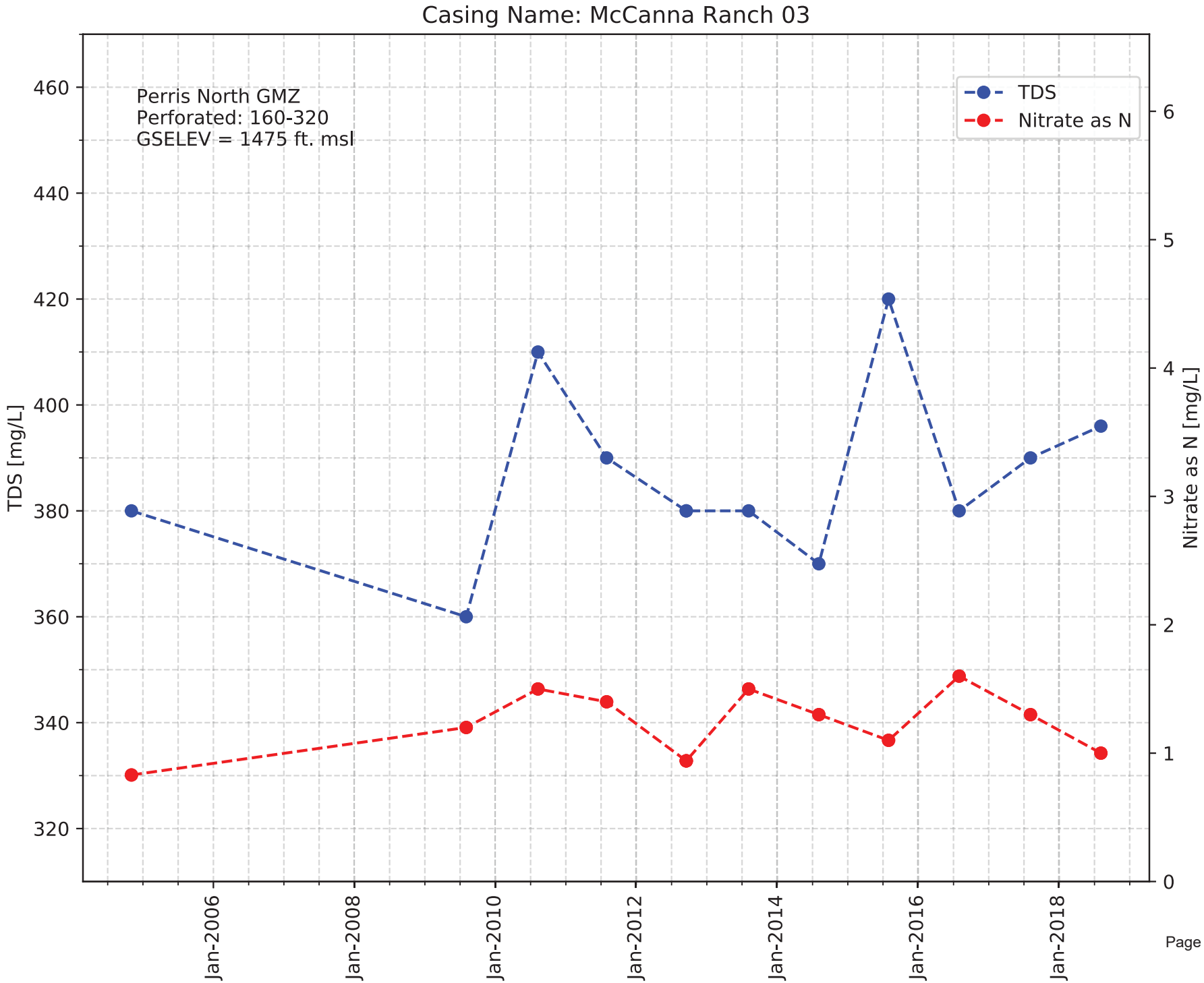
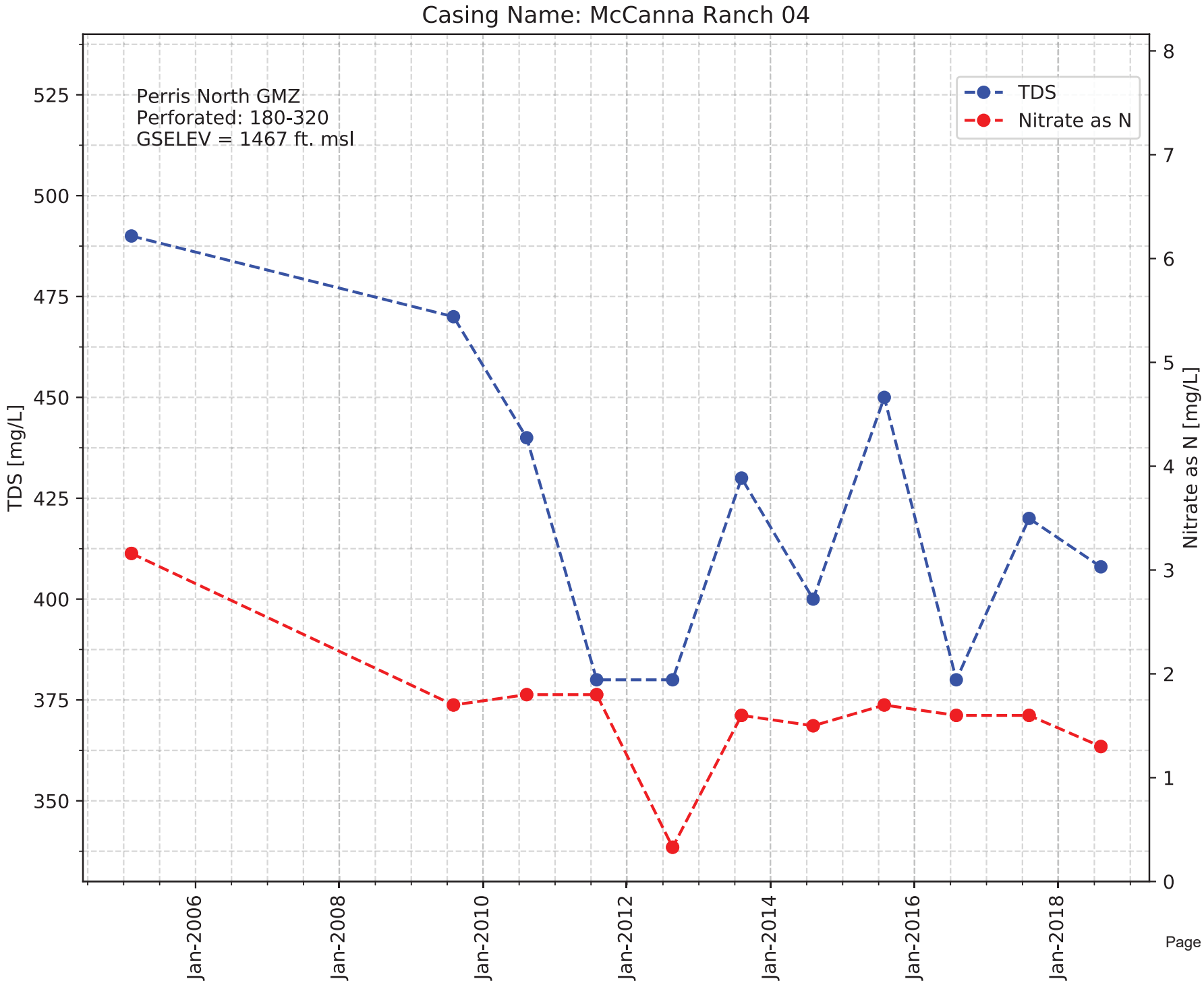
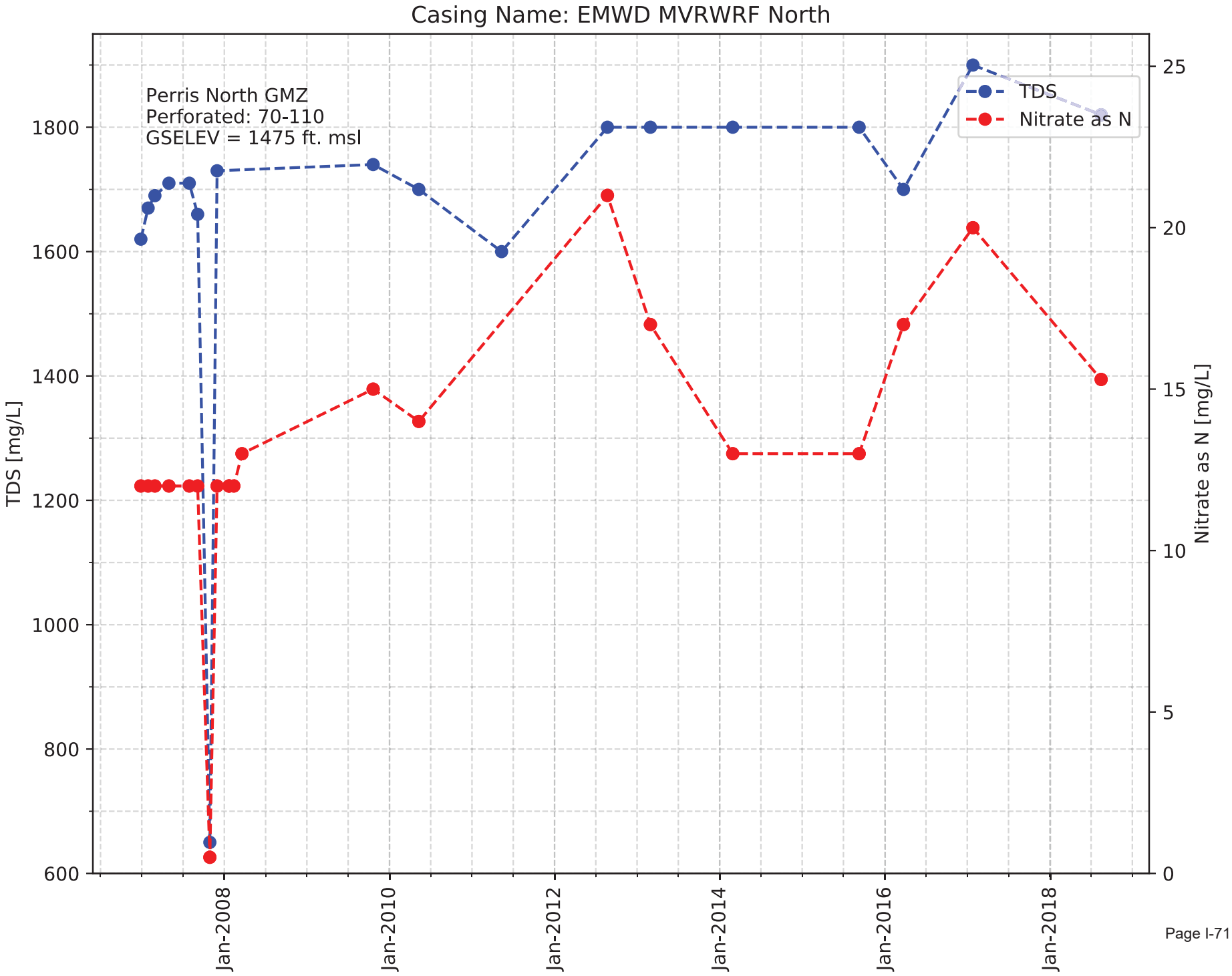
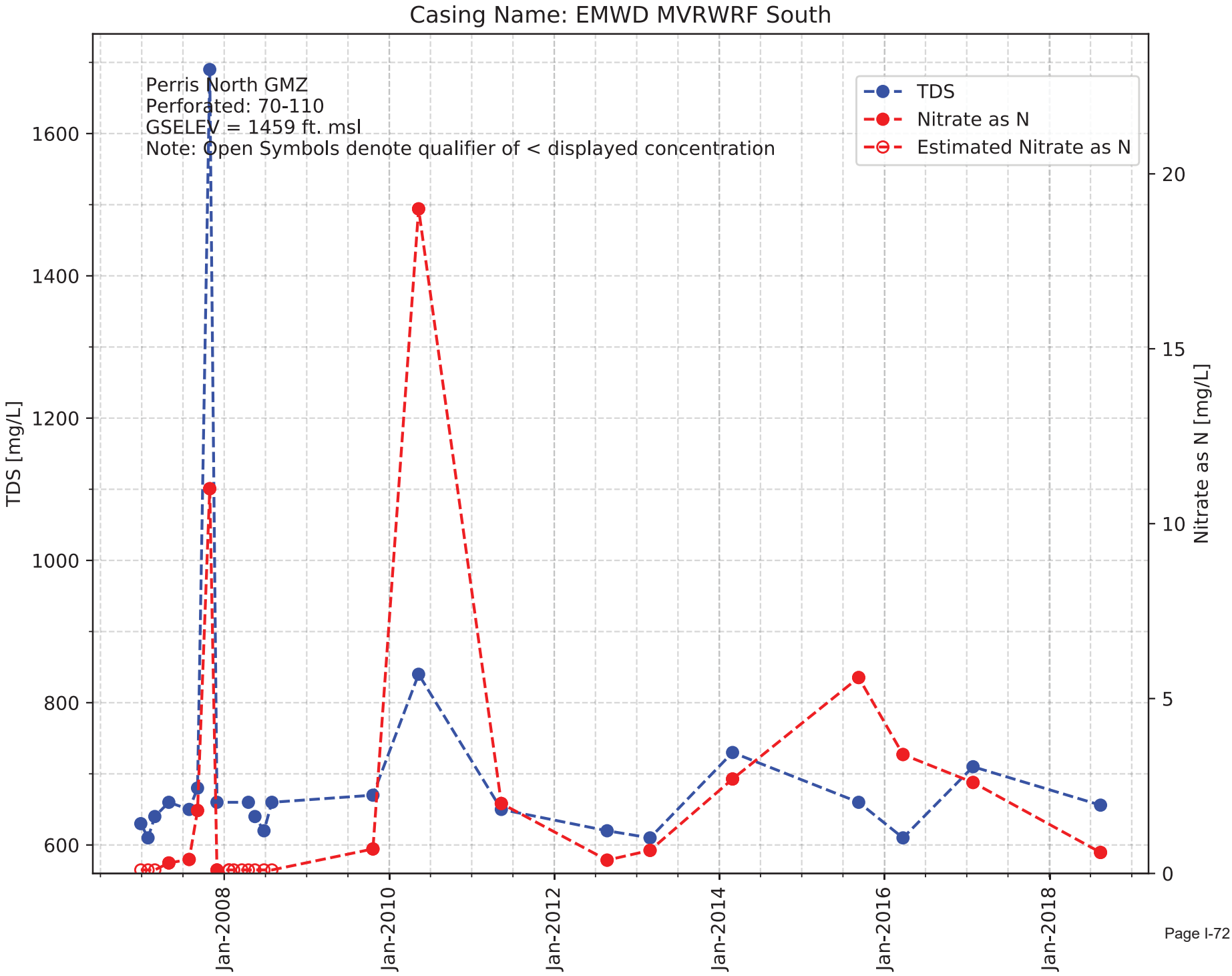
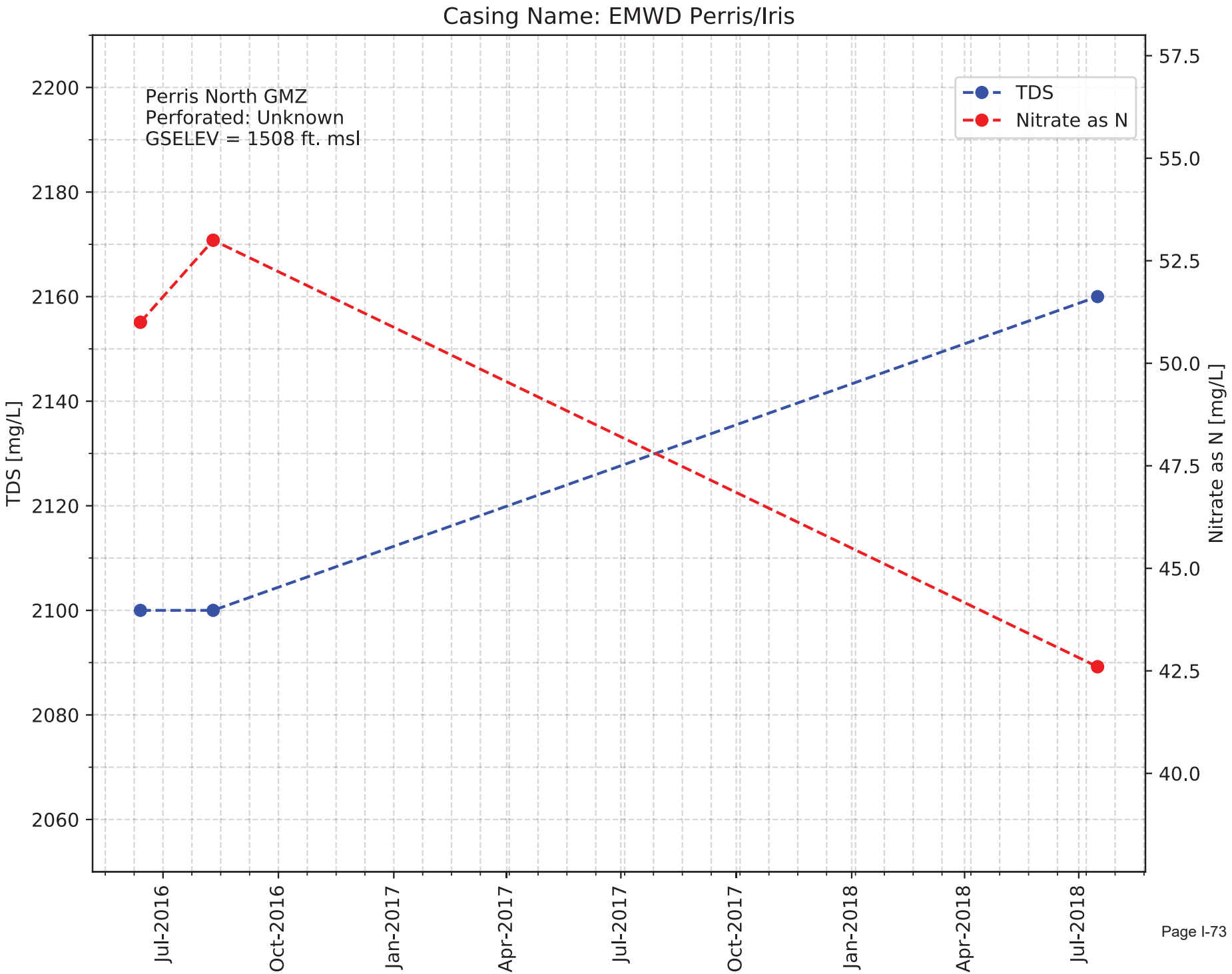
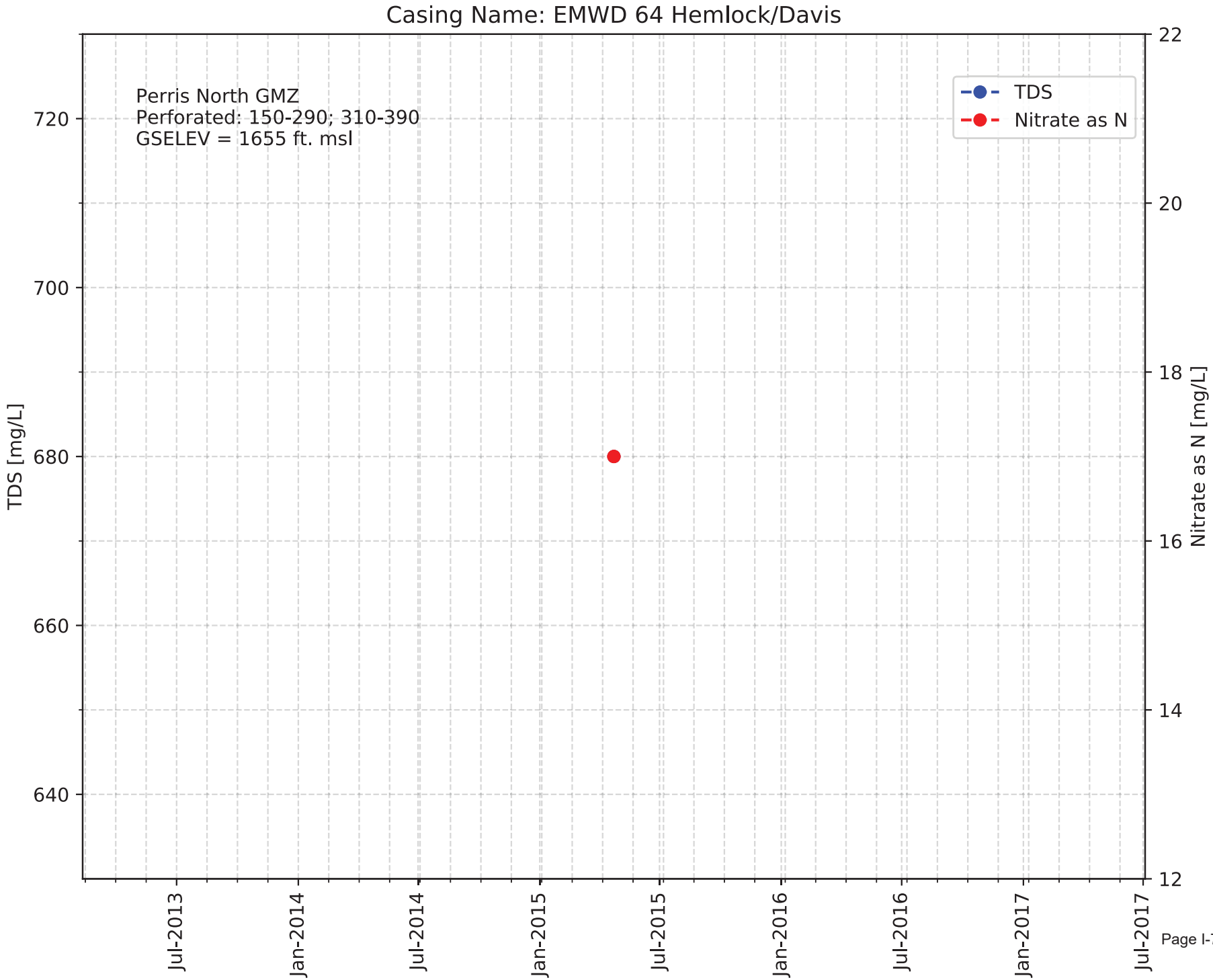

Casing Name: McCanna Ranch 03
Perris North GMZ
Perforated: 160-320
GSELEV = 1475 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
460
440
420
400
380
360
340
320
6
5
4
3
2
1
0
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

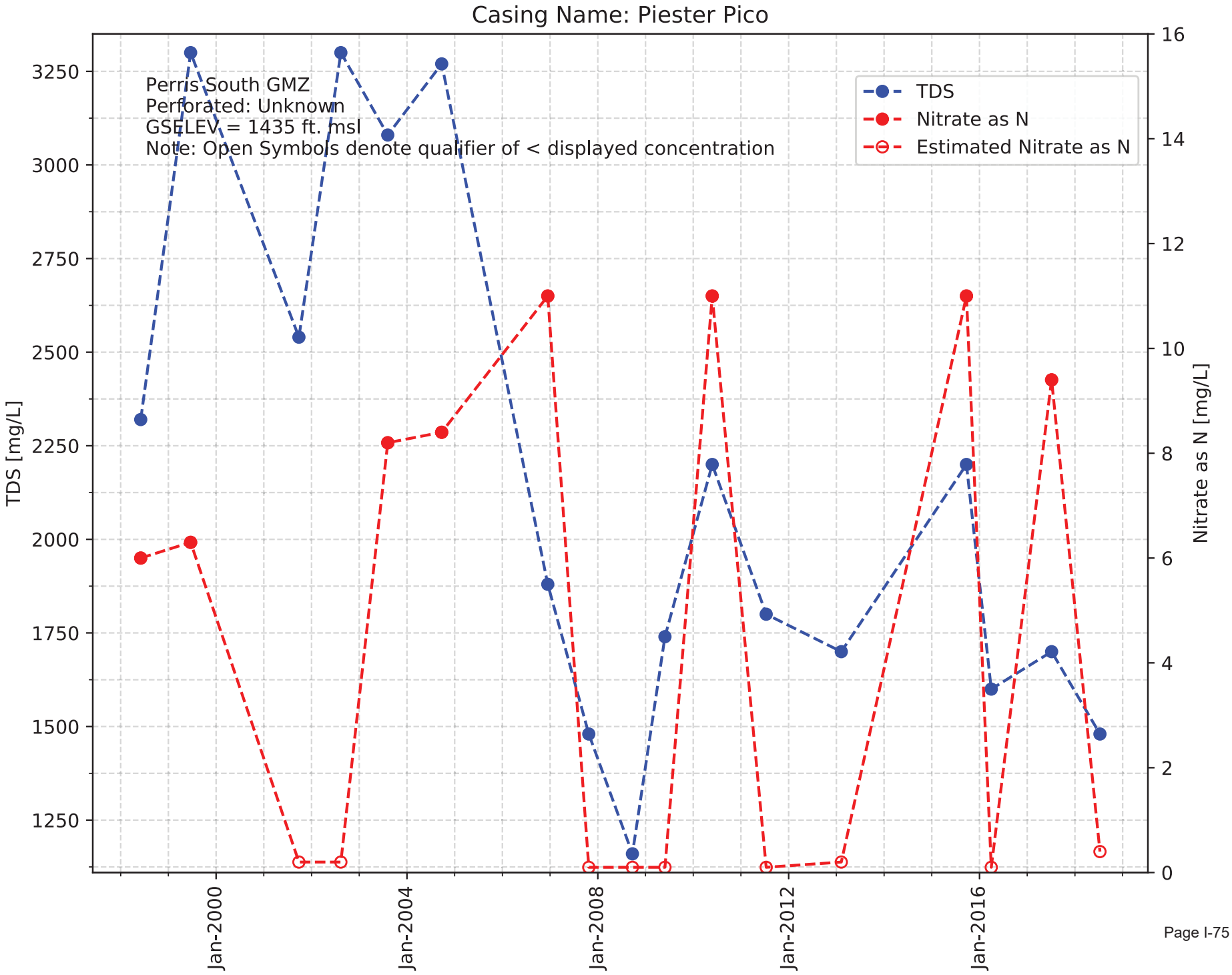

Casing Name: McCanna Ranch 04
Perris North GMZ
Perforated: 180-320
GSELEV = 1467 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
525
500
475
450
425
400
375
350
8
7
6
5
4
3
2
1
0
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

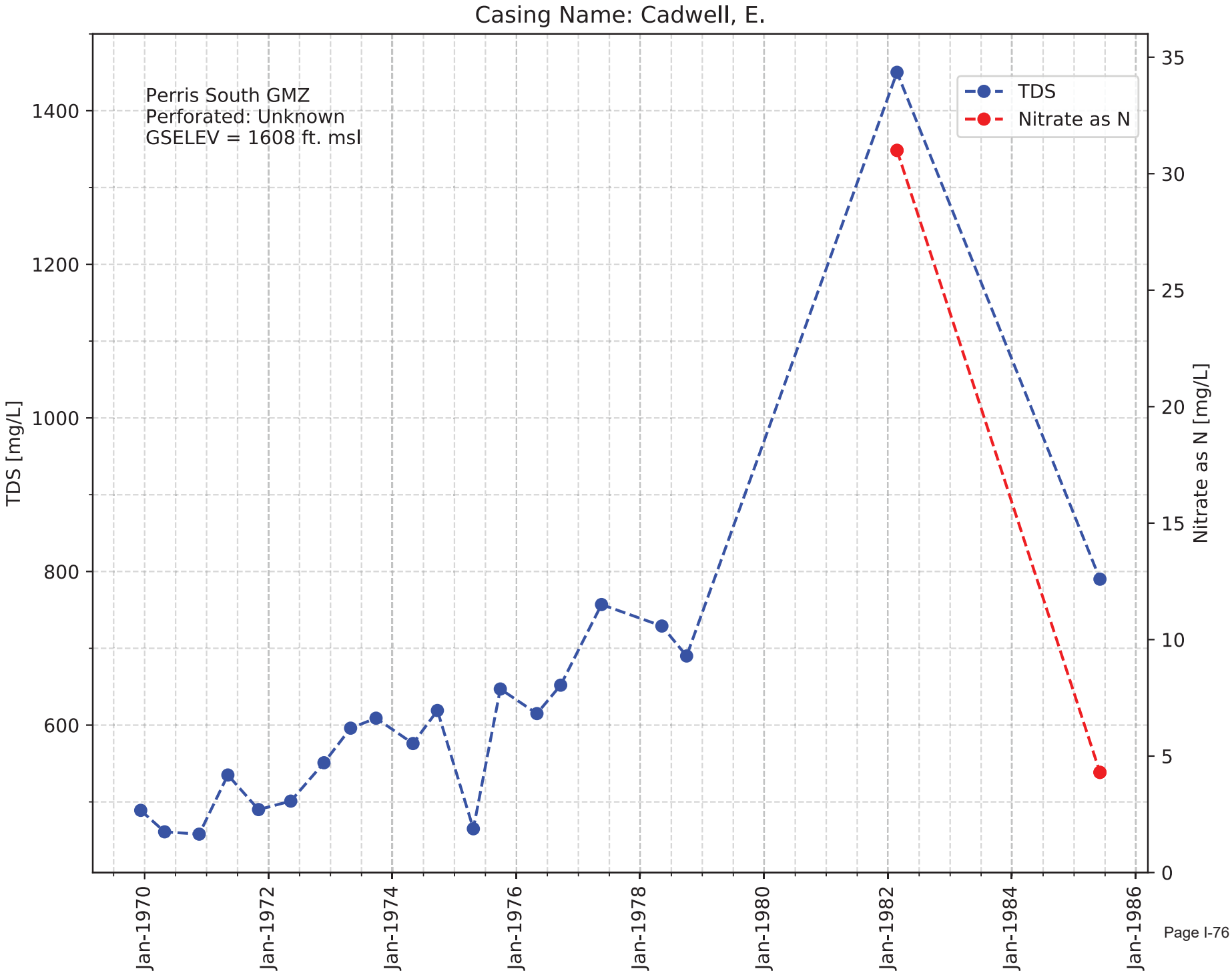

Casing Name: EMWD MVRWRF North
Perris North GMZ
Perforated: 70-110
GSELEV = 1475 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1800
1600
1400
1200
1000
800
600
25
20
15
10
5
0
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

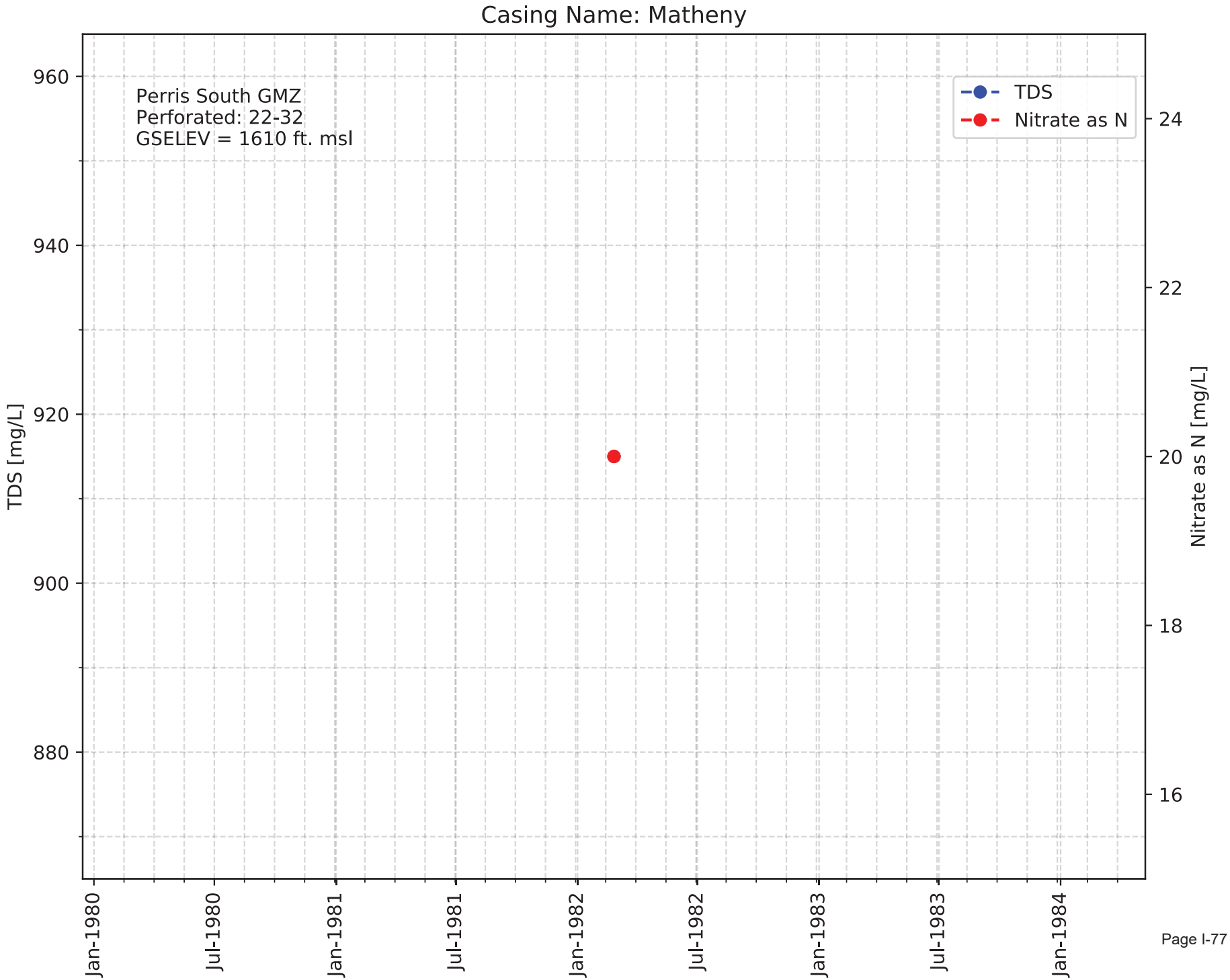

Casing Name: EMWD MVRWRF South
Perris North GMZ
Perforated: 70-110
GSELEV = 1459 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1600
1400
1200
1000
800
600
20
15
10
5
0
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

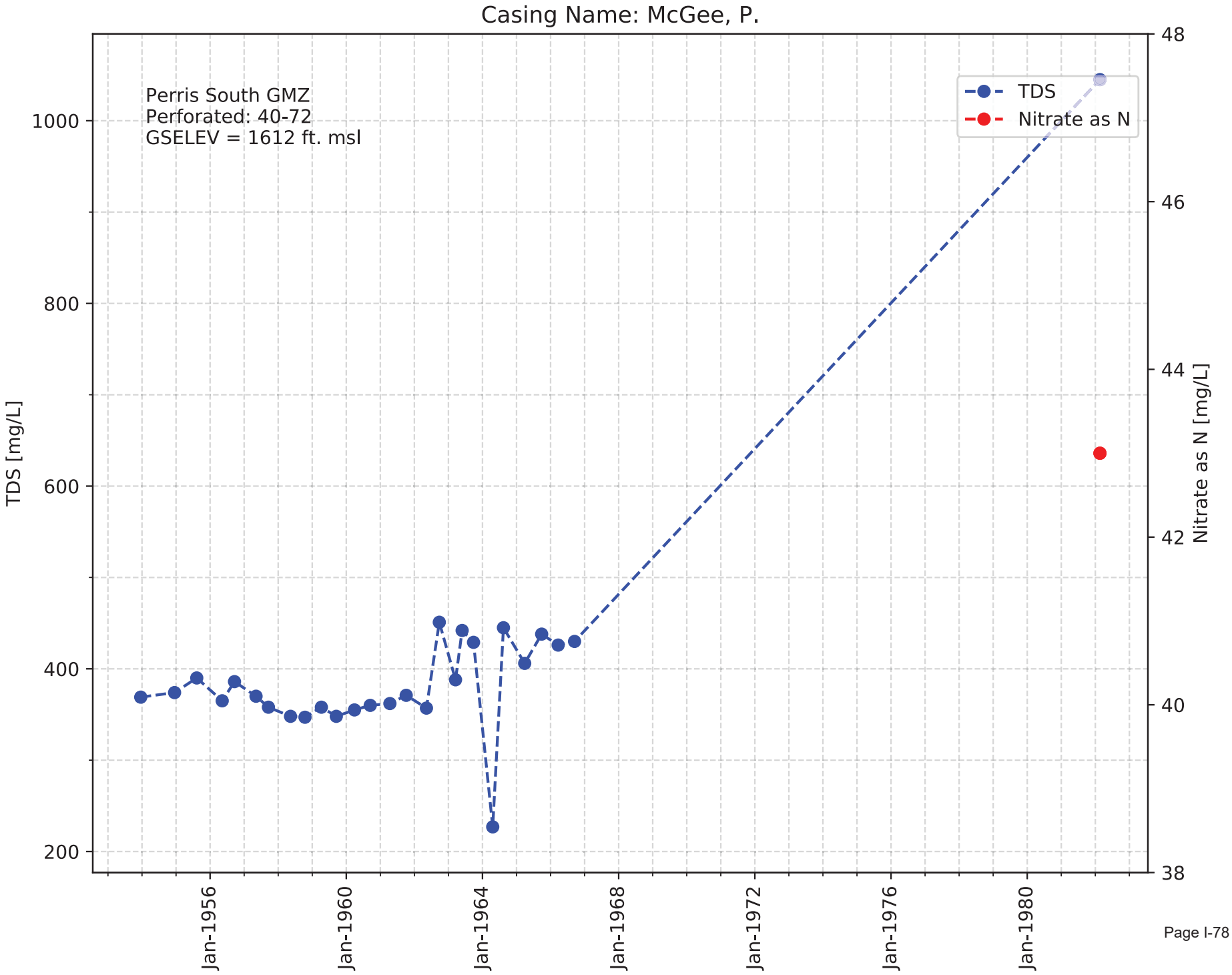

Casing Name: EMWD Perris/Iris
Perris North GMZ
Perforated: Unknown
GSELEV = 1508 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2180
2160
2140
2120
2100
2080
2060
57.5
55.0
52.5
50.0
47.5
45.0
42.5
40.0
Jul-2016
Oct-2016
Jan-2017
Apr-2017
Jul-2017
Oct-2017
Jan-2018
Apr-2018
Jul-2018

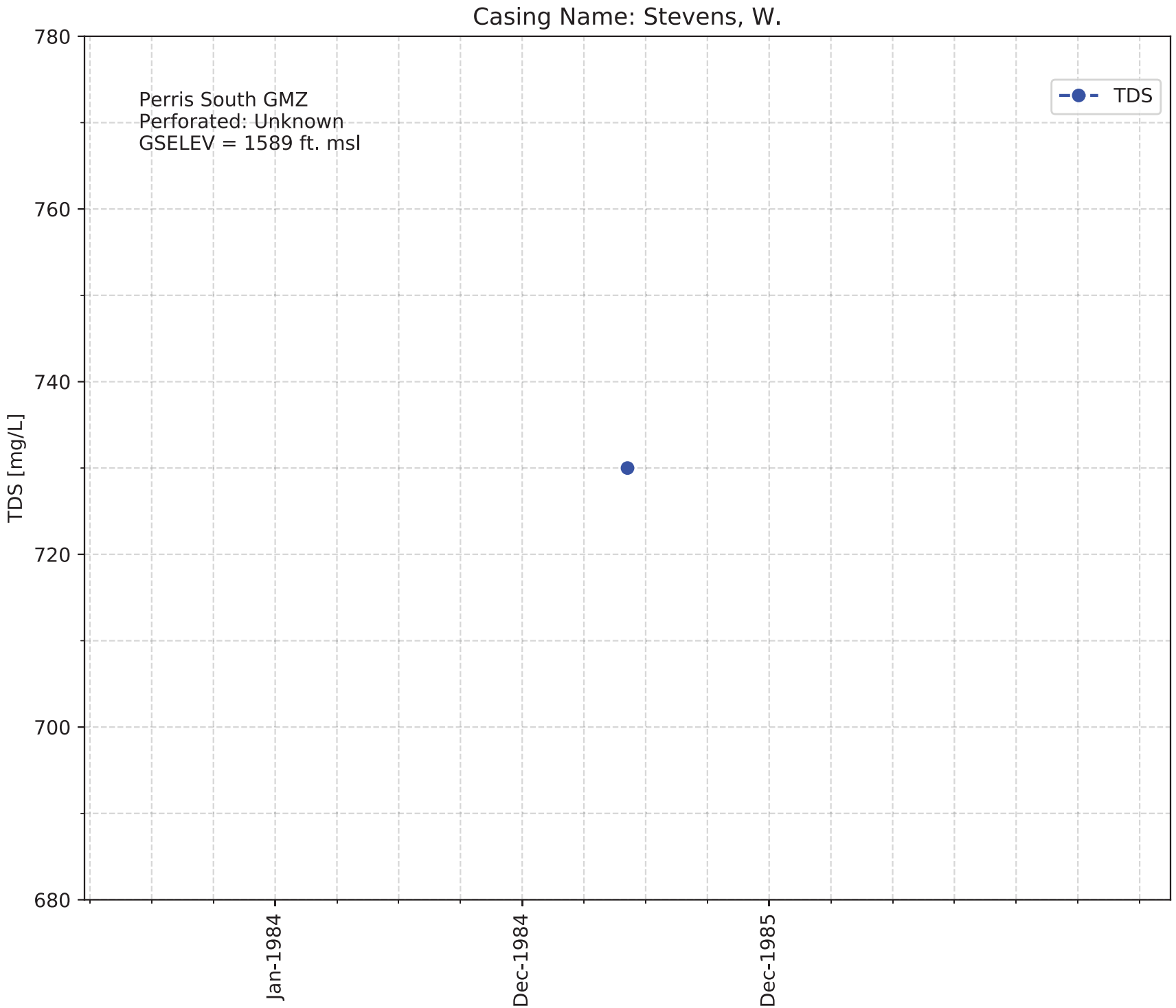

Casing Name: EMWD 64 Hemlock/Davis
Perris North GMZ
Perforated: 150-290; 310-390
GSELEV = 1655 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
720
700
680
660
640
22
20
18
16
14
12
Jul-2013
Jan-2014
Jul-2014
Jan-2015
Jul-2015
Jan-2016
Jul-2016
Jan-2017
Jul-2017

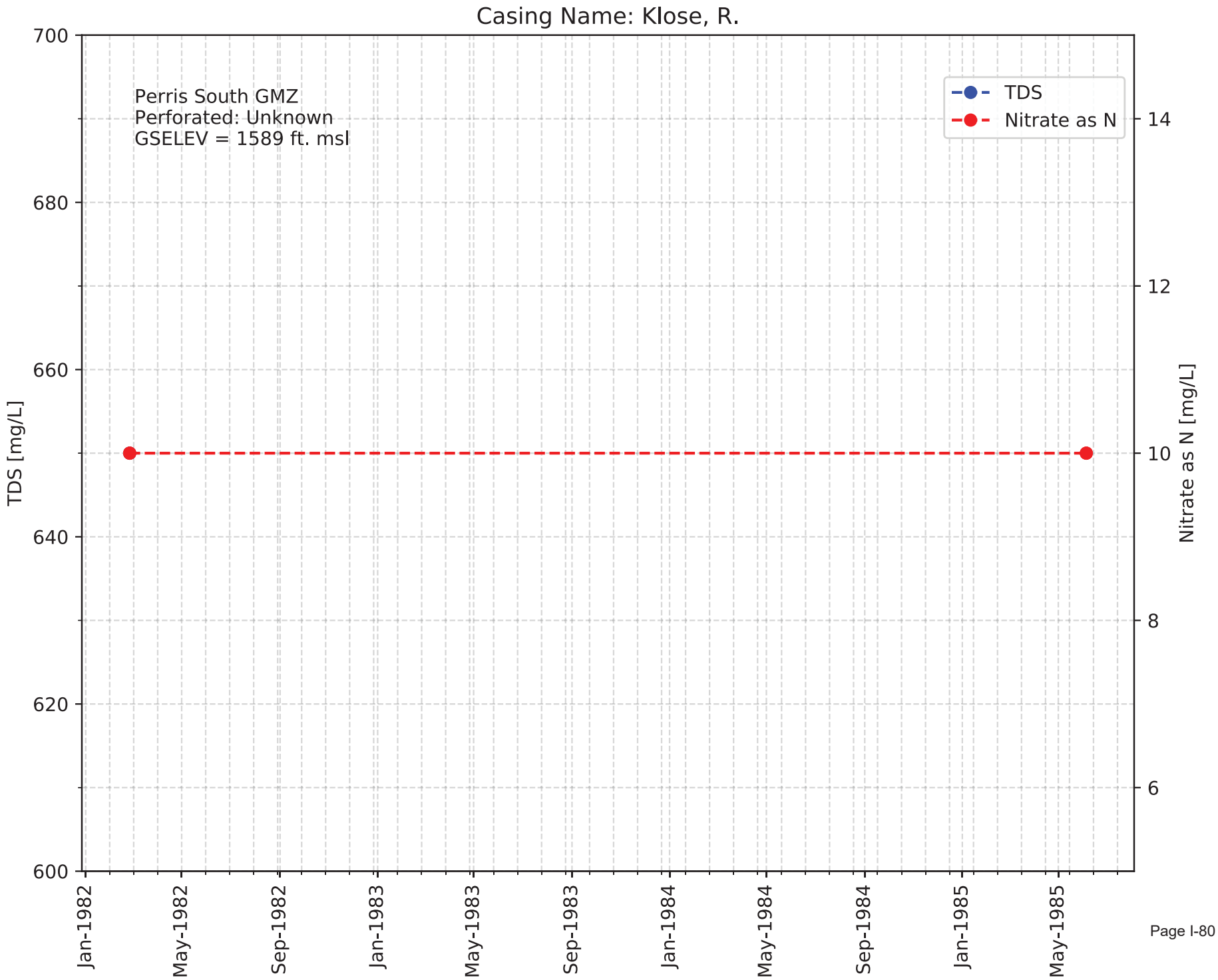

Casing Name: Piester Pico
Perris South GMZ
Perforated: Unknown
GSELEV = 1435 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3250
3000
2750
2500
2250
2000
1750
1500
1250
16
14
12
10
8
6
4
2
0
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

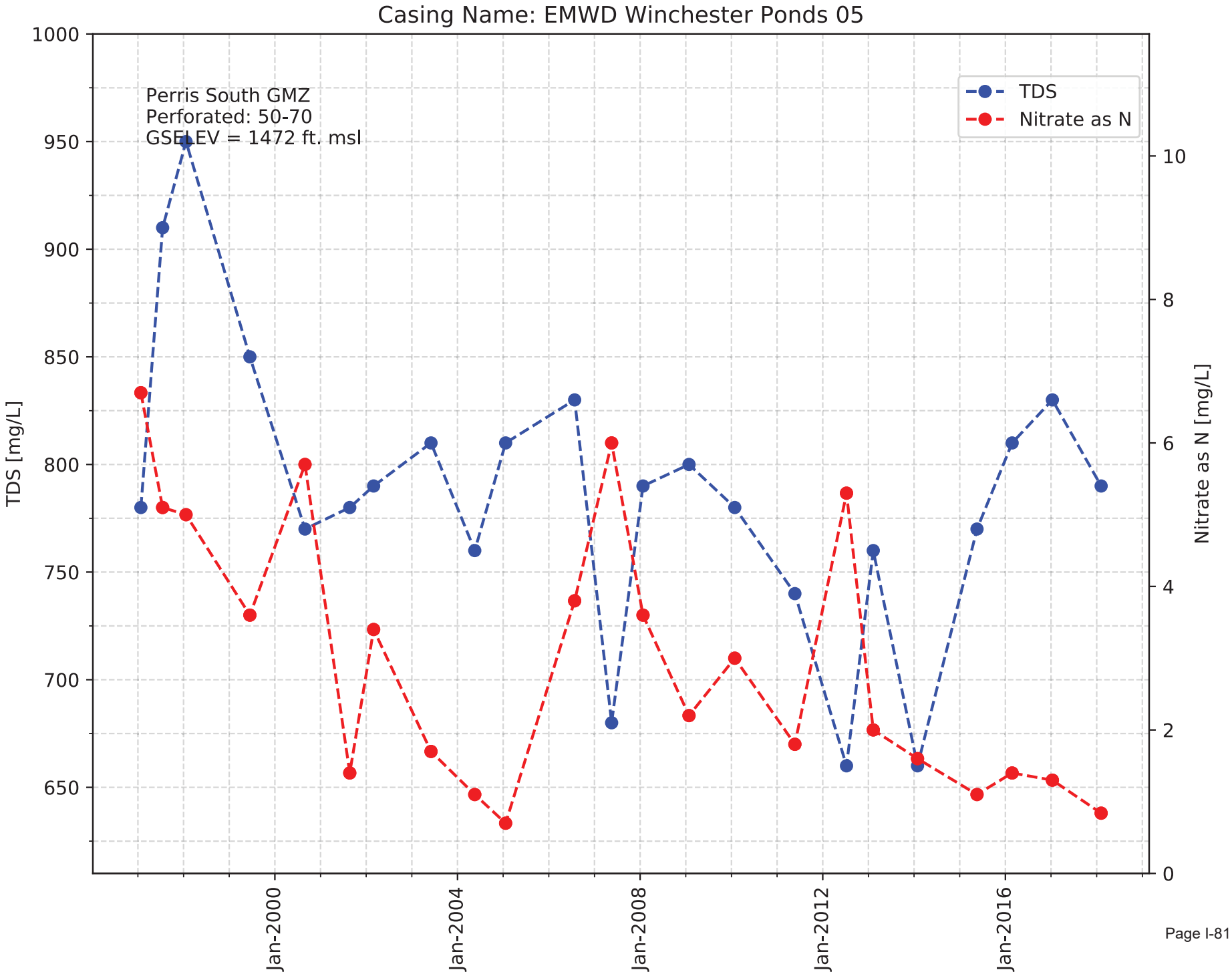

Casing Name: Cadwell, E.
Perris South GMZ
Perforated: Unknown
GSELEV = 1608 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1400
1200
1000
800
600
35
30
25
20
15
10
5
0
Jan-1970
Jan-1972
Jan-1974
Jan-1976
Jan-1978
Jan-1980
Jan-1982
Jan-1984
Jan-1986

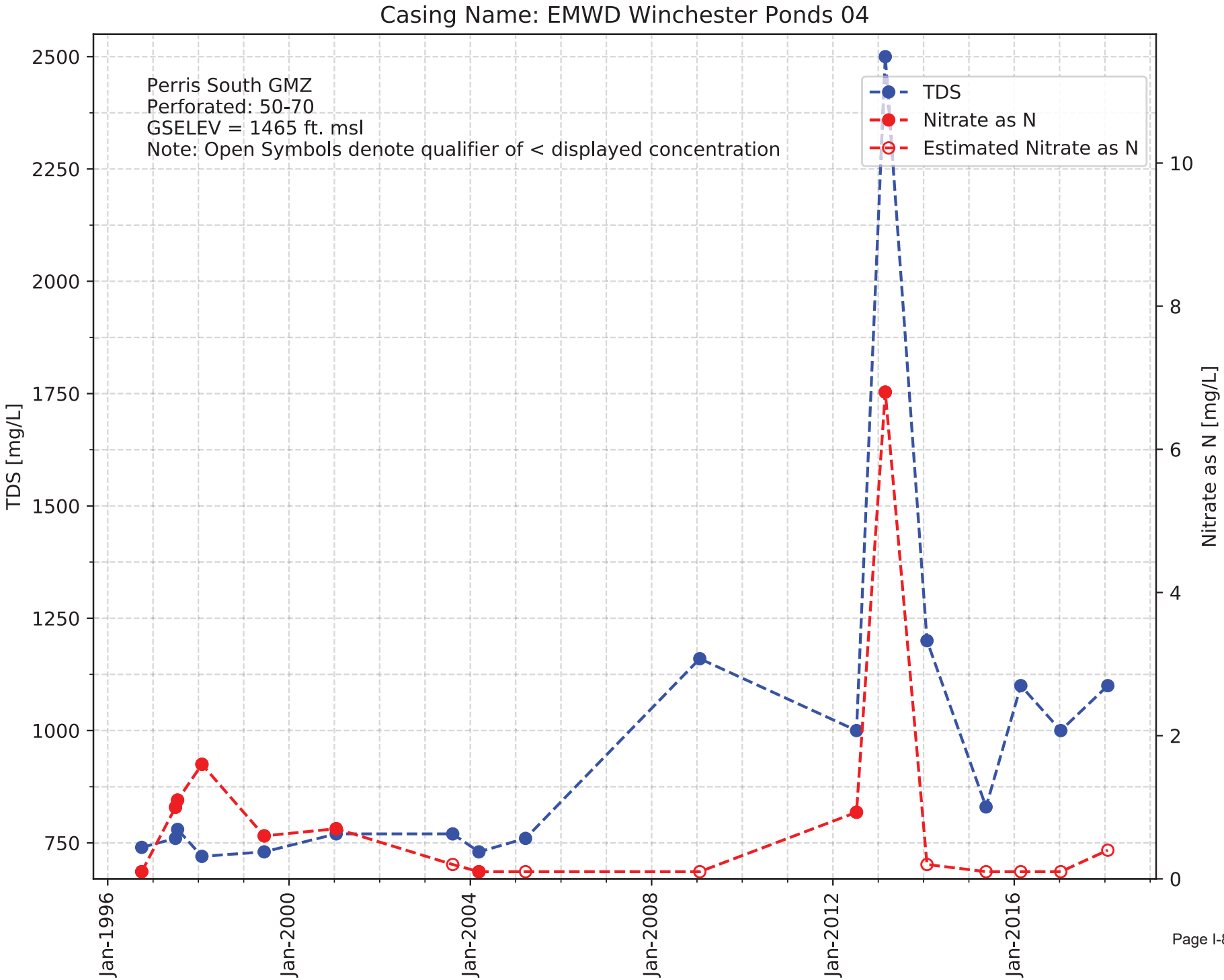

Casing Name: Matheny
Perris South GMZ
Perforated: 22-32
GSELEV = 1610 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
960
940
920
900
880
24
22
20
18
16
Jan-1980
Jul-1980
Jan-1981
Jul-1981
Jan-1982
Jul-1982
Jan-1983
Jul-1983
Jan-1984

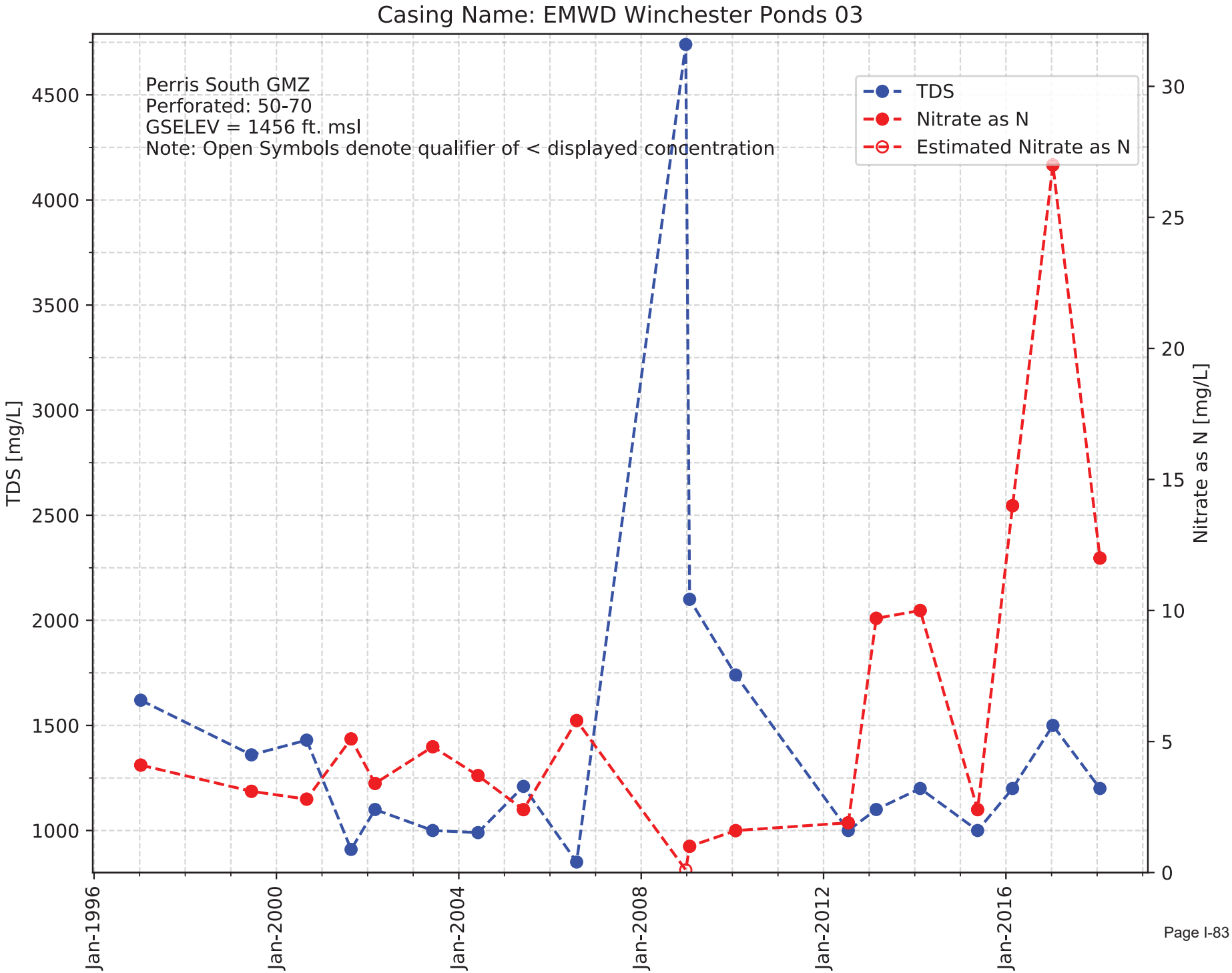

Casing Name: McGee, P.
Perris South GMZ
Perforated: 40-72
GSELEV = 1612 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1000
800
600
400
200
48
46
44
42
40
38
Jan-1956
Jan-1960
Jan-1964
Jan-1968
Jan-1972
Jan-1976
Jan-1980

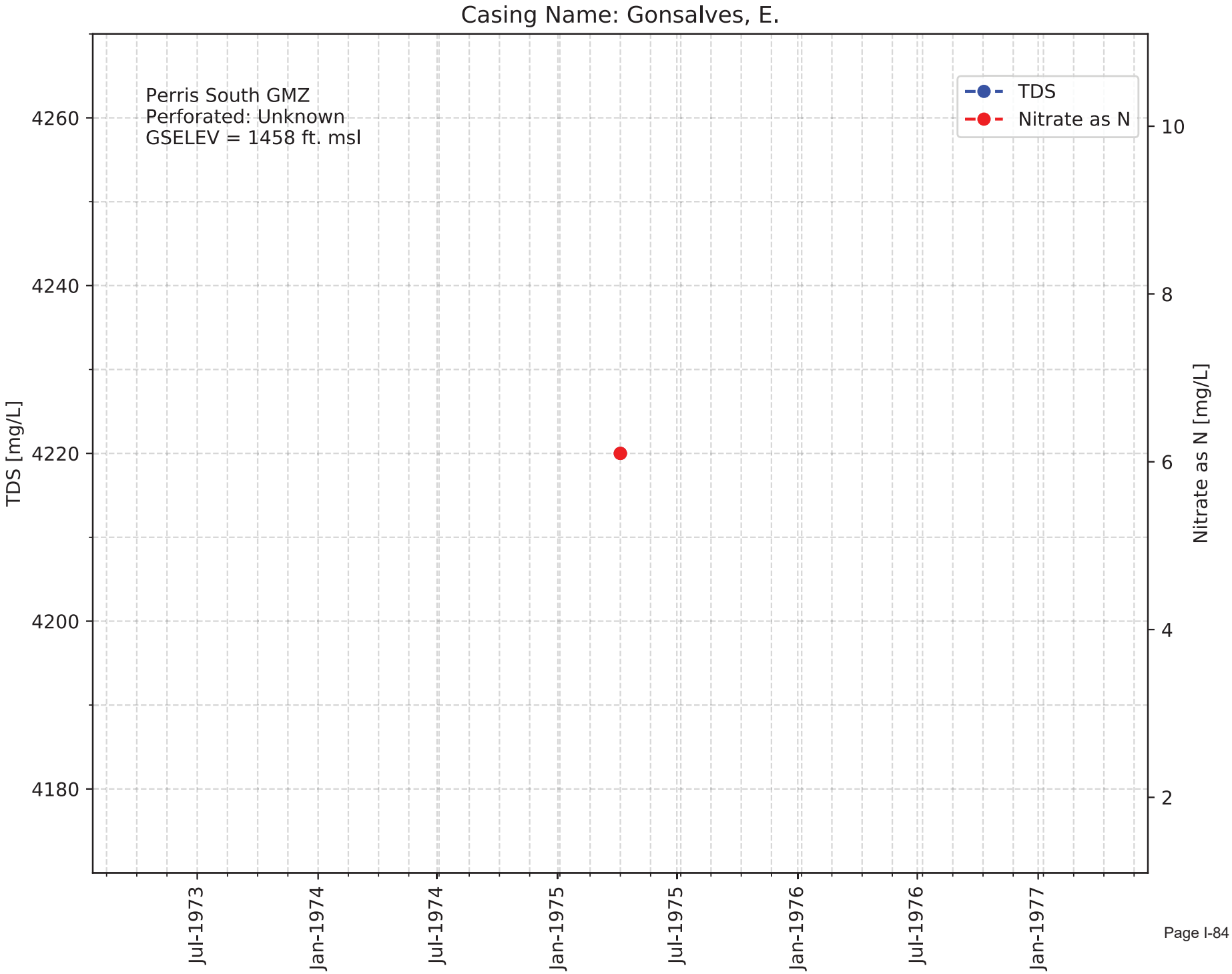

Casing Name: Stevens, W.
Perris South GMZ
Perforated: Unknown
GSELEV = 1589 ft. msl
TDS
TDS [mg/L]
780
760
740
720
700
680
Jan-1984
Dec-1984
Dec-1985

