08/08/07 19:35	WI070727-1	300	62	356.8	mg/L	98.3	90	110			

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64202***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG229613													
WG229613ICV	ICV	06/11/07 13:52	IC070710-1	3.984		4.13	mg/L	103.7	90	110			
WG229613ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG229613ICV1	ICV	08/03/07 14:25	IC070710-1	3.984		4.14	mg/L	103.9	90	110			
WG229613ICB1	ICB	08/03/07 14:44				U	mg/L		-0.3	0.3			
WG229613LFB	LFB	08/03/07 15:02	WI070727-1	1.5		1.61	mg/L	107.3	90	110			
L63999-07DUP	DUP	08/03/07 19:51			U	U	mg/L				0	20	RA
L64014-01AS	AS	08/03/07 20:28	WI070727-1	1.5	.2	1.92	mg/L	114.7	90	110			M1
WG229613ICV1	ICV	08/08/07 17:28	IC070710-1	3.984		4.09	mg/L	102.7	90	110			
WG229613ICB1	ICB	08/08/07 17:46				U	mg/L		-0.3	0.3			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229899													
WG229899ICV	ICV	08/09/07 1:29	II070725-7	100		98.49	mg/L	98.5	95	105			
WG229899ICB	ICB	08/09/07 1:33				U	mg/L		-0.6	0.6			
WG229899LFB	LFB	08/09/07 1:50	II070806-9	54.96908		55.4	mg/L	100.8	85	115			
L64189-10AS	AS	08/09/07 2:57	II070806-9	54.96908	22.1	78.74	mg/L	103	85	115			
L64189-10ASD	ASD	08/09/07 3:01	II070806-9	54.96908	22.1	77.24	mg/L	100.3	85	115	1.92	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229490													
WG229490ICV	ICV	08/01/07 17:47	WI070609-1	2.416		2.47	mg/L	102.2	90	110			
WG229490ICB	ICB	08/01/07 17:48				U	mg/L		-0.06	0.06			
WG229490LFB	LFB	08/01/07 17:53	WI070307-9	2		2.168	mg/L	108.4	90	110			
L64185-01AS	AS	08/01/07 17:56	WI070307-9	2	U	2.155	mg/L	107.8	90	110			
L64185-02DUP	DUP	08/01/07 17:58			U	.022	mg/L				200	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229490													
WG229490ICV	ICV	08/01/07 17:47	WI070609-1	.609		.647	mg/L	106.2	90	110			
WG229490ICB	ICB	08/01/07 17:48				U	mg/L		-0.03	0.03			
WG229490LFB	LFB	08/01/07 17:53	WI070307-9	1		1.078	mg/L	107.8	90	110			
L64185-01AS	AS	08/01/07 17:56	WI070307-9	1	.03	1.102	mg/L	107.2	90	110			
L64185-02DUP	DUP	08/01/07 17:58			.09	.091	mg/L				1.1	20	RA

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64202***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229899													
WG229899ICV	ICV	08/09/07 1:29	II070725-7	20		20.13	mg/L	100.7	95	105			
WG229899ICB	ICB	08/09/07 1:33				U	mg/L		-0.9	0.9			
WG229899LFB	LFB	08/09/07 1:50	II070806-9	99.76186		102.4	mg/L	102.6	85	115			
L64189-10AS	AS	08/09/07 2:57	II070806-9	99.76186	16.8	127.68	mg/L	111.1	85	115			
L64189-10ASD	ASD	08/09/07 3:01	II070806-9	99.76186	16.8	124.13	mg/L	107.6	85	115	2.82	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229752													
WG229752PBW	PBW	08/07/07 9:00				U	mg/L		-20	20			
WG229752LCSW	LCSW	08/07/07 9:01	PCN27688	260		306	mg/L	117.7	80	120			
L64217-04DUP	DUP	08/07/07 9:29			6820	6780	mg/L				0.6	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229899													
WG229899ICV	ICV	08/09/07 1:29	II070725-7	100		100.25	mg/L	100.3	95	105			
WG229899ICB	ICB	08/09/07 1:33				U	mg/L		-0.9	0.9			
WG229899LFB	LFB	08/09/07 1:50	II070806-9	98.21624		100.45	mg/L	102.3	85	115			
L64189-10AS	AS	08/09/07 2:57	II070806-9	98.21624	116	216.52	mg/L	102.3	85	115			
L64189-10ASD	ASD	08/09/07 3:01	II070806-9	98.21624	116	212.59	mg/L	98.3	85	115	1.83	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG229613													
WG229613ICV	ICV	06/11/07 13:52	IC070710-1	50.15		51.51	mg/L	102.7	90	110			
WG229613ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG229613ICV1	ICV	08/03/07 14:25	IC070710-1	50.15		51.03	mg/L	101.8	90	110			
WG229613ICB1	ICB	08/03/07 14:44				U	mg/L		-1.5	1.5			
WG229613LFB	LFB	08/03/07 15:02	WI070727-1	30		32.91	mg/L	109.7	90	110			
L63999-07DUP	DUP	08/03/07 19:51			41.5	41.5	mg/L				0	20	
WG229613ICV1	ICV	08/08/07 17:28	IC070710-1	50.15		50.57	mg/L	100.8	90	110			
WG229613ICB1	ICB	08/08/07 17:46				U	mg/L		-1.5	1.5			
L64014-01AS	AS	08/08/07 19:35	WI070727-1	300	68	357.6	mg/L	96.5	90	110			

ACZ Laboratories, Inc.
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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L64202***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L64202-01	WG229683	Bicarbonate as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
		Carbonate as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG229613	Fluoride	M300.0 - Ion Chromatography	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG229683	Hydroxide as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG229490	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG229683	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L64202***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64202
Date Received: 8/1/2007
Received By:
Date Printed: 8/1/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA4088		14.8	14

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64202
Date Received: 8/1/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L64202-01	MO-2007-IC-F		Y									
L64202-02	MO-2007-IC-U									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

L6H202

CHAIN of CUSTODY

Report to:

Name: Kim Garcia / Jim Norris
Company: Hydro Geo Chem, Inc.
E-mail: JimN@HGCinc.com / KimG@HGCinc.com
Address: 51 W Wetmore Rd #101 Tucson AZ 85705
Telephone: 520-293-1500

Copy of Report to:

Name: Ned Hall / Billy Dorris
Company: PDSI
E-mail: NedHall@FMI.com / Billy-Dorris@FMI.com
Telephone: 520-648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: Ned-Hall@FMI.com
Address: 6200 W. Duval Mine Rd PO Box 527 Green Valley, AZ 85622
Telephone: 520-648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ✓ / NO

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: QJQ375
Reporting state for compliance testing: AZ
Sampler's Name: Kim Garcia
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg Na K	Alk, TDS, $SO_4^{=}$, Cl^-, F^-, NO_3^-, NO_2^-	$SO_4^{=}$		pH	EC	Temp	
MO-2007-1C-F	7/31/2007 1520	GW	2	X	X			7.35	523	27.9	
MO-2007-1C-V	7/31/2007 1520 KA 7/31/07	GW	1			X		7.35	523	27.9	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

F = Filtered
V = Unfiltered

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	7/31/07 1600	KA	
	1719 7/31/07	KW	8-1-07 1045

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

August 20, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Rick Zimmerman, Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJ03Z5
ACZ Project ID: L64254

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 03, 2007. This project has been assigned to ACZ's project number, L64254. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L64254. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after September 20, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-1B-FGW

ACZ Sample ID: ***L64254-01***
Date Sampled: *08/02/07 14:45*
Date Received: *08/03/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	321			mS/cm			08/02/07 14:45	ma
pH (Field)	Field Measurement	7.4			units			08/02/07 14:45	ma
Temperature (Field)	Field Measurement	30.7			C			08/02/07 14:45	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	32.4			mg/L	0.2	1	08/16/07 21:26	djt
Magnesium, dissolved	M200.7 ICP	4.3			mg/L	0.2	1	08/16/07 21:26	djt
Potassium, dissolved	M200.7 ICP	3.2			mg/L	0.3	2	08/16/07 21:26	djt
Sodium, dissolved	M200.7 ICP	40.5			mg/L	0.3	2	08/16/07 21:26	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		140			mg/L	2	20	08/08/07 0:00	jlf
Carbonate as CaCO3			U		mg/L	2	20	08/08/07 0:00	jlf
Hydroxide as CaCO3			U		mg/L	2	20	08/08/07 0:00	jlf
Total Alkalinity		140		*	mg/L	2	20	08/08/07 0:00	jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.7			%			08/17/07 16:14	calc
Sum of Anions		3.6			meq/L	0.1	0.5	08/17/07 16:14	calc
Sum of Cations		3.8			meq/L	0.1	0.5	08/17/07 16:14	calc
Chloride	M300.0 - Ion Chromatography	12.4		*	mg/L	0.5	3	08/10/07 15:31	jag
Fluoride	M300.0 - Ion Chromatography	0.6		*	mg/L	0.1	0.5	08/10/07 15:31	jag
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.71			mg/L	0.02	0.1	08/17/07 16:14	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.71	H	*	mg/L	0.02	0.1	08/07/07 18:36	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		UH	*	mg/L	0.01	0.05	08/07/07 18:36	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	220			mg/L	10	20	08/09/07 13:33	aeh
Sulfate	300.0 - Ion Chromatography	18.9			mg/L	0.5	3	08/10/07 15:31	jag
TDS (calculated)	Calculation	199			mg/L	10	50	08/17/07 16:14	calc
TDS (ratio - measured/calculated)	Calculation	1.11						08/17/07 16:14	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-1B-UGW

ACZ Sample ID: ***L64254-02***
Date Sampled: *08/02/07 14:45*
Date Received: *08/03/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	321			mS/cm			08/02/07 14:45	ma
pH (Field)	Field Measurement	7.4			units			08/02/07 14:45	ma
Temperature (Field)	Field Measurement	30.7			C			08/02/07 14:45	ma

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	18.9			mg/L	0.5	3	08/10/07 15:49	jag

Arizona license number: AZ0102

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64254***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229895													
WG229895PBW1	PBW	08/08/07 17:01				U	mg/L		-20	20			
WG229895LCSW2	LCSW	08/08/07 17:13	WC070723-9	820		800.6	mg/L	97.6	90	110			
WG229895PBW2	PBW	08/08/07 20:01				U	mg/L		-20	20			
WG229895LCSW5	LCSW	08/08/07 20:13	WC070723-9	820		800	mg/L	97.6	90	110			
L64255-02DUP	DUP	08/08/07 22:57			318	314.4	mg/L				1.1	20	
WG229895PBW3	PBW	08/08/07 23:20				U	mg/L		-20	20			
WG229895LCSW8	LCSW	08/08/07 23:30	WC070723-9	820		801.1	mg/L	97.7	90	110			
WG229895PBW4	PBW	08/09/07 2:17				U	mg/L		-20	20			
WG229895LCSW11	LCSW	08/09/07 2:29	WC070723-9	820		804.1	mg/L	98.1	90	110			
WG229895LCSW14	LCSW	08/09/07 5:38	WC070723-9	820		805	mg/L	98.2	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230464													
WG230464ICV	ICV	08/16/07 20:19	II070815-5	100		96.81	mg/L	96.8	95	105			
WG230464ICB	ICB	08/16/07 20:24				U	mg/L		-0.6	0.6			
WG230464LFB	LFB	08/16/07 20:40	II070814-4	67.97008		69.34	mg/L	102	85	115			
L64131-03AS	AS	08/16/07 20:48	II070814-4	67.97008	36.6	102.42	mg/L	96.8	85	115			
L64131-03ASD	ASD	08/16/07 20:52	II070814-4	67.97008	36.6	103.76	mg/L	98.8	85	115	1.3	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG230073													
WG230073ICV	ICV	06/11/07 13:52	IC070710-1	20		20.34	mg/L	101.7	90	110			
WG230073ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG230073ICV1	ICV	08/10/07 14:37	IC070710-1	20		20.11	mg/L	100.6	90	110			
WG230073ICB1	ICB	08/10/07 14:55				U	mg/L		-1.5	1.5			
WG230073LFB	LFB	08/10/07 15:13	WI070727-1	30		29.43	mg/L	98.1	90	110			
L64277-01DUP	DUP	08/10/07 16:26			1	1.04	mg/L				3.9	20	RA
L64277-02AS	AS	08/10/07 17:02	WI070727-1	30	1	30.81	mg/L	99.4	90	110			

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64254***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG230073													
WG230073ICV	ICV	06/11/07 13:52	IC070710-1	3.984		4.13	mg/L	103.7	90	110			
WG230073ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG230073ICV1	ICV	08/10/07 14:37	IC070710-1	3.984		4.11	mg/L	103.2	90	110			
WG230073ICB1	ICB	08/10/07 14:55				.15	mg/L		-0.3	0.3			
WG230073LFB	LFB	08/10/07 15:13	WI070727-1	1.5		1.5	mg/L	100	90	110			
L64277-01DUP	DUP	08/10/07 16:26			.1	.11	mg/L				9.5	20	RA
L64277-02AS	AS	08/10/07 17:02	WI070727-1	1.5	U	1.54	mg/L	102.7	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230464													
WG230464ICV	ICV	08/16/07 20:19	II070815-5	100		98.8	mg/L	98.8	95	105			
WG230464ICB	ICB	08/16/07 20:24				U	mg/L		-0.6	0.6			
WG230464LFB	LFB	08/16/07 20:40	II070814-4	54.96908		56.95	mg/L	103.6	85	115			
L64131-03AS	AS	08/16/07 20:48	II070814-4	54.96908	38.9	92.36	mg/L	97.3	85	115			
L64131-03ASD	ASD	08/16/07 20:52	II070814-4	54.96908	38.9	93.44	mg/L	99.2	85	115	1.16	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229813													
WG229813ICV	ICV	08/07/07 18:09	WI070609-1	2.416		2.4	mg/L	99.3	90	110			
WG229813ICB	ICB	08/07/07 18:11				U	mg/L		-0.06	0.06			
WG229818													
WG229818ICV	ICV	08/07/07 18:32	WI070609-1	2.416		2.283	mg/L	94.5	90	110			
WG229818ICB	ICB	08/07/07 18:33				U	mg/L		-0.06	0.06			
WG229818LFB	LFB	08/07/07 18:34	WI070307-9	2		1.965	mg/L	98.3	90	110			
L64254-01AS	AS	08/07/07 18:37	WI070307-9	2	.71	2.013	mg/L	65.2	90	110			M2
L64274-01DUP	DUP	08/07/07 18:39			.04	.041	mg/L				2.5	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229813													
WG229813ICV	ICV	08/07/07 18:09	WI070609-1	.609		.624	mg/L	102.5	90	110			
WG229813ICB	ICB	08/07/07 18:11				U	mg/L		-0.03	0.03			
WG229818													
WG229818ICV	ICV	08/07/07 18:32	WI070609-1	.609		.631	mg/L	103.6	90	110			
WG229818ICB	ICB	08/07/07 18:33				U	mg/L		-0.03	0.03			
WG229818LFB	LFB	08/07/07 18:34	WI070307-9	1		1.02	mg/L	102	90	110			
L64254-01AS	AS	08/07/07 18:37	WI070307-9	1	U	1.05	mg/L	105	90	110			
L64274-01DUP	DUP	08/07/07 18:39			U	U	mg/L				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64254***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230464													
WG230464ICV	ICV	08/16/07 20:19	II070815-5	20		20.67	mg/L	103.4	95	105			
WG230464ICB	ICB	08/16/07 20:24				U	mg/L		-0.9	0.9			
WG230464LFB	LFB	08/16/07 20:40	II070814-4	99.76186		107.73	mg/L	108	85	115			
L64131-03AS	AS	08/16/07 20:48	II070814-4	99.76186	4.4	113.89	mg/L	109.8	85	115			
L64131-03ASD	ASD	08/16/07 20:52	II070814-4	99.76186	4.4	115.5	mg/L	111.4	85	115	1.4	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229962													
WG229962PBW	PBW	08/09/07 13:20				U	mg/L		-20	20			
WG229962LCSW	LCSW	08/09/07 13:21	PCN27688	260		268	mg/L	103.1	80	120			
L64255-02DUP	DUP	08/09/07 13:38			470	474	mg/L				0.8	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230464													
WG230464ICV	ICV	08/16/07 20:19	II070815-5	100		103.53	mg/L	103.5	95	105			
WG230464ICB	ICB	08/16/07 20:24				U	mg/L		-0.9	0.9			
WG230464LFB	LFB	08/16/07 20:40	II070814-4	98.21624		106.12	mg/L	108	85	115			
L64131-03AS	AS	08/16/07 20:48	II070814-4	98.21624	276	361.73	mg/L	87.3	85	115			
L64131-03ASD	ASD	08/16/07 20:52	II070814-4	98.21624	276	364.24	mg/L	89.8	85	115	0.69	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG230073													
WG230073ICV	ICV	06/11/07 13:52	IC070710-1	50.15		51.51	mg/L	102.7	90	110			
WG230073ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG230073ICV1	ICV	08/10/07 14:37	IC070710-1	50.15		50.61	mg/L	100.9	90	110			
WG230073ICB1	ICB	08/10/07 14:55				U	mg/L		-1.5	1.5			
WG230073LFB	LFB	08/10/07 15:13	WI070727-1	30		30.61	mg/L	102	90	110			
L64277-01DUP	DUP	08/10/07 16:26			6.6	6.61	mg/L				0.2	20	
L64277-02AS	AS	08/10/07 17:02	WI070727-1	30	1.5	31.05	mg/L	98.5	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L64254***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L64254-01	WG230073	Chloride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG229818	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	H1	Sample analysis performed past holding time.
			M353.2 - Automated Cadmium Reduction	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	H1	Sample analysis performed past holding time.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG229895	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L64254***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64254
Date Received: 8/3/2007
Received By:
Date Printed: 8/3/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA4016		3.7	15

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64254
Date Received: 8/3/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L64254-01	MO-2007-1B-FGW		Y									
L64254-02	MO-2007-1B-UGW									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

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L64254

CHAIN of CUSTODY

Report to:

Name: Rick Zimmerman
Company: Hydro Geo Chem Inc.
E-mail: rickz@hgcinc.com
Address: 51 W. Wetmore Rd Tucson AZ 85705
Telephone: 520) 293-1550 X 131

Copy of Report to:

Name: Ned Hall/Bill Doris/Jim Norris
Company: PDSI / HGC
E-mail: Jimn@hgcinc.com/billy-doris@fmi.com
Telephone: 520) 293-1500 x 102, 520) 648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: ned-hall@fmi.com
Address: 6200 W. Duval Mine Rd. PO Box 527 Green Valley, AZ 85622
Telephone: 520-648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES [X]
NO [ ]

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJQ325
Reporting state for compliance testing: AZ
Sampler's Name: Mark Aineson
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg Na K	Alk TDS SO_4 Cl F NO_3 NO_2	SO_4		pH	EC	Temp
MO-2007-1B-FGW	8/2/07:1445	GW	2	X	X			7.41	321	30.7
MO-2007-1B-UGW	8/2/07:1445	GW				X		7.41	321	30.7

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

FGW = Filtered Groundwater Sample
UGW = UnFiltered Groundwater Sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	~~1500~~ 8/2/07 1500		8-3 07 9:15

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

August 24, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Dan Simpson, Bill Dorris, Jim Norris

Project ID: OJ03Z5
ACZ Project ID: L64349

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 09, 2007. This project has been assigned to ACZ's project number, L64349. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L64349. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after September 24, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: FGW-MO-2007-1A

ACZ Sample ID: ***L64349-01***
Date Sampled: *08/08/07 13:00*
Date Received: *08/09/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	370			mS/cm			08/08/07 13:00	ma
pH (Field)	Field Measurement	7.2			units			08/08/07 13:00	ma
Temperature (Field)	Field Measurement	29.0			C			08/08/07 13:00	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	40.4			mg/L	0.2	1	08/22/07 0:55	wfg
Magnesium, dissolved	M200.7 ICP	6.4			mg/L	0.2	1	08/22/07 0:55	wfg
Potassium, dissolved	M200.7 ICP	3.0			mg/L	0.3	2	08/22/07 0:55	wfg
Sodium, dissolved	M200.7 ICP	30.4			mg/L	0.3	2	08/22/07 0:55	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		164		*	mg/L	2	20	08/14/07 0:00	lcp/jlf
Carbonate as CaCO3			U	*	mg/L	2	20	08/14/07 0:00	lcp/jlf
Hydroxide as CaCO3			U	*	mg/L	2	20	08/14/07 0:00	lcp/jlf
Total Alkalinity		164		*	mg/L	2	20	08/14/07 0:00	lcp/jlf
Cation-Anion Balance	Calculation								
Cation-Anion Balance		0.0			%			08/23/07 9:53	calc
Sum of Anions		3.9			meq/L	0.1	0.5	08/23/07 9:53	calc
Sum of Cations		3.9			meq/L	0.1	0.5	08/23/07 9:53	calc
Chloride	M300.0 - Ion Chromatography	8.4		*	mg/L	0.5	3	08/16/07 6:23	jag
Fluoride	M300.0 - Ion Chromatography	0.4	B	*	mg/L	0.1	0.5	08/16/07 6:23	jag
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.54			mg/L	0.02	0.1	08/23/07 9:53	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.54		*	mg/L	0.02	0.1	08/09/07 19:46	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	08/09/07 19:46	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	250			mg/L	10	20	08/14/07 14:57	ear
Sulfate	300.0 - Ion Chromatography	19.2		*	mg/L	0.5	3	08/16/07 6:23	jag
TDS (calculated)	Calculation	209			mg/L	10	50	08/23/07 9:53	calc
TDS (ratio - measured/calculated)	Calculation	1.20						08/23/07 9:53	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: UGW-MO-2007-1A

ACZ Sample ID: ***L64349-02***
Date Sampled: *08/08/07 13:00*
Date Received: *08/09/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	19.2		*	mg/L	0.5	3	08/16/07 6:41	jag

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64349***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230251													
WG230251PBW1	PBW	08/14/07 10:08				U	mg/L		-20	20			
WG230251LCSW2	LCSW	08/14/07 10:20	WC070809-7	820		797.4	mg/L	97.2	90	110			
WG230251PBW2	PBW	08/14/07 14:29				U	mg/L		-20	20			
WG230251LCSW5	LCSW	08/14/07 14:41	WC070809-7	820		807.9	mg/L	98.5	90	110			
WG230251PBW3	PBW	08/14/07 17:30				U	mg/L		-20	20			
WG230251LCSW8	LCSW	08/14/07 17:41	WC070809-7	820		809	mg/L	98.7	90	110			
L64357-01DUP	DUP	08/14/07 20:30			97	96	mg/L				1	20	
WG230251PBW4	PBW	08/14/07 20:36				U	mg/L		-20	20			
WG230251LCSW11	LCSW	08/14/07 20:47	WC070809-7	820		808.9	mg/L	98.6	90	110			
WG230251LCSW14	LCSW	08/14/07 23:46	WC070809-7	820		810.1	mg/L	98.8	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230744													
WG230744ICV	ICV	08/21/07 23:31	II070821-3	100		98.13	mg/L	98.1	95	105			
WG230744ICB	ICB	08/21/07 23:35				U	mg/L		-0.6	0.6			
WG230744LFB	LFB	08/21/07 23:52	II070814-4	67.97008		68.22	mg/L	100.4	85	115			
L64349-01AS	AS	08/22/07 0:59	II070814-4	67.97008	40.4	107.42	mg/L	98.6	85	115			
L64349-01ASD	ASD	08/22/07 1:03	II070814-4	67.97008	40.4	107.97	mg/L	99.4	85	115	0.51	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG230384													
WG230384ICV	ICV	06/11/07 13:52	IC070710-1	20		20.34	mg/L	101.7	90	110			
WG230384ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG230384LFB	LFB	08/15/07 22:32	WI070727-1	30		31.17	mg/L	103.9	90	110			
L63661-02DUP	DUP	08/16/07 3:04			.8	.75	mg/L				6.5	20	RA
L63661-02AS	AS	08/16/07 3:58	WI070727-1	30	.8	30.36	mg/L	98.5	90	110			
L63661-02AS	AS	08/16/07 9:48	WI070727-1	300	6	285.8	mg/L	93.3	90	110			
L63661-02DUP	DUP	08/16/07 10:06			6	5.7	mg/L				5.1	20	RA

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64349***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG230384													
WG230384ICV	ICV	06/11/07 13:52	IC070710-1	3.984		4.13	mg/L	103.7	90	110			
WG230384ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG230384LFB	LFB	08/15/07 22:32	WI070727-1	1.5		1.62	mg/L	108	90	110			
L63661-02DUP	DUP	08/16/07 3:04			.3	.3	mg/L				0	20	RA
L63661-02AS	AS	08/16/07 3:58	WI070727-1	1.5	.3	1.86	mg/L	104	90	110			
L63661-02AS	AS	08/16/07 9:48	WI070727-1	15	U	15.7	mg/L	104.7	90	110			
L63661-02DUP	DUP	08/16/07 10:06			U	U	mg/L				0	20	RA

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230744													
WG230744ICV	ICV	08/21/07 23:31	II070821-3	100		99.43	mg/L	99.4	95	105			
WG230744ICB	ICB	08/21/07 23:35				U	mg/L		-0.6	0.6			
WG230744LFB	LFB	08/21/07 23:52	II070814-4	54.96908		54.69	mg/L	99.5	85	115			
L64349-01AS	AS	08/22/07 0:59	II070814-4	54.96908	6.4	61.65	mg/L	100.5	85	115			
L64349-01ASD	ASD	08/22/07 1:03	II070814-4	54.96908	6.4	61.71	mg/L	100.6	85	115	0.1	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229998													
WG229998ICV	ICV	08/09/07 18:50	WI070609-1	2.416		2.407	mg/L	99.6	90	110			
WG229998ICB	ICB	08/09/07 18:51				U	mg/L		-0.06	0.06			
WG229998LFB1	LFB	08/09/07 18:56	WI070307-9	2		2.013	mg/L	100.7	90	110			
WG229998LFB2	LFB	08/09/07 19:32	WI070307-9	2		1.994	mg/L	99.7	90	110			
L64337-06AS	AS	08/09/07 19:38	WI070307-9	2	.68	2.71	mg/L	101.5	90	110			
L64337-07DUP	DUP	08/09/07 19:40			U	U	mg/L				0	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG229998													
WG229998ICV	ICV	08/09/07 18:50	WI070609-1	.609		.637	mg/L	104.6	90	110			
WG229998ICB	ICB	08/09/07 18:51				U	mg/L		-0.03	0.03			
WG229998LFB1	LFB	08/09/07 18:56	WI070307-9	1		1.021	mg/L	102.1	90	110			
WG229998LFB2	LFB	08/09/07 19:32	WI070307-9	1		1.012	mg/L	101.2	90	110			
L64337-06AS	AS	08/09/07 19:38	WI070307-9	1	.06	1.073	mg/L	101.3	90	110			
L64337-07DUP	DUP	08/09/07 19:40			U	U	mg/L				0	20	RA

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64349***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230744													
WG230744ICV	ICV	08/21/07 23:31	II070821-3	20		19.93	mg/L	99.7	95	105			
WG230744ICB	ICB	08/21/07 23:35				U	mg/L		-0.9	0.9			
WG230744LFB	LFB	08/21/07 23:52	II070814-4	99.76186		99.96	mg/L	100.2	85	115			
L64349-01AS	AS	08/22/07 0:59	II070814-4	99.76186	3	105.56	mg/L	102.8	85	115			
L64349-01ASD	ASD	08/22/07 1:03	II070814-4	99.76186	3	105.87	mg/L	103.1	85	115	0.29	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230298													
WG230298PBW	PBW	08/14/07 14:00				16	mg/L		-20	20			
WG230298LCSW	LCSW	08/14/07 14:02	PCN27692	260		284	mg/L	109.2	80	120			
L64349-01DUP	DUP	08/14/07 15:00			250	246	mg/L				1.6	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230744													
WG230744ICV	ICV	08/21/07 23:31	II070821-3	100		100.54	mg/L	100.5	95	105			
WG230744ICB	ICB	08/21/07 23:35				U	mg/L		-0.9	0.9			
WG230744LFB	LFB	08/21/07 23:52	II070814-4	98.21624		98.35	mg/L	100.1	85	115			
L64349-01AS	AS	08/22/07 0:59	II070814-4	98.21624	30.4	129.53	mg/L	100.9	85	115			
L64349-01ASD	ASD	08/22/07 1:03	II070814-4	98.21624	30.4	129.34	mg/L	100.7	85	115	0.15	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG230384													
WG230384ICV	ICV	06/11/07 13:52	IC070710-1	50.15		51.51	mg/L	102.7	90	110			
WG230384ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG230384LFB	LFB	08/15/07 22:32	WI070727-1	30		32.71	mg/L	109	90	110			
L63661-02AS	AS	08/16/07 9:48	WI070727-1	300	162	429.5	mg/L	89.2	90	110			M2
L63661-02DUP	DUP	08/16/07 10:06			162	162.5	mg/L				0.3	20	

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L64349***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L64349-01	WG230251	Bicarbonate as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
		Carbonate as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG230384	Chloride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG230251	Hydroxide as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG229998	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG230384	Sulfate	300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
	WG230251	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L64349-02	WG230384	Sulfate	300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L64349***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64349
Date Received: 8/9/2007
Received By:
Date Printed: 8/9/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA4154		3.7	19

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64349
Date Received: 8/9/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L64349-01	FGW-MO-2007-1A		Y									
L64349-02	UGW-MO-2007-1A									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L64349

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

~~LOC 8907~~

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: Hydro Geo Chem Inc.
E-mail: duns@hgcinc.com
Address: 51 W Wetmore Rd Tucson, AZ 85705
Telephone: 520) 293-1500

Copy of Report to:

Name: Ned Hall / Bill Dorris / Jim Norris
Company: PDSI / HGC
E-mail: Jim@hgcinc.com, billy-doris@fmi.com
Telephone: 520) 293-1500 x112 520) 648-8873

Invoice to:

Name: Ned Hall
Company: PDSL
E-mail: ned-hall@fmi.com
Address: 6200 W. Duval Mine Rd PO Box 527 Green Valley AZ 85622
Telephone: 520-648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES ✓ NO
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJQ325
Reporting state for compliance testing: AZ
Sampler's Name: Mark Aneson
Are any samples NRC licensable material? NO

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg Na K	Alk TDS SOW Cl F NO3-N	SO4	pH	EC	Temp		
FGW-MO-2007-1A	8/8/07: 1300	GW	2	X	X		7.17	370	29.0		
UGW-MO-2007-1A	8/8/07: 1300	GW	1			X	7.17	370	29.0		

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

FGW = Filtered Groundwater Samples
UGW = Unfiltered Groundwater Samples

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
Mark Aneson	8/8/07: 1331	KD	8-9-07 8:18

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

August 28, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Dan Simpson, Bill Dorris, Jim Norris

Project ID: OJ03Z5
ACZ Project ID: L64503

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 17, 2007. This project has been assigned to ACZ's project number, L64503. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L64503. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after September 28, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: FGW-MO-2007-4C

