

THE SILVER PRODUCER

FINANCIAL OVERVIEW

SILVER MARKET

HECLA PROPERTIES



Hecla Greens Creek 2012 Site 23/D Annual Report

July 9, 2013



Presentation Outline

- Placement data
- Stability
 - Compaction
 - Inspections
 - Slope monitoring
- Water level data
- Precipitation data
- Water quality at internal monitoring sites
- ABA data
- General site management

2011 Satellite Photograph Site 23/D, Mill Site, and 1350



Appendix 2 Site 23/D Conceptual Cross Section

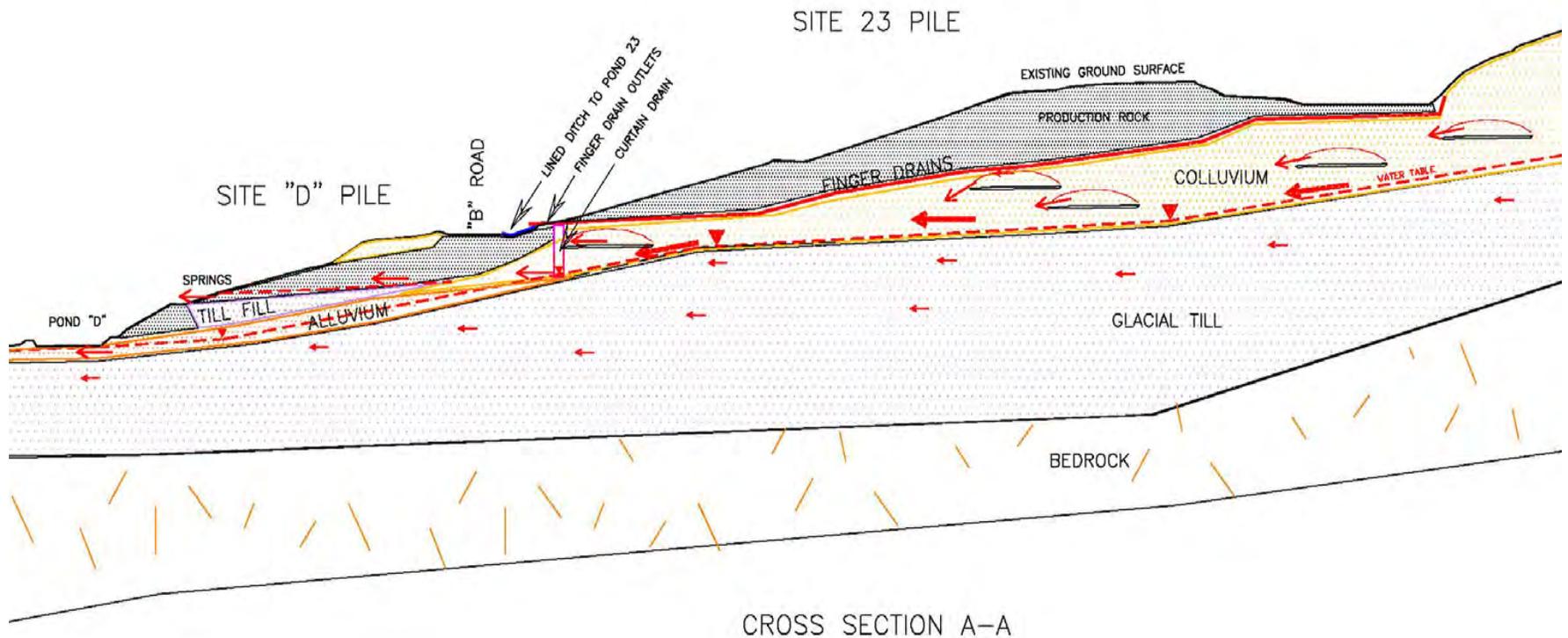


Table 3.1 Site 23 Placement Data

PRODUCTION ROCK PLACED AT SITE 23					ADDITIONAL PRODUCTION ROCK HAULED					
2012	Surveyed (cy)		Surveyed (tons)		Hauled To Tails from Site 23 (tons)		From UG Truck Counts (tons)			
Date	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Class 1	Class 2	Class 3	Total
1/31/2012	6,487	6,487	10,981	10,981	5,648	5,648	16,831	750	0	17,581
2/29/2012	8,517	15,004	14,417	25,398	4,600	10,248	12,603	360	0	12,963
3/29/2012	3,932	18,936	6,656	32,054	4,724	14,972	16,393	0	0	16,393
4/30/2012	7,806	26,742	13,214	45,268	1,590	16,562	17,120	1,410	60	18,590
5/31/2012	6,053	32,975	10,246	55,514	2,408	18,970	11,183	0	0	11,183
6/28/2012	6,543	39,338	11,076	66,590	5,416	24,386	7,496	0	0	7,496
7/31/2012	6,513	45,851	11,025	77,615	6,635	31,021	7,136	180	180	7,496
8/30/2012	4,414	50,265	7,472	85,087	3,180	34,201	13,092	600	300	13,992
9/310/2012	5,809	56,074	9,833	94,920	4,670	38,871	10,530	0	0	10,530
10/30/2012	5,359	61,433	9,072	103,992	2,485	41,356	12,150	330	240	12,720
11/28/2012	5,759	67,192	9,749	113,741	2,639	43,995	13,920	600	0	14,520
12/31/2012	5,565	72,757	9,420	123,161	1,834	45,829	10,680	60	90	10,830
TOTAL	72,757		123,161		45,829		149,134	4,290	870	154,294

Current volume ~1,222,457 tons

Site 23/D Stability

- **Compaction**

- Method specification includes spreading in less than 24” lifts with at least one pass with a bulldozer and four passes with a vibratory compactor

- **Inspections**

- Results of operator, engineering, environmental and regulatory inspections revealed no visible signs of instability
- No issues of non-compliance were noted in 6 USFS and 3 ADEC/ADNR inspections during 2012

Site 23/D Stability

- Slope monitoring
 - 13 survey hubs monitored with GPS during 2012
 - No large movements were identified
 - Inclinometer readings
 - IN-23-05-01 shows a minor creep at 79.3' (~1.7mm/yr)
 - IN-23-10-01 shows no movement since installation in 2010
 - IN-23-10-02 shows a minor creep at 114.4' (~1.1 mm/yr)
 - IN-23-10-08 shows a movement zone from 125.8' to 135.8' with the maximum movement at 131.8' (1.5 mm/yr)
 - IN-T-10-21 shows slight movement of less than 0.5 mm at 47.7', 67.7', and 1 mm at 79.7'
 - IN-920-10-05 shows slight movement of less than 0.75 mm at 12.7'
 - IN-1350-10-01 shows a minor creep at 83.5' (~3.2 mm)