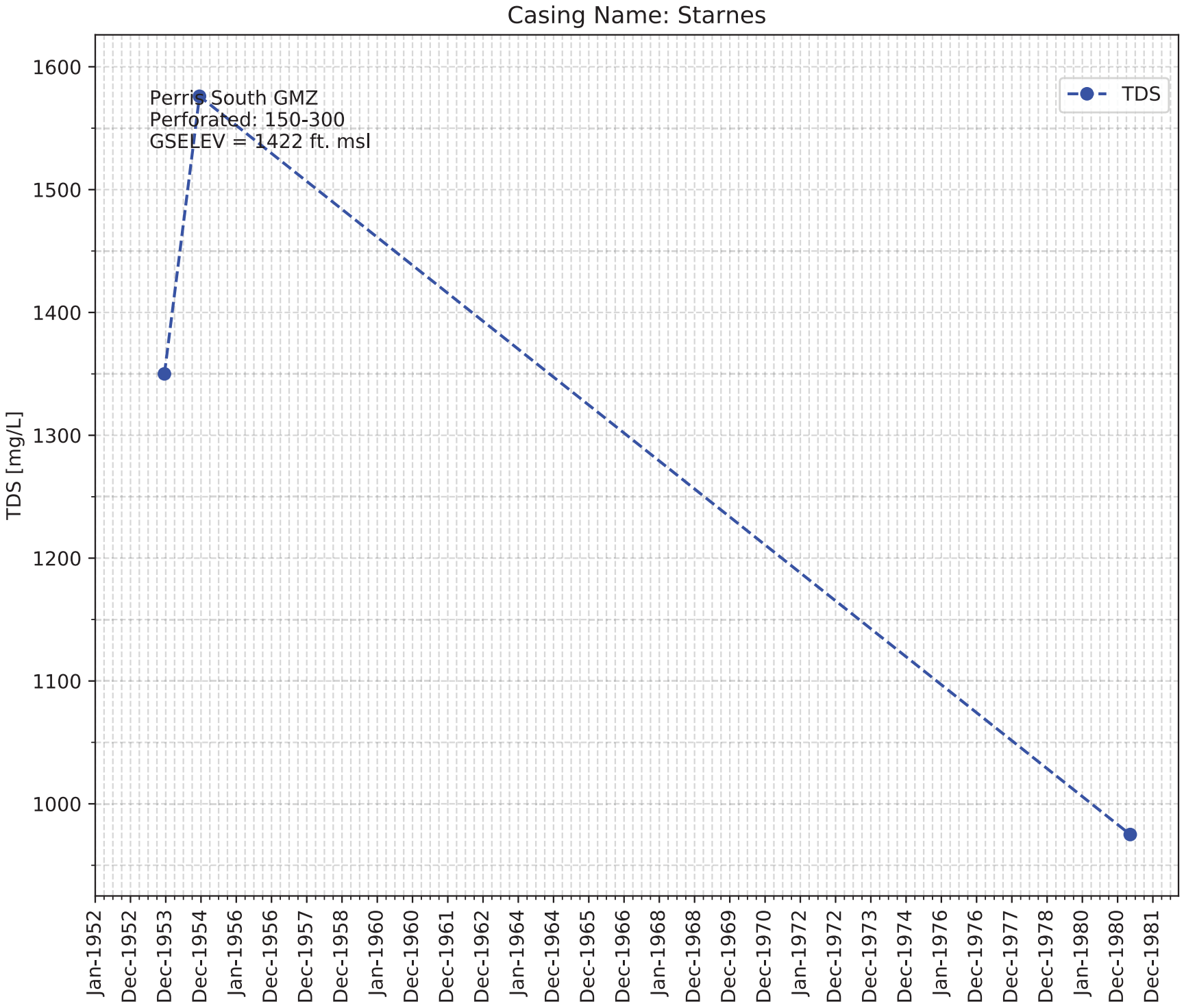

Casing Name: Klose, R.
Perris South GMZ
Perforated: Unknown
GSELEV = 1589 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
680
660
640
620
600
14
12
10
8
6
Jan-1982
May-1982
Sep-1982
Jan-1983
May-1983
Sep-1983
Jan-1984
May-1984
Sep-1984
Jan-1985
May-1985

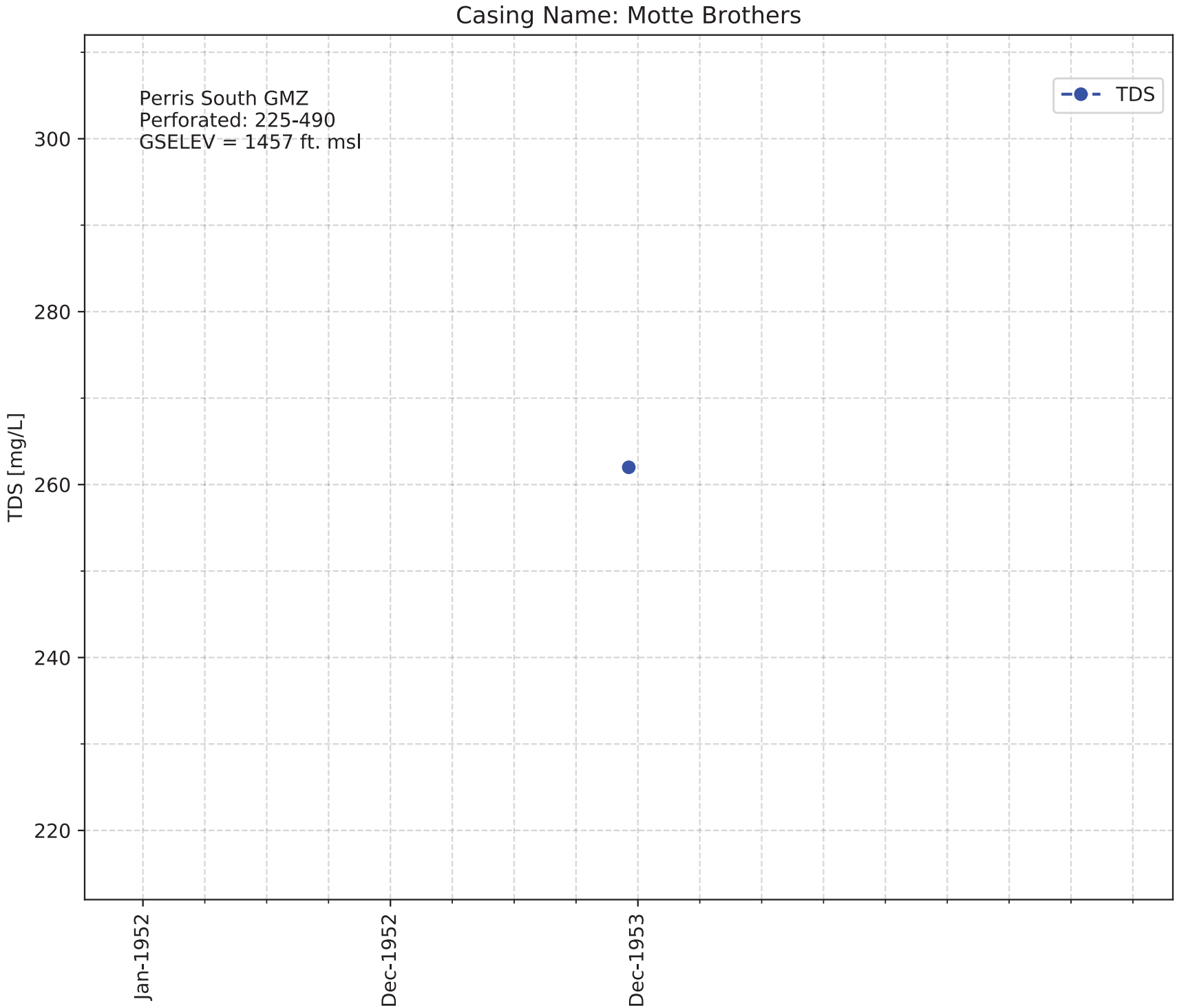

Casing Name: EMWD Winchester Ponds 05
Perris South GMZ
Perforated: 50-70
GSELEV = 1472 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1000
950
900
850
800
750
700
650
10
8
6
4
2
0
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

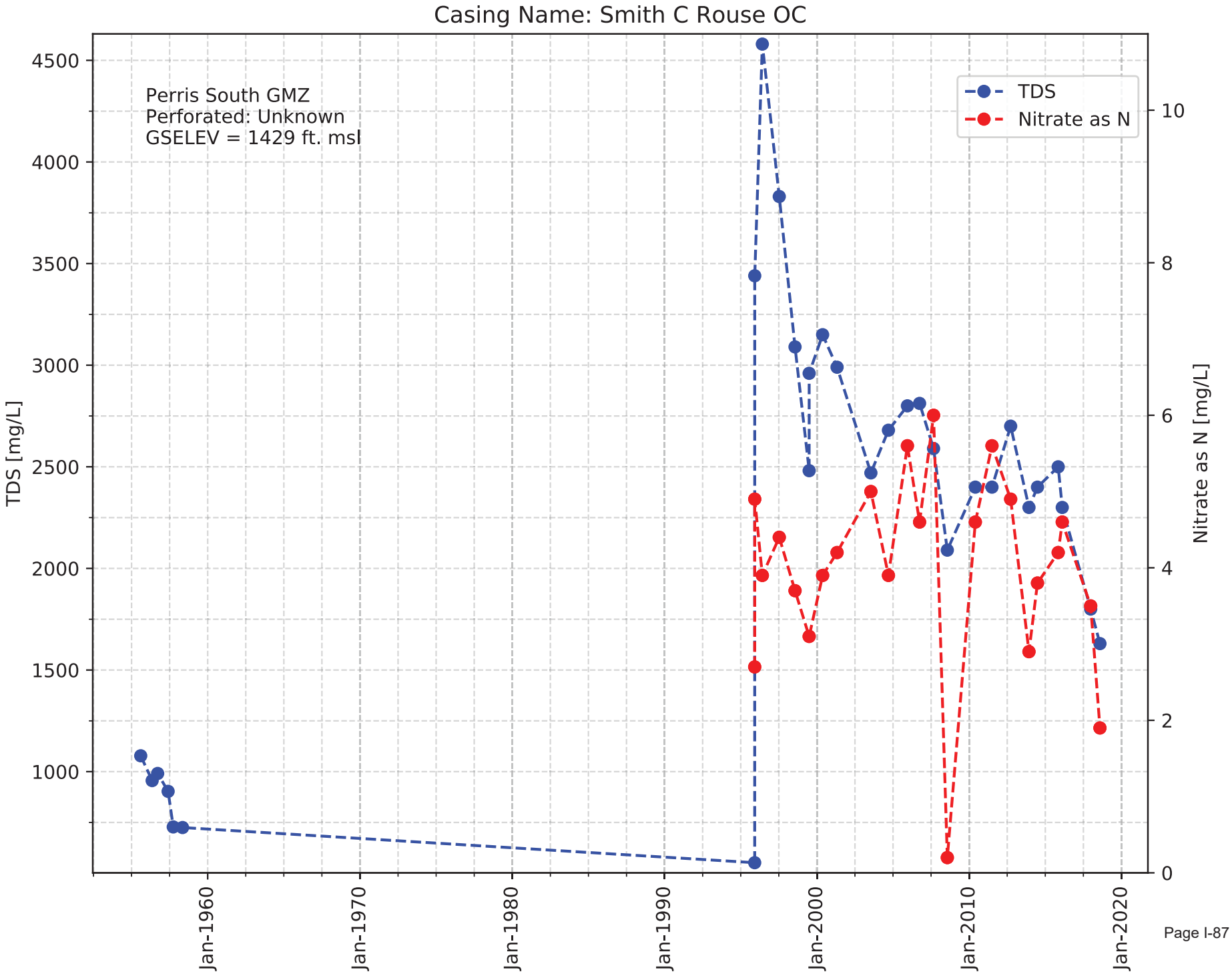

Casing Name: EMWD Winchester Ponds 04
Perris South GMZ
Perforated: 50-70
GSELEV = 1465 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2250
2000
1750
1500
1250
1000
750
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

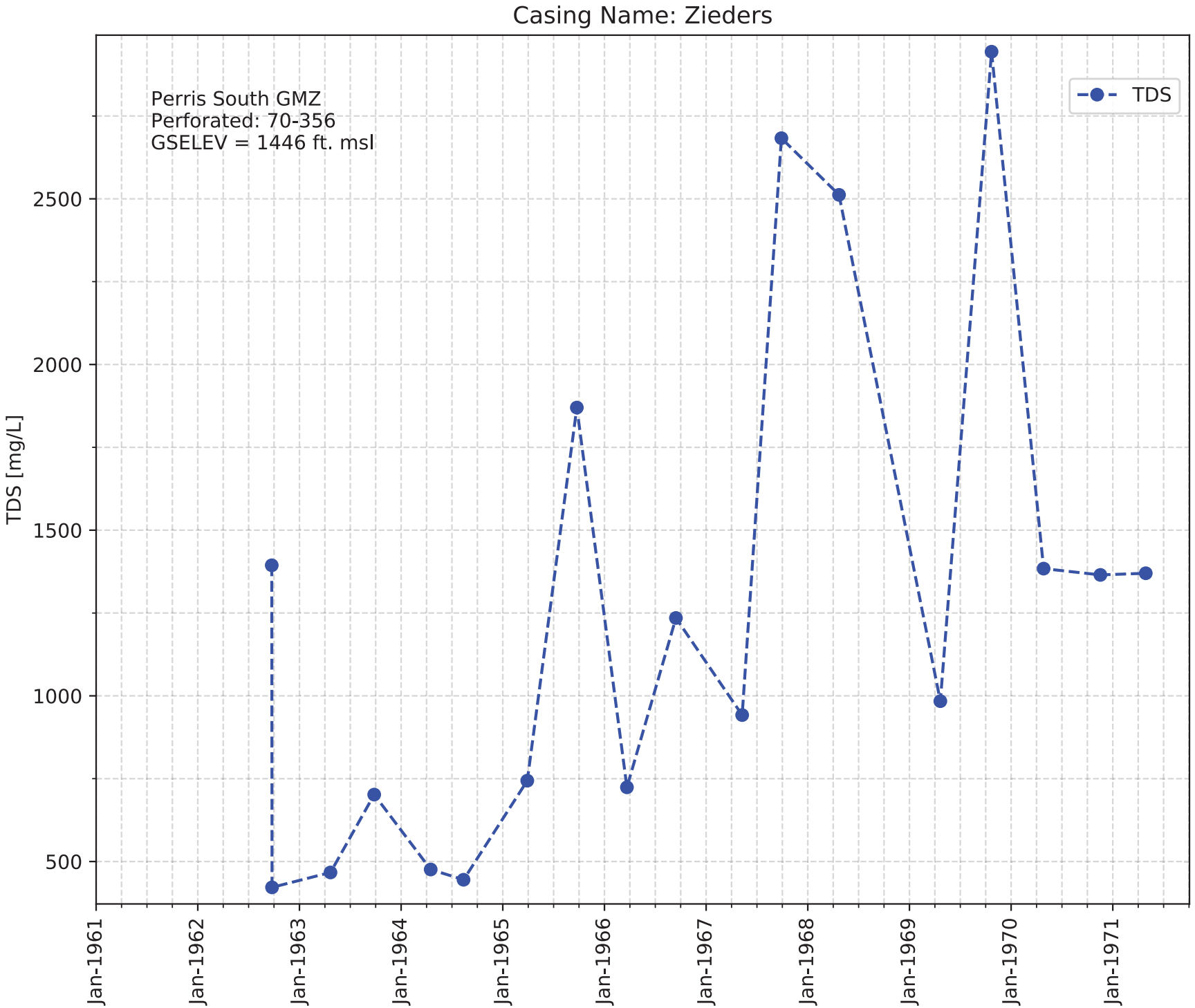

Casing Name: EMWD Winchester Ponds 03
Perris South GMZ
Perforated: 50-70
GSELEV = 1456 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4500
4000
3500
3000
2500
2000
1500
1000
30
25
20
15
10
5
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

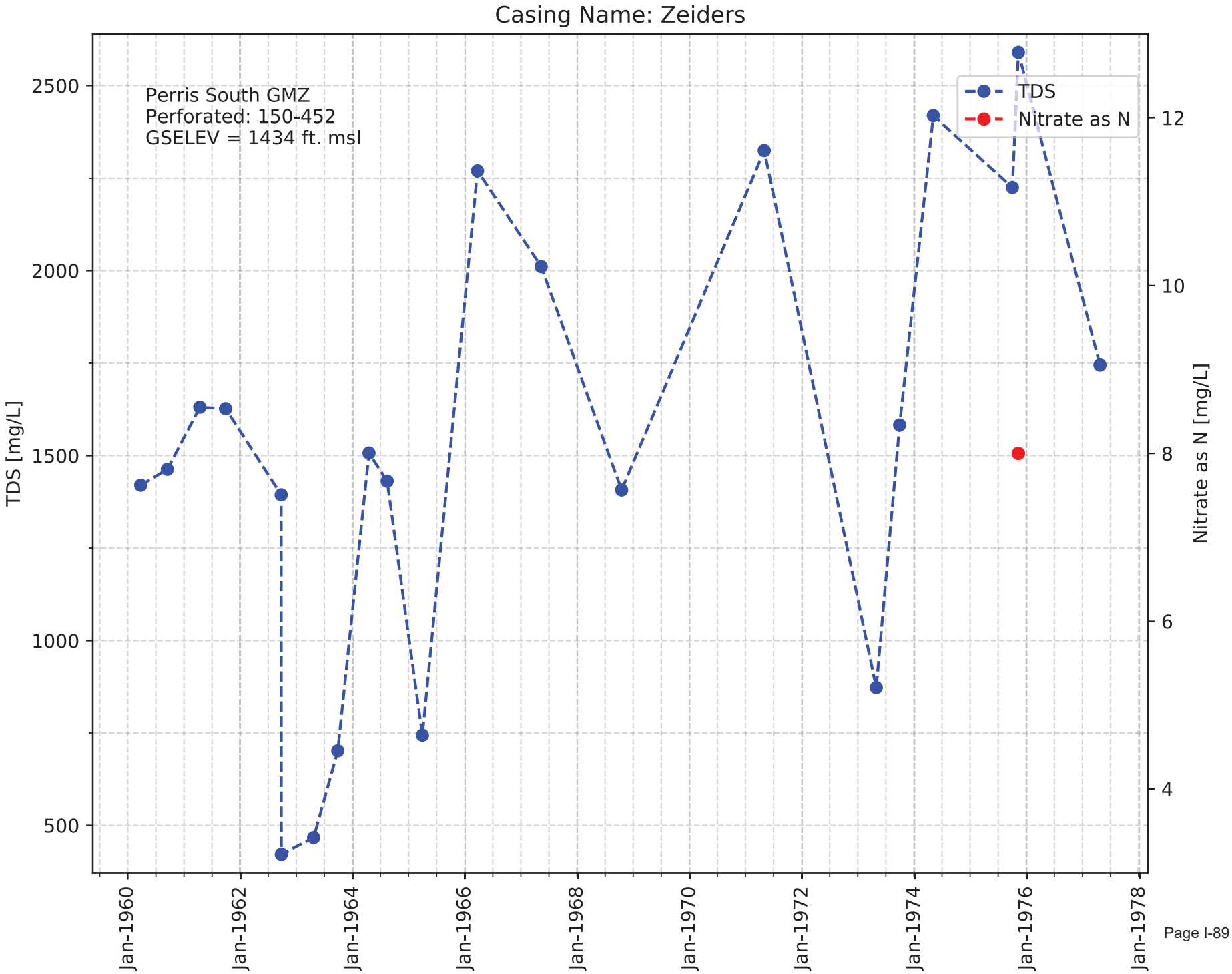

Casing Name: Gonsalves, E.
Perris South GMZ
Perforated: Unknown
GSELEV = 1458 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4260
4240
4220
4200
4180
10
8
6
4
2
Jul-1973
Jan-1974
Jul-1974
Jan-1975
Jul-1975
Jan-1976
Jul-1976
Jan-1977

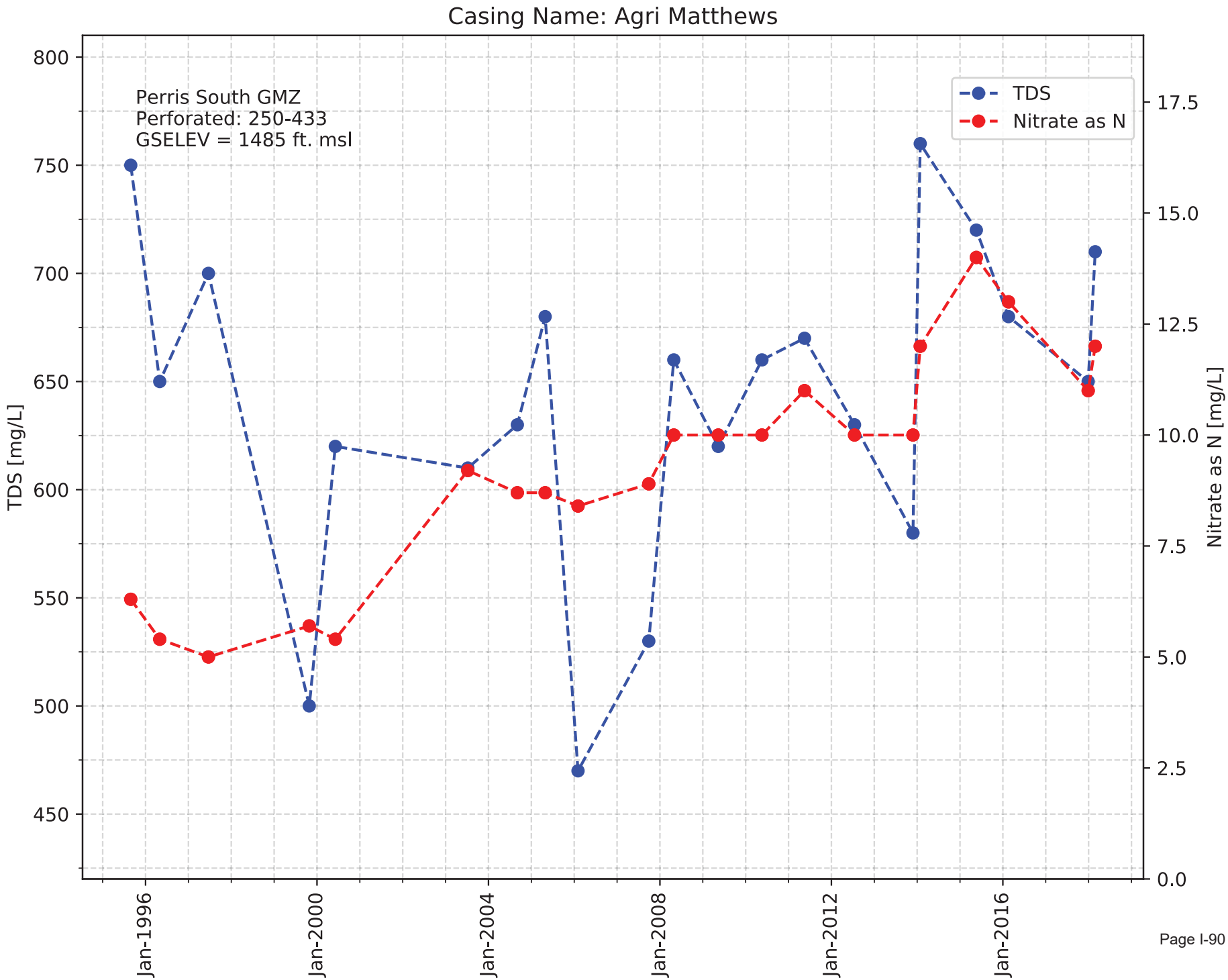

Casing Name: Starnes
Perris South GMZ
Perforated: 150-300
GSELEV = 1422 ft. msl
TDS
TDS [mg/L]
1600
1500
1400
1300
1200
1100
1000
Jan-1952
Dec-1952
Dec-1953
Dec-1954
Jan-1956
Dec-1956
Dec-1957
Dec-1958
Jan-1960
Dec-1960
Dec-1961
Dec-1962
Jan-1964
Dec-1964
Dec-1965
Dec-1966
Jan-1968
Dec-1968
Dec-1969
Dec-1970
Jan-1972
Dec-1972
Dec-1973
Dec-1974
Jan-1976
Dec-1976
Dec-1977
Dec-1978
Jan-1980
Dec-1980
Dec-1981

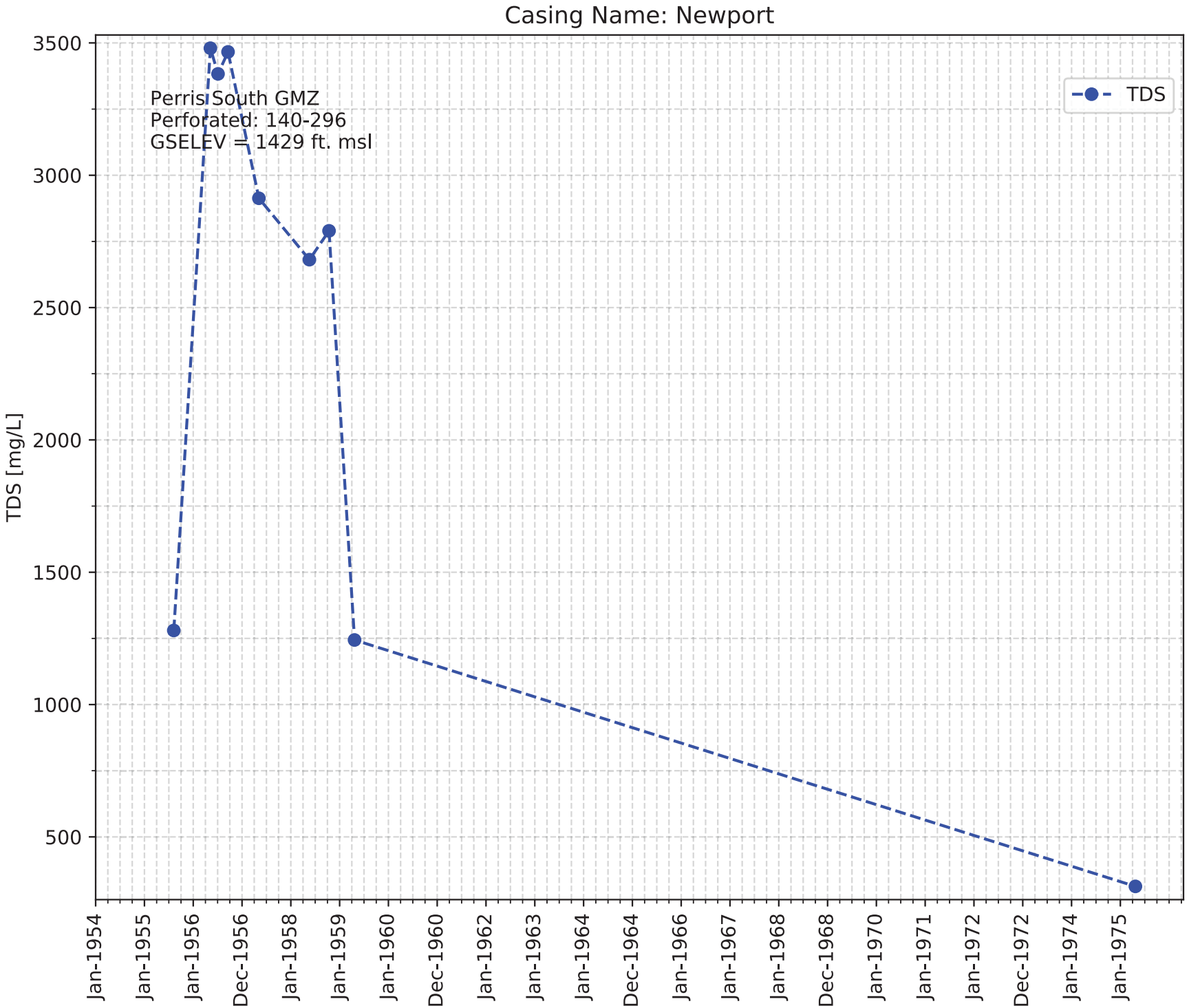

Casing Name: Motte Brothers
Perris South GMZ
Perforated: 225-490
GSELEV = 1457 ft. msl
TDS
TDS [mg/L]
300
280
260
240
220
Jan-1952
Dec-1952
Dec-1953

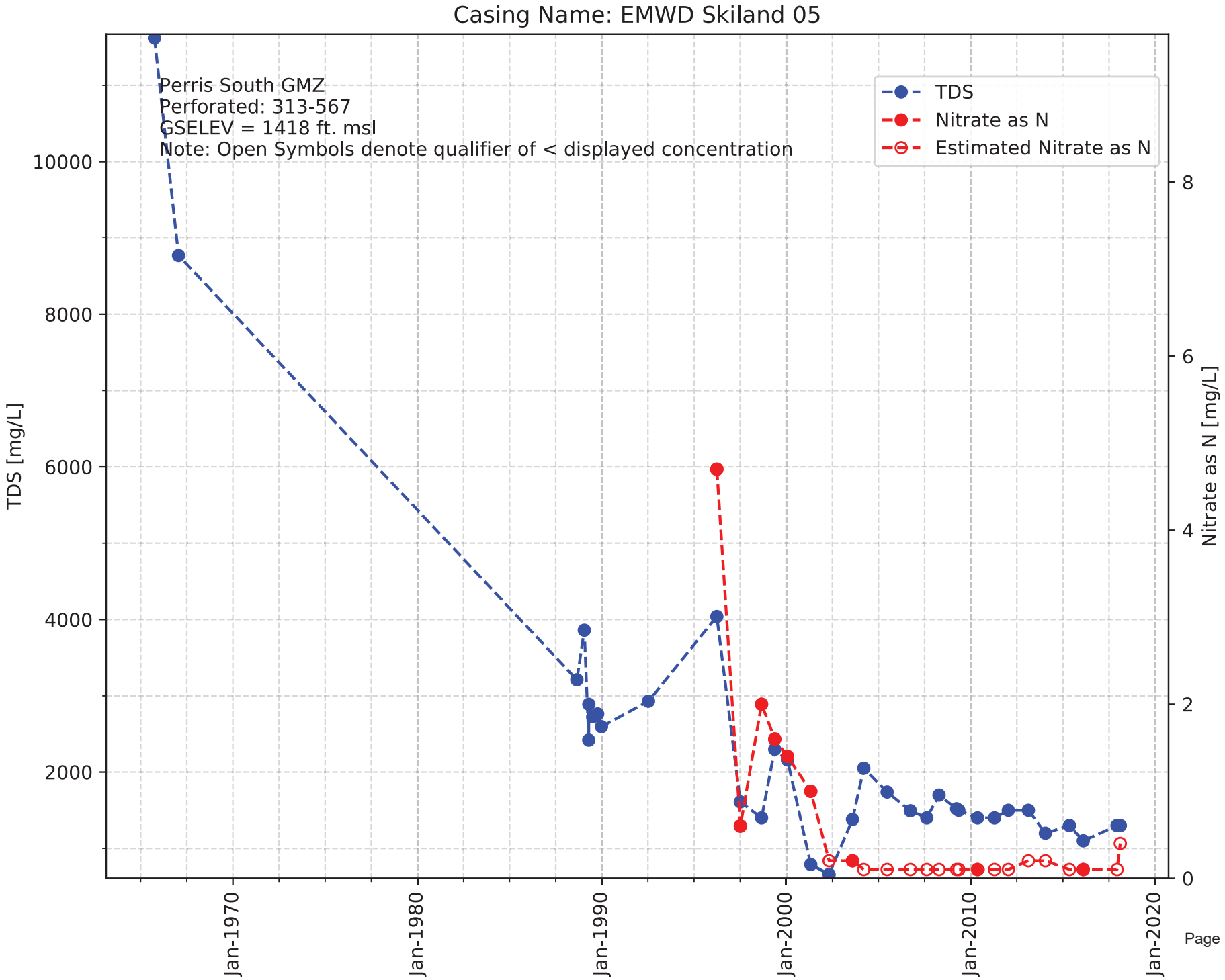

Casing Name: Smith C Rouse OC
Perris South GMZ
Perforated: Unknown
GSELEV = 1429 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4500
4000
3500
3000
2500
2000
1500
1000
10
8
6
4
2
0
Jan-1960
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

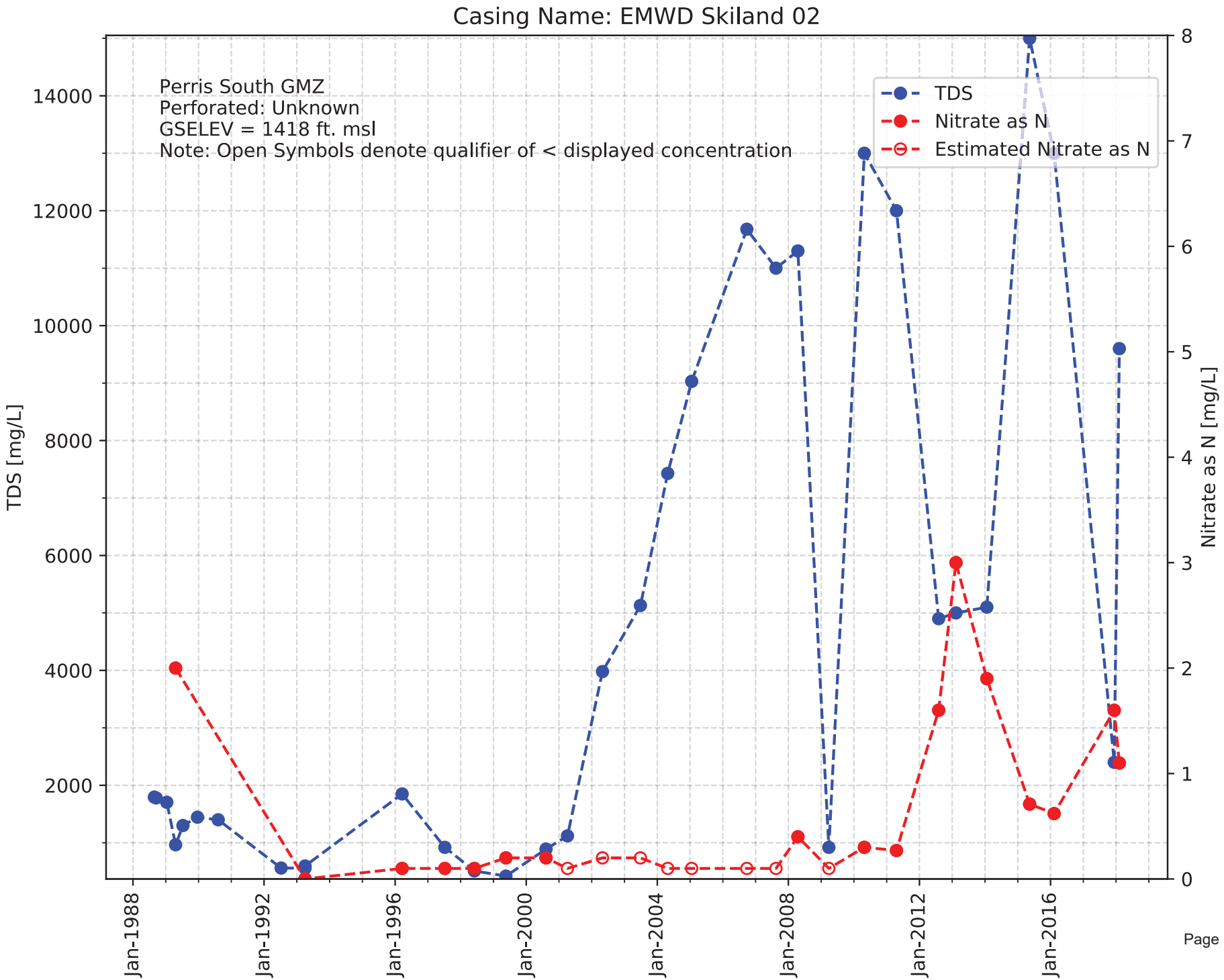

Casing Name: Zieders
Perris South GMZ
Perforated: 70-356
GSELEV = 1446 ft. msl
TDS
TDS [mg/L]
2500
2000
1500
1000
500
Jan-1961
Jan-1962
Jan-1963
Jan-1964
Jan-1965
Jan-1966
Jan-1967
Jan-1968
Jan-1969
Jan-1970
Jan-1971

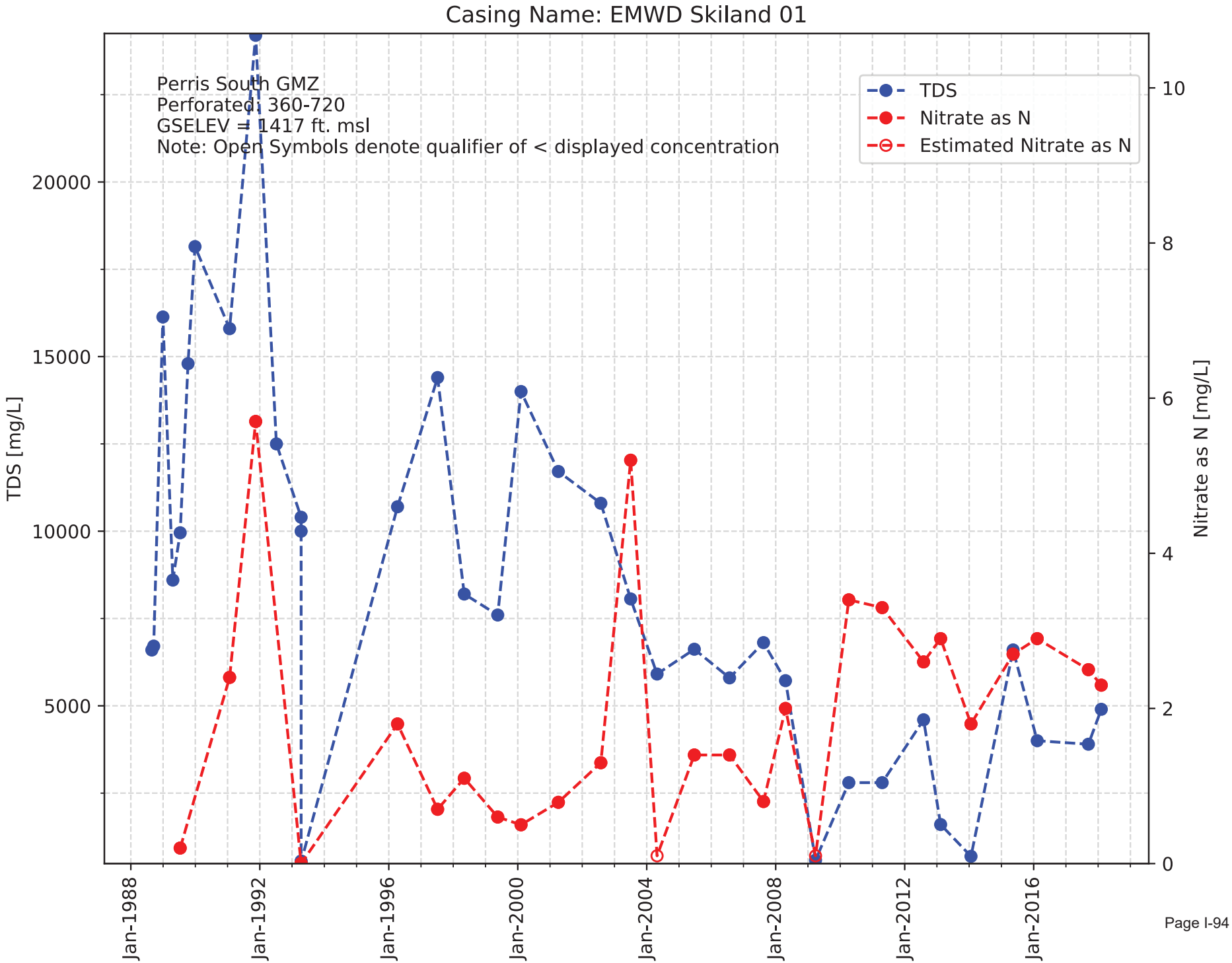

Casing Name: Zeiders
Perris South GMZ
Perforated: 150-452
GSELEV = 1434 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2000
1500
1000
500
12
10
8
6
4
Jan-1960
Jan-1962
Jan-1964
Jan-1966
Jan-1968
Jan-1970
Jan-1972
Jan-1974
Jan-1976
Jan-1978

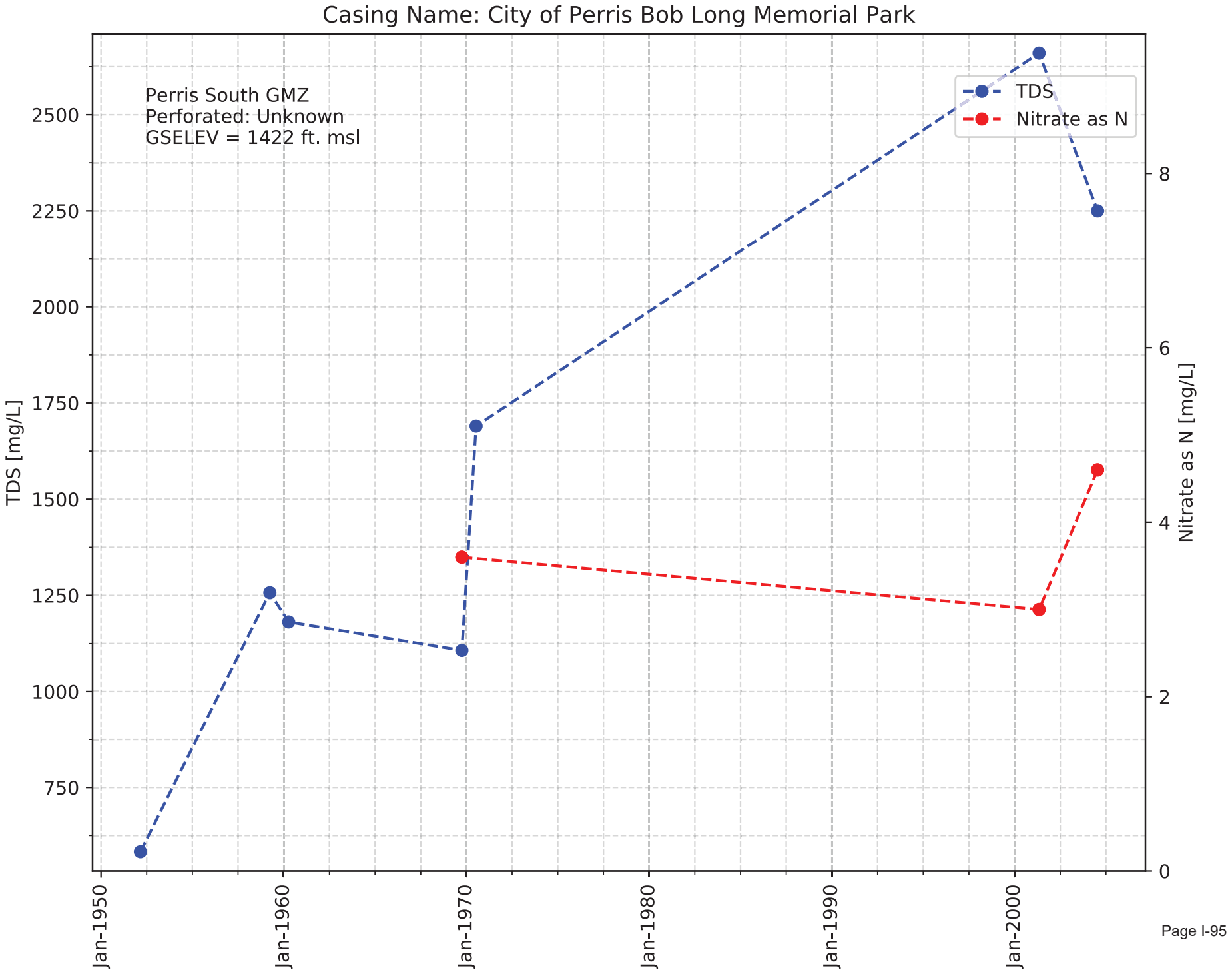

Casing Name: Agri Matthews
Perris South GMZ
Perforated: 250-433
GSELEV = 1485 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
800
750
700
650
600
550
500
450
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

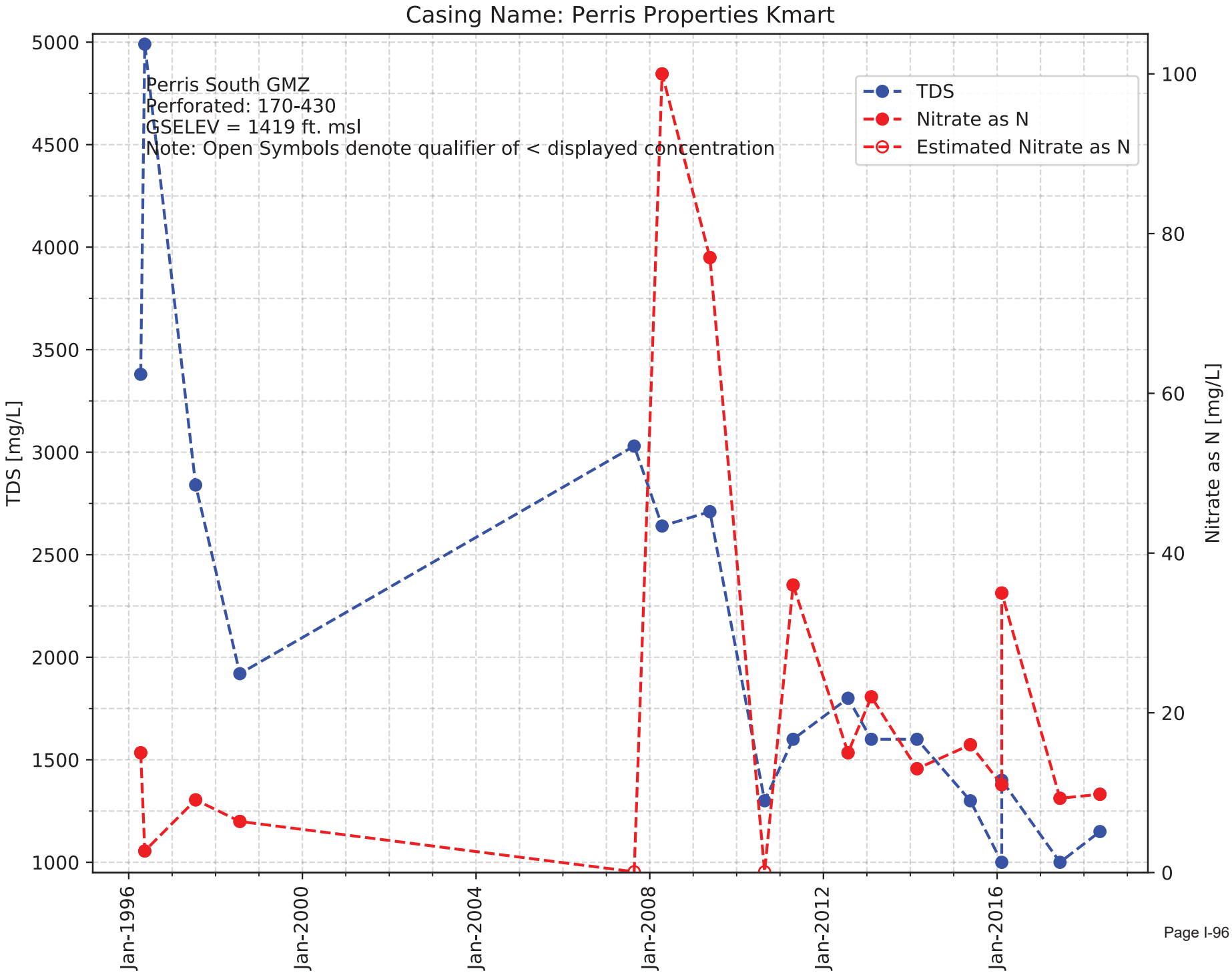

Casing Name: Newport
Perris South GMZ
Perforated: 140-296
GSELEV = 1429 ft. msl
TDS
TDS [mg/L]
3500
3000
2500
2000
1500
1000
500
Jan-1954
Jan-1955
Jan-1956
Dec-1956
Jan-1958
Jan-1959
Jan-1960
Dec-1960
Jan-1962
Jan-1963
Jan-1964
Dec-1964
Jan-1966
Jan-1967
Jan-1968
Dec-1968
Jan-1970
Jan-1971
Jan-1972
Dec-1972
Jan-1974
Jan-1975

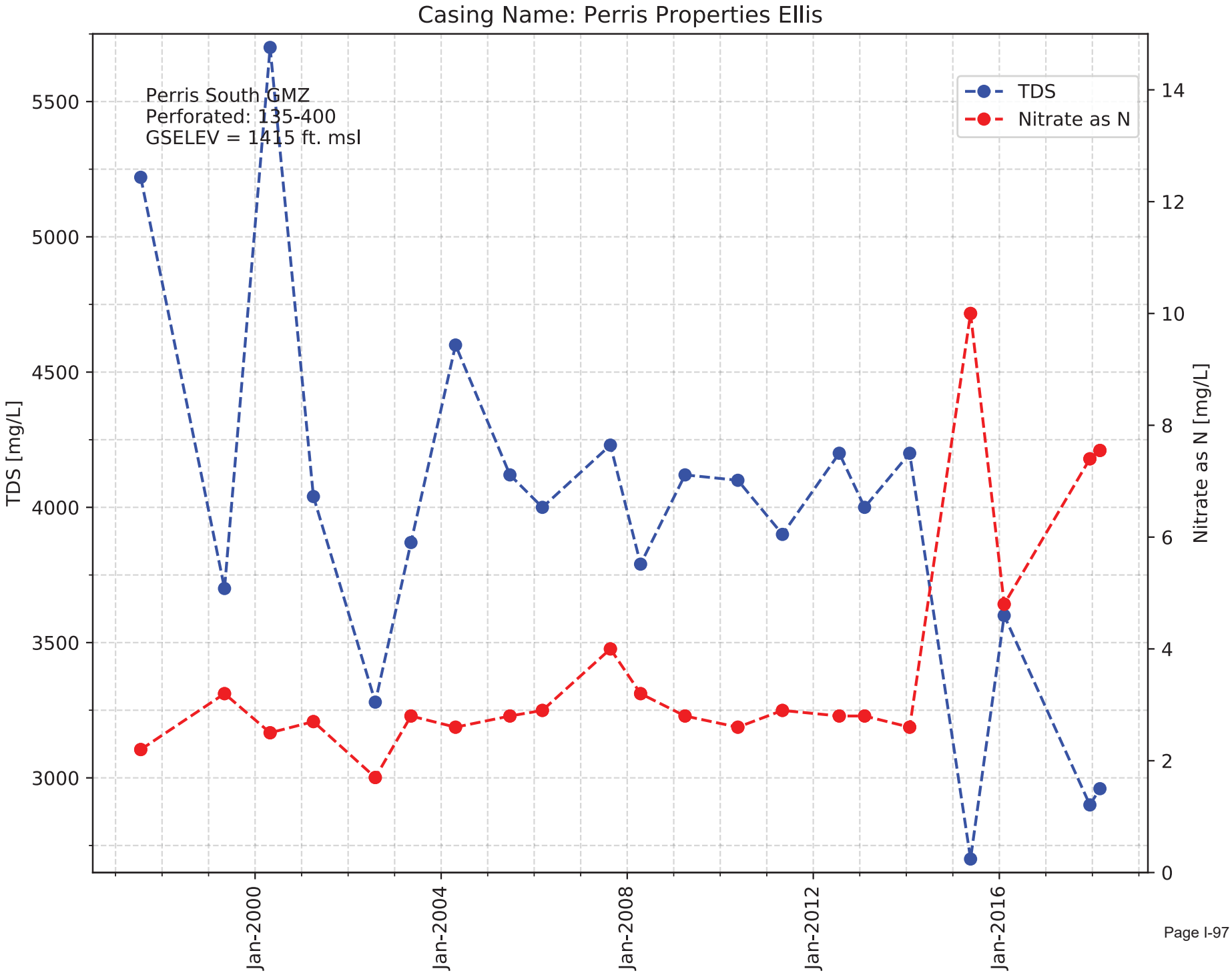

Casing Name: EMWD Skiland 05
Perris South GMZ
Perforated: 313-567
GSELEV = 1418 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
10000
8000
6000
4000
2000
8
6
4
2
0
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

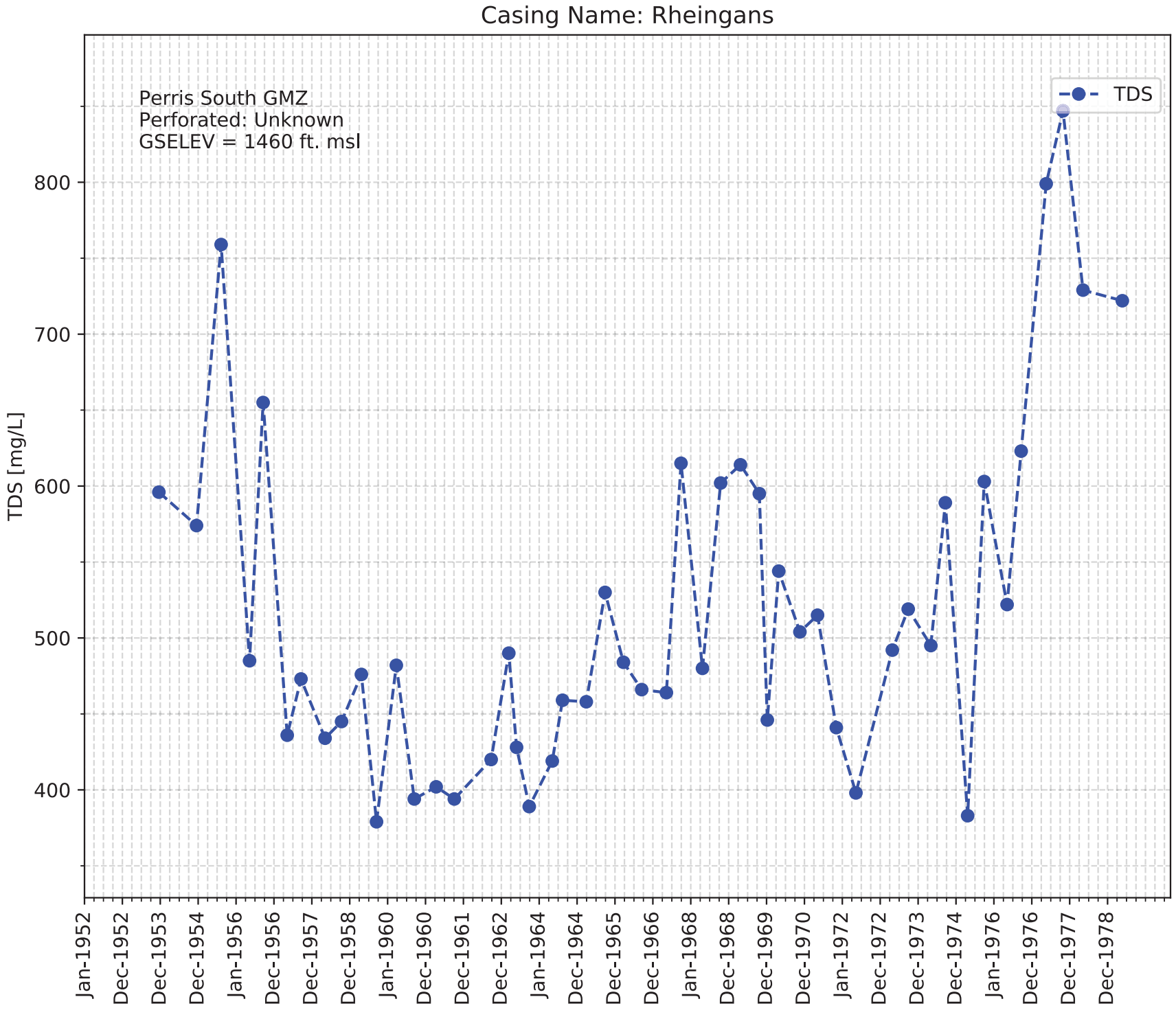

Casing Name: EMWD Skiland 02
Perris South GMZ
Perforated: Unknown
GSELEV = 1418 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
14000
12000
10000
8000
6000
4000
2000
8
7
6
5
4
3
2
1
0
Jan-1988
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

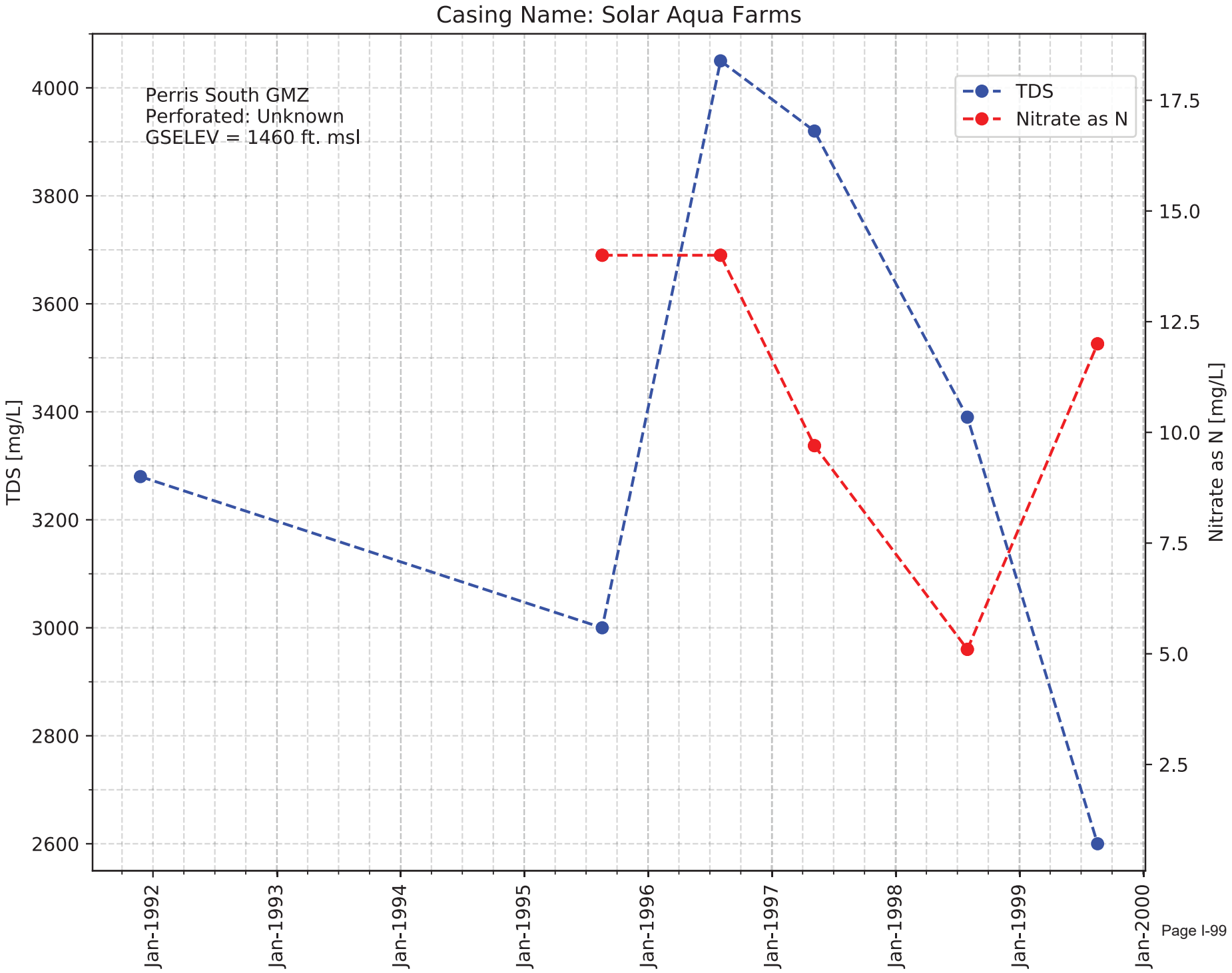

Casing Name: EMWD Skiland 01
Perris South GMZ
Perforated: 360-720
GSELEV = 1417 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
20000
15000
10000
5000
10
8
6
4
2
0
Jan-1988
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

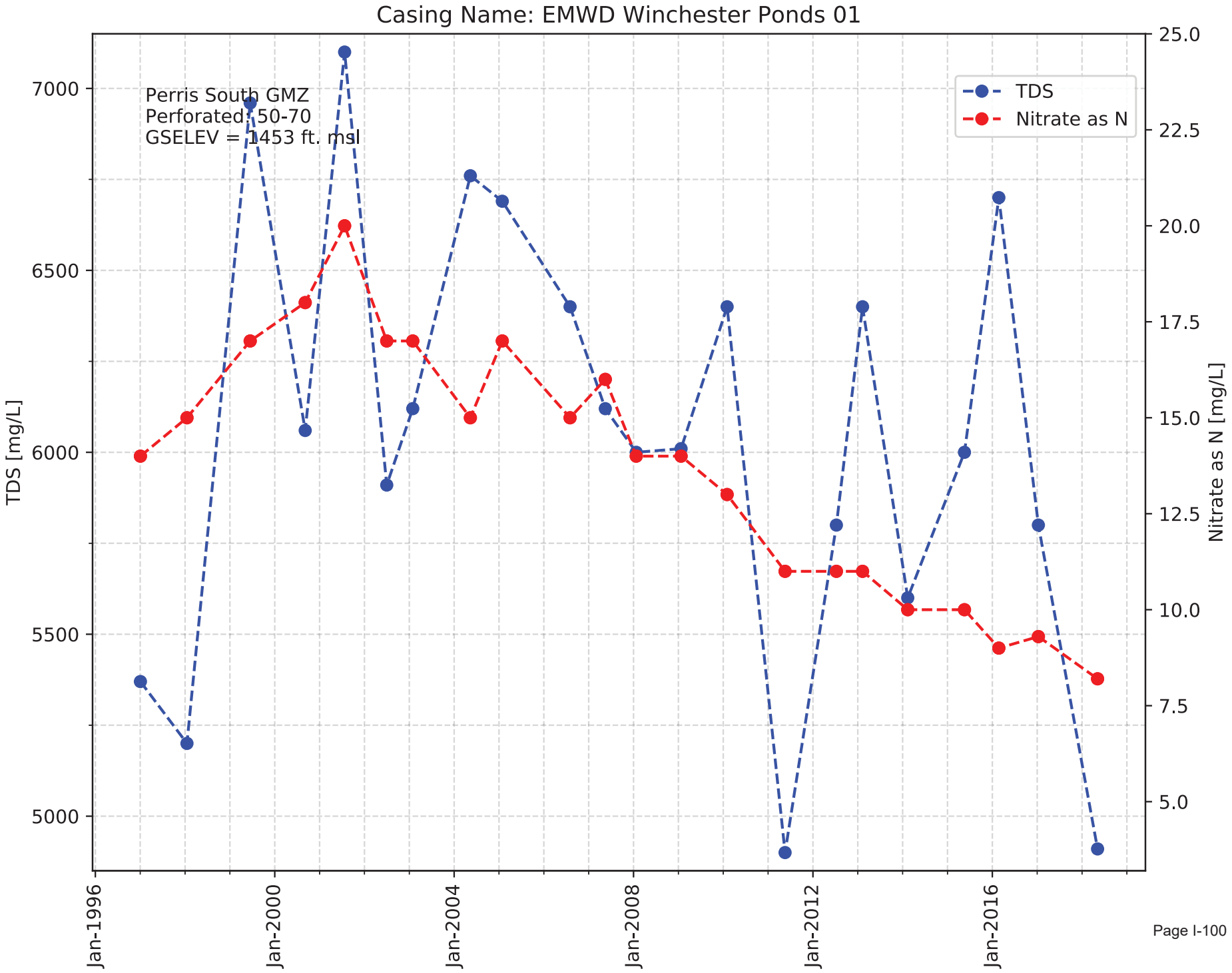

Casing Name: City of Perris Bob Long Memorial Park
Perris South GMZ
Perforated: Unknown
GSELEV = 1422 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2250
2000
1750
1500
1250
1000
750
8
6
4
2
0
Jan-1950
Jan-1960
Jan-1970
Jan-1980
Jan-1990
Jan-2000