ACZ Sample ID: ***L64503-01***
Date Sampled: *08/16/07 11:50*
Date Received: *08/17/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	472			mS/cm			08/16/07 11:50	nb
pH (Field)	Field Measurement	7.6			units			08/16/07 11:50	nb
Temperature (Field)	Field Measurement	35.2			C			08/16/07 11:50	nb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	13.0			mg/L	0.2	1	08/23/07 20:33	wfg
Magnesium, dissolved	M200.7 ICP	0.3	B		mg/L	0.2	1	08/23/07 20:33	wfg
Potassium, dissolved	M200.7 ICP	1.9	B		mg/L	0.3	2	08/23/07 20:33	wfg
Sodium, dissolved	M200.7 ICP	80.8			mg/L	0.3	2	08/23/07 20:33	wfg

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		101			mg/L	2	20	08/19/07 0:00	cas
Carbonate as CaCO3		2	B		mg/L	2	20	08/19/07 0:00	cas
Hydroxide as CaCO3			U		mg/L	2	20	08/19/07 0:00	cas
Total Alkalinity		103		*	mg/L	2	20	08/19/07 0:00	cas
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-1.2			%			08/28/07 0:00	calc
Sum of Anions		4.3			meq/L	0.1	0.5	08/28/07 0:00	calc
Sum of Cations		4.2			meq/L	0.1	0.5	08/28/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	11.8		*	mg/L	0.5	3	08/25/07 0:00	jag
Fluoride	M300.0 - Ion Chromatography	5.0		*	mg/L	0.1	0.5	08/25/07 0:00	jag
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.48			mg/L	0.02	0.1	08/28/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.48		*	mg/L	0.02	0.1	08/17/07 18:59	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	08/17/07 18:59	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	310			mg/L	10	20	08/22/07 11:05	lcp
Sulfate	300.0 - Ion Chromatography	78.7			mg/L	0.5	3	08/25/07 0:00	jag
TDS (calculated)	Calculation	256			mg/L	10	50	08/28/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.21						08/28/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: UGW-MO-2007-4C

ACZ Sample ID: ***L64503-02***
Date Sampled: *08/16/07 11:50*
Date Received: *08/17/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	78.6			mg/L	0.5	3	08/25/07 0:19	jag

Arizona license number: AZ0102

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64503***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230595													
WG230595PBW1	PBW	08/18/07 16:05				3	mg/L		-20	20			
WG230595LCSW2	LCSW	08/18/07 16:17	WC070809-7	820		808	mg/L	98.5	90	110			
WG230595PBW2	PBW	08/18/07 19:21				U	mg/L		-20	20			
WG230595LCSW5	LCSW	08/18/07 19:33	WC070809-7	820		799.8	mg/L	97.5	90	110			
WG230595PBW3	PBW	08/18/07 22:29				U	mg/L		-20	20			
WG230595LCSW8	LCSW	08/18/07 22:42	WC070809-7	820		806.4	mg/L	98.3	90	110			
WG230595PBW4	PBW	08/19/07 1:33				U	mg/L		-20	20			
WG230595LCSW11	LCSW	08/19/07 1:45	WC070809-7	820		802	mg/L	97.8	90	110			
L64506-02DUP	DUP	08/19/07 2:45			52	52.7	mg/L				1.3	20	
WG230595LCSW14	LCSW	08/19/07 3:20	WC070809-7	820		803.5	mg/L	98	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230926													
WG230926ICV	ICV	08/23/07 18:30	II070821-3	100		100.08	mg/L	100.1	95	105			
WG230926ICB	ICB	08/23/07 18:34				U	mg/L		-0.6	0.6			
WG230926LFB	LFB	08/23/07 18:48	II070823-2	67.97008		70.66	mg/L	104	85	115			
L64394-04AS	AS	08/23/07 19:48	II070823-2	67.97008	26.8	92.6	mg/L	96.8	85	115			
L64394-04ASD	ASD	08/23/07 19:52	II070823-2	67.97008	26.8	94.15	mg/L	99.1	85	115	1.66	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG230989													
WG230989LFB	LFB	08/24/07 16:28	WI070727-1	30		32.1	mg/L	107	90	110			
L64434-01AS	AS	08/24/07 21:17	WI070727-1	600	40	671	mg/L	105.2	90	110			
L64434-01DUP	DUP	08/24/07 21:36			40	43	mg/L				7.2	20	RA

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG230989													
WG230989LFB	LFB	08/24/07 16:28	WI070727-1	1.5		1.63	mg/L	108.7	90	110			
L64434-01AS	AS	08/24/07 21:17	WI070727-1	30	U	35.1	mg/L	117	90	110			M1
L64434-01DUP	DUP	08/24/07 21:36			U	U	mg/L				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64503***

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230926													
WG230926ICV	ICV	08/23/07 18:30	II070821-3	100		100.01	mg/L	100	95	105			
WG230926ICB	ICB	08/23/07 18:34				U	mg/L		-0.6	0.6			
WG230926LFB	LFB	08/23/07 18:48	II070823-2	54.96908		57.39	mg/L	104.4	85	115			
L64394-04AS	AS	08/23/07 19:48	II070823-2	54.96908	2	57.46	mg/L	100.9	85	115			
L64394-04ASD	ASD	08/23/07 19:52	II070823-2	54.96908	2	58.77	mg/L	103.3	85	115	2.25	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230583													
WG230583ICV	ICV	08/17/07 18:01	WI070609-1	2.416		2.353	mg/L	97.4	90	110			
WG230583ICB	ICB	08/17/07 18:02				U	mg/L		-0.06	0.06			
WG230583LFB1	LFB	08/17/07 18:07	WI070307-9	2		1.971	mg/L	98.6	90	110			
L64501-05AS	AS	08/17/07 18:45	WI070307-9	2	.02	1.82	mg/L	90	90	110			
WG230583LFB2	LFB	08/17/07 18:46	WI070307-9	2		1.87	mg/L	93.5	90	110			
L64501-06DUP	DUP	08/17/07 18:52			U	U	mg/L				0	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230583													
WG230583ICV	ICV	08/17/07 18:01	WI070609-1	.609		.627	mg/L	103	90	110			
WG230583ICB	ICB	08/17/07 18:02				U	mg/L		-0.03	0.03			
WG230583LFB1	LFB	08/17/07 18:07	WI070307-9	1		.983	mg/L	98.3	90	110			
L64501-05AS	AS	08/17/07 18:45	WI070307-9	1	U	.927	mg/L	92.7	90	110			
WG230583LFB2	LFB	08/17/07 18:46	WI070307-9	1		.959	mg/L	95.9	90	110			
L64501-06DUP	DUP	08/17/07 18:52			U	U	mg/L				0	20	RA

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230926													
WG230926ICV	ICV	08/23/07 18:30	II070821-3	20		19.97	mg/L	99.9	95	105			
WG230926ICB	ICB	08/23/07 18:34				U	mg/L		-0.9	0.9			
WG230926LFB	LFB	08/23/07 18:48	II070823-2	99.76186		100.53	mg/L	100.8	85	115			
L64394-04AS	AS	08/23/07 19:48	II070823-2	99.76186	U	99.53	mg/L	99.8	85	115			
L64394-04ASD	ASD	08/23/07 19:52	II070823-2	99.76186	U	101.2	mg/L	101.4	85	115	1.66	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230779													
WG230779PBW	PBW	08/22/07 10:45				20	mg/L		-20	20			
WG230779LCSW	LCSW	08/22/07 10:46	PCN27691	260		312	mg/L	120	80	120			
L64519-03DUP	DUP	08/22/07 11:14			260	250	mg/L				3.9	20	

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64503***

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG230926													
WG230926ICV	ICV	08/23/07 18:30	II070821-3	100		99.9	mg/L	99.9	95	105			
WG230926ICB	ICB	08/23/07 18:34				U	mg/L		-0.9	0.9			
WG230926LFB	LFB	08/23/07 18:48	II070823-2	98.21624		98.26	mg/L	100	85	115			
L64394-04AS	AS	08/23/07 19:48	II070823-2	98.21624	4	97.19	mg/L	94.9	85	115			
L64394-04AS	AS	08/23/07 19:48	II070823-2	98.21624	4	94.1	mg/L	91.7	85	115			
L64394-04ASD	ASD	08/23/07 19:52	II070823-2	98.21624	4	95.1	mg/L	92.8	85	115	1.06	20	
L64394-04ASD	ASD	08/23/07 19:52	II070823-2	98.21624	4	98.61	mg/L	96.3	85	115	1.06	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG230989													
WG230989LFB	LFB	08/24/07 16:28	WI070727-1	30		32.21	mg/L	107.4	90	110			
L64434-01AS	AS	08/24/07 21:17	WI070727-1	600	670	1298	mg/L	104.7	90	110			
L64434-01DUP	DUP	08/24/07 21:36			670	680	mg/L				1.5	20	

ACZ Laboratories, Inc.
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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L64503***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L64503-01	WG230989	Chloride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Fluoride	M300.0 - Ion Chromatography	M1	Matrix spike recovery was high, the method control sample recovery was acceptable.
			M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG230583	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG230595	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L64503***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64503
Date Received: 8/17/2007
Received By:
Date Printed: 8/17/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA4227		1.3	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64503
Date Received: 8/17/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L64503-01	FGW-MO-2007-4C		Y									
L64503-02	UGW-MO-2007-4C									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc. L04503

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: HGC, INC
E-mail: dans@hgcinc.com
Address: 51 W. Wetmore
Tucson, AZ 85705
Telephone: (520) 293-1500

Copy of Report to:

Name: Ned Hall, Bill Dorris, Jim Norris
Company: PDSI / HGC, INC.
E-mail: jimn@hgcinc.com / billy-dorris@fmi.com
Telephone (520) 293-1500 x.112 / (520) 648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: ned-hall@fmi.com
Address: 6200 W. Duval Mine Rd
PO Box 527, Green Valley, AZ 85622
Telephone (520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES ✓
NO

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: 0J0325
Reporting state for compliance testing: AZ
Sampler's Name: NJ. Babb
Are any samples NRC licensable material? NO

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Cu, Mo, Na, K	Alk, TDS, SO4, Cl, F, NO2, NO3	Cu, SO4		pH	EC	T°C
FGW-MO-2007-4C	8-16-07 / 11:50	GW	2	X	X			7.62	472	35.2
UGW-MO-2007-4C	8-16-07 / 11:50	GW	1			X		7.62	472	35.2

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

FGW = filtered Gw - sample
UGW = UN-filtered Gw - sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
N. Babb	8-16-07/14:00	KW	8-17-07 11:05

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

September 18, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJO3Z5
ACZ Project ID: L64629

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on August 24, 2007. This project has been assigned to ACZ's project number, L64629. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L64629. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after October 18, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJO3Z5
Sample ID: FGW-MO-2007-5C

ACZ Sample ID: ***L64629-01***
Date Sampled: *08/23/07 14:30*
Date Received: *08/24/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	780			mS/cm			08/23/07 14:30	ma
pH (Field)	Field Measurement	7.5			units			08/23/07 14:30	ma
Temperature (Field)	Field Measurement	31.4			C			08/23/07 14:30	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	30.0			mg/L	0.2	1	09/03/07 19:54	djt
Magnesium, dissolved	M200.7 ICP	1.4			mg/L	0.2	1	09/03/07 19:54	djt
Potassium, dissolved	M200.7 ICP	7.1			mg/L	0.3	2	09/03/07 19:54	djt
Sodium, dissolved	M200.7 ICP	129		*	mg/L	0.3	2	09/03/07 19:54	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		71			mg/L	2	20	08/30/07 0:00	lcp
Carbonate as CaCO3			U		mg/L	2	20	08/30/07 0:00	lcp
Hydroxide as CaCO3			U		mg/L	2	20	08/30/07 0:00	lcp
Total Alkalinity		71		*	mg/L	2	20	08/30/07 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		2.8			%			09/18/07 0:00	calc
Sum of Anions		7.0			meq/L	0.1	0.5	09/18/07 0:00	calc
Sum of Cations		7.4			meq/L	0.1	0.5	09/18/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	12			mg/L	3	10	09/14/07 10:29	ccp
Fluoride	M300.0 - Ion Chromatography	2.1		*	mg/L	0.1	0.5	09/13/07 18:42	ccp
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.13			mg/L	0.02	0.1	09/18/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.15			mg/L	0.02	0.1	08/24/07 21:18	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.02	B	*	mg/L	0.01	0.05	08/24/07 21:18	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	540			mg/L	10	20	08/29/07 11:05	cas
Sulfate	300.0 - Ion Chromatography	248		*	mg/L	3	10	09/14/07 10:29	ccp
TDS (calculated)	Calculation	473			mg/L	10	50	09/18/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.14						09/18/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJO3Z5
Sample ID: UGW-MO-2007-5C

ACZ Sample ID: ***L64629-02***
Date Sampled: *08/23/07 14:30*
Date Received: *08/24/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	780			mS/cm			08/23/07 14:30	ma
pH (Field)	Field Measurement	7.5			units			08/23/07 14:30	ma
Temperature (Field)	Field Measurement	31.4			C			08/23/07 14:30	ma

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	252		*	mg/L	3	10	09/14/07 10:47	ccp

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJO3Z5

ACZ Project ID: ***L64629***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231352													
WG231352PBW1	PBW	08/30/07 11:22				U	mg/L		-20	20			
WG231352LCSW2	LCSW	08/30/07 11:34	WC070828-1	820		811.7	mg/L	99	90	110			
L64658-01DUP	DUP	08/30/07 14:17			125	125.6	mg/L				0.5	20	
WG231352PBW2	PBW	08/30/07 14:22				U	mg/L		-20	20			
WG231352LCSW5	LCSW	08/30/07 14:35	WC070828-1	820		824.4	mg/L	100.5	90	110			
WG231352PBW3	PBW	08/30/07 18:14				U	mg/L		-20	20			
WG231352LCSW8	LCSW	08/30/07 18:26	WC070828-1	820		826.8	mg/L	100.8	90	110			
WG231352PBW4	PBW	08/30/07 21:22				U	mg/L		-20	20			
WG231352LCSW11	LCSW	08/30/07 21:34	WC070828-1	820		828.7	mg/L	101.1	90	110			
WG231352LCSW14	LCSW	08/31/07 0:12	WC070828-1	820		826.4	mg/L	100.8	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231536													
WG231536ICV	ICV	09/03/07 17:42	II070821-3	100		101.94	mg/L	101.9	95	105			
WG231536ICB	ICB	09/03/07 17:47				U	mg/L		-0.6	0.6			
WG231536LFB	LFB	09/03/07 18:03	II070829-11	67.97008		71.99	mg/L	105.9	85	115			
L64613-03AS	AS	09/03/07 19:09	II070829-11	67.97008	3.3	76.71	mg/L	108	85	115			
L64613-03ASD	ASD	09/03/07 19:13	II070829-11	67.97008	3.3	75.24	mg/L	105.8	85	115	1.93	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232234													
WG232234ICV	ICV	09/13/07 15:59	WI070910-1	20		19.89	mg/L	99.5	90	110			
WG232234ICB	ICB	09/13/07 16:17				U	mg/L		-1.5	1.5			
WG232234LFB	LFB	09/13/07 16:35	WI070727-1	30		29.34	mg/L	97.8	90	110			
L64532-01DUP	DUP	09/13/07 17:11			69	70.9	mg/L				2.7	20	
L64532-02AS	AS	09/13/07 17:47	WI070727-1	30	8.4	36.91	mg/L	95	90	110			

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232234													
WG232234ICV	ICV	09/13/07 15:59	WI070910-1	3.984		4.19	mg/L	105.2	90	110			
WG232234ICB	ICB	09/13/07 16:17				U	mg/L		-0.3	0.3			
WG232234LFB	LFB	09/13/07 16:35	WI070727-1	1.5		1.54	mg/L	102.7	90	110			
L64532-01DUP	DUP	09/13/07 17:11			44.6	45.71	mg/L				2.5	20	
L64532-02AS	AS	09/13/07 17:47	WI070727-1	1.5	4.3	5.51	mg/L	80.7	90	110			M2

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231536													
WG231536ICV	ICV	09/03/07 17:42	II070821-3	100		103.02	mg/L	103	95	105			
WG231536ICB	ICB	09/03/07 17:47				U	mg/L		-0.6	0.6			
WG231536LFB	LFB	09/03/07 18:03	II070829-11	54.96908		58.14	mg/L	105.8	85	115			
L64613-03AS	AS	09/03/07 19:09	II070829-11	54.96908	.8	59.62	mg/L	107	85	115			
L64613-03ASD	ASD	09/03/07 19:13	II070829-11	54.96908	.8	58.43	mg/L	104.8	85	115	2.02	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJO3Z5

ACZ Project ID: ***L64629***

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231014													
WG231014ICV	ICV	08/24/07 20:17	WI070609-1	2.416		2.375	mg/L	98.3	90	110			
WG231014ICB	ICB	08/24/07 20:18				U	mg/L		-0.06	0.06			
WG231014LFB1	LFB	08/24/07 20:23	WI070307-9	2		1.979	mg/L	99	90	110			
WG231014LFB2	LFB	08/24/07 21:02	WI070307-9	2		1.881	mg/L	94.1	90	110			
L64613-07AS	AS	08/24/07 21:08	WI070307-9	2	U	1.794	mg/L	89.7	90	110			
L64621-01DUP	DUP	08/24/07 21:10			1.33	1.351	mg/L				1.6	20	

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231014													
WG231014ICV	ICV	08/24/07 20:17	WI070609-1	.609		.633	mg/L	103.9	90	110			
WG231014ICB	ICB	08/24/07 20:18				U	mg/L		-0.03	0.03			
WG231014LFB1	LFB	08/24/07 20:23	WI070307-9	1		1.016	mg/L	101.6	90	110			
WG231014LFB2	LFB	08/24/07 21:02	WI070307-9	1		1.018	mg/L	101.8	90	110			
L64613-07AS	AS	08/24/07 21:08	WI070307-9	1	U	.984	mg/L	98.4	90	110			
L64621-01DUP	DUP	08/24/07 21:10			U	U	mg/L				0	20	RA

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231536													
WG231536ICV	ICV	09/03/07 17:42	II070821-3	20		19.71	mg/L	98.6	95	105			
WG231536ICB	ICB	09/03/07 17:47				U	mg/L		-0.9	0.9			
WG231536LFB	LFB	09/03/07 18:03	II070829-11	99.76186		100.95	mg/L	101.2	85	115			
L64613-03AS	AS	09/03/07 19:09	II070829-11	99.76186	3.5	112.67	mg/L	109.4	85	115			
L64613-03ASD	ASD	09/03/07 19:13	II070829-11	99.76186	3.5	110.41	mg/L	107.2	85	115	2.03	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231255													
WG231255PBW	PBW	08/29/07 11:00				U	mg/L		-20	20			
WG231255LCSW	LCSW	08/29/07 11:01	PCN27686	260		282	mg/L	108.5	80	120			
L64652-02DUP	DUP	08/29/07 11:15			6040	6072	mg/L				0.5	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG231536													
WG231536ICV	ICV	09/03/07 17:42	II070821-3	100		98.2	mg/L	98.2	95	105			
WG231536ICV	ICV	09/03/07 17:42	II070821-3	100		99.2	mg/L	99.2	95	105			
WG231536ICB	ICB	09/03/07 17:47				U	mg/L		-6	6			
WG231536ICB	ICB	09/03/07 17:47				U	mg/L		-0.9	0.9			
WG231536LFB	LFB	09/03/07 18:03	II070829-11	98.21624		99.2	mg/L	101	85	115			
WG231536LFB	LFB	09/03/07 18:03	II070829-11	98.21624		99.28	mg/L	101.1	85	115			
L64613-03AS	AS	09/03/07 19:09	II070829-11	98.21624	612	684.6	mg/L	73.9	85	115			M3
L64613-03ASD	ASD	09/03/07 19:13	II070829-11	98.21624	612	684.2	mg/L	73.5	85	115	0.06	20	M3

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJO3Z5

ACZ Project ID: ***L64629***

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232234													
WG232234ICV	ICV	09/13/07 15:59	WI070910-1	50.1		52.62	mg/L	105	90	110			
WG232234ICB	ICB	09/13/07 16:17				U	mg/L		-1.5	1.5			
WG232234LFB	LFB	09/13/07 16:35	WI070727-1	30		30.67	mg/L	102.2	90	110			
L64532-01DUP	DUP	09/13/07 17:11			U	U	mg/L				0	20	RA
L64532-02AS	AS	09/14/07 11:59	WI070727-1	300	494	798.9	mg/L	101.6	90	110			

ACZ Laboratories, Inc.
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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L64629***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L64629-01	WG231536	Sodium, dissolved	M200.7 ICP	M3	The accuracy of the spike recovery does not apply because analyte concentration in the sample is disproportionate to the spike level. The recovery of the method control sample was acceptable.
	WG232234	Fluoride	M300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
	WG231014	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG232234	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG231352	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L64629-02	WG232234	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L64629***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJO3Z5

ACZ Project ID: L64629
Date Received: 8/24/2007
Received By:
Date Printed: 8/28/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA4279		4.2	14

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJO3Z5

ACZ Project ID: L64629
Date Received: 8/24/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L64629-01	FGW-MO-2007-5C		Y									
L64629-02	UGW-MO-2007-5C									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

1041029

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: Hydro Geo Chem Inc.
E-mail: dans@hgcinc.com

Address: 51 West Wetmore Rd
Tucson, AZ 85705
Telephone: 520) 293-1500

Copy of Report to:

Name: Ned Hall / Bill Davis / Jim Norris
Company: PDST / HGC

E-mail: Jim@hgcinc.com, billy-davis@fmi.com
Telephone: 520) 293-1500 x112, 520) 648-8873

Invoice to:

Name: Ned Hall
Company: PDST
E-mail: ned-hall@fmi.com

Address: 6200 W. Duval Mine Rd.
Green Valley, AZ 85622
Telephone: 520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES ✓
NO

PROJECT INFORMATION

Quote #: Siemens Short
Project/PO #: OJ#325
Reporting state for compliance testing: AZ
Sampler's Name: Mark Arneson
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg Na K	Alk, TDS, F, NO3, NO3	SO4		pH	EC	Temp
FGW-MO-2007-SC	8/23/07 : 1430	GW	2					7.46	780	31.4
UGW-MO-2007-SC	8/23/07 : 1430	GW	1					7.46	780	31.4

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

FGW = Filtered Ground Water
UGW = Unfiltered Ground water

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	8/23/07: 1512	KG	8/24/07 12:05

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

September 27, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJ03Z5
ACZ Project ID: L64942

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on September 11, 2007. This project has been assigned to ACZ's project number, L64942. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L64942. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after October 27, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: FGW-MO-2007-3B

ACZ Sample ID: ***L64942-01***
Date Sampled: *09/10/07 14:26*
Date Received: *09/11/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	28.7			mS/cm			09/10/07 14:26	ma
pH (Field)	Field Measurement	7.5			units			09/10/07 14:26	ma
Temperature (Field)	Field Measurement	373.0			C			09/10/07 14:26	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	31.5			mg/L	0.2	1	09/13/07 18:06	msh
Magnesium, dissolved	M200.7 ICP	2.8			mg/L	0.2	1	09/13/07 18:06	msh
Potassium, dissolved	M200.7 ICP	3.1			mg/L	0.3	2	09/13/07 18:06	msh
Sodium, dissolved	M200.7 ICP	44.1			mg/L	0.3	2	09/13/07 18:06	msh

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		134			mg/L	2	20	09/19/07 0:00	lcp
Carbonate as CaCO3			U		mg/L	2	20	09/19/07 0:00	lcp
Hydroxide as CaCO3			U		mg/L	2	20	09/19/07 0:00	lcp
Total Alkalinity		134		*	mg/L	2	20	09/19/07 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		1.3			%			09/27/07 0:00	calc
Sum of Anions		3.7			meq/L	0.1	0.5	09/27/07 0:00	calc
Sum of Cations		3.8			meq/L	0.1	0.5	09/27/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	7			mg/L	1	5	09/14/07 11:05	ccp
Fluoride	M300.0 - Ion Chromatography	0.5		*	mg/L	0.1	0.5	09/13/07 20:30	ccp
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.33			mg/L	0.02	0.1	09/27/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.33			mg/L	0.02	0.1	09/11/07 20:09	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		UH	*	mg/L	0.01	0.05	09/19/07 20:29	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	250			mg/L	10	20	09/14/07 15:06	ear
Sulfate	300.0 - Ion Chromatography	38		*	mg/L	1	5	09/14/07 11:05	ccp
TDS (calculated)	Calculation	209			mg/L	10	50	09/27/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.20						09/27/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: UGW-MO-2007-3B

ACZ Sample ID: ***L64942-02***
Date Sampled: *09/10/07 14:26*
Date Received: *09/11/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	38		*	mg/L	1	5	09/14/07 11:23	ccp

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64942***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232583													
WG232583PBW1	PBW	09/19/07 10:18				U	mg/L		-20	20			
WG232583LCSW2	LCSW	09/19/07 10:30	WC070917-1	820		829.6	mg/L	101.2	90	110			
WG232583PBW2	PBW	09/19/07 13:42				U	mg/L		-20	20			
WG232583LCSW5	LCSW	09/19/07 13:55	WC070917-1	820		838.2	mg/L	102.2	90	110			
L64945-01DUP	DUP	09/19/07 15:21			451	452.8	mg/L				0.4	20	
WG232583PBW3	PBW	09/19/07 16:51				U	mg/L		-20	20			
WG232583LCSW8	LCSW	09/19/07 17:04	WC070917-1	820		840.6	mg/L	102.5	90	110			
WG232583PBW4	PBW	09/19/07 20:24				U	mg/L		-20	20			
WG232583LCSW11	LCSW	09/19/07 20:36	WC070917-1	820		842.6	mg/L	102.8	90	110			
WG232583LCSW14	LCSW	09/19/07 23:19	WC070917-1	820		846.6	mg/L	103.2	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232231													
WG232231ICV	ICV	09/13/07 17:01	II070911-1	100		97.12	mg/L	97.1	95	105			
WG232231ICB	ICB	09/13/07 17:05				U	mg/L		-0.6	0.6			
WG232231LFB	LFB	09/13/07 17:20	II070829-11	67.97008		69.37	mg/L	102.1	85	115			
L64933-02AS	AS	09/13/07 17:32	II070829-11	67.97008	80.4	149.47	mg/L	101.6	85	115			
L64933-02ASD	ASD	09/13/07 17:35	II070829-11	67.97008	80.4	149.24	mg/L	101.3	85	115	0.15	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232234													
WG232234ICV	ICV	09/13/07 15:59	WI070910-1	20		19.89	mg/L	99.5	90	110			
WG232234ICB	ICB	09/13/07 16:17				U	mg/L		-1.5	1.5			
WG232234LFB	LFB	09/13/07 16:35	WI070727-1	30		29.34	mg/L	97.8	90	110			
L64532-01DUP	DUP	09/13/07 17:11			69	70.9	mg/L				2.7	20	
L64532-02AS	AS	09/13/07 17:47	WI070727-1	30	8.4	36.91	mg/L	95	90	110			

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232234													
WG232234ICV	ICV	09/13/07 15:59	WI070910-1	3.984		4.19	mg/L	105.2	90	110			
WG232234ICB	ICB	09/13/07 16:17				U	mg/L		-0.3	0.3			
WG232234LFB	LFB	09/13/07 16:35	WI070727-1	1.5		1.54	mg/L	102.7	90	110			
L64532-01DUP	DUP	09/13/07 17:11			44.6	45.71	mg/L				2.5	20	
L64532-02AS	AS	09/13/07 17:47	WI070727-1	1.5	4.3	5.51	mg/L	80.7	90	110			M2

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232231													
WG232231ICV	ICV	09/13/07 17:01	II070911-1	100		98.04	mg/L	98	95	105			
WG232231ICB	ICB	09/13/07 17:05				U	mg/L		-0.6	0.6			
WG232231LFB	LFB	09/13/07 17:20	II070829-11	54.96908		55.54	mg/L	101	85	115			
L64933-02AS	AS	09/13/07 17:32	II070829-11	54.96908	7.1	64.3	mg/L	104.1	85	115			
L64933-02ASD	ASD	09/13/07 17:35	II070829-11	54.96908	7.1	64.05	mg/L	103.6	85	115	0.39	20	

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64942***

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232070													
WG232070ICV	ICV	09/11/07 18:54	WI070911-1	2.416		2.428	mg/L	100.5	90	110			
WG232070ICB	ICB	09/11/07 18:55				U	mg/L		-0.06	0.06			
WG232070LFB	LFB	09/11/07 19:00	WI070911-4	2		2.052	mg/L	102.6	90	110			
L64923-01AS	AS	09/11/07 19:21	WI070911-4	2	.64	2.564	mg/L	96.2	90	110			
L64924-01DUP	DUP	09/11/07 19:24			.67	.707	mg/L				5.4	20	

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232665													
WG232665ICV	ICV	09/19/07 20:15	WI070911-1	.609		.613	mg/L	100.7	90	110			
WG232665ICB	ICB	09/19/07 20:16				U	mg/L		-0.03	0.03			
WG232665LFB1	LFB	09/19/07 20:22	WI070911-4	1		1.007	mg/L	100.7	90	110			
L64923-01AS	AS	09/19/07 20:24	WI070911-4	1	U	.959	mg/L	95.9	90	110			
L64924-01DUP	DUP	09/19/07 20:27			U	U	mg/L				0	20	RA
WG232665LFB2	LFB	09/19/07 21:00	WI070911-4	1		1.008	mg/L	100.8	90	110			

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232231													
WG232231ICV	ICV	09/13/07 17:01	II070911-1	20		19.91	mg/L	99.6	95	105			
WG232231ICB	ICB	09/13/07 17:05				U	mg/L		-0.9	0.9			
WG232231LFB	LFB	09/13/07 17:20	II070829-11	99.76186		102.39	mg/L	102.6	85	115			
L64933-02AS	AS	09/13/07 17:32	II070829-11	99.76186	1.5	109.32	mg/L	108.1	85	115			
L64933-02ASD	ASD	09/13/07 17:35	II070829-11	99.76186	1.5	109.12	mg/L	107.9	85	115	0.18	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232320													
WG232320PBW	PBW	09/14/07 14:55				10	mg/L		-20	20			
WG232320LCSW	LCSW	09/14/07 14:57	PCN27694	261		288	mg/L	110.3	80	120			
L64959-01DUP	DUP	09/14/07 15:23			3780	3774	mg/L				0.2	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232231													
WG232231ICV	ICV	09/13/07 17:01	II070911-1	100		99.91	mg/L	99.9	95	105			
WG232231ICB	ICB	09/13/07 17:05				U	mg/L		-0.9	0.9			
WG232231LFB	LFB	09/13/07 17:20	II070829-11	98.21624		100.88	mg/L	102.7	85	115			
L64933-02AS	AS	09/13/07 17:32	II070829-11	98.21624	1.7	106.91	mg/L	107.1	85	115			
L64933-02ASD	ASD	09/13/07 17:35	II070829-11	98.21624	1.7	106.52	mg/L	106.7	85	115	0.37	20	