Figure 3.30 IN-23-05-01 Incremental Displacement

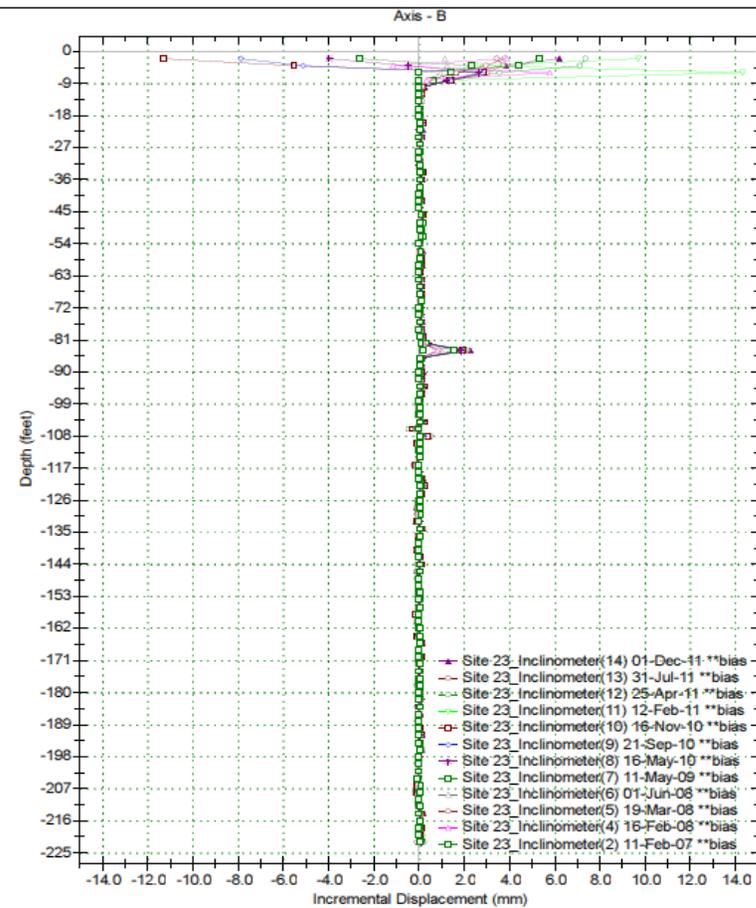
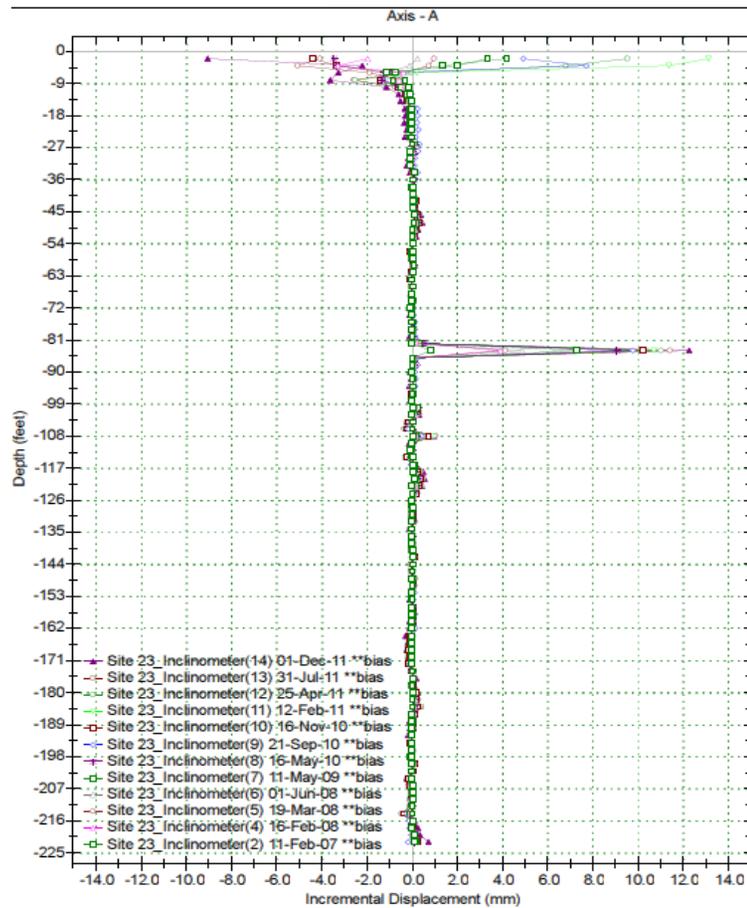
RST Instruments Ltd.

Borehole : Inclinometer
Project : Site 23
Location : IN-23-05-01
Northing : 20671.4520 ft
Easting : 17186.4160 ft

Figure 3.30 Site 23 Inclinometer Incremental Displacement

Inclinolysis

Spiral Correction : N/A
Collar Elevation : 948.840 ft
Borehole Total Depth : 222.0 feet
North Groove Azimuth :
Base Reading : 2006 Oct 07 10:28



Notes:
Zero reference is top of casing, at ~4.7 ft above ground surface.
Top section of casing/damage joint replaced in July 2011.
Bias-shift correction by pinning data sets at 150-ft depth (A_B axis).

Site 23/D Water Level Data

- Water table is below base of pile
- Well-drained pile and foundation indicate pile stability is maximized
- Perched water tables in colluvial wedge and alluvial sands
- Braided flow paths
- Distinct seasonal pattern, especially in alluvial sands
- Silt/clay till below colluvial wedge inhibits downward water movement