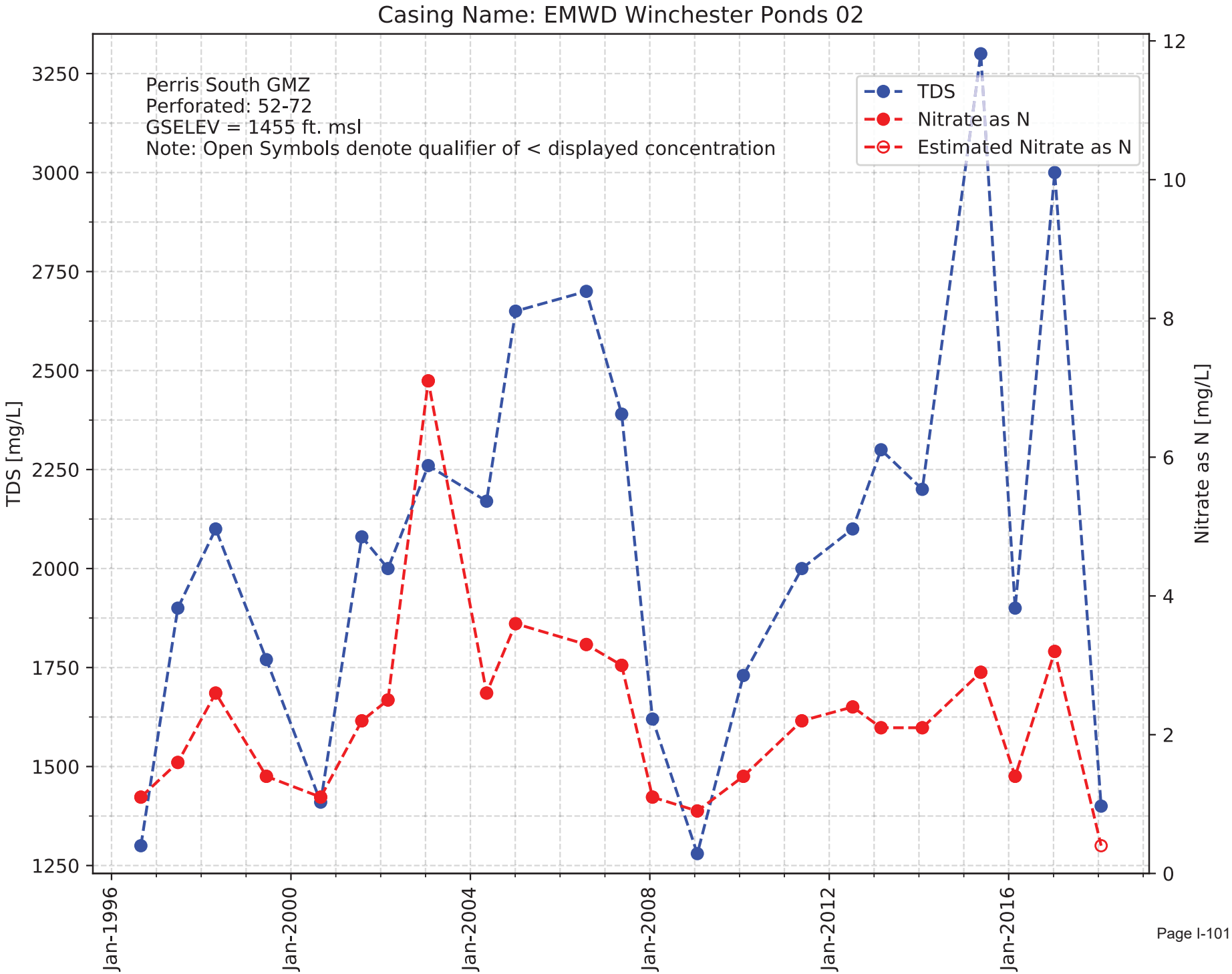

Casing Name: Perris Properties Kmart
Perris South GMZ
Perforated: 170-430
GSELEV = 1419 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
5000
4500
4000
3500
3000
2500
2000
1500
1000
100
80
60
40
20
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016


Casing Name: Perris Properties Ellis
Perris South GMZ
Perforated: 135-400
GSELEV = 1415 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
5500
5000
4500
4000
3500
3000
14
12
10
8
6
4
2
0
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

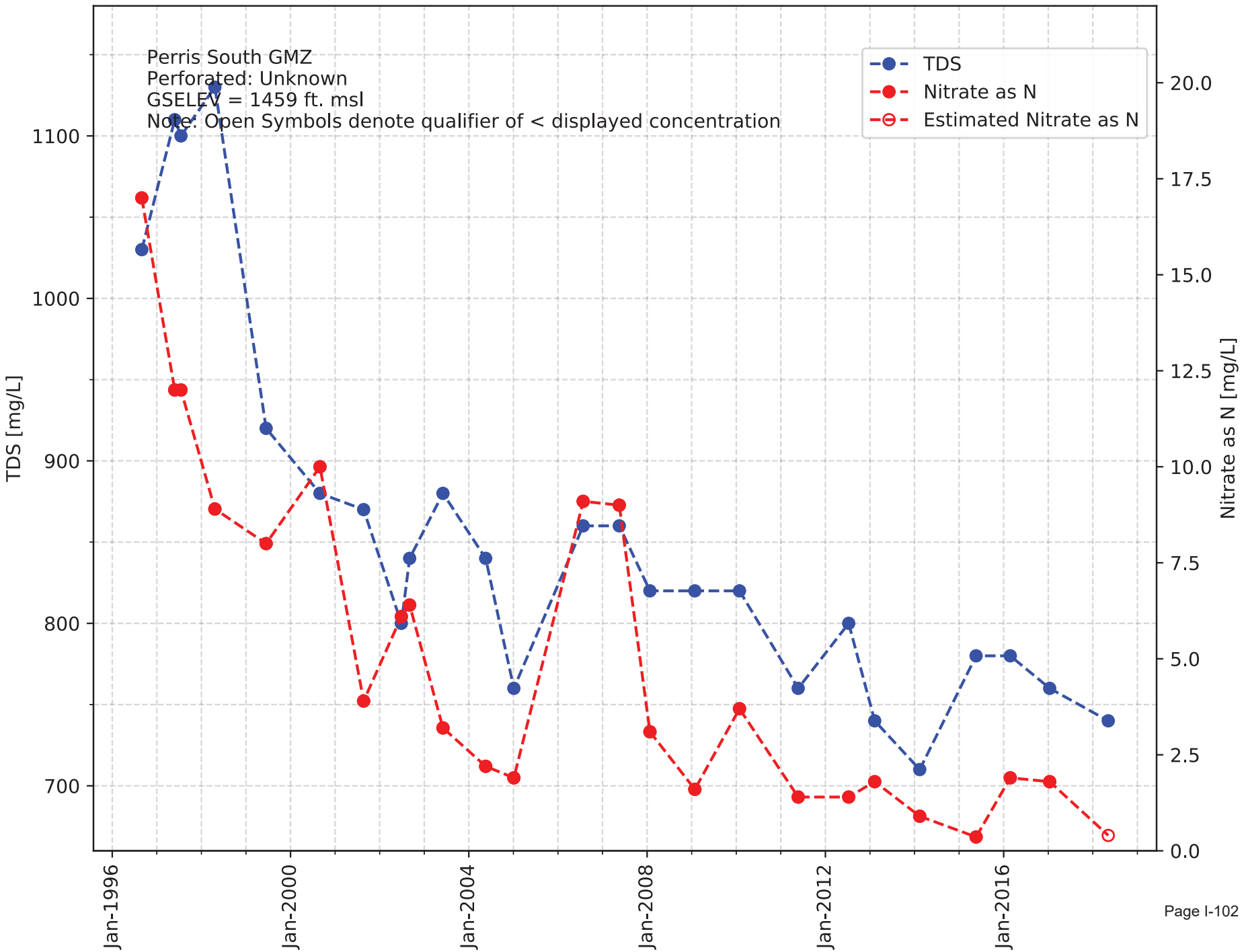

Casing Name: Rheingans
Perris South GMZ
Perforated: Unknown
GSELEV = 1460 ft. msl
TDS
TDS [mg/L]
800
700
600
500
400
Jan-1952
Dec-1952
Dec-1953
Dec-1954
Jan-1956
Dec-1956
Dec-1957
Dec-1958
Jan-1960
Dec-1960
Dec-1961
Dec-1962
Jan-1964
Dec-1964
Dec-1965
Dec-1966
Jan-1968
Dec-1968
Dec-1969
Dec-1970
Jan-1972
Dec-1972
Dec-1973
Dec-1974
Jan-1976
Dec-1976
Dec-1977
Dec-1978

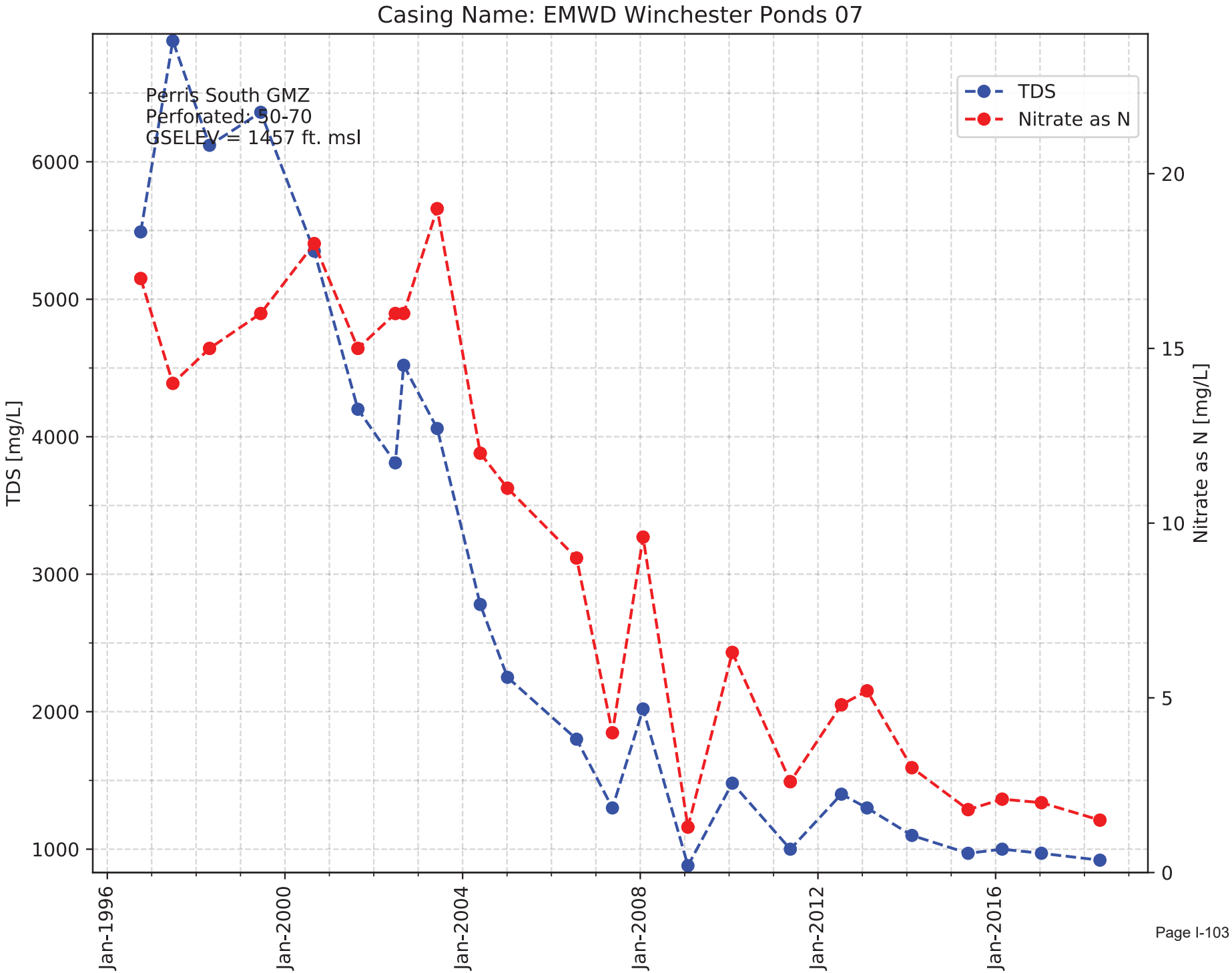

Casing Name: Solar Aqua Farms
Perris South GMZ
Perforated: Unknown
GSELEV = 1460 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3800
3600
3400
3200
3000
2800
2600
17.5
15.0
12.5
10.0
7.5
5.0
2.5
Jan-1992
Jan-1993
Jan-1994
Jan-1995
Jan-1996
Jan-1997
Jan-1998
Jan-1999
Jan-2000

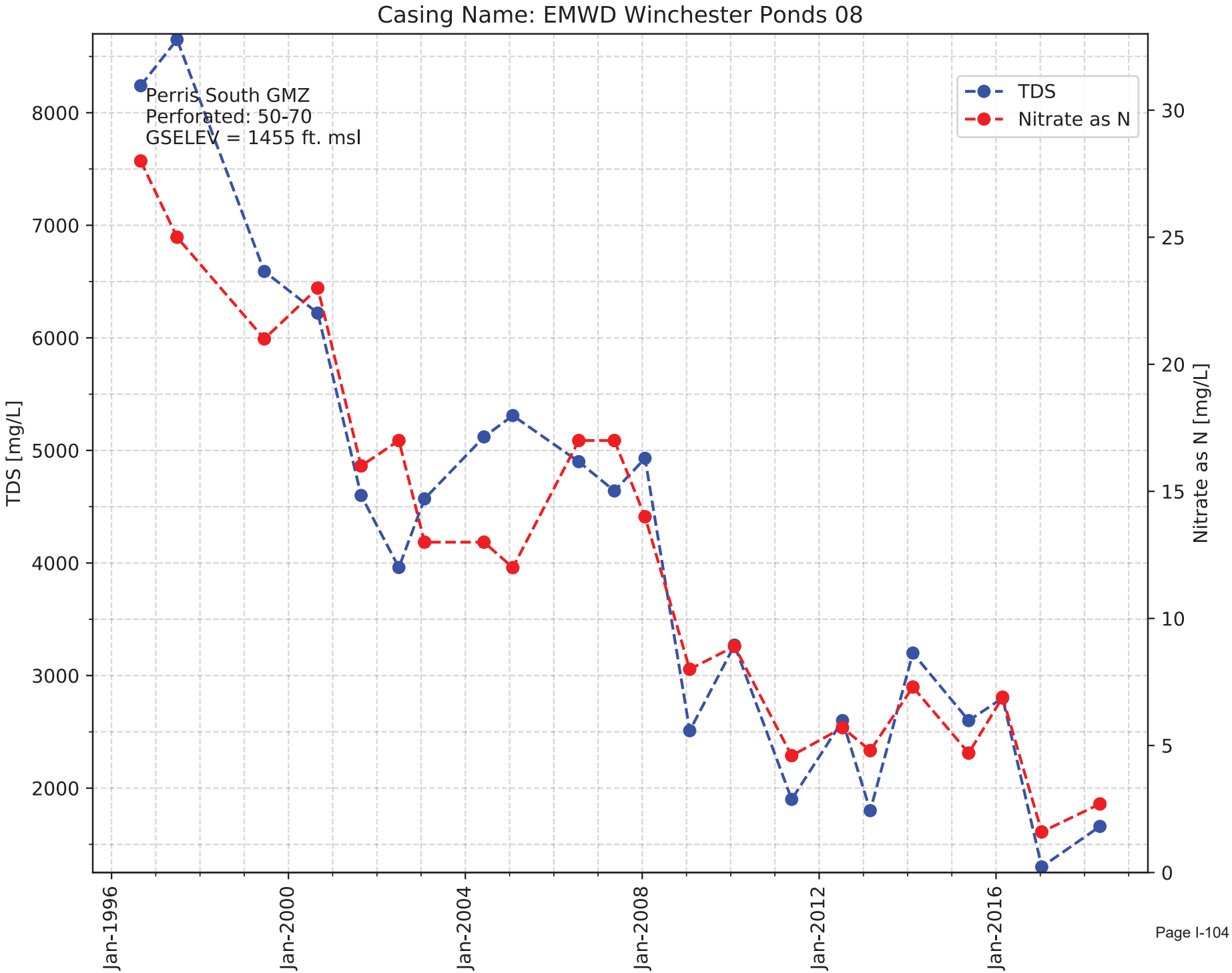

Casing Name: EMWD Winchester Ponds 01
Perris South GMZ
Perforated: 50-70
GSELEV = 1453 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
7000
6500
6000
5500
5000
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

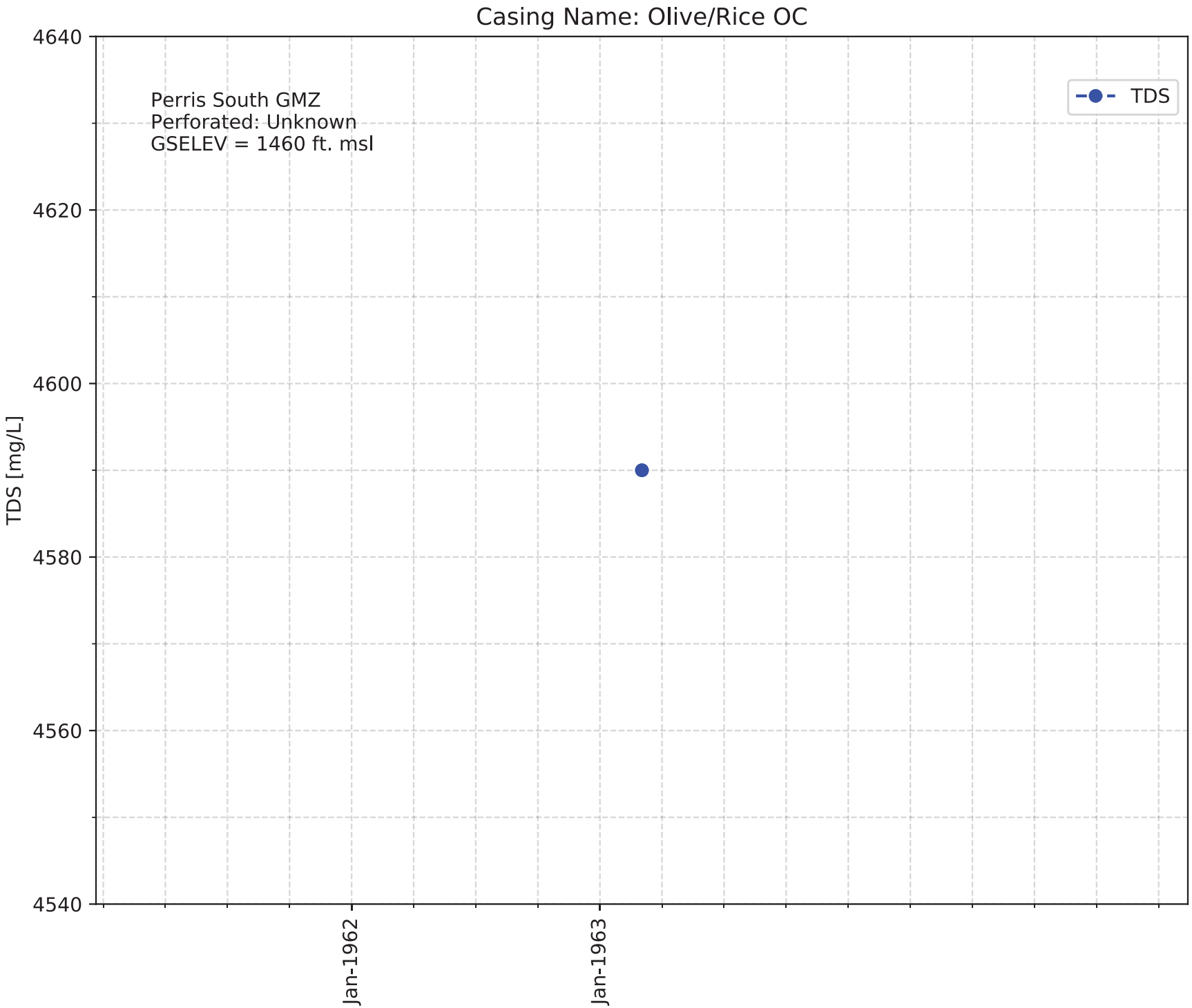

Casing Name: EMWD Winchester Ponds 02
Perris South GMZ
Perforated: 52-72
GSELEV = 1455 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3250
3000
2750
2500
2250
2000
1750
1500
1250
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

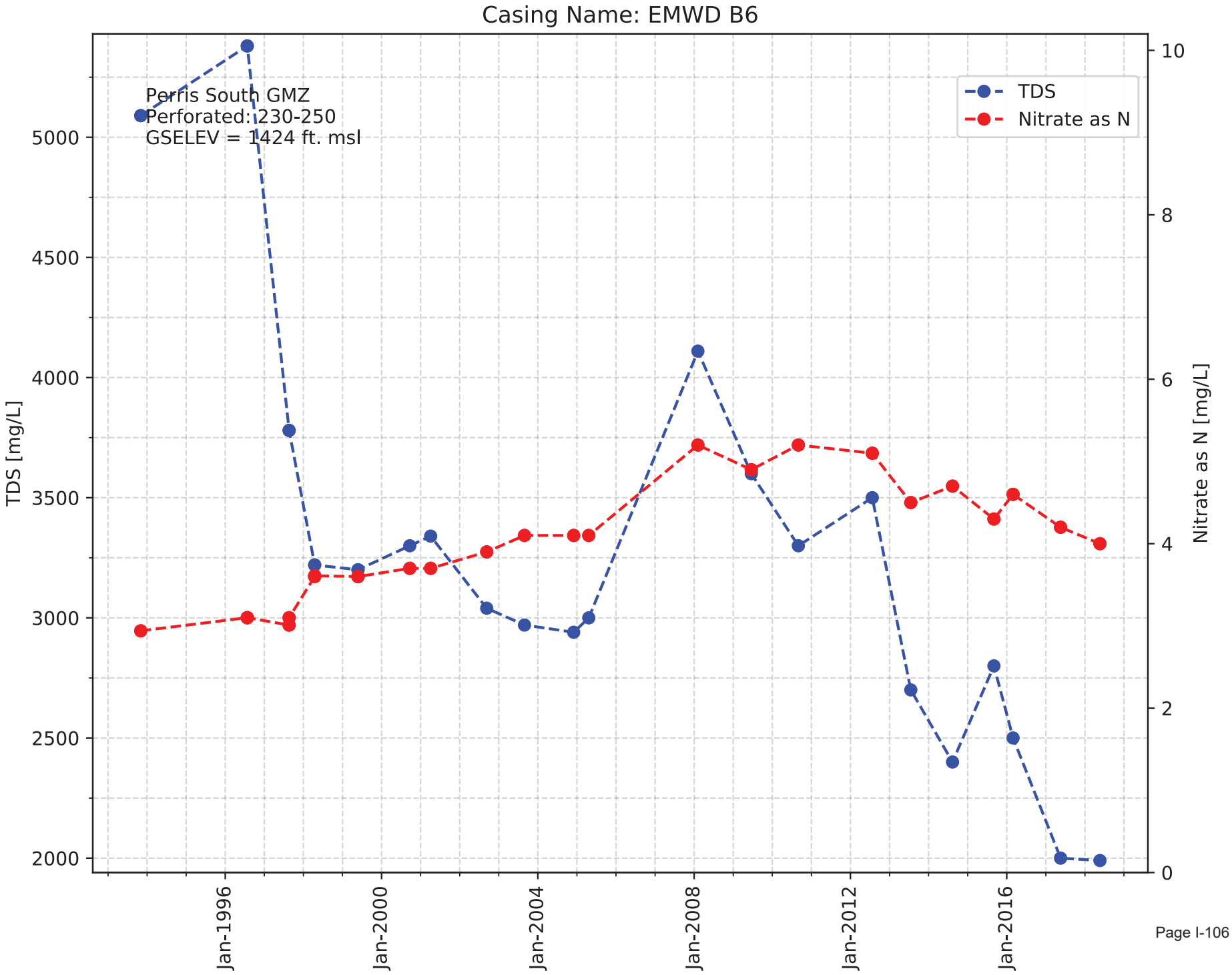
Casing Name: EMWD Winchester Ponds 06

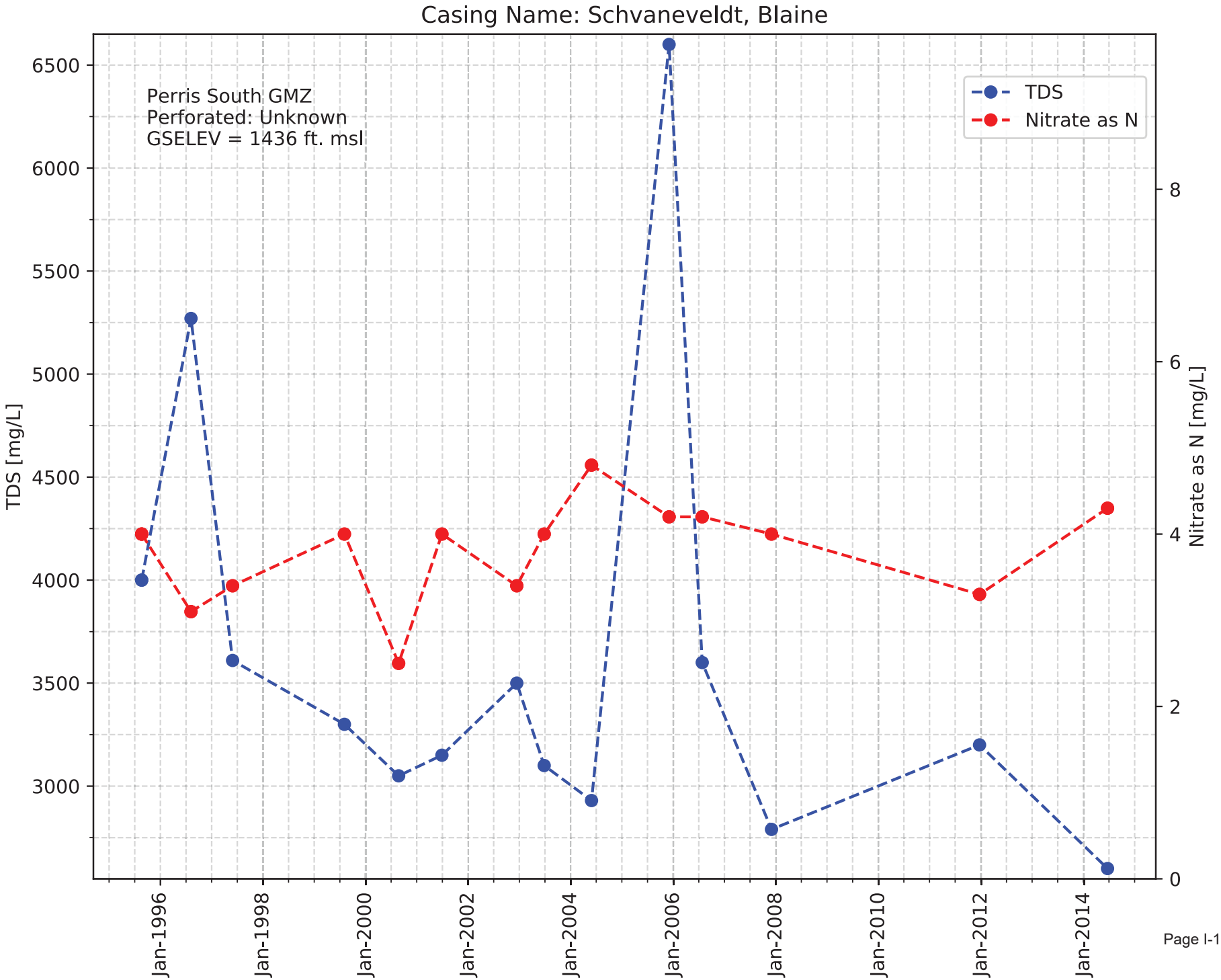


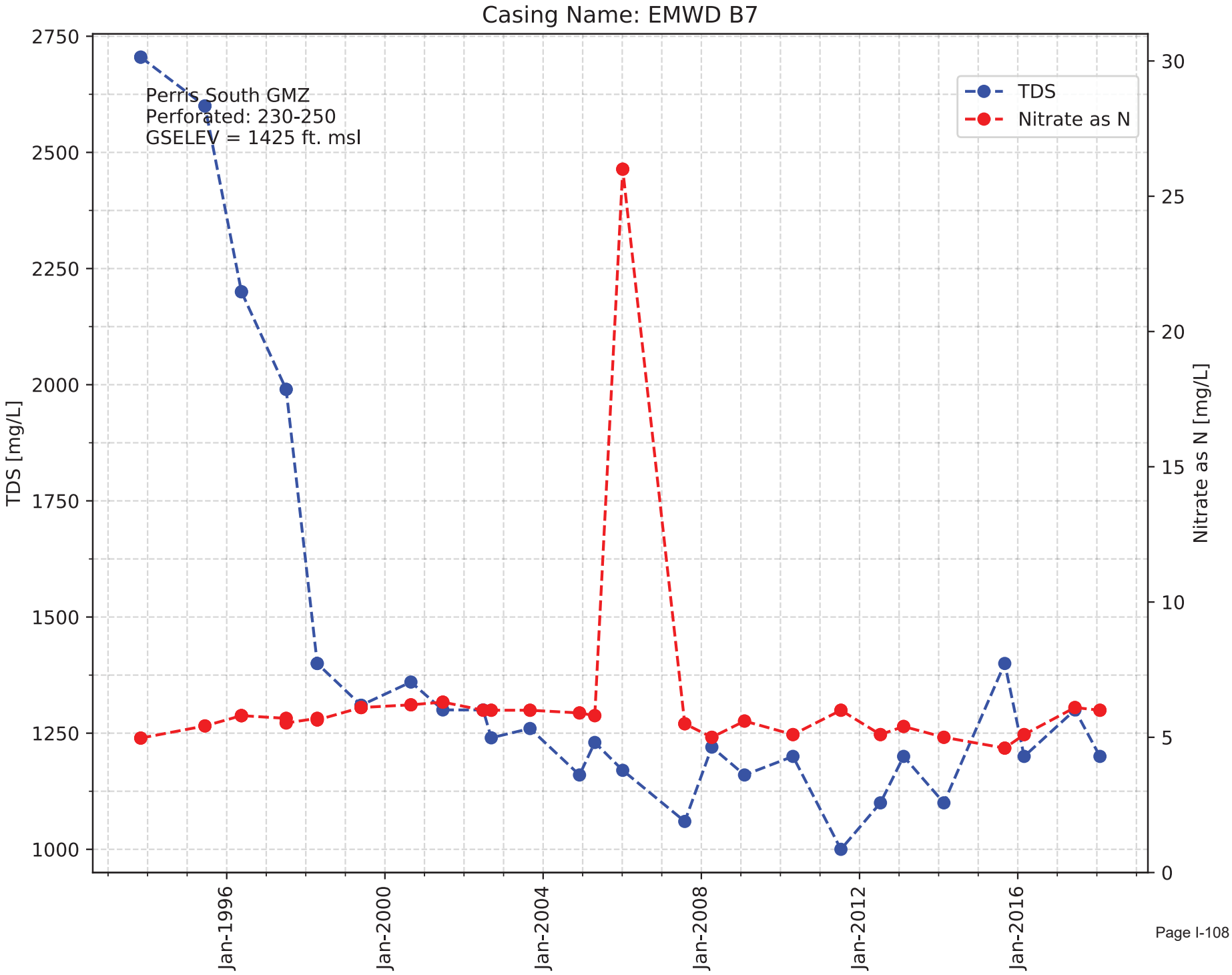

Casing Name: EMWD Winchester Ponds 07
Perris South GMZ
Perforated: 50-70
GSELEV = 1457 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
6000
5000
4000
3000
2000
1000
20
15
10
5
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

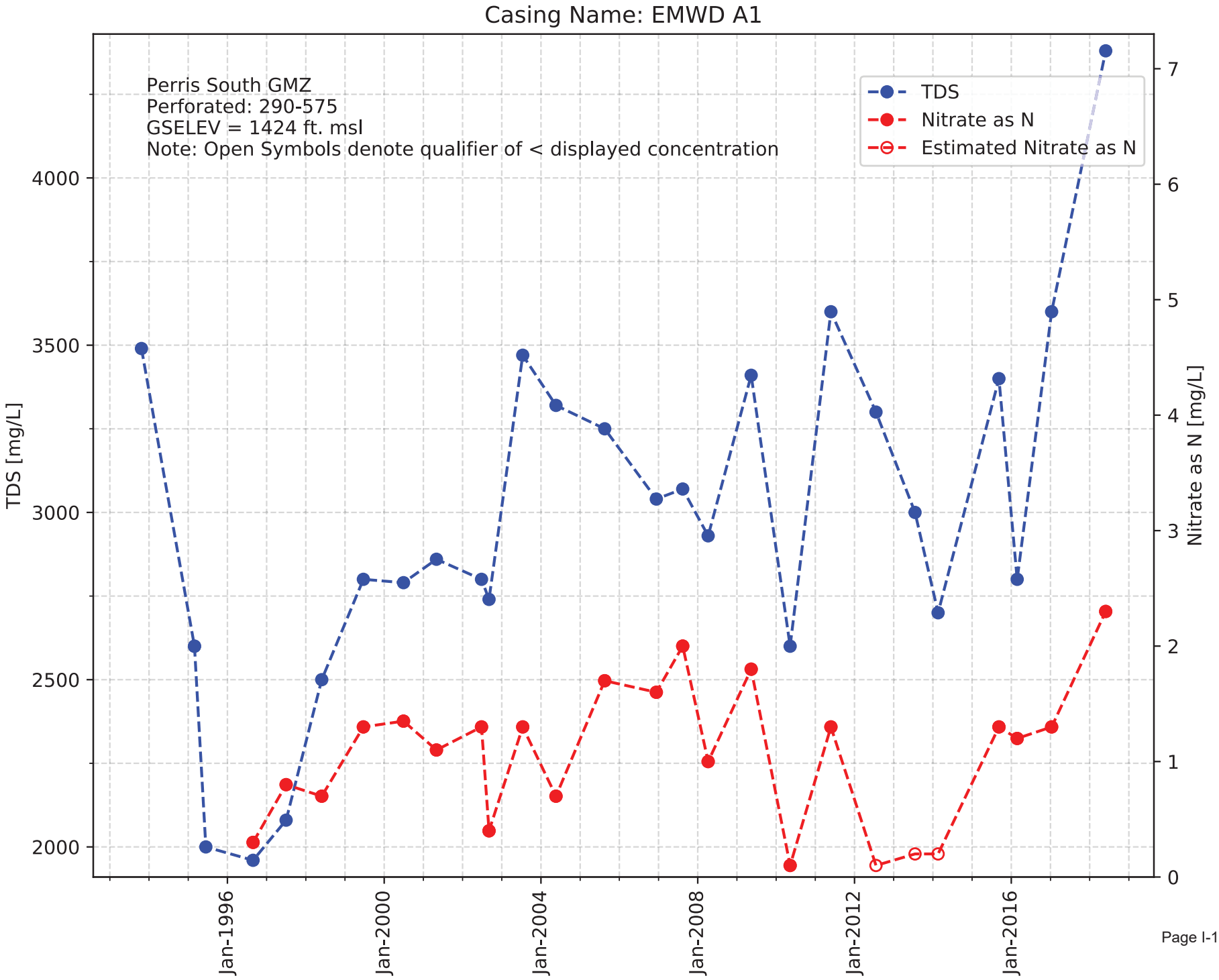

Casing Name: EMWD Winchester Ponds 08
Perris South GMZ
Perforated: 50-70
GSELEV = 1455 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
8000
7000
6000
5000
4000
3000
2000
30
25
20
15
10
5
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

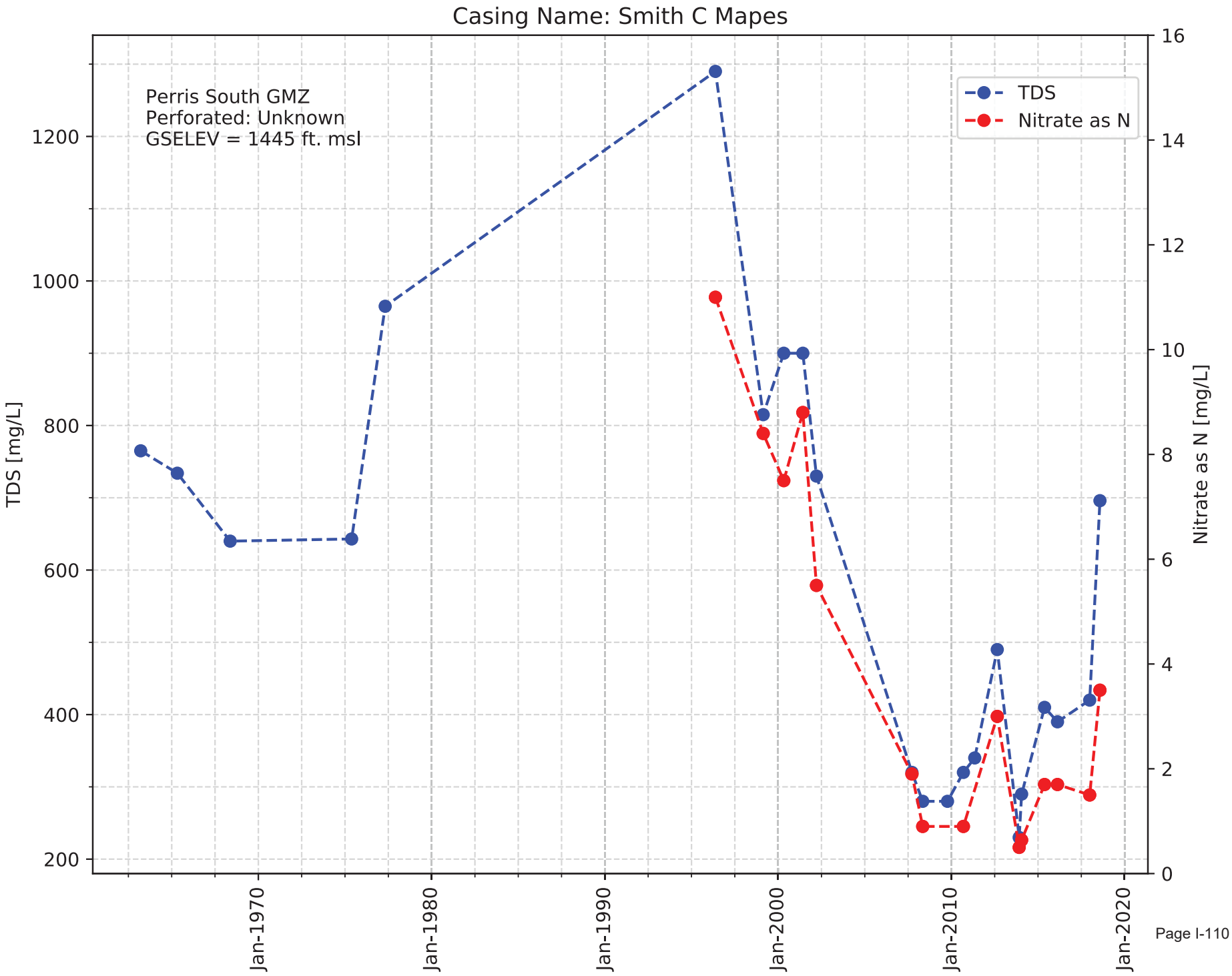

Casing Name: Olive/Rice OC
Perris South GMZ
Perforated: Unknown
GSELEV = 1460 ft. msl
TDS
TDS [mg/L]
4640
4620
4600
4580
4560
4540
Jan-1962
Jan-1963

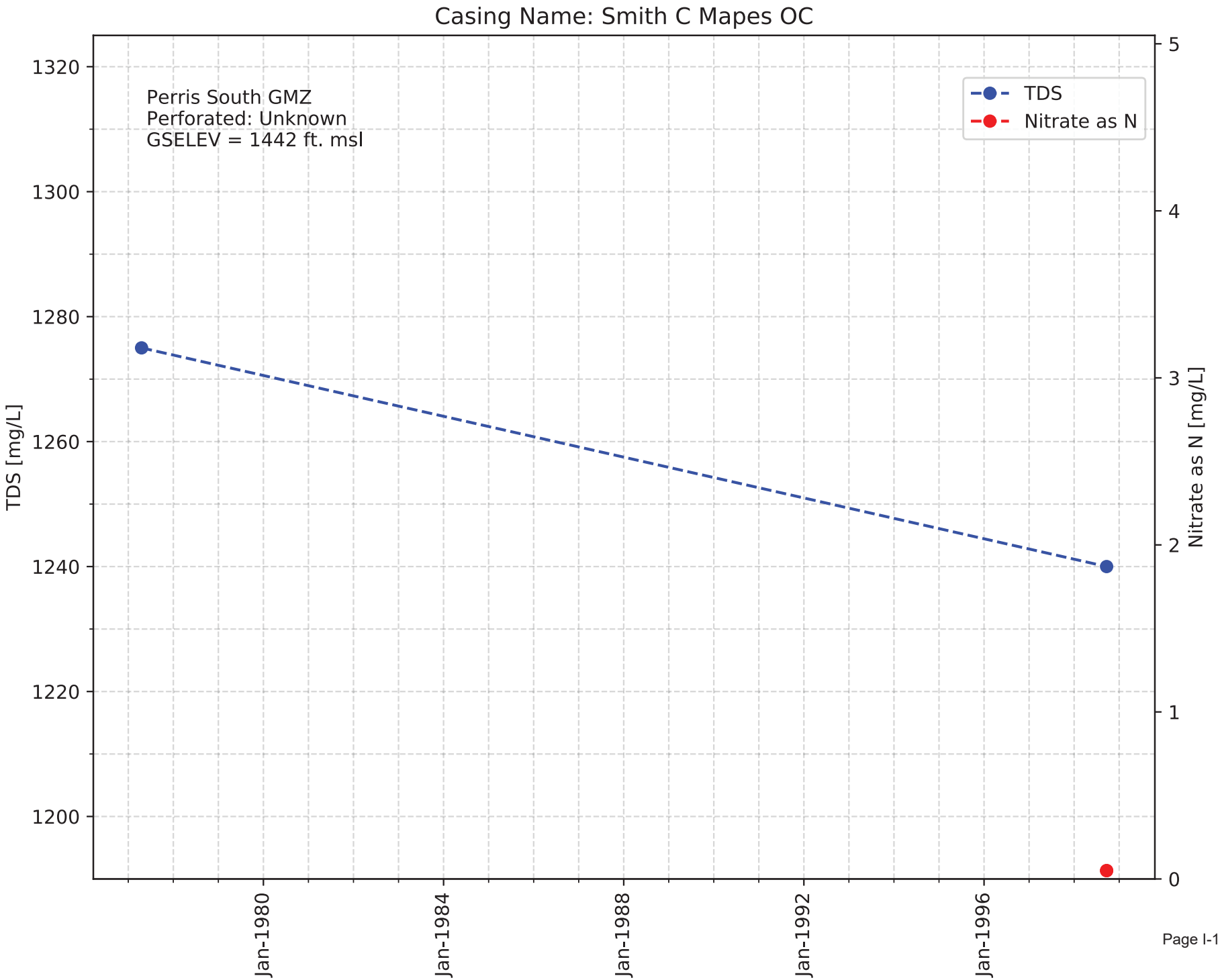

Casing Name: EMWD B6
Perris South GMZ
Perforated: 230-250
GSELEV = 1424 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
5000
4500
4000
3500
3000
2500
2000
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

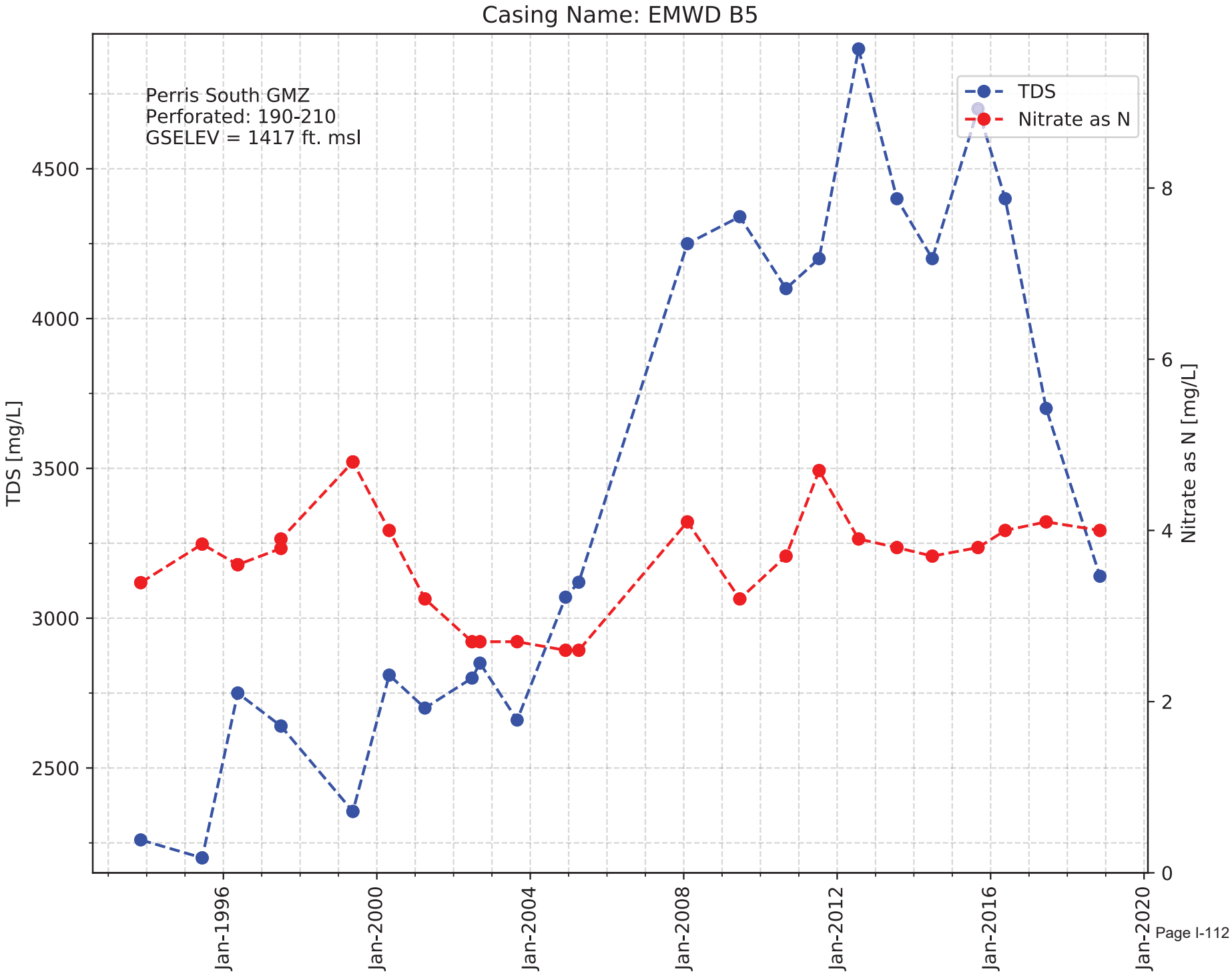

Casing Name: Schvaneveldt, Blaine
Perris South GMZ
Perforated: Unknown
GSELEV = 1436 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
6500
6000
5500
5000
4500
4000
3500
3000
8
6
4
2
0
Jan-1996
Jan-1998
Jan-2000
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014

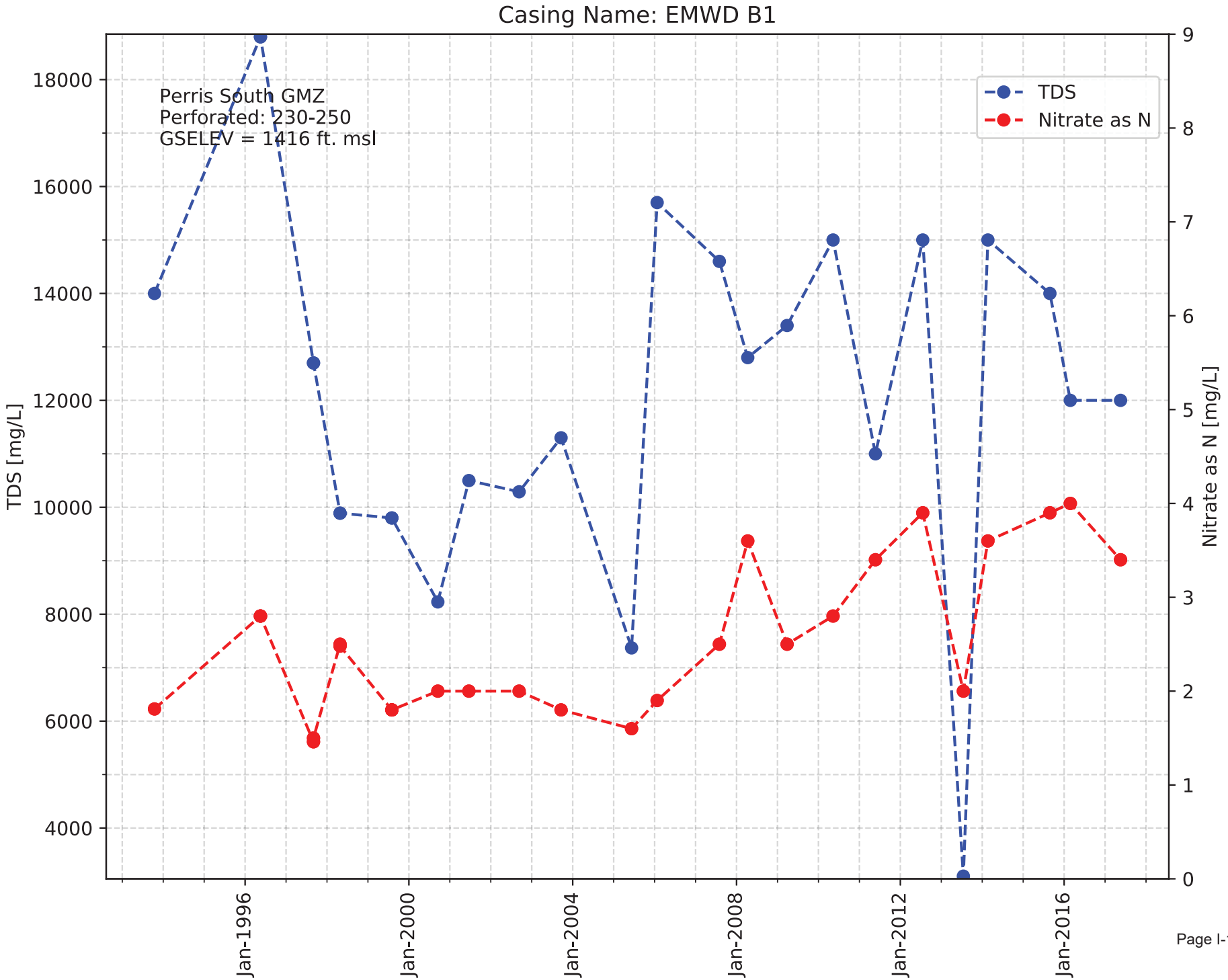

Casing Name: EMWD B7
Perris South GMZ
Perforated: 230-250
GSELEV = 1425 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2750
2500
2250
2000
1750
1500
1250
1000
30
25
20
15
10
5
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

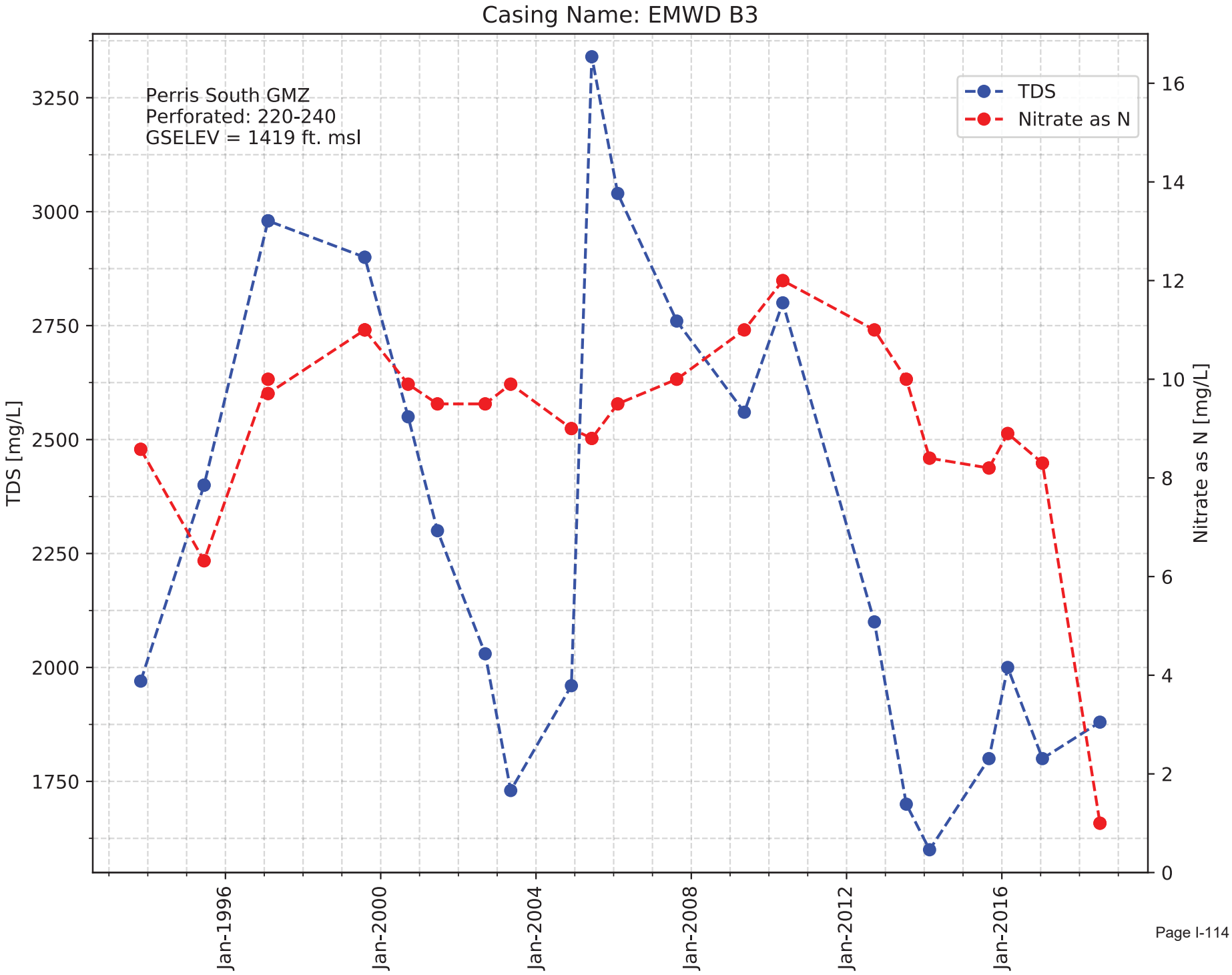

Casing Name: EMWD A1
Perris South GMZ
Perforated: 290-575
GSELEV = 1424 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3500
3000
2500
2000
7
6
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

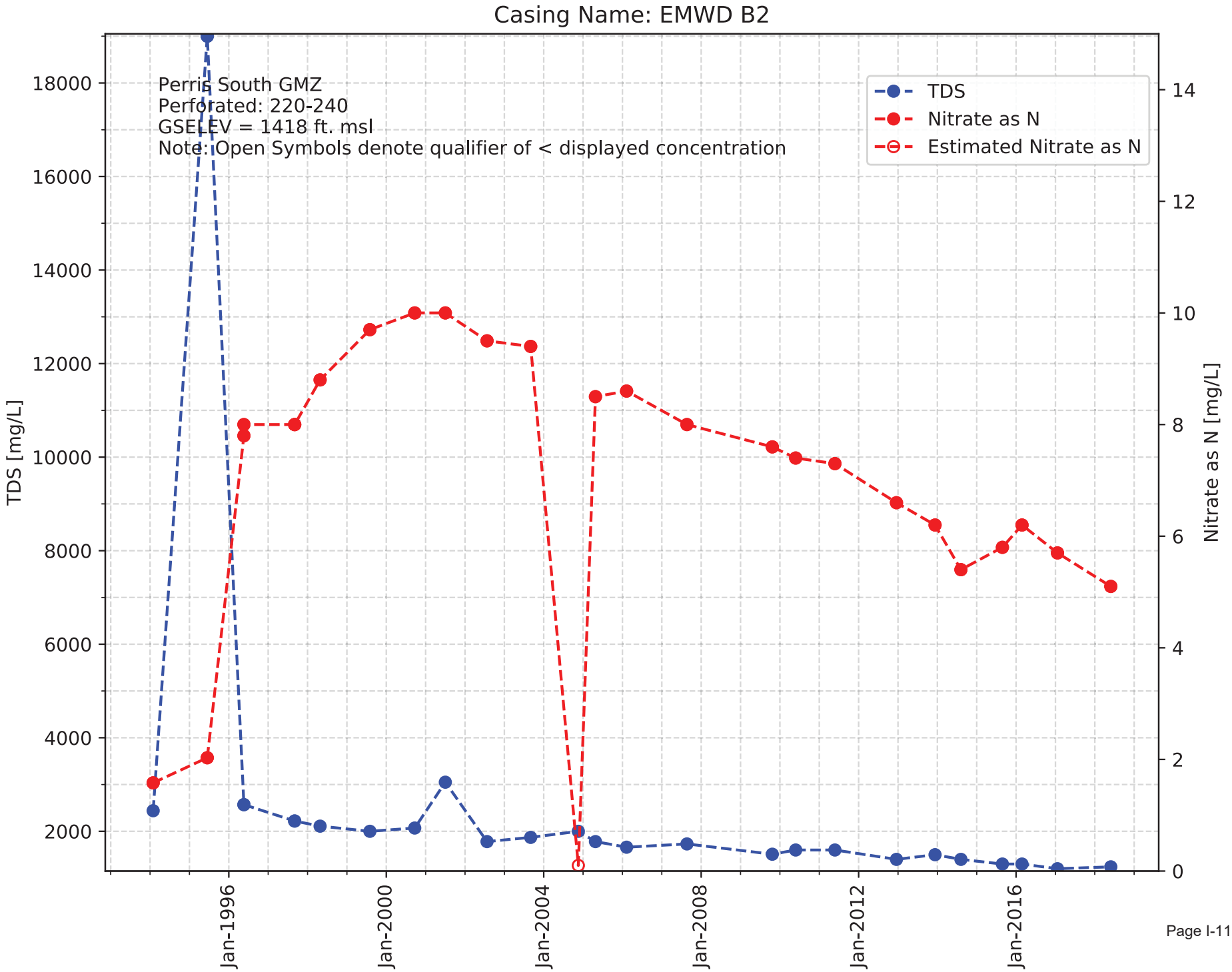

Casing Name: Smith C Mapes
Perris South GMZ
Perforated: Unknown
GSELEV = 1445 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
200
400
600
800
1000
1200
0
2
4
6
8
10
12
14
16
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

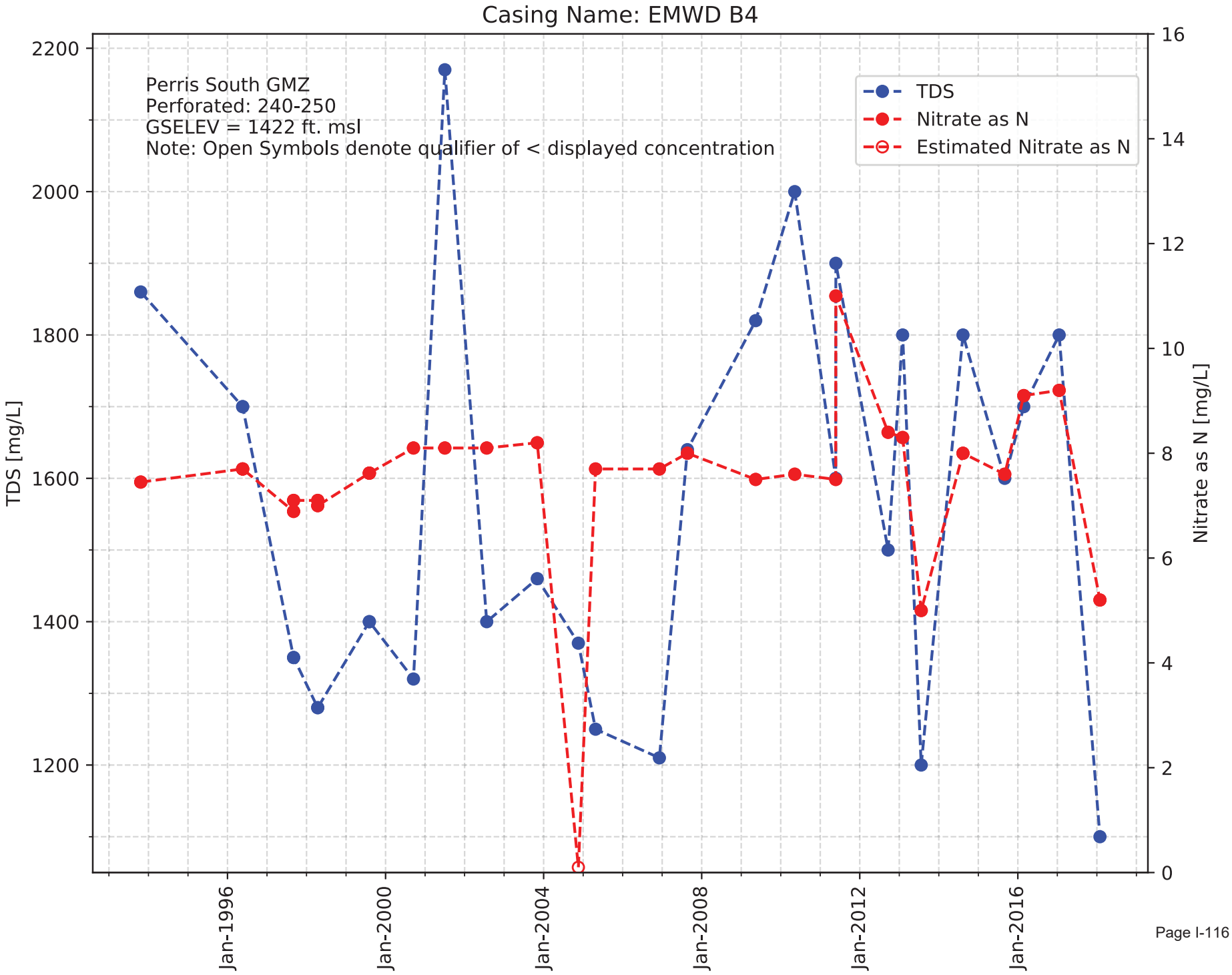

Casing Name: Smith C Mapes OC
Perris South GMZ
Perforated: Unknown
GSELEV = 1442 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1320
1300
1280
1260
1240
1220
1200
5
4
3
2
1
0
Jan-1980
Jan-1984
Jan-1988
Jan-1992
Jan-1996