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L64942***

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG232234													
WG232234ICV	ICV	09/13/07 15:59	WI070910-1	50.1		52.62	mg/L	105	90	110			
WG232234ICB	ICB	09/13/07 16:17				U	mg/L		-1.5	1.5			
WG232234LFB	LFB	09/13/07 16:35	WI070727-1	30		30.67	mg/L	102.2	90	110			
L64532-01DUP	DUP	09/13/07 17:11			U	U	mg/L				0	20	RA
L64532-02AS	AS	09/14/07 11:59	WI070727-1	300	494	798.9	mg/L	101.6	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L64942***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L64942-01	WG232234	Fluoride	M300.0 - Ion Chromatography	M2	Matrix spike recovery was low, the method control sample recovery was acceptable.
	WG232665	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HC	Initial analysis within holding time. Reanalysis was past holding time, which was required due to a QC failure during the initial analysis.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG232234	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG232583	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L64942-02	WG232234	Sulfate	300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L64942***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64942
Date Received: 9/11/2007
Received By:
Date Printed: 9/11/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?			
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id		Temp (°C)	Rad (µR/hr)
NA4410		2.2	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L64942
Date Received: 9/11/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L64942-01	FGW-MO-2007-3B		Y									
L64942-02	UGW-MO-2007-3B											

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

L64942

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: Hydro Geo Chem Inc.
E-mail: dans@hgcinc.com

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: 520) 293-1500

Copy of Report to:

Name: Ned Hall / Bill Dorris / Jim Norris
Company: POSI / HGC

E-mail: jimn@hgcinc.com / billy-dorris@fmi.com
Telephone: 520) 293-1500 x117 648-8873

Invoice to:

Name: Ned Hall
Company: POSI
E-mail: ned-hall@fmi.com

Address: 6200 W. Duval Mine Rd.
PO Box 527 Green Valley, AZ 85622
Telephone: 520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES [X]
NO [ ]

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJQ3Z5
Reporting state for compliance testing: AZ
Sampler's Name: M. Arneson
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg Na K	Alk, TDS, SO4 - Cl- F- NO3- NO2-	SO4 -		pH	EC	Temp	
FGW-MO-2007-3B	9-10-07; 1426	GW	2	X	X			7.53	323	28.7	
UGW-MO-2007-3B	9-10-07; 1426	GW	1			X		7.53	323	28.7	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

FGW = Filtered Groundwater sample
UGW = Unfiltered Groundwater sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
M Arneson	9-10-07; 1500	WPL	9-11-07 11:07

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

October 19, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJ03Z5
ACZ Project ID: L65452

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 04, 2007. This project has been assigned to ACZ's project number, L65452. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L65452. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 19, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-6AF

ACZ Sample ID: ***L65452-01***
Date Sampled: *10/02/07 14:55*
Date Received: *10/04/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	405			mS/cm			10/02/07 14:55	ma
pH (Field)	Field Measurement	7.5			units			10/02/07 14:55	ma
Temperature (Field)	Field Measurement	28.5			C			10/02/07 14:55	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	36.3			mg/L	0.2	1	10/13/07 6:22	erf
Magnesium, dissolved	M200.7 ICP	5.4			mg/L	0.2	1	10/13/07 6:22	erf
Potassium, dissolved	M200.7 ICP	3.8			mg/L	0.3	2	10/13/07 6:22	erf
Sodium, dissolved	M200.7 ICP	39.8			mg/L	0.3	2	10/13/07 6:22	erf

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		164			mg/L	2	20	10/06/07 0:00	lcp
Carbonate as CaCO3			U		mg/L	2	20	10/06/07 0:00	lcp
Hydroxide as CaCO3			U		mg/L	2	20	10/06/07 0:00	lcp
Total Alkalinity		164		*	mg/L	2	20	10/06/07 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-1.2			%			10/19/07 0:00	calc
Sum of Anions		4.2			meq/L	0.1	0.5	10/19/07 0:00	calc
Sum of Cations		4.1			meq/L	0.1	0.5	10/19/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	10.5			mg/L	0.5	3	10/11/07 23:58	jlf
Fluoride	M300.0 - Ion Chromatography	0.3	B	*	mg/L	0.1	0.5	10/11/07 23:58	jlf
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.99			mg/L	0.02	0.1	10/19/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.99	H	*	mg/L	0.02	0.1	10/04/07 21:16	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		HU	*	mg/L	0.01	0.05	10/04/07 21:16	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	920			mg/L	10	20	10/04/07 16:35	ear
Sulfate	300.0 - Ion Chromatography	26.5			mg/L	0.5	3	10/11/07 23:58	jlf
TDS (calculated)	Calculation	225			mg/L	10	50	10/19/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-6A

ACZ Sample ID: ***L65452-02***
Date Sampled: *10/02/07 14:55*
Date Received: *10/04/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	405			mS/cm			10/02/07 14:55	ma
pH (Field)	Field Measurement	7.5			units			10/02/07 14:55	ma
Temperature (Field)	Field Measurement	28.5			C			10/02/07 14:55	ma

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	11		*	mg/L	3	10	10/12/07 0:16	jlf
Residue, Filterable (TDS) @180C	160.1 / SM2540C	4110		*	mg/L	10	20	10/04/07 16:37	ear
Sulfate	300.0 - Ion Chromatography	27		*	mg/L	3	10	10/12/07 0:16	jlf

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-DUPF

ACZ Sample ID: ***L65452-03***
Date Sampled: *10/02/07 15:00*
Date Received: *10/04/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	405			mS/cm			10/02/07 15:00	ma
pH (Field)	Field Measurement	7.5			units			10/02/07 15:00	ma
Temperature (Field)	Field Measurement	28.5			C			10/02/07 15:00	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	36.4			mg/L	0.2	1	10/13/07 6:26	erf
Magnesium, dissolved	M200.7 ICP	5.4			mg/L	0.2	1	10/13/07 6:26	erf
Potassium, dissolved	M200.7 ICP	3.8			mg/L	0.3	2	10/13/07 6:26	erf
Sodium, dissolved	M200.7 ICP	40.0			mg/L	0.3	2	10/13/07 6:26	erf

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		163			mg/L	2	20	10/06/07 0:00	lcp
Carbonate as CaCO3			U		mg/L	2	20	10/06/07 0:00	lcp
Hydroxide as CaCO3			U		mg/L	2	20	10/06/07 0:00	lcp
Total Alkalinity		163		*	mg/L	2	20	10/06/07 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-1.2			%			10/19/07 0:00	calc
Sum of Anions		4.2			meq/L	0.1	0.5	10/19/07 0:00	calc
Sum of Cations		4.1			meq/L	0.1	0.5	10/19/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	10.5			mg/L	0.5	3	10/12/07 0:34	jlf
Fluoride	M300.0 - Ion Chromatography	0.3	B	*	mg/L	0.1	0.5	10/12/07 0:34	jlf
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.98			mg/L	0.02	0.1	10/19/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.98	H	*	mg/L	0.02	0.1	10/04/07 21:18	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		HU	*	mg/L	0.01	0.05	10/04/07 21:18	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	260			mg/L	10	20	10/05/07 14:48	ear
Sulfate	300.0 - Ion Chromatography	26.5			mg/L	0.5	3	10/12/07 0:34	jlf
TDS (calculated)	Calculation	225			mg/L	10	50	10/19/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-DUP

ACZ Sample ID: ***L65452-04***
Date Sampled: *10/02/07 15:00*
Date Received: *10/04/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	405			mS/cm			10/02/07 15:00	ma
pH (Field)	Field Measurement	7.5			units			10/02/07 15:00	ma
Temperature (Field)	Field Measurement	28.5			C			10/02/07 15:00	ma

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Chloride	M300.0 - Ion Chromatography	10.5		*	mg/L	0.5	3	10/12/07 0:52	jlf
Residue, Filterable (TDS) @180C	160.1 / SM2540C	240			mg/L	10	20	10/05/07 14:50	ear
Sulfate	300.0 - Ion Chromatography	26.5		*	mg/L	0.5	3	10/12/07 0:52	jlf

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65452***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233788													
WG233788PBW1	PBW	10/05/07 17:34				U	mg/L		-20	20			
WG233788LCSW2	LCSW	10/05/07 17:47	WC070928-1	820		834	mg/L	101.7	90	110			
WG233788PBW2	PBW	10/05/07 20:17				U	mg/L		-20	20			
WG233788LCSW5	LCSW	10/05/07 20:28	WC070928-1	820		841.5	mg/L	102.6	90	110			
WG233788PBW3	PBW	10/05/07 23:47				U	mg/L		-20	20			
WG233788LCSW8	LCSW	10/05/07 23:59	WC070928-1	820		830.9	mg/L	101.3	90	110			
WG233788PBW3	PBW	10/06/07 9:12				8.5	mg/L		-20	20			
WG233788LCSW8	LCSW	10/06/07 9:24	WC070928-1	820		833	mg/L	101.6	90	110			
L65464-09DUP	DUP	10/06/07 11:11			1300	1292.7	mg/L				0.6	20	
WG233788PBW4	PBW	10/06/07 12:50				2.7	mg/L		-20	20			
WG233788LCSW11	LCSW	10/06/07 13:02	WC070928-1	820		840.1	mg/L	102.5	90	110			
WG233788LCSW14	LCSW	10/06/07 15:59	WC070928-1	820		842.5	mg/L	102.7	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234257													
WG234257ICV	ICV	10/13/07 4:07	II071009-7	100		98.89	mg/L	98.9	95	105			
WG234257ICB	ICB	10/13/07 4:12				U	mg/L		-0.6	0.6			
WG234257LFB	LFB	10/13/07 4:28	II071012-2	67.97008		69.17	mg/L	101.8	85	115			
L65449-07AS	AS	10/13/07 5:36	II071012-2	67.97008	23	91.75	mg/L	101.1	85	115			
L65449-07ASD	ASD	10/13/07 5:40	II071012-2	67.97008	23	92.03	mg/L	101.6	85	115	0.3	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234134													
WG234134ICV	ICV	06/11/07 13:52	WI070910-1	20		20.34	mg/L	101.7	90	110			
WG234134ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG234134LFB1	LFB	10/11/07 12:30	WI070727-1	30		30.84	mg/L	102.8	90	110			
WG234134LFB2	LFB	10/11/07 21:15	WI070727-1	30		29.41	mg/L	98	90	110			
L65451-09DUP	DUP	10/11/07 21:51			8.4	8.44	mg/L				0.5	20	
L65451-10AS	AS	10/11/07 22:27	WI070727-1	30	8.2	37.81	mg/L	98.7	90	110			

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65452***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG234134													
WG234134ICV	ICV	06/11/07 13:52	WI070910-1	3.984		4.13	mg/L	103.7	90	110			
WG234134ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG234134LFB1	LFB	10/11/07 12:30	WI070727-1	1.5		1.58	mg/L	105.3	90	110			
WG234134LFB2	LFB	10/11/07 21:15	WI070727-1	1.5		1.51	mg/L	100.7	90	110			
L65451-09DUP	DUP	10/11/07 21:51			.6	.64	mg/L				6.5	20	RA
L65451-10AS	AS	10/11/07 22:27	WI070727-1	1.5	.7	2.18	mg/L	98.7	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234257													
WG234257ICV	ICV	10/13/07 4:07	II071009-7	100		99.98	mg/L	100	95	105			
WG234257ICB	ICB	10/13/07 4:12				U	mg/L		-0.6	0.6			
WG234257LFB	LFB	10/13/07 4:28	II071012-2	54.96908		55.73	mg/L	101.4	85	115			
L65449-07AS	AS	10/13/07 5:36	II071012-2	54.96908	9.3	65.4	mg/L	102.1	85	115			
L65449-07ASD	ASD	10/13/07 5:40	II071012-2	54.96908	9.3	65.45	mg/L	102.1	85	115	0.08	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233713													
WG233713ICV	ICV	10/04/07 20:50	WI070911-1	2.416		2.38	mg/L	98.5	90	110			
WG233713ICB	ICB	10/04/07 20:51				U	mg/L		-0.06	0.06			
WG233713LFB	LFB	10/04/07 20:56	WI070911-4	2		1.964	mg/L	98.2	90	110			
L65452-01AS	AS	10/04/07 21:17	WI070911-4	2	.99	2.848	mg/L	92.9	90	110			
L65452-03DUP	DUP	10/04/07 21:19			.98	.981	mg/L				0.1	20	

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233713													
WG233713ICV	ICV	10/04/07 20:50	WI070911-1	.609		.606	mg/L	99.5	90	110			
WG233713ICB	ICB	10/04/07 20:51				U	mg/L		-0.03	0.03			
WG233713LFB	LFB	10/04/07 20:56	WI070911-4	1		.991	mg/L	99.1	90	110			
L65452-01AS	AS	10/04/07 21:17	WI070911-4	1		1.002	mg/L	100.2	90	110			
L65452-03DUP	DUP	10/04/07 21:19				U	mg/L				0	20	RA

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65452***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234257													
WG234257ICV	ICV	10/13/07 4:07	II071009-7	20		20.33	mg/L	101.7	95	105			
WG234257ICB	ICB	10/13/07 4:12				U	mg/L		-0.9	0.9			
WG234257LFB	LFB	10/13/07 4:28	II071012-2	99.76186		102.31	mg/L	102.6	85	115			
L65449-07AS	AS	10/13/07 5:36	II071012-2	99.76186	2.8	107.88	mg/L	105.3	85	115			
L65449-07ASD	ASD	10/13/07 5:40	II071012-2	99.76186	2.8	108.46	mg/L	105.9	85	115	0.54	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233688													
WG233688PBW	PBW	10/04/07 15:50				U	mg/L		-20	20			
WG233688LCSW	LCSW	10/04/07 15:52	PCN28206	260		312	mg/L	119.5	80	120			
L65452-02DUP	DUP	10/04/07 16:39			4110	4136	mg/L				0.6	20	
WG233773													
WG233773PBW	PBW	10/05/07 14:30				U	mg/L		-20	20			
WG233773LCSW	LCSW	10/05/07 14:32	PCN28206	260		254	mg/L	97.3	80	120			
L65462-01DUP	DUP	10/05/07 15:01			1380	1374	mg/L				0.4	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234257													
WG234257ICV	ICV	10/13/07 4:07	II071009-7	100		100.25	mg/L	100.3	95	105			
WG234257ICB	ICB	10/13/07 4:12				U	mg/L		-0.9	0.9			
WG234257LFB	LFB	10/13/07 4:28	II071012-2	98.21624		99.59	mg/L	101.4	85	115			
L65449-07AS	AS	10/13/07 5:36	II071012-2	98.21624	15.2	115.4	mg/L	102	85	115			
L65449-07ASD	ASD	10/13/07 5:40	II071012-2	98.21624	15.2	115.35	mg/L	102	85	115	0.04	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234134													
WG234134ICV	ICV	06/11/07 13:52	WI070910-1	50.1		51.51	mg/L	102.8	90	110			
WG234134ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG234134LFB1	LFB	10/11/07 12:30	WI070727-1	30		32.06	mg/L	106.9	90	110			
WG234134LFB2	LFB	10/11/07 21:15	WI070727-1	30		30.14	mg/L	100.5	90	110			
L65451-09DUP	DUP	10/11/07 21:51			47.7	47.66	mg/L				0.1	20	
L65451-10AS	AS	10/11/07 22:27	WI070727-1	30	47.4	75.63	mg/L	94.1	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L65452***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L65452-01	WG234134	Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG233713	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG233788	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L65452-02	WG234134	Chloride	M300.0 - Ion Chromatography	DH	Sample required dilution due to high TDS and/or EC value.
			M300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG233688	Residue, Filterable (TDS) @180C	160.1 / SM2540C	ZO	TDS concentration is based on a final residue greater than 200 mg.
	WG234134	Sulfate	300.0 - Ion Chromatography	DH	Sample required dilution due to high TDS and/or EC value.
			300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L65452-03	WG234134	Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG233713	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	HE	Analysis performed past holding time. Method holding time is less than or equal to 7 days and sample was received with less than half of the holding time remaining (refer to item C5 of ACZ's Terms & Conditions).
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG233788	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L65452-04	WG234134	Chloride	M300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
		Sulfate	300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L65452***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65452
Date Received: 10/4/2007
Received By:
Date Printed: 10/5/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
1964	6	17

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

Sample 1 on COC has an F on the end of ID the bottle's from that sample are missing the F on the bottle ID, but are Filtered samples.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65452
Date Received: 10/4/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L65452-01	MO-2007-6AF		Y									
L65452-02	MO-2007-6A									X		
L65452-03	MO-2007-DUPF		Y									
L65452-04	MO-2007-DUP									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH-Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc. L65452

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CHAIN of CUSTODY

Report to:

Name: [redacted]
Company: [redacted]
E-mail: [redacted]

Address: 51 W Wetmore Rd
Tucson AZ 85705
Telephone: 520) 293-1500

Copy of Report to

Name: [redacted] / Jim Norris
Company: HGC

E-mail: Jimn@hgcinc.com / billy-dorris@fmi.com
Telephone: 293-1500 648-8873

Invoice to:

Name: [redacted]
Company: FOSI
E-mail: [redacted]@fmi.com

Address: 6200 W Duval Mine Rd
PO Box 527 Green Valley AZ 85622
Telephone: 520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES ☐
NO ☐

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJQ325
Reporting state for compliance testing: AZ
Sampler's Name: M. Arneson
Are any samples NRC licensable material? NO

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg K Na	Alk, TDS, Cl, F, NO3, SO4	SO4		pH	EC	Temp
MO-2007-6AF	10/2/07: 1455	GW	2	X	X			7.92	[redacted]	26.5
MO-2007-6A	10/2/07: 1455	[redacted]	1			X		7.52	[redacted]	[redacted]
MO-2007-DUPF	10/2/07: 1500	GW	2	X	X			7.52	[redacted]	[redacted]
MO-2007-DUP	10/2/07: 1500	GW				X		7.52	[redacted]	[redacted]

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

*F is a Filtered Sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
[redacted]	10/2/07 1538	[redacted]	10/4/07 10:34

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
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Analytical Report

October 22, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJ03Z5
ACZ Project ID: L65477

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 05, 2007. This project has been assigned to ACZ's project number, L65477. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L65477. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 22, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-6BF

ACZ Sample ID: ***L65477-01***
Date Sampled: *10/04/07 14:00*
Date Received: *10/05/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	483			mS/cm			10/14/07 14:00	ma
pH (Field)	Field Measurement	7.7			units			10/14/07 14:00	ma
Temperature (Field)	Field Measurement	33.1			C			10/14/07 14:00	ma

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	28.1			mg/L	0.2	1	10/14/07 4:30	erf
Magnesium, dissolved	M200.7 ICP	2.9			mg/L	0.2	1	10/14/07 4:30	erf
Potassium, dissolved	M200.7 ICP	11.3			mg/L	0.3	2	10/14/07 4:30	erf
Sodium, dissolved	M200.7 ICP	60.6			mg/L	0.3	2	10/14/07 4:30	erf

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		119		*	mg/L	2	20	10/09/07 0:00	lcp
Carbonate as CaCO3		5	B	*	mg/L	2	20	10/09/07 0:00	lcp
Hydroxide as CaCO3			U	*	mg/L	2	20	10/09/07 0:00	lcp
Total Alkalinity		125		*	mg/L	2	20	10/09/07 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		-2.1			%			10/19/07 0:00	calc
Sum of Anions		4.8			meq/L	0.1	0.5	10/19/07 0:00	calc
Sum of Cations		4.6			meq/L	0.1	0.5	10/19/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	10.9			mg/L	0.5	3	10/12/07 1:10	jlf
Fluoride	M300.0 - Ion Chromatography	0.5		*	mg/L	0.1	0.5	10/12/07 1:10	jlf
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.67			mg/L	0.02	0.1	10/19/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.69		*	mg/L	0.02	0.1	10/05/07 20:02	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.02	B	*	mg/L	0.01	0.05	10/05/07 20:02	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	400			mg/L	10	20	10/08/07 13:50	ear
Sulfate	300.0 - Ion Chromatography	93.6			mg/L	0.5	3	10/12/07 1:10	jlf
TDS (calculated)	Calculation	287			mg/L	10	50	10/19/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.39						10/19/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-6B

ACZ Sample ID: ***L65477-02***
Date Sampled: *10/04/07 14:00*
Date Received: *10/05/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	483			mS/cm			10/14/07 14:01	ma
pH (Field)	Field Measurement	7.7			units			10/14/07 14:01	ma
Temperature (Field)	Field Measurement	33.1			C			10/14/07 14:01	ma

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	93.5		*	mg/L	0.5	3	10/12/07 1:29	jlf

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65477***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233896													
WG233896PBW1	PBW	10/09/07 10:20				22.1	mg/L		-20	20			B4
WG233896LCSW2	LCSW	10/09/07 10:32	WC070928-1	820		816.3	mg/L	99.5	90	110			
L65479-02DUP	DUP	10/09/07 13:23			5	5.8	mg/L				14.8	20	RA
WG233896PBW2	PBW	10/09/07 13:29				U	mg/L		-20	20			
WG233896LCSW5	LCSW	10/09/07 13:40	WC070928-1	820		833.8	mg/L	101.7	90	110			
WG233896PBW3	PBW	10/09/07 16:16				U	mg/L		-20	20			
WG233896LCSW8	LCSW	10/09/07 16:28	WC070928-1	820		845.7	mg/L	103.1	90	110			
WG233896PBW4	PBW	10/09/07 19:23				U	mg/L		-20	20			
WG233896LCSW11	LCSW	10/09/07 19:36	WC070928-1	820		853.5	mg/L	104.1	90	110			
WG233896LCSW14	LCSW	10/09/07 22:37	WC070928-1	820		846.9	mg/L	103.3	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234289													
WG234289ICV	ICV	10/14/07 2:11	II071009-7	100		99.61	mg/L	99.6	95	105			
WG234289ICB	ICB	10/14/07 2:16				U	mg/L		-0.6	0.6			
WG234289LFB	LFB	10/14/07 2:32	II071012-2	67.97008		75.27	mg/L	110.7	85	115			
L65410-03AS	AS	10/14/07 4:00	II071012-2	67.97008	15.9	91.41	mg/L	111.1	85	115			
L65410-03ASD	ASD	10/14/07 4:05	II071012-2	67.97008	15.9	88.99	mg/L	107.5	85	115	2.68	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234134													
WG234134ICV	ICV	06/11/07 13:52	WI070910-1	20		20.34	mg/L	101.7	90	110			
WG234134ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG234134LFB1	LFB	10/11/07 12:30	WI070727-1	30		30.84	mg/L	102.8	90	110			
WG234134LFB2	LFB	10/11/07 21:15	WI070727-1	30		29.41	mg/L	98	90	110			
L65451-09DUP	DUP	10/11/07 21:51			8.4	8.44	mg/L				0.5	20	
L65451-10AS	AS	10/11/07 22:27	WI070727-1	30	8.2	37.81	mg/L	98.7	90	110			

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65477***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG234134													
WG234134ICV	ICV	06/11/07 13:52	WI070910-1	3.984		4.13	mg/L	103.7	90	110			
WG234134ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG234134LFB1	LFB	10/11/07 12:30	WI070727-1	1.5		1.58	mg/L	105.3	90	110			
WG234134LFB2	LFB	10/11/07 21:15	WI070727-1	1.5		1.51	mg/L	100.7	90	110			
L65451-09DUP	DUP	10/11/07 21:51			.6	.64	mg/L				6.5	20	RA
L65451-10AS	AS	10/11/07 22:27	WI070727-1	1.5	.7	2.18	mg/L	98.7	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234289													
WG234289ICV	ICV	10/14/07 2:11	II071009-7	100		100.54	mg/L	100.5	95	105			
WG234289ICB	ICB	10/14/07 2:16				U	mg/L		-0.6	0.6			
WG234289LFB	LFB	10/14/07 2:32	II071012-2	54.96908		59.92	mg/L	109	85	115			
L65410-03AS	AS	10/14/07 4:00	II071012-2	54.96908	.9	62.54	mg/L	112.1	85	115			
L65410-03ASD	ASD	10/14/07 4:05	II071012-2	54.96908	.9	60.93	mg/L	109.2	85	115	2.61	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233802													
WG233802ICV	ICV	10/05/07 19:08	WI070911-1	2.416		2.388	mg/L	98.8	90	110			
WG233802ICB	ICB	10/05/07 19:09				U	mg/L		-0.06	0.06			
WG233802LFB1	LFB	10/05/07 19:13	WI070911-4	2		1.988	mg/L	99.4	90	110			
WG233802LFB2	LFB	10/05/07 19:51	WI070911-4	2		2.004	mg/L	100.2	90	110			
L65470-06AS	AS	10/05/07 19:53	WI070911-4	2		1.945	mg/L	97.3	90	110			
L65470-07DUP	DUP	10/05/07 20:00			.03	.023	mg/L				26.4	20	RA

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233802													
WG233802ICV	ICV	10/05/07 19:08	WI070911-1	.609		.604	mg/L	99.2	90	110			
WG233802ICB	ICB	10/05/07 19:09				U	mg/L		-0.03	0.03			
WG233802LFB1	LFB	10/05/07 19:13	WI070911-4	1		.988	mg/L	98.8	90	110			
WG233802LFB2	LFB	10/05/07 19:51	WI070911-4	1		1.023	mg/L	102.3	90	110			
L65470-06AS	AS	10/05/07 19:53	WI070911-4	1		.974	mg/L	97.4	90	110			
L65470-07DUP	DUP	10/05/07 20:00				U	mg/L				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65477***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234289													
WG234289ICV	ICV	10/14/07 2:11	II071009-7	20		20.02	mg/L	100.1	95	105			
WG234289ICB	ICB	10/14/07 2:16				U	mg/L		-0.9	0.9			
WG234289LFB	LFB	10/14/07 2:32	II071012-2	99.76186		107.85	mg/L	108.1	85	115			
L65410-03AS	AS	10/14/07 4:00	II071012-2	99.76186	.9	113.9	mg/L	113.3	85	115			
L65410-03ASD	ASD	10/14/07 4:05	II071012-2	99.76186	.9	111.92	mg/L	111.3	85	115	1.75	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG233879													
WG233879PBW	PBW	10/08/07 13:25				U	mg/L		-20	20			
WG233879LCSW	LCSW	10/08/07 13:26	PCN28214	260		278	mg/L	106.5	80	120			
L65502-01DUP	DUP	10/08/07 14:09			4120	4156	mg/L				0.9	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234289													
WG234289ICV	ICV	10/14/07 2:11	II071009-7	100		99.93	mg/L	99.9	95	105			
WG234289ICB	ICB	10/14/07 2:16				U	mg/L		-0.9	0.9			
WG234289LFB	LFB	10/14/07 2:32	II071012-2	98.21624		106.13	mg/L	108.1	85	115			
L65410-03AS	AS	10/14/07 4:00	II071012-2	98.21624	36.6	143.53	mg/L	108.9	85	115			
L65410-03ASD	ASD	10/14/07 4:05	II071012-2	98.21624	36.6	140.73	mg/L	106	85	115	1.97	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234134													
WG234134ICV	ICV	06/11/07 13:52	WI070910-1	50.1		51.51	mg/L	102.8	90	110			
WG234134ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG234134LFB1	LFB	10/11/07 12:30	WI070727-1	30		32.06	mg/L	106.9	90	110			
WG234134LFB2	LFB	10/11/07 21:15	WI070727-1	30		30.14	mg/L	100.5	90	110			
L65451-09DUP	DUP	10/11/07 21:51			47.7	47.66	mg/L				0.1	20	
L65451-10AS	AS	10/11/07 22:27	WI070727-1	30	47.4	75.63	mg/L	94.1	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L65477***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L65477-01	WG233896	Bicarbonate as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
		Carbonate as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG234134	Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG233896	Hydroxide as CaCO3	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
	WG233802	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG233896	Total Alkalinity	SM2320B - Titration	B4	Target analyte detected in blank at or above the acceptance criteria.
			SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
			SM2320B - Titration	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
L65477-02	WG234134	Sulfate	300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L65477***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65477
Date Received: 10/5/2007
Received By:
Date Printed: 10/5/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?	X		
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
1375	1.2	14

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65477
Date Received: 10/5/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L65477-01	MO-2007-6BF		Y									
L65477-02	MO-2007-6B									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc.