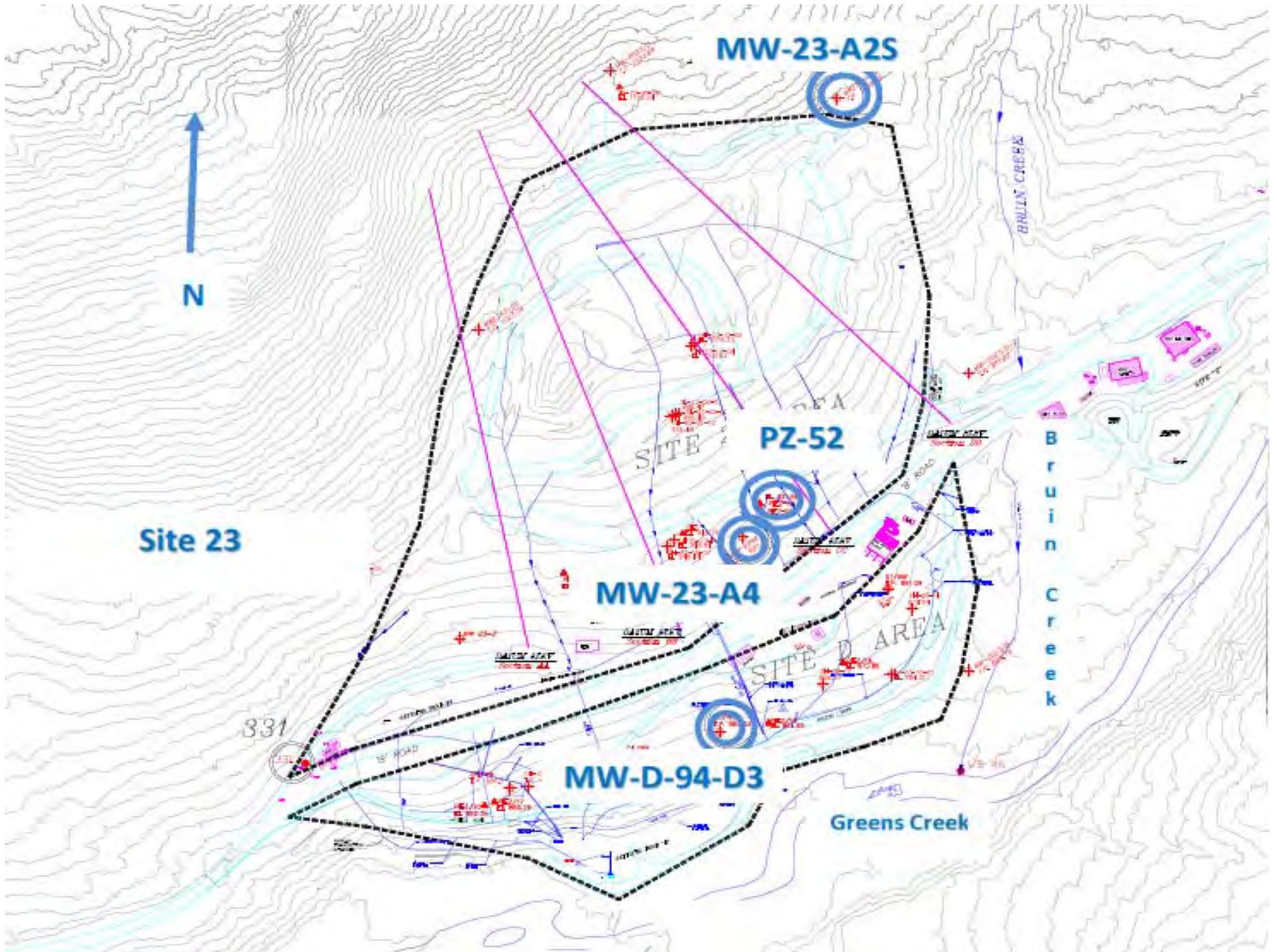


Figure 3.1 Pressure Data for Piezometer 52

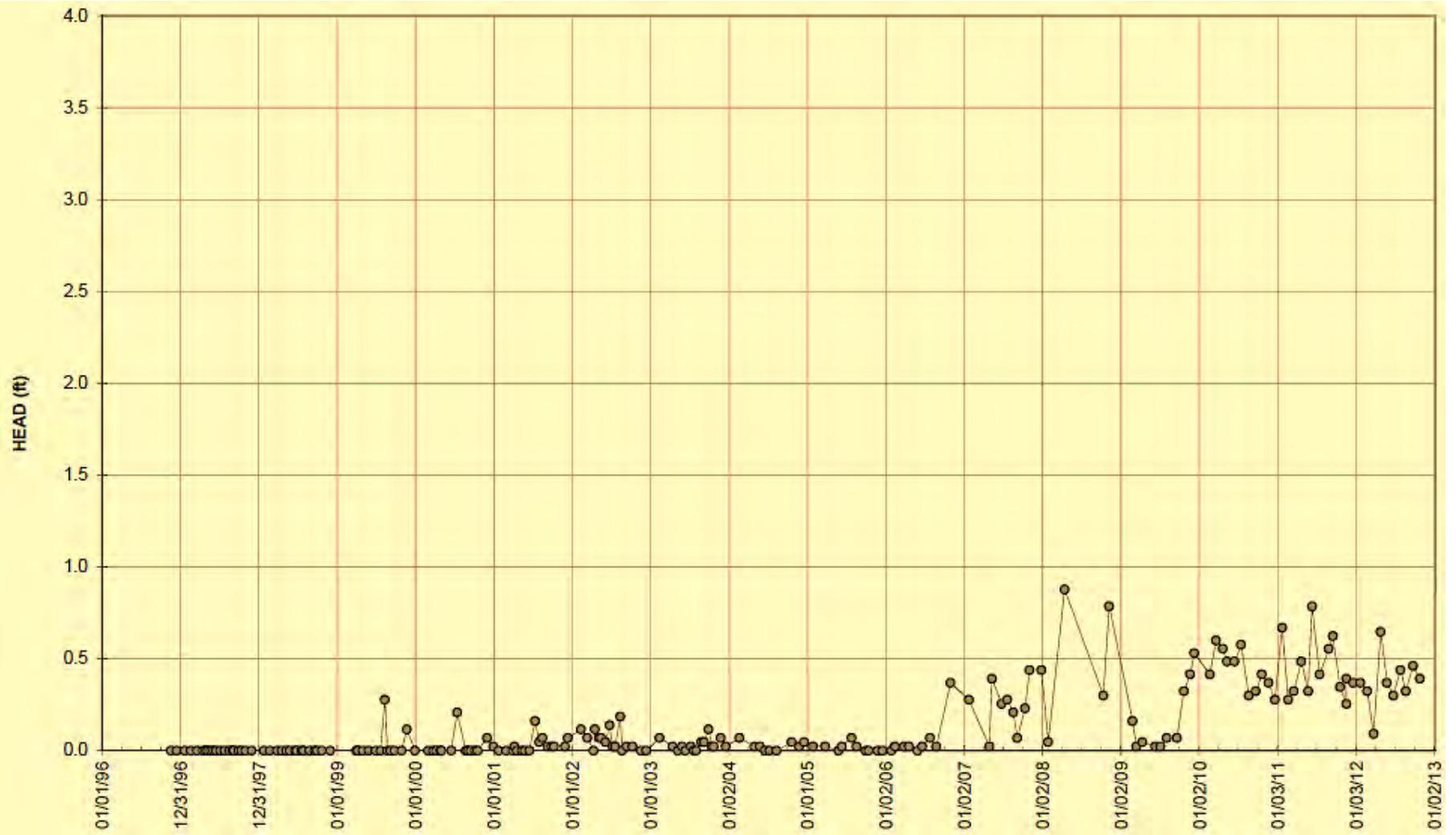


Figure 3.6/7 Water Levels MW-23-A2S/D

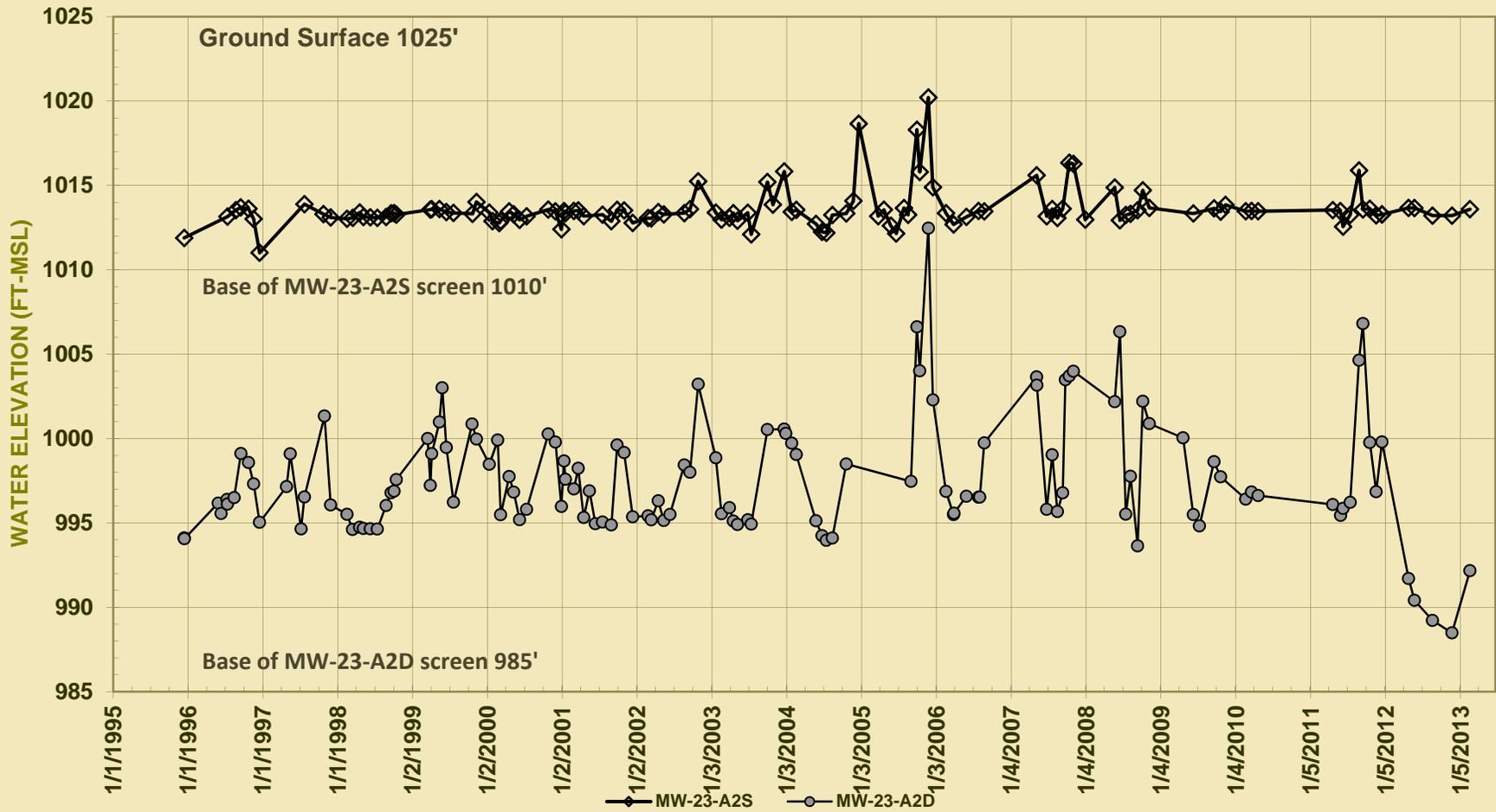