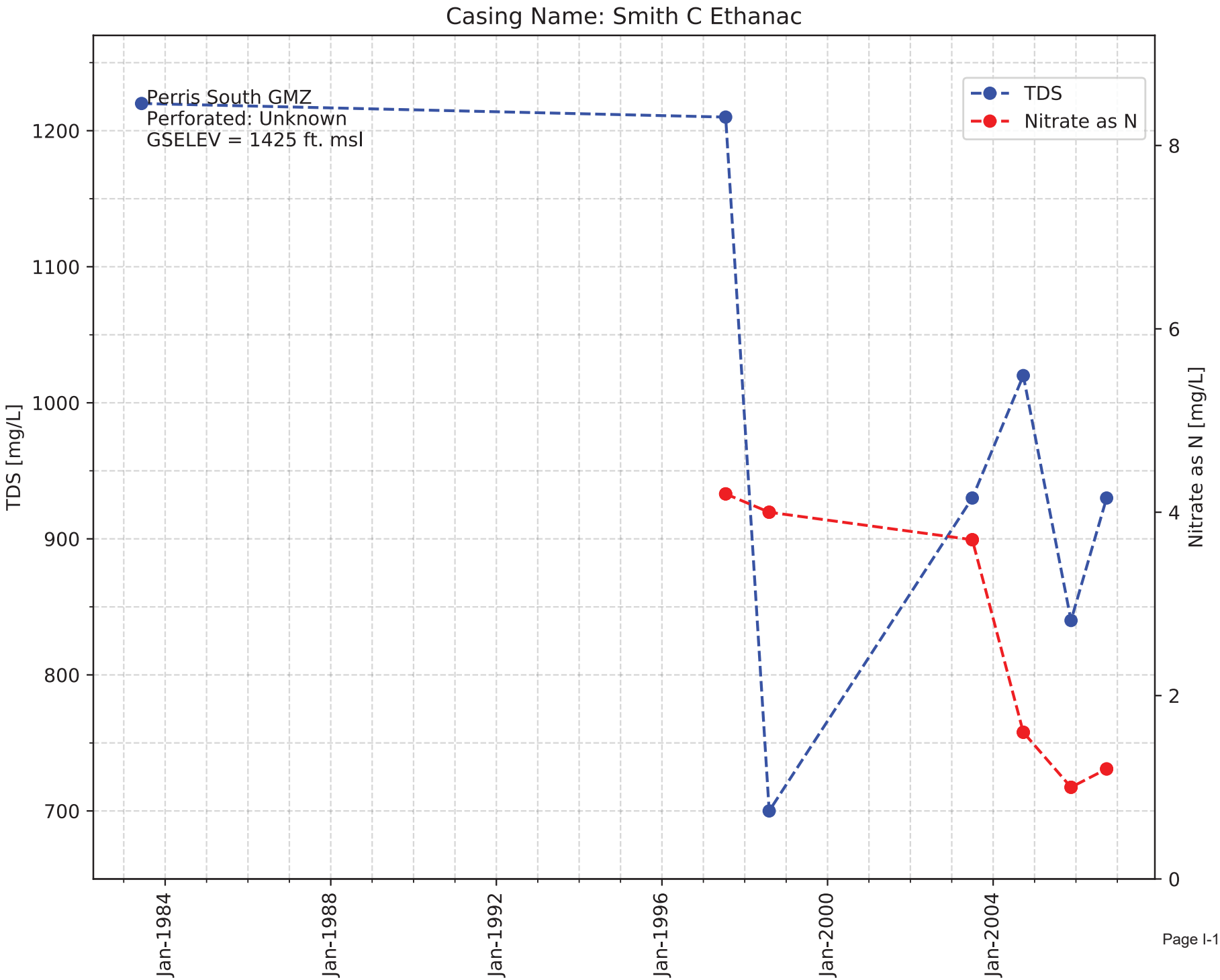

Casing Name: EMWD B5
Perris South GMZ
Perforated: 190-210
GSELEV = 1417 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4500
4000
3500
3000
2500
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016
Jan-2020

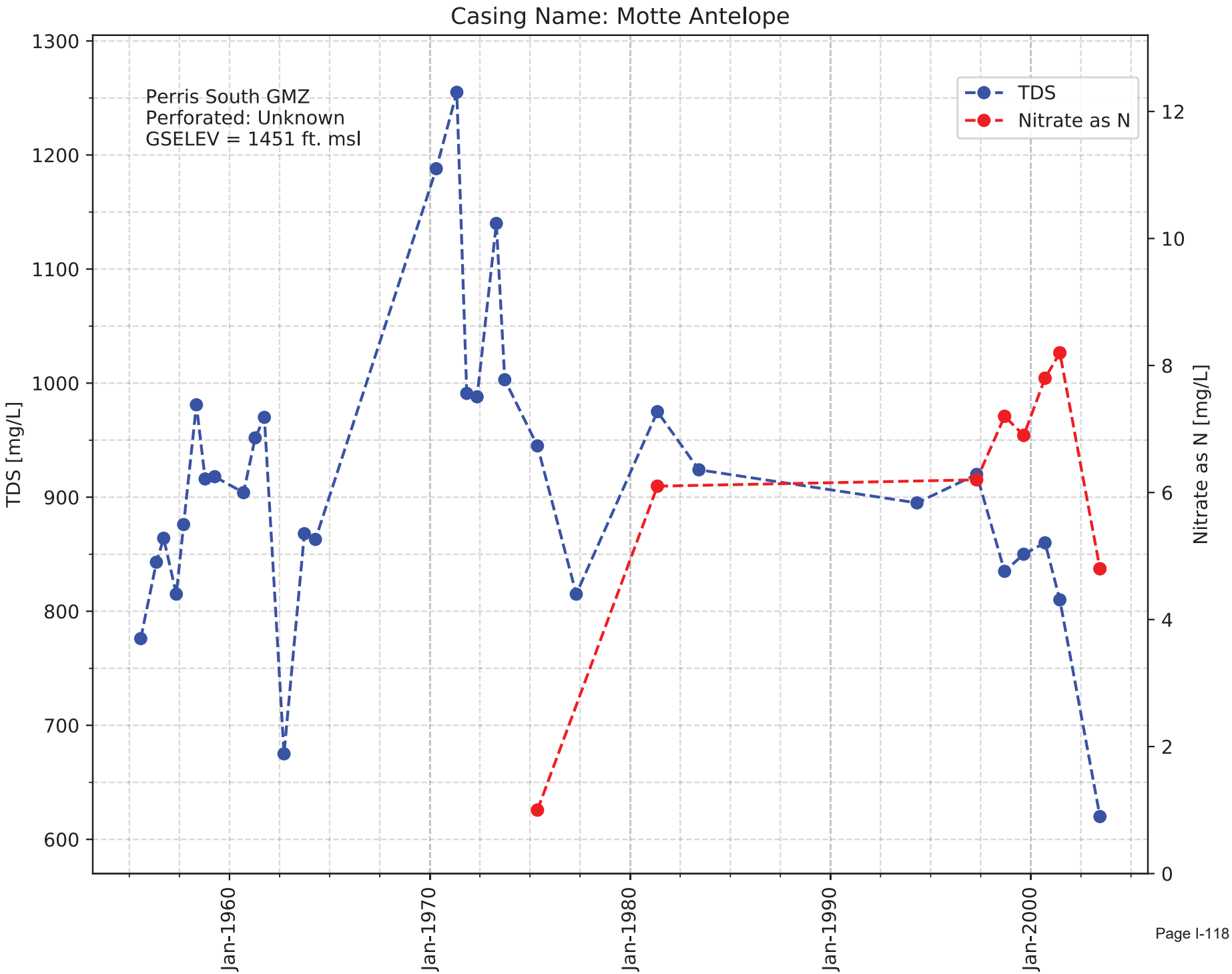

Casing Name: EMWD B1
Perris South GMZ
Perforated: 230-250
GSELEV = 1416 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
18000
16000
14000
12000
10000
8000
6000
4000
9
8
7
6
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

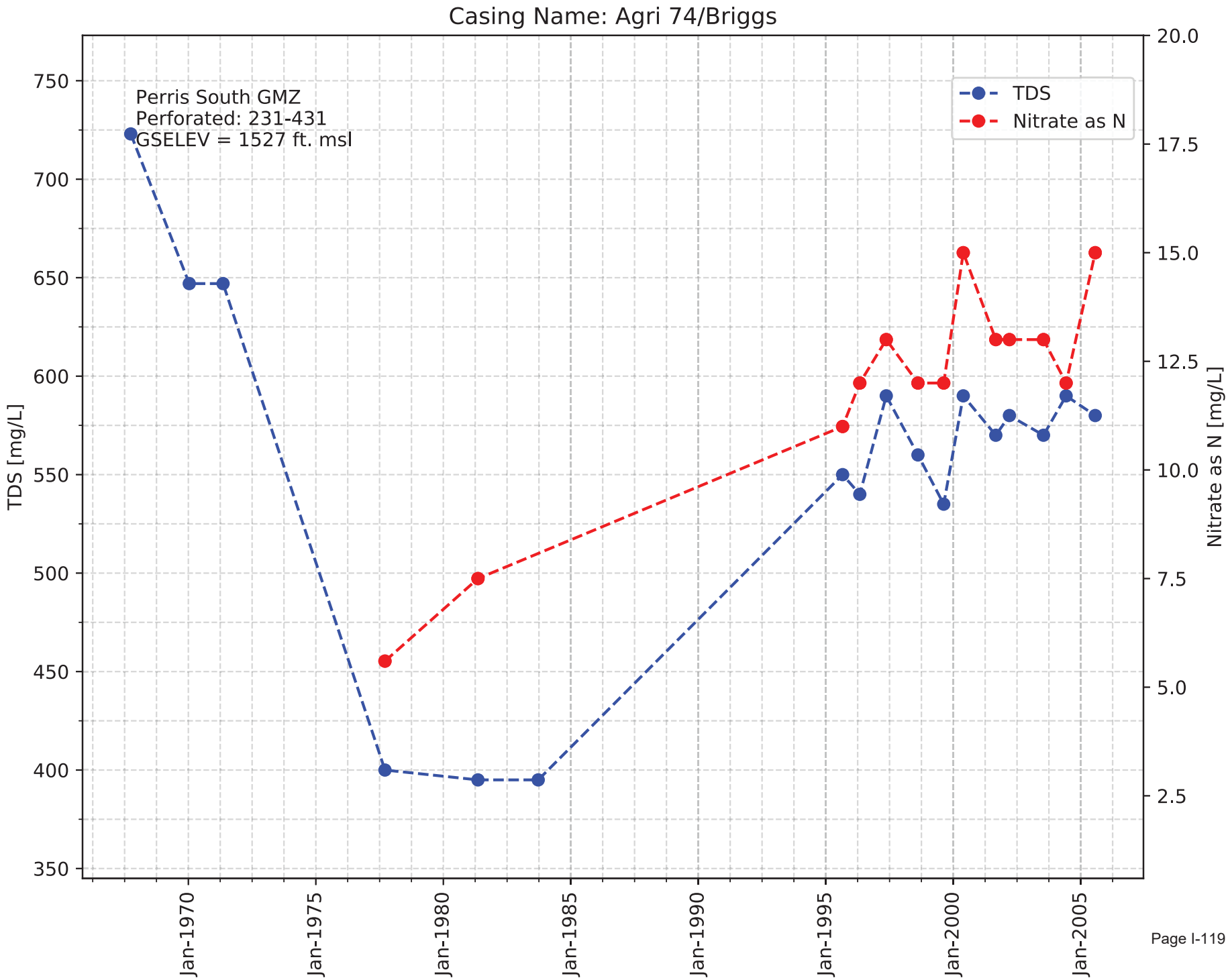

Casing Name: EMWD B3
Perris South GMZ
Perforated: 220-240
GSELEV = 1419 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3250
3000
2750
2500
2250
2000
1750
16
14
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

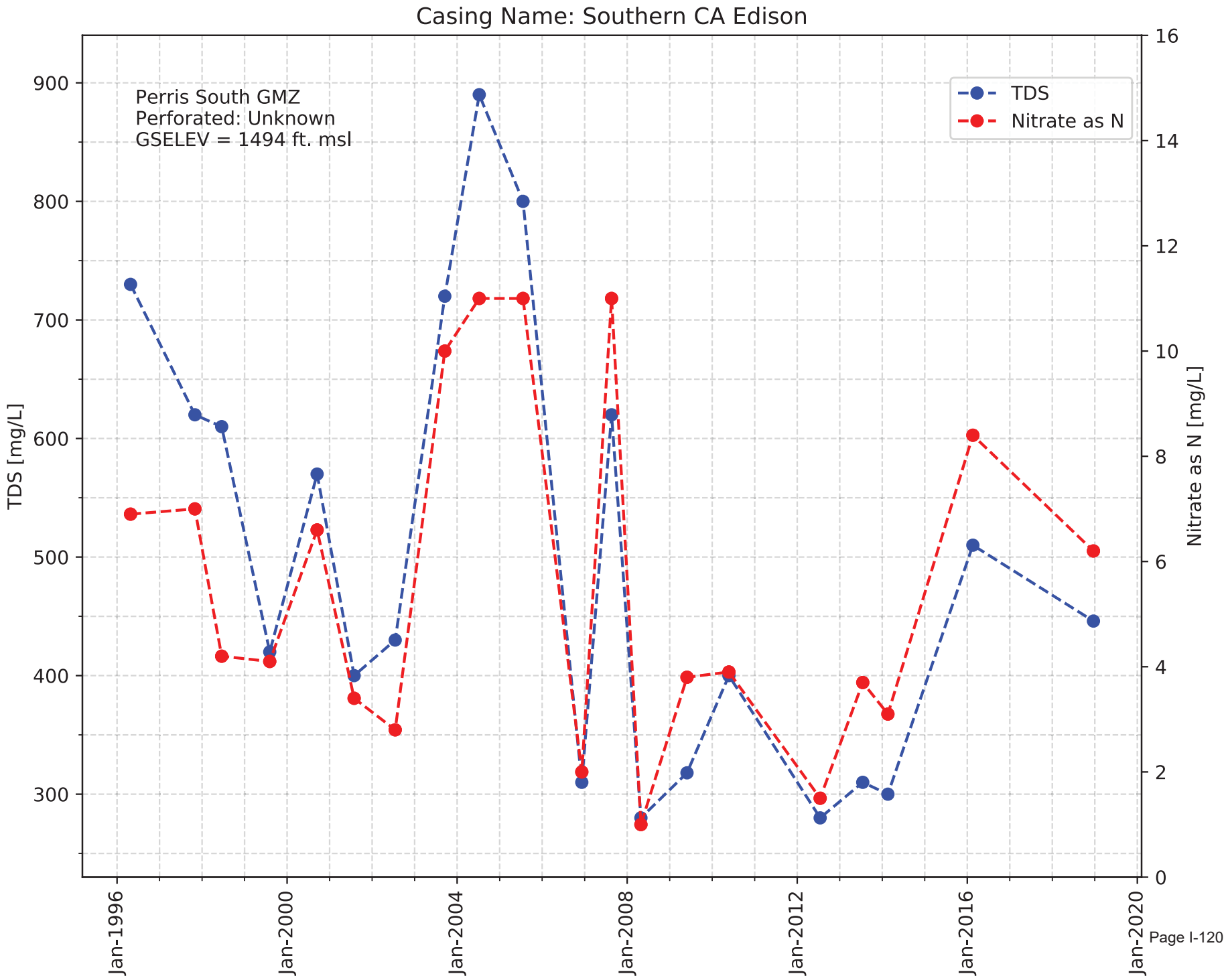

Casing Name: EMWD B2
Perris South GMZ
Perforated: 220-240
GSELEV = 1418 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
18000
16000
14000
12000
10000
8000
6000
4000
2000
14
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

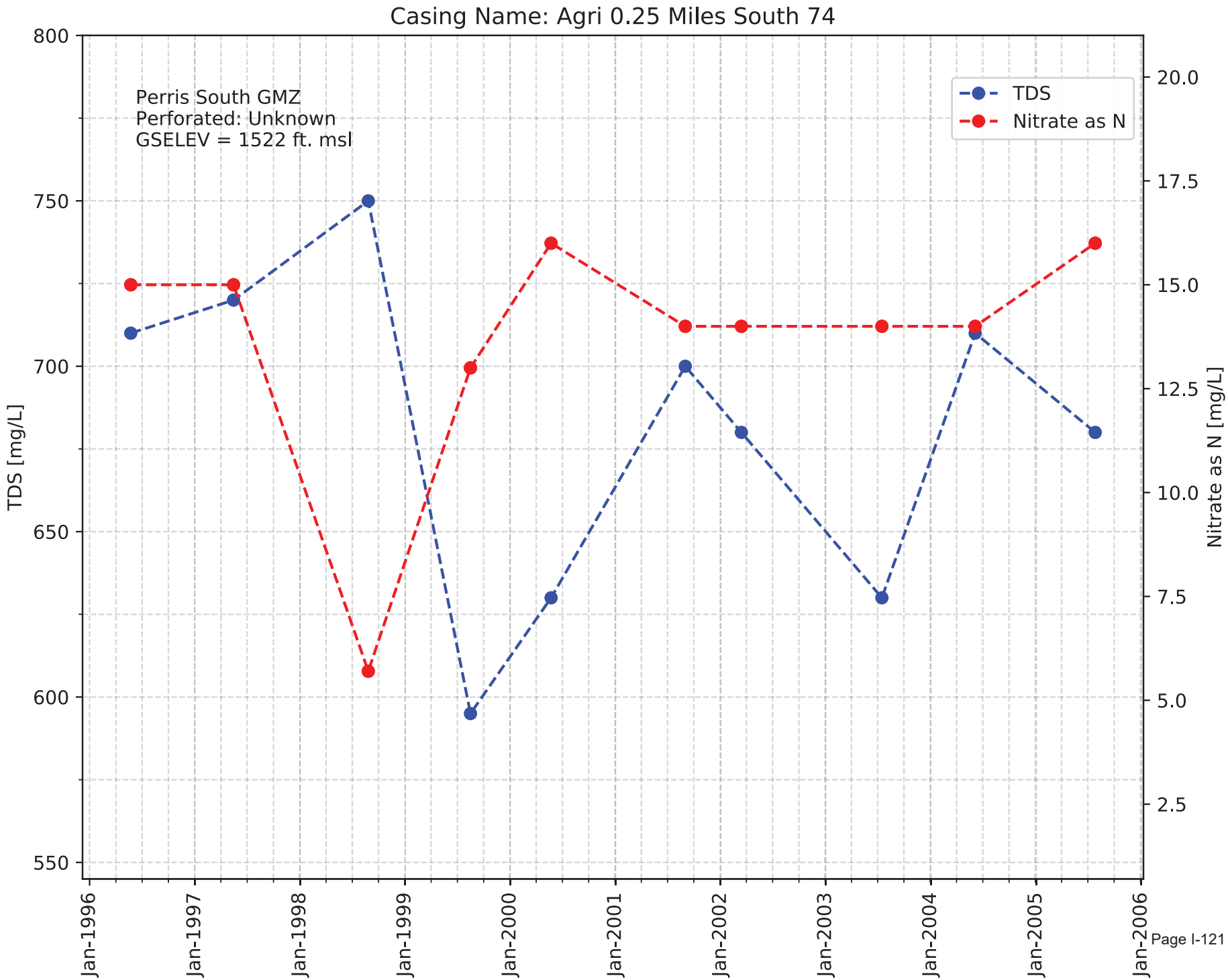

Casing Name: EMWD B4
Perris South GMZ
Perforated: 240-250
GSELEV = 1422 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2000
1800
1600
1400
1200
16
14
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

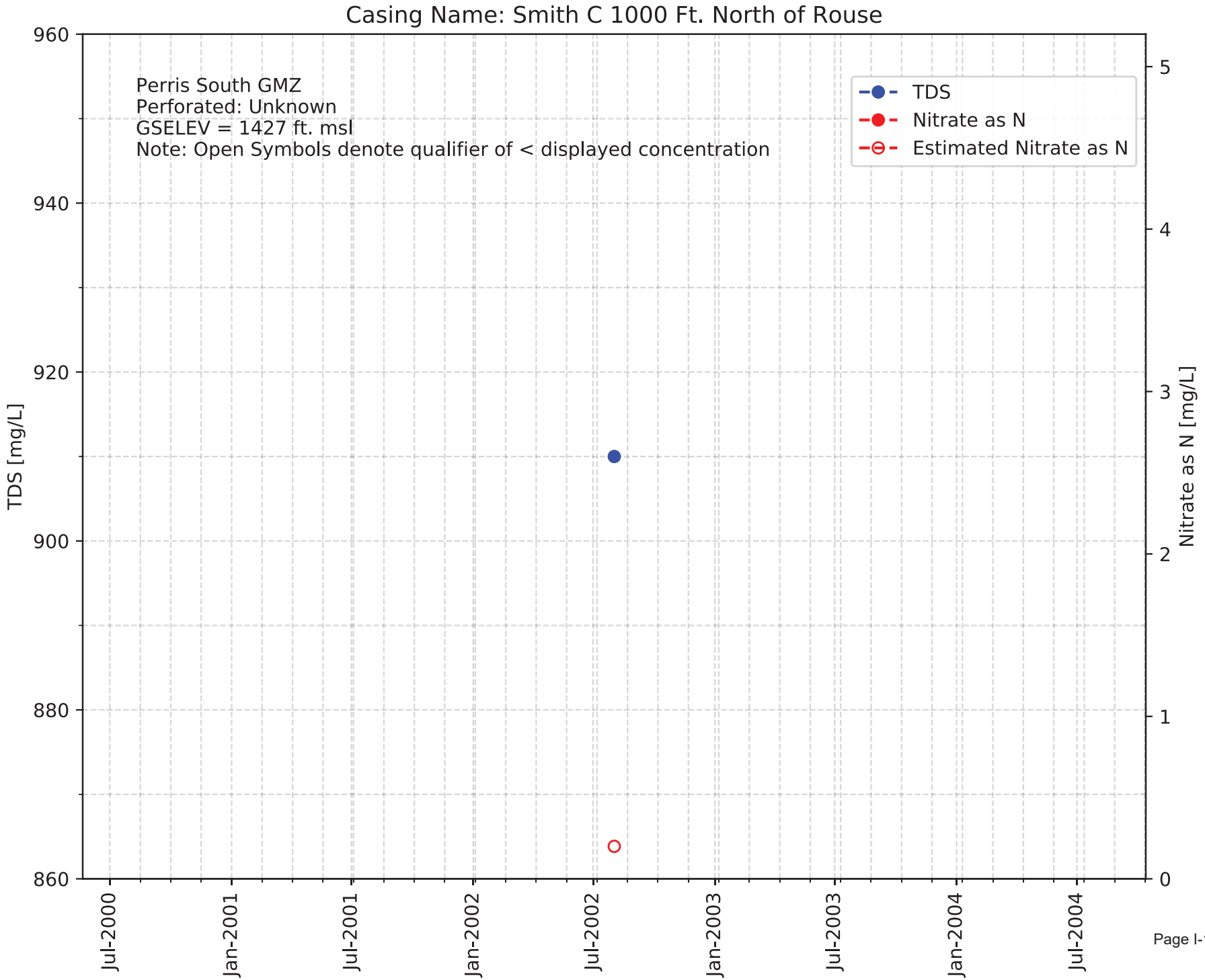

Casing Name: Smith C Ethanac
Perris South GMZ
Perforated: Unknown
GSELEV = 1425 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1200
1100
1000
900
800
700
8
6
4
2
0
Jan-1984
Jan-1988
Jan-1992
Jan-1996
Jan-2000
Jan-2004

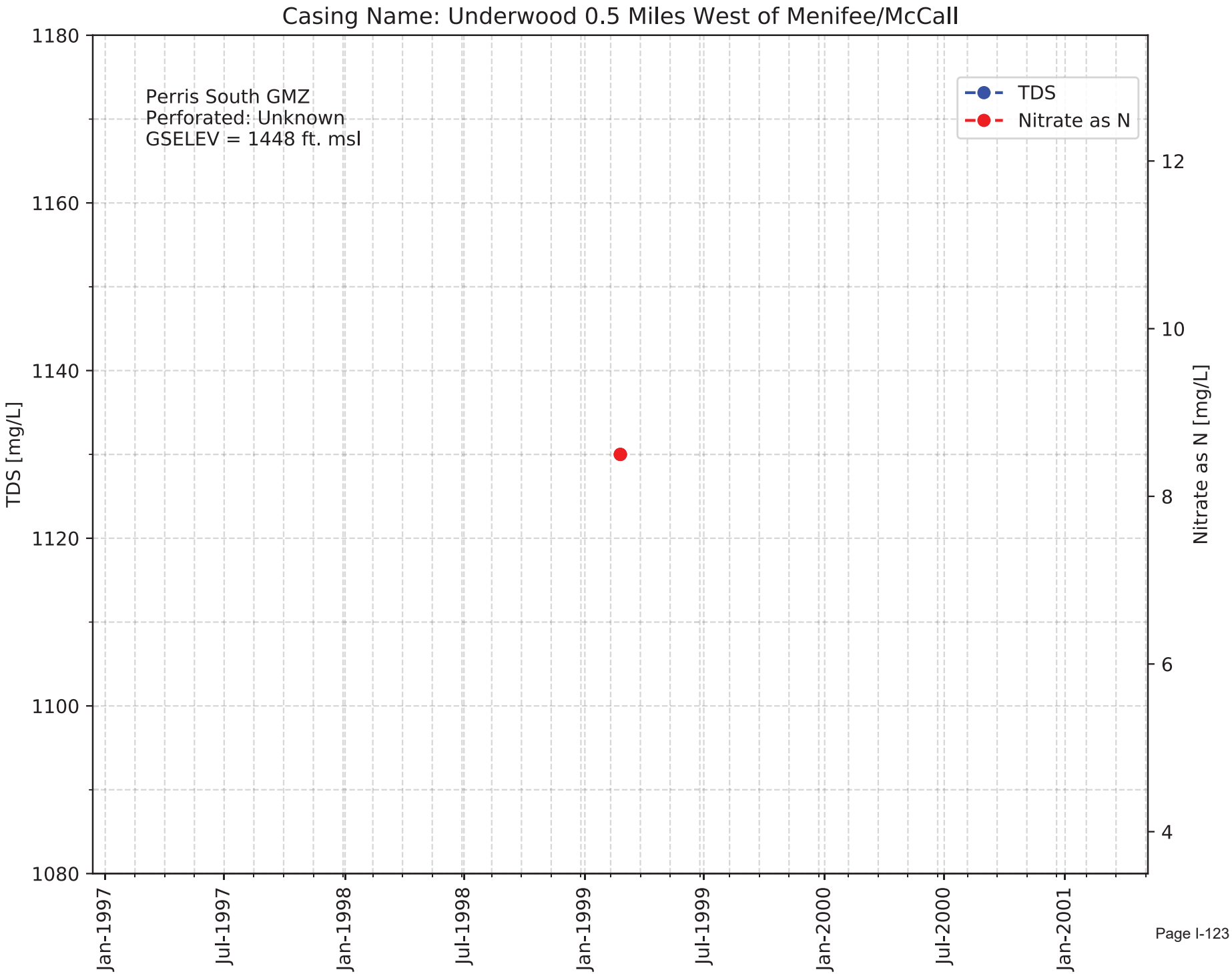

Casing Name: Motte Antelope
Perris South GMZ
Perforated: Unknown
GSELEV = 1451 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1300
1200
1100
1000
900
800
700
600
12
10
8
6
4
2
0
Jan-1960
Jan-1970
Jan-1980
Jan-1990
Jan-2000

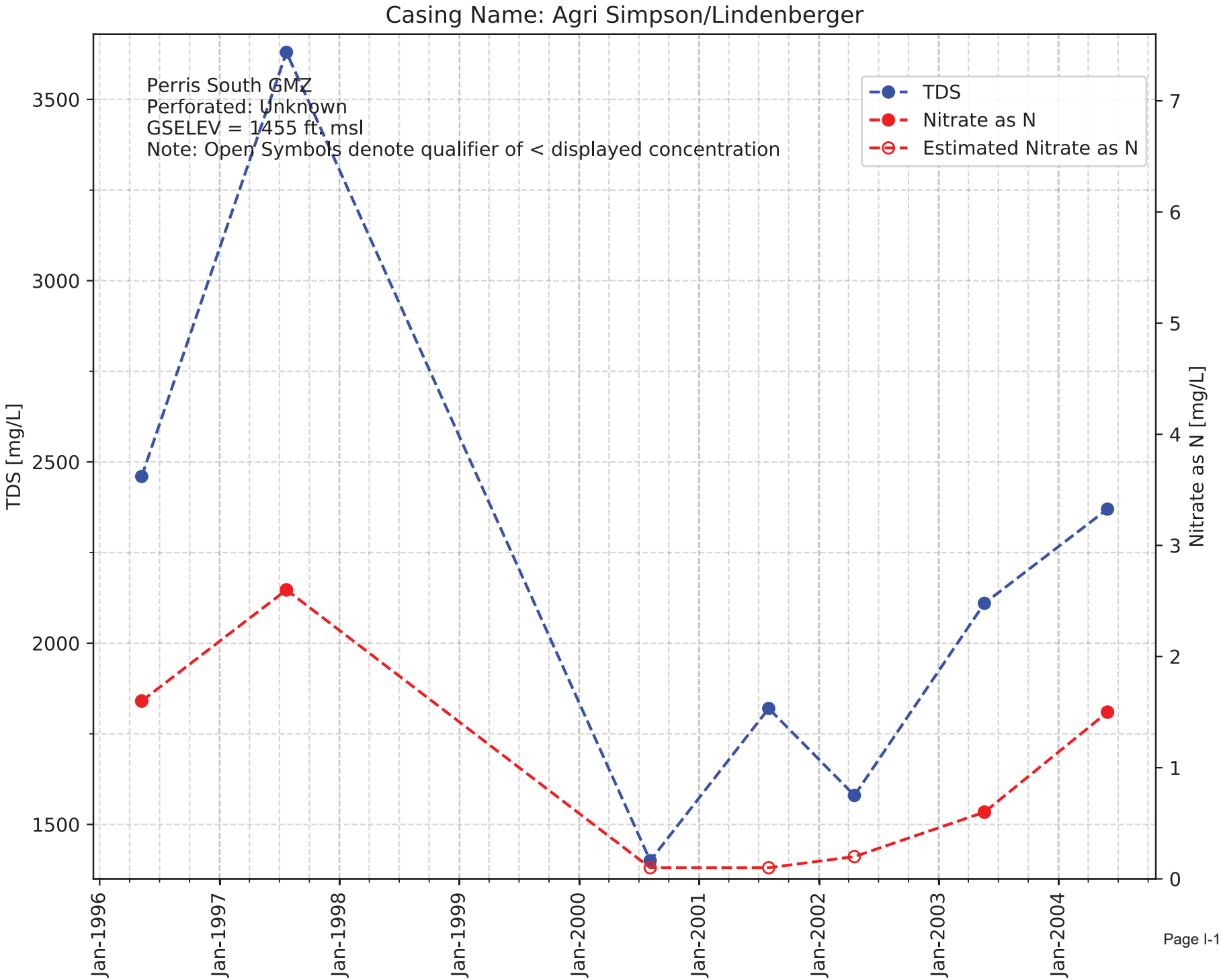

Casing Name: Agri 74/Briggs
Perris South GMZ
Perforated: 231-431
GSELEV = 1527 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
750
700
650
600
550
500
450
400
350
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
Jan-1970
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000
Jan-2005

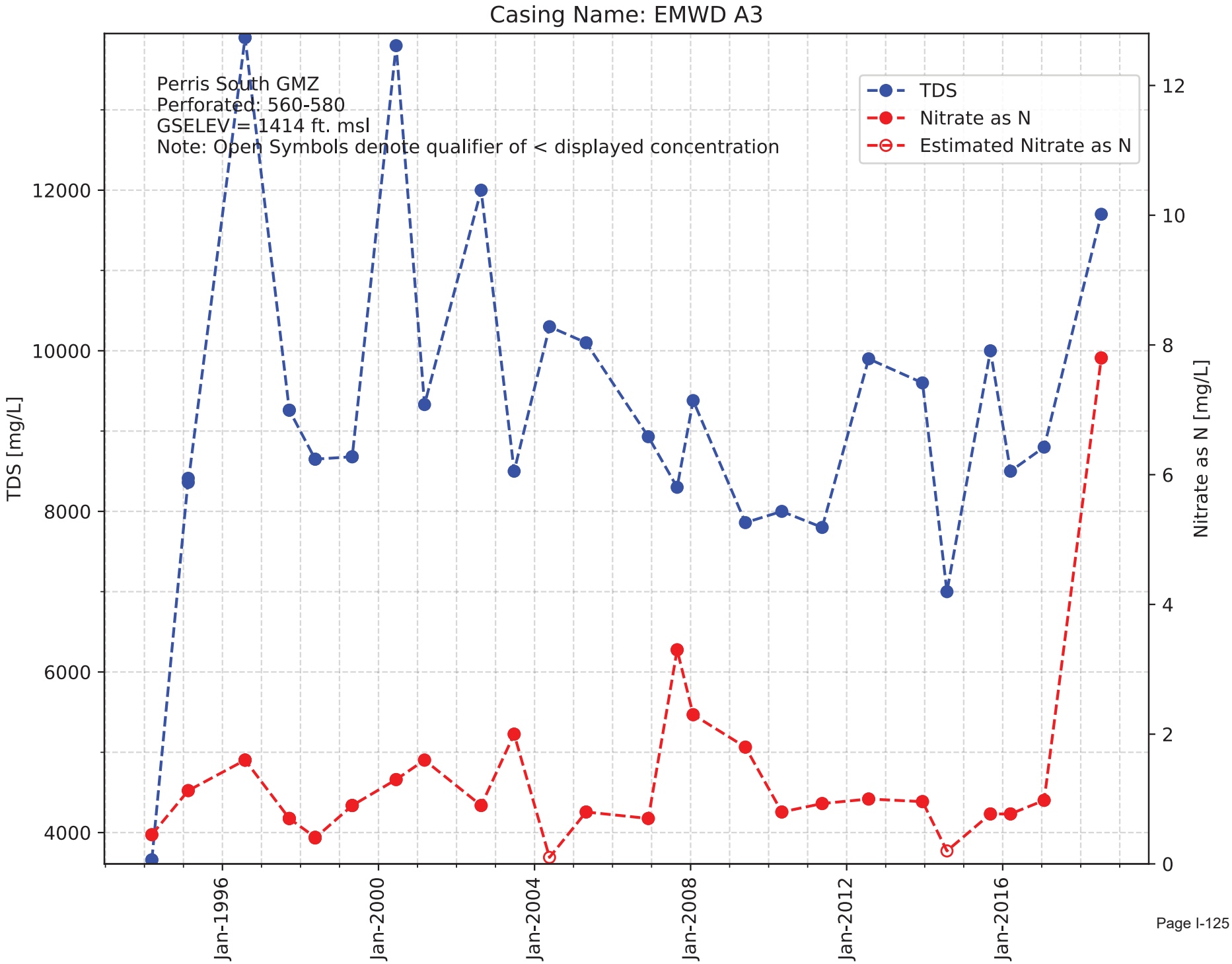

Casing Name: Southern CA Edison
Perris South GMZ
Perforated: Unknown
GSELEV = 1494 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
900
800
700
600
500
400
300
16
14
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016
Jan-2020

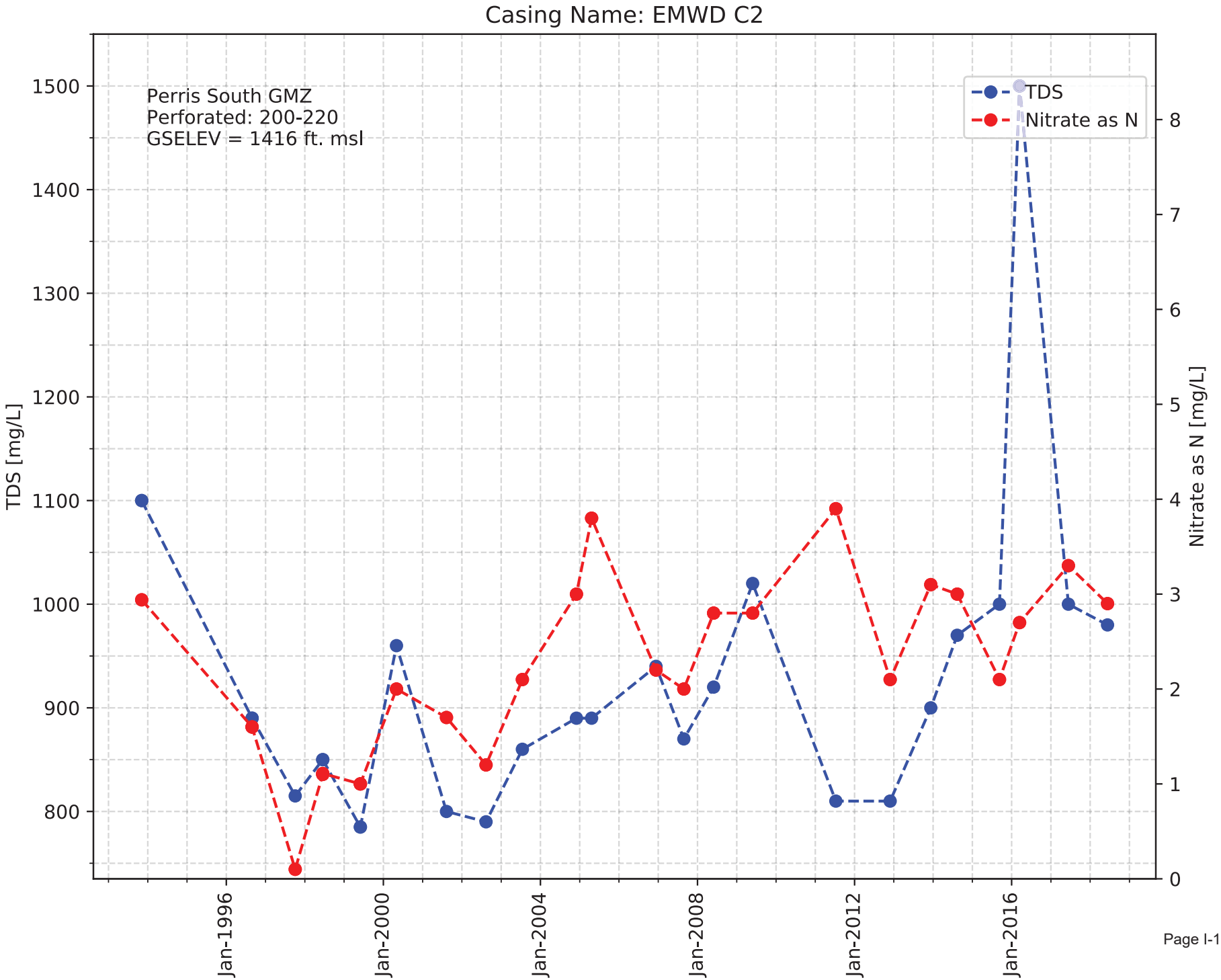

Casing Name: Agri 0.25 Miles South 74
Perris South GMZ
Perforated: Unknown
GSELEV = 1522 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
800
750
700
650
600
550
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
Jan-1996
Jan-1997
Jan-1998
Jan-1999
Jan-2000
Jan-2001
Jan-2002
Jan-2003
Jan-2004
Jan-2005
Jan-2006

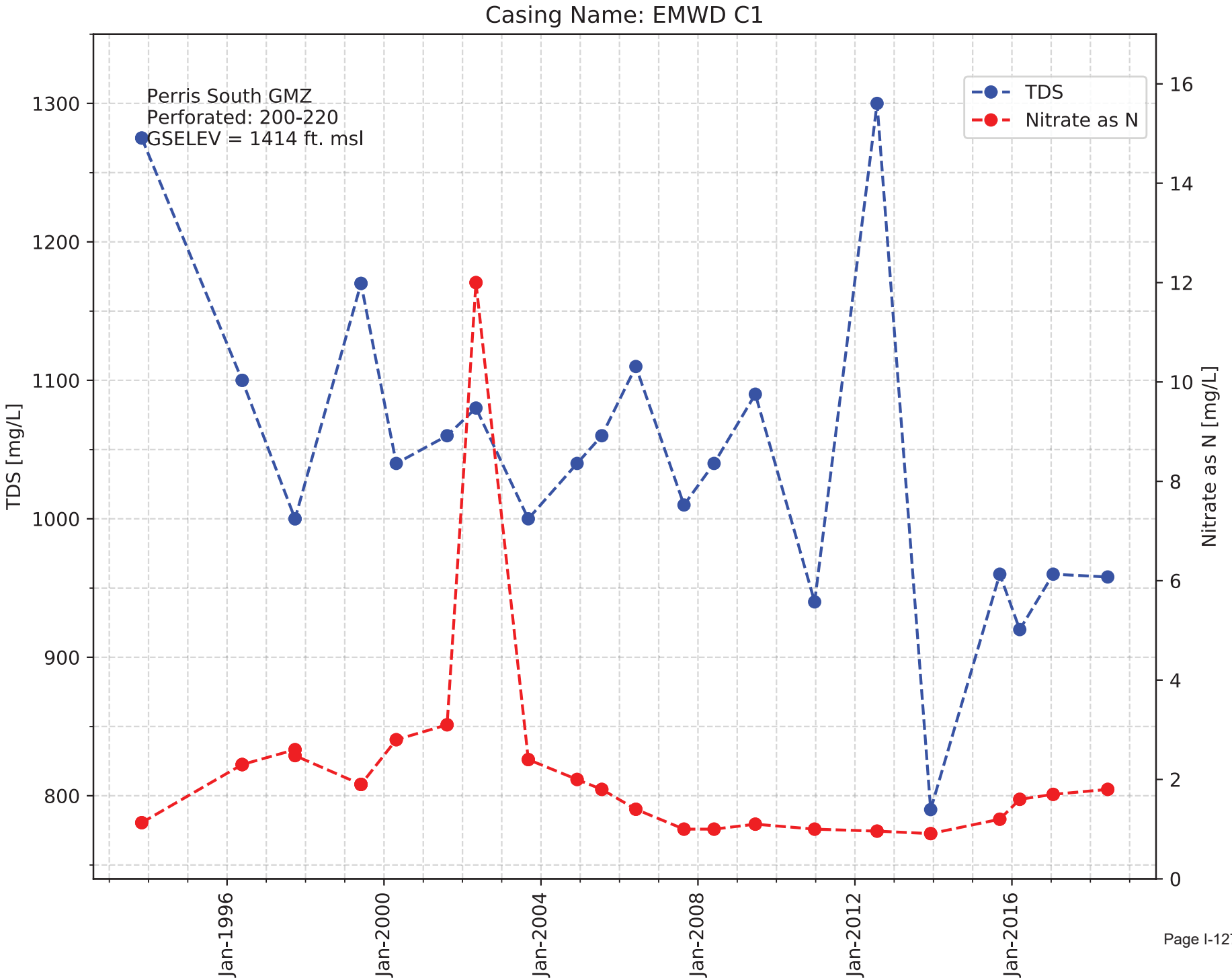

Casing Name: Smith C 1000 Ft. North of Rouse
Perris South GMZ
Perforated: Unknown
GSELEV = 1427 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
960
940
920
900
880
860
5
4
3
2
1
0
Jul-2000
Jan-2001
Jul-2001
Jan-2002
Jul-2002
Jan-2003
Jul-2003
Jan-2004
Jul-2004

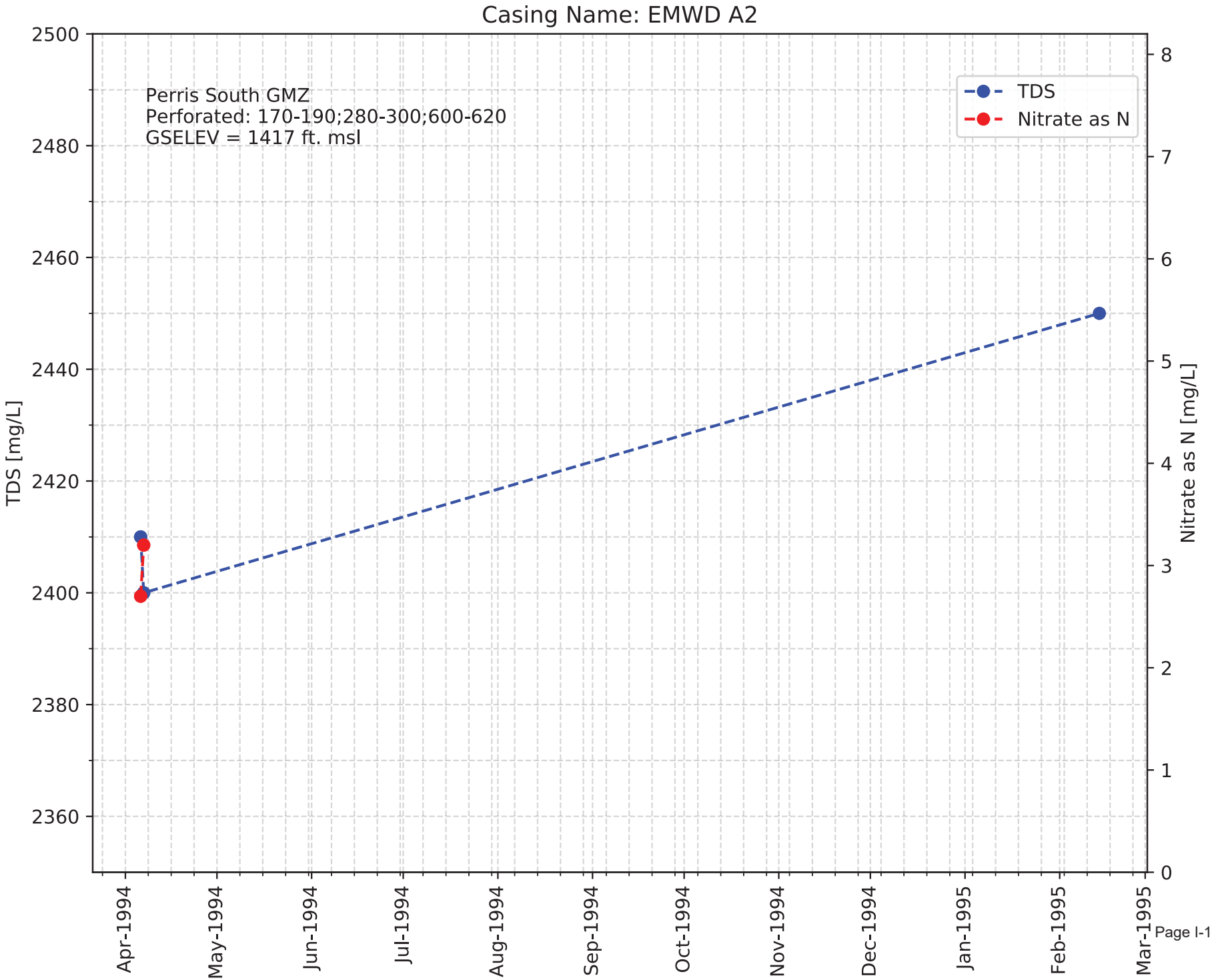

Casing Name: Underwood 0.5 Miles West of Menifee/McCall
Perris South GMZ
Perforated: Unknown
GSELEV = 1448 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1180
1160
1140
1120
1100
1080
12
10
8
6
4
Jan-1997
Jul-1997
Jan-1998
Jul-1998
Jan-1999
Jul-1999
Jan-2000
Jul-2000
Jan-2001

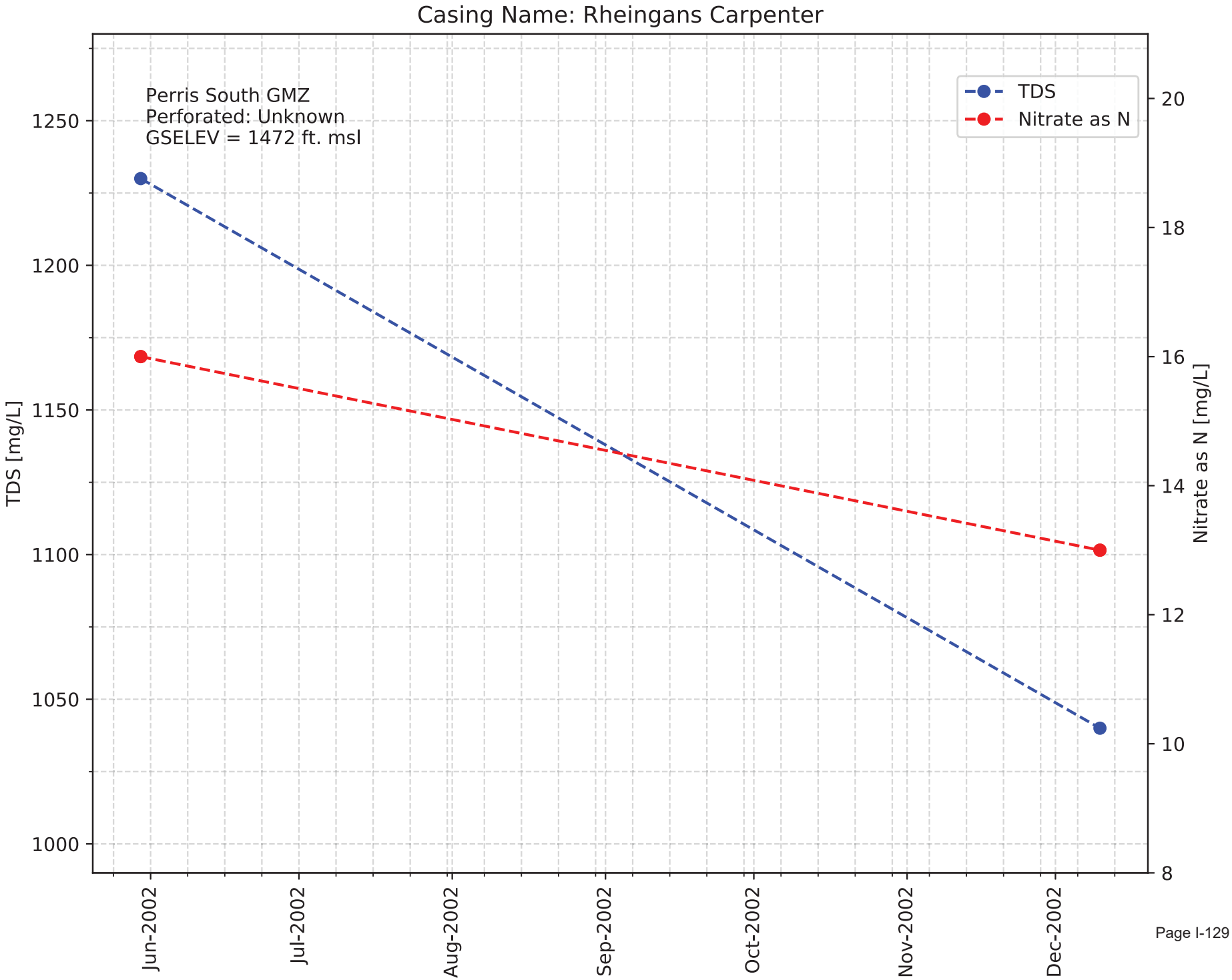

Casing Name: Agri Simpson/Lindenberger
Perris South GMZ
Perforated: Unknown
GSELEV = 1455 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3500
3000
2500
2000
1500
7
6
5
4
3
2
1
0
Jan-1996
Jan-1997
Jan-1998
Jan-1999
Jan-2000
Jan-2001
Jan-2002
Jan-2003
Jan-2004

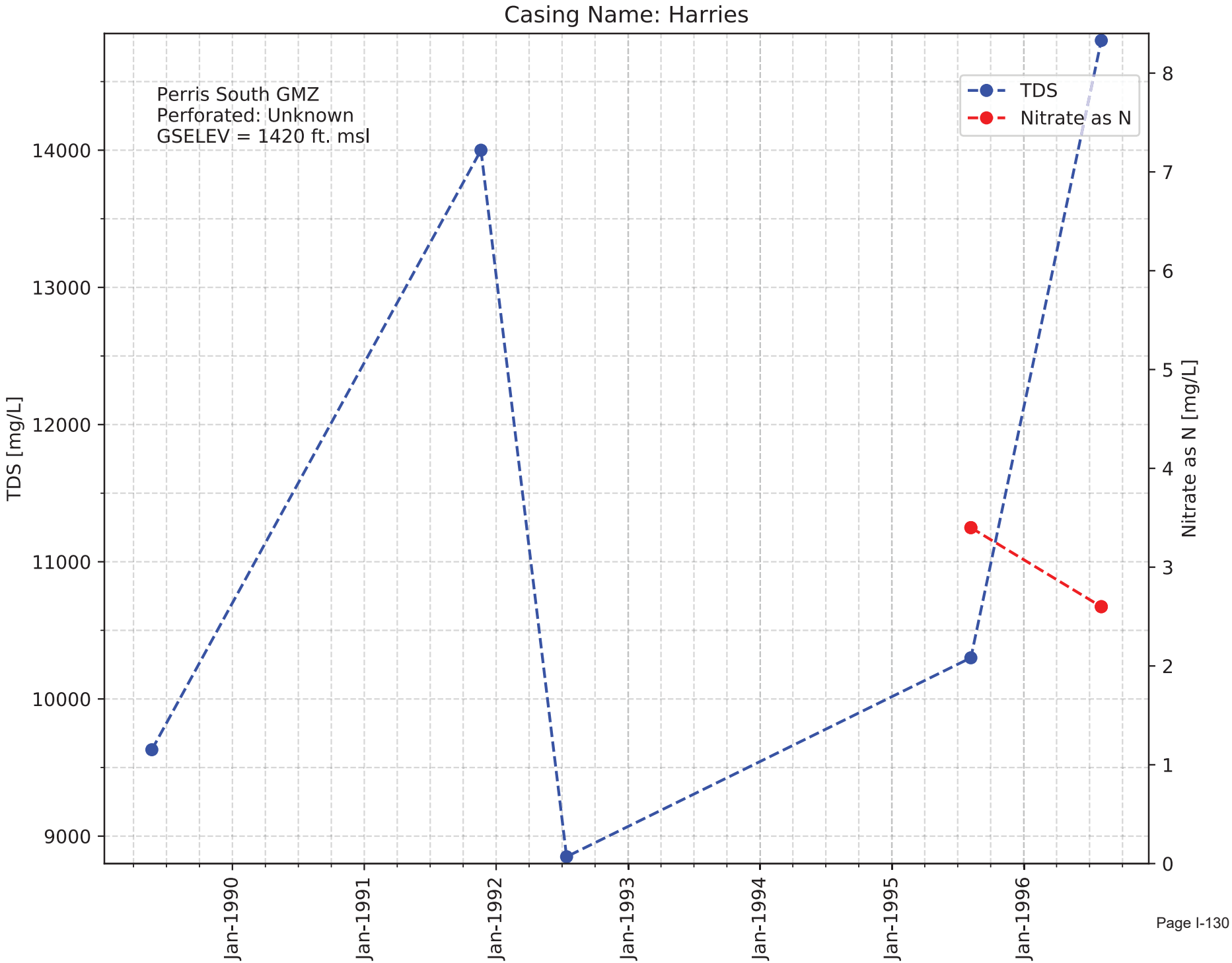

Casing Name: EMWD A3
Perris South GMZ
Perforated: 560-580
GSELEV = 1414 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
12000
10000
8000
6000
4000
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

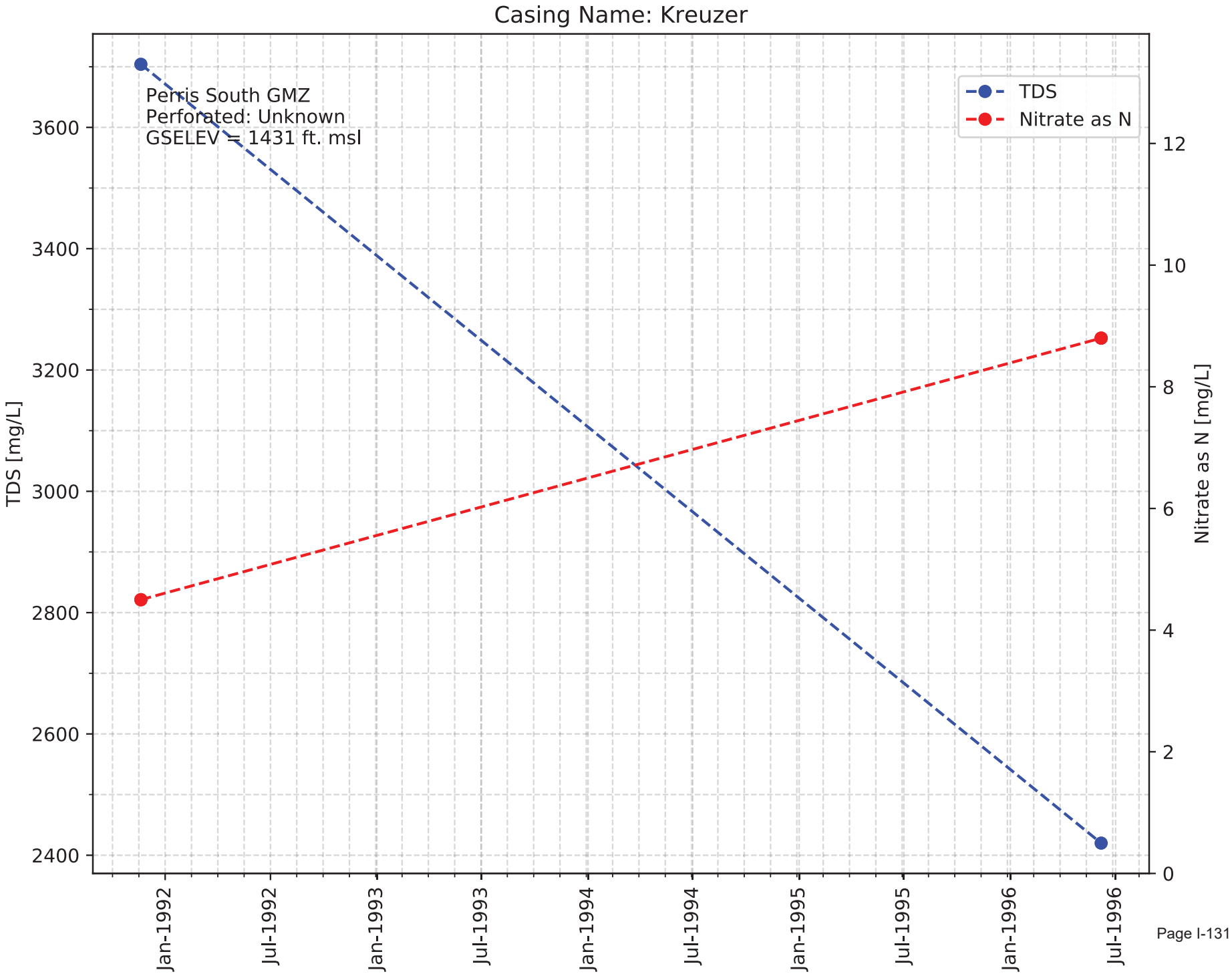

Casing Name: EMWD C2
Perris South GMZ
Perforated: 200-220
GSELEV = 1416 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1500
1400
1300
1200
1100
1000
900
800
8
7
6
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

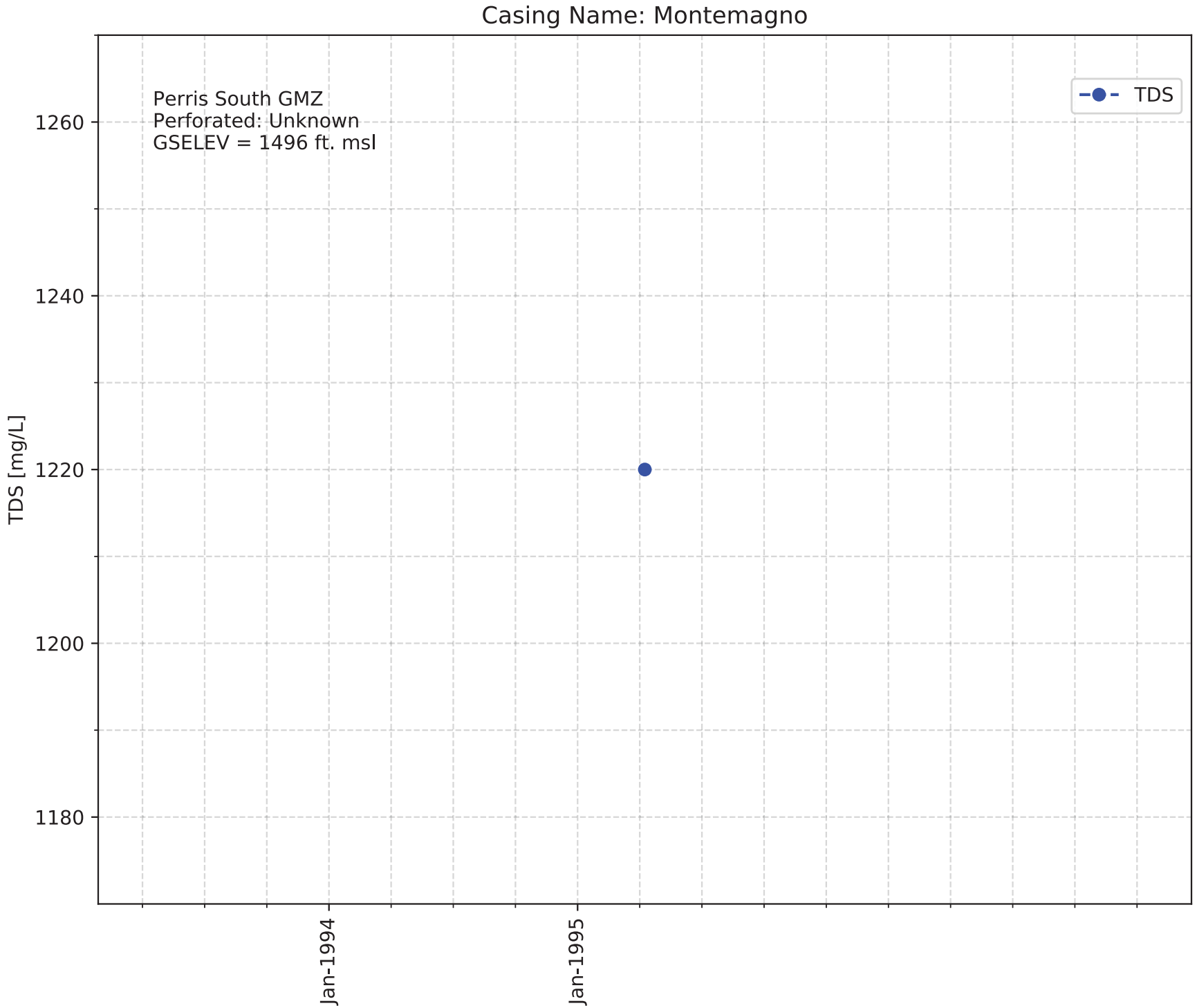

Casing Name: EMWD C1
Perris South GMZ
Perforated: 200-220
GSELEV = 1414 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1300
1200
1100
1000
900
800
16
14
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

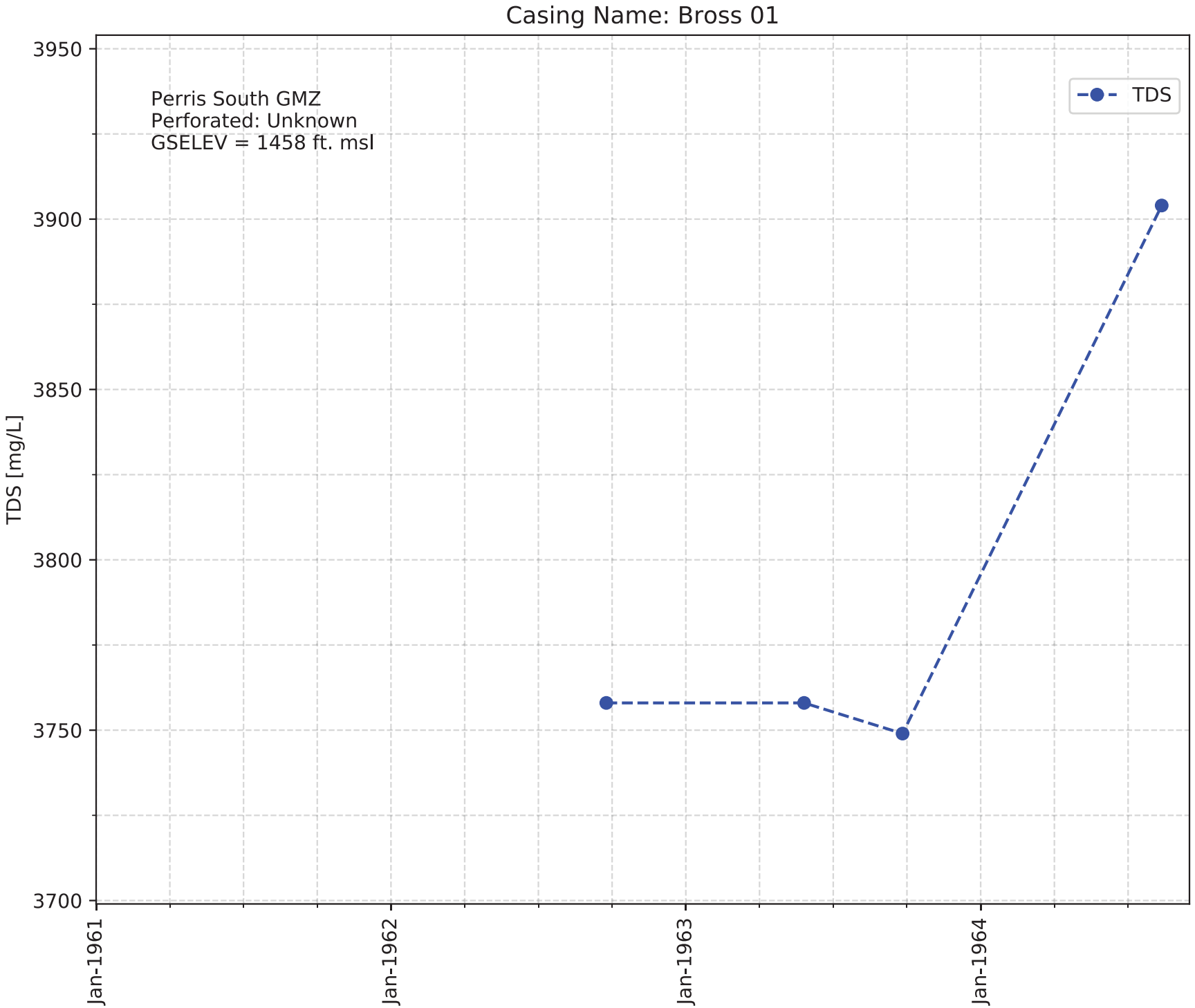

Casing Name: EMWD A2
Perris South GMZ
Perforated: 170-190;280-300;600-620
GSELEV = 1417 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2480
2460
2440
2420
2400
2380
2360
8
7
6
5
4
3
2
1
0
Apr-1994
May-1994
Jun-1994
Jul-1994
Aug-1994
Sep-1994
Oct-1994
Nov-1994
Dec-1994
Jan-1995
Feb-1995
Mar-1995