L65477

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: HydroGeo Chem Inc.
E-mail: dans@hgcinc.com

Address: 51 West Wetmore Rd
Tucson AZ 85705
Telephone: 520) 293-1500 x 133

Copy of Report to:

Name: Ned Hall/Bill Davis/Jim Norris
Company: PDSI/AGC

E-mail: Jimn@hgcinc.com, billydavis@fmi.com
Telephone: 520 293-1500 648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: ned-hall@fmi.com

Address: 6200 W. Duval Mine Rd
PO Box 527 Green Valley, AZ 85622
Telephone: 520 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES: X
NO:

PROJECT INFORMATION

Quote #: Sierra Short
Project/PO #: OJ0325
Reporting state for compliance testing: AZ
Sampler's Name: M. Arneson
Are any samples NRC licensable material? No

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca Mg Na K	Alk TDS SO_4^{2-} Cl^- F^- NO_2 NO_3	SO_4^{2-}		pH	EC	Temp	
MO-2007-6BF	10/4/07: 1400	GW	2	X	X			7.20	483	33.1	
MO-2007-6B	10/4/07: 1400	GW	1			X		7.20	483	33.1	

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

* F is a Filtered Sample

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
	10/4/07 1513	WTL	10-5-07 11:25

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

October 24, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJ03Z5
ACZ Project ID: L65562

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 10, 2007. This project has been assigned to ACZ's project number, L65562. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L65562. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 24, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-4A

ACZ Sample ID: ***L65562-01***
Date Sampled: *10/09/07 14:45*
Date Received: *10/10/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	412			mS/cm			10/09/07 14:45	njb
pH (Field)	Field Measurement	7.5			units			10/09/07 14:45	njb
Temperature (Field)	Field Measurement	27.5			C			10/09/07 14:45	njb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	42.8			mg/L	0.2	1	10/20/07 18:06	erf
Magnesium, dissolved	M200.7 ICP	6.2			mg/L	0.2	1	10/20/07 18:06	erf
Potassium, dissolved	M200.7 ICP	3.3			mg/L	0.3	2	10/20/07 18:06	erf
Sodium, dissolved	M200.7 ICP	37.1			mg/L	0.3	2	10/20/07 18:06	erf

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		155			mg/L	2	20	10/11/07 0:00	lcp
Carbonate as CaCO3		5	B		mg/L	2	20	10/11/07 0:00	lcp
Hydroxide as CaCO3			U		mg/L	2	20	10/11/07 0:00	lcp
Total Alkalinity		160		*	mg/L	2	20	10/11/07 0:00	lcp
Cation-Anion Balance	Calculation								
Cation-Anion Balance		0.0			%			10/24/07 0:00	calc
Sum of Anions		4.3			meq/L	0.1	0.5	10/24/07 0:00	calc
Sum of Cations		4.3			meq/L	0.1	0.5	10/24/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	10.2			mg/L	0.5	3	10/19/07 19:50	ccp
Fluoride	M300.0 - Ion Chromatography	0.3	B	*	mg/L	0.1	0.5	10/19/07 19:50	ccp
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.93			mg/L	0.02	0.1	10/24/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.93		*	mg/L	0.02	0.1	10/10/07 18:44	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	10/10/07 18:44	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	270			mg/L	10	20	10/11/07 12:53	ear
Sulfate	300.0 - Ion Chromatography	37.0			mg/L	0.5	3	10/19/07 19:50	ccp
TDS (calculated)	Calculation	239			mg/L	10	50	10/24/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.13						10/24/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-4A

ACZ Sample ID: ***L65562-02***
Date Sampled: *10/09/07 14:45*
Date Received: *10/10/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	37.2		*	mg/L	0.5	3	10/19/07 20:08	ccp

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65562***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234142													
WG234142PBW1	PBW	10/11/07 13:49				2.1	mg/L		-20	20			
WG234142LCSW2	LCSW	10/11/07 14:01	WC070928-1	820		805.8	mg/L	98.3	90	110			
WG234142PBW2	PBW	10/11/07 16:55				U	mg/L		-20	20			
WG234142LCSW5	LCSW	10/11/07 17:07	WC070928-1	820		823.7	mg/L	100.5	90	110			
WG234142PBW3	PBW	10/11/07 19:57				U	mg/L		-20	20			
WG234142LCSW8	LCSW	10/11/07 20:09	WC070928-1	820		828.8	mg/L	101.1	90	110			
WG234142PBW4	PBW	10/11/07 23:16				U	mg/L		-20	20			
WG234142LCSW11	LCSW	10/11/07 23:27	WC070928-1	820		828	mg/L	101	90	110			
L65566-01DUP	DUP	10/12/07 0:52			38	37.4	mg/L				1.6	20	
WG234142LCSW14	LCSW	10/12/07 2:41	WC070928-1	820		831.4	mg/L	101.4	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234667													
WG234667ICV	ICV	10/20/07 16:22	II071009-7	100		98.84	mg/L	98.8	95	105			
WG234667ICB	ICB	10/20/07 16:25				U	mg/L		-0.6	0.6			
WG234667LFB	LFB	10/20/07 16:39	II071012-2	67.97008		66.17	mg/L	97.4	85	115			
L65555-01AS	AS	10/20/07 17:56	II071012-2	67.97008	6.7	75.37	mg/L	101	85	115			
L65555-01ASD	ASD	10/20/07 17:59	II071012-2	67.97008	6.7	73.74	mg/L	98.6	85	115	2.19	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234617													
WG234617ICV1	ICV	10/19/07 13:12	WI071019-1	20		19.22	mg/L	96.1	90	110			
WG234617ICB1	ICB	10/19/07 13:30				U	mg/L		-1.5	1.5			
WG234617LFB1	LFB	10/19/07 13:48	WI070727-1	30		29.11	mg/L	97	90	110			
WG234617LFB2	LFB	10/19/07 22:33	WI070727-1	30		30.05	mg/L	100.2	90	110			
L65535-07AS	AS	10/23/07 17:18	WI070727-1	300	432	724.7	mg/L	97.6	90	110			
L65535-07DUP	DUP	10/23/07 17:36			432	430.1	mg/L				0.4	20	

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65562***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG234617													
WG234617ICV1	ICV	10/19/07 13:12	WI071019-1	3.984		3.94	mg/L	98.9	90	110			
WG234617ICB1	ICB	10/19/07 13:30				U	mg/L		-0.3	0.3			
WG234617LFB1	LFB	10/19/07 13:48	WI070727-1	1.5		1.49	mg/L	99.3	90	110			
L65535-07AS	AS	10/19/07 19:14	WI070727-1	1.5	.5	2.03	mg/L	102	90	110			
L65535-07DUP	DUP	10/19/07 19:32			.5	.54	mg/L				7.7	20	RA
WG234617LFB2	LFB	10/19/07 22:33	WI070727-1	1.5		1.55	mg/L	103.3	90	110			

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234667													
WG234667ICV	ICV	10/20/07 16:22	II071009-7	100		100.12	mg/L	100.1	95	105			
WG234667ICB	ICB	10/20/07 16:25				U	mg/L		-0.6	0.6			
WG234667LFB	LFB	10/20/07 16:39	II071012-2	54.96908		53.47	mg/L	97.3	85	115			
L65555-01AS	AS	10/20/07 17:56	II071012-2	54.96908	1.3	56.81	mg/L	101	85	115			
L65555-01ASD	ASD	10/20/07 17:59	II071012-2	54.96908	1.3	55.82	mg/L	99.2	85	115	1.76	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234081													
WG234081ICV	ICV	10/10/07 18:07	WI070911-1	2.416		2.513	mg/L	104	90	110			
WG234081ICB	ICB	10/10/07 18:08				U	mg/L		-0.06	0.06			
WG234081LFB1	LFB	10/10/07 18:13	WI070911-4	2		2.069	mg/L	103.5	90	110			
L65550-11AS	AS	10/10/07 18:34	WI070911-4	2	U	2.09	mg/L	104.5	90	110			
L65550-12DUP	DUP	10/10/07 18:37			.04	.054	mg/L				29.8	20	RA
WG234081LFB2	LFB	10/10/07 19:18	WI070911-4	2		2.157	mg/L	107.9	90	110			

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234081													
WG234081ICV	ICV	10/10/07 18:07	WI070911-1	.609		.616	mg/L	101.1	90	110			
WG234081ICB	ICB	10/10/07 18:08				U	mg/L		-0.03	0.03			
WG234081LFB1	LFB	10/10/07 18:13	WI070911-4	1		.991	mg/L	99.1	90	110			
L65550-11AS	AS	10/10/07 18:34	WI070911-4	1	.02	1.075	mg/L	105.5	90	110			
L65550-12DUP	DUP	10/10/07 18:37			U	U	mg/L				0	20	RA
WG234081LFB2	LFB	10/10/07 19:18	WI070911-4	1		1.055	mg/L	105.5	90	110			

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65562***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234667													
WG234667ICV	ICV	10/20/07 16:22	II071009-7	20		20.04	mg/L	100.2	95	105			
WG234667ICB	ICB	10/20/07 16:25				U	mg/L		-0.9	0.9			
WG234667LFB	LFB	10/20/07 16:39	II071012-2	99.76186		97.21	mg/L	97.4	85	115			
L65555-01AS	AS	10/20/07 17:56	II071012-2	99.76186	.8	103.8	mg/L	103.2	85	115			
L65555-01ASD	ASD	10/20/07 17:59	II071012-2	99.76186	.8	101.44	mg/L	100.9	85	115	2.3	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234143													
WG234143PBW	PBW	10/11/07 12:40				10	mg/L		-20	20			
WG234143LCSW	LCSW	10/11/07 12:42	PCN28214	260		284	mg/L	109.2	80	120			
L65583-02DUP	DUP	10/11/07 13:06			2400	2410	mg/L				0.4	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234667													
WG234667ICV	ICV	10/20/07 16:22	II071009-7	100		99.56	mg/L	99.6	95	105			
WG234667ICB	ICB	10/20/07 16:25				U	mg/L		-0.9	0.9			
WG234667LFB	LFB	10/20/07 16:39	II071012-2	98.21624		95.02	mg/L	96.7	85	115			
L65555-01AS	AS	10/20/07 17:56	II071012-2	98.21624	2.4	101.46	mg/L	100.9	85	115			
L65555-01ASD	ASD	10/20/07 17:59	II071012-2	98.21624	2.4	99.39	mg/L	98.8	85	115	2.06	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234617													
WG234617ICV1	ICV	10/19/07 13:12	WI071019-1	50.1		49.65	mg/L	99.1	90	110			
WG234617ICB1	ICB	10/19/07 13:30				U	mg/L		-1.5	1.5			
WG234617LFB1	LFB	10/19/07 13:48	WI070727-1	30		30.34	mg/L	101.1	90	110			
L65535-07AS	AS	10/19/07 19:14	WI070727-1	30	7.5	37.38	mg/L	99.6	90	110			
L65535-07DUP	DUP	10/19/07 19:32			7.5	7.57	mg/L				0.9	20	
WG234617LFB2	LFB	10/19/07 22:33	WI070727-1	30		30.83	mg/L	102.8	90	110			

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L65562***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L65562-01	WG234617	Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG234081	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG234142	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.
L65562-02	WG234617	Sulfate	300.0 - Ion Chromatography	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L65562***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65562
Date Received: 10/10/2007
Received By:
Date Printed: 10/11/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
NA4622	1.8	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65562
Date Received: 10/10/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L65562-01	MO-2007-4A		Y									
L65562-02	MO-2007-4A									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

ACZ Laboratories, Inc. L65562

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

CHAIN of CUSTODY

Report to:

Name: Dan Simpson	Address: 51 W. Wetmore Rd
Company: HGC, Inc.	Tucson, AZ 85705
E-mail: dans@hgcinc.com	Telephone: (520) 293-1500

Copy of Report to:

Name: Ned Hall / Bill Dorris / Jim Norris	E-mail: jimn@hgcinc.com, billy_dorris@fmi.com
Company: PDSI / HGC	Telephone: (520) 293-1500 x.112, (520) 648-8873

Invoice to:

Name: Ned Hall	Address: 6200 W. Duval Mine Rd.
Company: PDSI	P.O. Box 527 G. Valley, AZ 85622
E-mail: ned_hall@fmi.com	Telephone: (520) 648-8557

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJ0325
Reporting state for compliance testing: AZ
Sampler's Name: N.J. Babb
Are any samples NRC licensable material? NO

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca, Mg, Na, K	Alk, TDS, SO_4, Cl, F, NO3	CaCO3		pH	EC	T°C
mo-207-4A	10/9/07 @ 14:45	GW	2	X	X			7.46	412	21.5
mo-207-4A	10/9/07 @ 14:45	"	1			X				

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

- Green dot & white dot bottles are filtered samples
- No dot bottle is raw/unfiltered

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
N.J. Babb	10/9/07 @ 15:30	[illegible]	10/10/07 10:43

FRMAD050.03.05.02 White - Return with sample. Yellow - Retain for your records.

ACZ Laboratories, Inc.
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Analytical Report

October 30, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Bill Dorris, Jim Norris, Dan Simpson

Project ID: OJ03Z5
ACZ Project ID: L65645

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 12, 2007. This project has been assigned to ACZ's project number, L65645. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L65645. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 30, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-4B-F

ACZ Sample ID: ***L65645-01***
Date Sampled: *10/11/07 08:20*
Date Received: *10/12/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	376			mS/cm			10/11/07 8:20	nb
pH (Field)	Field Measurement	7.9			units			10/11/07 8:20	nb
Temperature (Field)	Field Measurement	26.4			C			10/11/07 8:20	nb
Turbidity (Field)	Field Measurement	5.12			NTU			10/11/07 8:20	nb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	41.6			mg/L	0.2	1	10/25/07 19:49	djt
Magnesium, dissolved	M200.7 ICP	4.3			mg/L	0.2	1	10/25/07 19:49	djt
Potassium, dissolved	M200.7 ICP	2.9			mg/L	0.3	2	10/25/07 19:49	djt
Sodium, dissolved	M200.7 ICP	35.7		*	mg/L	0.3	2	10/25/07 19:49	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		143			mg/L	2	20	10/15/07 0:00	aeh
Carbonate as CaCO3			U		mg/L	2	20	10/15/07 0:00	aeh
Hydroxide as CaCO3			U		mg/L	2	20	10/15/07 0:00	aeh
Total Alkalinity		143		*	mg/L	2	20	10/15/07 0:00	aeh
Cation-Anion Balance	Calculation								
Cation-Anion Balance		1.3			%			10/30/07 0:00	calc
Sum of Anions		3.9			meq/L	0.1	0.5	10/30/07 0:00	calc
Sum of Cations		4.0			meq/L	0.1	0.5	10/30/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	9.1			mg/L	0.5	3	10/25/07 3:01	ccp
Fluoride	M300.0 - Ion Chromatography	0.6		*	mg/L	0.1	0.5	10/25/07 3:01	ccp
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	0.77			mg/L	0.02	0.1	10/30/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.77			mg/L	0.02	0.1	10/12/07 18:34	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction		U	*	mg/L	0.01	0.05	10/12/07 18:34	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	230			mg/L	10	20	10/16/07 11:24	ear
Sulfate	300.0 - Ion Chromatography	37.6			mg/L	0.5	3	10/25/07 3:01	ccp
TDS (calculated)	Calculation	221			mg/L	10	50	10/30/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.04						10/30/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-4B

ACZ Sample ID: ***L65645-02***
Date Sampled: *10/11/07 08:20*
Date Received: *10/12/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	37.5			mg/L	0.5	3	10/25/07 3:19	ccp

Arizona license number: AZ0102

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

ACZ Laboratories, Inc.
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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65645***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234306													
WG234306PBW1	PBW	10/15/07 11:34				U	mg/L		-20	20			
WG234306LCSW2	LCSW	10/15/07 11:47	WC071015-1	820		808.8	mg/L	98.6	90	110			
WG234306PBW2	PBW	10/15/07 15:36				U	mg/L		-20	20			
WG234306LCSW5	LCSW	10/15/07 15:49	WC071015-1	820		821	mg/L	100.1	90	110			
WG234306PBW3	PBW	10/15/07 18:22				U	mg/L		-20	20			
WG234306LCSW8	LCSW	10/15/07 18:35	WC071015-1	820		824.9	mg/L	100.6	90	110			
WG234306PBW4	PBW	10/15/07 21:25				U	mg/L		-20	20			
WG234306LCSW11	LCSW	10/15/07 21:36	WC071015-1	820		822	mg/L	100.2	90	110			
L65660-04DUP	DUP	10/15/07 22:50			234	233.1	mg/L				0.4	20	
WG234306LCSW14	LCSW	10/16/07 0:26	WC071015-1	820		821.1	mg/L	100.1	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234965													
WG234965ICV	ICV	10/25/07 18:15	II071009-6	100		101.88	mg/L	101.9	95	105			
WG234965ICB	ICB	10/25/07 18:19				U	mg/L		-0.6	0.6			
WG234965LFB	LFB	10/25/07 18:31	II071012-2	67.97008		71.35	mg/L	105	85	115			
L65644-01AS	AS	10/25/07 19:33	II071012-2	67.97008	.3	74.03	mg/L	108.5	85	115			
L65644-01ASD	ASD	10/25/07 19:36	II071012-2	67.97008	.3	73.36	mg/L	107.5	85	115	0.91	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234870													
WG234870ICV	ICV	10/24/07 14:38	WI071019-1	20		19.89	mg/L	99.5	90	110			
WG234870ICB	ICB	10/24/07 14:57				U	mg/L		-1.5	1.5			
WG234870LFB1	LFB	10/24/07 15:15	WI070727-1	30		29.32	mg/L	97.7	90	110			
WG234870LFB2	LFB	10/25/07 0:00	WI070727-1	30		29.44	mg/L	98.1	90	110			
L65634-05AS	AS	10/25/07 17:18	WI070727-1	1500	230	1745	mg/L	101	90	110			
L65634-05DUP	DUP	10/25/07 17:36			230	223	mg/L				3.1	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65645***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG234870													
WG234870ICV	ICV	10/24/07 14:38	WI071019-1	3.984		4.1	mg/L	102.9	90	110			
WG234870ICB	ICB	10/24/07 14:57				U	mg/L		-0.3	0.3			
WG234870LFB1	LFB	10/24/07 15:15	WI070727-1	1.5		1.51	mg/L	100.7	90	110			
WG234870LFB2	LFB	10/25/07 0:00	WI070727-1	1.5		1.55	mg/L	103.3	90	110			
L65634-05AS	AS	10/25/07 0:36	WI070727-1	3	.7	3.73	mg/L	101	90	110			
L65634-05DUP	DUP	10/25/07 0:54			.7	.75	mg/L				6.9	20	RA

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234965													
WG234965ICV	ICV	10/25/07 18:15	II071009-6	100		101.9	mg/L	101.9	95	105			
WG234965ICB	ICB	10/25/07 18:19				U	mg/L		-0.6	0.6			
WG234965LFB	LFB	10/25/07 18:31	II071012-2	54.96908		57.06	mg/L	103.8	85	115			
L65644-01AS	AS	10/25/07 19:33	II071012-2	54.96908	U	59.34	mg/L	108	85	115			
L65644-01ASD	ASD	10/25/07 19:36	II071012-2	54.96908	U	59.11	mg/L	107.5	85	115	0.39	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234250													
WG234250ICV	ICV	10/12/07 17:50	WI070911-1	2.416		2.559	mg/L	105.9	90	110			
WG234250ICB	ICB	10/12/07 17:51				U	mg/L		-0.06	0.06			
WG234250LFB1	LFB	10/12/07 17:55	WI070911-4	2		2.154	mg/L	107.7	90	110			
WG234250LFB2	LFB	10/12/07 18:33	WI070911-4	2		2.148	mg/L	107.4	90	110			
L65645-01AS	AS	10/12/07 18:35	WI070911-4	2	.77	2.885	mg/L	105.8	90	110			
L65646-01DUP	DUP	10/12/07 18:42			1.76	1.778	mg/L				1	20	

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234250													
WG234250ICV	ICV	10/12/07 17:50	WI070911-1	.609		.612	mg/L	100.5	90	110			
WG234250ICB	ICB	10/12/07 17:51				U	mg/L		-0.03	0.03			
WG234250LFB1	LFB	10/12/07 17:55	WI070911-4	1		1.001	mg/L	100.1	90	110			
WG234250LFB2	LFB	10/12/07 18:33	WI070911-4	1		1.015	mg/L	101.5	90	110			
L65645-01AS	AS	10/12/07 18:35	WI070911-4	1	U	.991	mg/L	99.1	90	110			
L65646-01DUP	DUP	10/12/07 18:42			U	U	mg/L				0	20	RA

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65645***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234965													
WG234965ICV	ICV	10/25/07 18:15	II071009-6	20		19.79	mg/L	99	95	105			
WG234965ICB	ICB	10/25/07 18:19				U	mg/L		-0.9	0.9			
WG234965LFB	LFB	10/25/07 18:31	II071012-2	99.76186		103.8	mg/L	104	85	115			
L65644-01AS	AS	10/25/07 19:33	II071012-2	99.76186	.9	106.37	mg/L	105.7	85	115			
L65644-01ASD	ASD	10/25/07 19:36	II071012-2	99.76186	.9	105.55	mg/L	104.9	85	115	0.77	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234373													
WG234373PBW	PBW	10/16/07 11:05				U	mg/L		-20	20			
WG234373LCSW	LCSW	10/16/07 11:07	PCN28213	260		254	mg/L	97.7	80	120			
L65659-03DUP	DUP	10/16/07 11:33			2220	2230	mg/L				0.4	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234965													
WG234965ICV	ICV	10/25/07 18:15	II071009-6	100		101.69	mg/L	101.7	95	105			
WG234965ICB	ICB	10/25/07 18:19				U	mg/L		-0.9	0.9			
WG234965LFB	LFB	10/25/07 18:31	II071012-2	98.21624		101.4	mg/L	103.2	85	115			
L65644-01AS	AS	10/25/07 19:33	II071012-2	98.21624	.9	104.77	mg/L	105.8	85	115			
L65644-01ASD	ASD	10/25/07 19:36	II071012-2	98.21624	.9	103.63	mg/L	104.6	85	115	1.09	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234870													
WG234870ICV	ICV	10/24/07 14:38	WI071019-1	50.1		51.76	mg/L	103.3	90	110			
WG234870ICB	ICB	10/24/07 14:57				U	mg/L		-1.5	1.5			
WG234870LFB1	LFB	10/24/07 15:15	WI070727-1	30		30.58	mg/L	101.9	90	110			
WG234870LFB2	LFB	10/25/07 0:00	WI070727-1	30		30.19	mg/L	100.6	90	110			
L65634-05AS	AS	10/25/07 17:18	WI070727-1	1500	1610	3110	mg/L	100	90	110			
L65634-05DUP	DUP	10/25/07 17:36			1610	1571	mg/L				2.5	20	

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita ACZ Project ID: ***L65645***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L65645-01	WG234965	Sodium, dissolved	M200.7 ICP	BB	Target analyte detected in calibration blank at or above acceptance limit. Sample value was > 10X the concentration in the calibration blank.
	WG234870	Chloride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG234250	Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG234306	Total Alkalinity	SM2320B - Titration	QA	Sample container with preservation type specified by the method was not available for analysis. Alternate sample container was used.

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L65645***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65645
Date Received: 10/12/2007
Received By:
Date Printed: 10/12/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
NA4651	3.2	16

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65645
Date Received: 10/12/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L65645-01	MO-2007-4B-F		Y									
L65645-02	MO-2007-4B									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

mo-2007-4B

ACZ Laboratories, Inc.

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L65645

CHAIN of CUSTODY

Report to:

Name: Dan Simpson	Address: 51 W. Wetmore Rd.
Company: HGC, INC	Tucson, AZ 85705
E-mail: dans@hgcinc.com	Telephone: (520) 293-1500

Copy of Report to:

Name: ned Hall / Bill Dorris / Jim Norris	E-mail: jima@hgcinc.com, billy_dorris@fmi.com
Company: PDSI / HGC, INC	Telephone (520) 293-1500 x 112, (520) 648-8873

Invoice to:

Name: Ned Hall	Address: 6200 W. Duval mine Rd.
Company: PDSI	Po Box 527, G. valley, AZ 85622
E-mail: ned-hall@fmi.com	Telephone: (520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses? YES [X] NO [ ]

If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

PROJECT INFORMATION

Quote #: Sirrtta Short

Project/PO #: 0J0375

Reporting state for compliance testing: AZ

Sampler's Name: N.J. Babb

Are any samples NRC licensable material? NO

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca, Mg, Na, K	Alk, TDS, SO4, Cl, F, NO3, PO4	Ca Dy		pH	EC	T°C	~~Turb~~ NTU
Mo-2007-4B-F	10-11-07 / 8:20	GW	2	X	X			7.93	376	24.4	5.12
Mo-2007-4B	10-11-07 / 8:20	GW	1			X					

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

- green & white dot bottles are filtered samples (identified w/an (F)
- no dot bottle is raw/un filtered

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
N.J. Babb	10-11-07 / 13:00	[illegible]	10-12-07 / 10:37

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Analytical Report

October 30, 2007

Report to:
Ned Hall
Phelps Dodge Sierrita
P.O. Box 527 6200 W. Duval Mine Rd.
Green Valley, AZ 85622-0527

Bill to:
Accounts Payable
Phelps Dodge Sierrita
P.O. Box 2671
Phoenix, AZ 85002-2671

cc: Dan Simpson, Jim Norris, Bill Dorris

Project ID: OJ03Z5
ACZ Project ID: L65663

Ned Hall:

Enclosed are the analytical results for sample(s) submitted to ACZ Laboratories, Inc. (ACZ) on October 13, 2007. This project has been assigned to ACZ's project number, L65663. Please reference this number in all future inquiries.

All analyses were performed according to ACZ's Quality Assurance Plan, version 12.0. The enclosed results relate only to the samples received under L65663. Each section of this report has been reviewed and approved by the appropriate Laboratory Supervisor, or a qualified substitute.

Except as noted, the test results for the methods and parameters listed on ACZ's current NELAC certificate letter (#ACZ) meet all requirements of NELAC.

This report shall be used or copied only in its entirety. ACZ is not responsible for the consequences arising from the use of a partial report.

All samples and sub-samples associated with this project will be disposed of after November 30, 2007. If the samples are determined to be hazardous, additional charges apply for disposal (typically less than $10/sample). If you would like the samples to be held longer than ACZ's stated policy or to be returned, please contact your Project Manager or Customer Service Representative for further details and associated costs. ACZ retains analytical reports for five years.

If you have any questions or other needs, please contact your Project Manager.

S. Habermehl

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-5B-F

ACZ Sample ID: ***L65663-01***
Date Sampled: *10/12/07 10:30*
Date Received: *10/13/07*
Sample Matrix: *Ground Water*

Field Data

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Conductivity (Field)	Field Measurement	1150			mS/cm			10/12/07 10:30	njb
pH (Field)	Field Measurement	7.6			units			10/12/07 10:30	njb
Temperature (Field)	Field Measurement	29.9			C			10/12/07 10:30	njb
Turbidity (Field)	Field Measurement	3.48			NTU			10/12/07 10:30	njb

Metals Analysis

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Calcium, dissolved	M200.7 ICP	84.8			mg/L	0.2	1	10/26/07 18:25	djt
Magnesium, dissolved	M200.7 ICP	3.7			mg/L	0.2	1	10/26/07 18:25	djt
Potassium, dissolved	M200.7 ICP	5.5			mg/L	0.3	2	10/26/07 18:25	djt
Sodium, dissolved	M200.7 ICP	164			mg/L	0.3	2	10/26/07 18:25	djt

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Alkalinity as CaCO3	SM2320B - Titration								
Bicarbonate as CaCO3		95			mg/L	2	20	10/16/07 0:00	aeh
Carbonate as CaCO3			U		mg/L	2	20	10/16/07 0:00	aeh
Hydroxide as CaCO3			U		mg/L	2	20	10/16/07 0:00	aeh
Total Alkalinity		95			mg/L	2	20	10/16/07 0:00	aeh
Cation-Anion Balance	Calculation								
Cation-Anion Balance		0.4			%			10/30/07 0:00	calc
Sum of Anions		11.8			meq/L	0.1	0.5	10/30/07 0:00	calc
Sum of Cations		11.9			meq/L	0.1	0.5	10/30/07 0:00	calc
Chloride	M300.0 - Ion Chromatography	44.5			mg/L	0.5	3	10/25/07 8:09	ccp
Fluoride	M300.0 - Ion Chromatography	1.2		*	mg/L	0.1	0.5	10/25/07 8:09	ccp
Nitrate as N, dissolved	Calculation: NO3NO2 minus NO2	1.97			mg/L	0.04	0.2	10/30/07 0:00	calc
Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	1.98	H	*	mg/L	0.04	0.2	10/16/07 20:16	pjb
Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	0.01	BH	*	mg/L	0.01	0.05	10/16/07 19:45	pjb
Residue, Filterable (TDS) @180C	160.1 / SM2540C	780			mg/L	10	20	10/16/07 12:06	ear
Sulfate	300.0 - Ion Chromatography	402			mg/L	5	30	10/25/07 21:32	ccp
TDS (calculated)	Calculation	771			mg/L	10	50	10/30/07 0:00	calc
TDS (ratio - measured/calculated)	Calculation	1.01						10/30/07 0:00	calc

Arizona license number: AZ0102

** Please refer to Qualifier Reports for details.*

ACZ Laboratories, Inc.
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Inorganic Analytical Results

Phelps Dodge Sierrita
Project ID: OJ03Z5
Sample ID: MO-2007-5B

ACZ Sample ID: ***L65663-02***
Date Sampled: *10/12/07 10:30*
Date Received: *10/13/07*
Sample Matrix: *Ground Water*

Wet Chemistry

Parameter	EPA Method	Result	Qual	XQ	Units	MDL	PQL	Date	Analyst
Sulfate	300.0 - Ion Chromatography	392			mg/L	5	30	10/25/07 21:50	ccp

Arizona license number: AZ0102

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Inorganic Reference

Report Header Explanations

Batch	A distinct set of samples analyzed at a specific time
Found	Value of the QC Type of interest
Limit	Upper limit for RPD, in %.
Lower	Lower Recovery Limit, in % (except for LCSS, mg/Kg)
MDL	Method Detection Limit. Same as Minimum Reporting Limit. Allows for instrument and annual fluctuations.
PCN/SCN	A number assigned to reagents/standards to trace to the manufacturer's certificate of analysis
PQL	Practical Quantitation Limit, typically 5 times the MDL.
QC	True Value of the Control Sample or the amount added to the Spike
Rec	Amount of the true value or spike added recovered, in % (except for LCSS, mg/Kg)
RPD	Relative Percent Difference, calculation used for Duplicate QC Types
Upper	Upper Recovery Limit, in % (except for LCSS, mg/Kg)
Sample	Value of the Sample of interest

QC Sample Types

AS	Analytical Spike (Post Digestion)	*LCSWD*	Laboratory Control Sample - Water Duplicate
ASD	Analytical Spike (Post Digestion) Duplicate	*LFB*	Laboratory Fortified Blank
CCB	Continuing Calibration Blank	*LFM*	Laboratory Fortified Matrix
CCV	Continuing Calivation Verification standard	*LFMD*	Laboratory Fortified Matrix Duplicate
DUP	Sample Duplicate	*LRB*	Laboratory Reagent Blank
ICB	Initial Calibration Blank	*MS*	Matrix Spike
ICV	Initial Calibration Verification standard	*MSD*	Matrix Spike Duplicate
ICSAB	Inter-element Correction Standard - A plus B solutions	*PBS*	Prep Blank - Soil
LCSS	Laboratory Control Sample - Soil	*PBW*	Prep Blank - Water
LCSSD	Laboratory Control Sample - Soil Duplicate	*PQV*	Practical Quantitation Verification standard
LCSW	Laboratory Control Sample - Water	*SDL*	Serial Dilution

QC Sample Type Explanations

Blanks	Verifies that there is no or minimal contamination in the prep method or calibration procedure.
Control Samples	Verifies the accuracy of the method, including the prep procedure.
Duplicates	Verifies the precision of the instrument and/or method.
Spikes/Fortified Matrix	Determines sample matrix interferences, if any.
Standard	Verifies the validity of the calibration.

ACZ Qualifiers (Qual)

B	Analyte concentration detected at a value between MDL and PQL.
H	Analysis exceeded method hold time. pH is a field test with an immediate hold time.
U	Analyte was analyzed for but not detected at the indicated MDL

Method References

(1)	EPA 600/4-83-020. Methods for Chemical Analysis of Water and Wastes, March 1983.
(2)	EPA 600/R-93-100. Methods for the Determination of Inorganic Substances in Environmental Samples, August 1993.
(3)	EPA 600/R-94-111. Methods for the Determination of Metals in Environmental Samples - Supplement I, May 1994.
(5)	EPA SW-846. Test Methods for Evaluating Solid Waste, Third Edition with Update III, December 1996.
(6)	Standard Methods for the Examination of Water and Wastewater, 19th edition, 1995.

Comments

(1)	QC results calculated from raw data. Results may vary slightly if the rounded values are used in the calculations.
(2)	Soil, Sludge, and Plant matrices for Inorganic analyses are reported on a dry weight basis.
(3)	Animal matrices for Inorganic analyses are reported on an "as received" basis.