Figure 3.9 Water Level Data for Well MW-23-A4

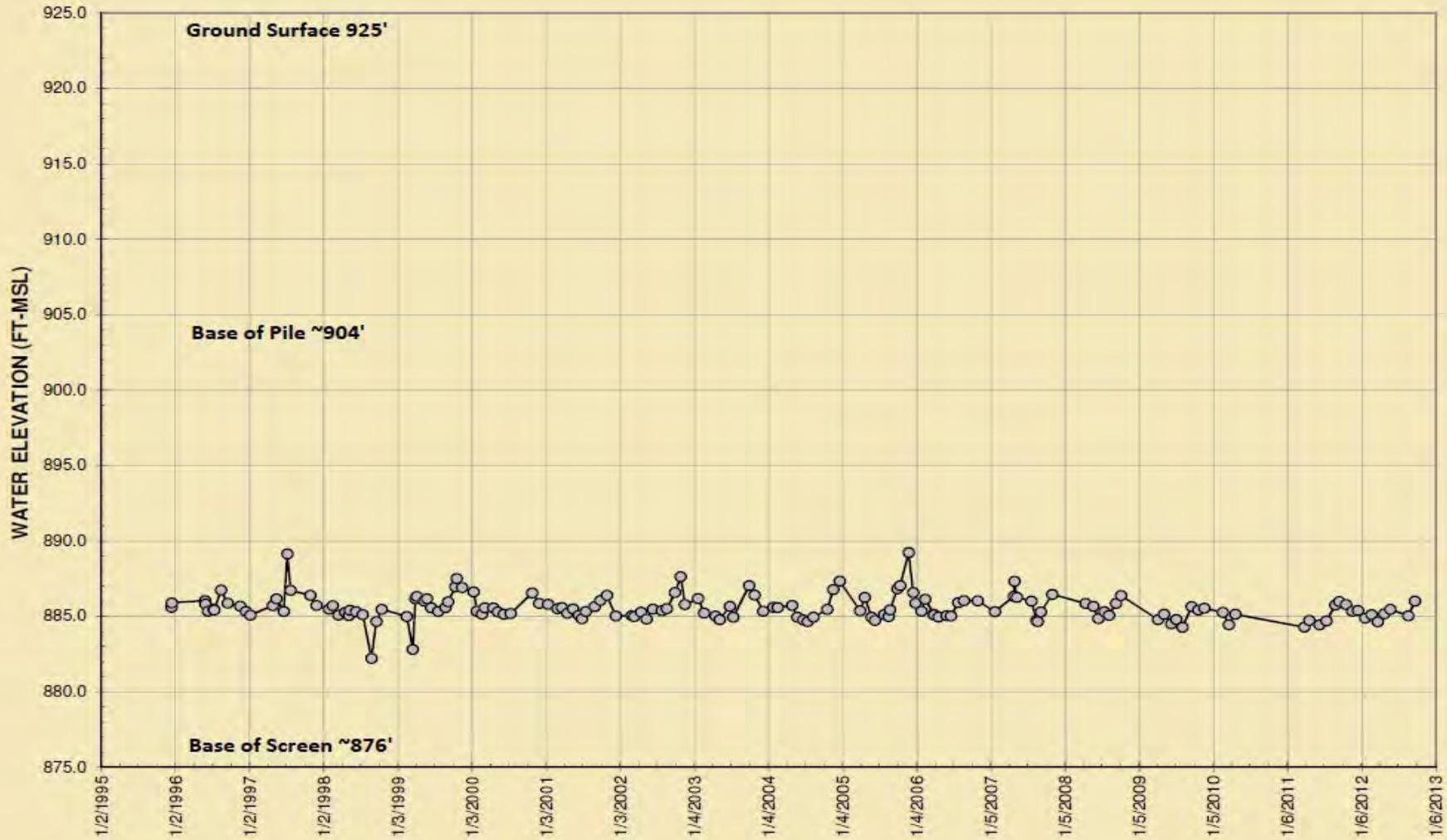


Figure 3.11 Water Level Data for Well MW-94-D3

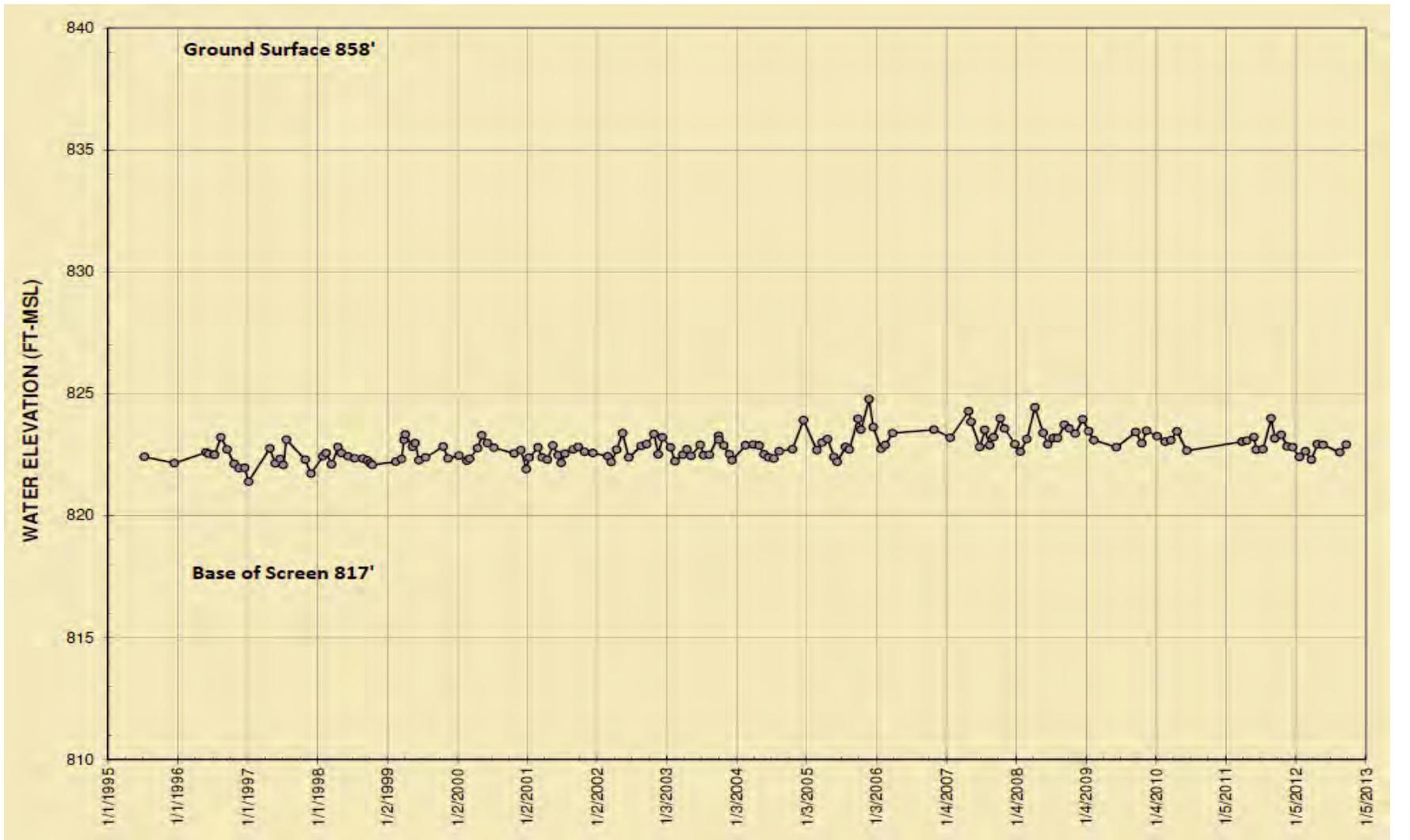
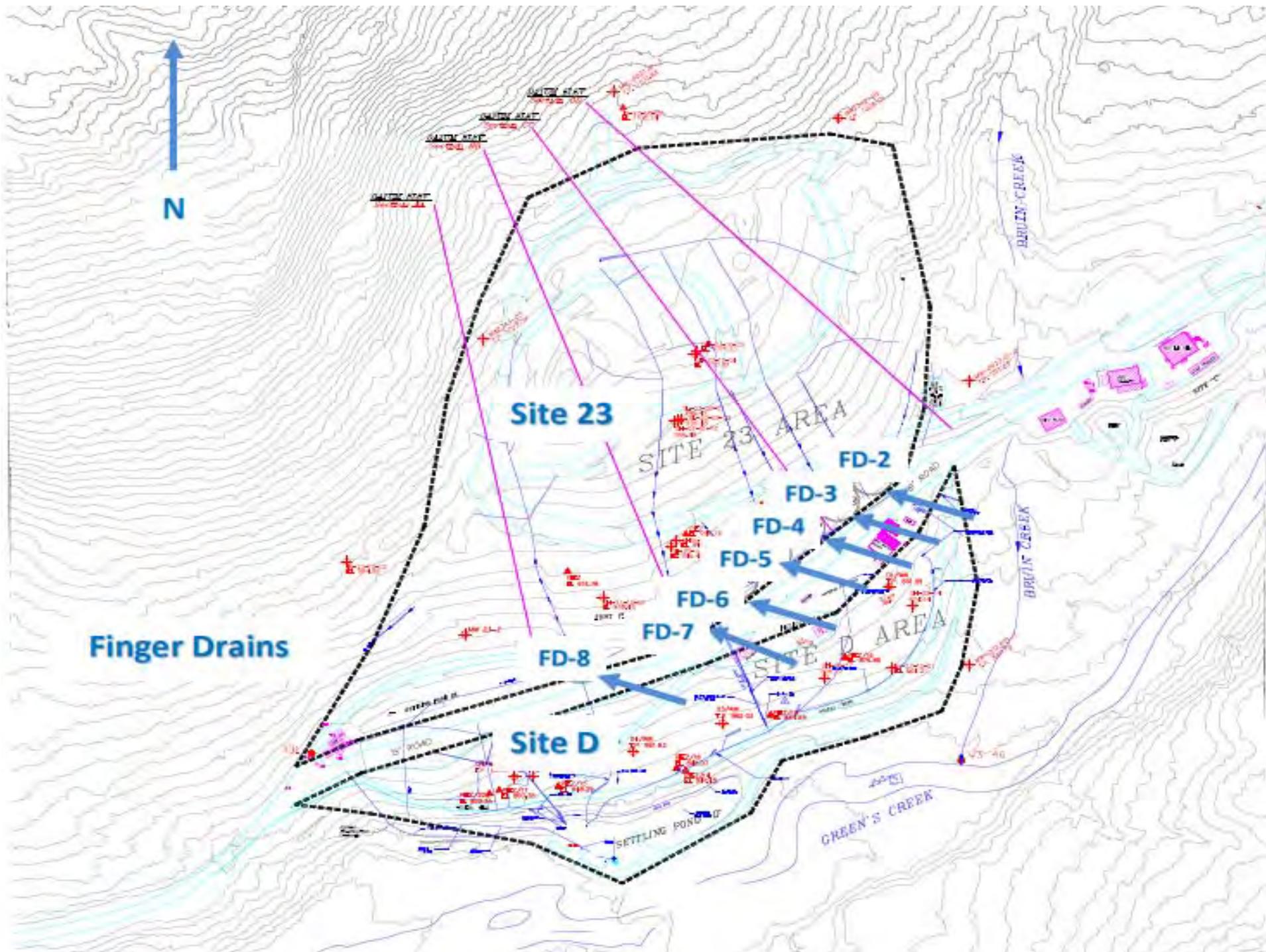