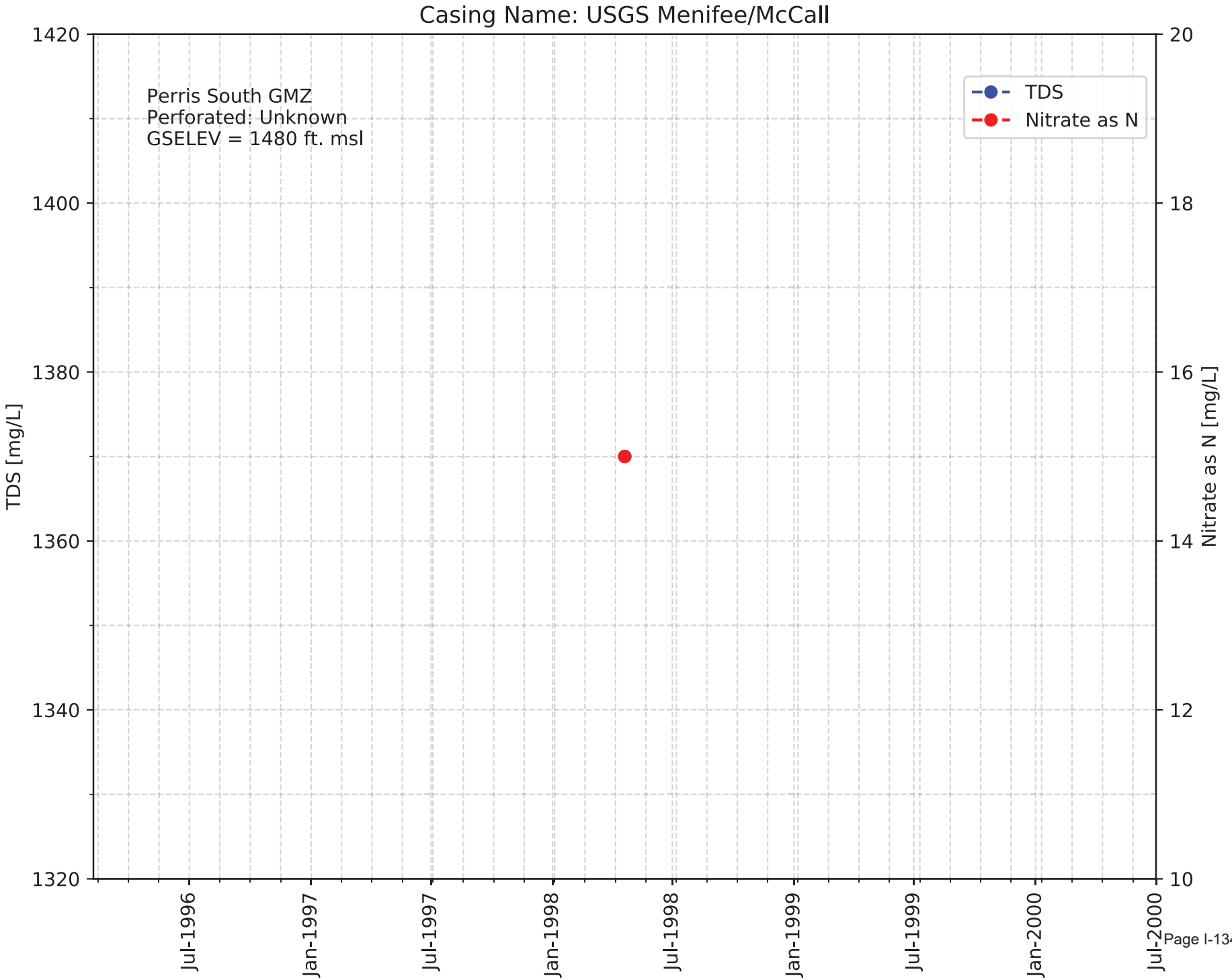

Casing Name: Rheingans Carpenter
Perris South GMZ
Perforated: Unknown
GSELEV = 1472 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1250
1200
1150
1100
1050
1000
20
18
16
14
12
10
8
Jun-2002
Jul-2002
Aug-2002
Sep-2002
Oct-2002
Nov-2002
Dec-2002

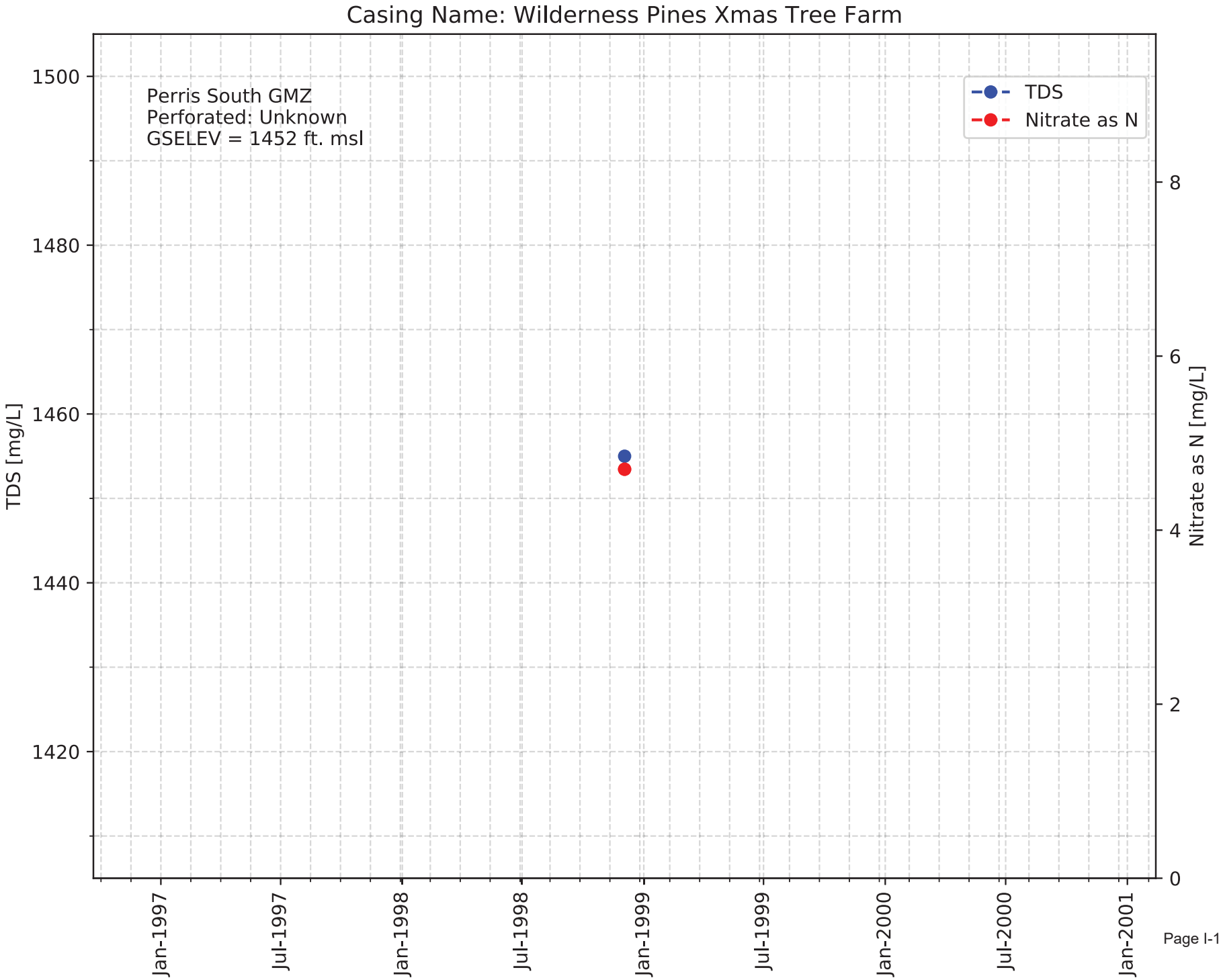

Casing Name: Harries
Perris South GMZ
Perforated: Unknown
GSELEV = 1420 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
14000
13000
12000
11000
10000
9000
8
7
6
5
4
3
2
1
0
Jan-1990
Jan-1991
Jan-1992
Jan-1993
Jan-1994
Jan-1995
Jan-1996

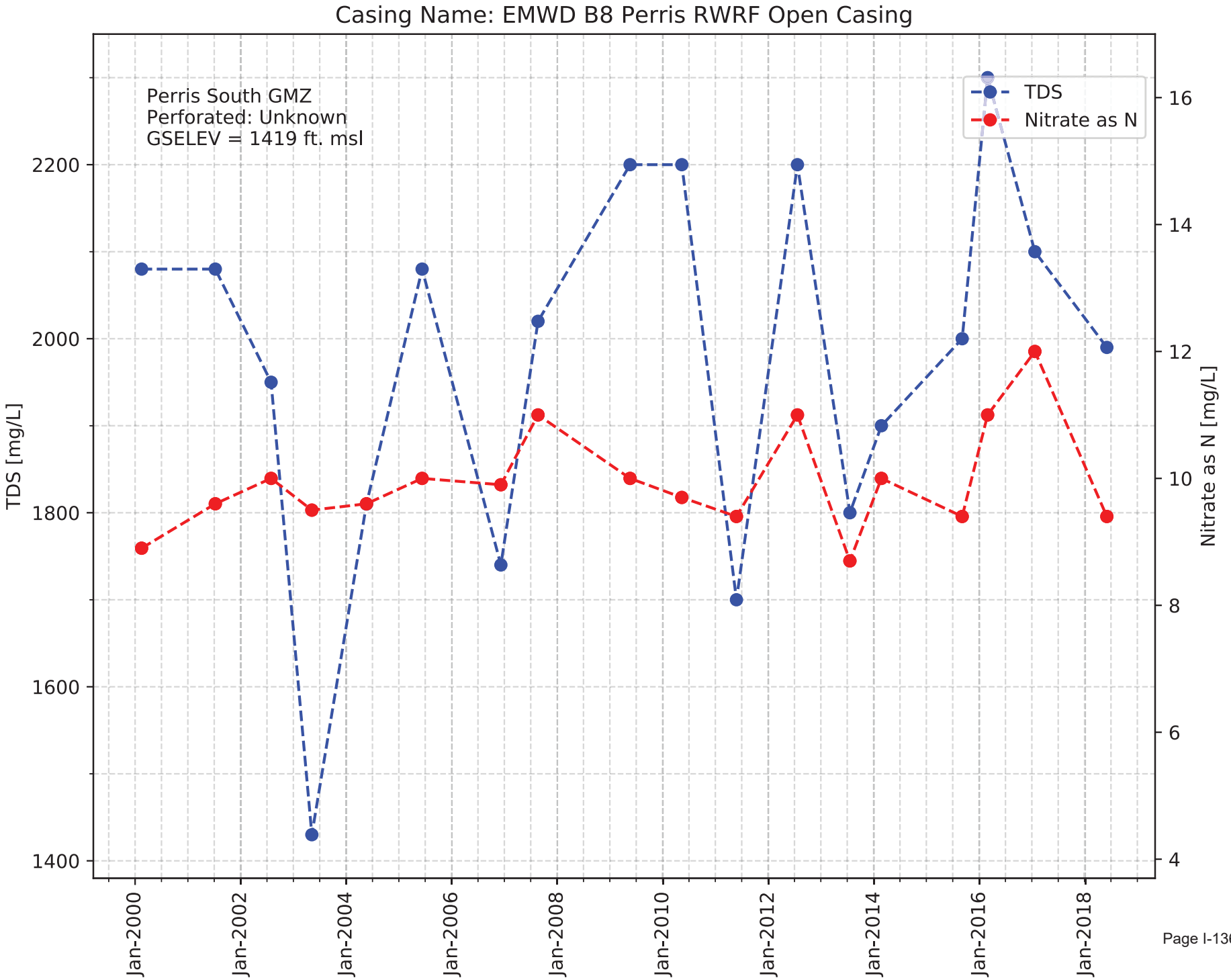

Casing Name: Kreuzer
Perris South GMZ
Perforated: Unknown
GSELEV = 1431 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3600
3400
3200
3000
2800
2600
2400
12
10
8
6
4
2
0
Jan-1992
Jul-1992
Jan-1993
Jul-1993
Jan-1994
Jul-1994
Jan-1995
Jul-1995
Jan-1996
Jul-1996

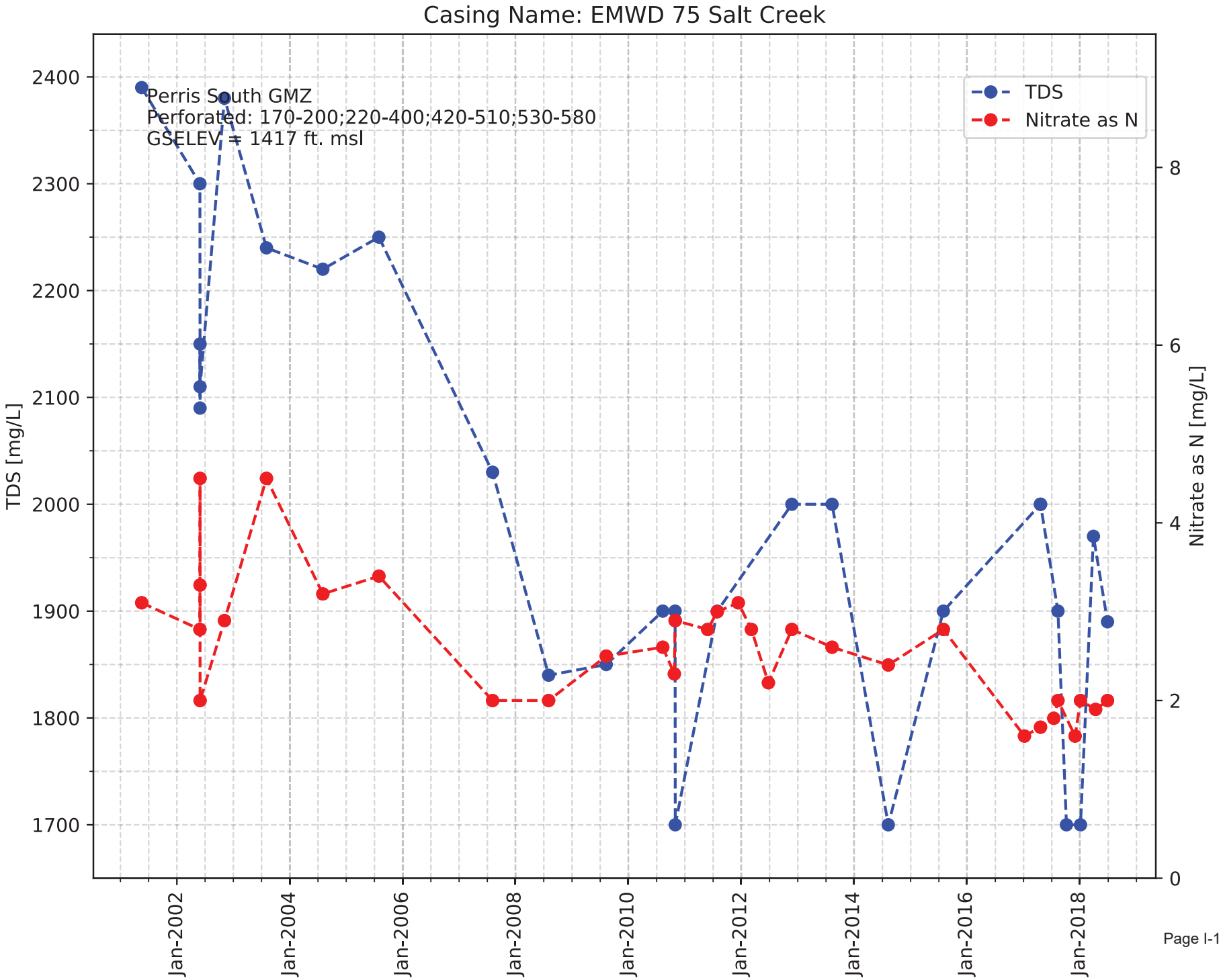

Casing Name: Montemagno
Perris South GMZ
Perforated: Unknown
GSELEV = 1496 ft. msl
TDS
TDS [mg/L]
1260
1240
1220
1200
1180
Jan-1994
Jan-1995

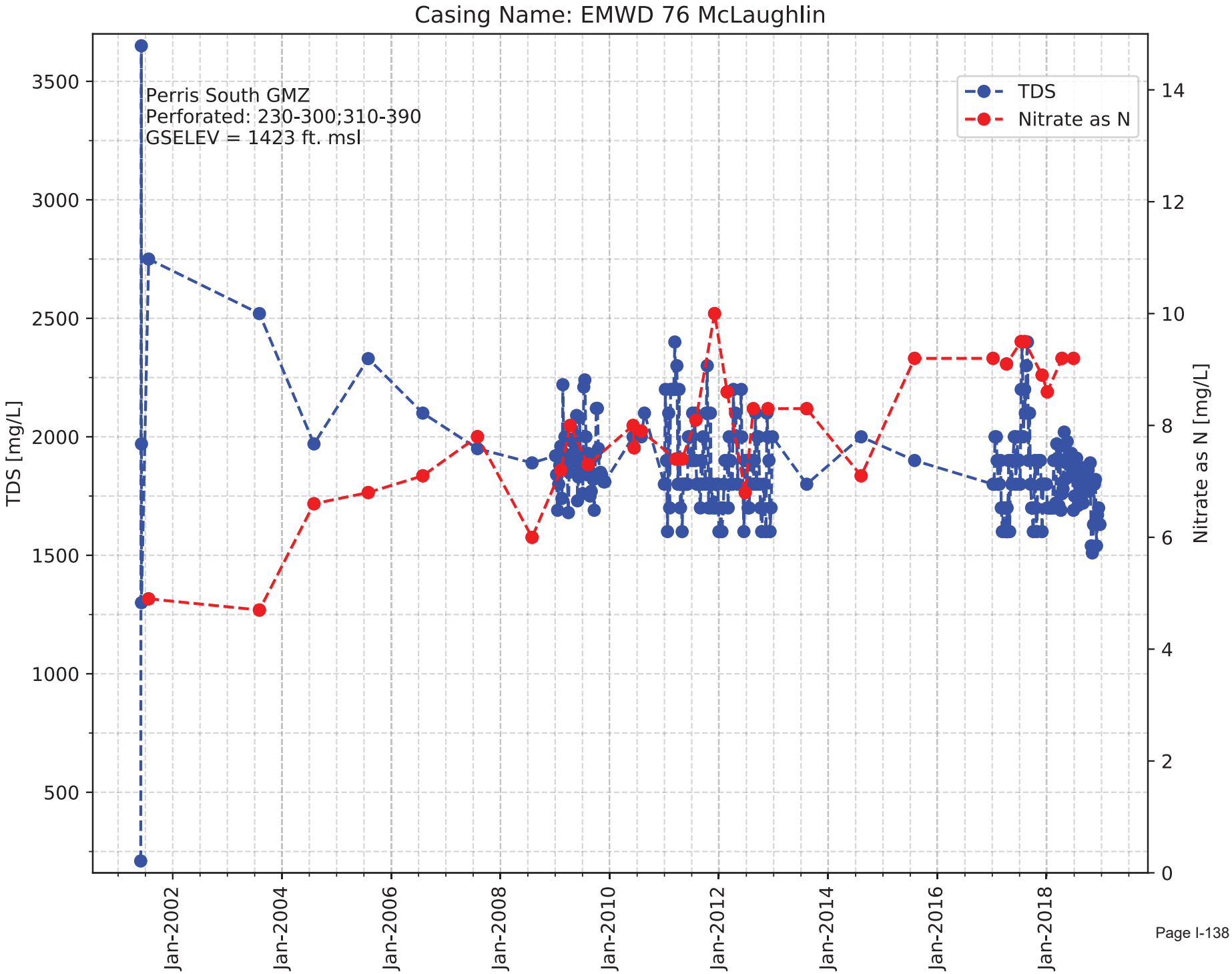

Casing Name: Bross 01
Perris South GMZ
Perforated: Unknown
GSELEV = 1458 ft. msl
TDS
TDS [mg/L]
3950
3900
3850
3800
3750
3700
Jan-1961
Jan-1962
Jan-1963
Jan-1964

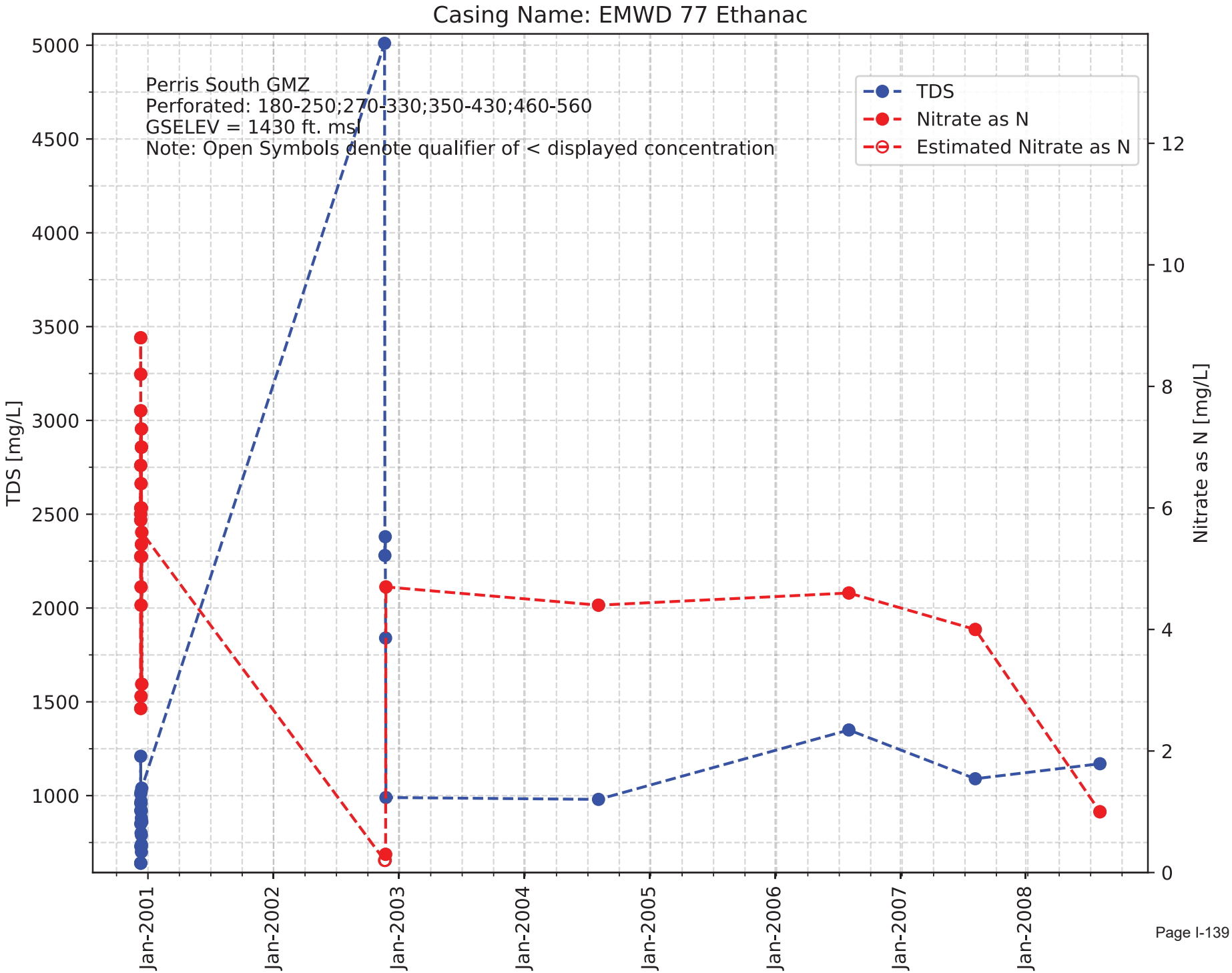

Casing Name: USGS Menifee/McCall
Perris South GMZ
Perforated: Unknown
GSELEV = 1480 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1420
1400
1380
1360
1340
1320
20
18
16
14
12
10
Jul-1996
Jan-1997
Jul-1997
Jan-1998
Jul-1998
Jan-1999
Jul-1999
Jan-2000
Jul-2000

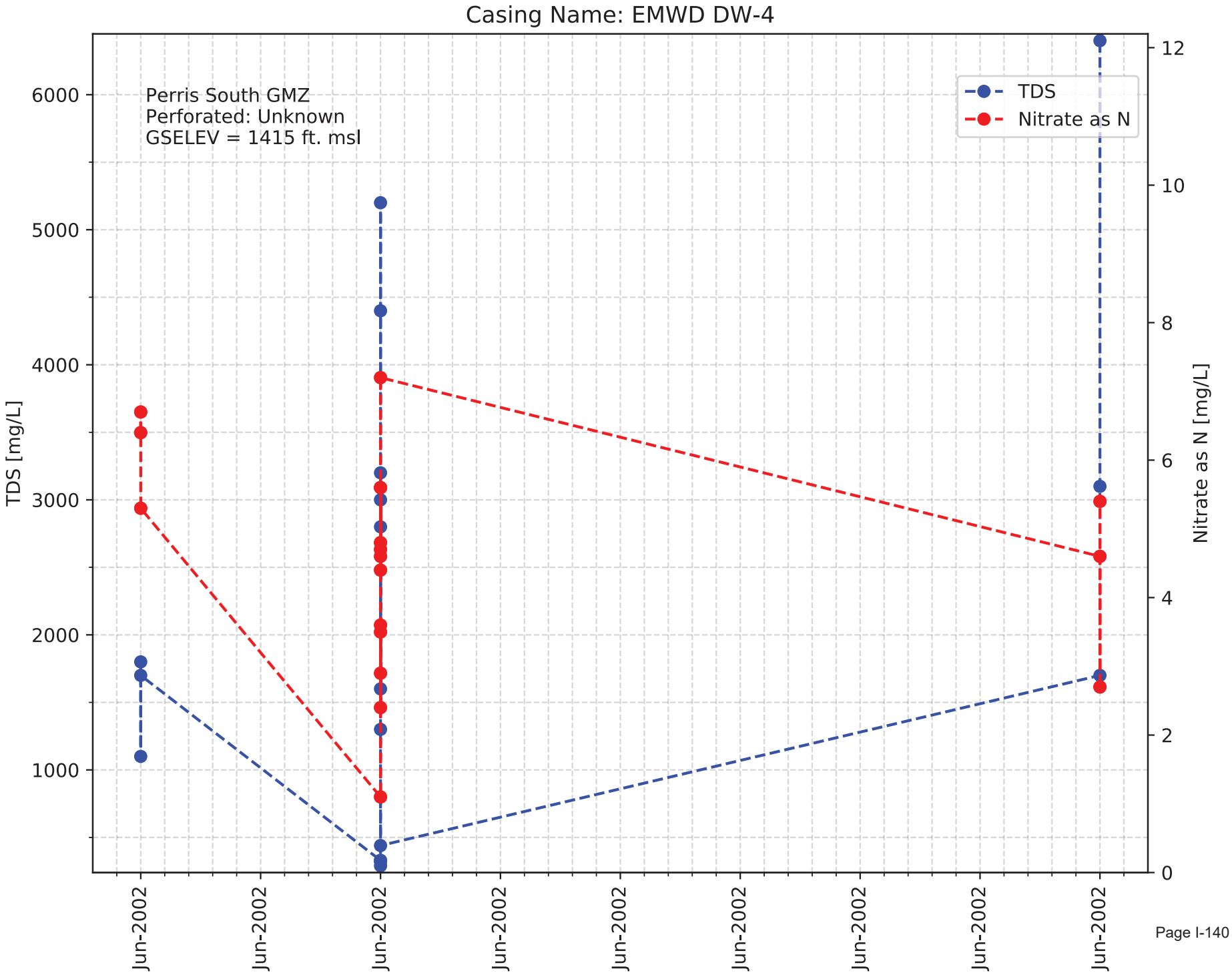

Casing Name: Wilderness Pines Xmas Tree Farm
Perris South GMZ
Perforated: Unknown
GSELEV = 1452 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1500
1480
1460
1440
1420
8
6
4
2
0
Jan-1997
Jul-1997
Jan-1998
Jul-1998
Jan-1999
Jul-1999
Jan-2000
Jul-2000
Jan-2001

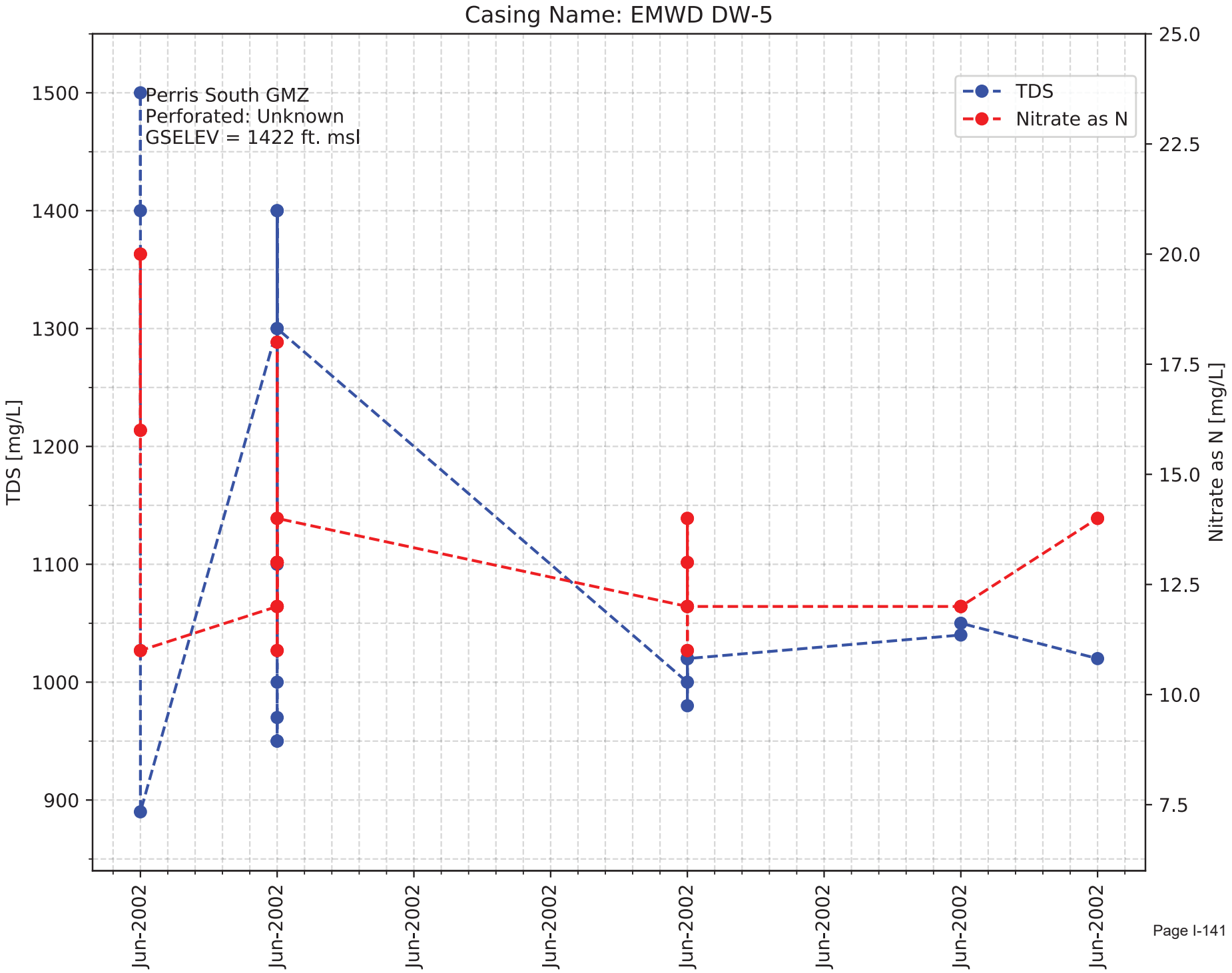

Casing Name: EMWD B8 Perris RWRF Open Casing
Perris South GMZ
Perforated: Unknown
GSELEV = 1419 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2000
1800
1600
1400
16
14
12
10
8
6
4
Jan-2000
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

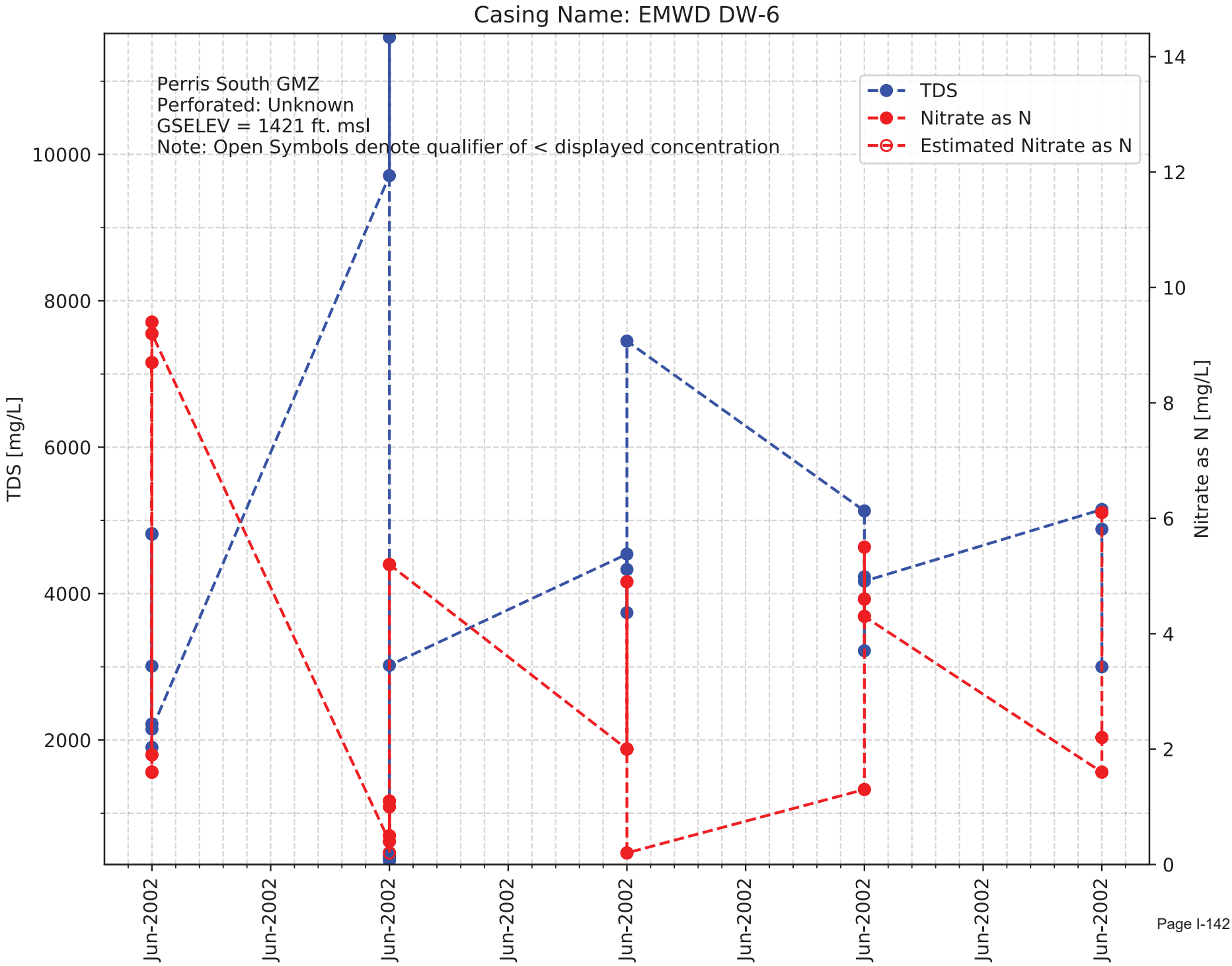

Casing Name: EMWD 75 Salt Creek
Perris South GMZ
Perforated: 170-200;220-400;420-510;530-580
GSELEV = 1417 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2400
2300
2200
2100
2000
1900
1800
1700
8
6
4
2
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

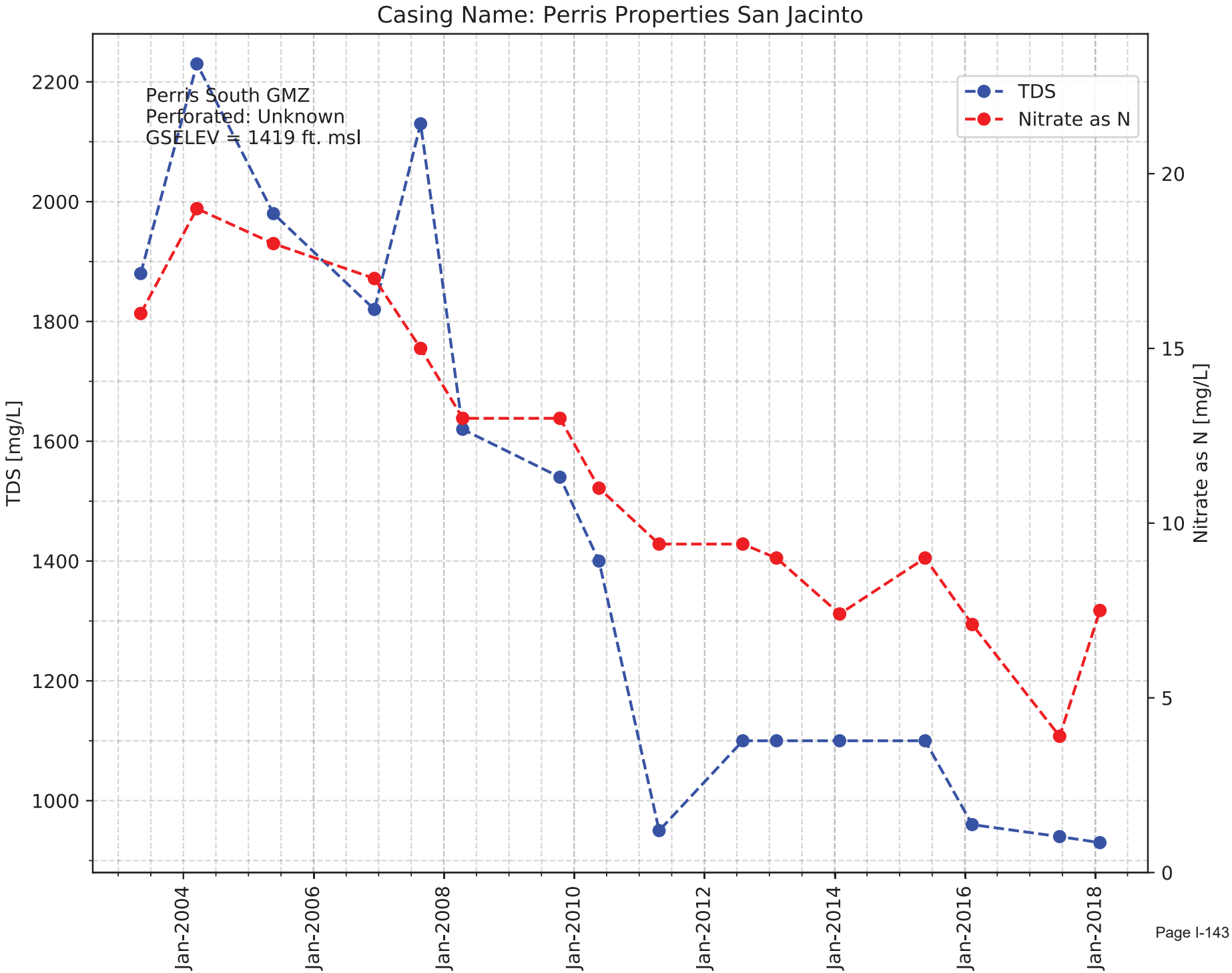

Casing Name: EMWD 76 McLaughlin
Perris South GMZ
Perforated: 230-300;310-390
GSELEV = 1423 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3500
3000
2500
2000
1500
1000
500
14
12
10
8
6
4
2
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

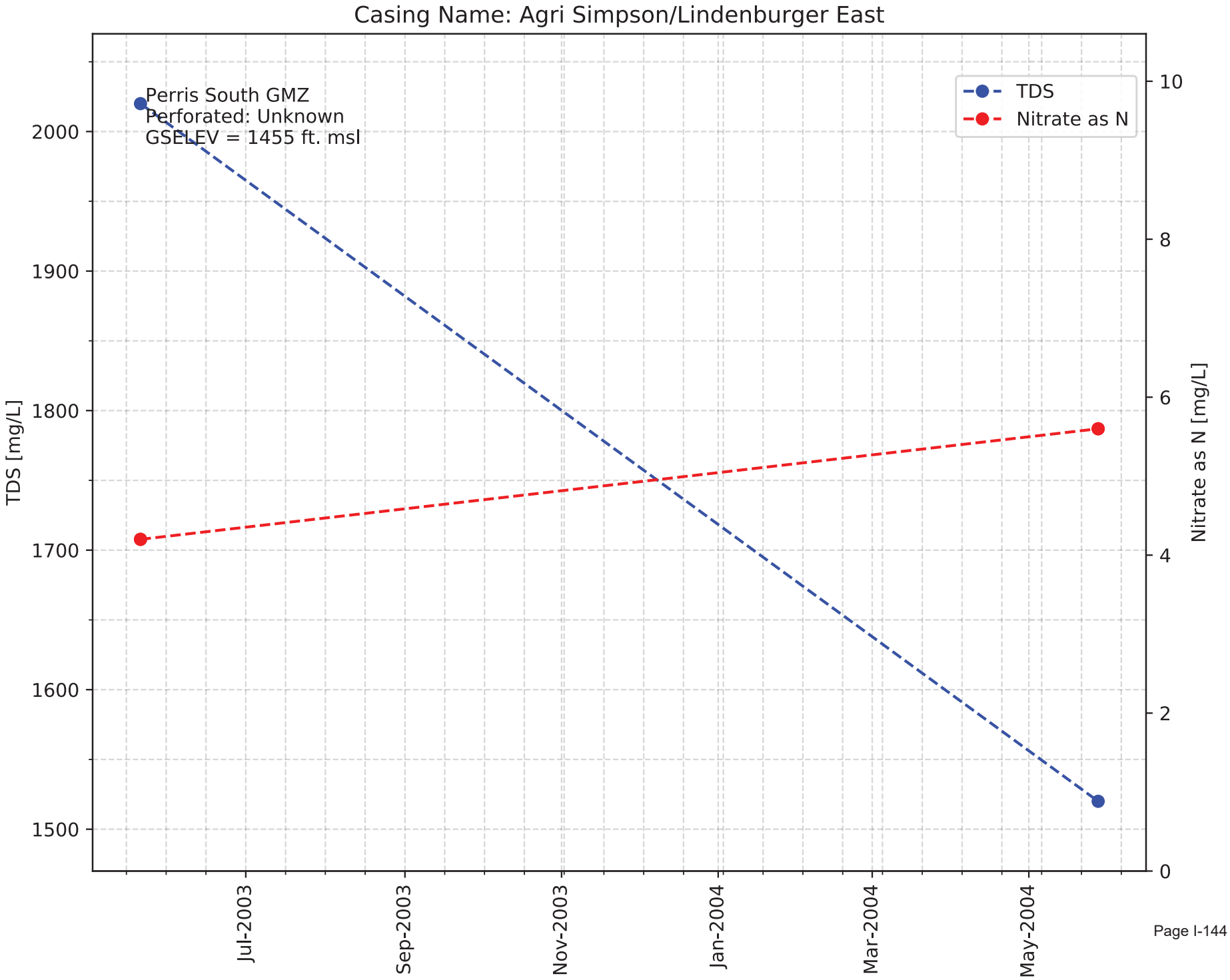

Casing Name: EMWD 77 Ethanac
Perris South GMZ
Perforated: 180-250;270-330;350-430;460-560
GSELEV = 1430 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
5000
4500
4000
3500
3000
2500
2000
1500
1000
12
10
8
6
4
2
0
Jan-2001
Jan-2002
Jan-2003
Jan-2004
Jan-2005
Jan-2006
Jan-2007
Jan-2008

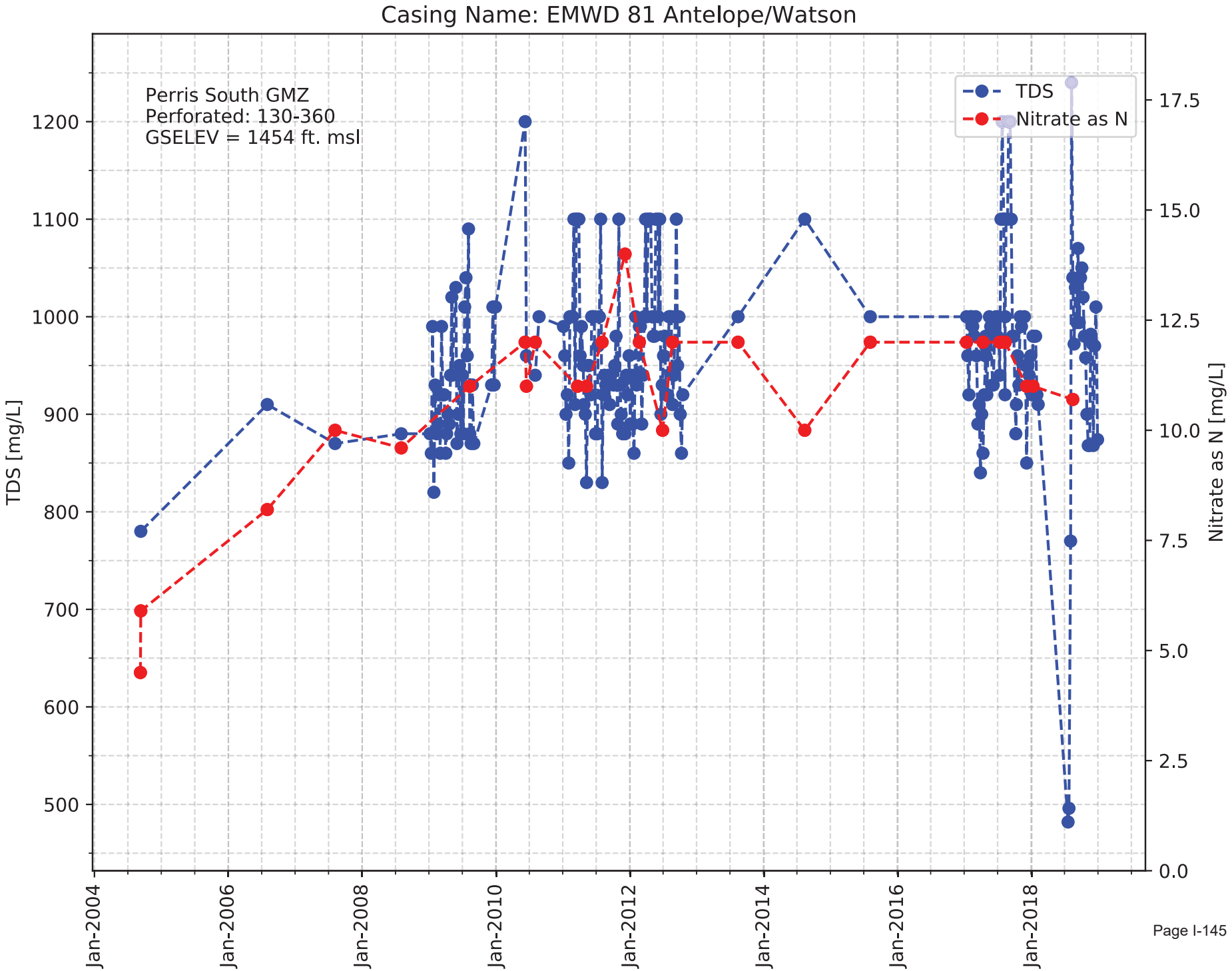

Casing Name: EMWD DW-4
Perris South GMZ
Perforated: Unknown
GSELEV = 1415 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
6000
5000
4000
3000
2000
1000
12
10
8
6
4
2
0
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002

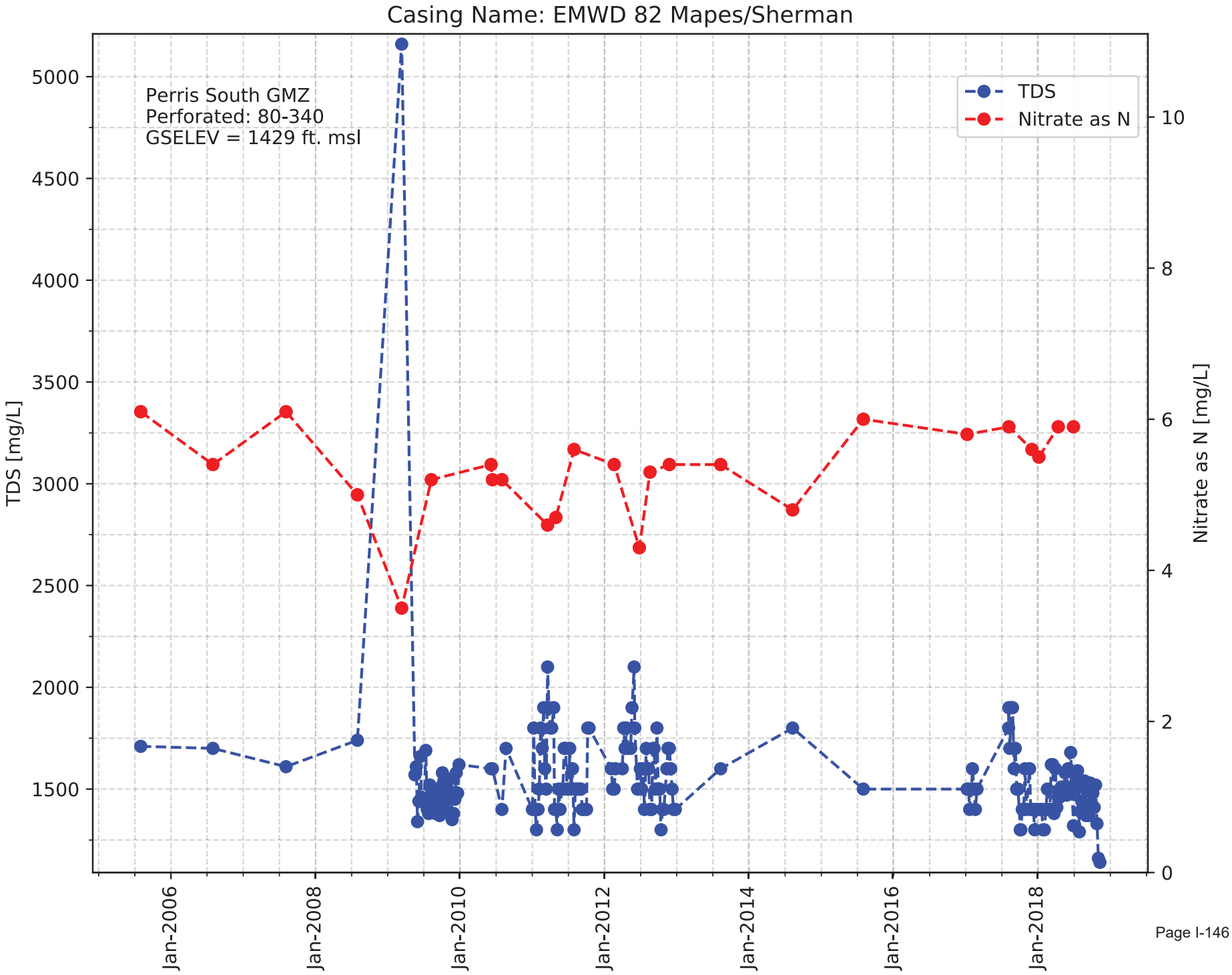

Casing Name: EMWD DW-5
Perris South GMZ
Perforated: Unknown
GSELEV = 1422 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1500
1400
1300
1200
1100
1000
900
25.0
22.5
20.0
17.5
15.0
12.5
10.0
7.5
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002

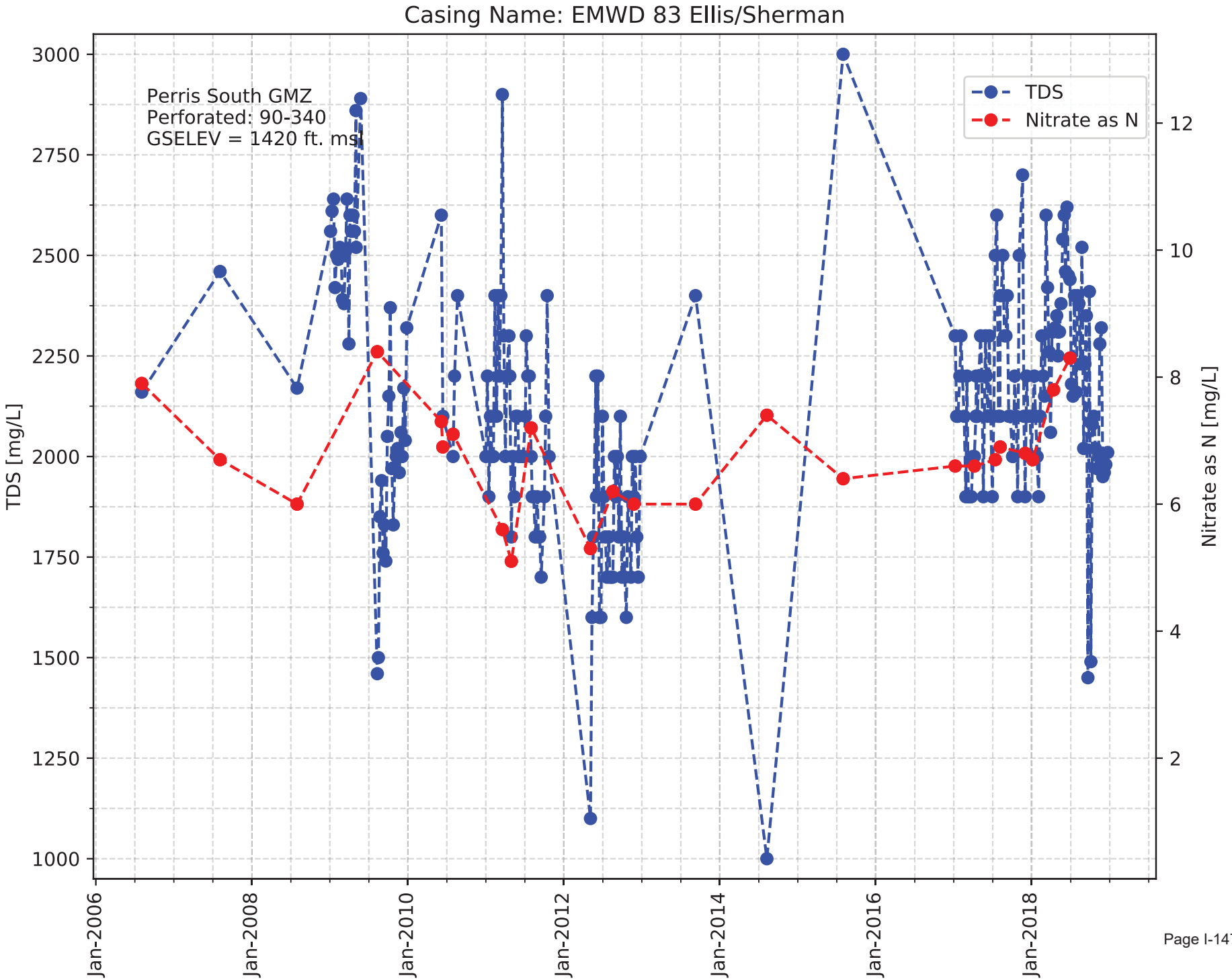

Casing Name: EMWD DW-6
Perris South GMZ
Perforated: Unknown
GSELEV = 1421 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
10000
8000
6000
4000
2000
14
12
10
8
6
4
2
0
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002
Jun-2002

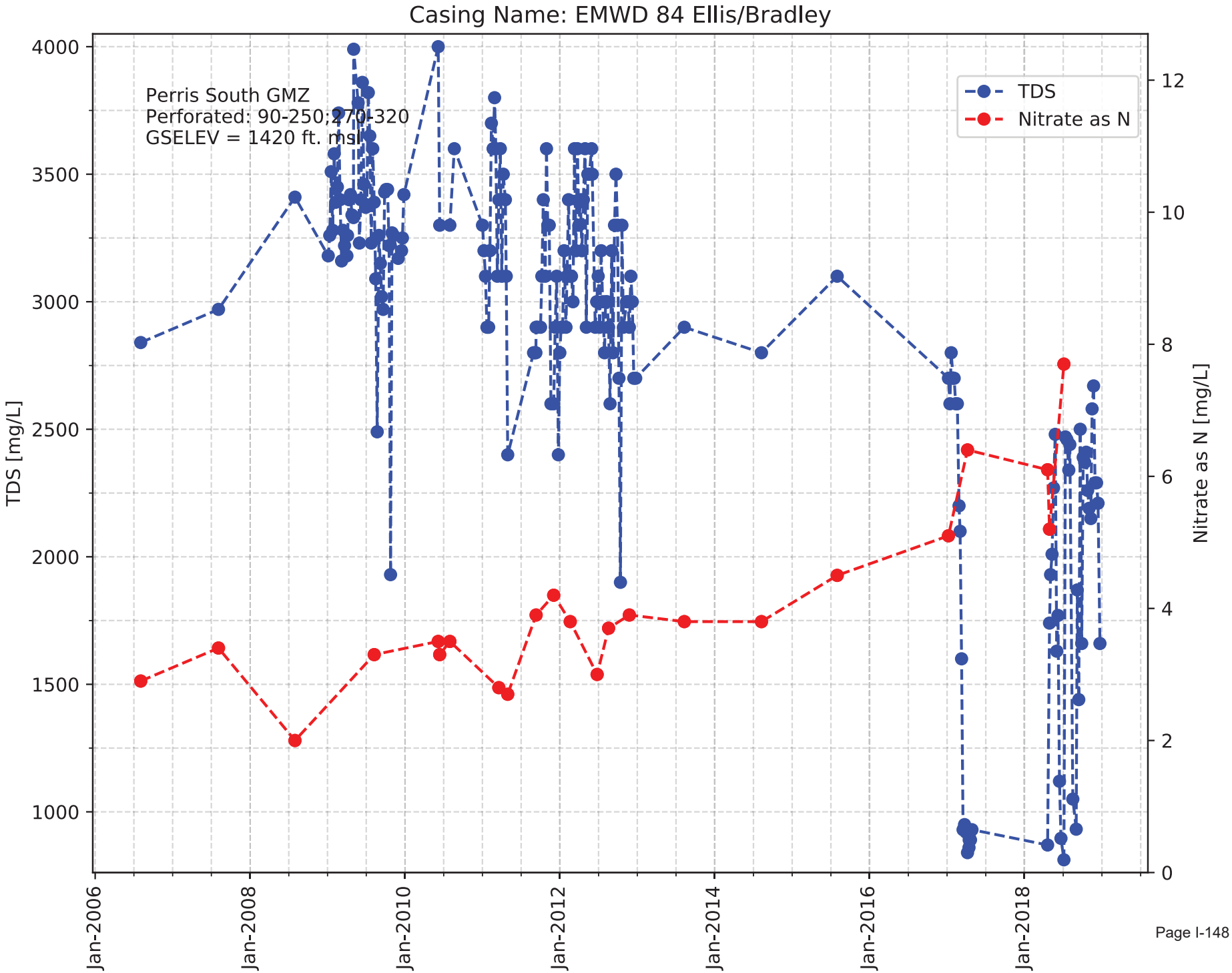

Casing Name: Perris Properties San Jacinto
Perris South GMZ
Perforated: Unknown
GSELEV = 1419 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2000
1800
1600
1400
1200
1000
20
15
10
5
0
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

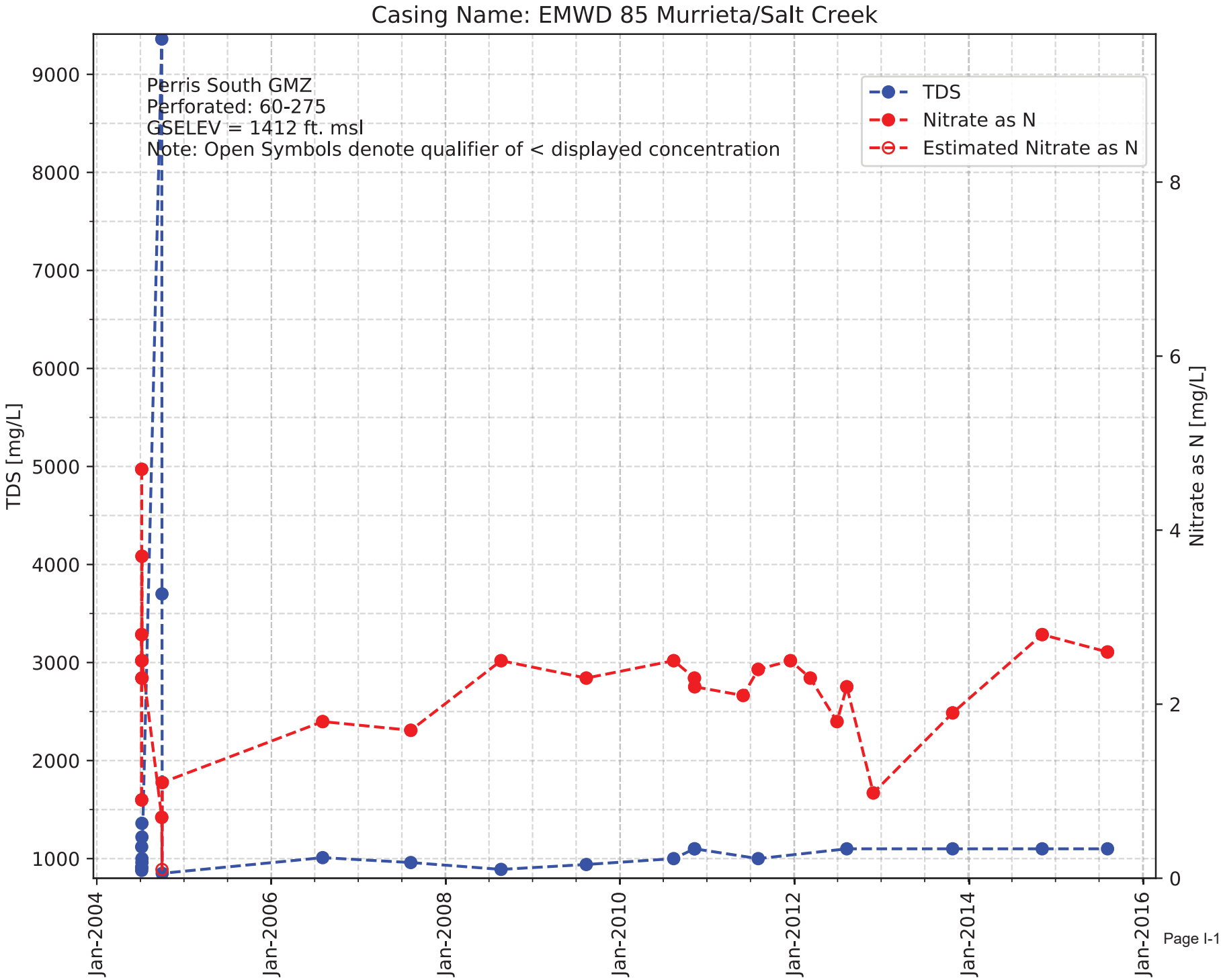

Casing Name: Agri Simpson/Lindenburger East
Perris South GMZ
Perforated: Unknown
GSELEV = 1455 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2000
1900
1800
1700
1600
1500
10
8
6
4
2
0
Jul-2003
Sep-2003
Nov-2003
Jan-2004
Mar-2004
May-2004