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65663***

Alkalinity as CaCO3 SM2320B - Titration

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234306													
WG234306PBW1	PBW	10/15/07 11:34				U	mg/L		-20	20			
WG234306LCSW2	LCSW	10/15/07 11:47	WC071015-1	820		808.8	mg/L	98.6	90	110			
WG234306PBW2	PBW	10/15/07 15:36				U	mg/L		-20	20			
WG234306LCSW5	LCSW	10/15/07 15:49	WC071015-1	820		821	mg/L	100.1	90	110			
WG234306PBW3	PBW	10/15/07 18:22				U	mg/L		-20	20			
WG234306LCSW8	LCSW	10/15/07 18:35	WC071015-1	820		824.9	mg/L	100.6	90	110			
WG234306PBW4	PBW	10/15/07 21:25				U	mg/L		-20	20			
WG234306LCSW11	LCSW	10/15/07 21:36	WC071015-1	820		822	mg/L	100.2	90	110			
L65663-01DUP	DUP	10/16/07 0:15			95	94.3	mg/L				0.7	20	
WG234306LCSW14	LCSW	10/16/07 0:26	WC071015-1	820		821.1	mg/L	100.1	90	110			

Calcium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234966													
WG234966ICV	ICV	10/26/07 17:04	II071009-7	100		99.78	mg/L	99.8	95	105			
WG234966ICB	ICB	10/26/07 17:08				U	mg/L		-0.6	0.6			
WG234966LFB	LFB	10/26/07 17:20	II071012-2	67.97008		78.02	mg/L	114.8	85	115			
L65660-10AS	AS	10/26/07 18:10	II071012-2	339.8504	604	972	mg/L	108.3	85	115			
L65660-10ASD	ASD	10/26/07 18:13	II071012-2	339.8504	604	963.2	mg/L	105.7	85	115	0.91	20	

Chloride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	20		20.34	mg/L	101.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	20		20.31	mg/L	101.6	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234870													
WG234870ICV	ICV	10/24/07 14:38	WI071019-1	20		19.89	mg/L	99.5	90	110			
WG234870ICB	ICB	10/24/07 14:57				U	mg/L		-1.5	1.5			
WG234870LFB1	LFB	10/24/07 15:15	WI070727-1	30		29.32	mg/L	97.7	90	110			
WG234870LFB2	LFB	10/25/07 0:00	WI070727-1	30		29.44	mg/L	98.1	90	110			
L65660-04AS	AS	10/25/07 4:50	WI070727-1	30	37.3	65.68	mg/L	94.6	90	110			
L65660-04DUP	DUP	10/25/07 5:44			37.3	37.29	mg/L				0	20	
L65660-04AS	AS	10/25/07 20:01	WI070727-1	150	37	186.4	mg/L	99.6	90	110			
L65660-04DUP	DUP	10/25/07 20:19			37	37.3	mg/L				0.8	20	

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65663***

Fluoride M300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	3.984		4.13	mg/L	103.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-0.3	0.3			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	3.984		4.11	mg/L	103.2	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-0.3	0.3			
WG234870													
WG234870ICV	ICV	10/24/07 14:38	WI071019-1	3.984		4.1	mg/L	102.9	90	110			
WG234870ICB	ICB	10/24/07 14:57				U	mg/L		-0.3	0.3			
WG234870LFB1	LFB	10/24/07 15:15	WI070727-1	1.5		1.51	mg/L	100.7	90	110			
WG234870LFB2	LFB	10/25/07 0:00	WI070727-1	1.5		1.55	mg/L	103.3	90	110			
L65660-04AS	AS	10/25/07 4:50	WI070727-1	1.5	.3	1.81	mg/L	100.7	90	110			
L65660-04DUP	DUP	10/25/07 5:44			.3	.29	mg/L				3.4	20	RA

Magnesium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234966													
WG234966ICV	ICV	10/26/07 17:04	II071009-7	100		99.99	mg/L	100	95	105			
WG234966ICB	ICB	10/26/07 17:08				U	mg/L		-0.6	0.6			
WG234966LFB	LFB	10/26/07 17:20	II071012-2	54.96908		63.04	mg/L	114.7	85	115			
L65660-10AS	AS	10/26/07 18:10	II071012-2	274.8454	510	802.2	mg/L	106.3	85	115			
L65660-10ASD	ASD	10/26/07 18:13	II071012-2	274.8454	510	787.3	mg/L	100.9	85	115	1.87	20	

Nitrate/Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234423													
WG234423ICV	ICV	10/16/07 19:39	WI070911-1	2.416		2.408	mg/L	99.7	90	110			
WG234423ICB	ICB	10/16/07 19:40				U	mg/L		-0.06	0.06			
WG234423LFB	LFB	10/16/07 19:44	WI070911-4	2		1.984	mg/L	99.2	90	110			
L65673-01DUP	DUP	10/16/07 19:49			.15	.146	mg/L				2.7	20	RA
L65663-01AS	AS	10/16/07 20:17	WI070911-4	4	1.98	6.221	mg/L	106	90	110			

Nitrite as N, dissolved M353.2 - Automated Cadmium Reduction

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234423													
WG234423ICV	ICV	10/16/07 19:39	WI070911-1	.609		.625	mg/L	102.6	90	110			
WG234423ICB	ICB	10/16/07 19:40				U	mg/L		-0.03	0.03			
WG234423LFB	LFB	10/16/07 19:44	WI070911-4	1		1.007	mg/L	100.7	90	110			
L65663-01AS	AS	10/16/07 19:46	WI070911-4	1	.01	1.036	mg/L	102.6	90	110			
L65673-01DUP	DUP	10/16/07 19:49			U	U	mg/L				0	20	RA

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Inorganic QC Summary

Phelps Dodge Sierrita
Project ID: OJ03Z5

ACZ Project ID: ***L65663***

Potassium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234966													
WG234966ICV	ICV	10/26/07 17:04	II071009-7	20		20.15	mg/L	100.8	95	105			
WG234966ICB	ICB	10/26/07 17:08				U	mg/L		-0.9	0.9			
WG234966LFB	LFB	10/26/07 17:20	II071012-2	99.76186		112.66	mg/L	112.9	85	115			
L65660-10AS	AS	10/26/07 18:10	II071012-2	498.8093	5	565.6	mg/L	112.4	85	115			
L65660-10ASD	ASD	10/26/07 18:13	II071012-2	498.8093	5	570.9	mg/L	113.5	85	115	0.93	20	

Residue, Filterable (TDS) @180C 160.1 / SM2540C

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234382													
WG234382PBW	PBW	10/16/07 11:44				U	mg/L		-20	20			
WG234382LCSW	LCSW	10/16/07 11:46	PCN28213	260		264	mg/L	101.5	80	120			
L65663-01DUP	DUP	10/16/07 12:08			780	762	mg/L				2.3	20	

Sodium, dissolved M200.7 ICP

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG234966													
WG234966ICV	ICV	10/26/07 17:04	II071009-7	100		100.83	mg/L	100.8	95	105			
WG234966ICB	ICB	10/26/07 17:08				U	mg/L		-0.9	0.9			
WG234966LFB	LFB	10/26/07 17:20	II071012-2	98.21624		110.42	mg/L	112.4	85	115			
L65660-10AS	AS	10/26/07 18:10	II071012-2	491.0812	35	572.2	mg/L	109.4	85	115			
L65660-10ASD	ASD	10/26/07 18:13	II071012-2	491.0812	35	578.9	mg/L	110.8	85	115	1.16	20	

Sulfate 300.0 - Ion Chromatography

ACZ ID	Type	Analyzed	PCN/SCN	QC	Sample	Found	Units	Rec	Lower	Upper	RPD	Limit	Qual
WG226250													
WG226250ICV	ICV	06/11/07 13:52	IC070606-1	50.15		51.51	mg/L	102.7	90	110			
WG226250ICB	ICB	06/11/07 14:10				U	mg/L		-1.5	1.5			
WG226250ICV1	ICV	06/12/07 14:59	IC070606-1	50.15		51.17	mg/L	102	90	110			
WG226250ICB1	ICB	06/12/07 15:17				U	mg/L		-1.5	1.5			
WG234870													
WG234870ICV	ICV	10/24/07 14:38	WI071019-1	50.1		51.76	mg/L	103.3	90	110			
WG234870ICB	ICB	10/24/07 14:57				U	mg/L		-1.5	1.5			
WG234870LFB1	LFB	10/24/07 15:15	WI070727-1	30		30.58	mg/L	101.9	90	110			
WG234870LFB2	LFB	10/25/07 0:00	WI070727-1	30		30.19	mg/L	100.6	90	110			
L65660-04AS	AS	10/25/07 20:01	WI070727-1	150	218	365.7	mg/L	98.5	90	110			
L65660-04DUP	DUP	10/25/07 20:19			218	215.4	mg/L				1.2	20	

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Inorganic Extended Qualifier Report

Phelps Dodge Sierrita

ACZ Project ID: ***L65663***

ACZ ID	WORKNUM	PARAMETER	METHOD	QUAL	DESCRIPTION
L65663-01	WG234870	Fluoride	M300.0 - Ion Chromatography	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
	WG234423	Nitrate/Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	H1	Sample analysis performed past holding time.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).
		Nitrite as N, dissolved	M353.2 - Automated Cadmium Reduction	H1	Sample analysis performed past holding time.
			M353.2 - Automated Cadmium Reduction	RA	Relative Percent Difference (RPD) was not used for data validation because the sample concentration is too low for accurate evaluation (< 10x MDL).

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Certification Qualifiers

Phelps Dodge Sierrita

ACZ Project ID: ***L65663***

No certification qualifiers associated with this analysis

ACZ Laboratories, Inc.
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Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65663
Date Received: 10/13/2007
Received By:
Date Printed: 10/13/2007

Receipt Verification

	YES	NO	NA
1) Does this project require special handling procedures such as CLP protocol?			X
2) Are the custody seals on the cooler intact?			X
3) Are the custody seals on the sample containers intact?			X
4) Is there a Chain of Custody or other directive shipping papers present?	X		
5) Is the Chain of Custody complete?	X		
6) Is the Chain of Custody in agreement with the samples received?	X		
7) Is there enough sample for all requested analyses?	X		
8) Are all samples within holding times for requested analyses?	X		
9) Were all sample containers received intact?	X		
10) Are the temperature blanks present?			X
11) Are the trip blanks (VOA and/or Cyanide) present?			X
12) Are samples requiring no headspace, headspace free?			X
13) Do the samples that require a Foreign Soils Permit have one?			X

Exceptions: If you answered no to any of the above questions, please describe

N/A

Contact (For any discrepancies, the client must be contacted)

N/A

Shipping Containers

Cooler Id	Temp (°C)	Rad (µR/hr)
NA4668	3.4	14

Client must contact ACZ Project Manager if analysis should not proceed for samples received outside of thermal preservation acceptance criteria.

Notes

ACZ Laboratories, Inc.
2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

Sample Receipt

Phelps Dodge Sierrita
OJ03Z5

ACZ Project ID: L65663
Date Received: 10/13/2007
Received By:

Sample Container Preservation

SAMPLE	CLIENT ID	R < 2	G < 2	BK < 2	Y< 2	YG< 2	B< 2	O < 2	T >12	N/A	RAD	ID
L65663-01	MO-2007-5B-F		Y									
L65663-02	MO-2007-5B									X		

Sample Container Preservation Legend

Abbreviation	Description	Container Type	Preservative/Limits
R	Raw/Nitric	RED	pH must be < 2
B	Filtered/Sulfuric	BLUE	pH must be < 2
BK	Filtered/Nitric	BLACK	pH must be < 2
G	Filtered/Nitric	GREEN	pH must be < 2
O	Raw/Sulfuric	ORANGE	pH must be < 2
P	Raw/NaOH	PURPLE	pH must be > 12 *
T	Raw/NaOH Zinc Acetate	TAN	pH must be > 12
Y	Raw/Sulfuric	YELLOW	pH must be < 2
YG	Raw/Sulfuric	YELLOW GLASS	pH must be < 2
N/A	No preservative needed	Not applicable	
RAD	Gamma/Beta dose rate	Not applicable	must be < 250 µR/hr

* pH check performed by analyst prior to sample preparation

Sample IDs Reviewed By: _____

Mo-2007-5B

ACZ Laboratories, Inc.

2773 Downhill Drive Steamboat Springs, CO 80487 (800) 334-5493

L05803

CHAIN of CUSTODY

Report to:

Name: Dan Simpson
Company: HGC, INC.
E-mail: dans@hgcinc.com

Address: 51 W. Wetmore Rd
Tucson, AZ 85705
Telephone: (520) 293-1500

Copy of Report to:

Name: Ned Hall / Bill Dorris / Jim Norris
Company: PDSI / HGC

E-mail: jimn@hgcinc.com, billy_dorris@fmi.com
Telephone: (520) 293-1500 x.112, (520) 648-8873

Invoice to:

Name: Ned Hall
Company: PDSI
E-mail: ned_hall@fmi.com

Address: 6200 W. Duval Mine Rd.
P.O. Box 527, G. Valley, AZ 85622
Telephone: (520) 648-8857

If sample(s) received past holding time (HT), or if insufficient HT remains to complete analysis before expiration, shall ACZ proceed with requested short HT analyses?
If "NO" then ACZ will contact client for further instruction. If neither "YES" nor "NO" is indicated, ACZ will proceed with the requested analyses, even if HT is expired, and data will be qualified.

YES [X]
NO [ ]

PROJECT INFORMATION

Quote #: Sierrita Short
Project/PO #: OJØ375
Reporting state for compliance testing: AZ
Sampler's Name: NJ. Ball
Are any samples NRC licensable material?

ANALYSES REQUESTED *(attach list or use quote number)*

SAMPLE IDENTIFICATION	DATE:TIME	Matrix	# of Containers	Ca, Mg, Na, K	Alk, TDS, SO4, Cl, F, NO2, NO3	COC		pH	EC	T°C	Turb
mo-2007-5B-F	10/12/07 @ 10:30	GW	2	X	X			7.63	1150	29.9	3.48
mo-2007-5B	10/12/07 @ 10:30	"	1			X					

Matrix: SW (Surface Water) · GW (Ground Water) · WW (Waste Water) · DW (Drinking Water) · SL (Sludge) · SO (Soil) · OL (Oil) · Other (Specify)

REMARKS

(F) indicates filtered GW-Samples

Please refer to ACZ's terms & conditions located on the reverse side of this COC.

RELINQUISHED BY:	DATE:TIME	RECEIVED BY:	DATE:TIME
N.J. Ball	10/12/07/16:00	MSS	10.13.07 11:50

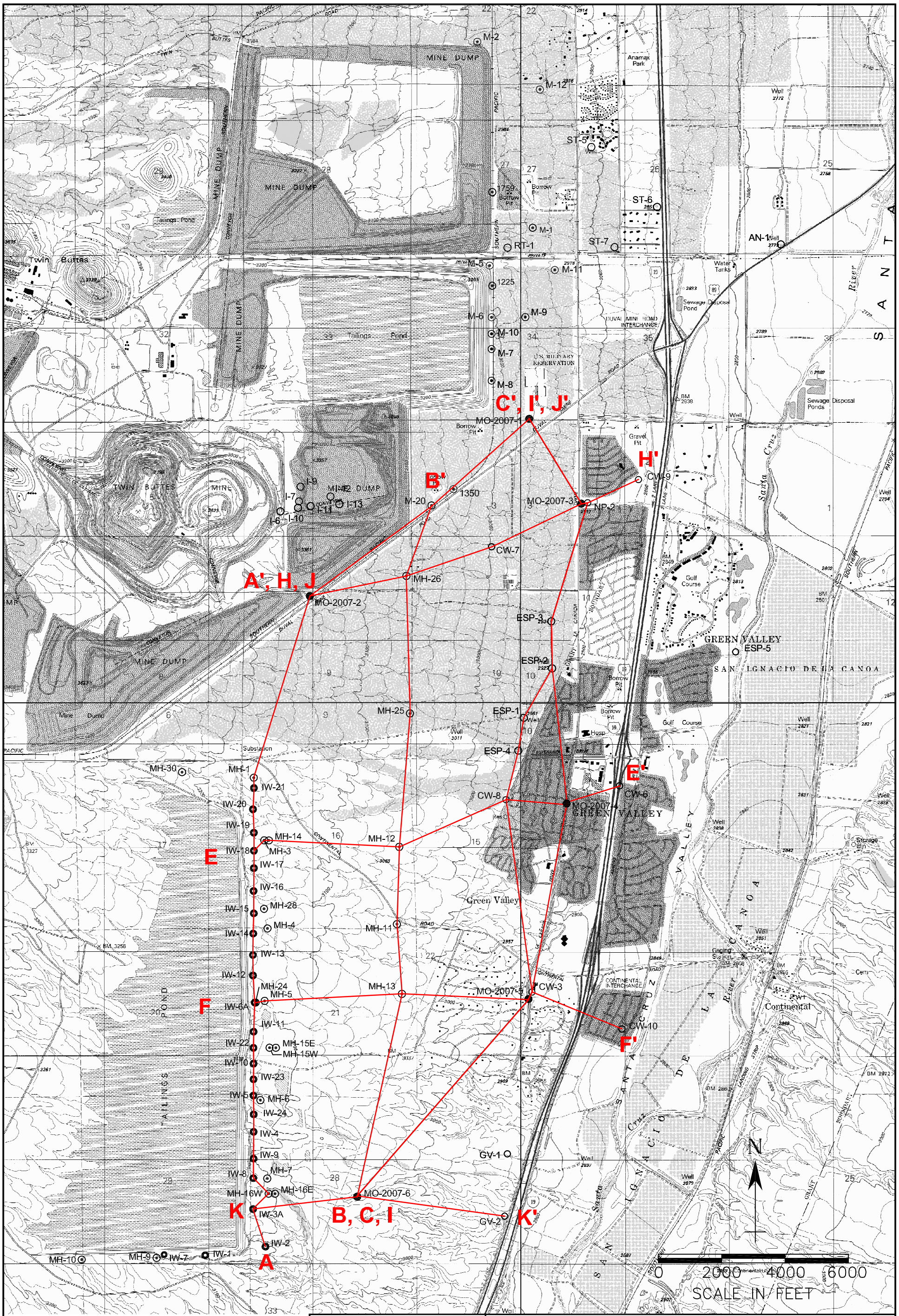
APPENDIX G

GEOLOGIC CROSS SECTIONS

APPENDIX G

TABLE OF CONTENTS

FIGURES



EXPLANATION

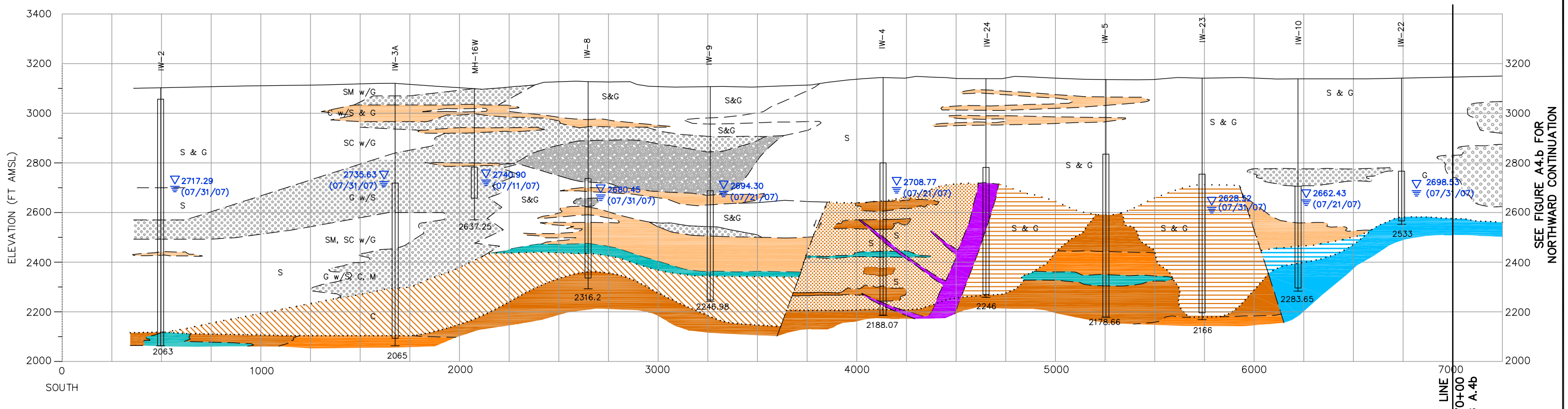
IW-2	INTERCEPTOR WELL
MH-16E	MONITOR WELL
ESP-4	OTHER WATER WELL
MO-2007-2	NEW MONITORING WELL

HYDRO GEO CHEM, INC.

SIERRITA TAILING IMPOUNDMENT AREA
CROSS SECTION LOCATION MAP

Approved	Date	Revised	Date	Reference:	FIG:
KSW	09/04/07			7830023A	G.1

A



LEGEND

BASIN FILL		BEDROCK COMPLEX	
C	CLAY		EARLY TERTIARY GRANODIORITE/MONZONITE FRACTURED TO SAND & GRAVEL
M	SILT		CLASTIC INTERBED, SANDSTONE, SILTSTONE AND ARKOSE
SC	CLAYEY SAND		VOLCANICS ALTERED AND FRACTURED TO CLAY RICH MATERIAL
SM	SILTY SAND	Cretaceous Demetrie Volcanics	VOLCANICS ALTERED AND FRACTURED TO SAND–SIZE MATERIAL
SMw/G	SILTY SAND WITH GRAVEL		VOLCANICS ALTERED AND FRACTURED TO SAND & GRAVEL–SIZE MATERIAL
S	SAND		ANDESITE & DACITE
S&G	SAND & GRAVEL		RHYOLITE
Gw/S	GRAVEL WITH SAND		CRETACEOUS ANGELICA ARKOSE ALTERED AND FRACTURED TO GRAVEL, SAND & CLAY
G	GRAVEL		CRETACEOUS ANGELICA ARKOSE
	SAND, GRAVEL AND/OR BOULDERS +/– SAND		
	LOGGED AS "HARD ROCK" OR "ROCK AND SAND"		
	SANDY CLAY, CLAYEY LAYERS		
	TOP OF BEDROCK		
	TOP OF DEMETRIE VOLCANICS AND ANGELICA ARKOSE		

IW-6A — WELL ID; WELL; WATER LEVEL (DATE); SCREEN

0 250 500 1000
SCALE IN FEET

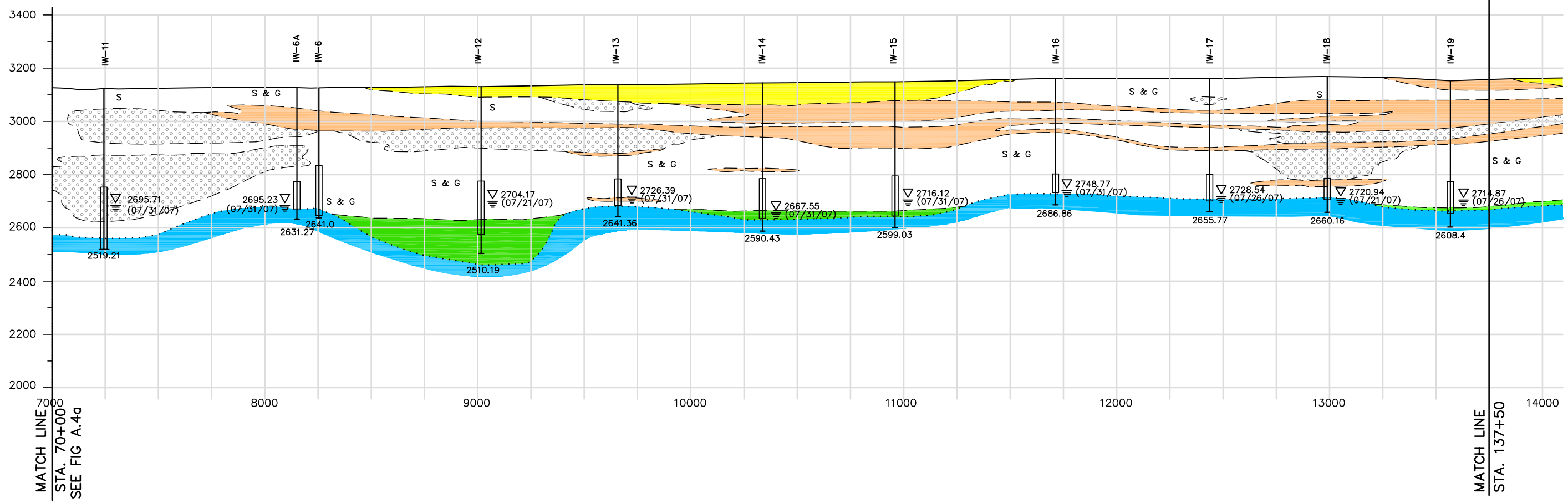
HYDRO GEO CHEM, INC.

A - A' GEOLOGIC CROSS SECTION
SHEET 1 OF 2
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/27/07			7830161A	G.2a

SEE FIGURE A.4a FOR SOUTHWARD CONTINUATION

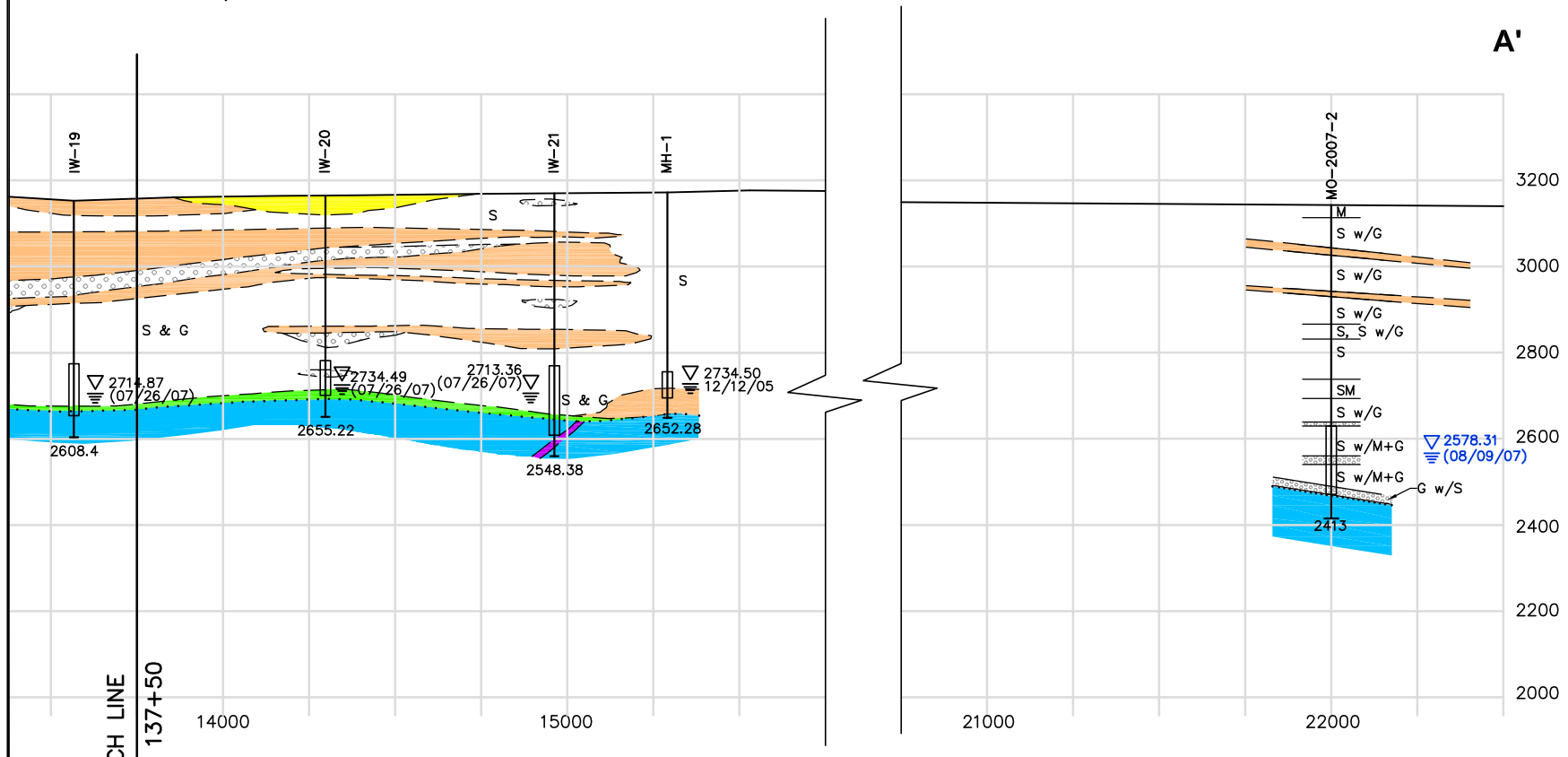
ELEVATION (FT AMSL)



MATCH LINE STA. 70+00 SEE FIG A.4a

MATCH LINE STA. 137+50

A'



MATCH LINE STA. 137+50

LEGEND

BASIN FILL

- CALICHE CEMENTED GRAVEL, SAND, SILT AND CLAY
- S — SAND
- Sw/G — SAND WITH GRAVEL
- Sw/M&G — SAND WITH SILT AND GRAVEL
- S&G — SAND & GRAVEL, INCLUDES INTERVALS LOGGED AS SANDY GRAVEL AND GRAVELLY SAND
- SAND & GRAVEL WITH COBBLES AND INTERVALS LOGGED AS UNIDENTIFIED ROCK
- SILT AND SANDY CLAY, CLAY
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- EARLY TERTIARY QUARTZ MONZONITE
- CRETACEOUS ANGELICA ARKOSE
- TOP OF BEDROCK

0 250 500 1000
SCALE IN FEET

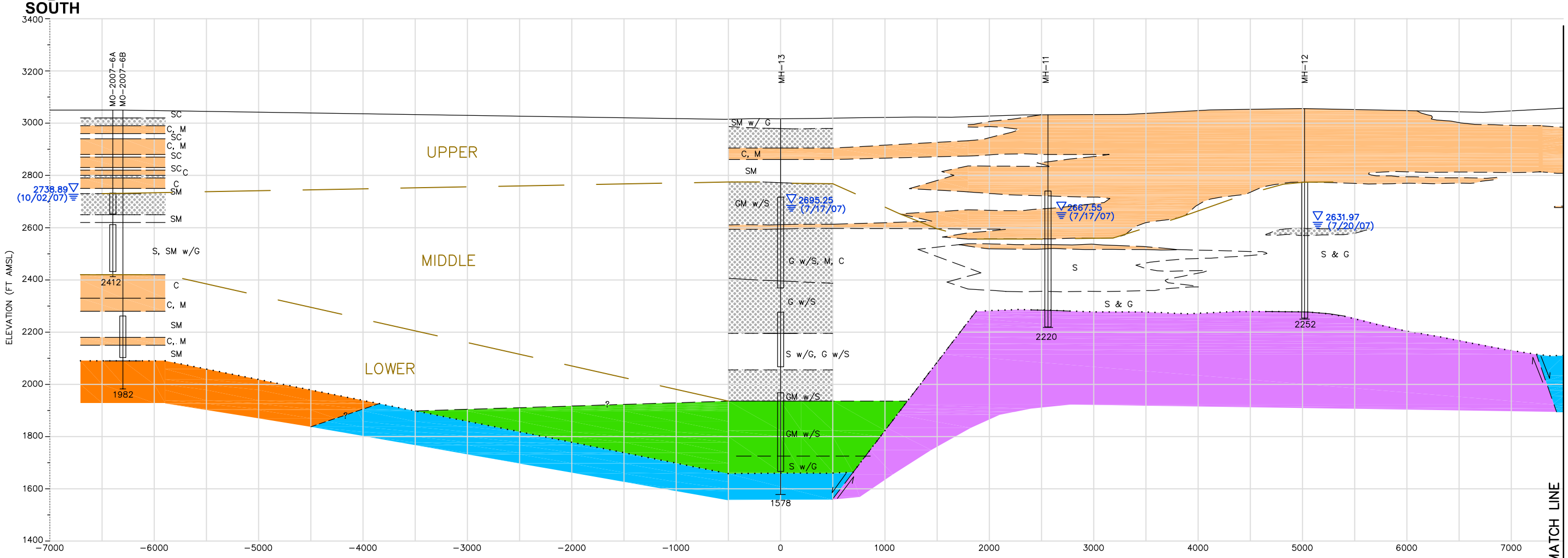
IW-6A — WELL ID; WELL; WATER LEVEL (DATE); SCREEN

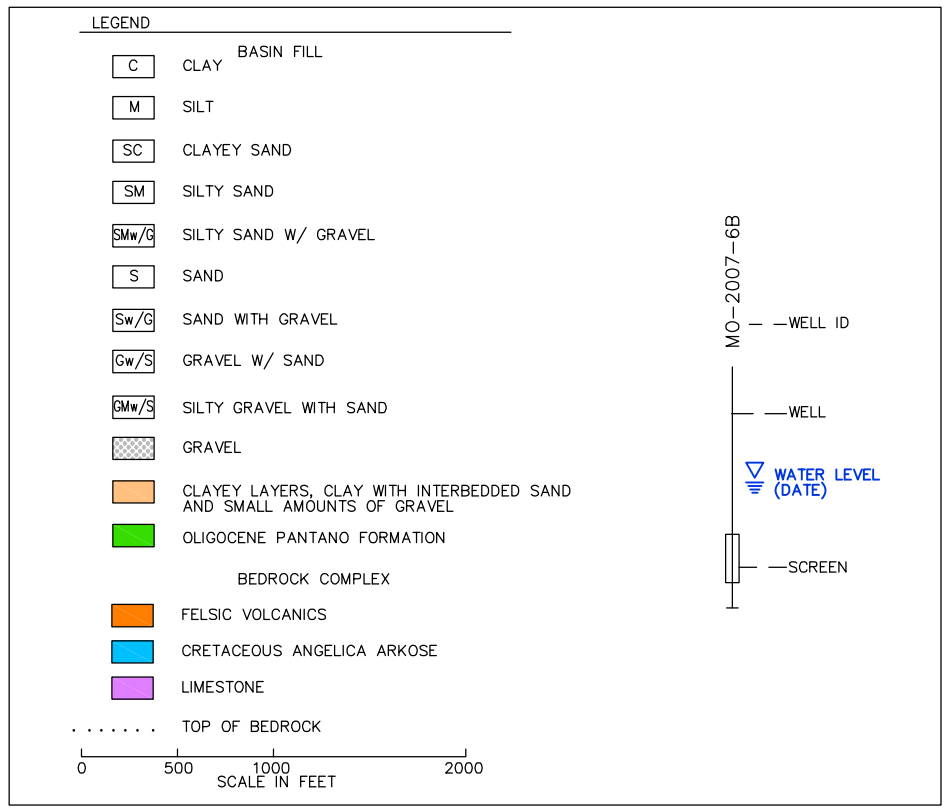
HYDRO GEO CHEM, INC.