Table 3.2 Monthly Summary of Site 23/D Climate Data

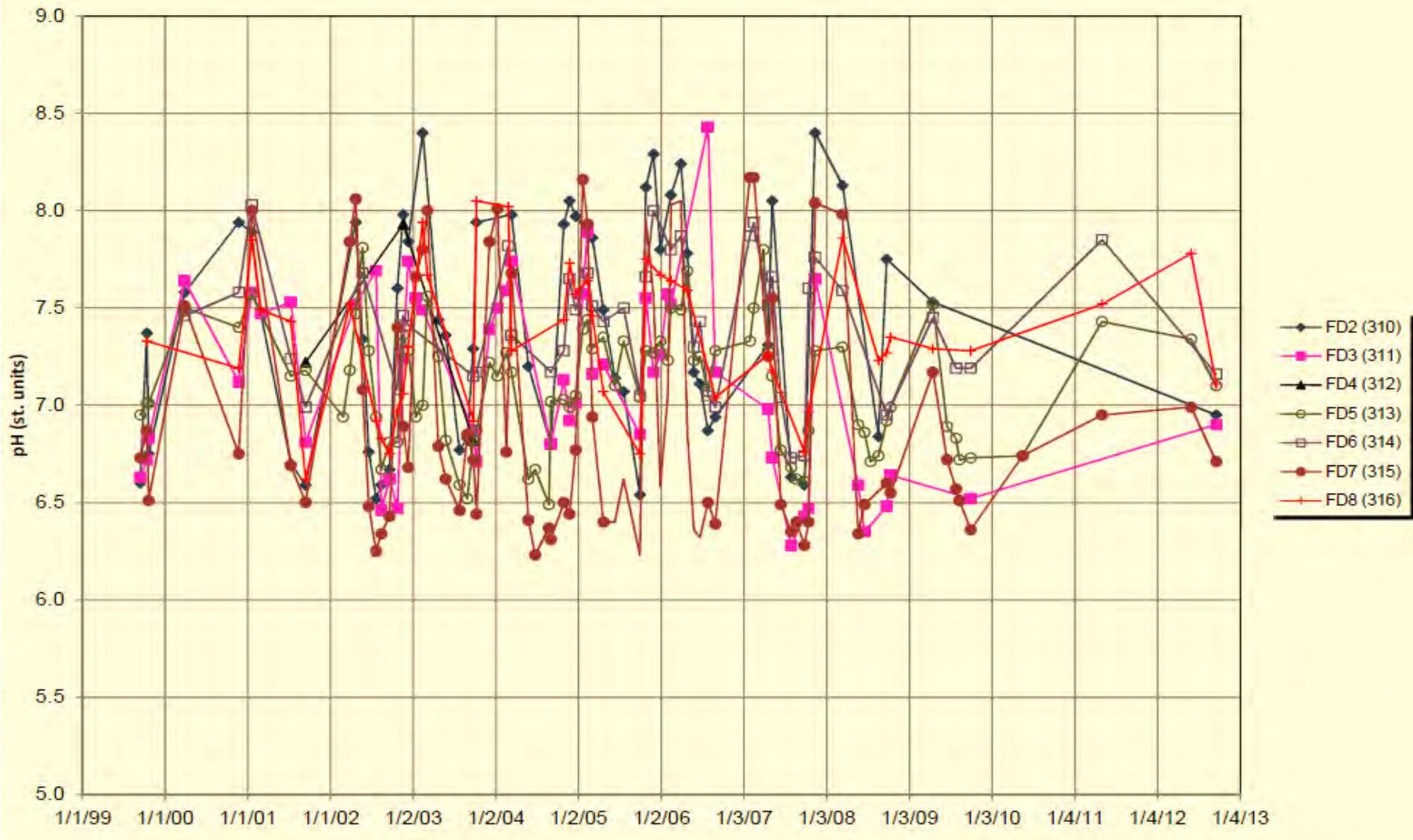
Month	Avg Temp (°C)	Precipitation (in)
January	-4.39	5.97
February	0.01	2.67
March	-0.55	2.39
April	3.89	1.75
May	5.05	5.23
June	9.60	5.20
July	11.26	3.92
August	11.75	6.48
September	8.56	10.99
October	2.43	4.34
November	-0.40	3.99
December	-4.88	2.67
2012	3.53	55.6

Site 23/D Internal Monitoring Sites: Water Quality Data

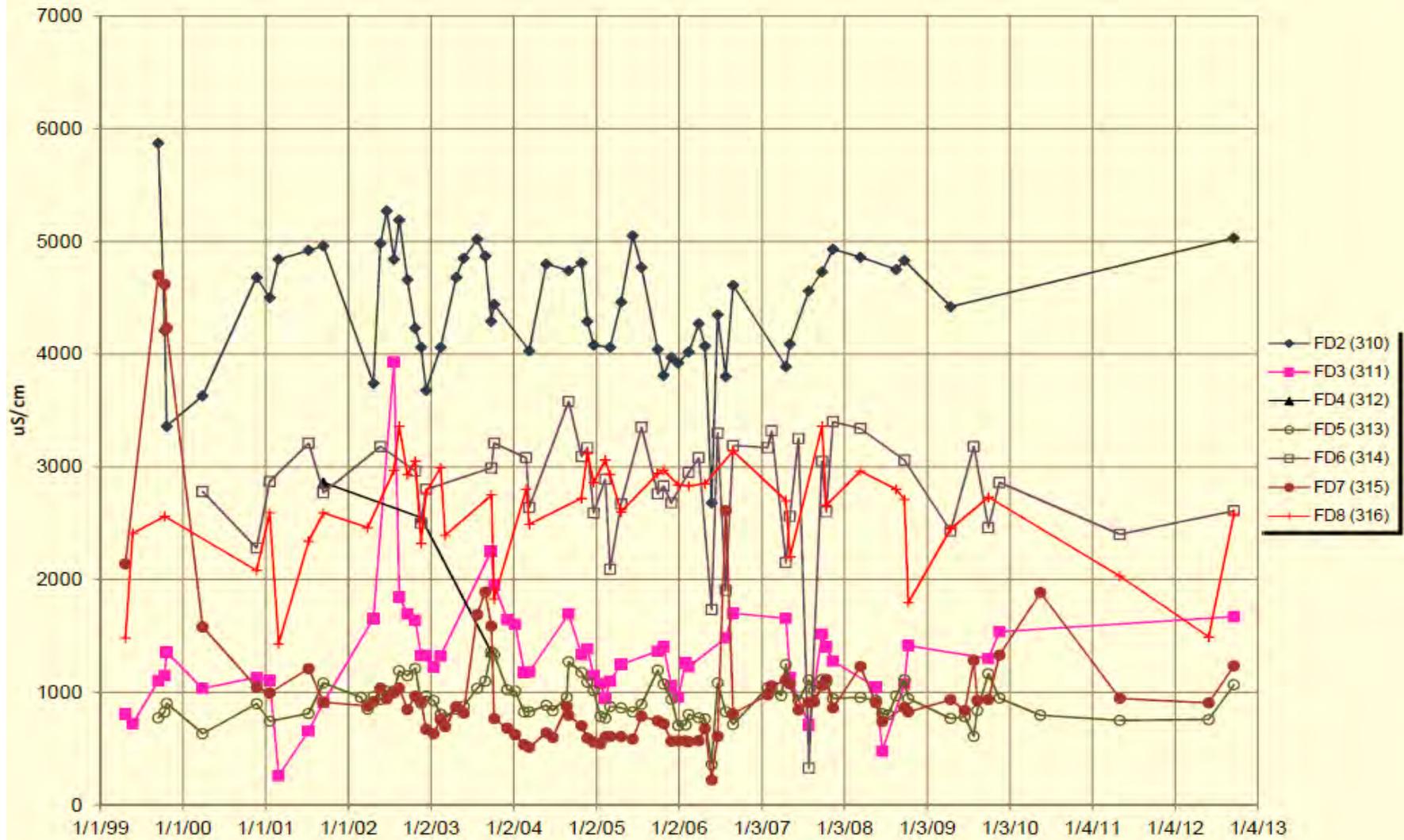
- Internal site waters are captured, treated, and discharged per HGCMC's NPDES/APDES permit
- pH values are between 6.3 and 8.0 (high buffering capacity)
- Conductivities are between 200 and 5000 umho/cm
- Variations in conductivity reflect differences in contributions of groundwater and infiltration, seasonal fluctuations
- Zinc concentrations are variable (typically less than 5 mg/l)
- Precipitation, mixing, and sorption mechanisms determine metals concentrations