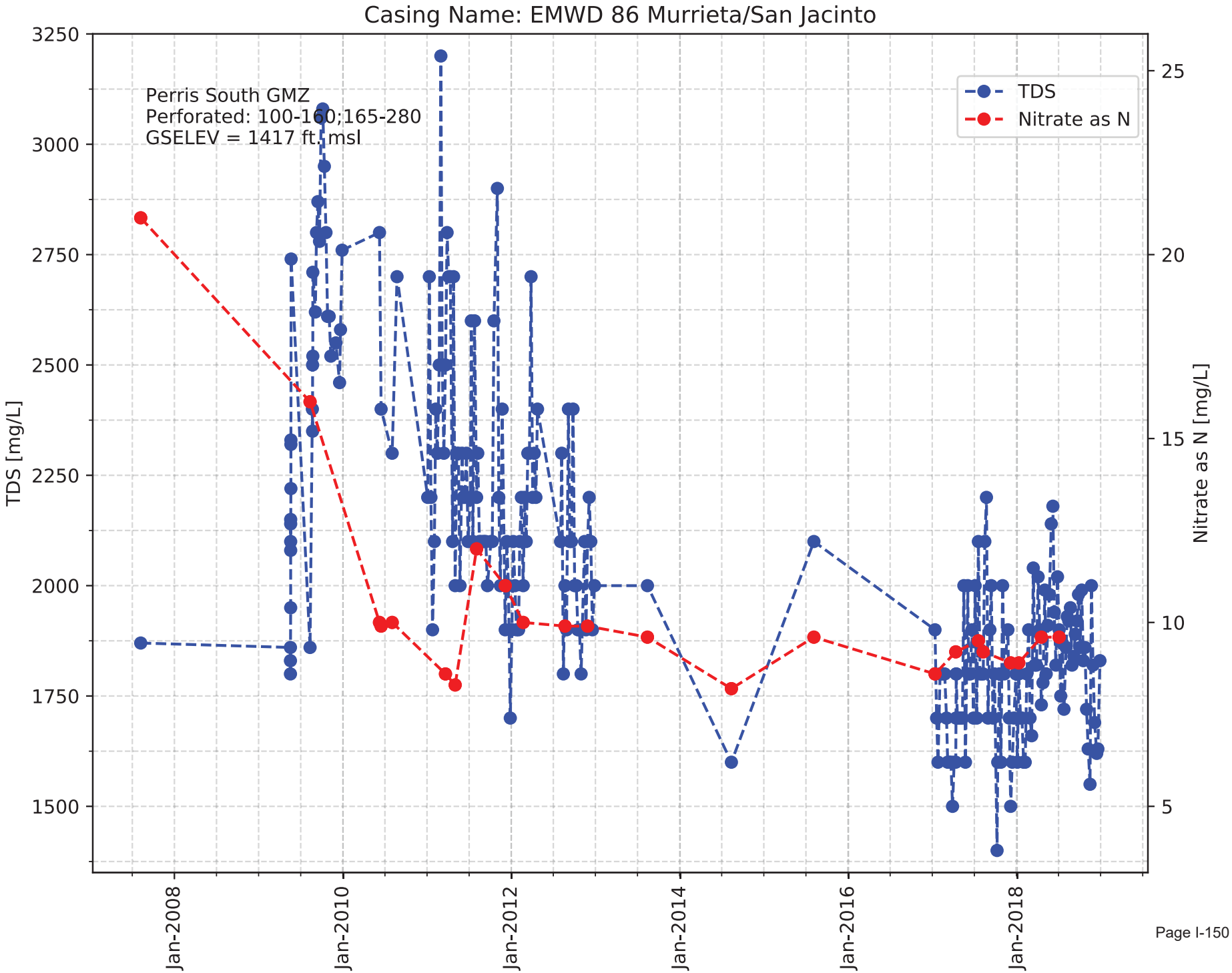

Casing Name: EMWD 81 Antelope/Watson
Perris South GMZ
Perforated: 130-360
GSELEV = 1454 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1200
1100
1000
900
800
700
600
500
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

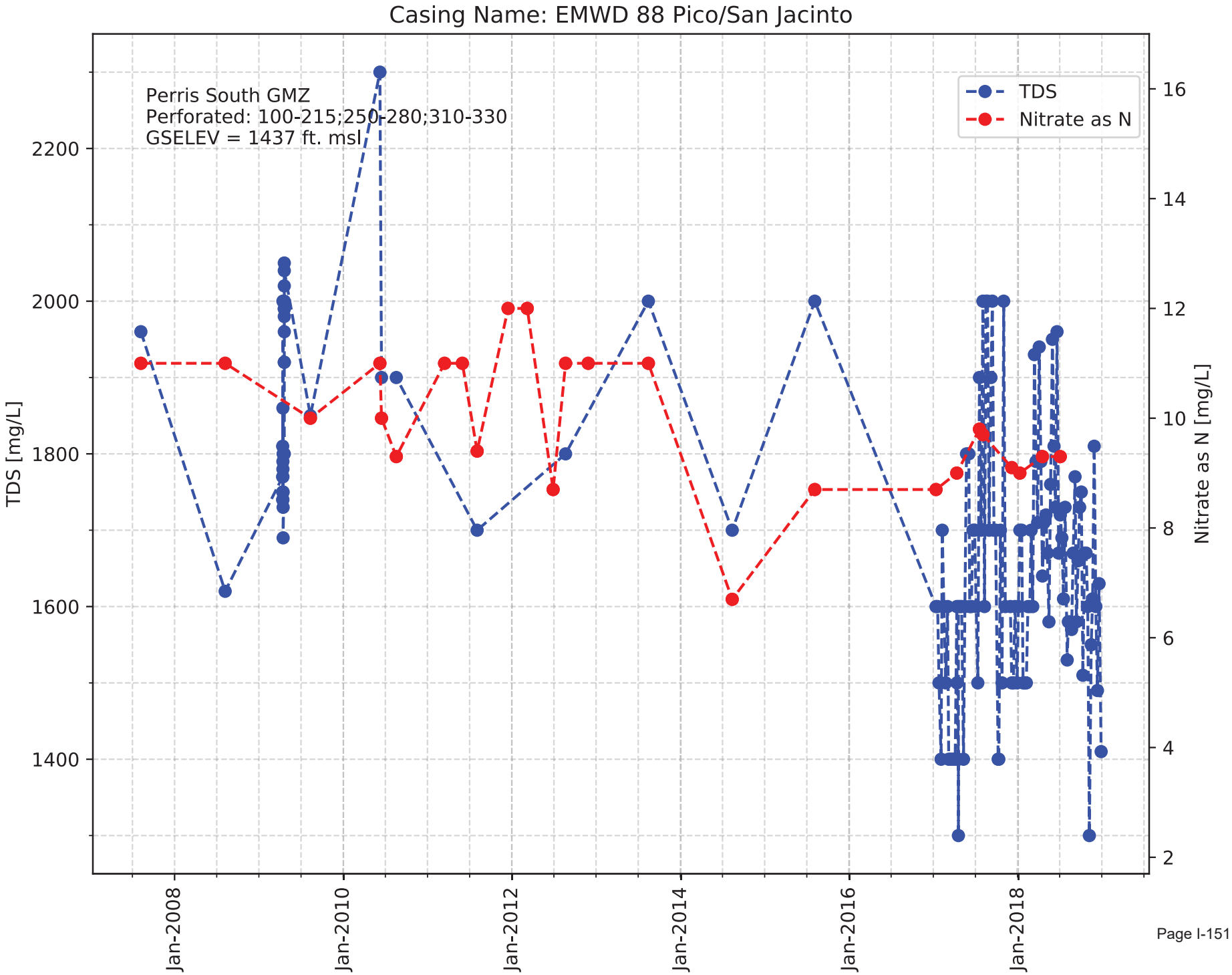

Casing Name: EMWD 82 Mapes/Sherman
Perris South GMZ
Perforated: 80-340
GSELEV = 1429 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
5000
4500
4000
3500
3000
2500
2000
1500
10
8
6
4
2
0
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

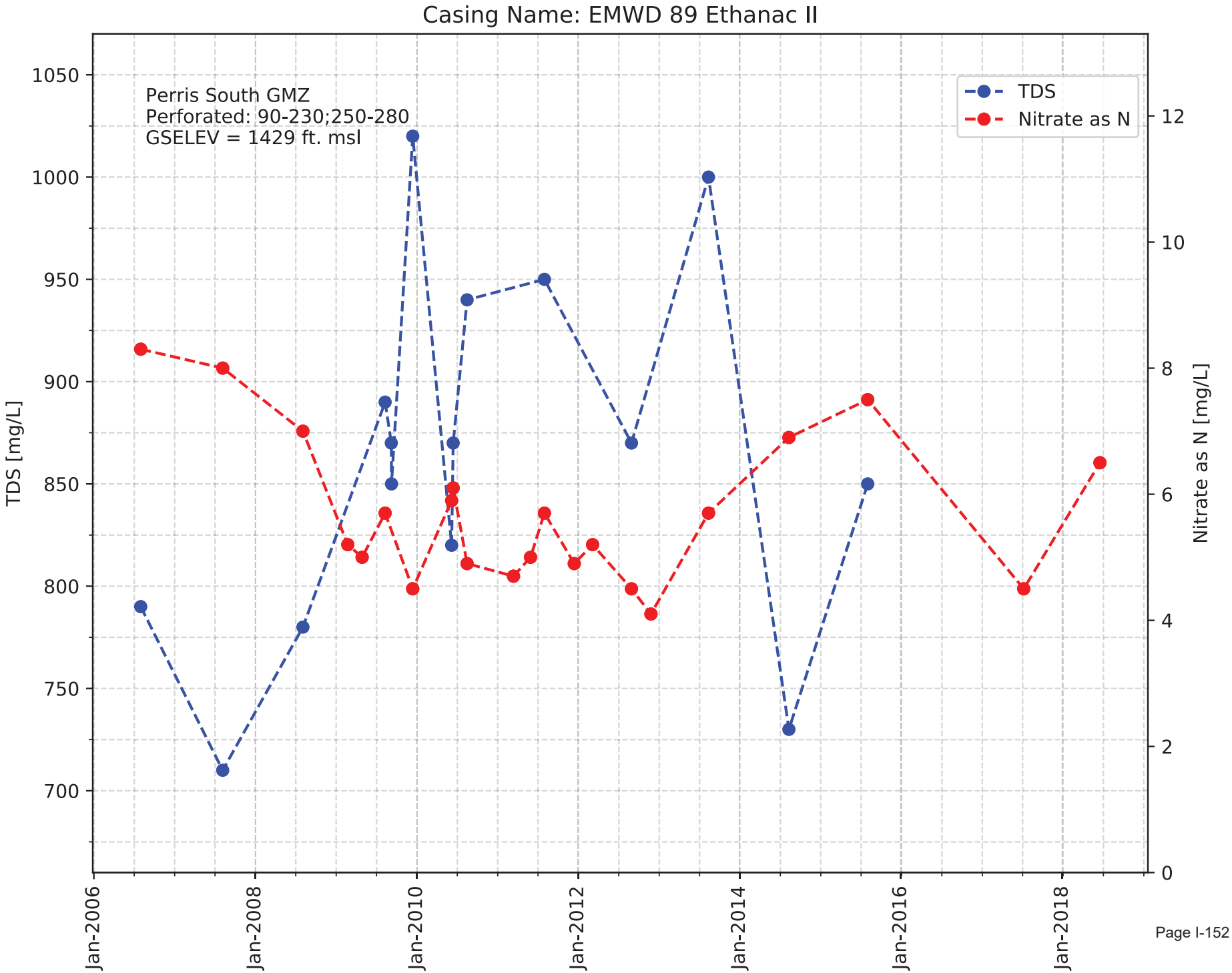

Casing Name: EMWD 83 Ellis/Sherman
Perris South GMZ
Perforated: 90-340
GSELEV = 1420 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3000
2750
2500
2250
2000
1750
1500
1250
1000
12
10
8
6
4
2
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

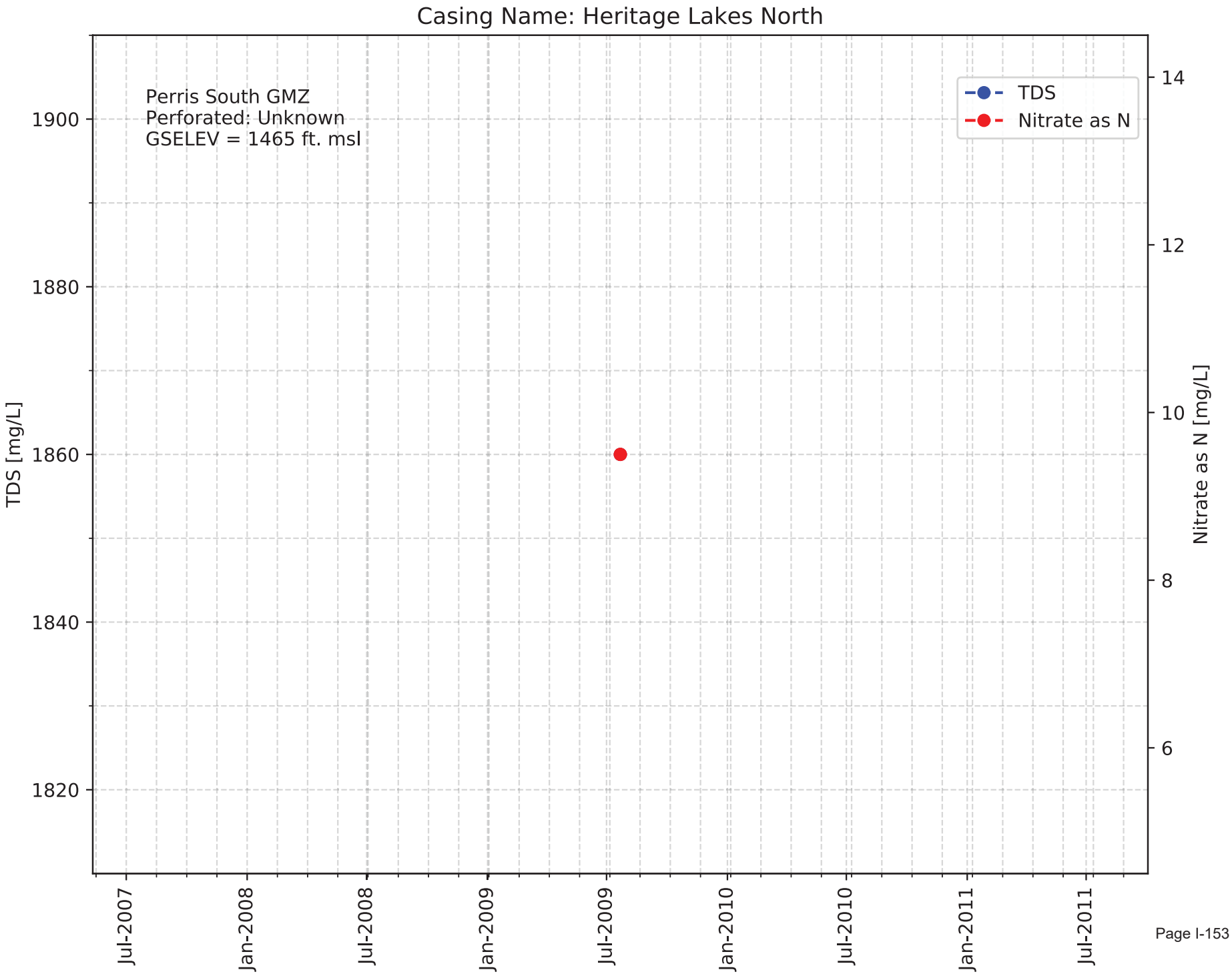

Casing Name: EMWD 84 Ellis/Bradley
Perris South GMZ
Perforated: 90-250;270-320
GSELEV = 1420 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3500
3000
2500
2000
1500
1000
12
10
8
6
4
2
0
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

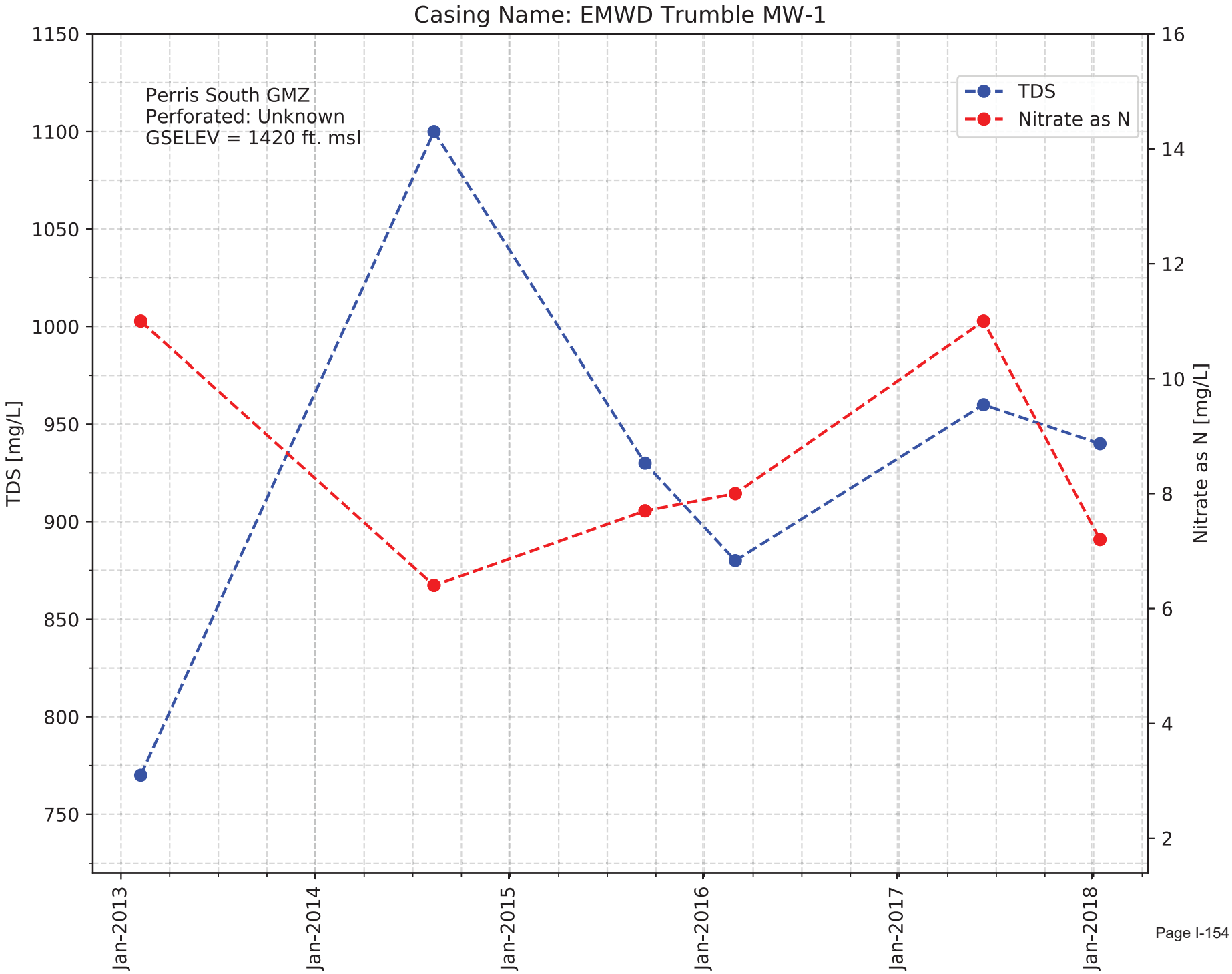

Casing Name: EMWD 85 Murrieta/Salt Creek
Perris South GMZ
Perforated: 60-275
GSELEV = 1412 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
9000
8000
7000
6000
5000
4000
3000
2000
1000
8
6
4
2
0
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016

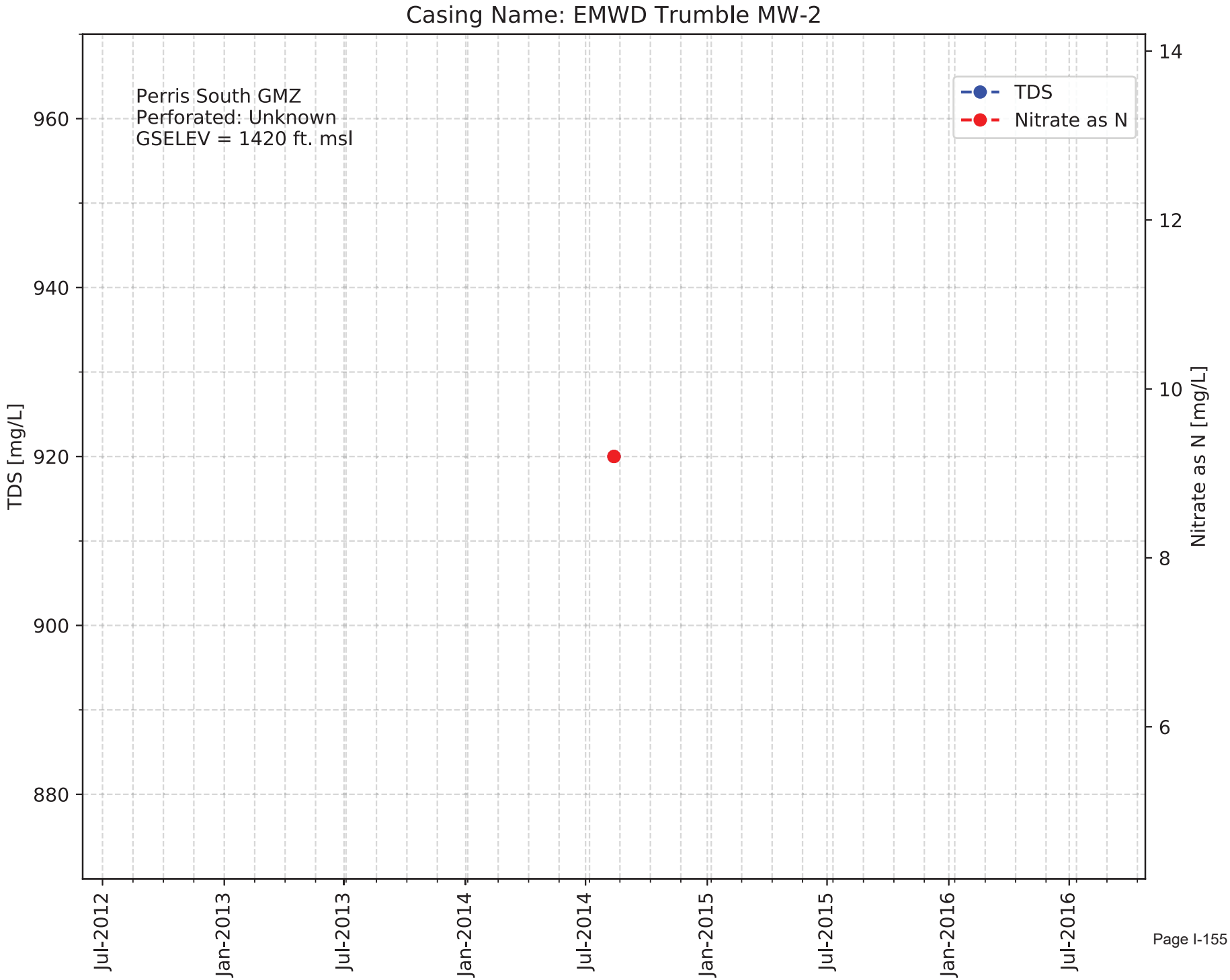

Casing Name: EMWD 86 Murrieta/San Jacinto
Perris South GMZ
Perforated: 100-160;165-280
GSELEV = 1417 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3250
3000
2750
2500
2250
2000
1750
1500
25
20
15
10
5
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

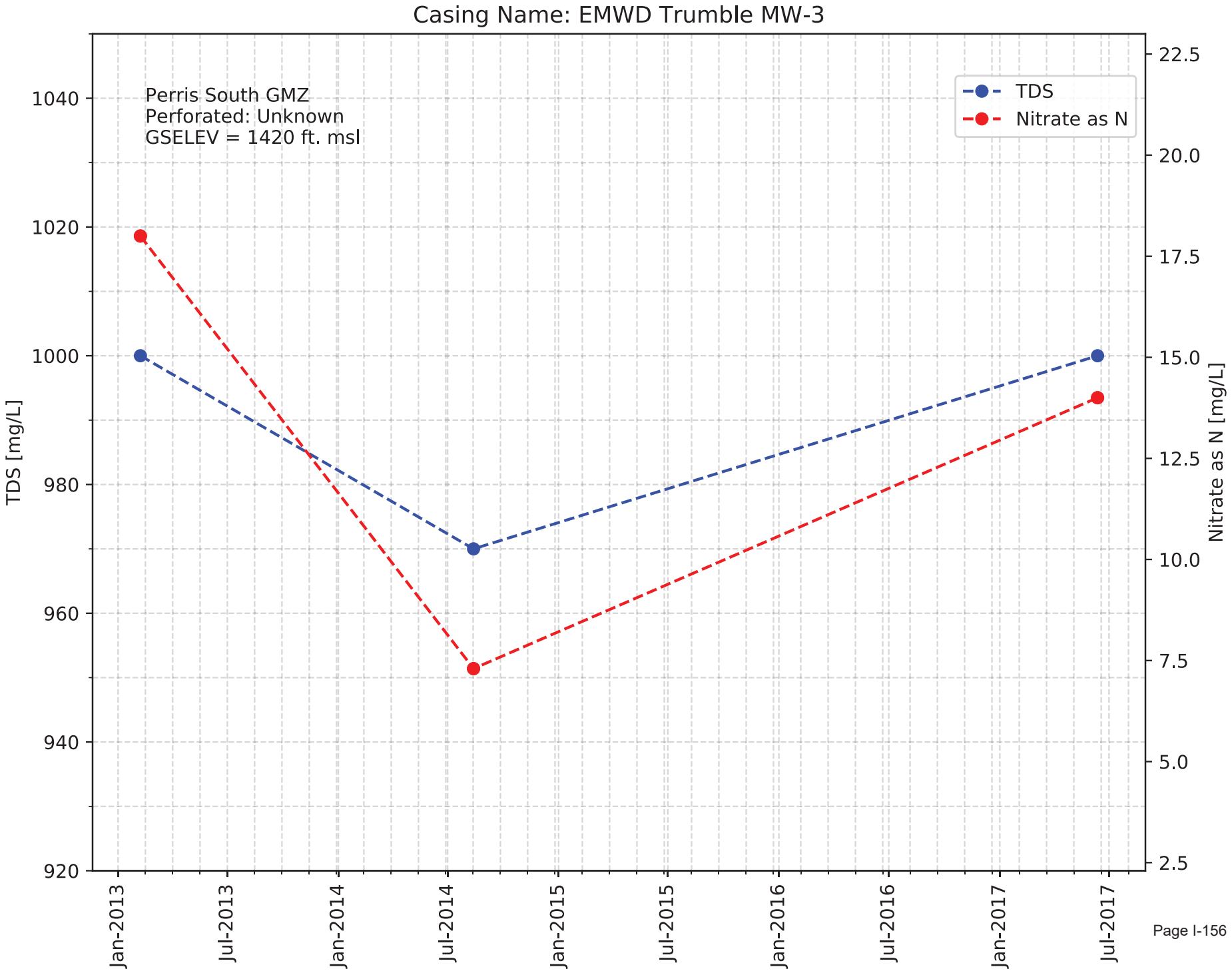

Casing Name: EMWD 88 Pico/San Jacinto
Perris South GMZ
Perforated: 100-215;250-280;310-330
GSELEV = 1437 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2000
1800
1600
1400
16
14
12
10
8
6
4
2
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

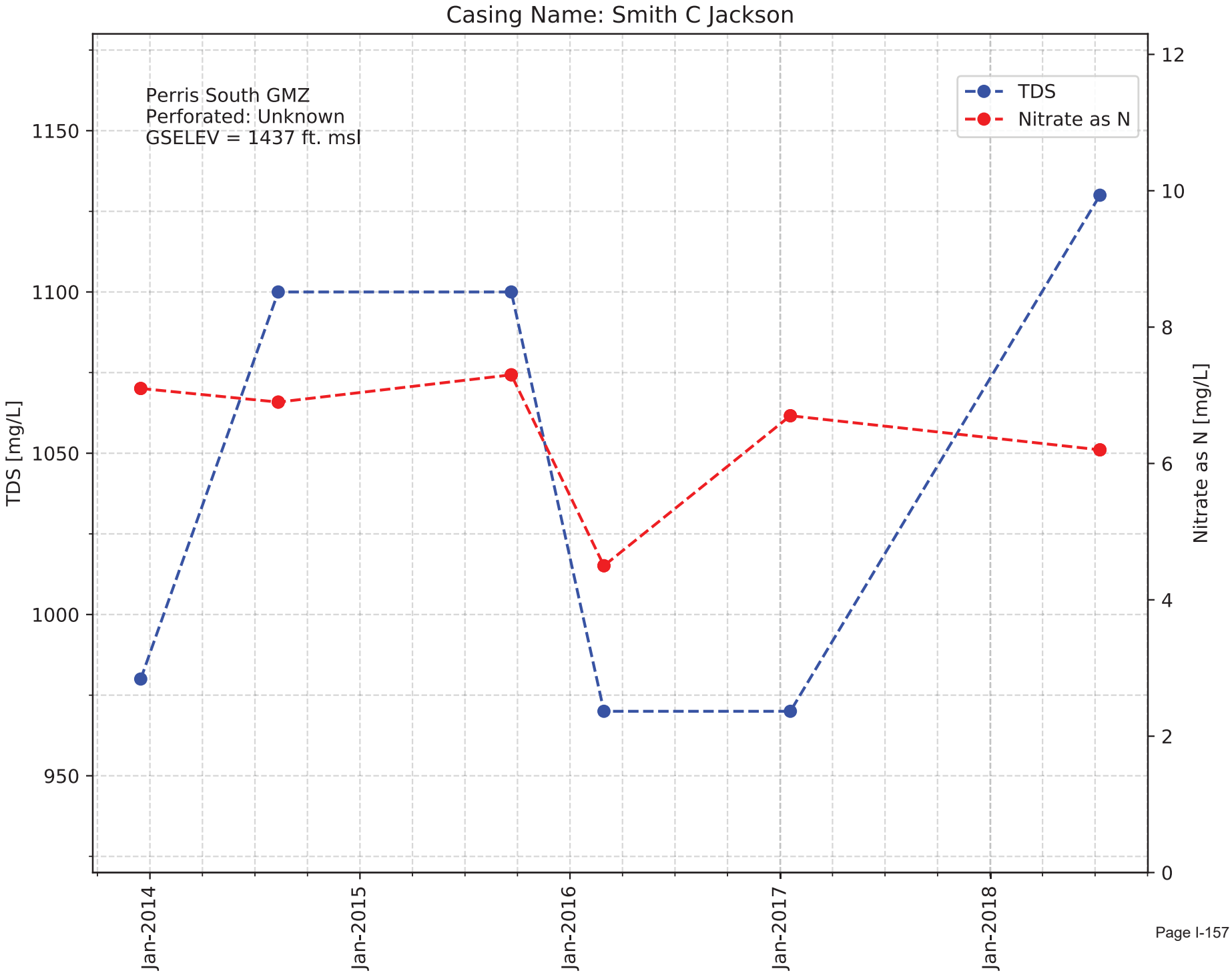

Casing Name: EMWD 89 Ethanac II
Perris South GMZ
Perforated: 90-230;250-280
GSELEV = 1429 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1050
1000
950
900
850
800
750
700
12
10
8
6
4
2
0
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

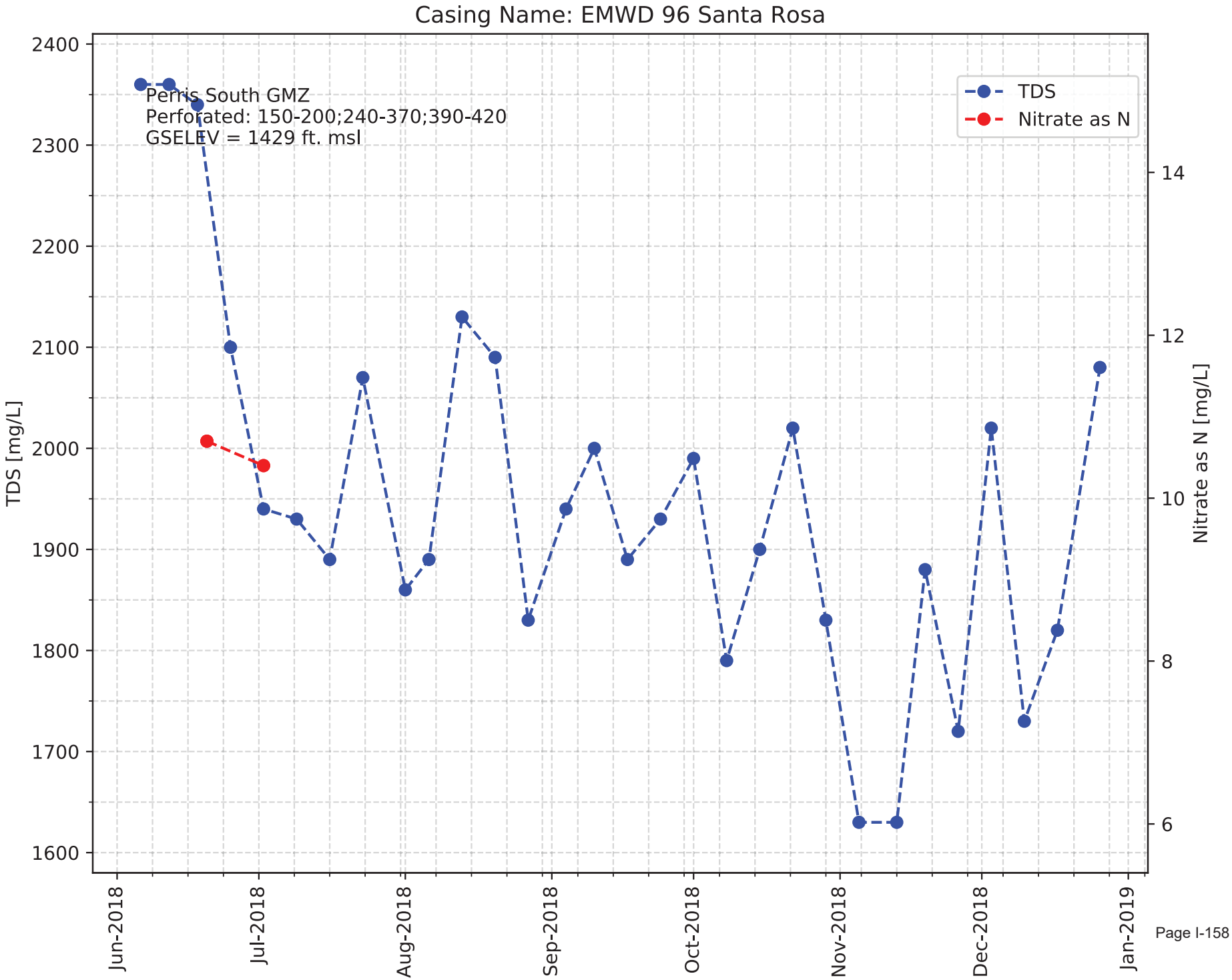

Casing Name: Heritage Lakes North
Perris South GMZ
Perforated: Unknown
GSELEV = 1465 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1900
1880
1860
1840
1820
14
12
10
8
6
Jul-2007
Jan-2008
Jul-2008
Jan-2009
Jul-2009
Jan-2010
Jul-2010
Jan-2011
Jul-2011

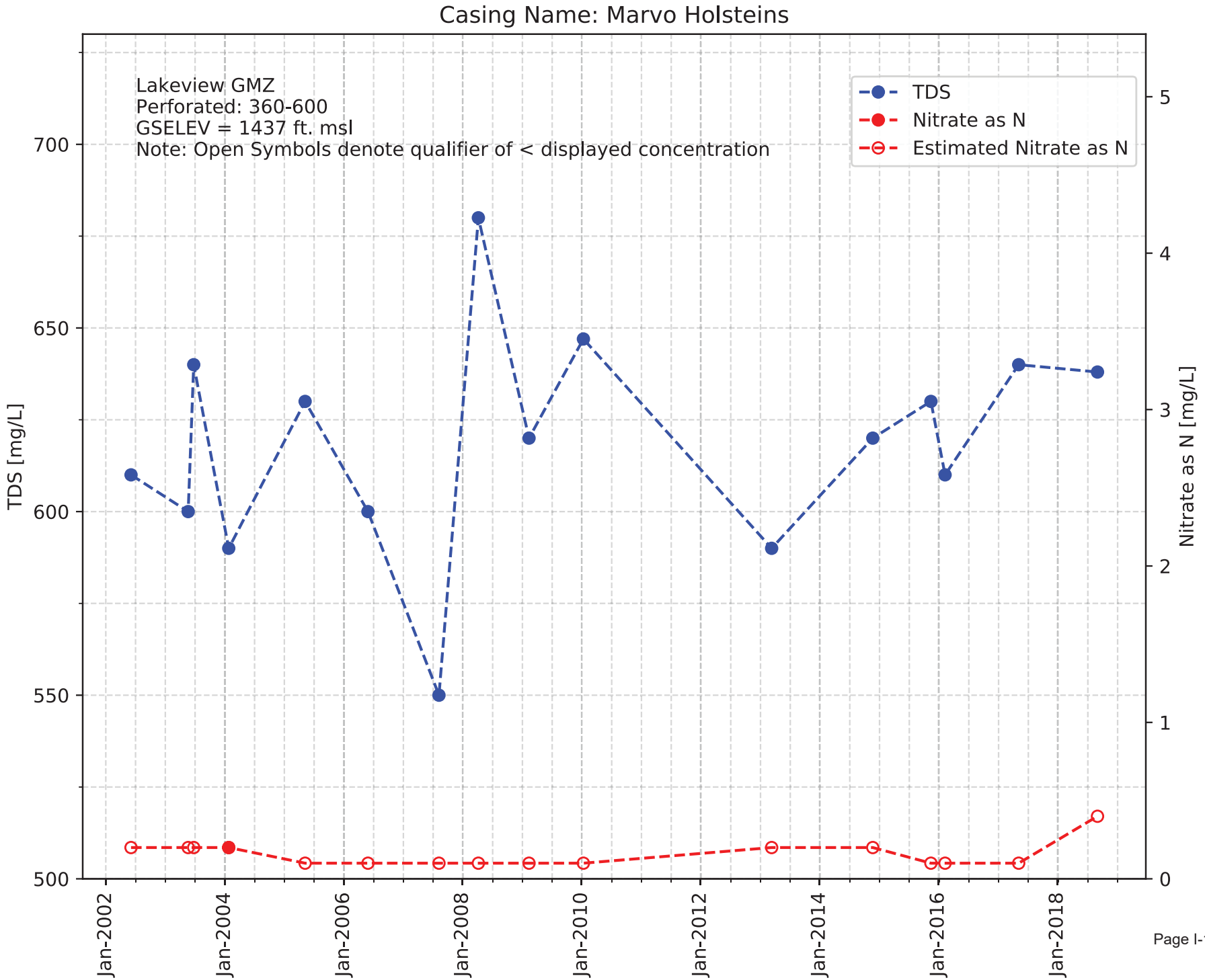

Casing Name: EMWD Trumble MW-1
Perris South GMZ
Perforated: Unknown
GSELEV = 1420 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1150
1100
1050
1000
950
900
850
800
750
16
14
12
10
8
6
4
2
Jan-2013
Jan-2014
Jan-2015
Jan-2016
Jan-2017
Jan-2018

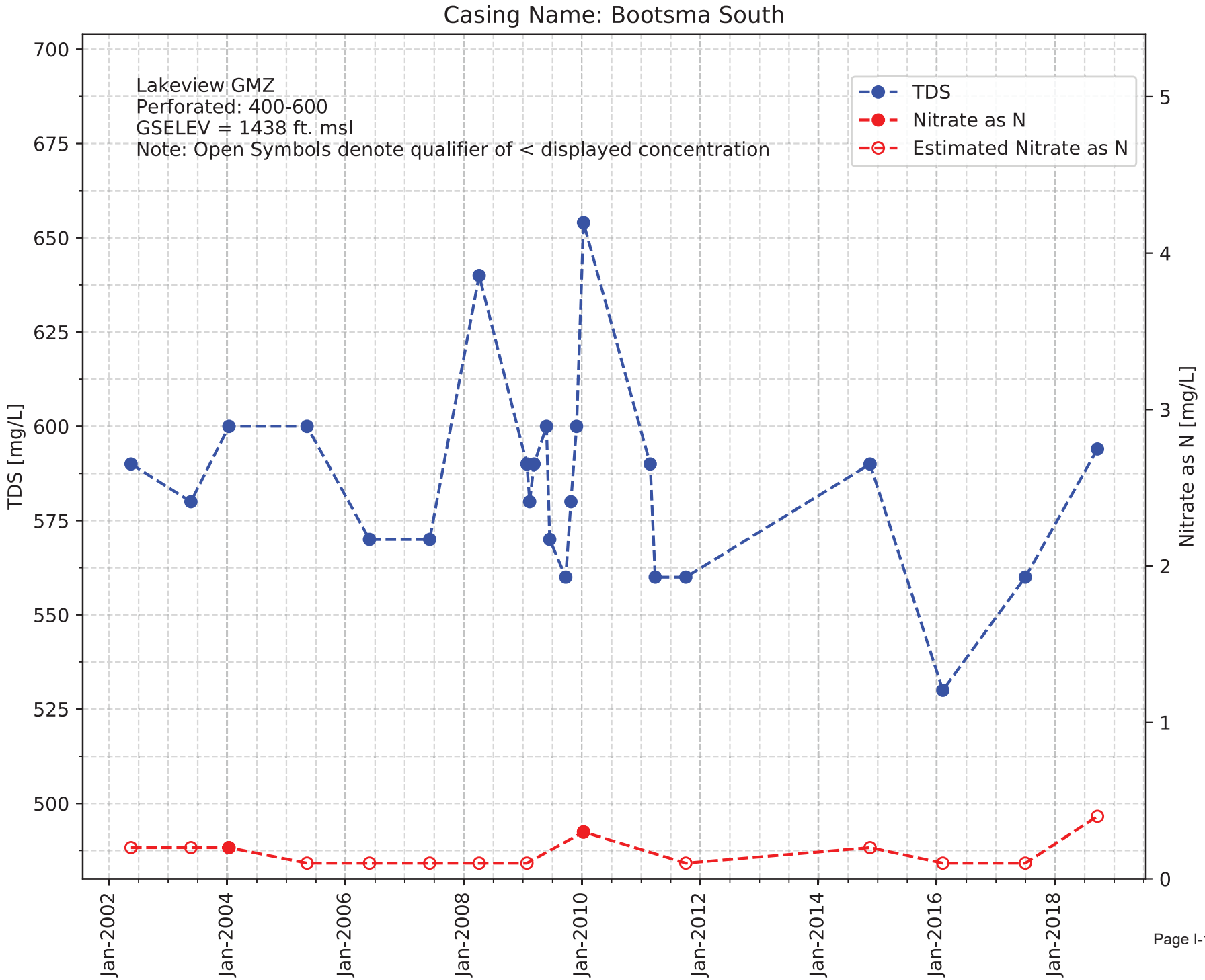

Casing Name: EMWD Trumble MW-2
Perris South GMZ
Perforated: Unknown
GSELEV = 1420 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
960
940
920
900
880
14
12
10
8
6
Jul-2012
Jan-2013
Jul-2013
Jan-2014
Jul-2014
Jan-2015
Jul-2015
Jan-2016
Jul-2016

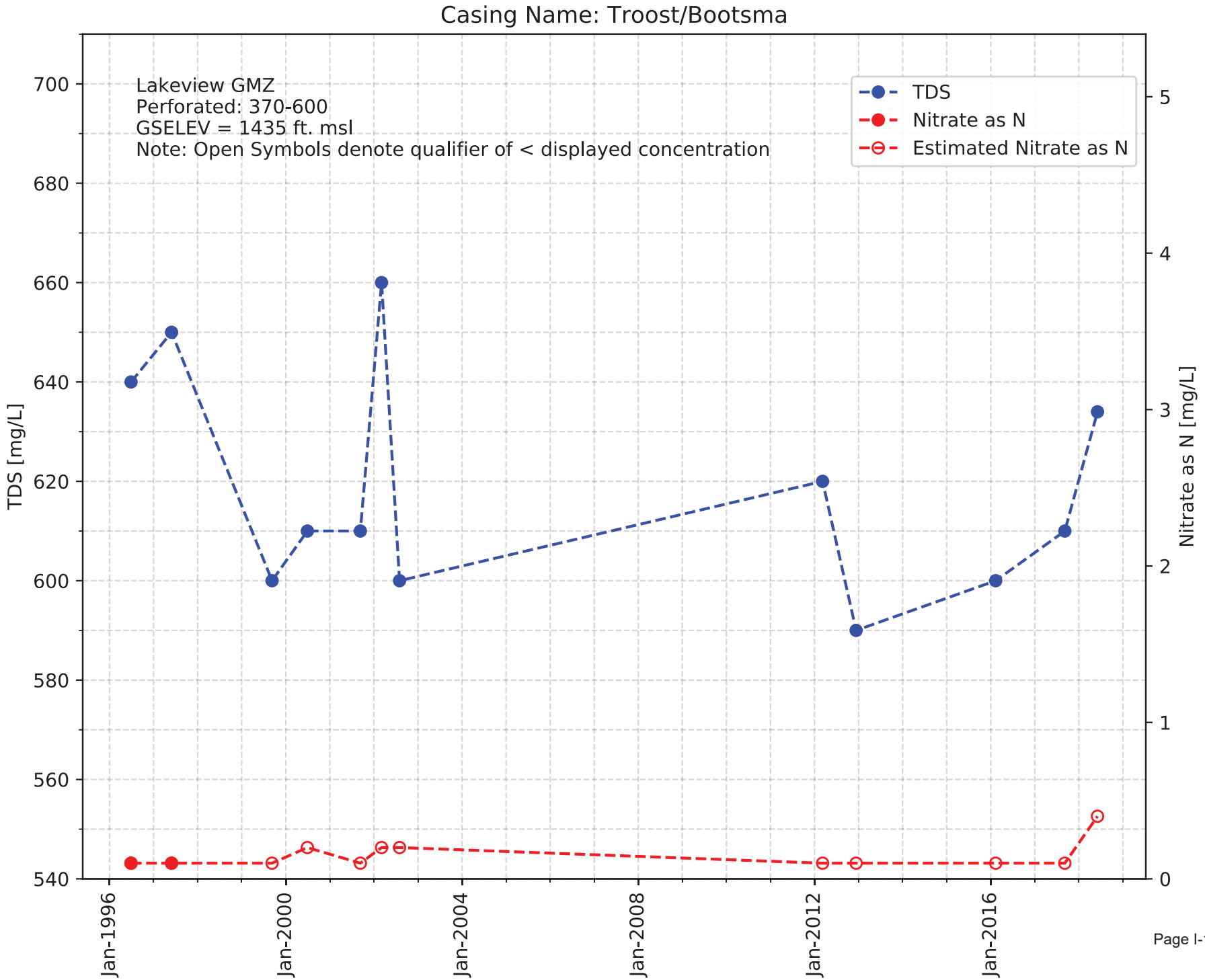

Casing Name: EMWD Trumble MW-3
Perris South GMZ
Perforated: Unknown
GSELEV = 1420 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1040
1020
1000
980
960
940
920
22.5
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
Jan-2013
Jul-2013
Jan-2014
Jul-2014
Jan-2015
Jul-2015
Jan-2016
Jul-2016
Jan-2017
Jul-2017


Casing Name: Smith C Jackson
Perris South GMZ
Perforated: Unknown
GSELEV = 1437 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1150
1100
1050
1000
950
12
10
8
6
4
2
0
Jan-2014
Jan-2015
Jan-2016
Jan-2017
Jan-2018

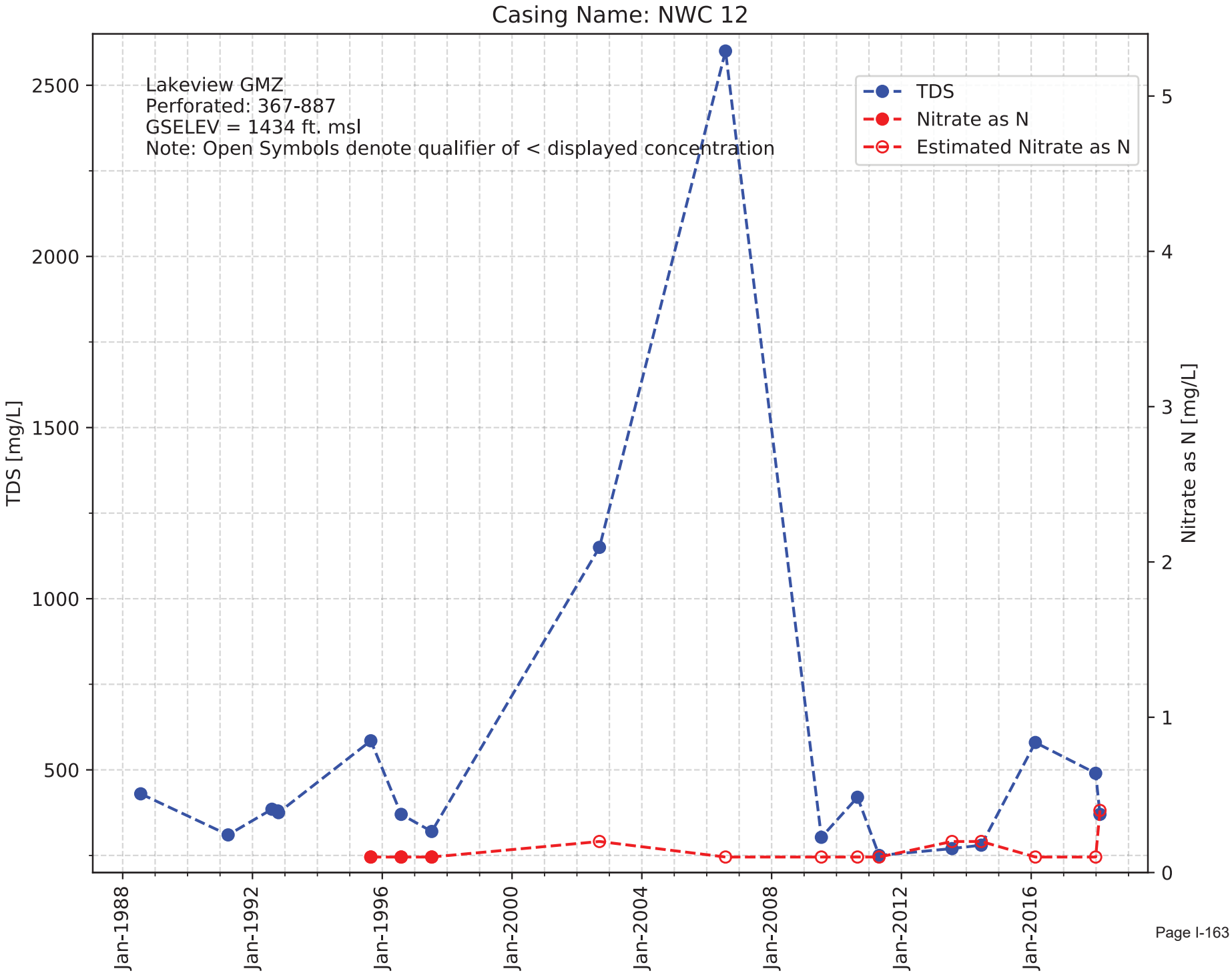

Casing Name: EMWD 96 Santa Rosa
Perris South GMZ
Perforated: 150-200;240-370;390-420
GSELEV = 1429 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2400
2300
2200
2100
2000
1900
1800
1700
1600
14
12
10
8
6
Jun-2018
Jul-2018
Aug-2018
Sep-2018
Oct-2018
Nov-2018
Dec-2018
Jan-2019

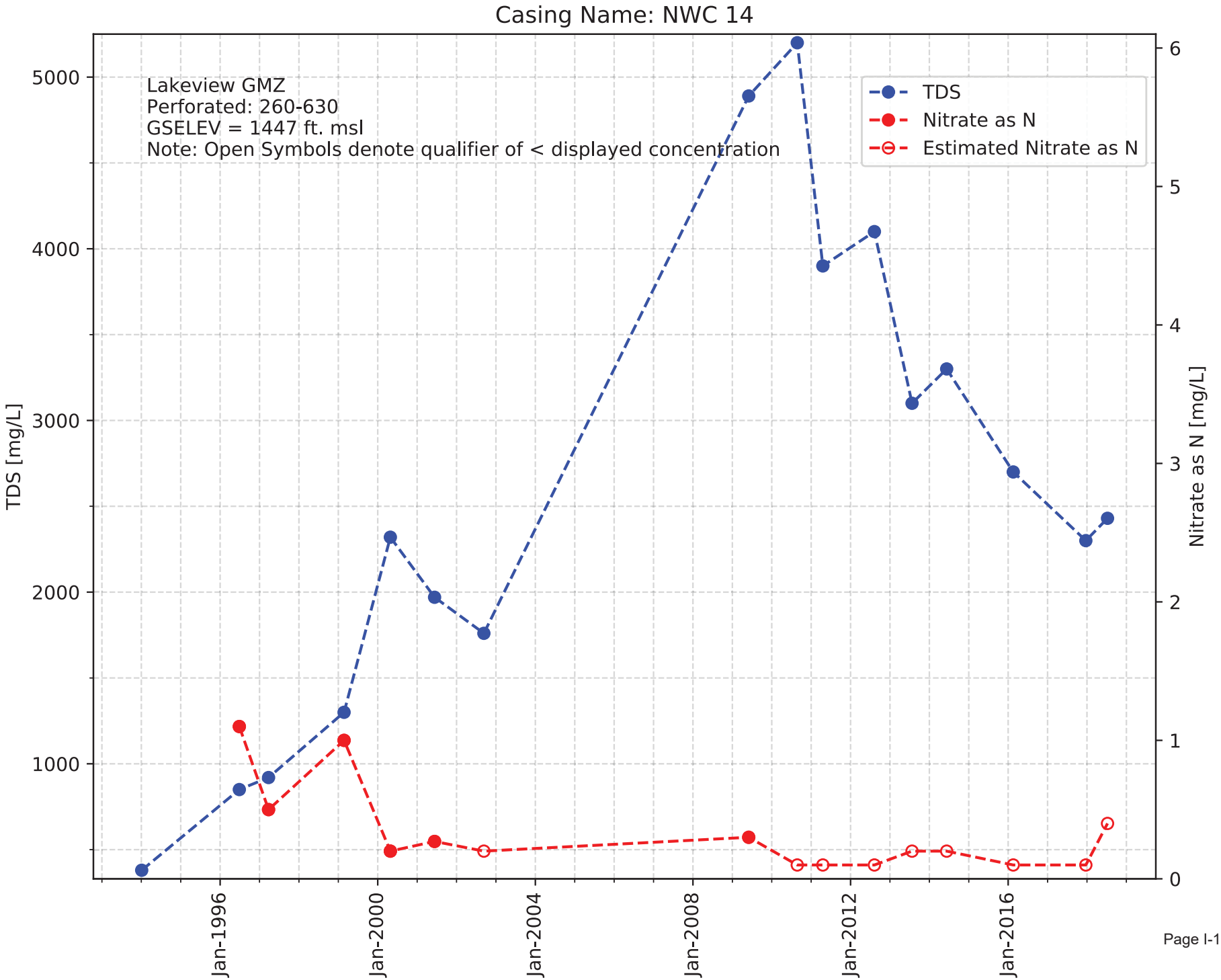

Casing Name: Marvo Holsteins
Lakeview GMZ
Perforated: 360-600
GSELEV = 1437 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
650
600
550
500
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

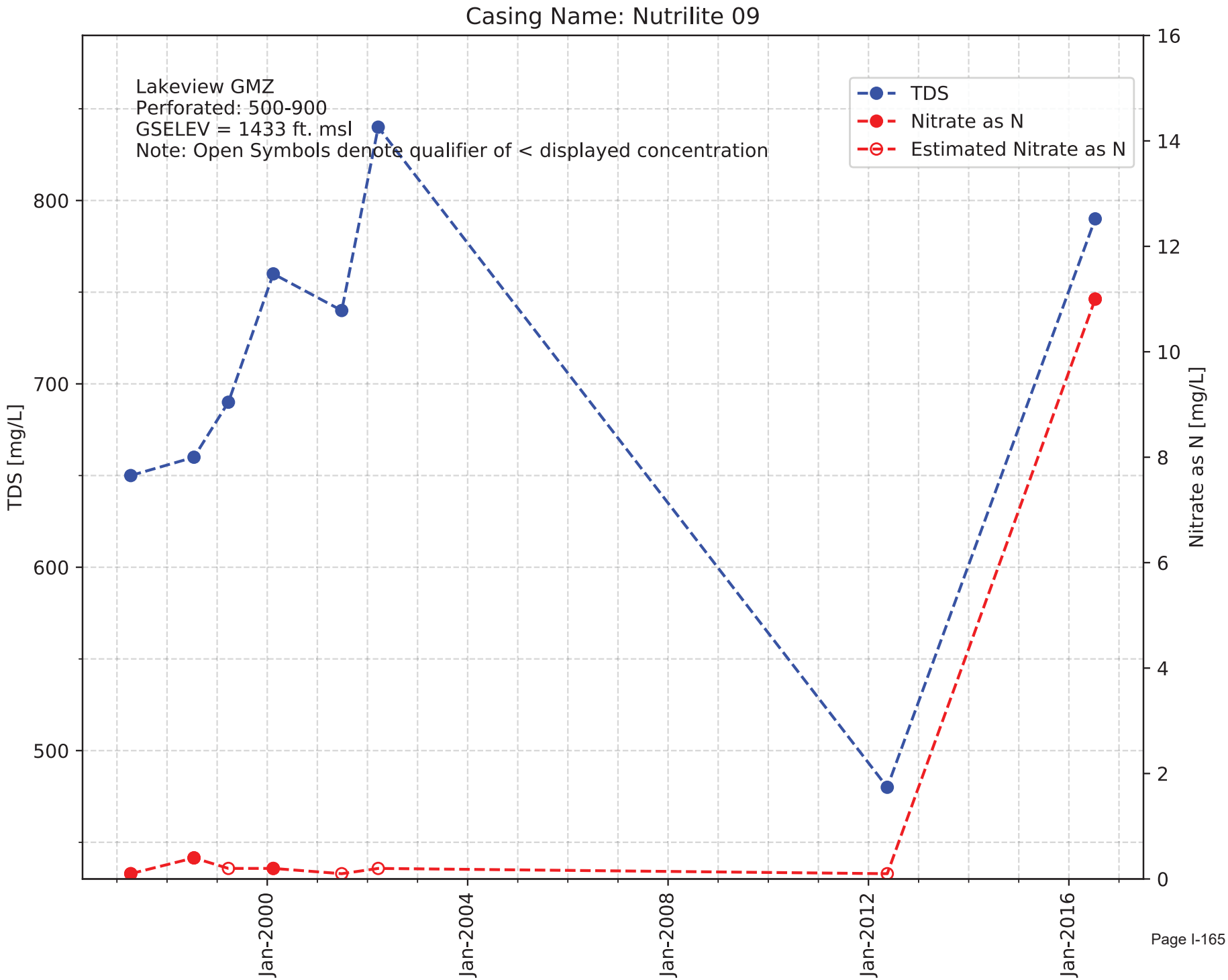

Casing Name: Bootsma South
Lakeview GMZ
Perforated: 400-600
GSELEV = 1438 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
675
650
625
600
575
550
525
500
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

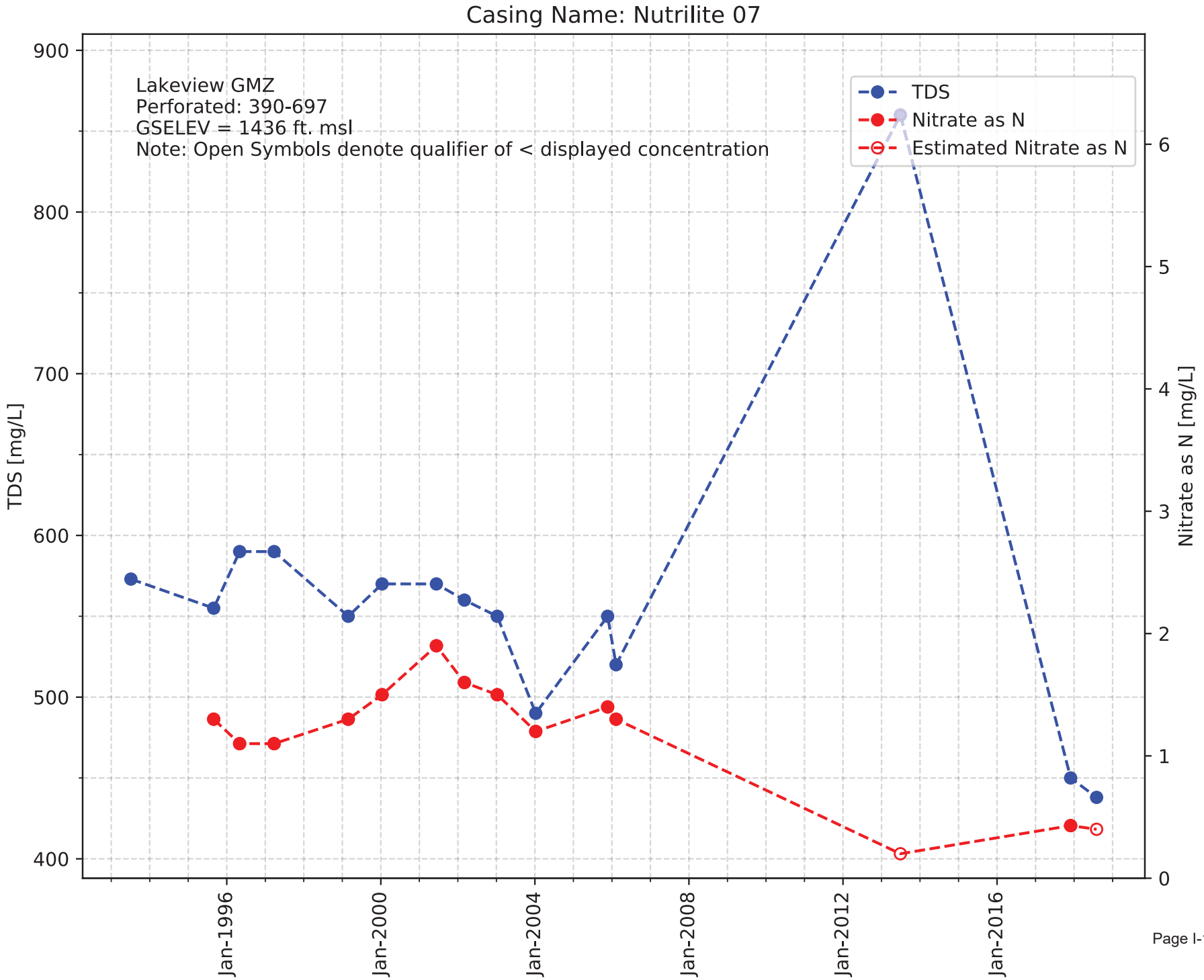

Casing Name: Troost/Bootsma
Lakeview GMZ
Perforated: 370-600
GSELEV = 1435 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
680
660
640
620
600
580
560
540
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