A - A' GEOLOGIC CROSS SECTION
SHEET 2 OF 2
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/20/07			7830160A	G.2b

B
SOUTH



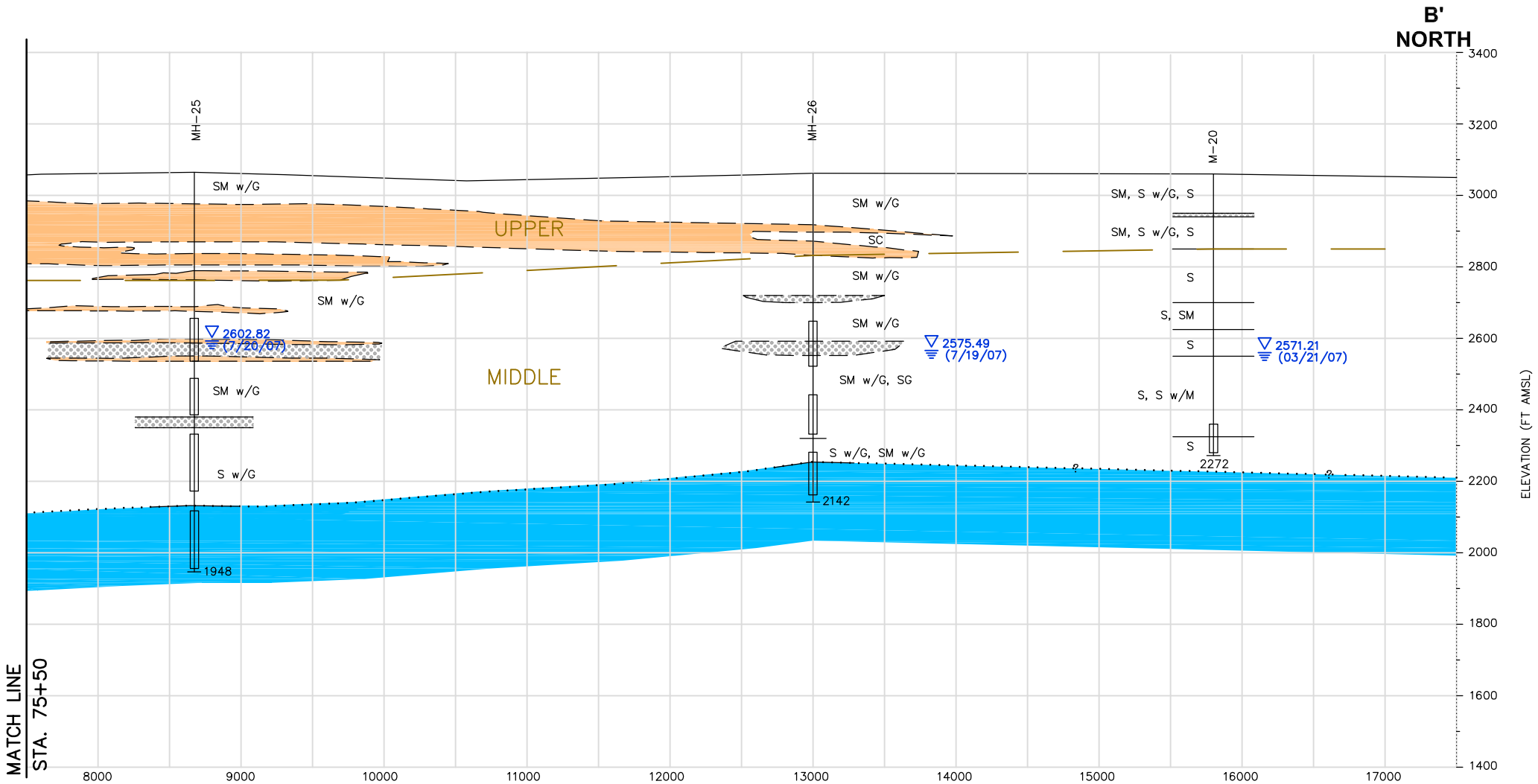


HYDRO GEO CHEM, INC.

B - B' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA
STA. -70+00.00 TO 75+50.00

SHEET 1 OF 2

Approved	Date	Revised by	Date	File Name	Figure
KW	8/31/06	KW	11/01/07	7830141A	G.3a



LEGEND

BASIN FILL

- S&G — SAND & GRAVEL
- SMw/G — SILTY SAND W/ GRAVEL
- S — SAND
- Sw/G — SAND WITH GRAVEL
- GRAVEL WITH SAND AND/OR COBBLES
- CLAYEY LAYERS, CLAY WITH INTERBEDDED SAND AND SMALL AMOUNTS OF GRAVEL
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE
- . . . . . TOP OF BEDROCK

0 500 1000 2000
SCALE IN FEET

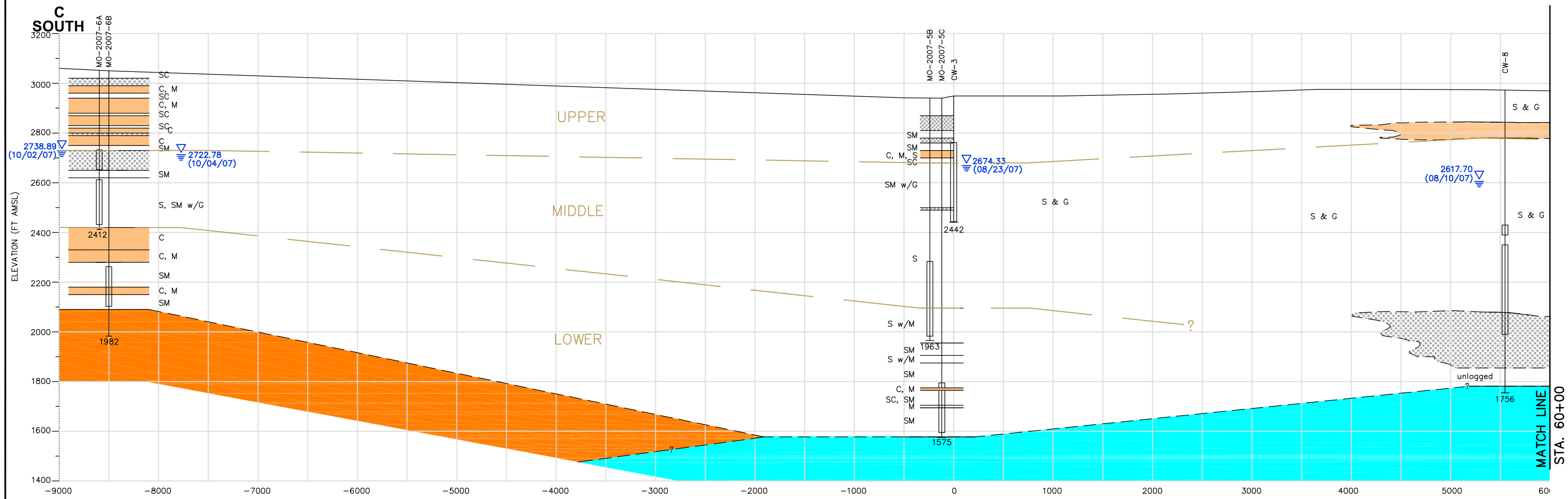
MH-25 — WELL ID
— WELL
WATER LEVEL (DATE)
— SCREEN

HYDRO GEO CHEM, INC.

B - B' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA
STA. 75+50.00 TO 170+50.00

SHEET 2 OF 2

Approved	Date	Revised by	Date	File Name	Figure
KW	8/31/06	KW	11/01/07	7830141A	G.3b



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- Sw/M — SAND w/ SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- S&G — SAND AND GRAVEL
- S&Gw/C — SAND & GRAVEL WITH CLAY
- SMw/G — SILTY SAND WITH GRAVEL
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND +/- COBBLES AND/OR BOULDERS
- CLAY, SANDY CLAY, CLAY & GRAVEL
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER
- BEDROCK COMPLEX
- CRETACEOUS ANGELICA ARKOSE

ESP-3 — WELL ID

WELL

WATER LEVEL (DATE)

SCREEN

0 500 1000 2000

SCALE IN FEET

HYDRO GEO CHEM, INC.

C - C' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA
STA. -90+00.00 TO 60+00.00

SHEET 1 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	8/30/07			7830143A	G.4a

C'
NORTH

ESP–4
ESP–1
ESP–2
ESP–3
NP–2
MO–2007–3C
MO–2007–3B
MO–2007–1C
MO–2007–1B
MO–2007–1A

▽ 2606.81 (07/24/07)
▽ 2596.77 (07/10/07)
▽ 2582.36 (07/10/07)
▽ 2574.14 (07/01/07)
▽ 2555.05 (08/13/07)
▽ 2540.47 (7/30/07)

UPPER
MIDDLE
LOWER

S & G & C
S, C & G
C & G
C, S
S & G
S & G w/ C
S, S w/ G
S w/ G
S, S w/ G
S w/M
SM, Sw/G
SM, SC
M, SC
S, S w/ M + C
S w/M&G

1910.61
1933
1887
1869
2399
1950
1480
2347
2046
1704

MATCH LINE
STA. 140+00

3000
2800
2600
2400
2200
2000
1800
1600
1400

00 7000 8000 9000 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000 20000

LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- Sw/M — SAND w/ SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- S&G — SAND AND GRAVEL
- S&Gw/C — SAND & GRAVEL WITH CLAY
- SMw/G — SILTY SAND WITH GRAVEL
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND +/– COBBLES AND/OR BOULDERS
- CLAY, SANDY CLAY, CLAY & GRAVEL
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE

ESP–3 — WELL ID
WELL
▽ WATER LEVEL (DATE)
SCREEN

0 500 1000 2000
SCALE IN FEET

HYDRO GEO CHEM, INC.

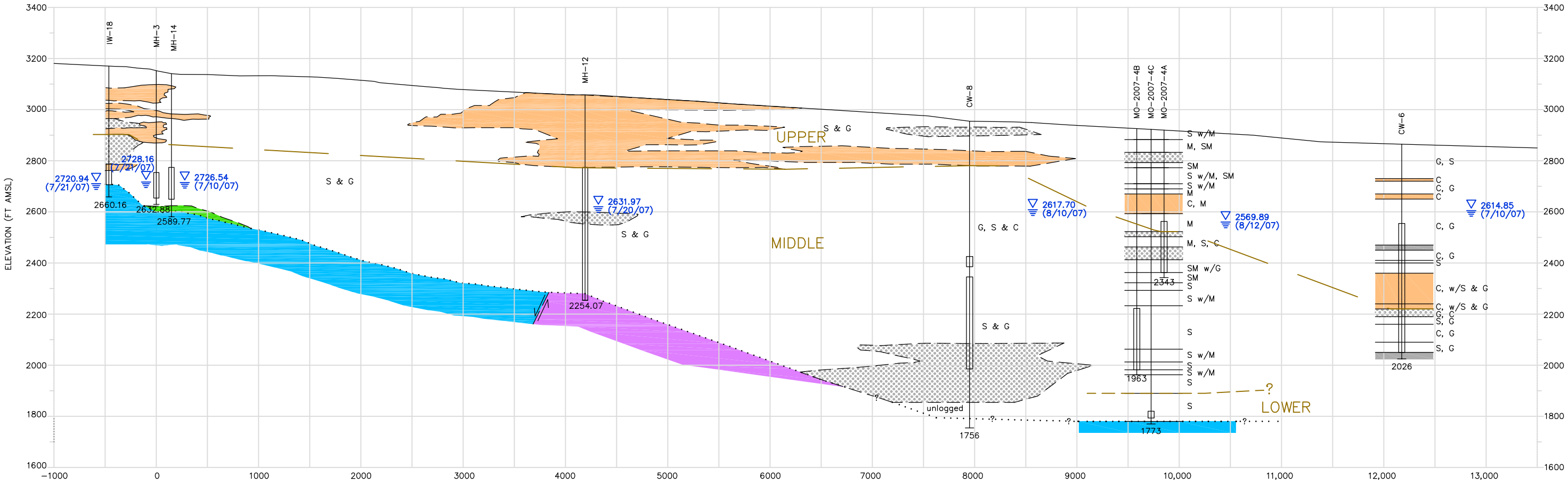
C - C' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA

SHEET 2 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	8/30/07			7830143A	G.4b

E
WEST

E'
EAST



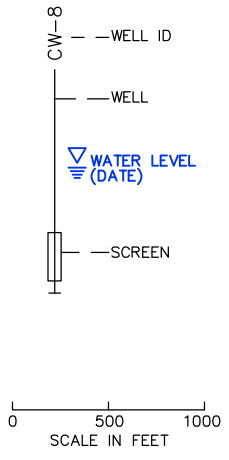
LEGEND

BASIN FILL

- S&G — SAND AND GRAVEL
- GS&C — GRAVEL, SAND AND CLAY
- C — CLAY
- M — SILT
- G — GRAVEL
- SM w/G — SILTY SAND WITH GRAVEL
- S — SAND
- Sw/M — SAND w/ SILT
- SM — SILTY SAND
- CLAY AND SANDY CLAY
- GRAVEL, GRAVEL w/ SAND, SAND AND GRAVEL WITH BOULDERS
- CONGLOMERATE
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

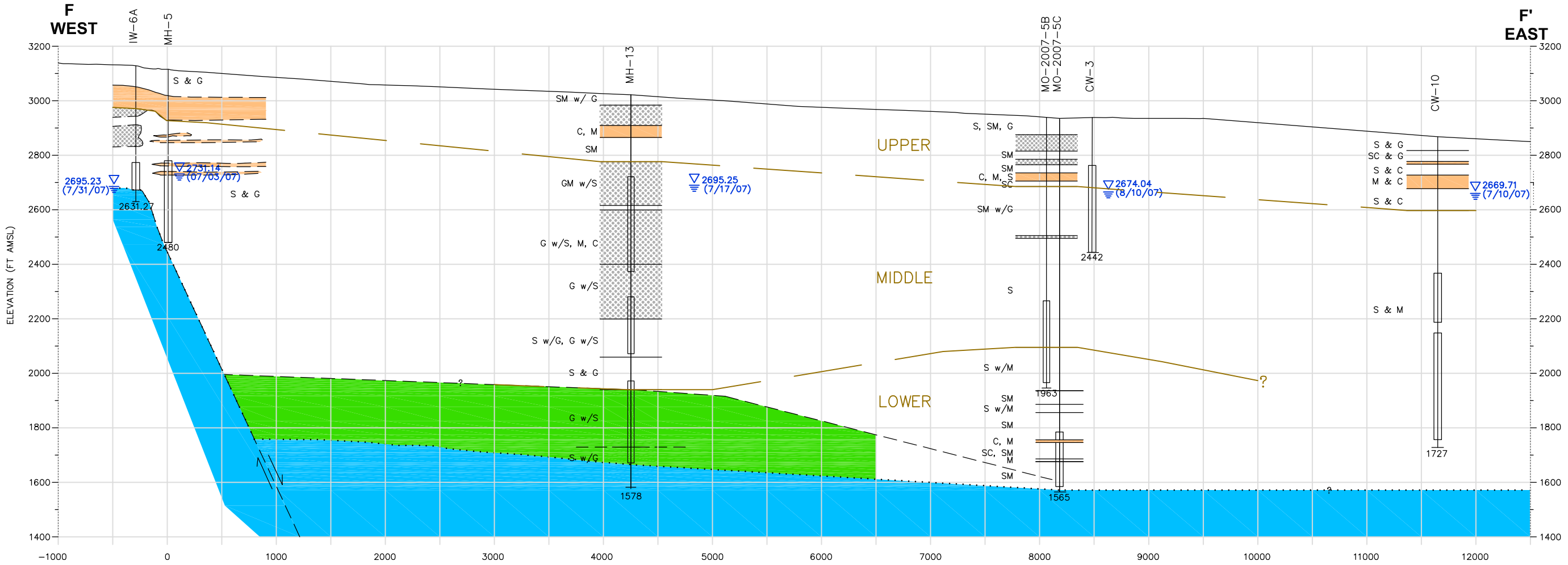
- CRETACEOUS ANGELICA ARKOSE
- LIMESTONE
- ..... TOP OF BEDROCK



HYDRO GEO CHEM, INC.

E - E' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	8/31/06			7830144A	G.5



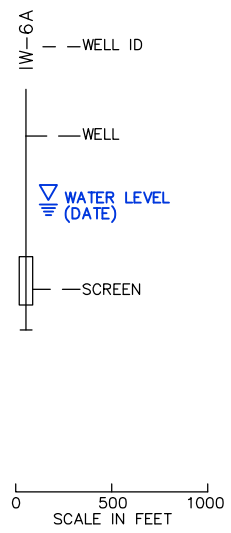
LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- Sw/M — SAND WITH SILT
- SMw/G — SILTY SAND w/GRAVEL
- S — SAND
- G — GRAVEL
- S&G — SAND AND GRAVEL
- Sw/G — SAND WITH GRAVEL
- GRAVEL, GRAVEL w/SAND +/– COBBLES
- CLAY & SILTY LAYERS, SANDY CLAY
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

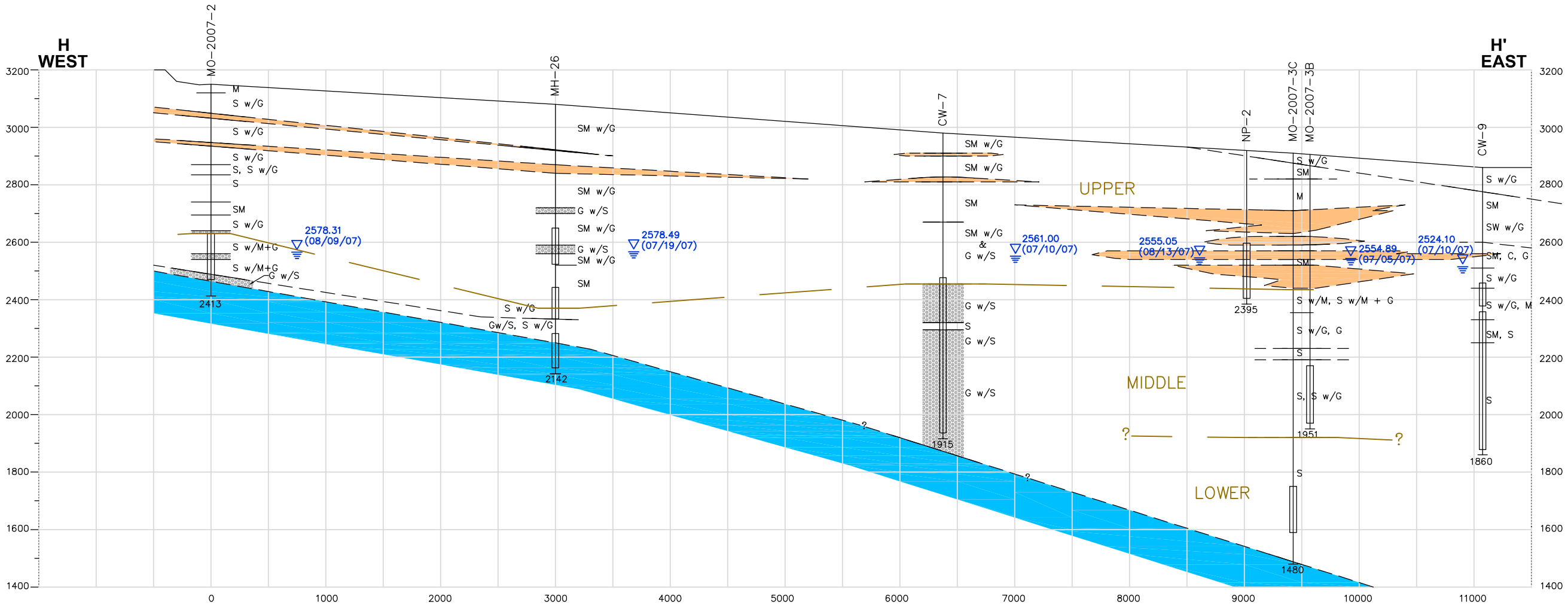
- CRETACEOUS ANGELICA ARKOSE
- · · · · · TOP OF BEDROCK



HYDRO GEO CHEM, INC.

F - F' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	8/31/07			7830147A	G.6



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- SM — SILTY SAND
- S w/M — SAND WITH SILT
- SM w/G — SILTY SAND WITH GRAVEL
- Sw/M+G — SAND WITH SILT AND GRAVEL
- S — SAND
- S w/G — SAND WITH GRAVEL
- G w/S — GRAVEL WITH SAND
- GRAVEL, GRAVEL w/ SAND, +/- COBBLES
- CLAY AND SILT

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE

CW-7 — WELL ID

WELL

WATER LEVEL (DATE)

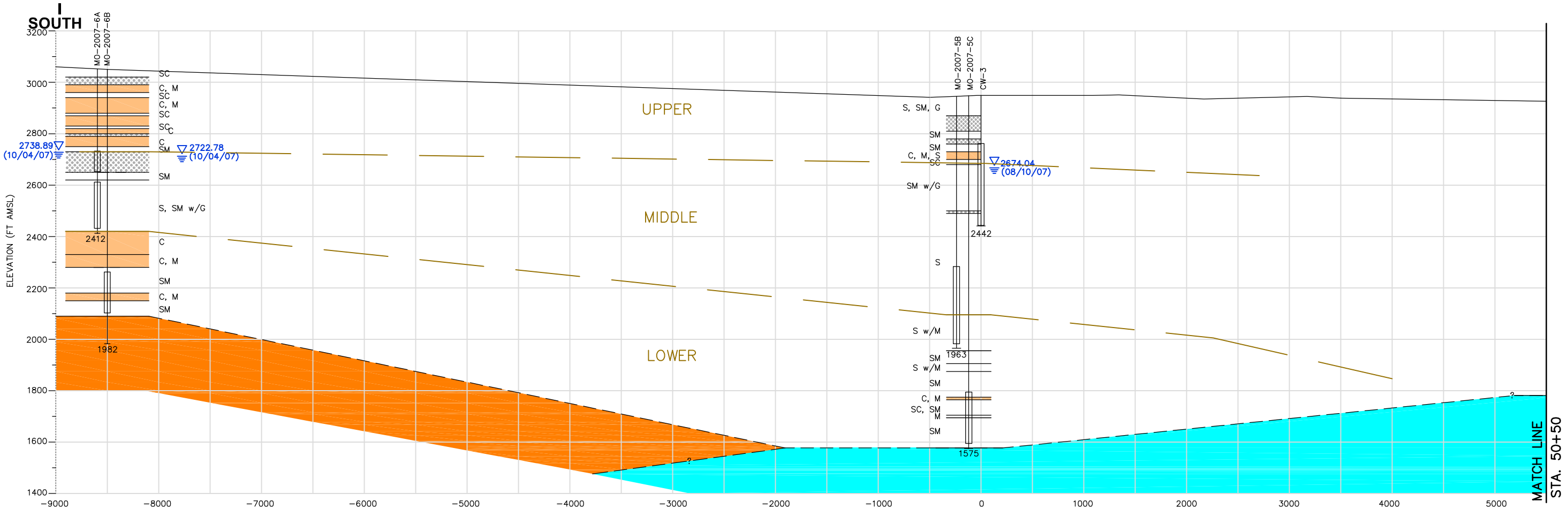
SCREEN

0 500 1000 2000
SCALE IN FEET

HYDRO GEO CHEM, INC.

H - H' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	6/21/07			7830136A	G.7



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- SC — CLAYEY SAND
- SM — SILTY SAND
- S w/M — SAND WITH SILT
- S&G — SAND AND GRAVEL
- S&Gw/C — SAND & GRAVEL WITH CLAY
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND AND/OR SILT
- CLAY, SANDY CLAY, CLAY & SILT
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE

ESP-3 — WELL ID

WELL

WATER LEVEL (DATE)

SCREEN

0 500 1000 2000

SCALE IN FEET

HYDRO GEO CHEM, INC.

I - I' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA
STA. -90+00.00 TO 50+50.00

SHEET 1 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	9/1/07			7830145A	G.8a

I'
NORTH

MATCH LINE
STA. 50+50

MO-2007-4B
MO-2007-4C
MO-2007-4A
ESP-2
ESP-3
NP-2
MO-2007-3C
MO-2007-3B
MO-2007-1C
MO-2007-1B
MO-2007-1A

UPPER
MIDDLE
LOWER

2569.89 (8/12/07)
2592.34 (10/12/07)
2574.14 (07/01/07)
2555.05 (08/13/07)
2541.28 (07/30/07)
2540.47 (7/30/07)

1963
2343
1773
1887
1869
2395
1951
2347
2046
1704
1480

3000
2800
2600
2400
2200
2000
1800
1600
1400

6000 7000 8000 9000 10000 11000 12000 13000 15000 16000 17000 18000 19000 20000

LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- SC — CLAYEY SAND
- SM — SILTY SAND
- S w/M — SAND WITH SILT
- S&G — SAND AND GRAVEL
- S&Gw/C — SAND & GRAVEL WITH CLAY
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND, +/- COBBLES AND/OR BOULDERS
- CLAY, SANDY CLAY, CLAY & GRAVEL
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE

ESP-3 — WELL ID
WELL
WATER LEVEL (DATE)
SCREEN

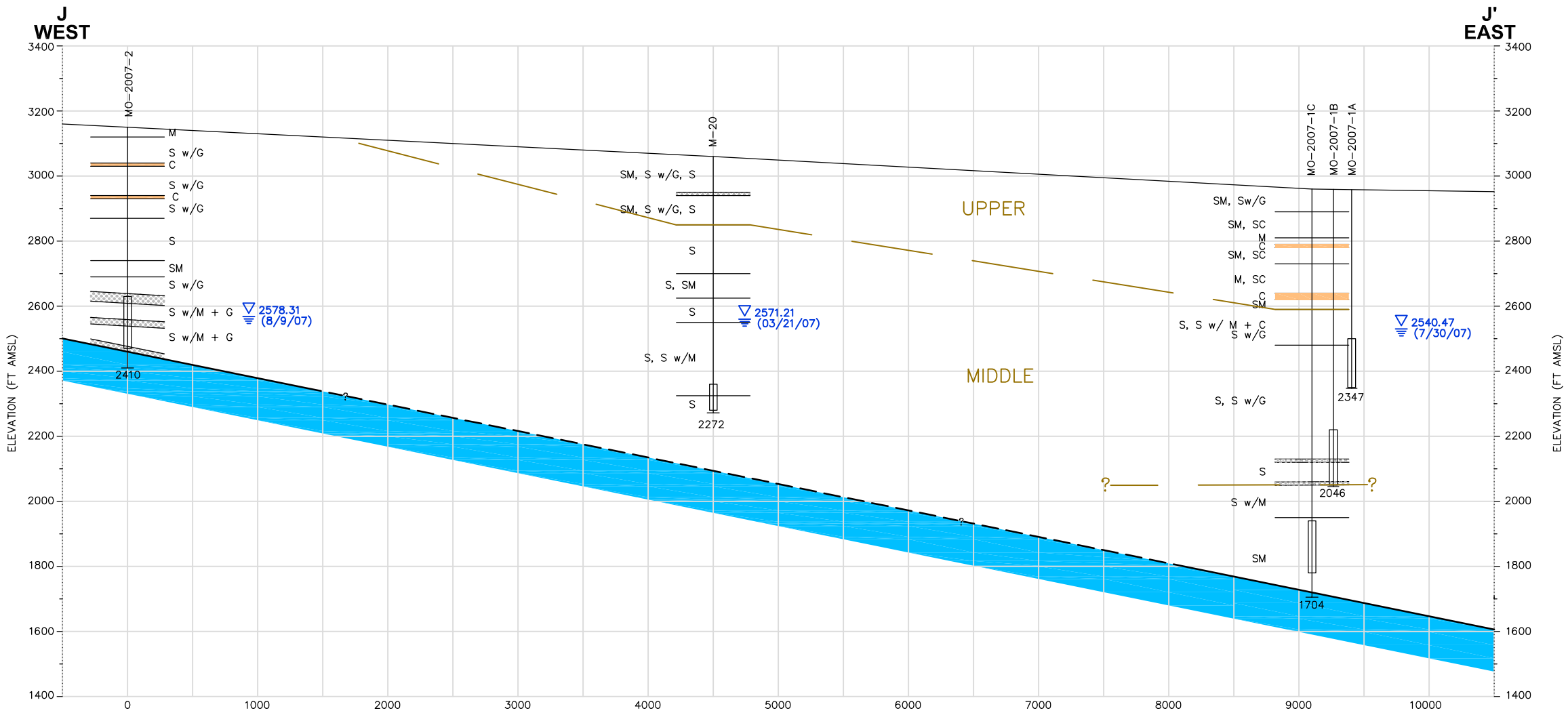
0 500 1000 2000
SCALE IN FEET

HYDRO GEO CHEM, INC.