Site 23/D Finger Drains Figure 3.14a – pH

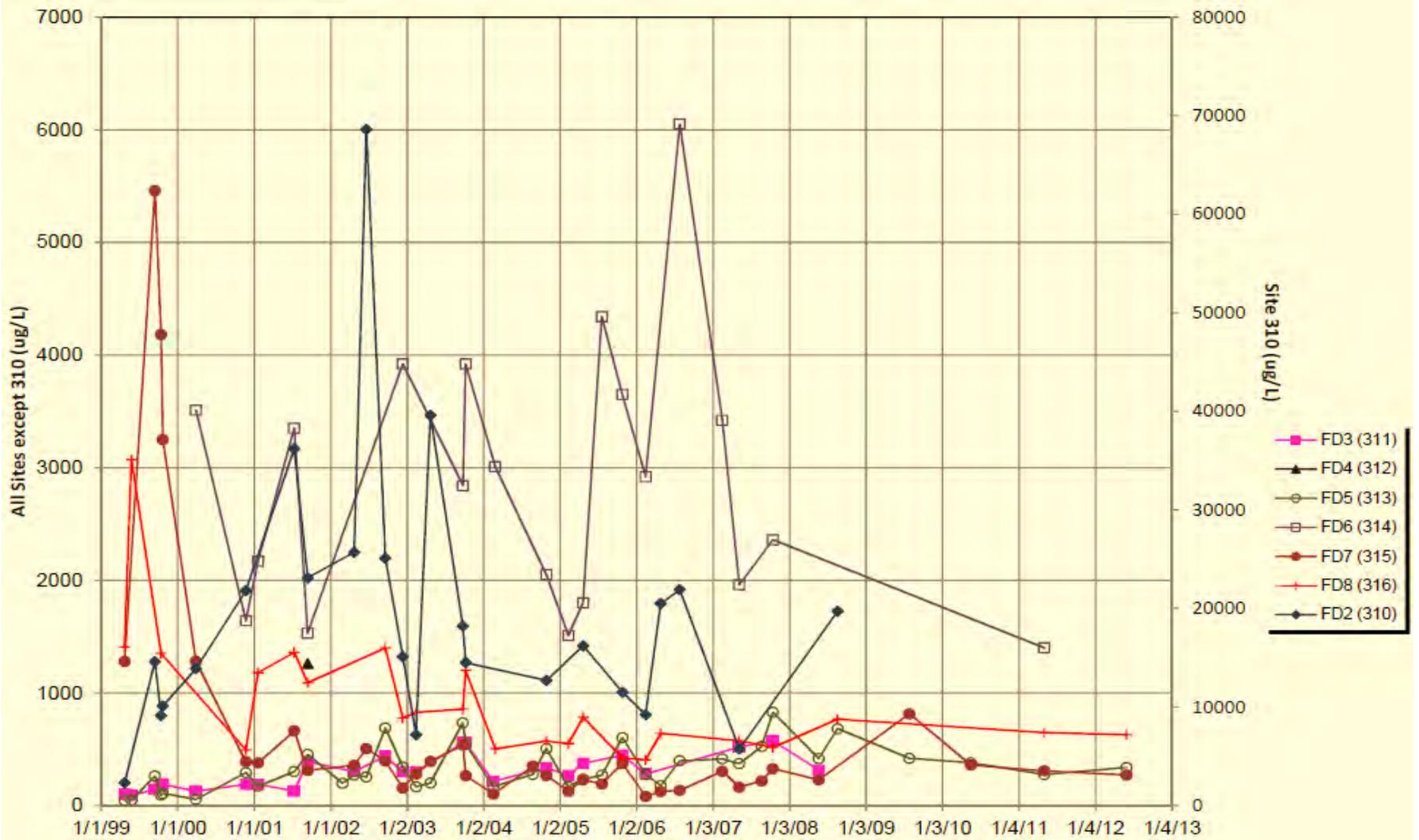


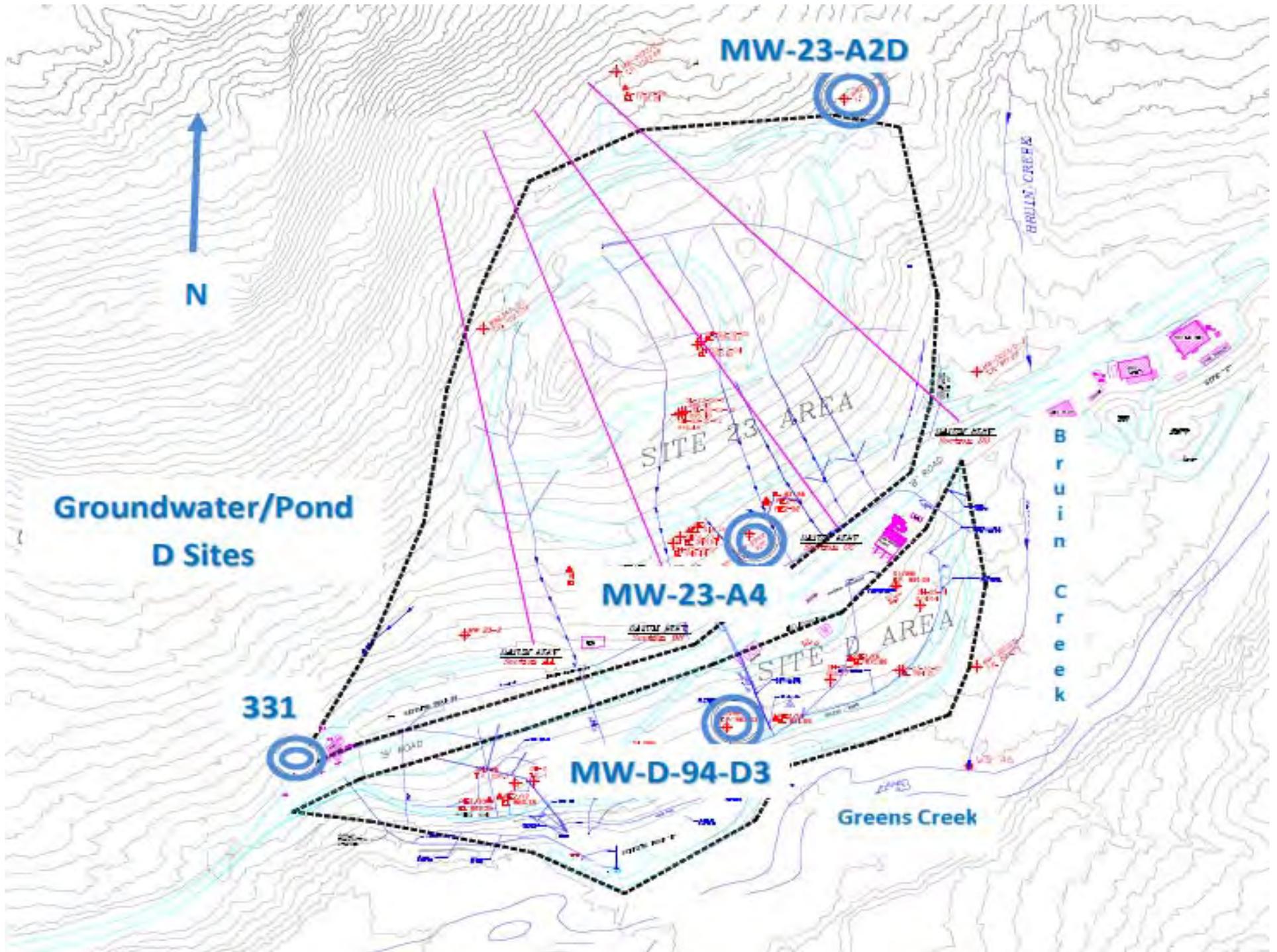
Site 23/D Finger Drains Figure 3.17a – Conductivity