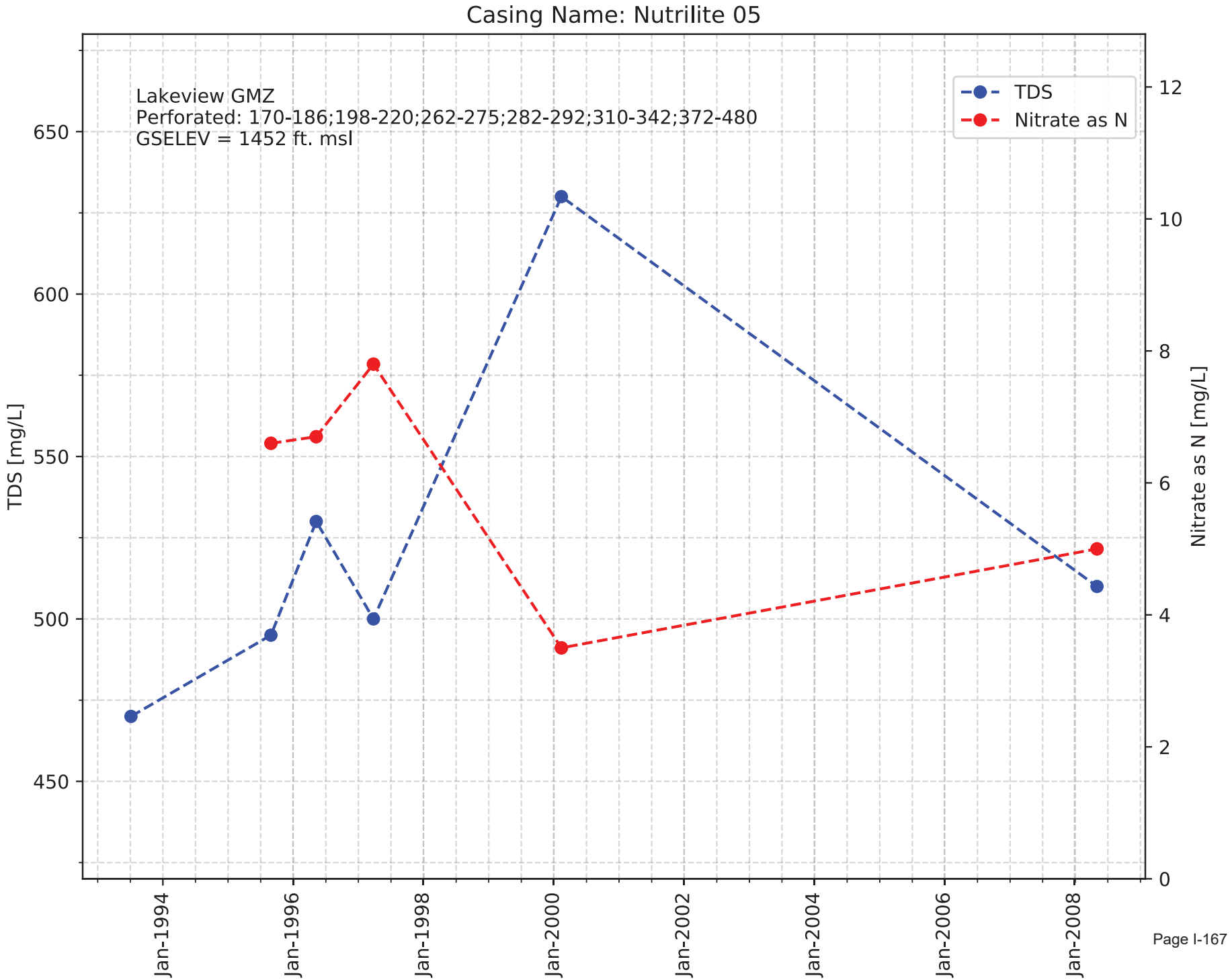

Casing Name: Hammerschmidt 02
Lakeview GMZ
Perforated: 255-590
GSELEV = 1449 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1000
900
800
700
600
6
5
4
3
2
1
0
Jan-1988
Jan-1990
Jan-1992
Jan-1994
Jan-1996
Jan-1998
Jan-2000

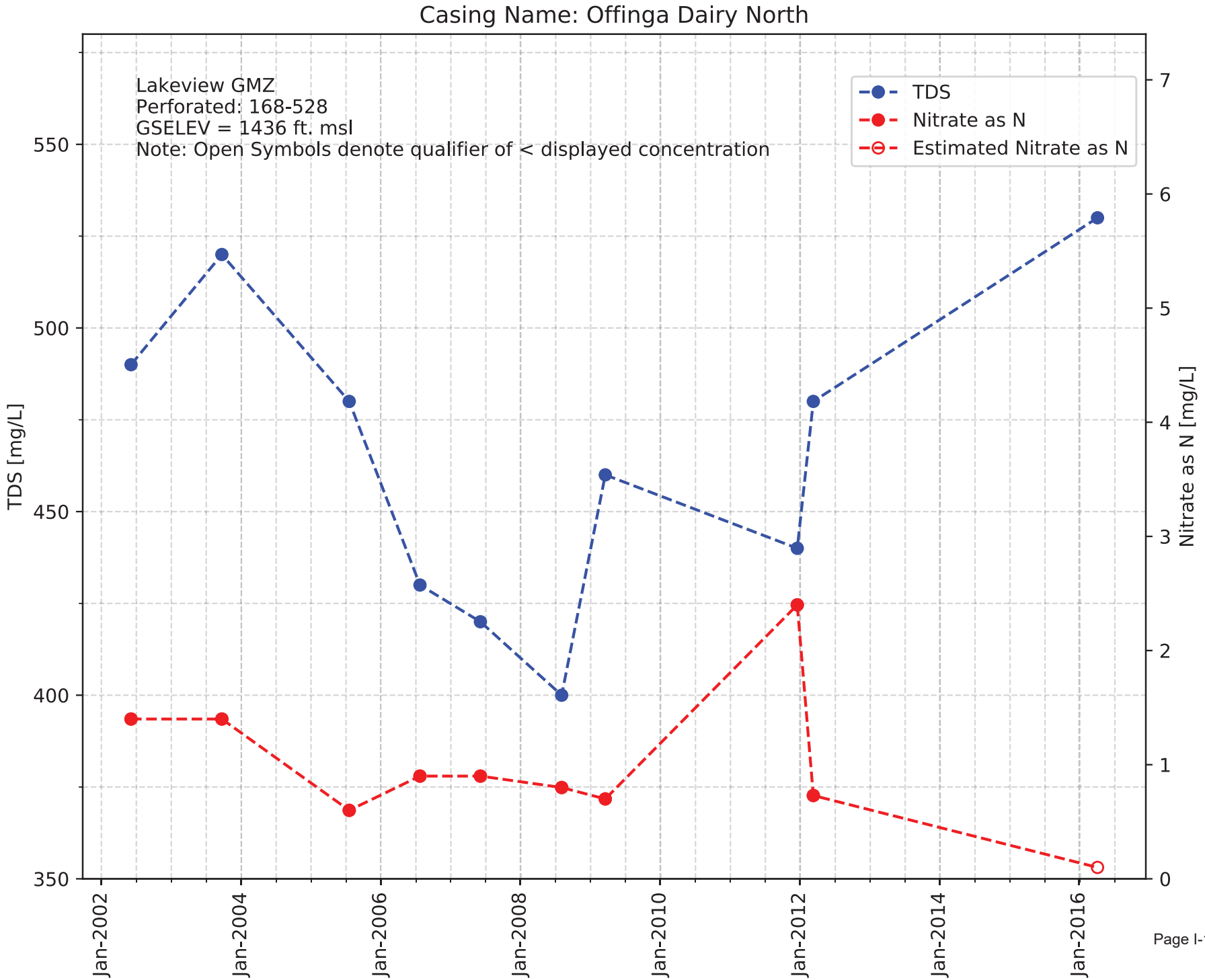

Casing Name: NWC 12
Lakeview GMZ
Perforated: 367-887
GSELEV = 1434 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2000
1500
1000
500
5
4
3
2
1
0
Jan-1988
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

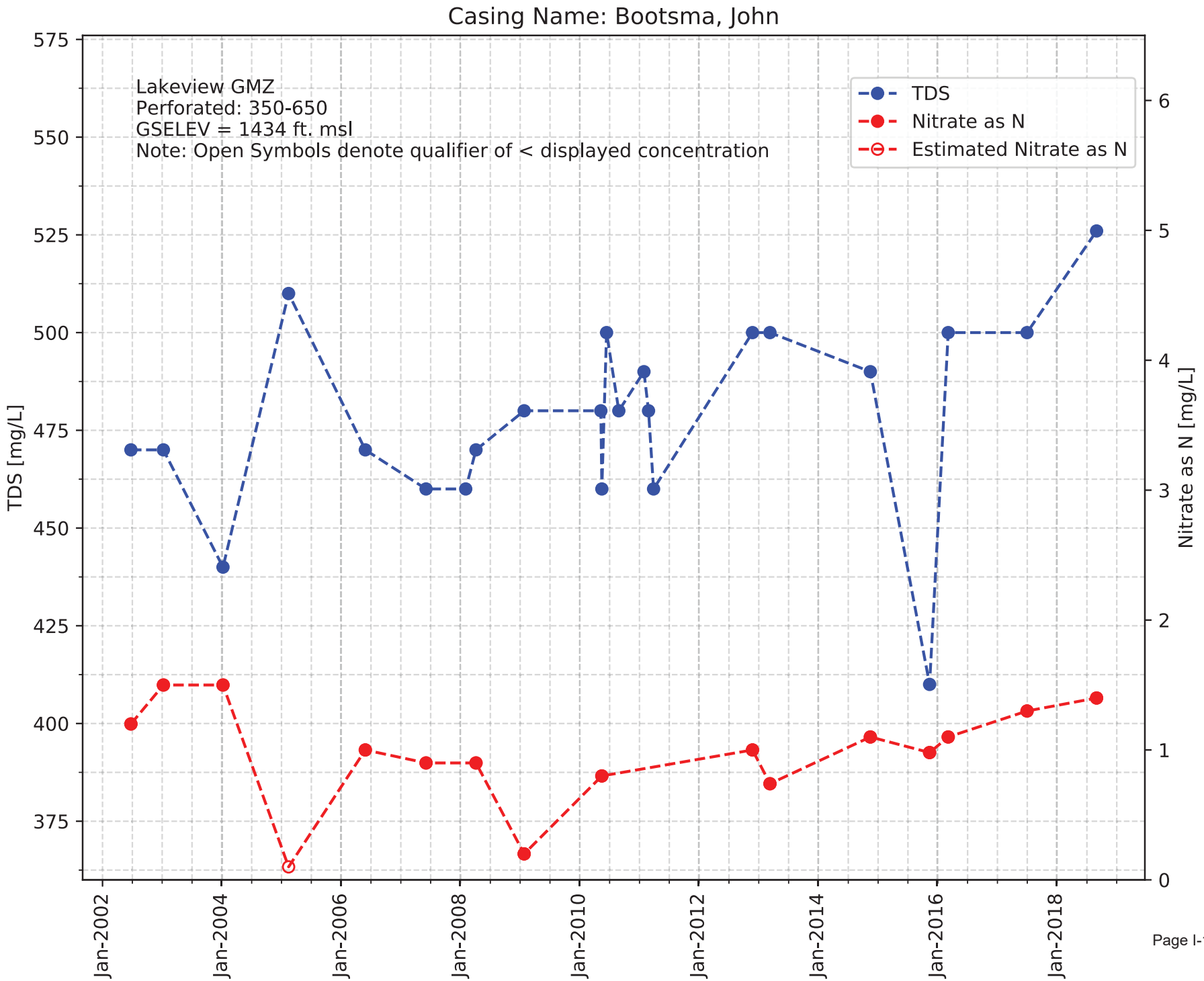

Casing Name: NWC 14
Lakeview GMZ
Perforated: 260-630
GSELEV = 1447 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
5000
4000
3000
2000
1000
6
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

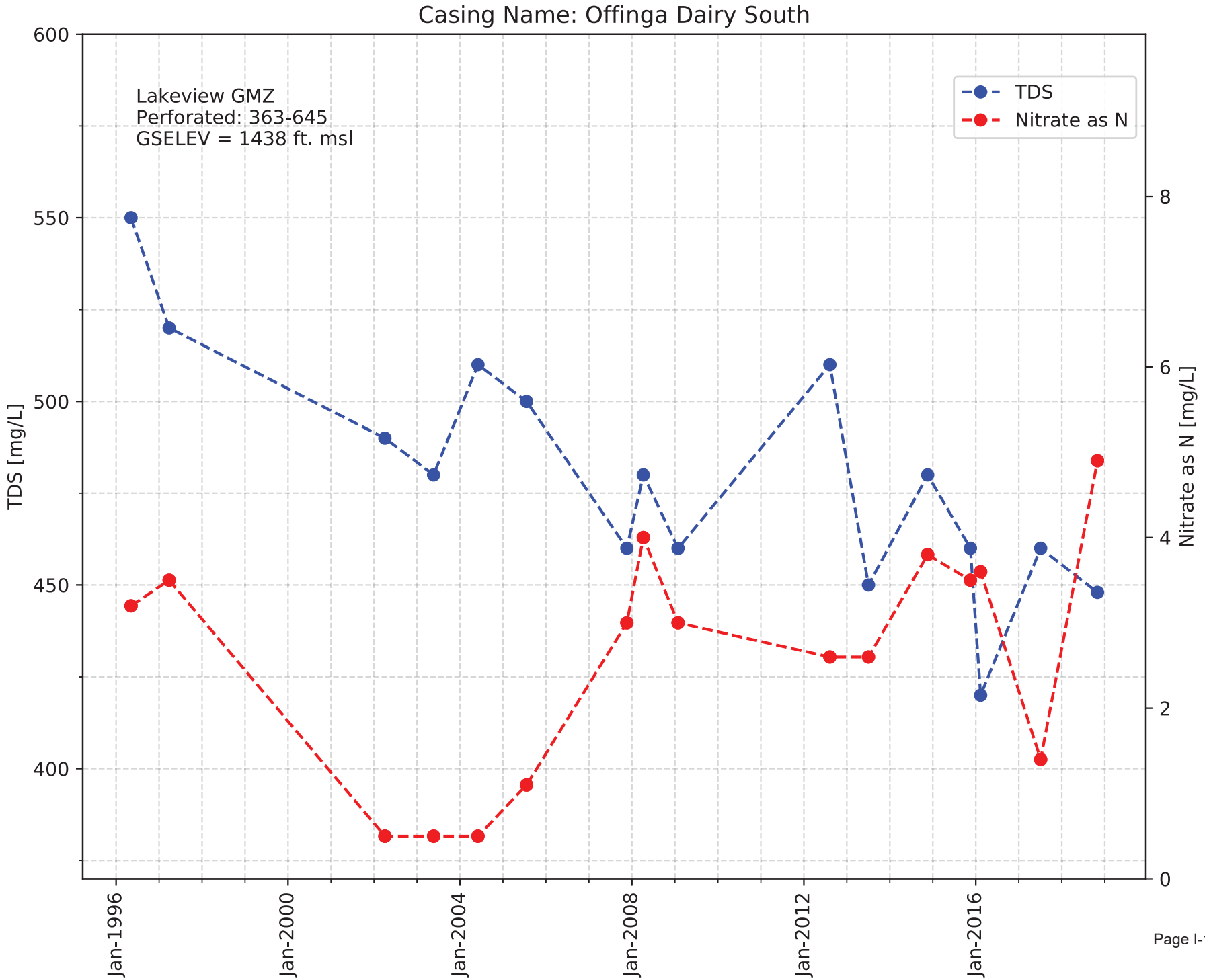

Casing Name: Nutrilite 09
Lakeview GMZ
Perforated: 500-900
GSELEV = 1433 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
800
700
600
500
16
14
12
10
8
6
4
2
0
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

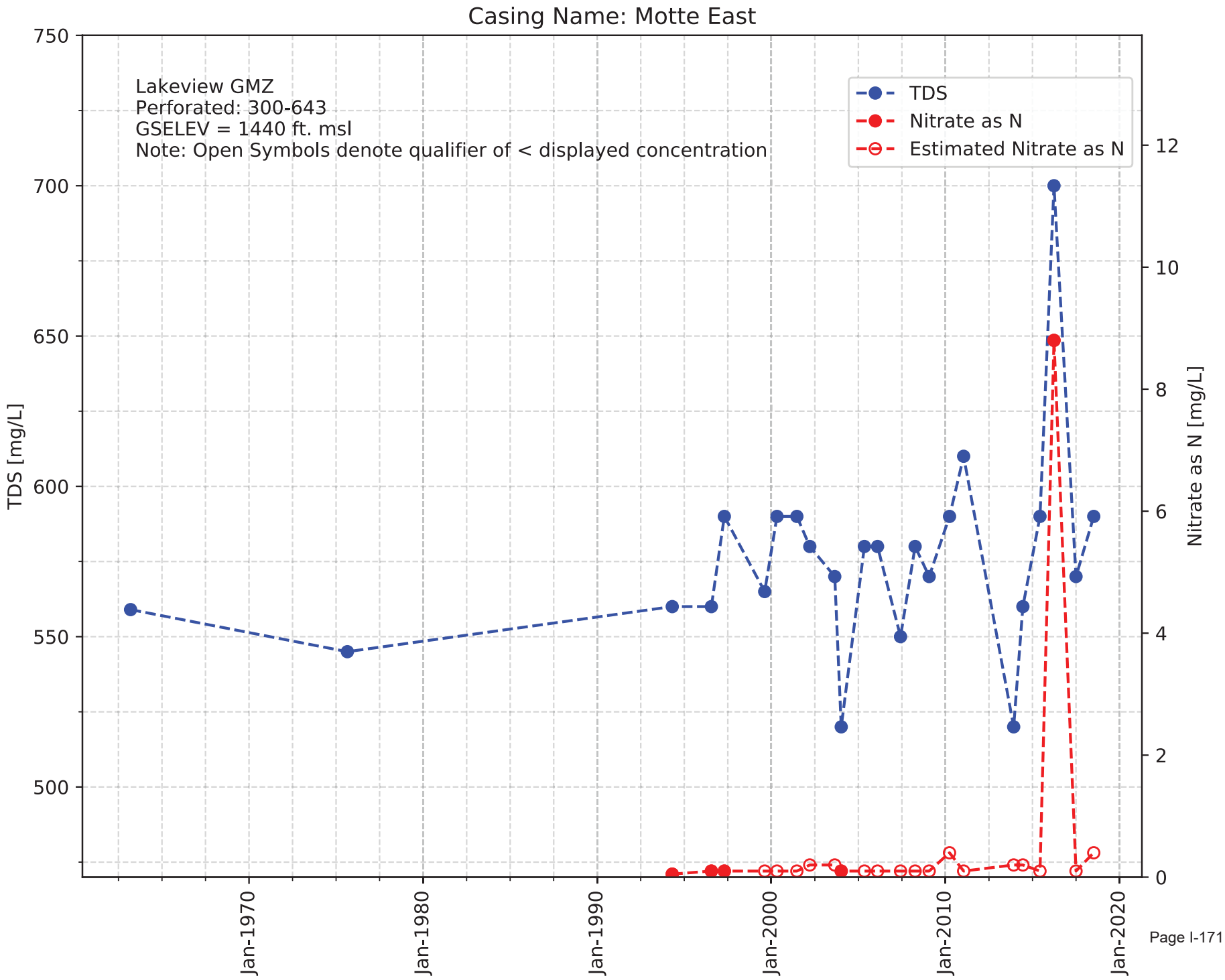

Casing Name: Nutrilite 07
Lakeview GMZ
Perforated: 390-697
GSELEV = 1436 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
900
800
700
600
500
400
6
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

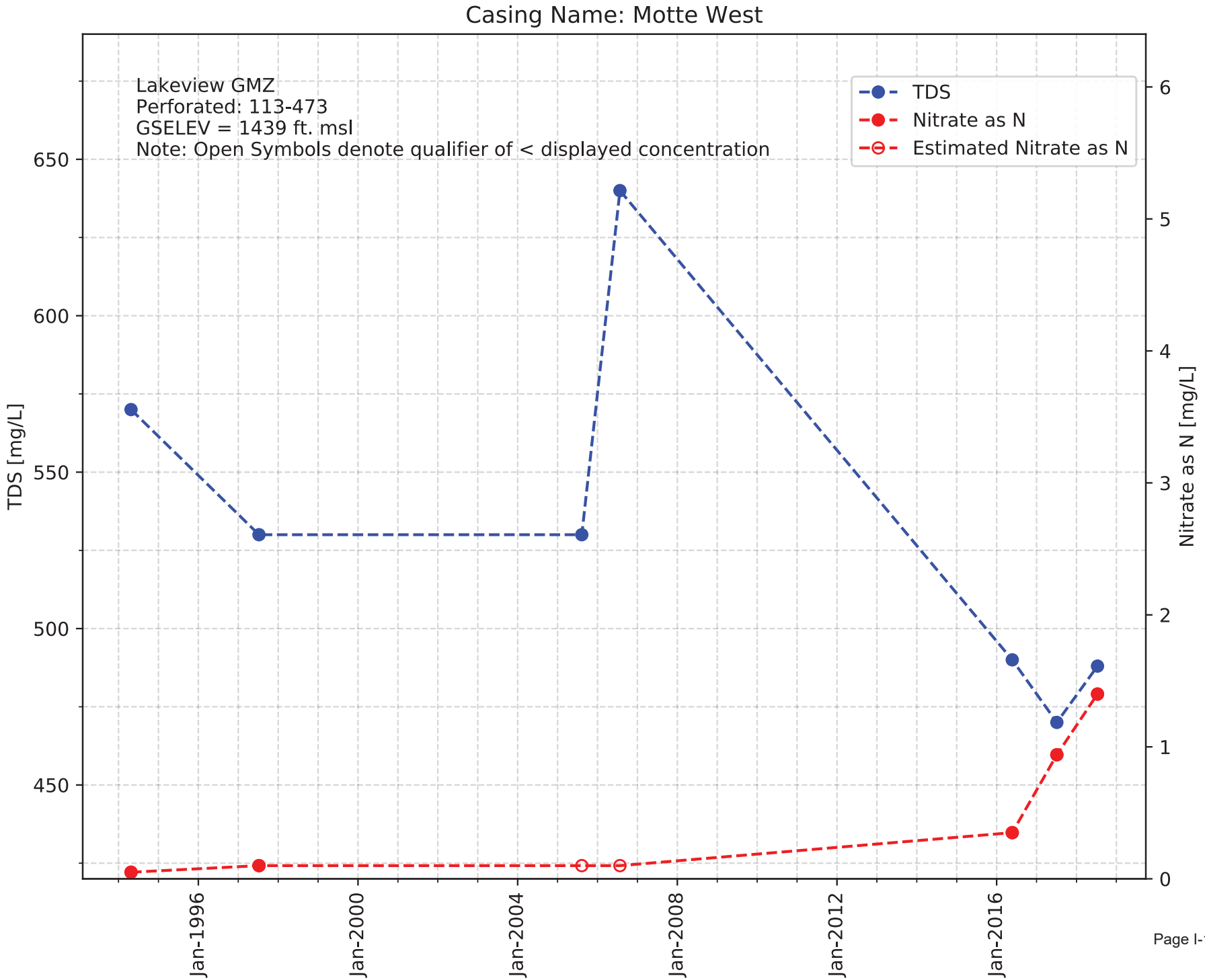

Casing Name: Nutrilite 05
Lakeview GMZ
Perforated: 170-186;198-220;262-275;282-292;310-342;372-480
GSELEV = 1452 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
650
600
550
500
450
12
10
8
6
4
2
0
Jan-1994
Jan-1996
Jan-1998
Jan-2000
Jan-2002
Jan-2004
Jan-2006
Jan-2008

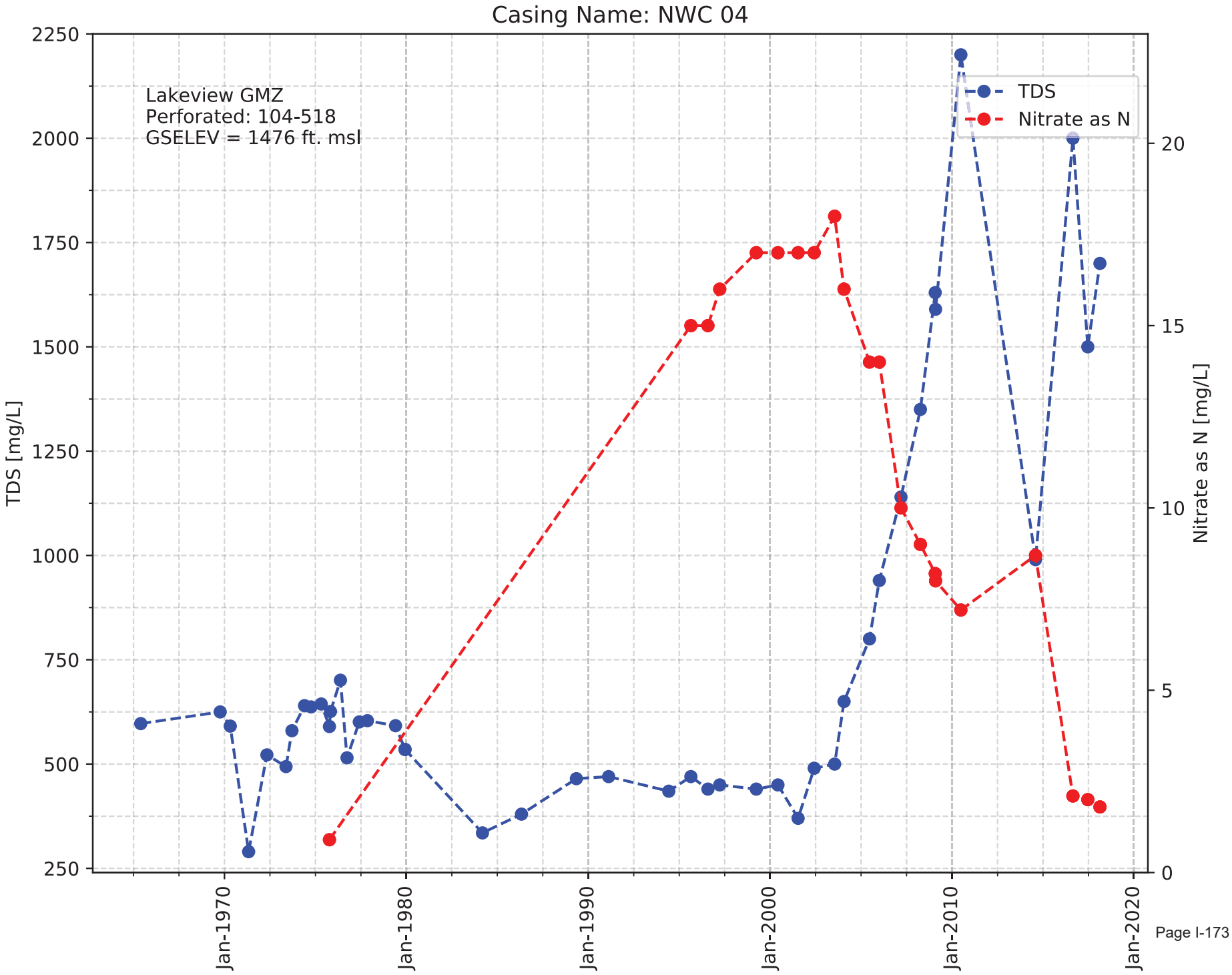

Casing Name: Offinga Dairy North
Lakeview GMZ
Perforated: 168-528
GSELEV = 1436 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
550
500
450
400
350
7
6
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016

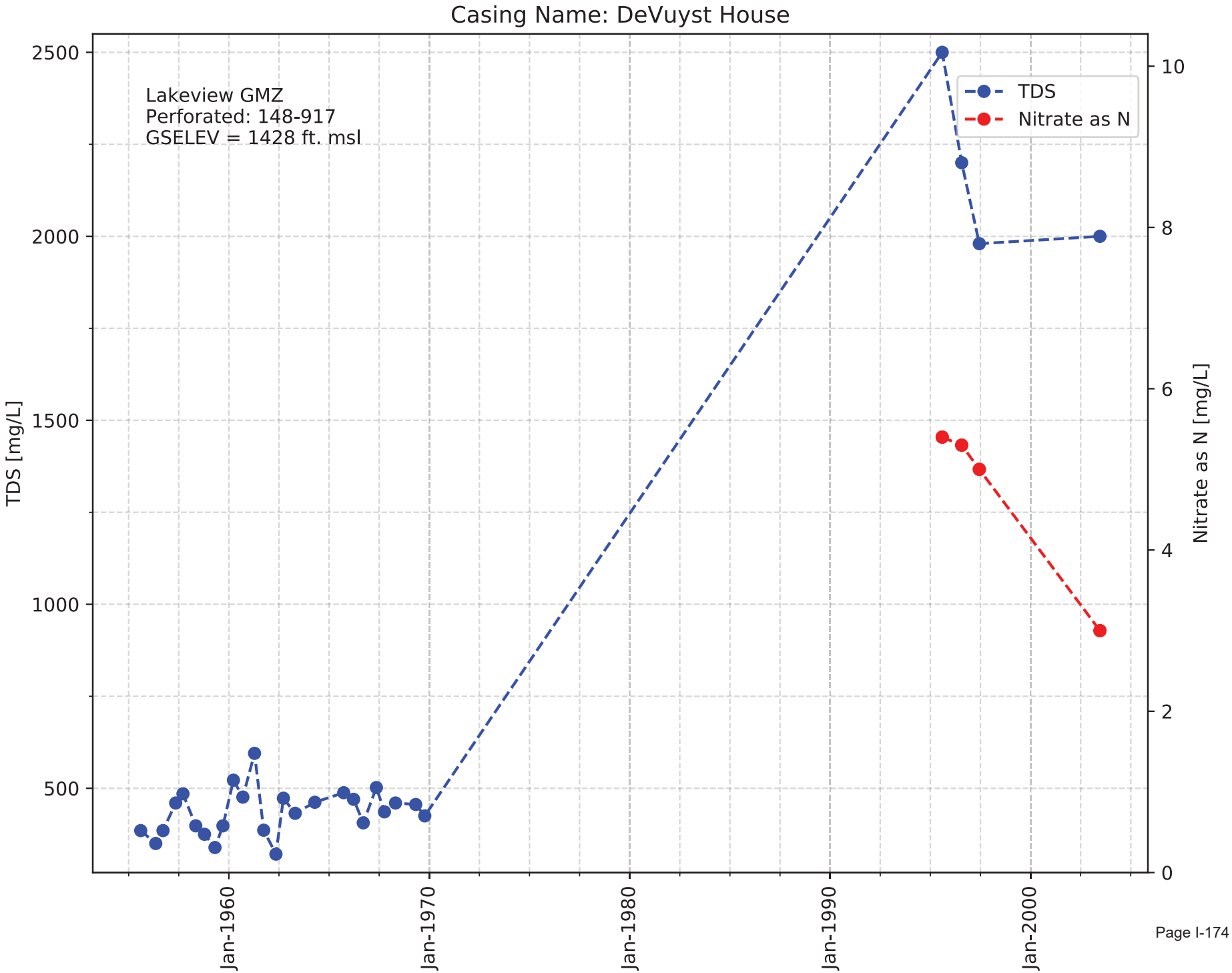

Casing Name: Bootsma, John
Lakeview GMZ
Perforated: 350-650
GSELEV = 1434 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
575
550
525
500
475
450
425
400
375
6
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

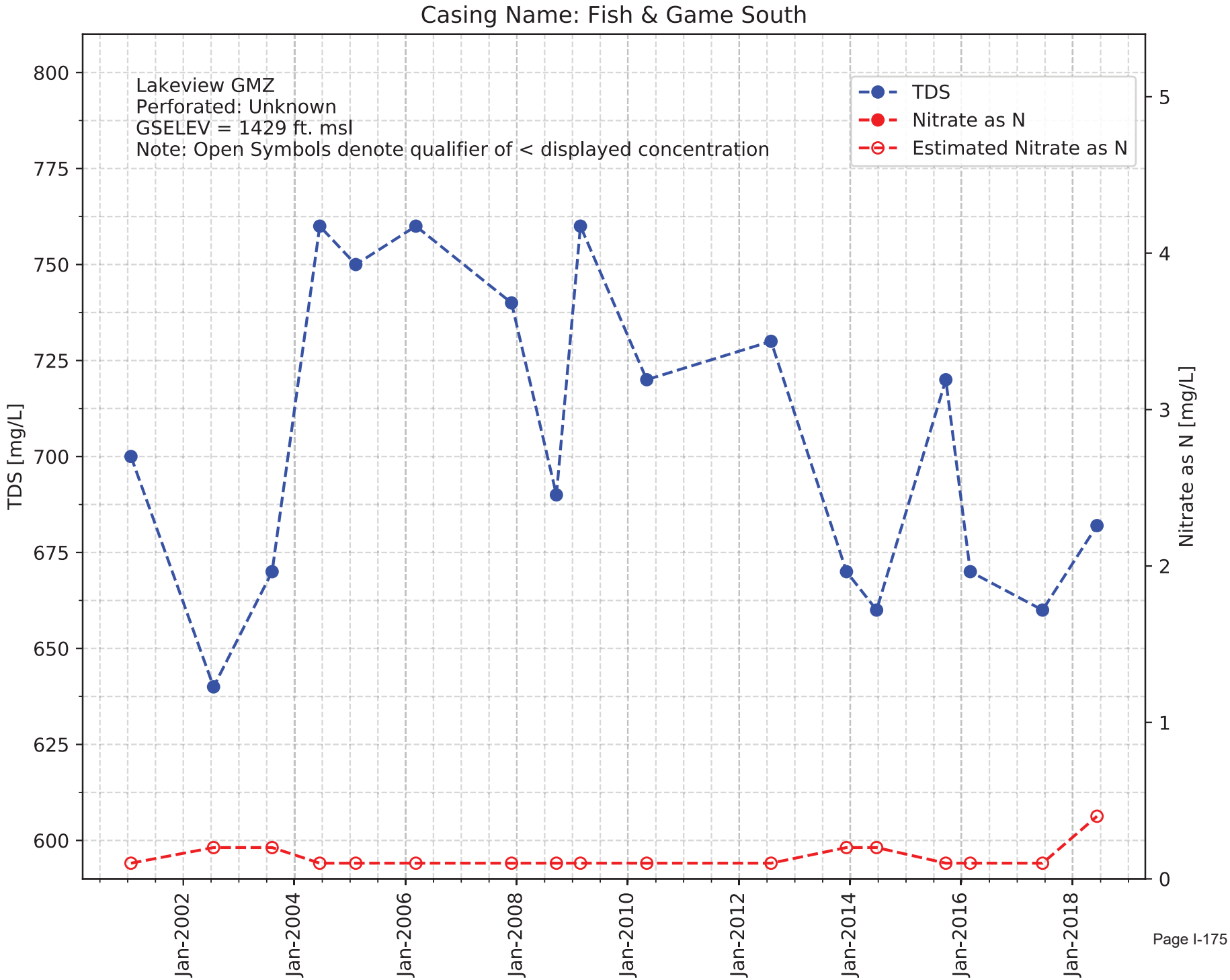

Casing Name: Offinga Dairy South
Lakeview GMZ
Perforated: 363-645
GSELEV = 1438 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
600
550
500
450
400
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

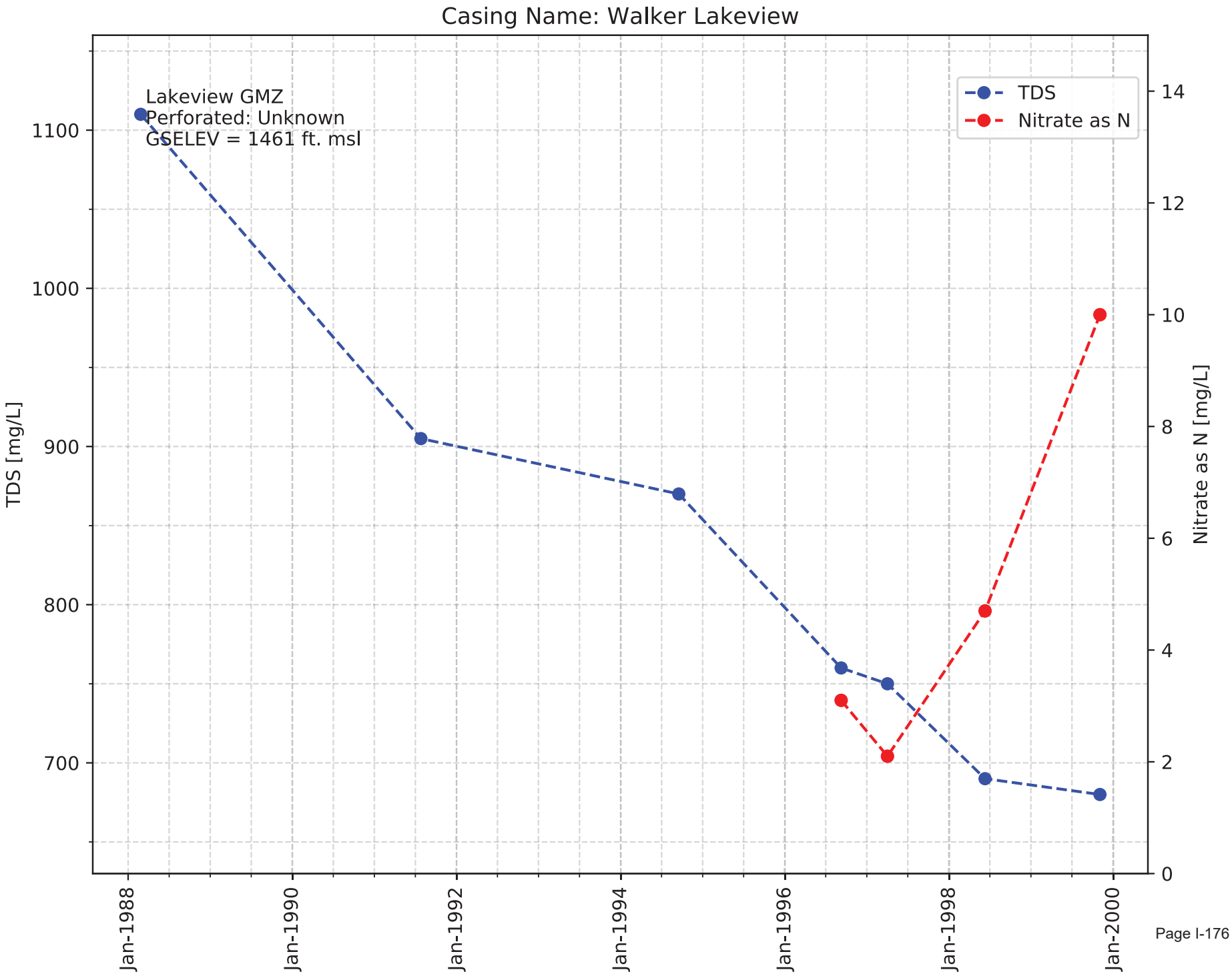

Casing Name: Motte East
Lakeview GMZ
Perforated: 300-643
GSELEV = 1440 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
750
700
650
600
550
500
12
10
8
6
4
2
0
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

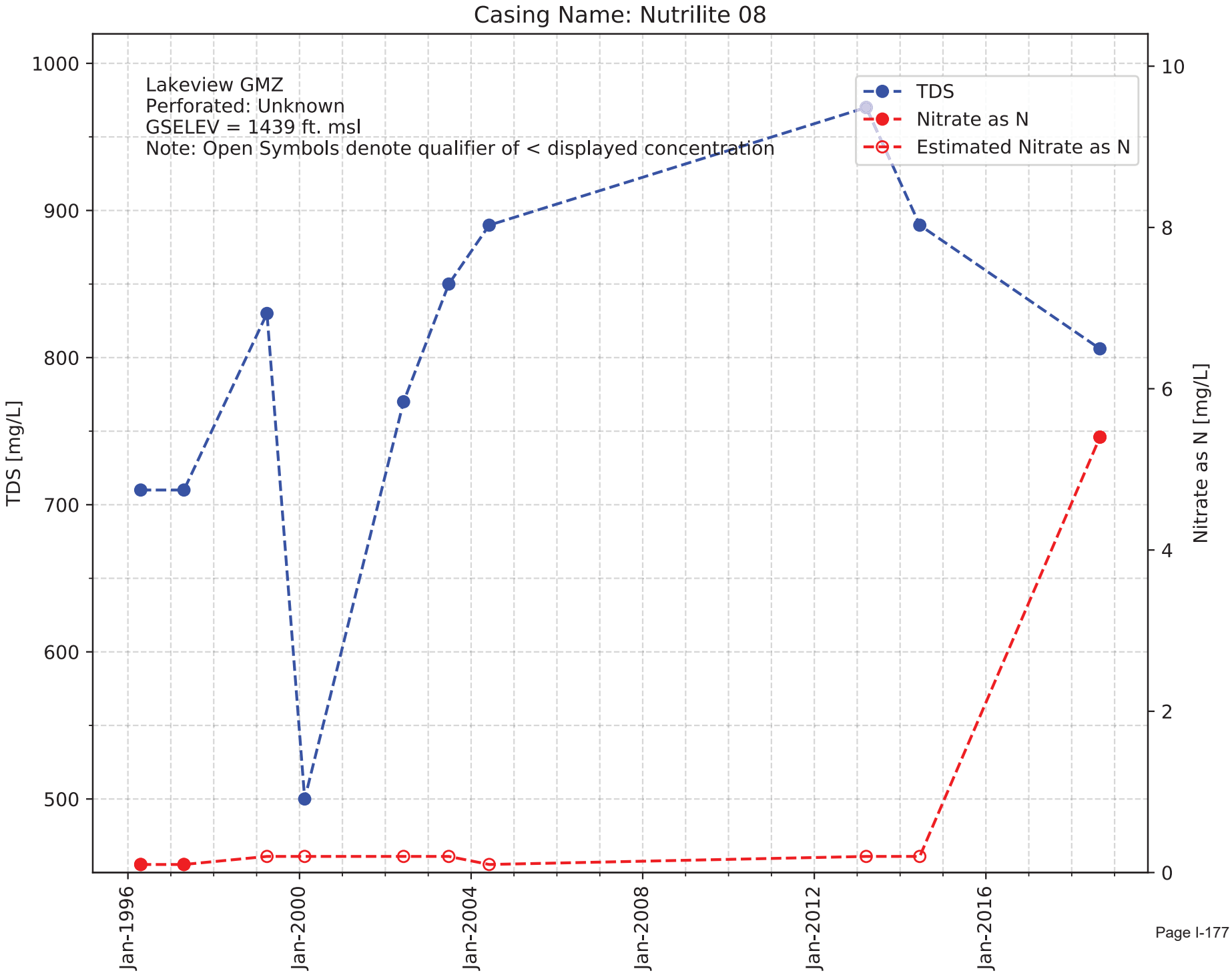

Casing Name: Motte West
Lakeview GMZ
Perforated: 113-473
GSELEV = 1439 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
650
600
550
500
450
6
5
4
3
2
1
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

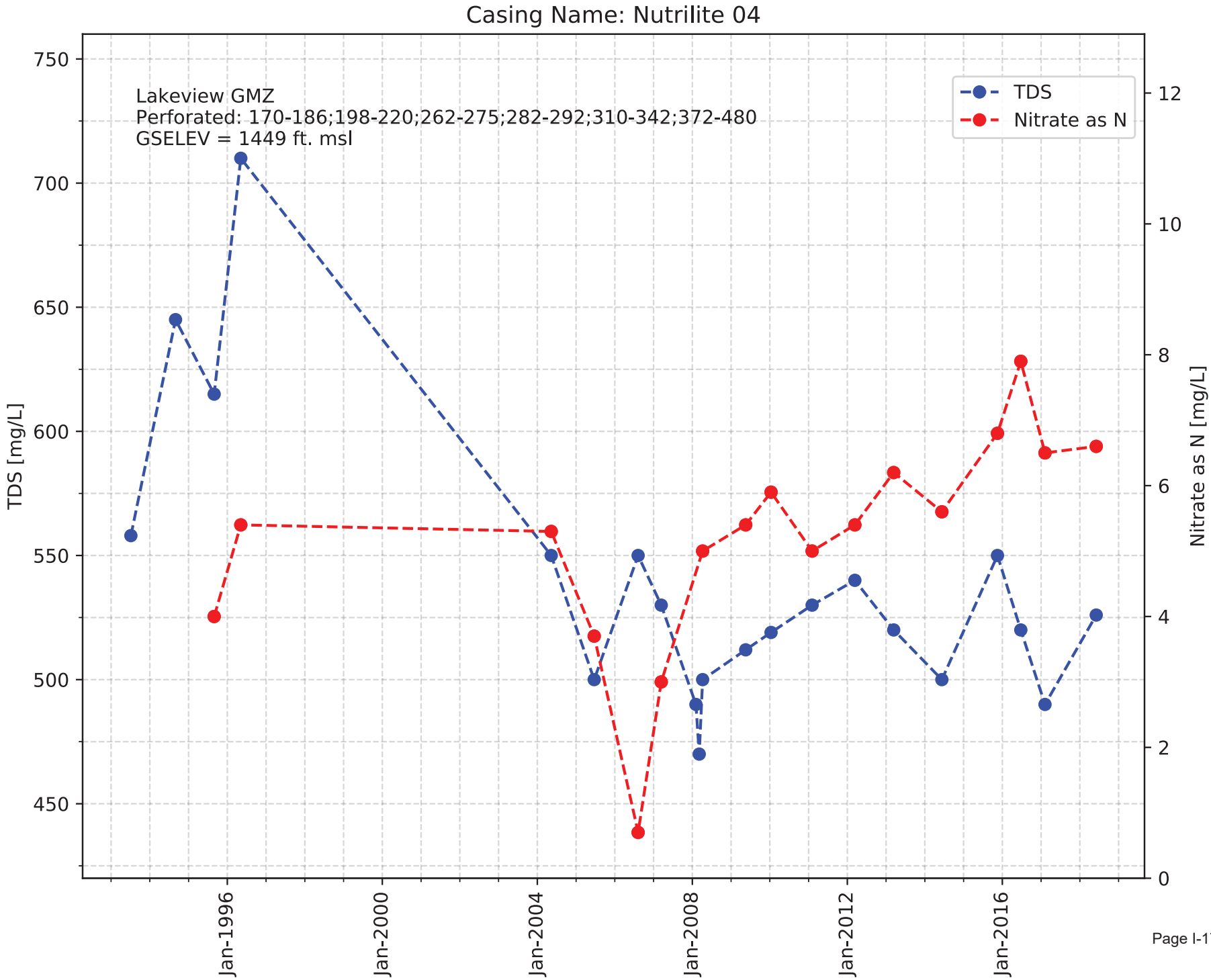

Casing Name: NWC 04
Lakeview GMZ
Perforated: 104-518
GSELEV = 1476 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2250
2000
1750
1500
1250
1000
750
500
250
20
15
10
5
0
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

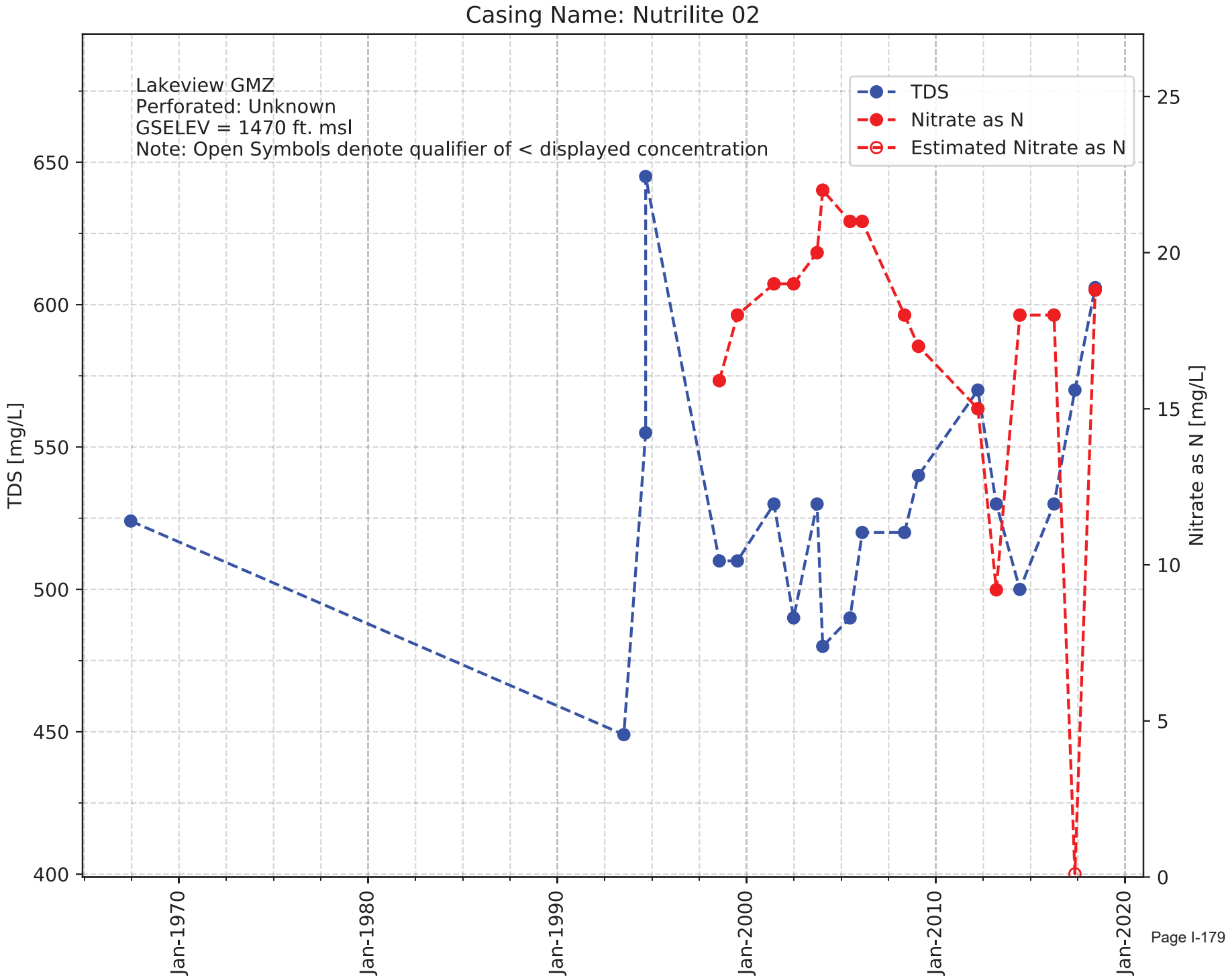

Casing Name: DeVuyst House
Lakeview GMZ
Perforated: 148-917
GSELEV = 1428 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2000
1500
1000
500
10
8
6
4
2
0
Jan-1960
Jan-1970
Jan-1980
Jan-1990
Jan-2000

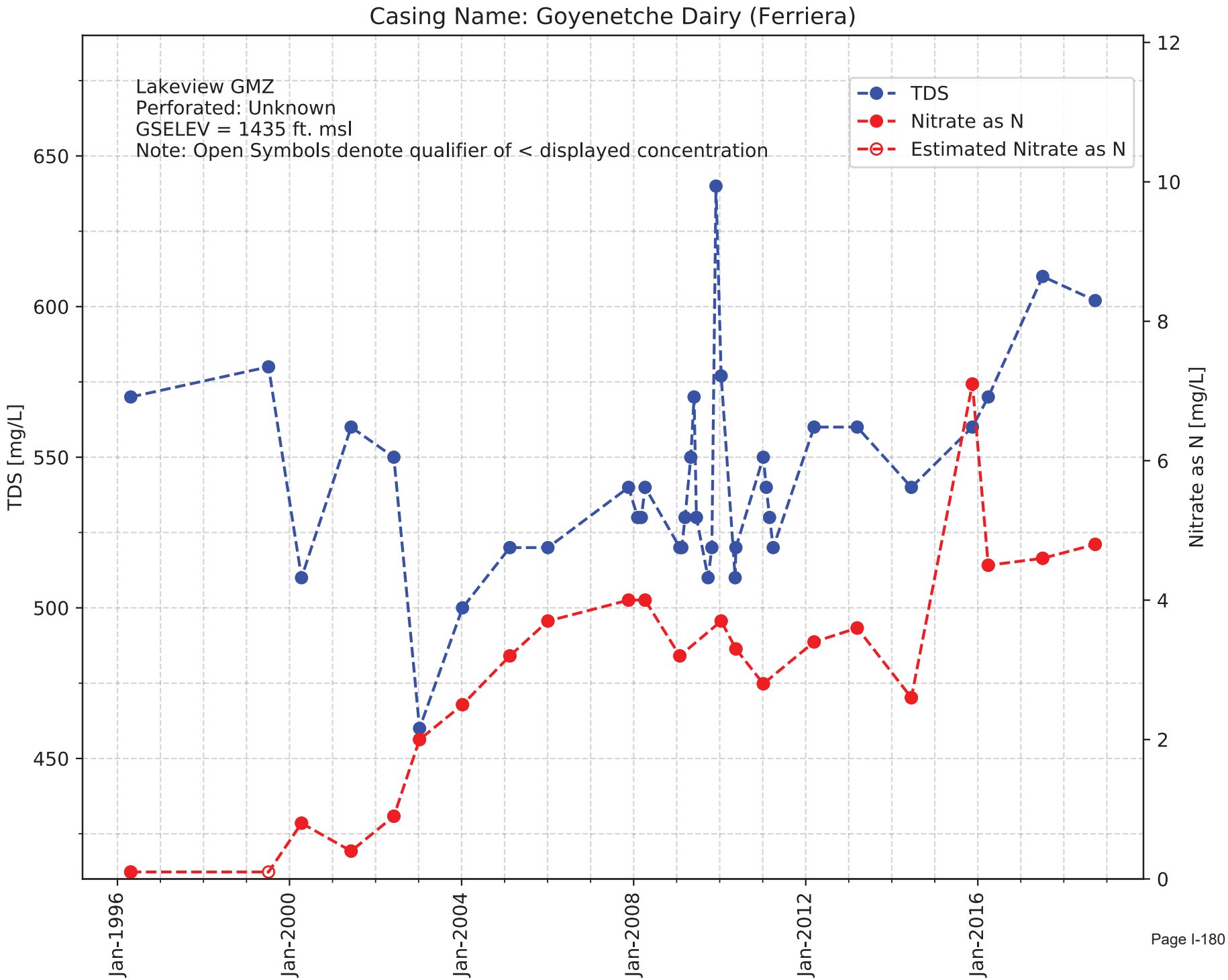

Casing Name: Fish & Game South
Lakeview GMZ
Perforated: Unknown
GSELEV = 1429 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
800
775
750
725
700
675
650
625
600
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

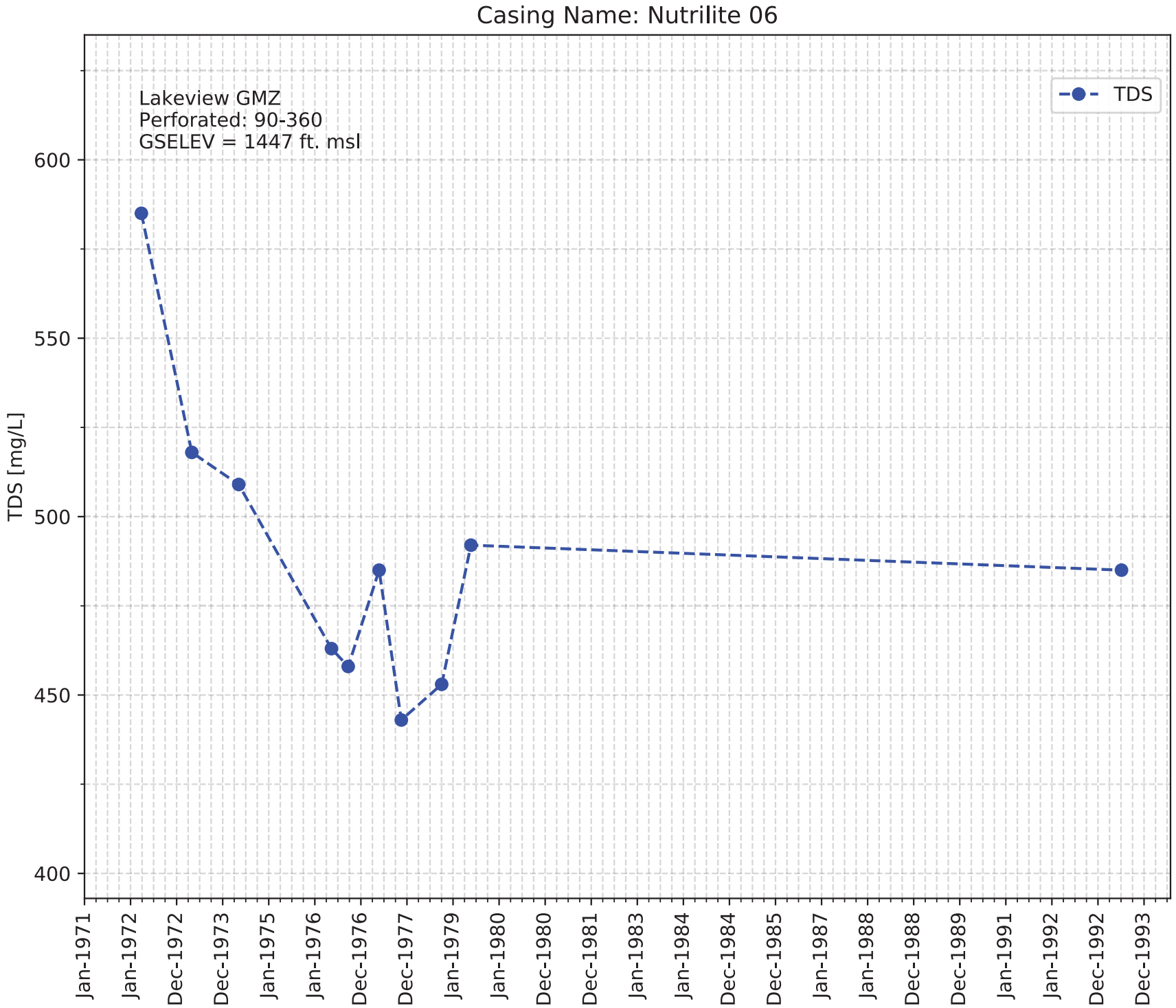

Casing Name: Walker Lakeview
Lakeview GMZ
Perforated: Unknown
GSELEV = 1461 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1100
1000
900
800
700
14
12
10
8
6
4
2
0
Jan-1988
Jan-1990
Jan-1992
Jan-1994
Jan-1996
Jan-1998
Jan-2000

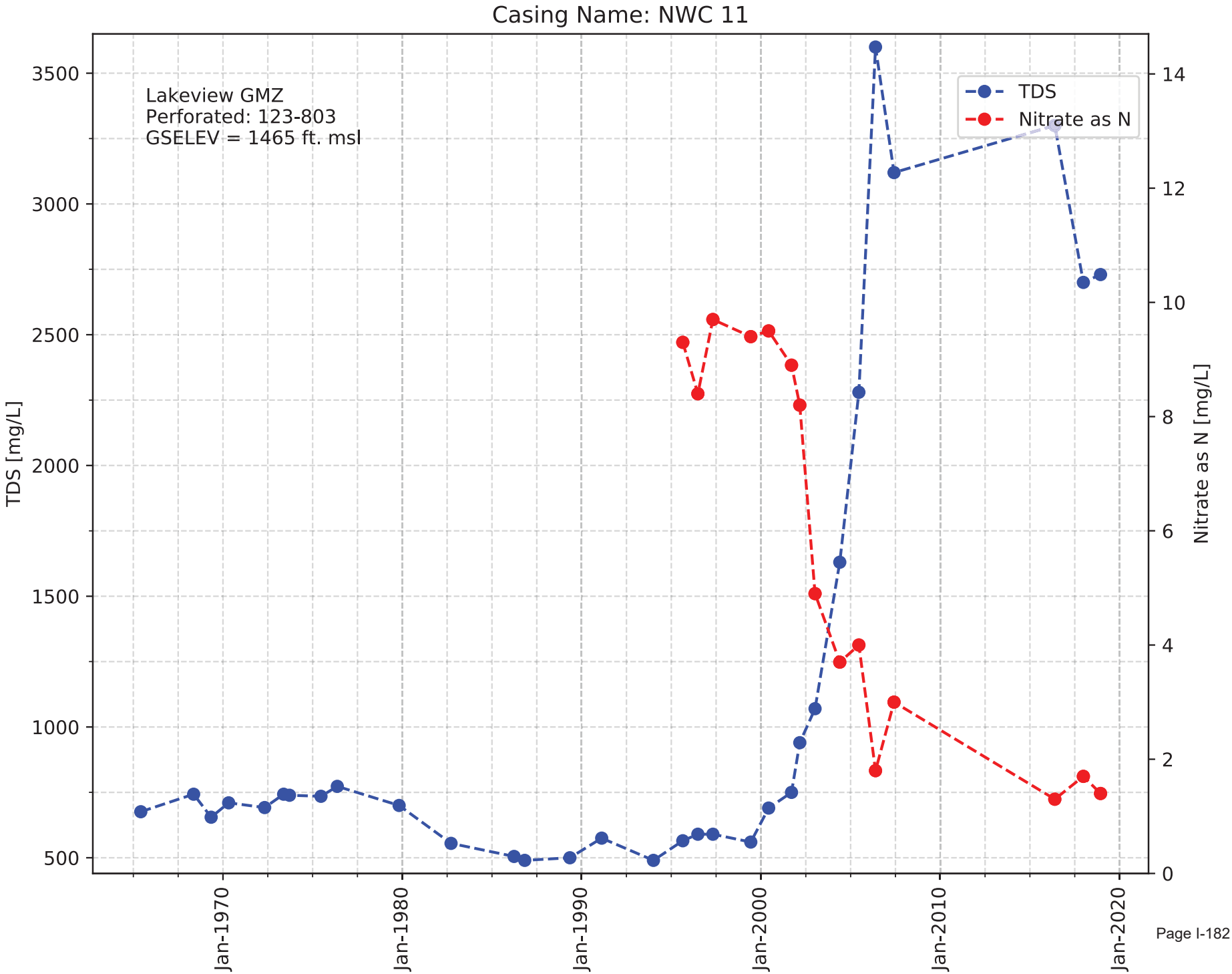

Casing Name: Nutrilite 08
Lakeview GMZ
Perforated: Unknown
GSELEV = 1439 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1000
900
800
700
600
500
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