I - I' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA
STA. 50+50.00 TO 205+00.00

SHEET 2 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	9/1/07			7830145A	G.8b



LEGEND

BASIN FILL

- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- Sw/M+C — SAND w/ SILT AND CLAY
- Sw/M — SAND w/ SILT
- S — SAND
- Sw/M+G — SAND w/ SILT + GRAVEL
- Sw/G — SAND w/ GRAVEL
- CLAY, CLAY & SILT, SANDY CLAY
- GRAVEL, GRAVEL W/ SAND

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE

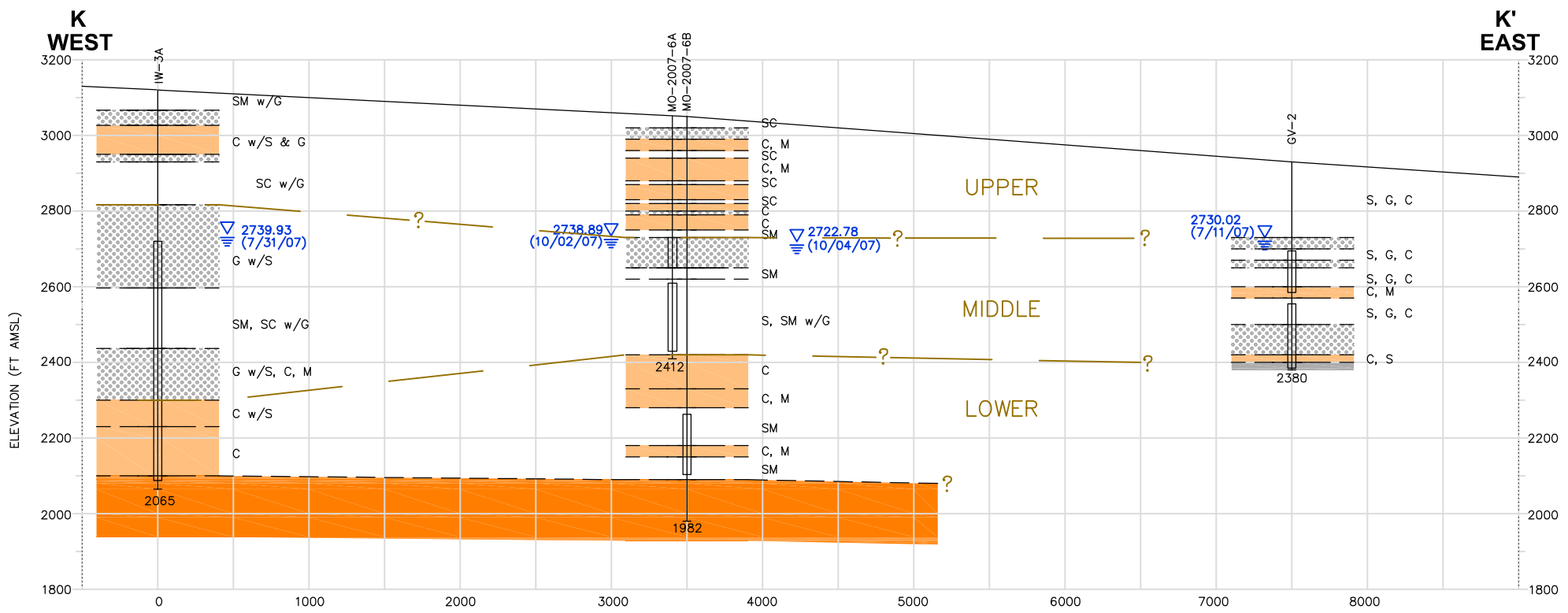
0 500 1000 2000
SCALE IN FEET

MO-2007-1C — WELL ID
WELL
WATER LEVEL (DATE)
SCREEN

HYDRO GEO CHEM, INC.

J - J' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date		Date	File Name	Figure
KW	8/30/07	DKW		7830142A	G.9



HYDRO GEO CHEM, INC.

K - K' GEOLOGIC CROSS SECTION
SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	8/31/06			7830146A	G.10

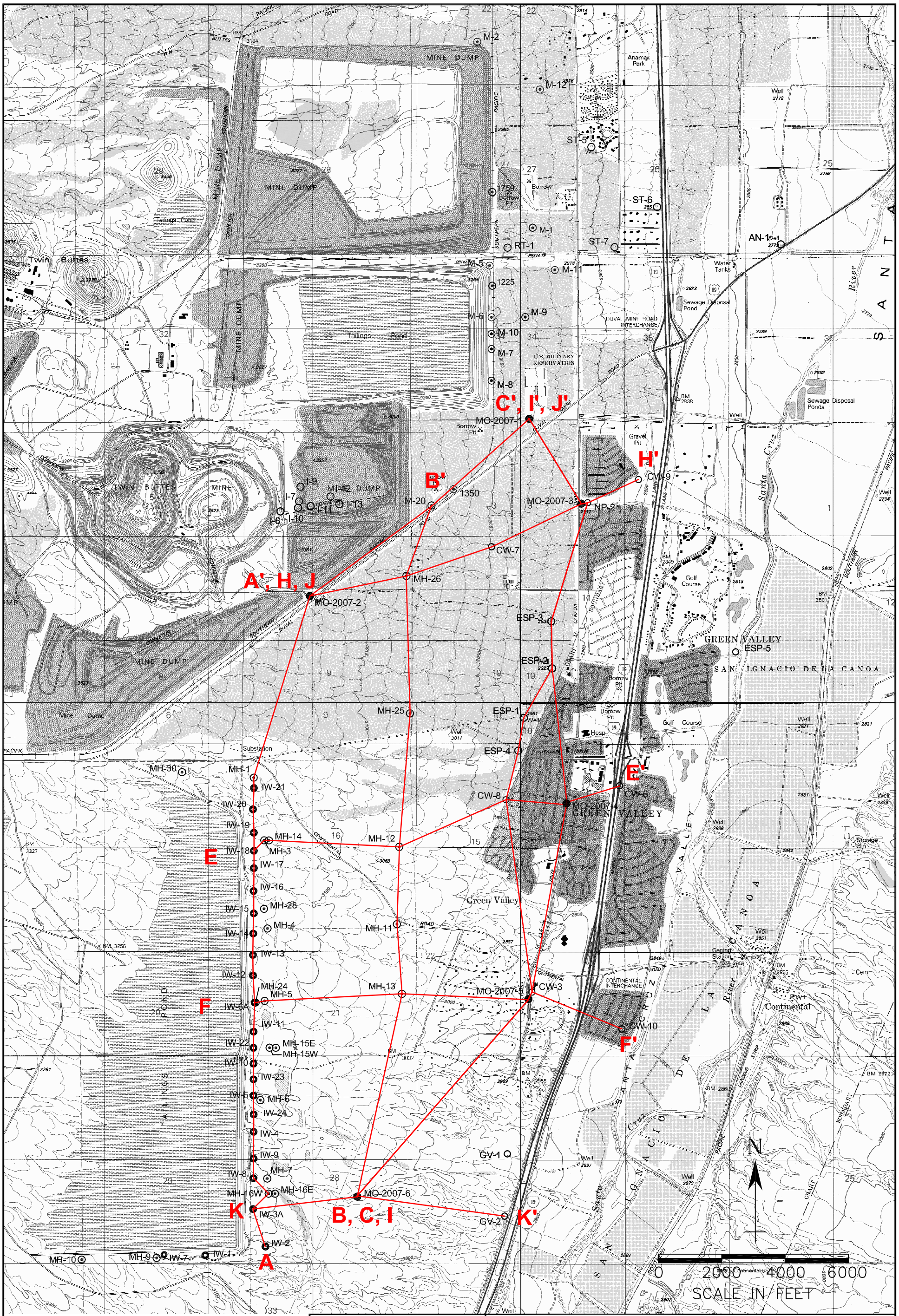
APPENDIX H

CROSS SECTIONS SHOWING
WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA

APPENDIX H

TABLE OF CONTENTS

FIGURES



EXPLANATION

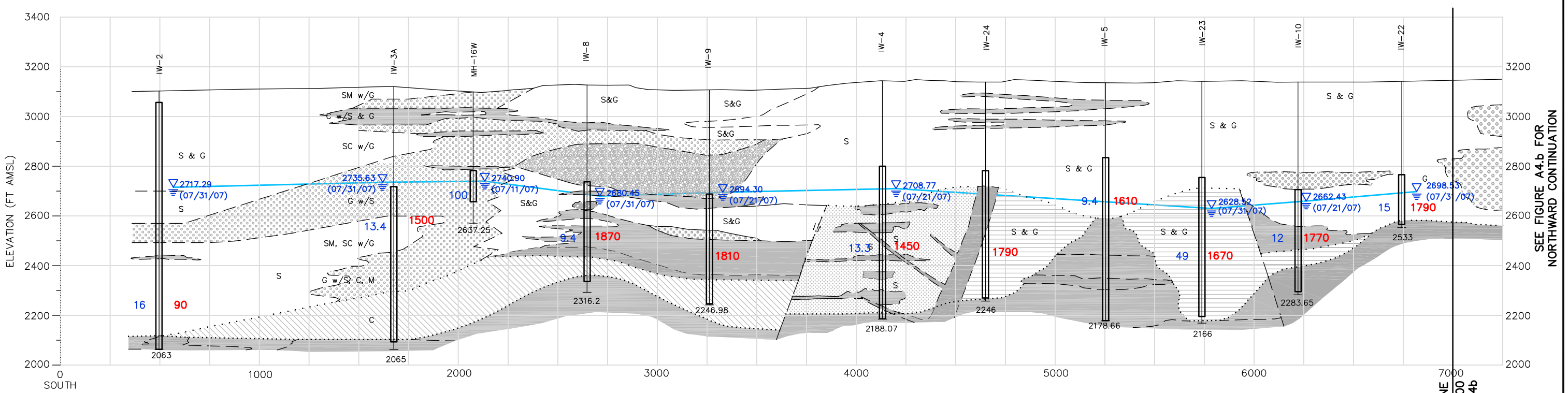
IW-2	INTERCEPTOR WELL
MH-16E	MONITOR WELL
ESP-4	OTHER WATER WELL
MO-2007-2	NEW MONITORING WELL

HYDRO GEO CHEM, INC.

SIERRITA TAILING IMPOUNDMENT AREA
CROSS SECTION LOCATION MAP

Approved	Date	Revised	Date	Reference:	FIG:
KSW	09/04/07			7830023A	H.1

A



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- SMw/G — SILTY SAND WITH GRAVEL
- S — SAND
- S&G — SAND & GRAVEL
- Gw/S — GRAVEL WITH SAND
- G — GRAVEL
- SAND, GRAVEL AND/OR BOULDERS +/- SAND
- LOGGED AS "HARD ROCK" OR "ROCK AND SAND"
- SANDY CLAY, CLAYEY LAYERS
- ····· TOP OF BEDROCK
- · · · · · TOP OF DEMETRIE VOLCANICS AND ANGELICA ARKOSE

0 250 500 1000
SCALE IN FEET

BEDROCK COMPLEX

- EARLY TERTIARY GRANODIORITE/MONZONITE FRACTURED TO SAND & GRAVEL
- Cretaceous Demetrie Volcanics:
  - CLASTIC INTERBED, SANDSTONE, SILTSTONE AND ARKOSE
  - VOLCANICS ALTERED AND FRACTURED TO CLAY RICH MATERIAL
  - VOLCANICS ALTERED AND FRACTURED TO SAND-SIZE MATERIAL
  - VOLCANICS ALTERED AND FRACTURED TO SAND & GRAVEL-SIZE MATERIAL
  - ANDESITE & DACITE
  - RHYOLITE
- CRETACEOUS ANGELICA ARKOSE ALTERED AND FRACTURED TO GRAVEL, SAND & CLAY
- CRETACEOUS ANGELICA ARKOSE

IW-6A — WELL ID
WELL
WATER LEVEL (DATE)
1,700 mg/L — SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)
HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7-30 ft/d
SCREEN

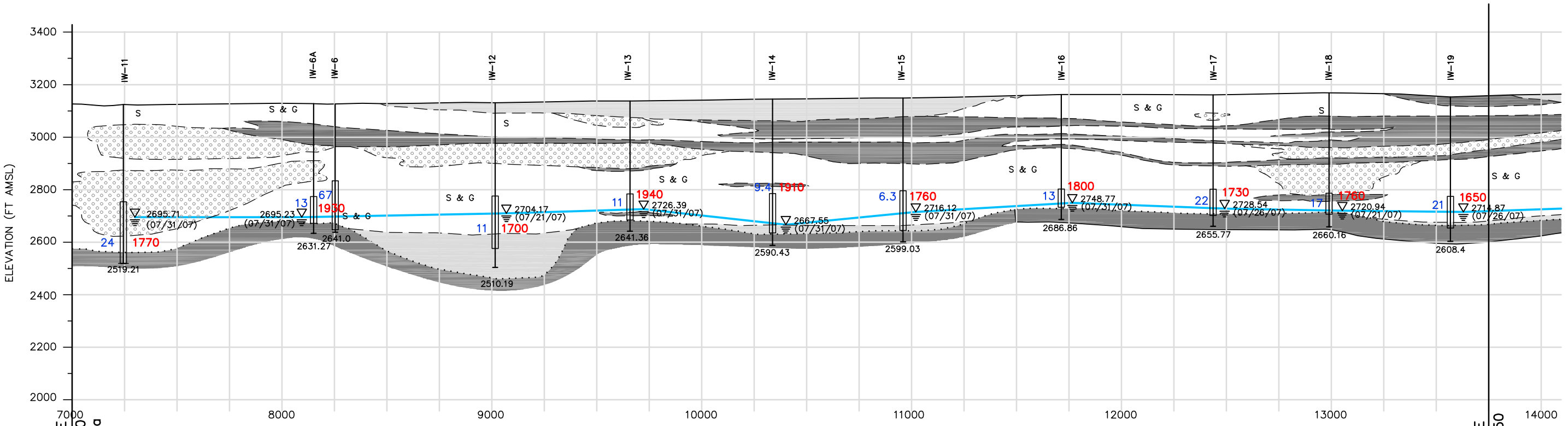
HYDRO GEO CHEM, INC.

A - A' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830163A	H.2a

SEE FIGURE A.4a FOR SOUTHWARD CONTINUATION

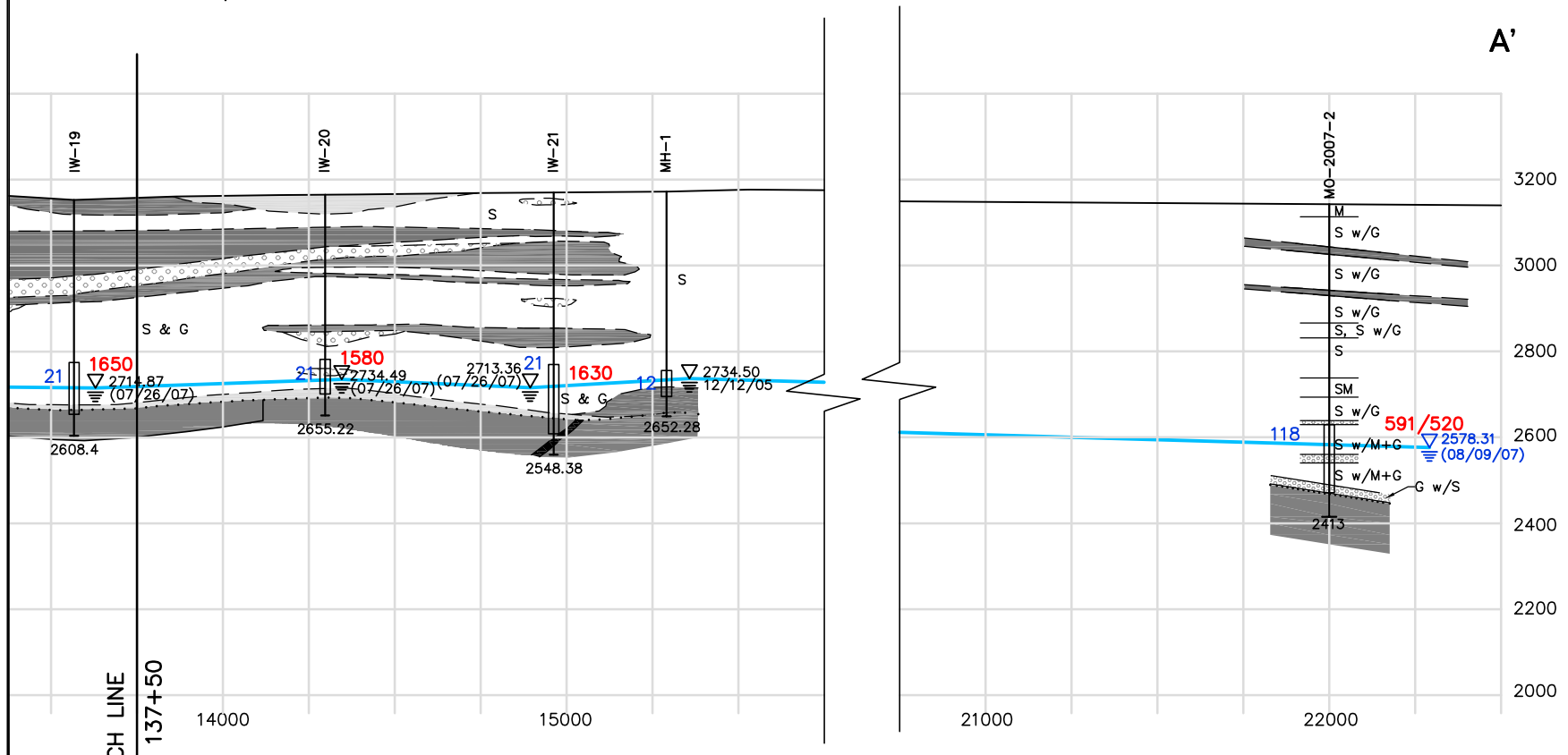
ELEVATION (FT AMSL)



MATCH LINE
STA. 70+00
SEE FIG A.4a

MATCH LINE
STA. 137+50

A'



MATCH LINE
STA. 137+50

LEGEND

BASIN FILL

- CALICHE CEMENTED GRAVEL, SAND, SILT AND CLAY
- S — SAND
- Sw/G — SAND WITH GRAVEL
- Sw/M&G — SAND WITH SILT AND GRAVEL
- S&G — SAND & GRAVEL, INCLUDES INTERVALS LOGGED AS SANDY GRAVEL AND GRAVELLY SAND
- SAND & GRAVEL WITH COBBLES AND INTERVALS LOGGED AS UNIDENTIFIED ROCK
- SILT AND SANDY CLAY, CLAY
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- EARLY TERTIARY QUARTZ MONZONITE
- CRETACEOUS ANGELICA ARKOSE
- TOP OF BEDROCK

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7–30 ft/d

0 250 500 1000
SCALE IN FEET

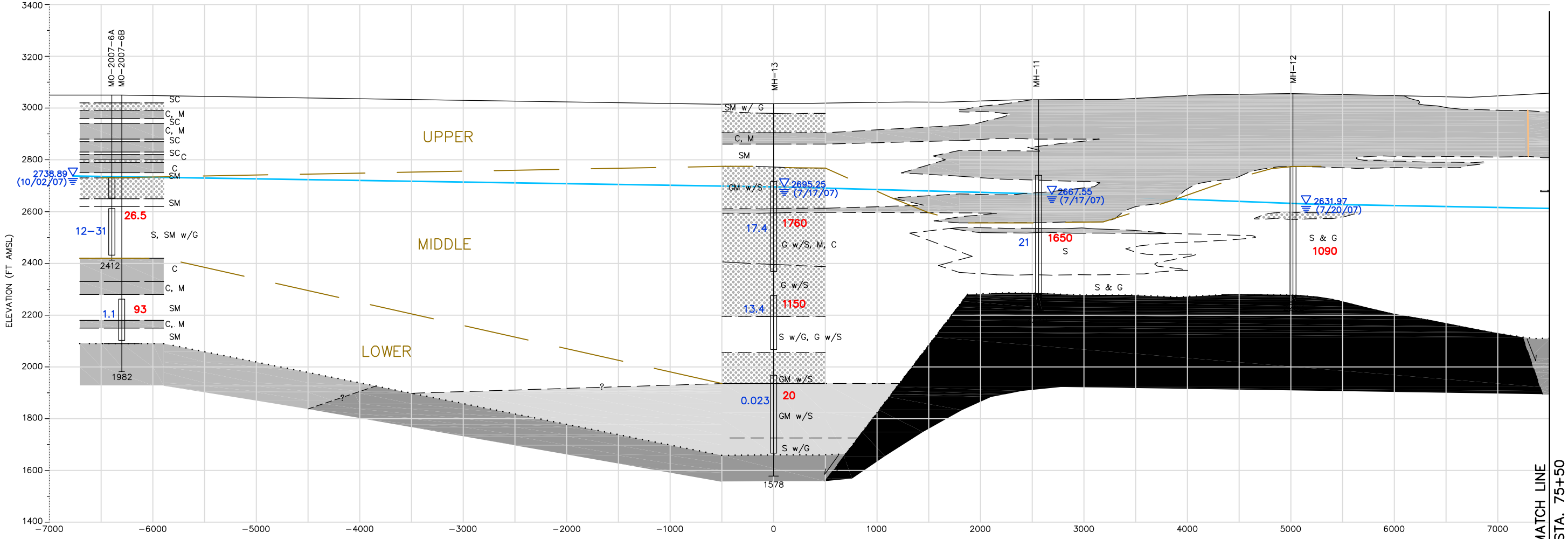
IW-6A — WELL ID
WELL
WATER LEVEL (DATE)
1,700 mg/L — SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)
SCREEN

HYDRO GEO CHEM, INC.

A – A' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/28/07			7830164A	H.2b

B
SOUTH



LEGEND

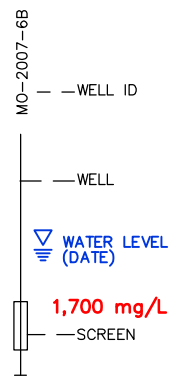
BASIN FILL

- C — CLAY
- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- SMw/G — SILTY SAND W/ GRAVEL
- S — SAND
- Sw/G — SAND WITH GRAVEL
- Gw/S — GRAVEL W/ SAND
- GMw/S — SILTY GRAVEL WITH SAND
- GRAVEL
- CLAYEY LAYERS, CLAY WITH INTERBEDDED SAND AND SMALL AMOUNTS OF GRAVEL
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE
- LIMESTONE
- TOP OF BEDROCK

0 500 1000 2000
SCALE IN FEET



HYDRAULIC CONDUCTIVITY (FEET/DAY) 7−30 ft/d
(APPENDIX E AND HGC, 2006a)

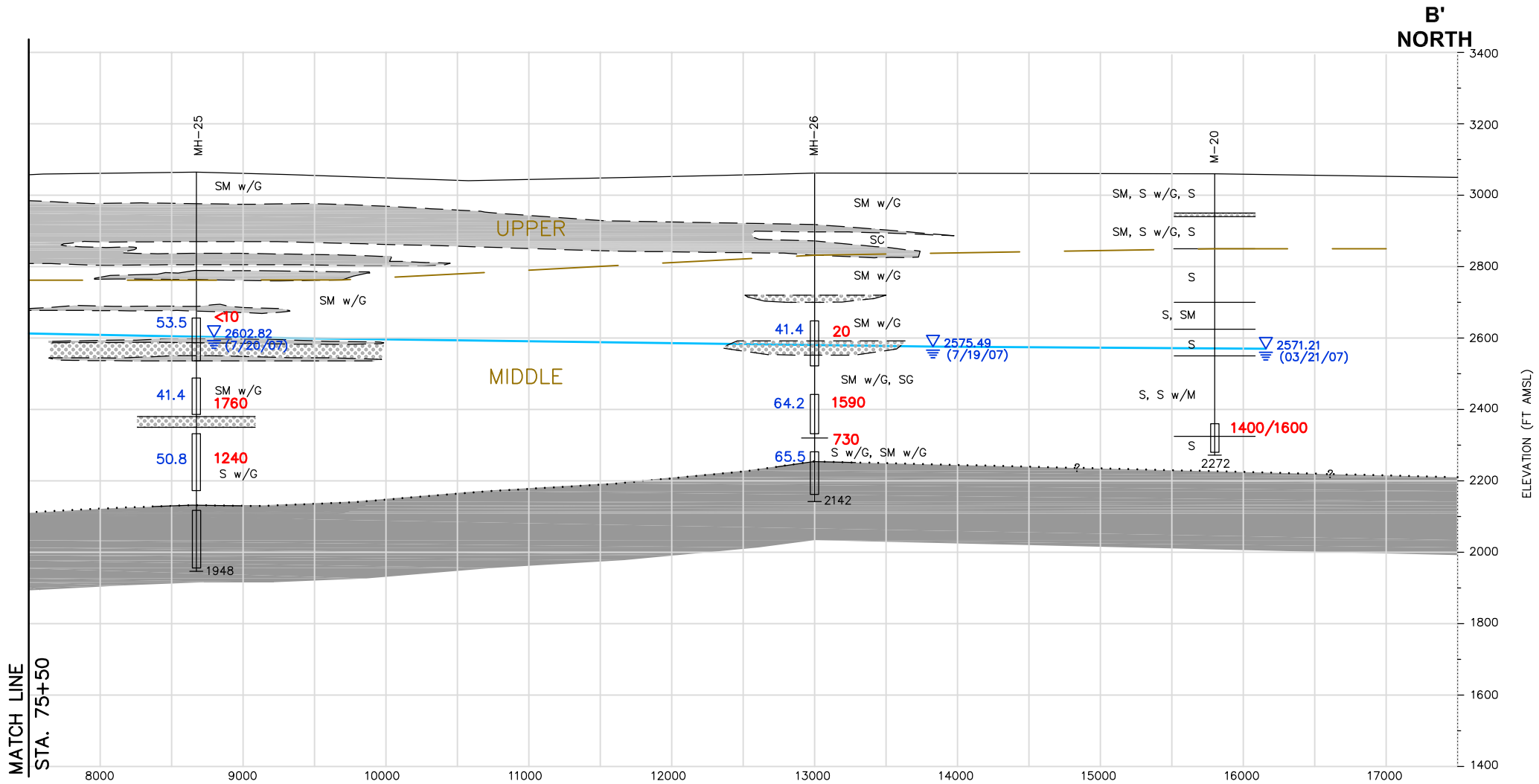
SULFATE CONCENTRATION (MILLIGRAMS PER LITER)
IN JULY THROUGH OCTOBER 2007 (APPENDIX B)
DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

HYDRO GEO CHEM, INC.

B - B' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA STA. -70+00.00 TO 75+50.00

SHEET 1 OF 2

Approved	Date	Revised by	Date	File Name	Figure
KW	11/29/07	KW	11/29/07	7830165A	H.3a



LEGEND

BASIN FILL

- S&G — SAND & GRAVEL
- SMw/G — SILTY SAND W/ GRAVEL
- S — SAND
- Sw/G — SAND WITH GRAVEL
- GRAVEL WITH SAND AND/OR COBBLES
- CLAYEY LAYERS, CLAY WITH INTERBEDDED SAND AND SMALL AMOUNTS OF GRAVEL
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE
- . . . . . TOP OF BEDROCK

0 500 1000 2000
SCALE IN FEET

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7–30 ft/d

MH-25
—WELL ID
—WELL
WATER LEVEL (DATE)
1,700 mg/L
—SCREEN

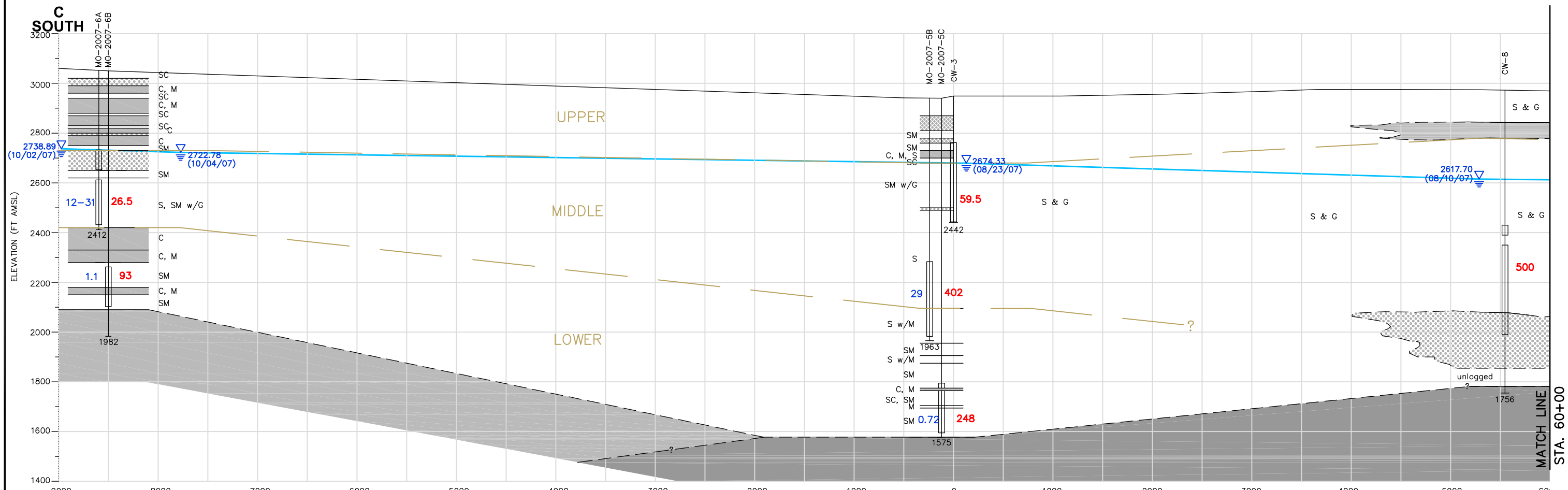
SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

HYDRO GEO CHEM, INC.

B - B' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA STA. 75+50.00 TO 170+50.00

SHEET 2 OF 2

Approved	Date	Revised by	Date	File Name	Figure
KW	11/29/07	KW	11/29/07	7830165A	H.3b



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- Sw/M — SAND w/ SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- S&G — SAND AND GRAVEL
- S&Gw/C — SAND & GRAVEL WITH CLAY
- SMw/G — SILTY SAND WITH GRAVEL
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND +/- COBBLES AND/OR BOULDERS
- CLAY, SANDY CLAY, CLAY & GRAVEL
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER
- BEDROCK COMPLEX
- CRETACEOUS ANGELICA ARKOSE

ESP-3 — WELL ID

WELL

WATER LEVEL (DATE)

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7-30 ft/d

1,700 mg/L — SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

SCREEN

0 500 1000 2000
SCALE IN FEET

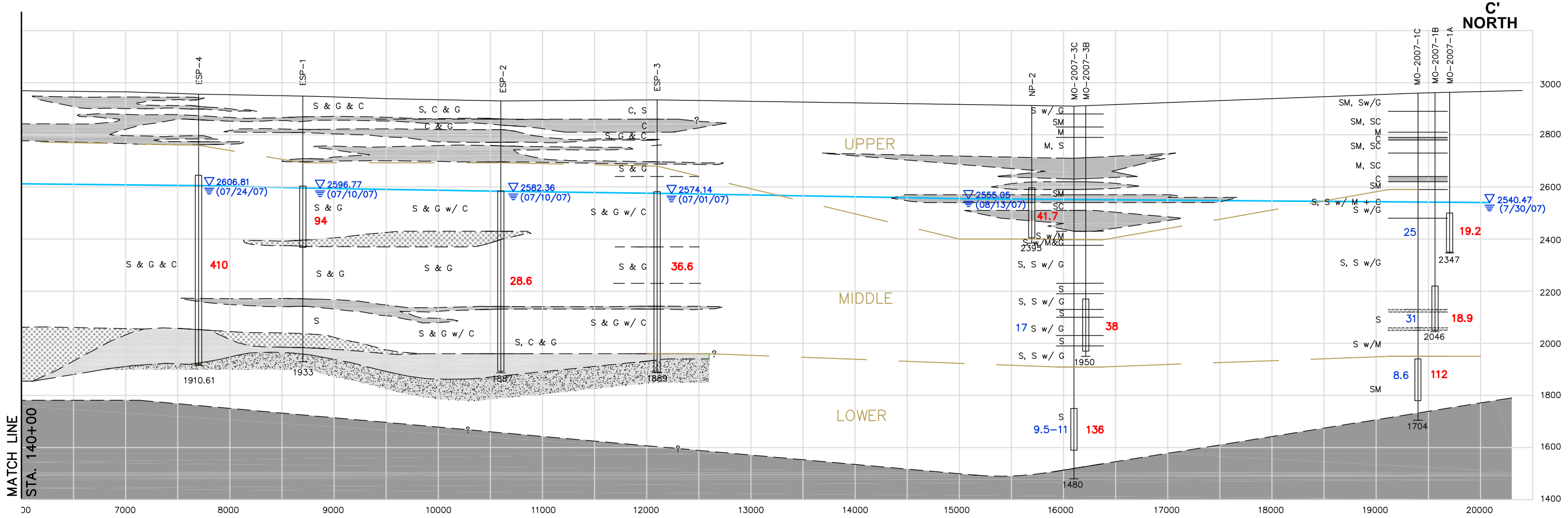
HYDRO GEO CHEM, INC.