Site 23/D Finger Drains

Figure 3.20a – Dissolved Zinc





MW-23-A2D

N

Groundwater/Pond
D Sites

MW-23-A4

331

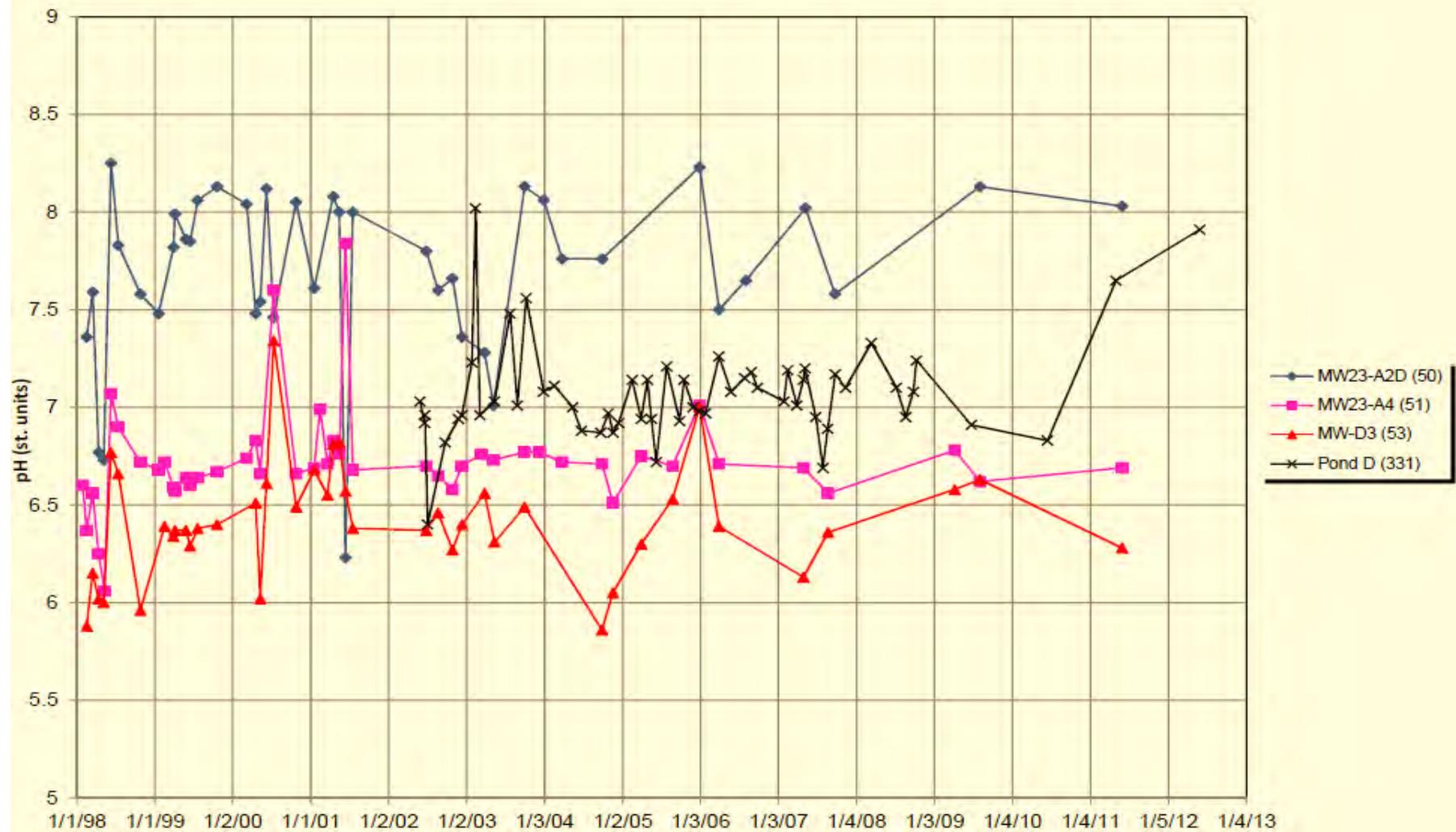
MW-D-94-D3

Greens Creek

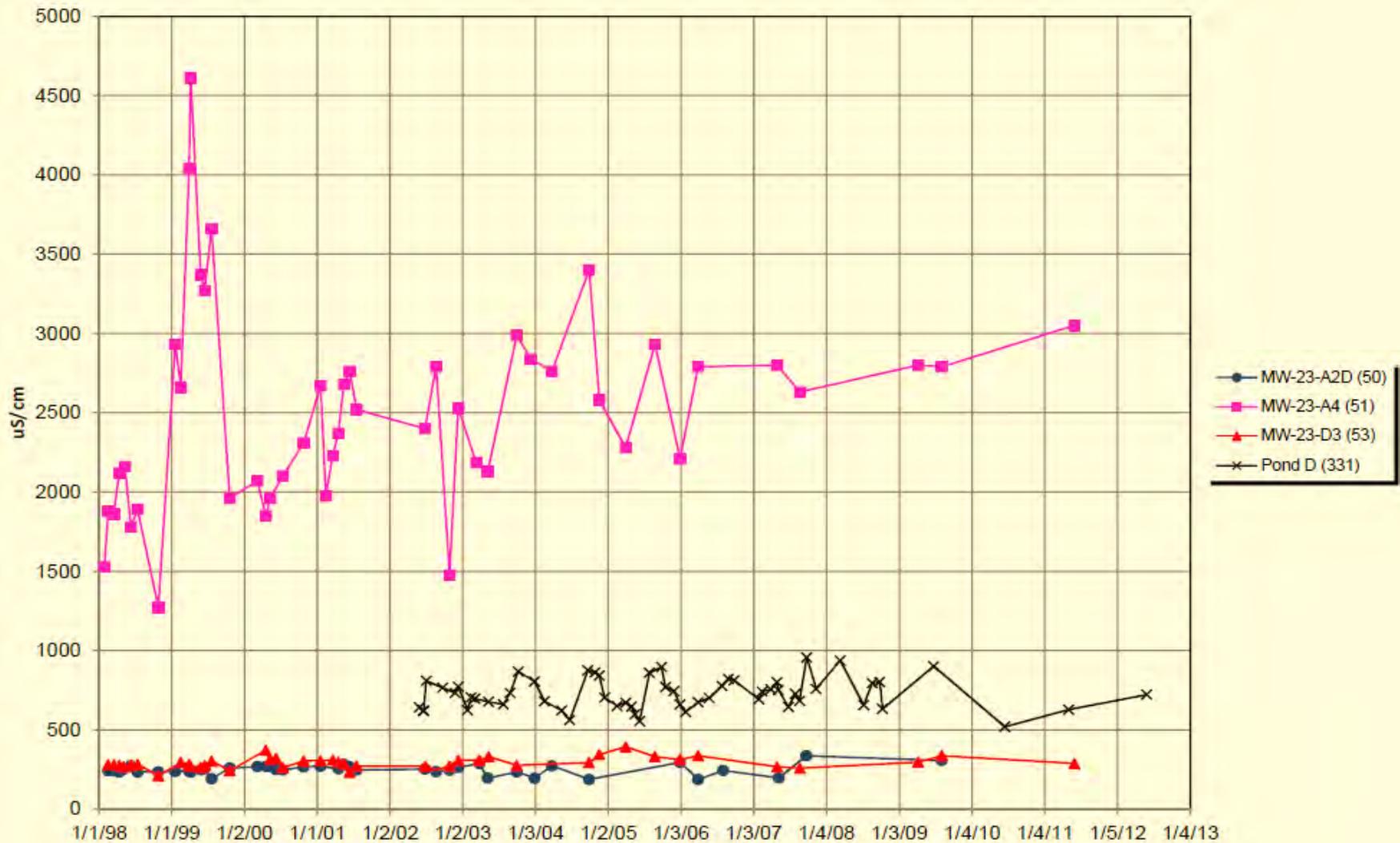
Bruin
Creek

Site 23/D Wells and D Pond

Figure 3.14b – pH



Site 23/D Wells and D Pond Figure 3.17b – Conductivity



Site 23/D Wells and D Pond Figure 3.20b – Dissolved Zinc

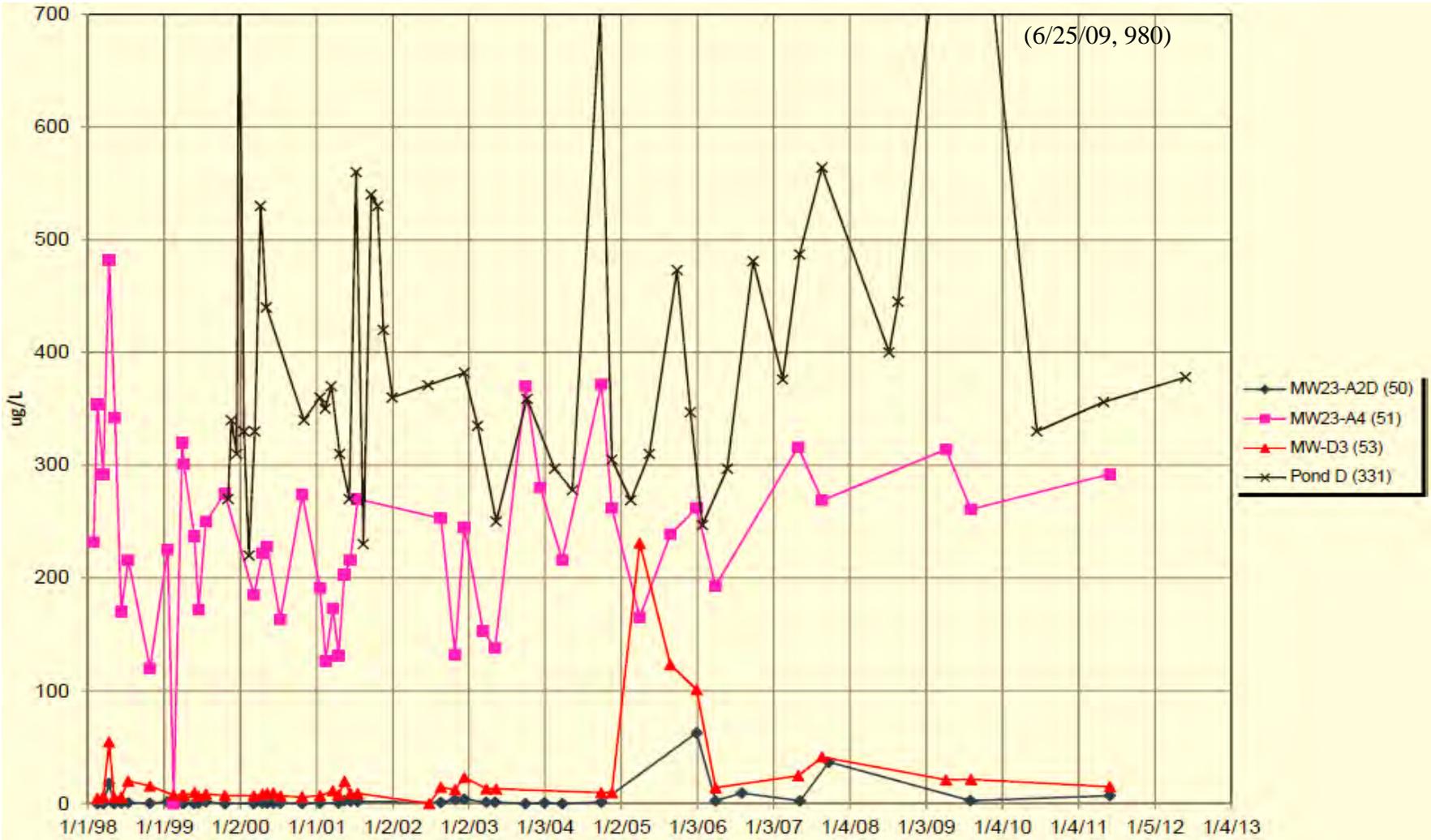
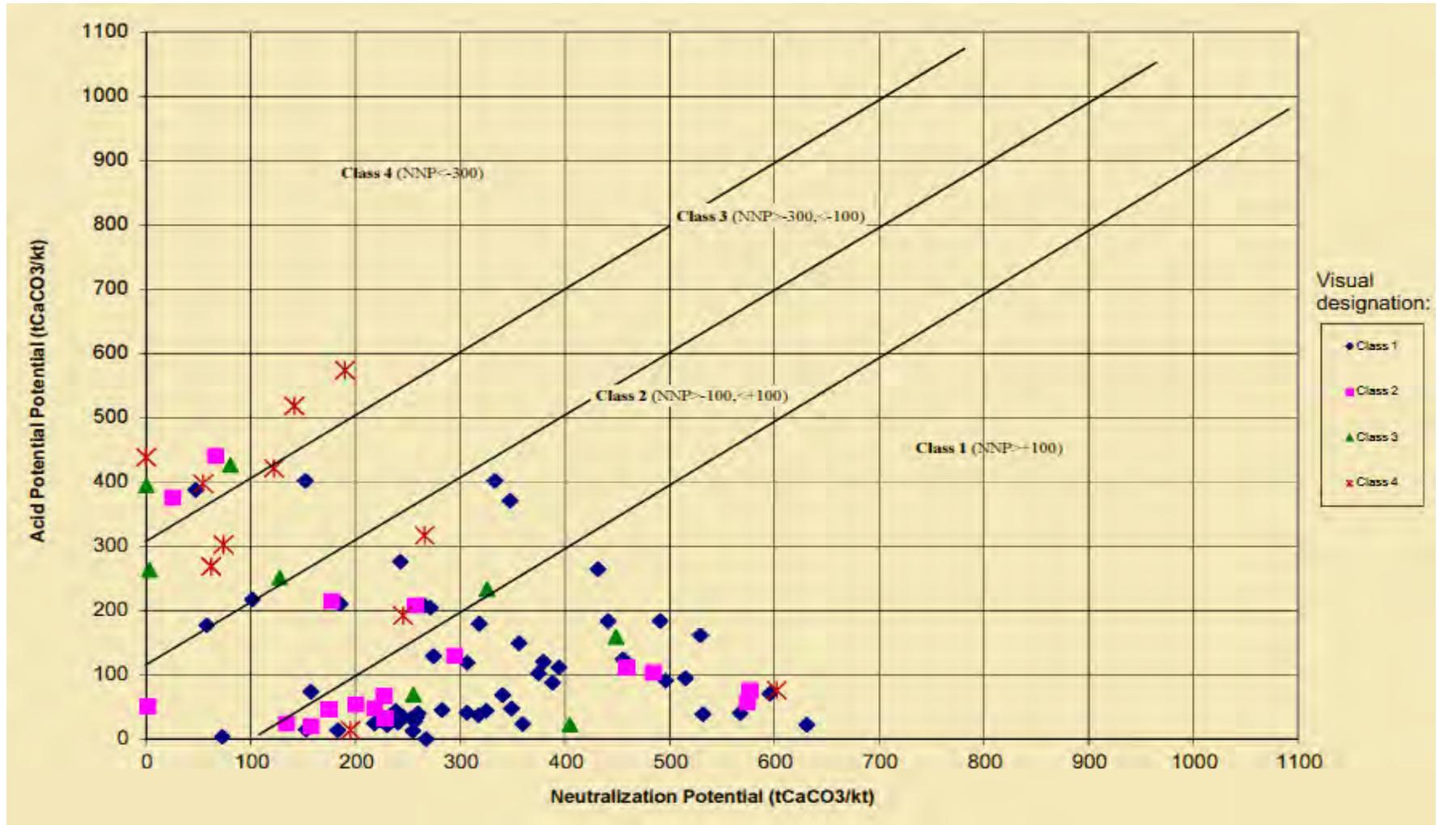


Figure 3.28 ABA Data Underground Rib Sampling



Site 23/D General Site Management

- Designated placement zones are marked on the active lift of the site and production rock is placed according to class
- Outer surfaces have at least two feet of Class 1 rock
- Class 2 and 3 rock are blended and placed in the center of the pile
- Use of interim storage area for reclamation activities
 - 1350
 - B Pond berm
 - Pipeline excavation
 - D Pond berm

Cover Design



Growth Medium

Capillary Break

Barrier Layer

Capillary Break

2 meters

Site 23 Cover Excavation



Site 23 Cover Excavation

Growth Medium

Capillary Break

Barrier Layer

Capillary Break



Cover Performance Monitoring

- Greater than 85% water saturation in barrier layer minimizes oxygen ingress
- Water percolation through barrier layer 15-20% of annual precipitation