C - C' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA STA. -90+00.00 TO 60+00.00

SHEET 1 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830166A	H.4a

C' NORTH



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- Sw/M — SAND w/ SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- S&G — SAND AND GRAVEL
- S&GW/C — SAND & GRAVEL WITH CLAY
- SMW/G — SILTY SAND WITH GRAVEL
- S W/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND +/– COBBLES AND/OR BOULDERS
- CLAY, SANDY CLAY, CLAY & GRAVEL
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE

0 500 1000 2000
SCALE IN FEET

ESP-3 — WELL ID

WELL

WATER LEVEL (DATE)

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7–30 ft/d

1,700 mg/L — SCREEN

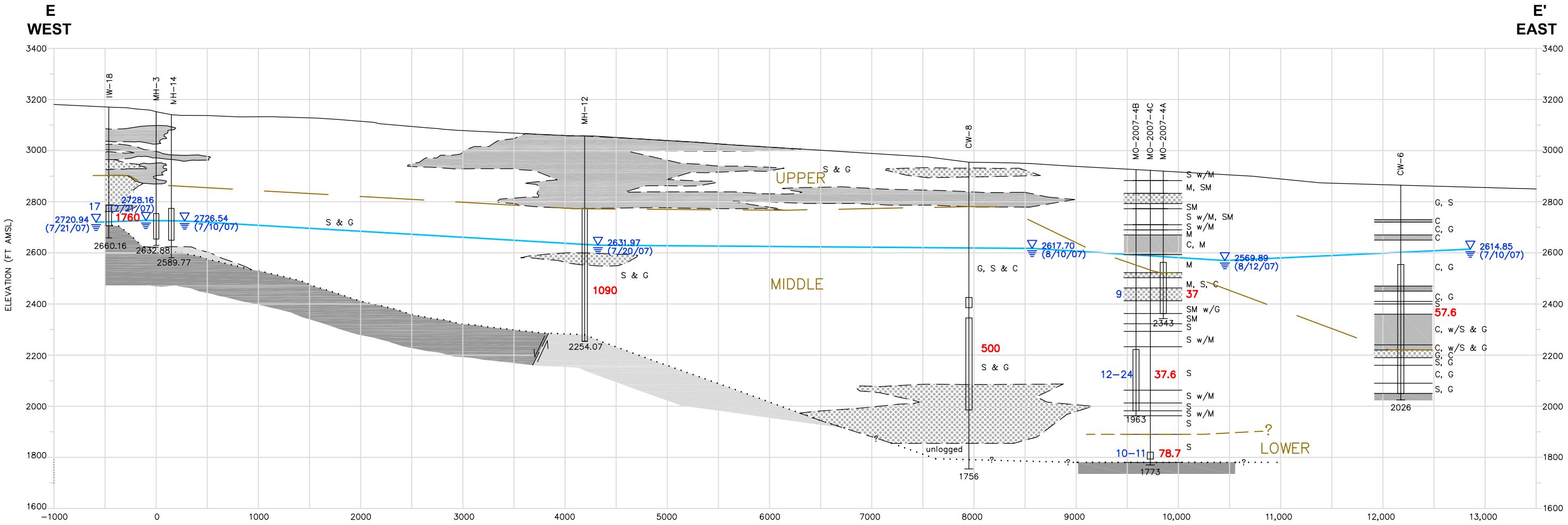
SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

HYDRO GEO CHEM, INC.

C - C' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

SHEET 2 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830166A	H.4b



LEGEND

BASIN FILL

- S&G — SAND AND GRAVEL
- GS&C — GRAVEL, SAND AND CLAY
- C — CLAY
- M — SILT
- G — GRAVEL
- SM w/G — SILTY SAND WITH GRAVEL
- S — SAND
- Sw/M — SAND w/ SILT
- SM — SILTY SAND
- CLAY AND SANDY CLAY
- GRAVEL, GRAVEL w/ SAND, SAND AND GRAVEL WITH BOULDERS
- CONGLOMERATE
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE
- LIMESTONE
- TOP OF BEDROCK

CW−8 — WELL ID

WELL

WATER LEVEL (DATE)

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7−30 ft/d

SCREEN

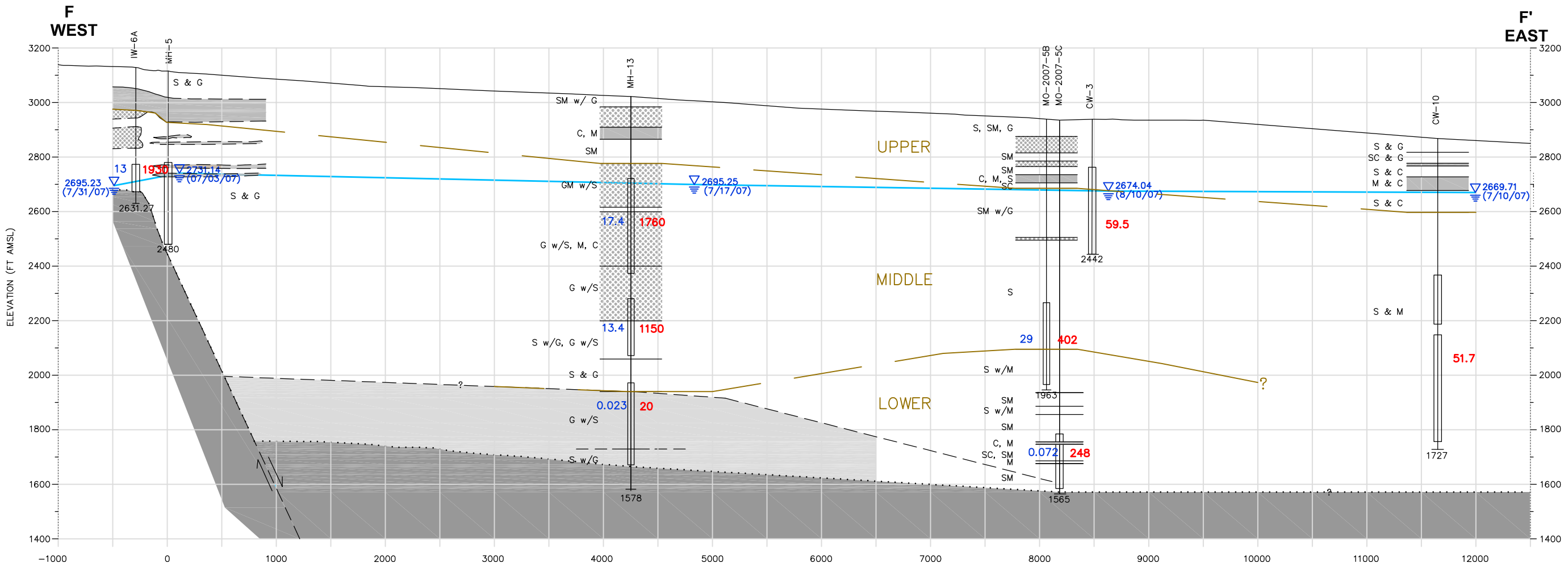
1,700 mg/L SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

0 500 1000
SCALE IN FEET

HYDRO GEO CHEM, INC.

E - E' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830167A	H.5



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- Sw/M — SAND WITH SILT
- SMw/G — SILTY SAND w/GRAVEL
- S — SAND
- G — GRAVEL
- S&G — SAND AND GRAVEL
- Sw/G — SAND WITH GRAVEL
- GRAVEL, GRAVEL w/SAND +/− COBBLES
- CLAY & SILTY LAYERS, SANDY CLAY
- OLIGOCENE PANTANO FORMATION

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE
- · · · · · TOP OF BEDROCK

HYDRAULIC CONDUCTIVITY (FEET/DAY) 7−30 ft/d
(APPENDIX E AND HGC, 2006a)

IW-6A — WELL ID

WELL

WATER LEVEL (DATE)

1,700 mg/L — SCREEN

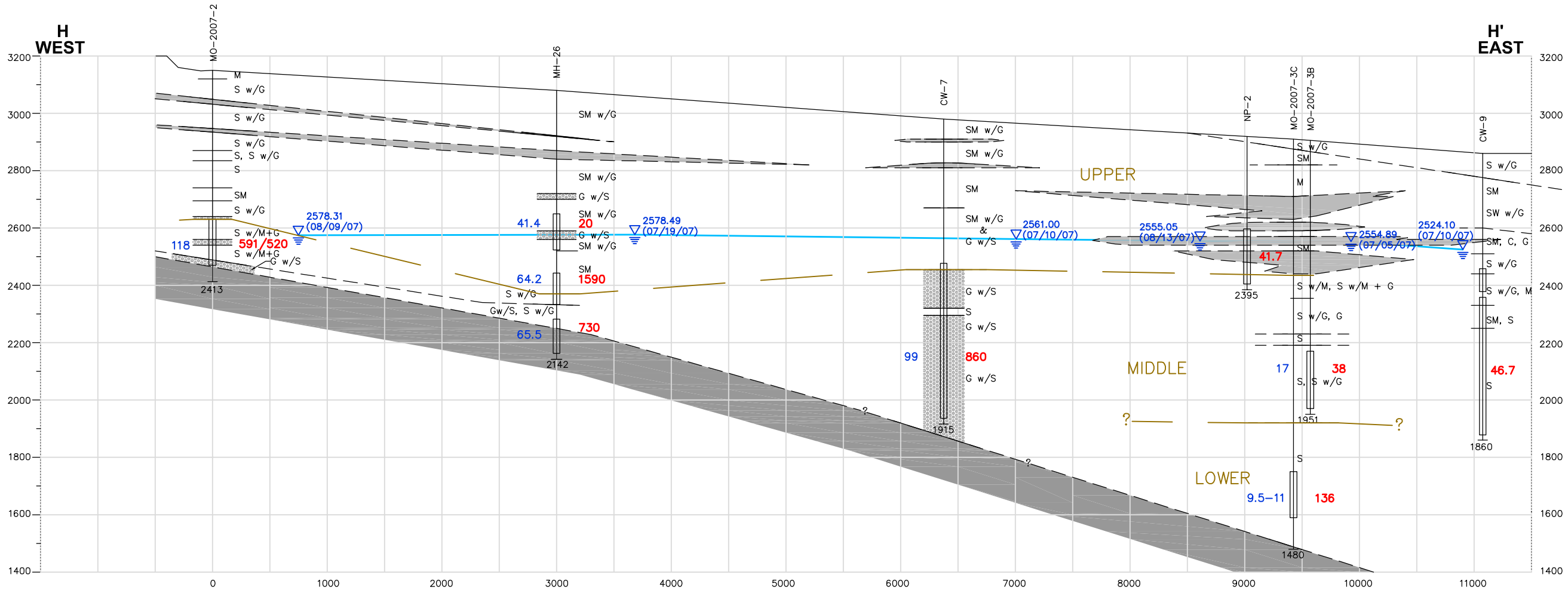
SULFATE CONCENTRATION (MILLIGRAMS PER LITER)
IN JULY THROUGH OCTOBER 2007 (APPENDIX B)
DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

0 500 1000
SCALE IN FEET

HYDRO GEO CHEM, INC.

F - F' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830168A	H.6



LEGEND

BASIN FILL

- C — CLAY
- M — SILTY
- SM — SILTY SAND
- S w/M — SAND WITH SILT
- SM w/G — SILTY SAND WITH GRAVEL
- Sw/M+G — SAND WITH SILT AND GRAVEL
- S — SAND
- S w/G — SAND WITH GRAVEL
- G w/S — GRAVEL WITH SAND
- GRAVEL, GRAVEL w/ SAND, +/– COBBLES
- CLAY AND SILT

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE

CW-7 — WELL ID

WELL

WATER LEVEL (DATE)

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7–30 ft/d

1,700 mg/L SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

SCREEN

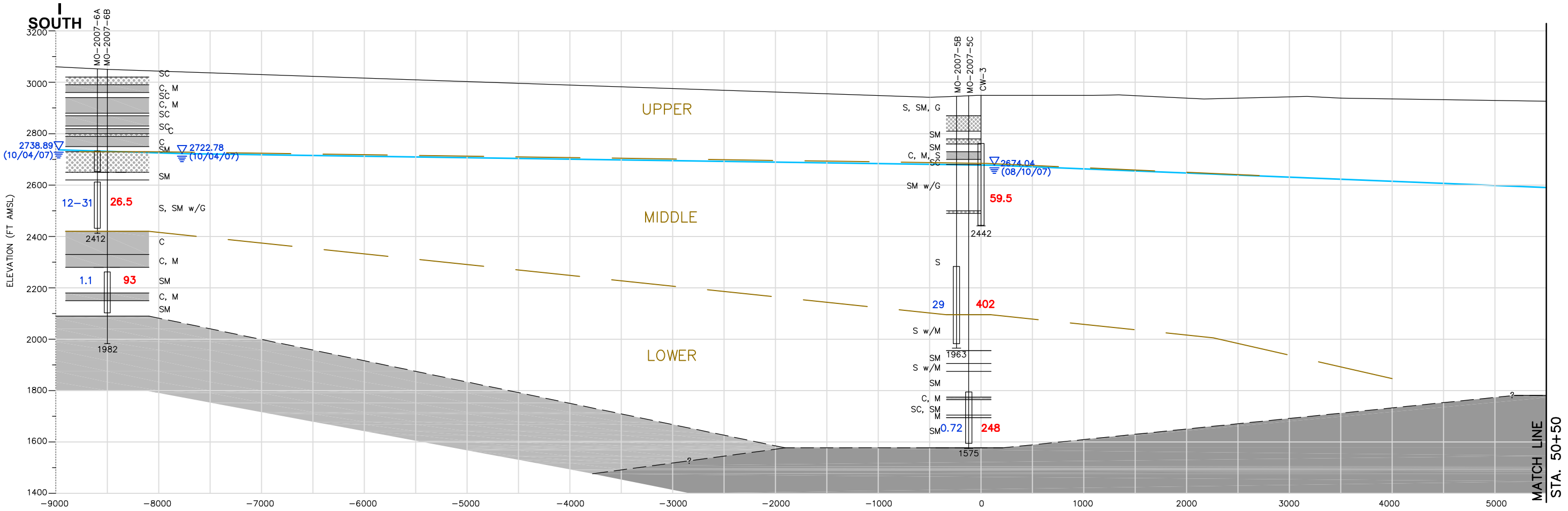
0 500 1000 2000

SCALE IN FEET

HYDRO GEO CHEM, INC.

H - H' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG
KW	11/29/07			7830169A	H.7



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- SC — CLAYEY SAND
- SM — SILTY SAND
- S w/M — SAND WITH SILT
- S&G — SAND AND GRAVEL
- S&Gw/C — SAND & GRAVEL WITH CLAY
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND AND/OR SILT
- CLAY, SANDY CLAY, CLAY & SILT
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE

ESP-3 — WELL ID

WELL

WATER LEVEL (DATE)

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7-30 ft/d

1,700 mg/L — SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

SCREEN

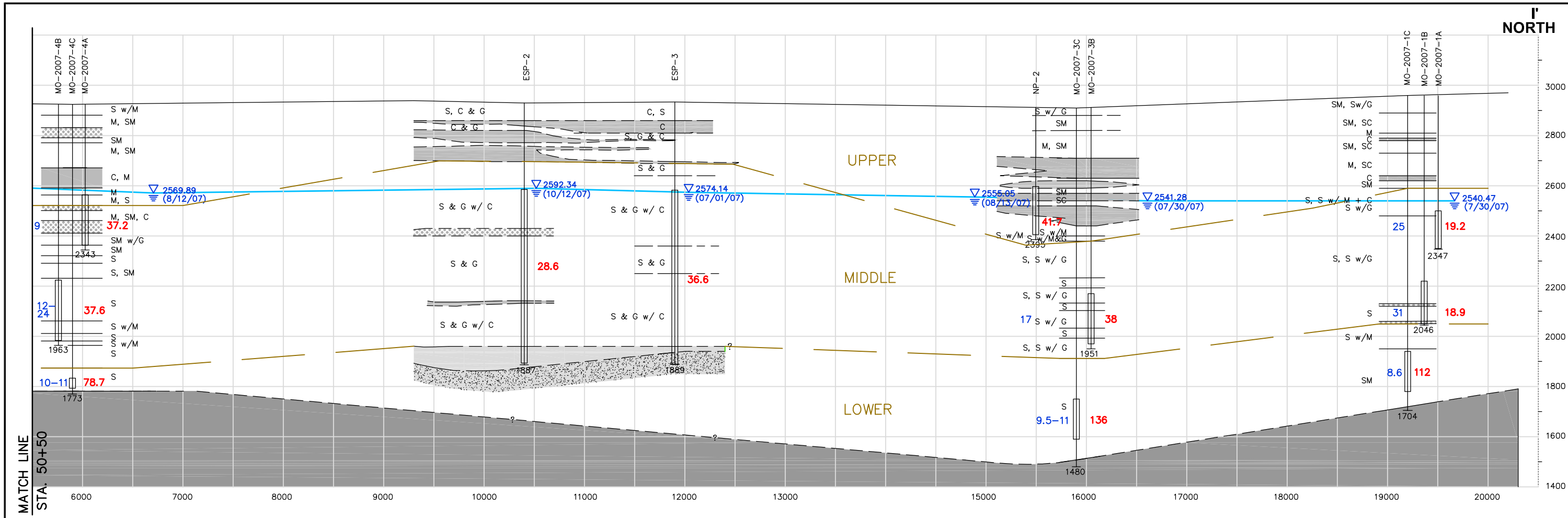
0 500 1000 2000
SCALE IN FEET

HYDRO GEO CHEM, INC.

I - I' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA STA. -90+00.00 TO 50+50.00

SHEET 1 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830170A	H.8a



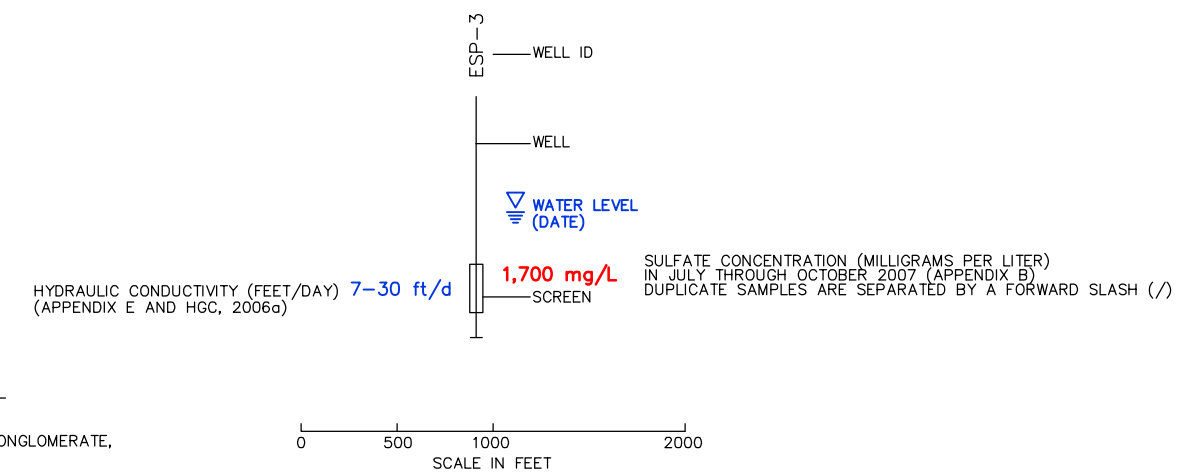
LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- S — SAND
- SC — CLAYEY SAND
- SM — SILTY SAND
- S w/M — SAND WITH SILT
- S&G — SAND AND GRAVEL
- S&G w/C — SAND & GRAVEL WITH CLAY
- S w/G — SAND WITH GRAVEL
- G — GRAVEL
- GRAVEL, GRAVEL w/ SAND, +/− COBBLES AND/OR BOULDERS
- CLAY, SANDY CLAY, CLAY & GRAVEL
- OLIGOCENE PANTANO FORMATION, CONGLOMERATE, SAND AND CLAY
- OLIGOCENE PANTANO FORMATION, QUARTZOSE SANDSTONE MARKER

BEDROCK COMPLEX

- FELSIC VOLCANICS
- CRETACEOUS ANGELICA ARKOSE

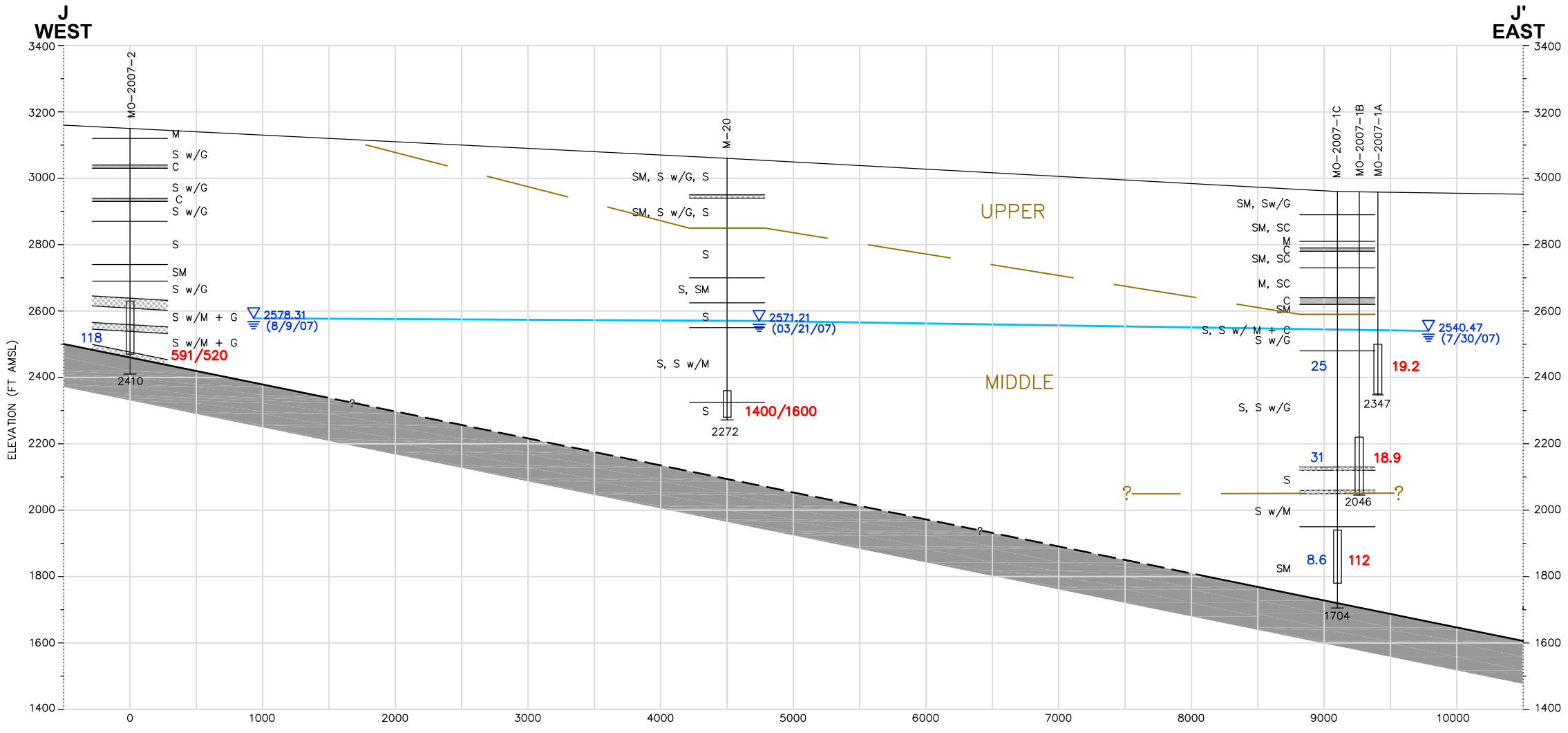


HYDRO GEO CHEM, INC.

I - I' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA STA. 50+50.00 TO 205+00.00

SHEET 2 OF 2

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830170A	H.8b



LEGEND

BASIN FILL

- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- Sw/M+C — SAND w/ SILT AND CLAY
- Sw/M — SAND w/ SILT
- S — SAND
- Sw/M+G — SAND w/ SILT + GRAVEL
- Sw/G — SAND w/ GRAVEL
- CLAY, CLAY & SILT, SANDY CLAY
- GRAVEL, GRAVEL W/ SAND

BEDROCK COMPLEX

- CRETACEOUS ANGELICA ARKOSE

0 500 1000 2000
SCALE IN FEET

MO-2007-1C — WELL ID

WELL

WATER LEVEL (DATE)

HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7-30 ft/d

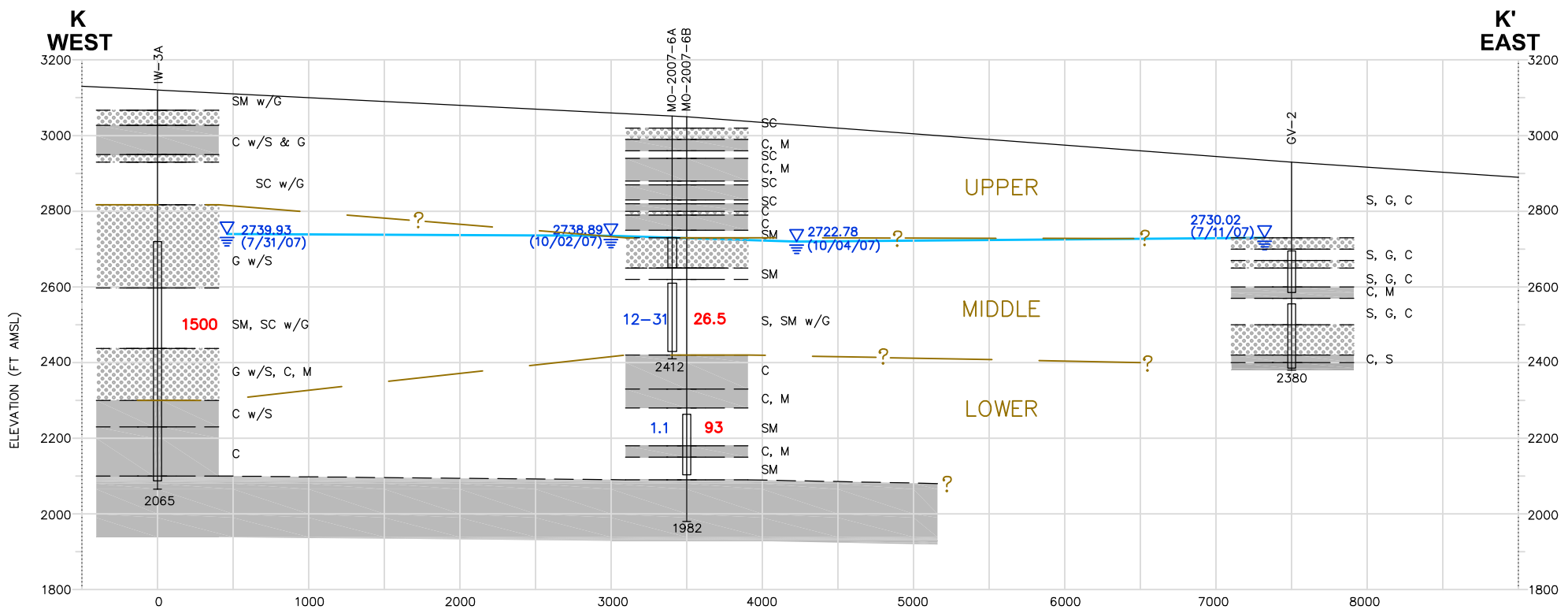
1,700 mg/L — SCREEN

SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

HYDRO GEO CHEM, INC.

J - J' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

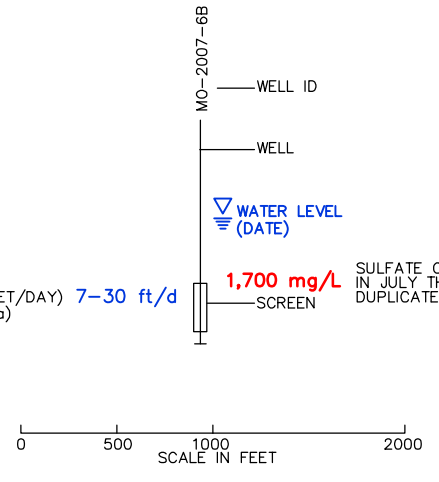
Approved	Date		Date	File Name	Figure
KW	11/29/07	DKW	11/29/07	7830171A	H.9



LEGEND

BASIN FILL

- C — CLAY
- M — SILT
- SC — CLAYEY SAND
- SM — SILTY SAND
- SMw/G — SILTY SAND WITH GRAVEL
- S — SAND
- S w/G — SAND WITH GRAVEL
- G w/S — GRAVEL WITH SAND
- GRAVEL
- CLAY AND SILT
- CEMENTED CONGLOMERATE
- RHYOLITE TUFF, FELSIC VOLCANICS



HYDRAULIC CONDUCTIVITY (FEET/DAY) (APPENDIX E AND HGC, 2006a) 7-30 ft/d

1,700 mg/L SULFATE CONCENTRATION (MILLIGRAMS PER LITER) IN JULY THROUGH OCTOBER 2007 (APPENDIX B) DUPLICATE SAMPLES ARE SEPARATED BY A FORWARD SLASH (/)

0 500 1000 2000
SCALE IN FEET

HYDRO GEO CHEM, INC.

K - K' CROSS SECTION SHOWING WATER QUALITY AND HYDRAULIC CONDUCTIVITY DATA SIERRITA TAILING IMPOUNDMENT AREA

Approved	Date	Revised	Date	Reference:	FIG.
KW	11/29/07			7830172A	H.10