- Barrier layer does not freeze during the winter
- Trench flow was about 70-80% upper capillary break and 20-30% growth medium. The lag time between peak precipitation and peak trench flow is about 6 hours for dry conditions and 2 hours for wet conditions
- Modeling with Hydrus-2D/3D software compares favorably with field results
- Numerical modeling of alternative cover designs indicates that the upper capillary break is necessary to maximize lateral flow and prevent buildup of head pressures in the growth medium and barrier layer
- OSU vegetation assessment recommends allowing development of native spruce/hemlock vegetation with windthrow to promote nutrient mixing and minimize erosion

Site E Removal Activities 2011



960 Site Waste Rock Removal



960 Site Waste Rock Removal

Site 347		Before Removal	After Removal	After Removal	After Removal
Parameter	Unit	9/12/95	9/28/06	8/17/09	6/17/10
pH	st. units	6.1	7.6	7.5	7.3
Sulfate	mg/l (tot)	1300	161	230	136
Calcium	mg/l (diss)	412	64	102	64
Magnesium	mg/l (diss)	164	21	28	21
Iron	mg/l (diss)	5.5	0.2	ND	0.61
Manganese	mg/l (diss)	7.1	0.4	0.272	0.196
Zinc	mg/l (diss)	11	0.1	0.054	0.035
Lead	mg/l (diss)	0.004	ND	0.00008	ND
Nickel	mg/l (diss)	0.3	0.005	0.007	0.0015

1350 Removal Activities



1350 Removal Activities