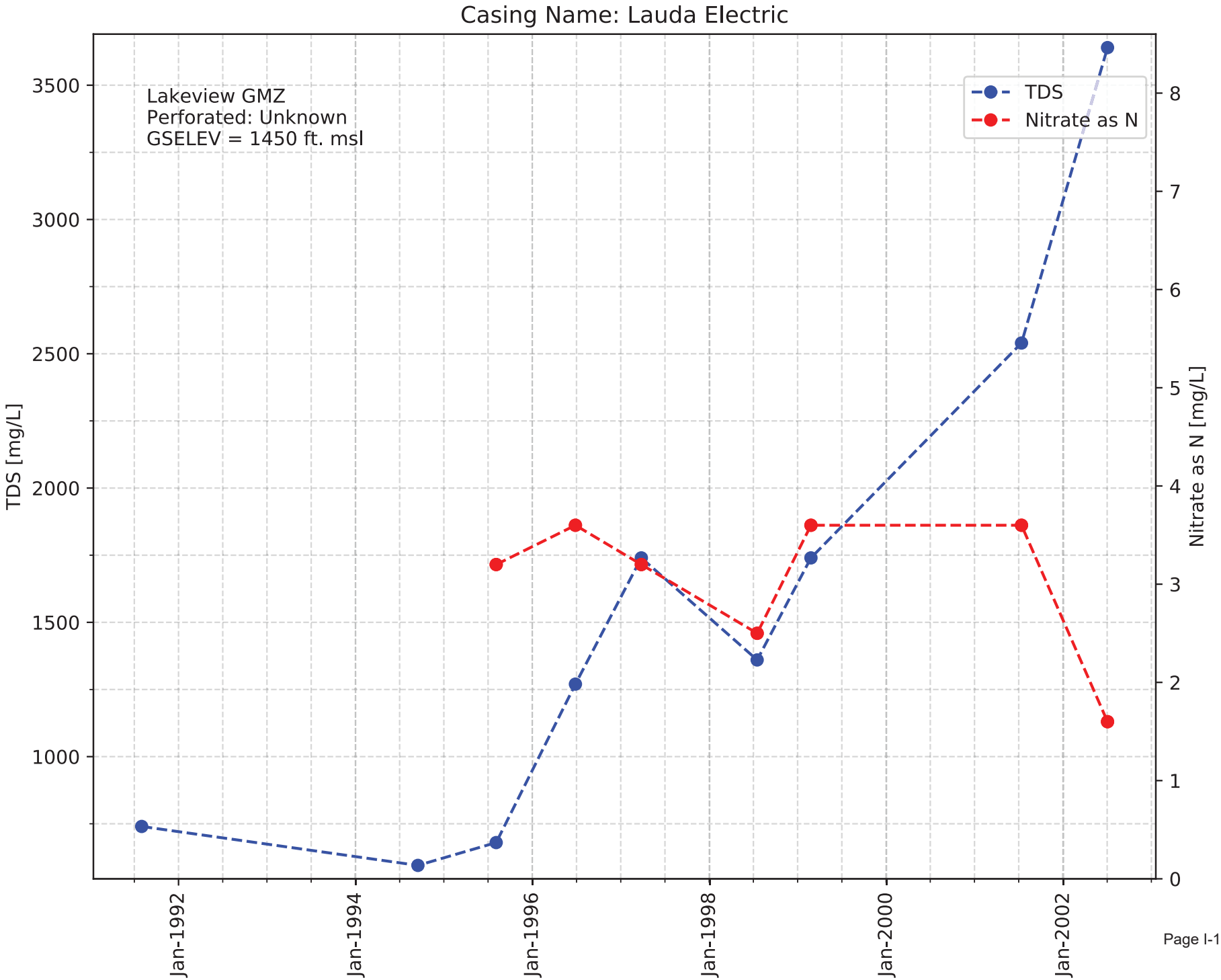

Casing Name: Nutrilite 04
Lakeview GMZ
Perforated: 170-186;198-220;262-275;282-292;310-342;372-480
GSELEV = 1449 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
750
700
650
600
550
500
450
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

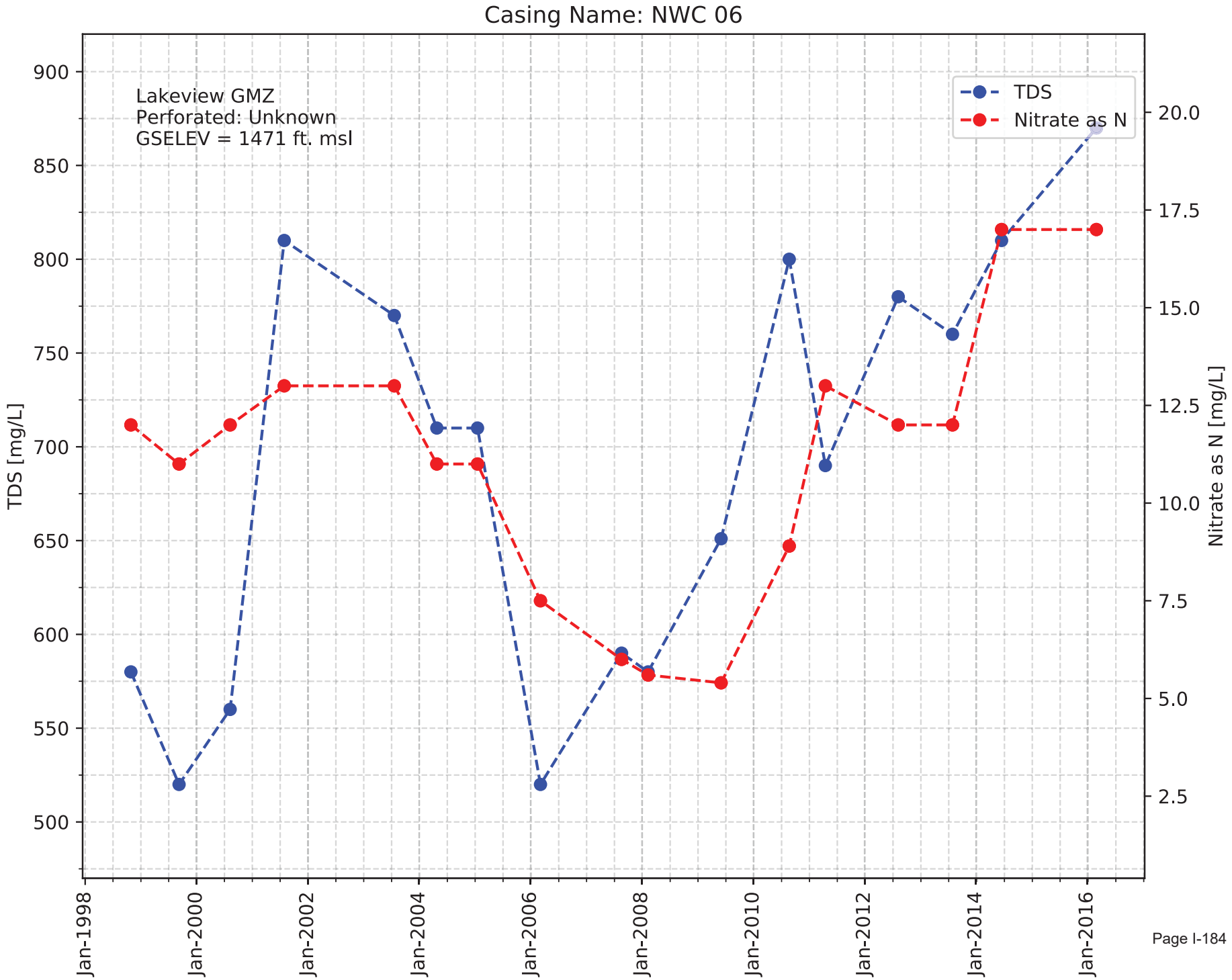

Casing Name: Nutrilite 02
Lakeview GMZ
Perforated: Unknown
GSELEV = 1470 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
650
600
550
500
450
400
25
20
15
10
5
0
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

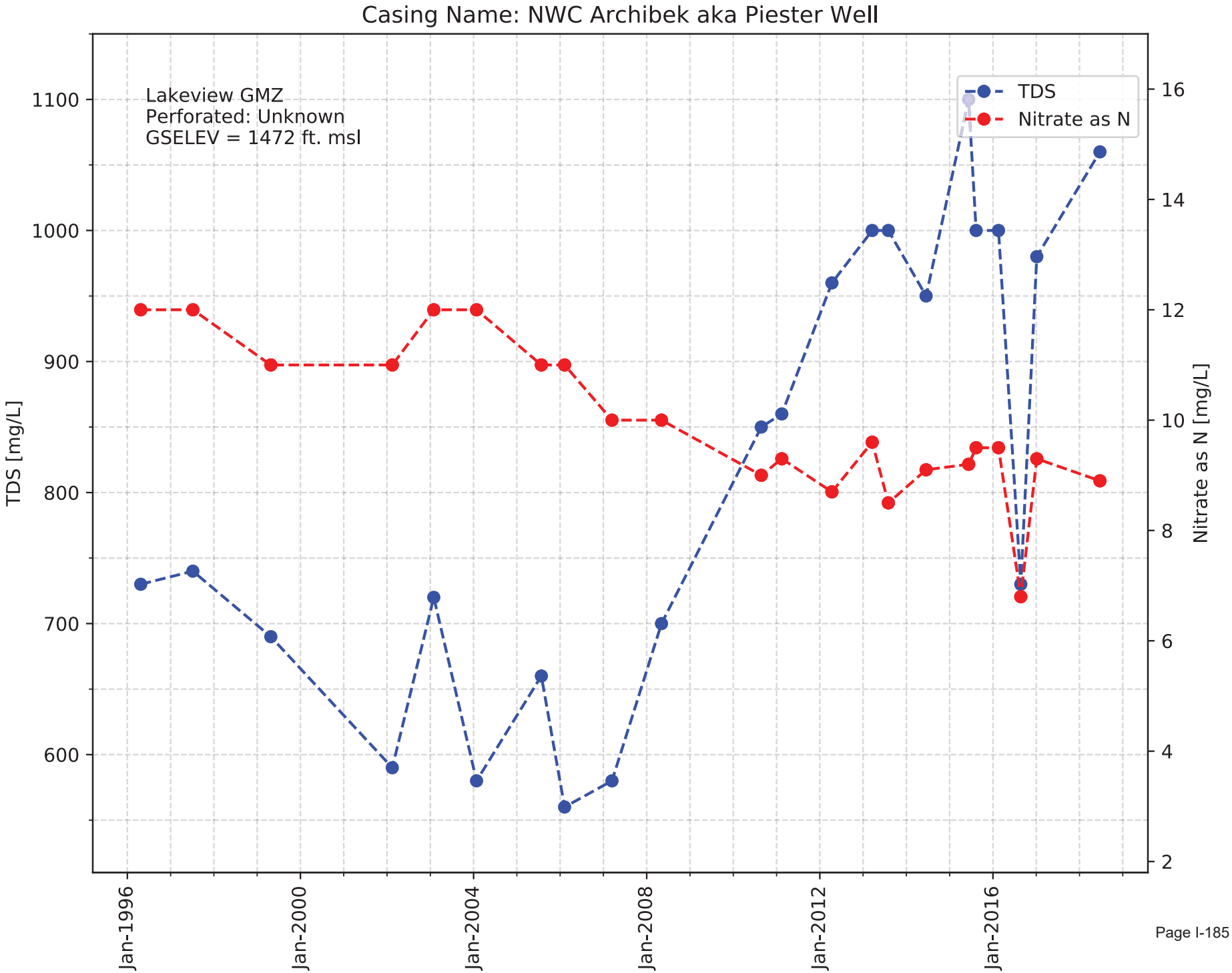

Casing Name: Goyenetche Dairy (Ferriera)
Lakeview GMZ
Perforated: Unknown
GSELEV = 1435 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
650
600
550
500
450
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

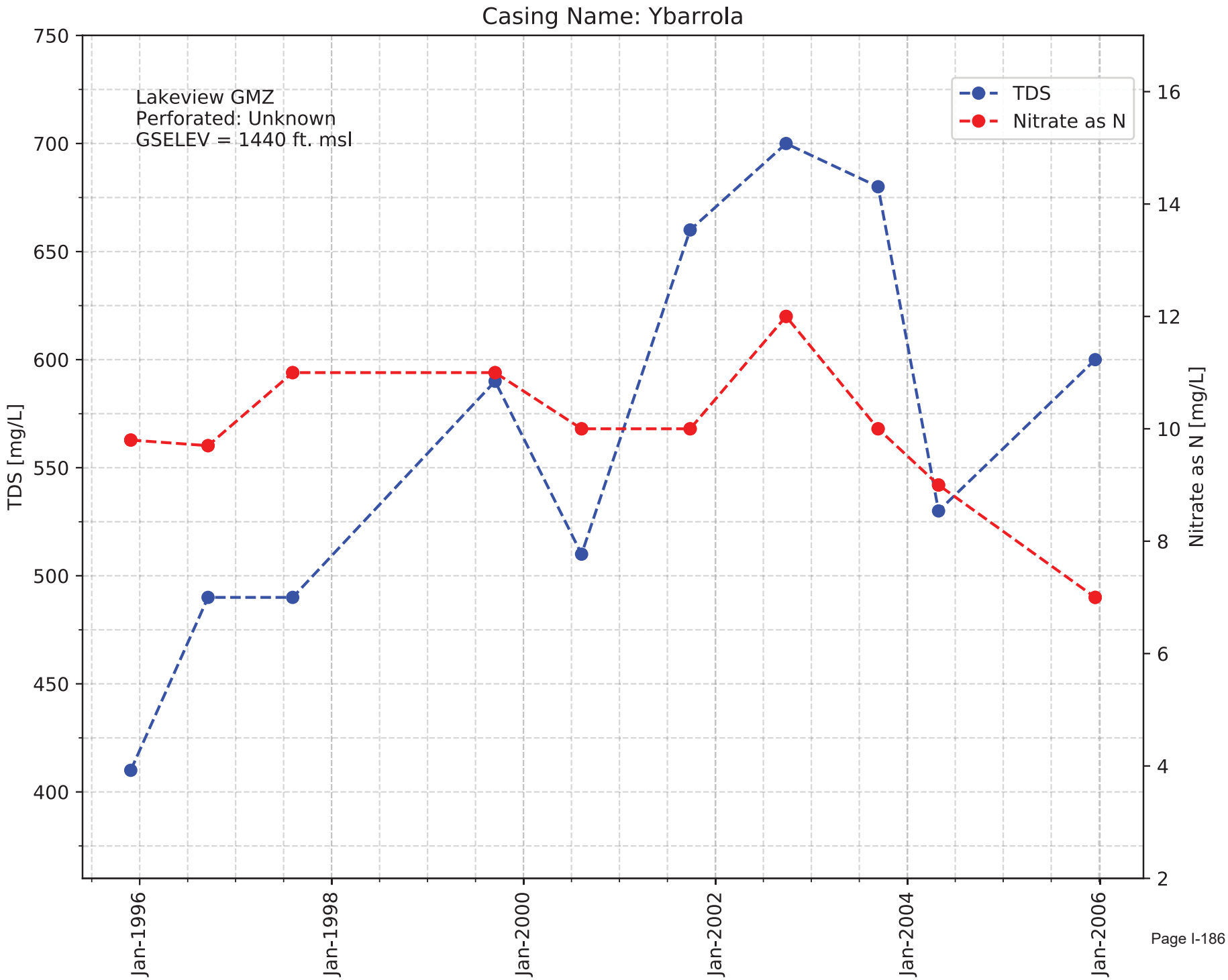

Casing Name: Nutrilite 06
Lakeview GMZ
Perforated: 90-360
GSELEV = 1447 ft. msl
TDS
TDS [mg/L]
600
550
500
450
400
Jan-1971
Jan-1972
Dec-1972
Dec-1973
Jan-1975
Jan-1976
Dec-1976
Dec-1977
Jan-1979
Jan-1980
Dec-1980
Dec-1981
Jan-1983
Jan-1984
Dec-1984
Dec-1985
Jan-1987
Jan-1988
Dec-1988
Dec-1989
Jan-1991
Jan-1992
Dec-1992
Dec-1993

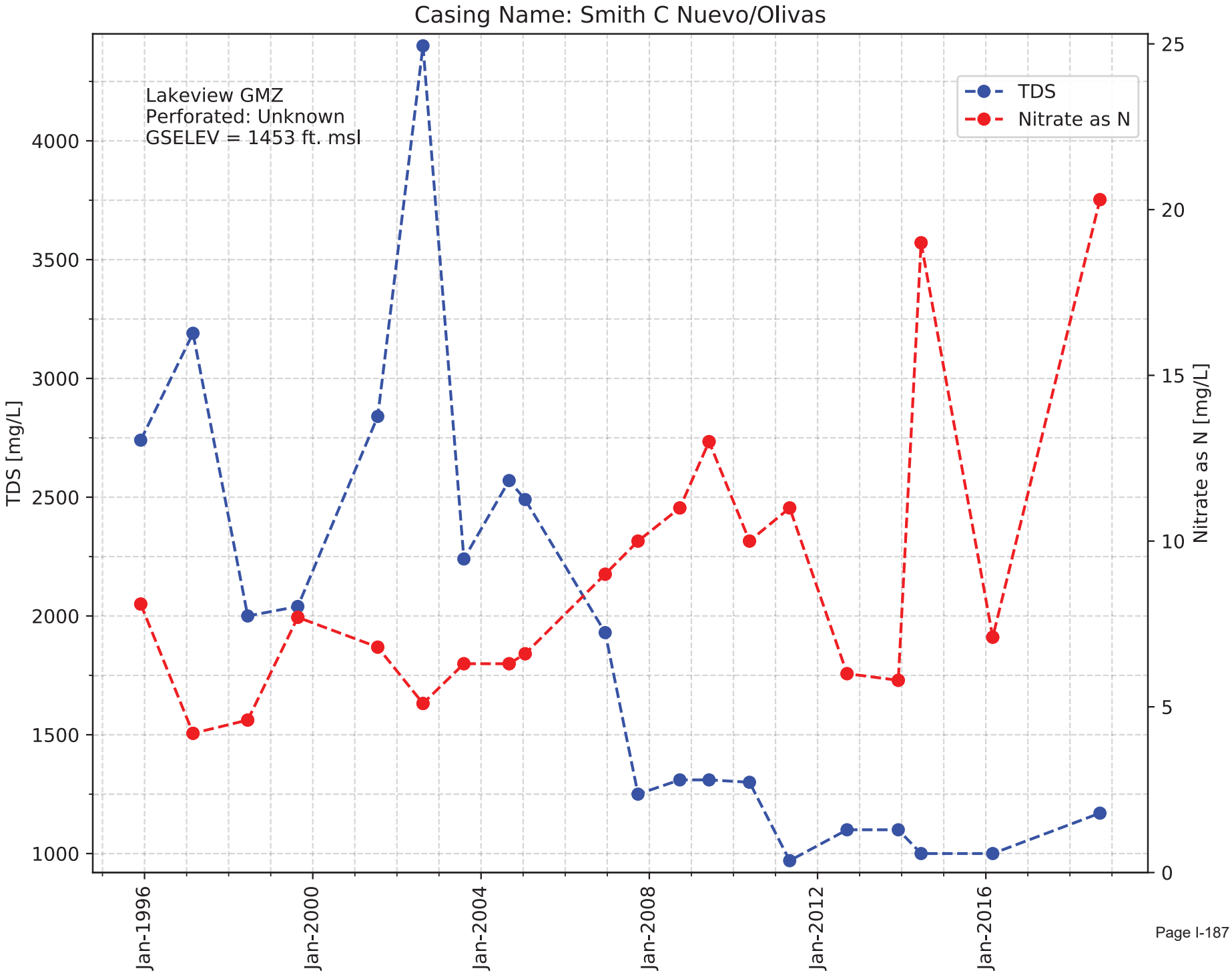

Casing Name: NWC 11
Lakeview GMZ
Perforated: 123-803
GSELEV = 1465 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3500
3000
2500
2000
1500
1000
500
14
12
10
8
6
4
2
0
Jan-1970
Jan-1980
Jan-1990
Jan-2000
Jan-2010
Jan-2020

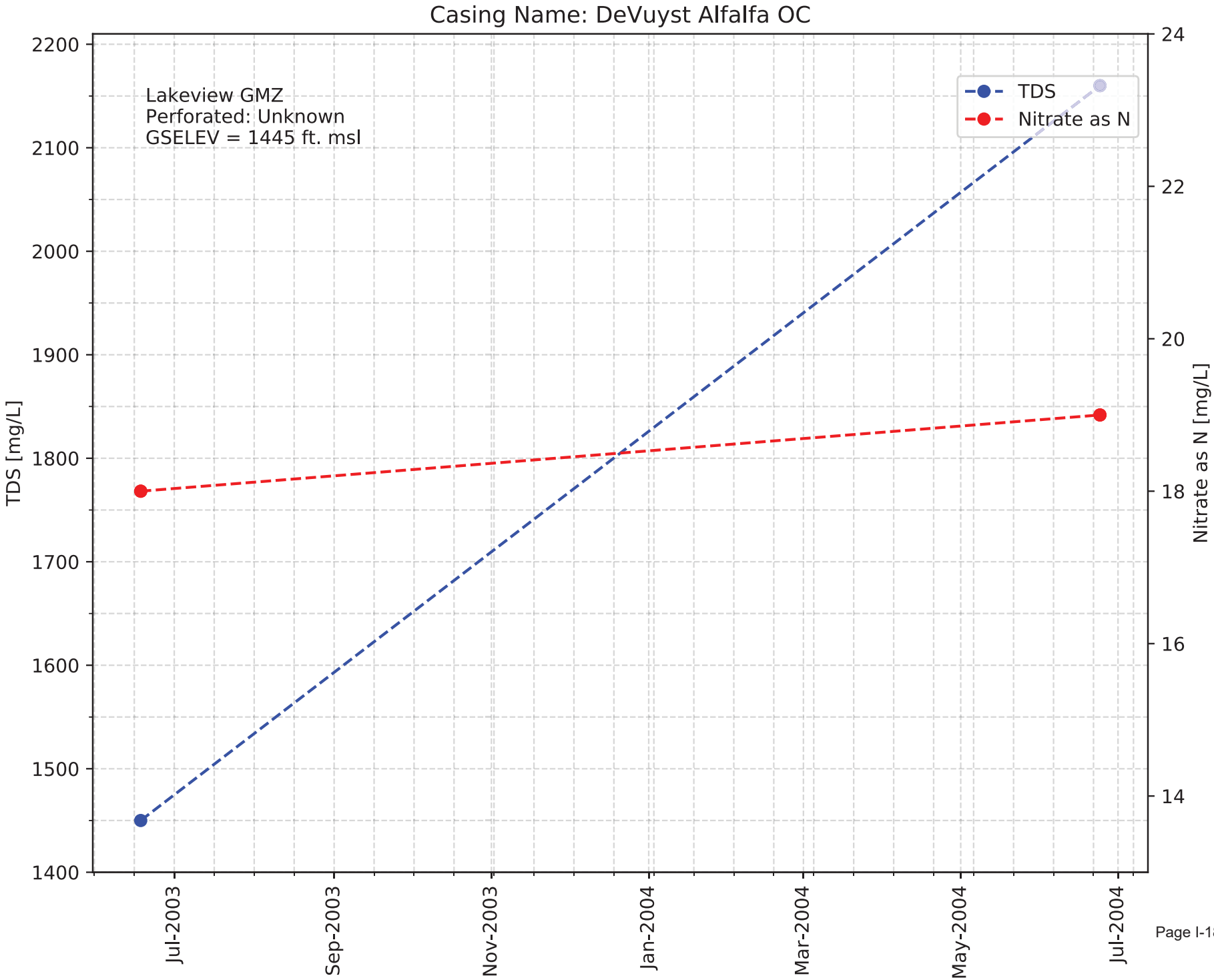

Casing Name: Lauda Electric
Lakeview GMZ
Perforated: Unknown
GSELEV = 1450 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3500
3000
2500
2000
1500
1000
8
7
6
5
4
3
2
1
0
Jan-1992
Jan-1994
Jan-1996
Jan-1998
Jan-2000
Jan-2002

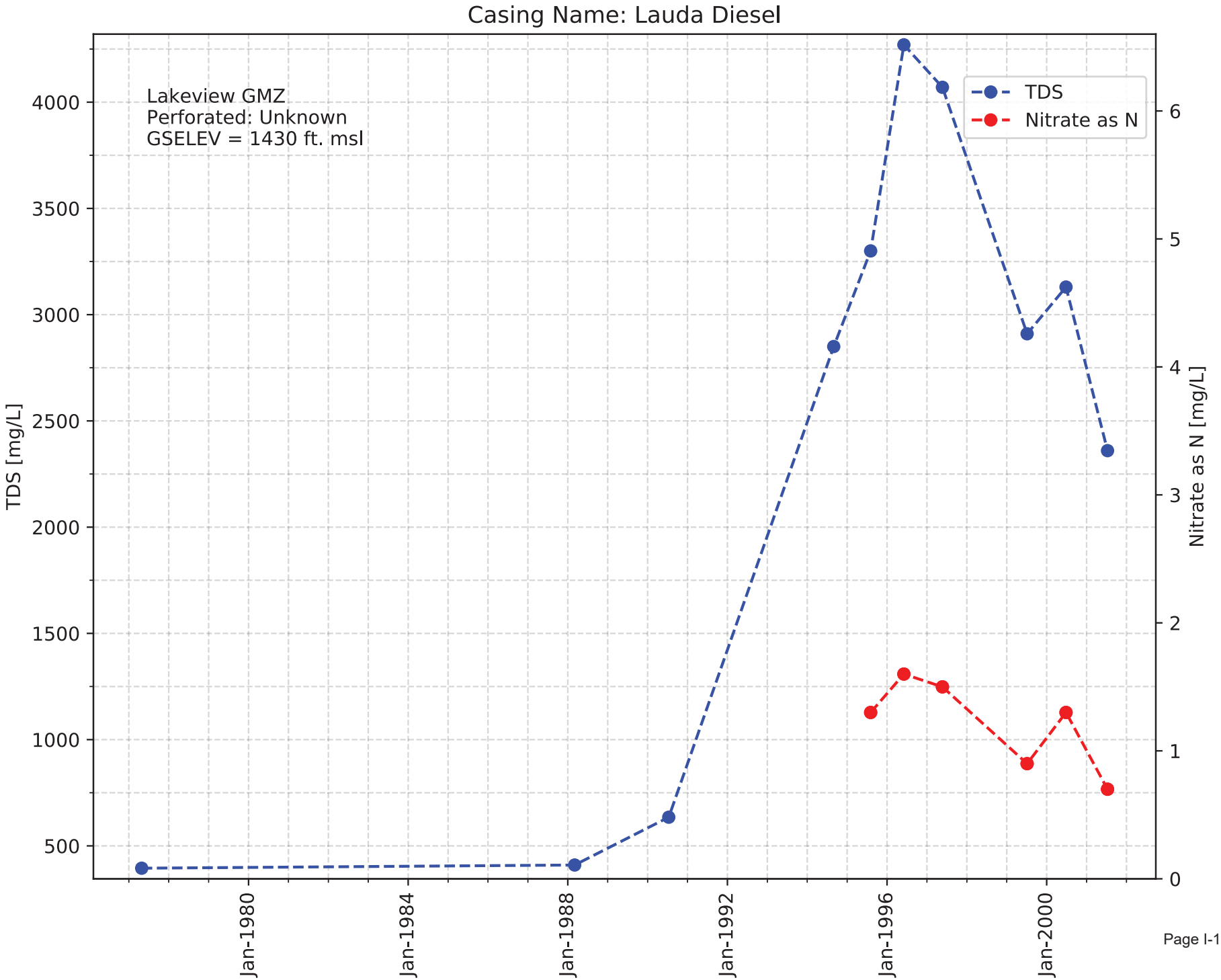

Casing Name: NWC 06
Lakeview GMZ
Perforated: Unknown
GSELEV = 1471 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
900
850
800
750
700
650
600
550
500
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
Jan-1998
Jan-2000
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016

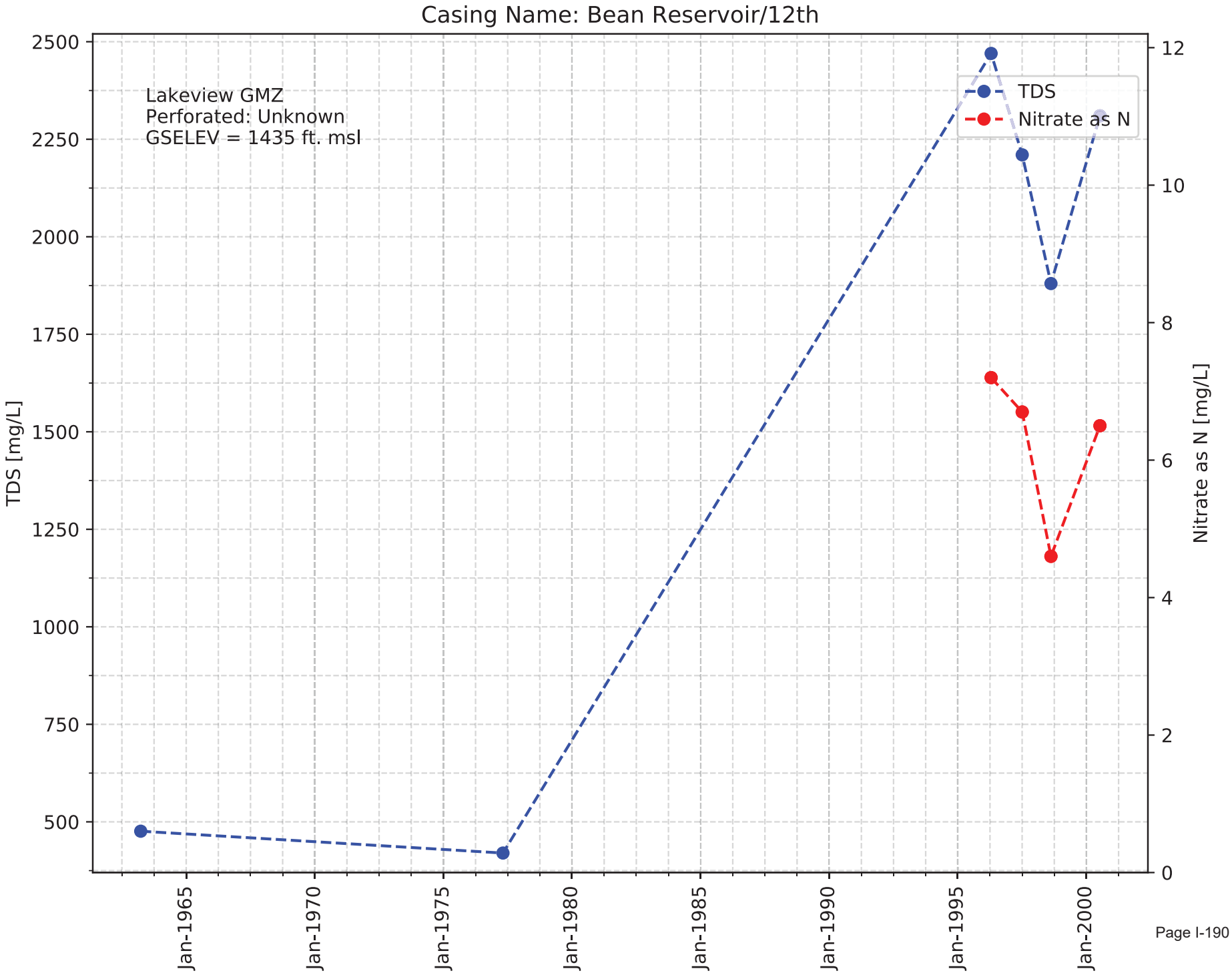

Casing Name: NWC Archibek aka Piester Well
Lakeview GMZ
Perforated: Unknown
GSELEV = 1472 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1100
1000
900
800
700
600
16
14
12
10
8
6
4
2
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

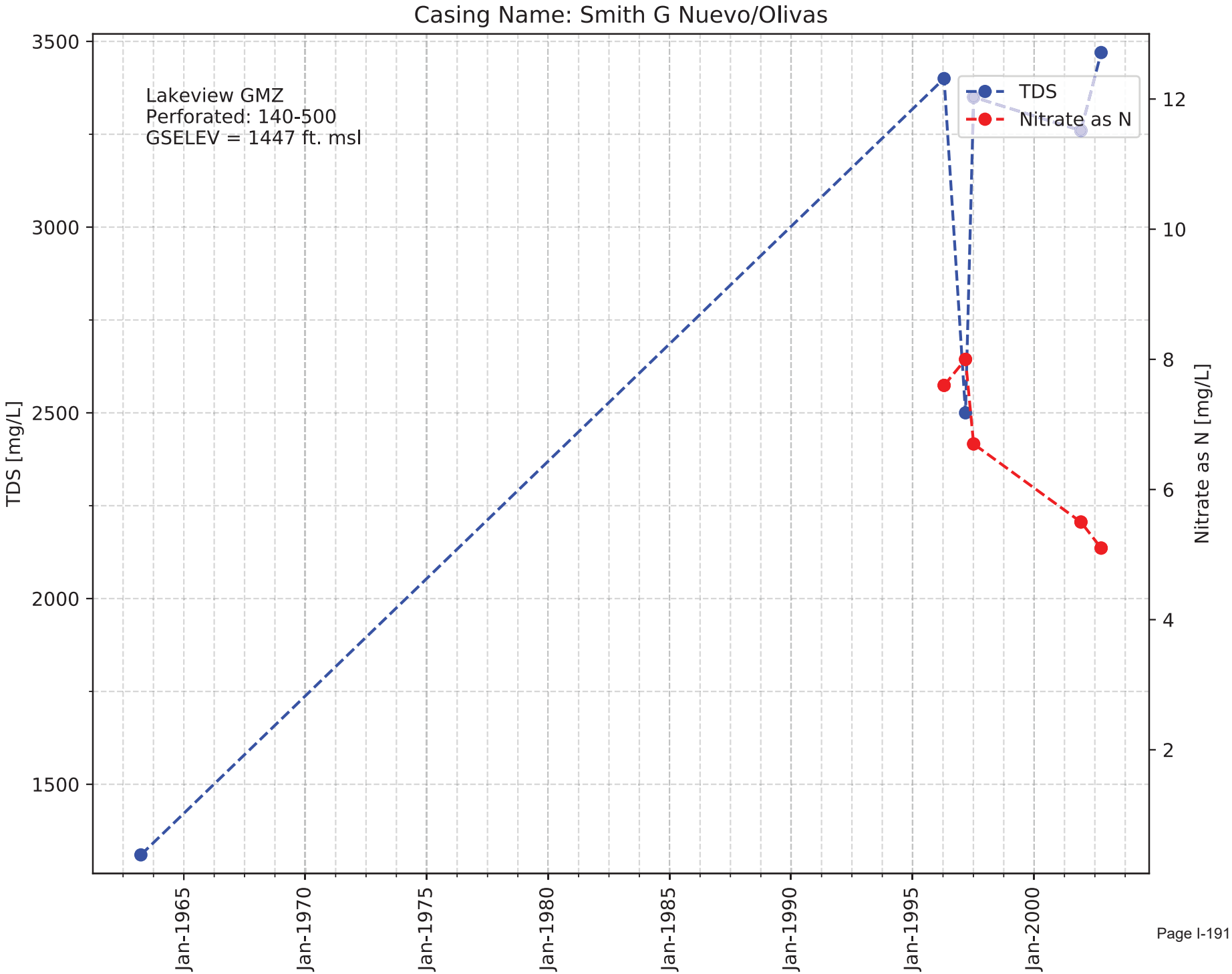

Casing Name: Ybarrola
Lakeview GMZ
Perforated: Unknown
GSELEV = 1440 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
750
700
650
600
550
500
450
400
16
14
12
10
8
6
4
2
Jan-1996
Jan-1998
Jan-2000
Jan-2002
Jan-2004
Jan-2006

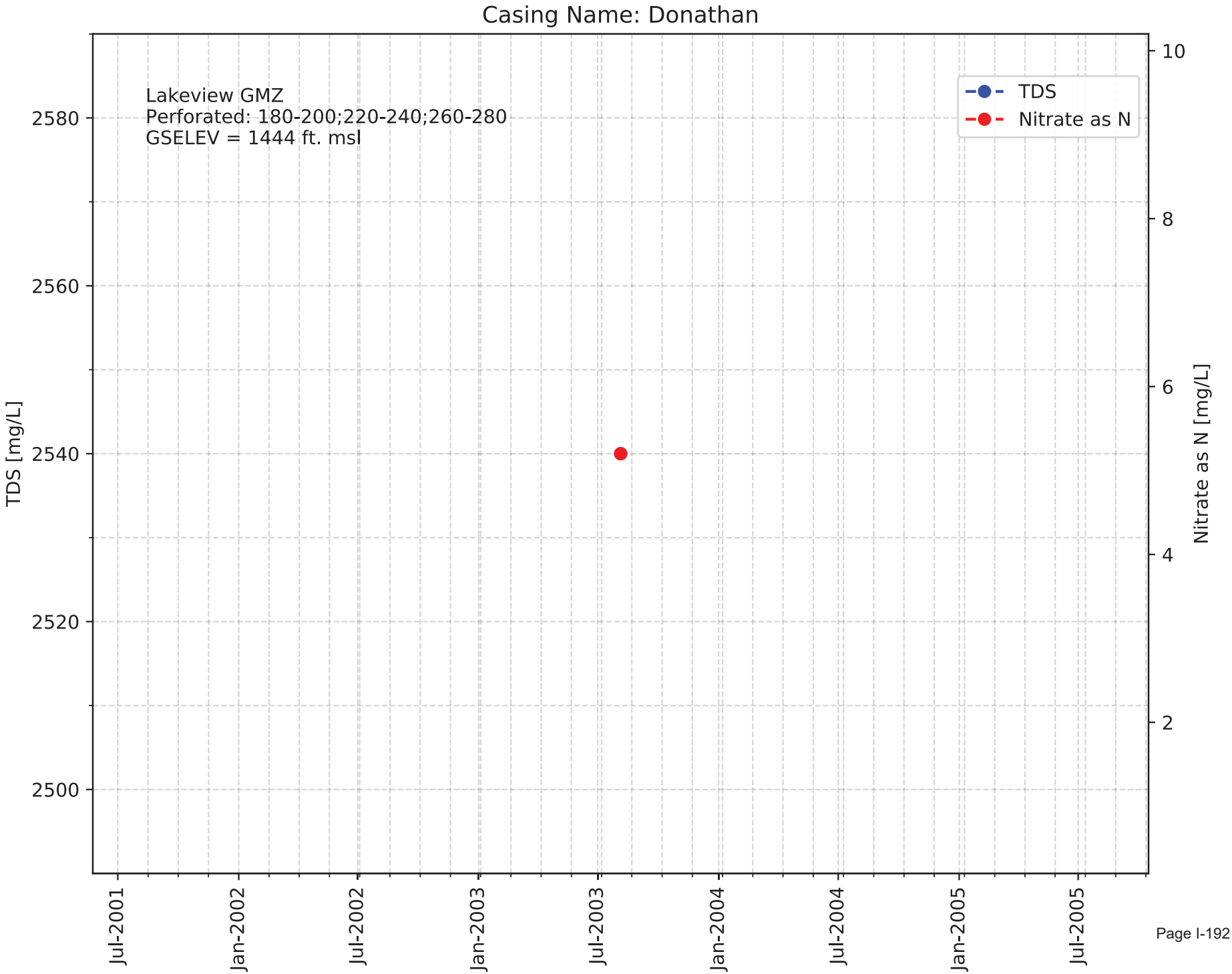

Casing Name: Smith C Nuevo/Olivas
Lakeview GMZ
Perforated: Unknown
GSELEV = 1453 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3500
3000
2500
2000
1500
1000
25
20
15
10
5
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

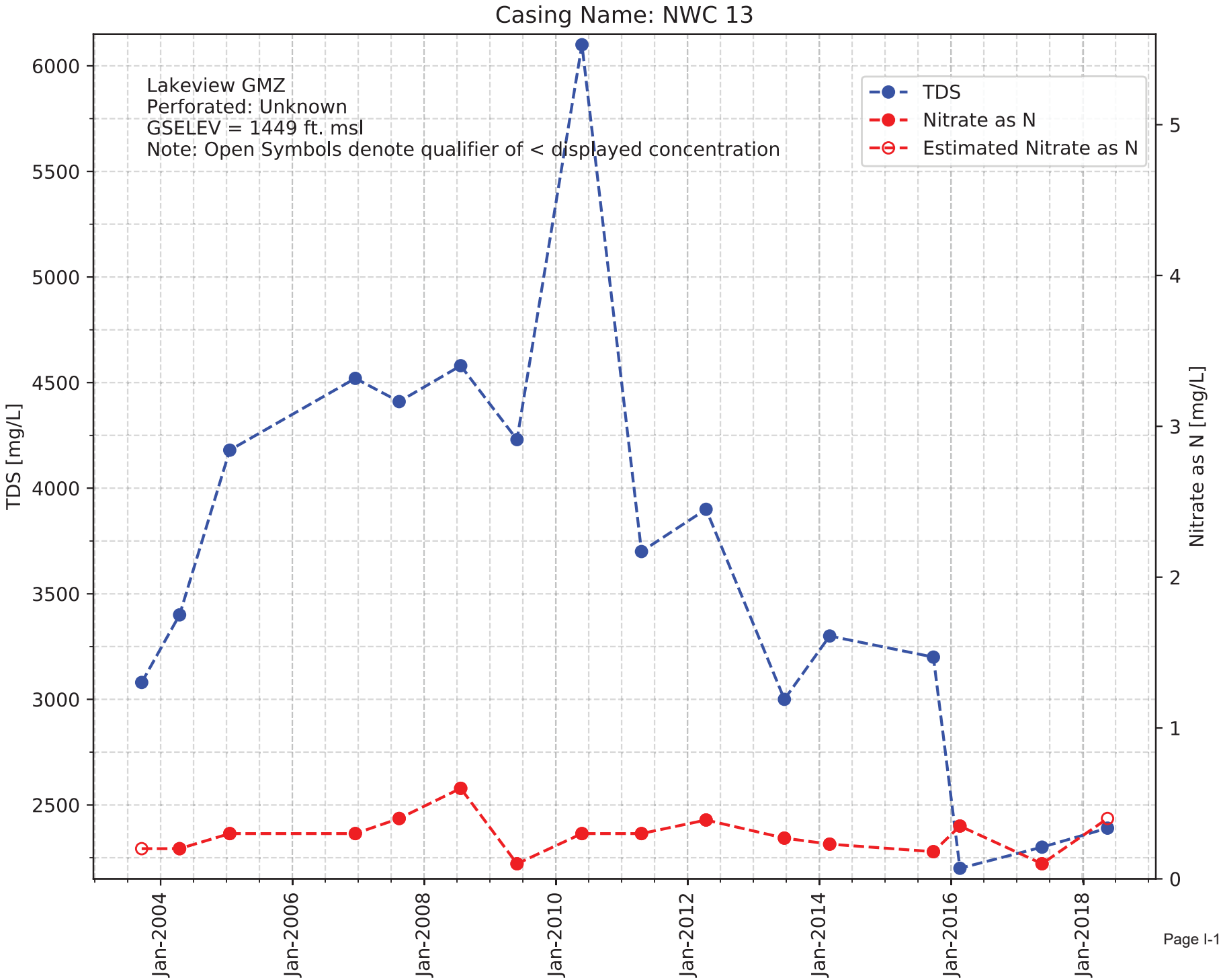

Casing Name: DeVuyst Alfalfa OC
Lakeview GMZ
Perforated: Unknown
GSELEV = 1445 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2100
2000
1900
1800
1700
1600
1500
1400
24
22
20
18
16
14
Jul-2003
Sep-2003
Nov-2003
Jan-2004
Mar-2004
May-2004
Jul-2004


Casing Name: Lauda Diesel
Lakeview GMZ
Perforated: Unknown
GSELEV = 1430 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3500
3000
2500
2000
1500
1000
500
6
5
4
3
2
1
0
Jan-1980
Jan-1984
Jan-1988
Jan-1992
Jan-1996
Jan-2000

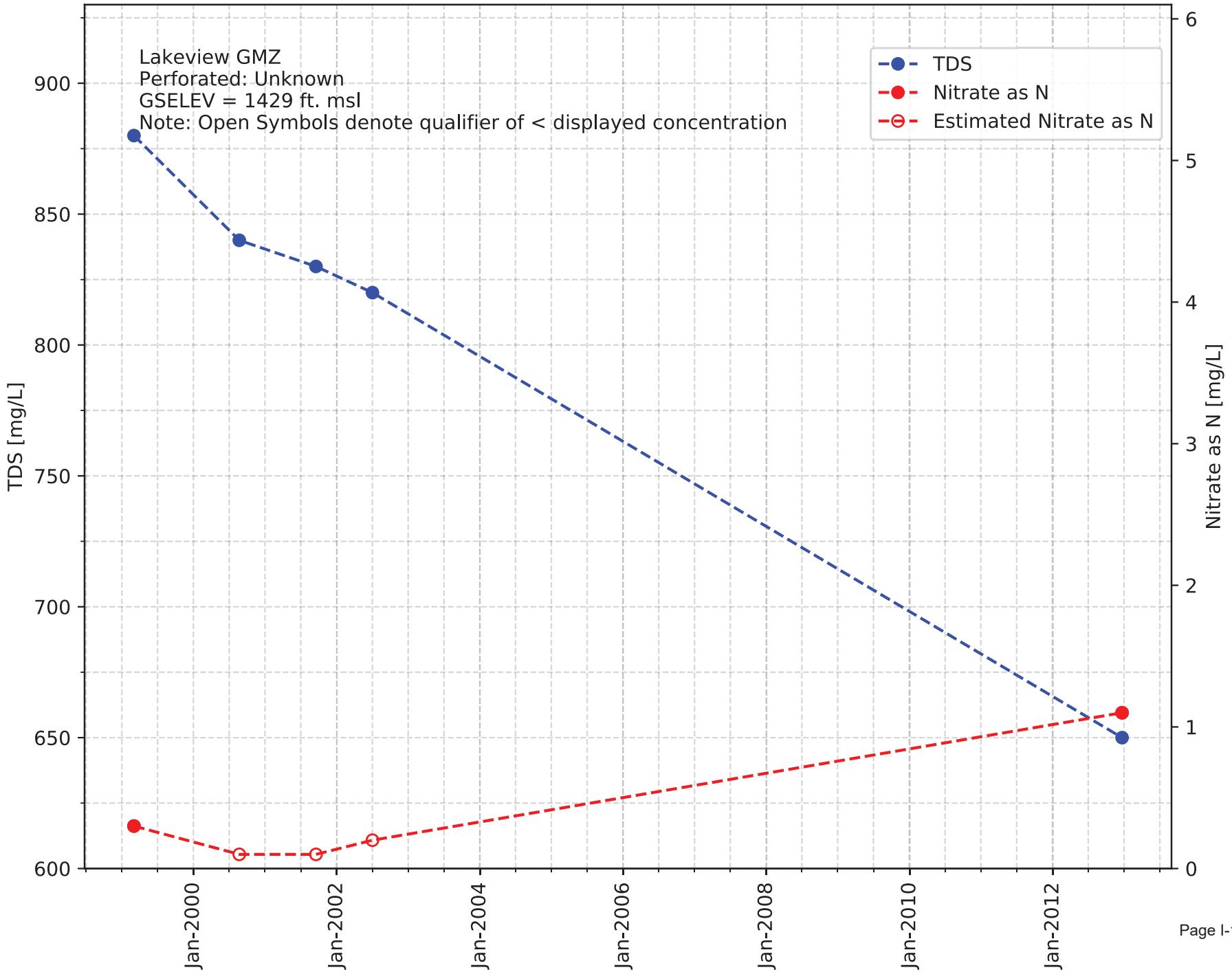

Casing Name: Bean Reservoir/12th
Lakeview GMZ
Perforated: Unknown
GSELEV = 1435 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2250
2000
1750
1500
1250
1000
750
500
12
10
8
6
4
2
0
Jan-1965
Jan-1970
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000

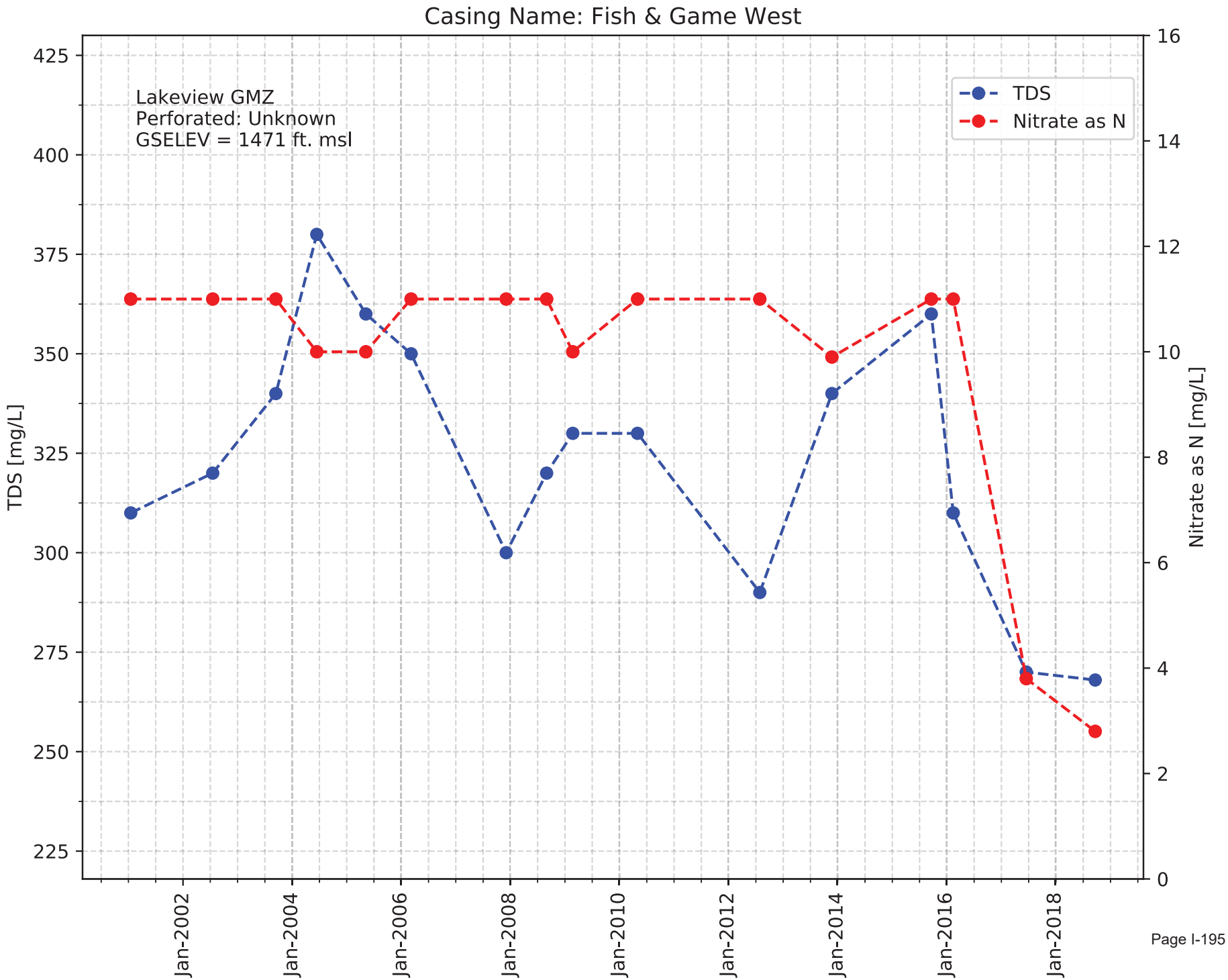

Casing Name: Smith G Nuevo/Olivas
Lakeview GMZ
Perforated: 140-500
GSELEV = 1447 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3500
3000
2500
2000
1500
12
10
8
6
4
2
Jan-1965
Jan-1970
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000

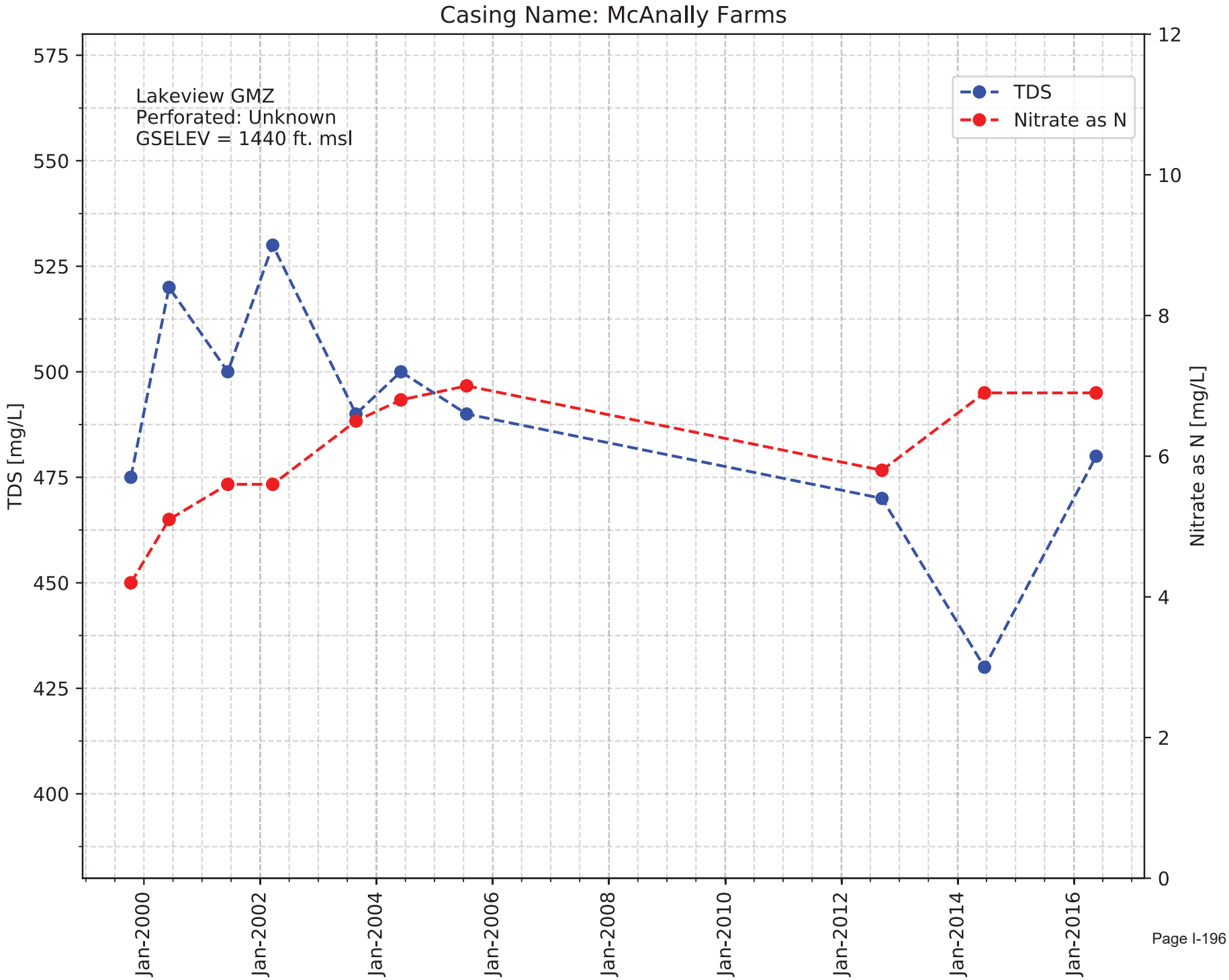

Casing Name: Donathan
Lakeview GMZ
Perforated: 180-200;220-240;260-280
GSELEV = 1444 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2580
2560
2540
2520
2500
10
8
6
4
2
Jul-2001
Jan-2002
Jul-2002
Jan-2003
Jul-2003
Jan-2004
Jul-2004
Jan-2005
Jul-2005

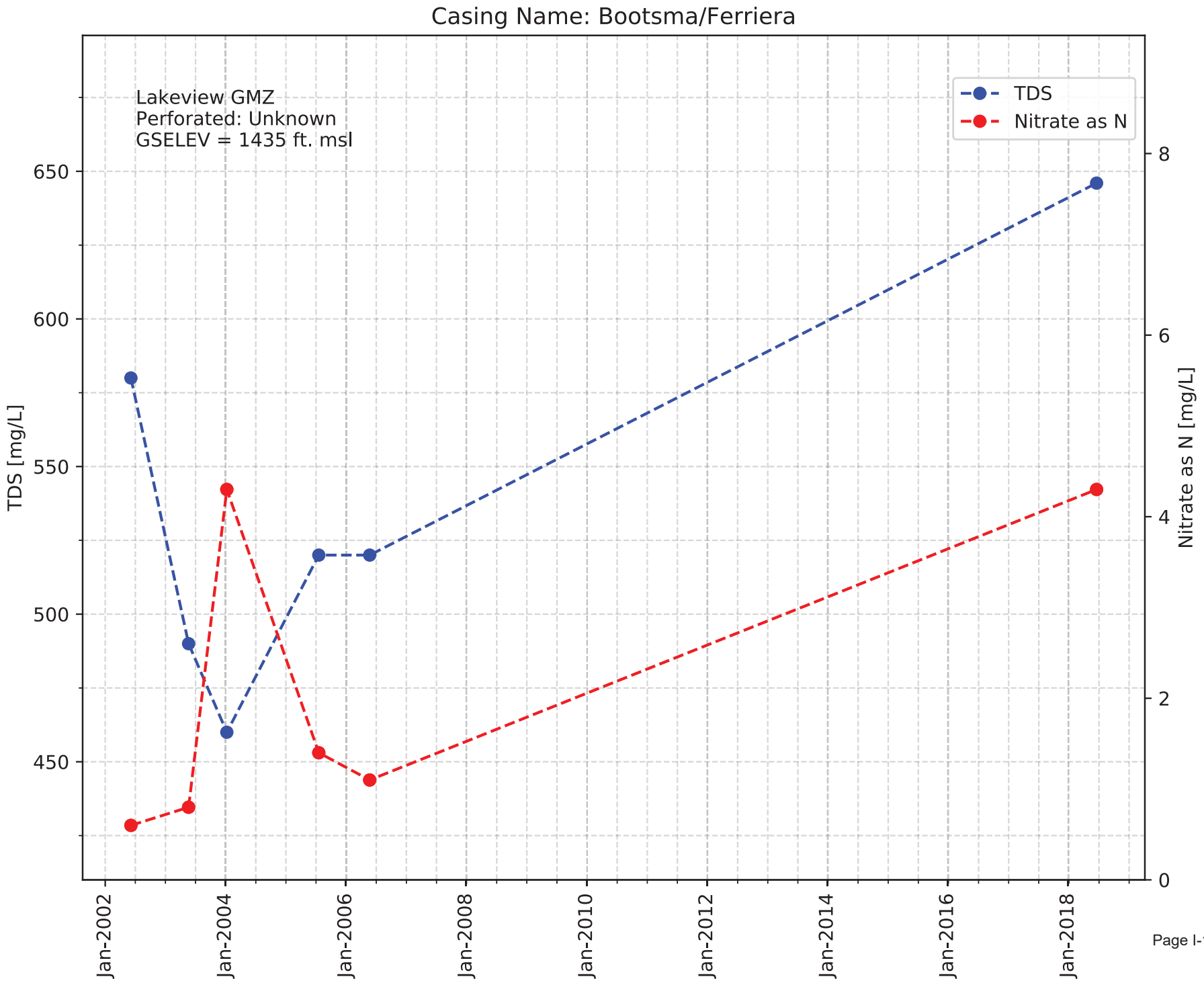

Casing Name: NWC 13
Lakeview GMZ
Perforated: Unknown
GSELEV = 1449 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
6000
5500
5000
4500
4000
3500
3000
2500
5
4
3
2
1
0
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

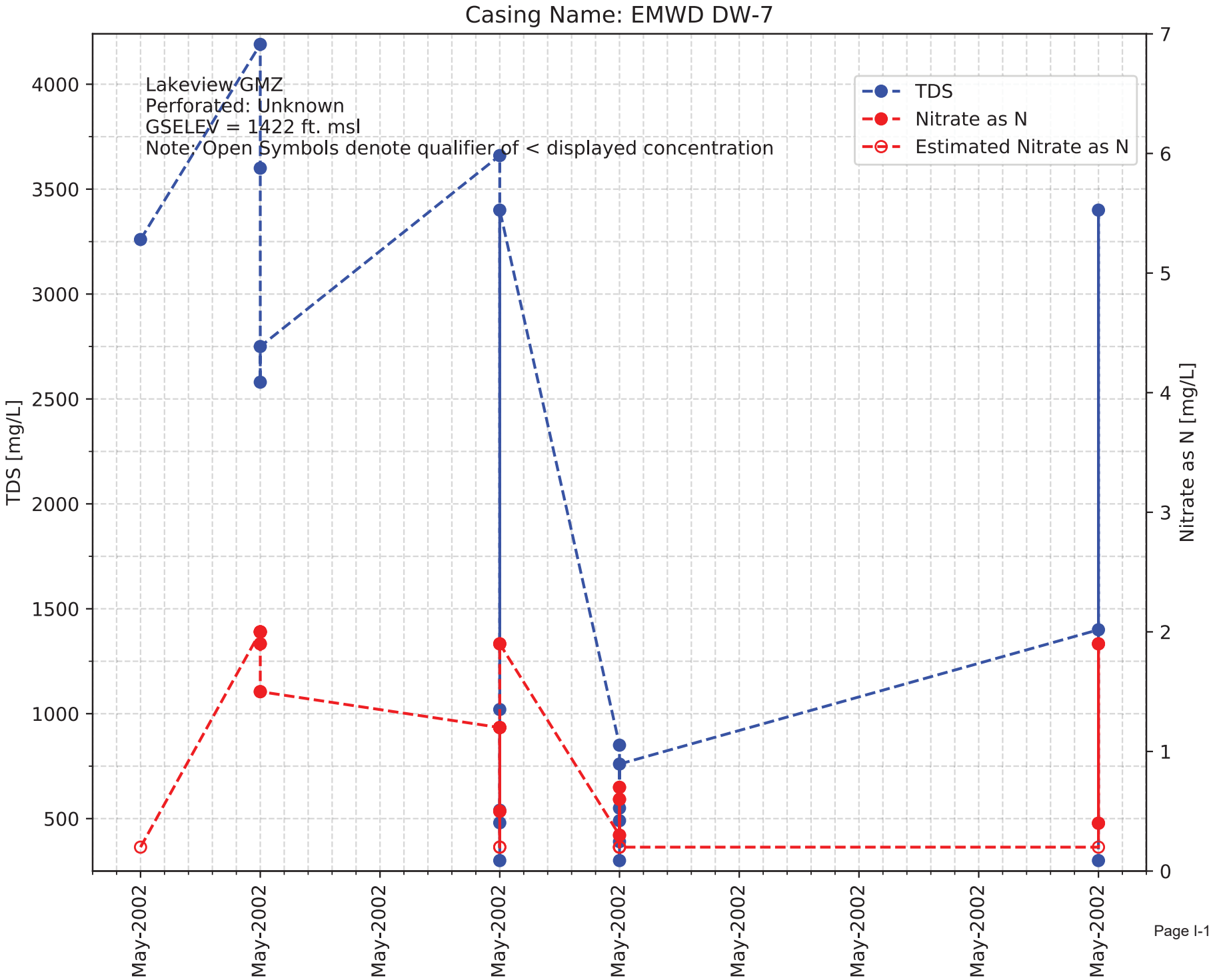
Casing Name: Fish & Game Domestic

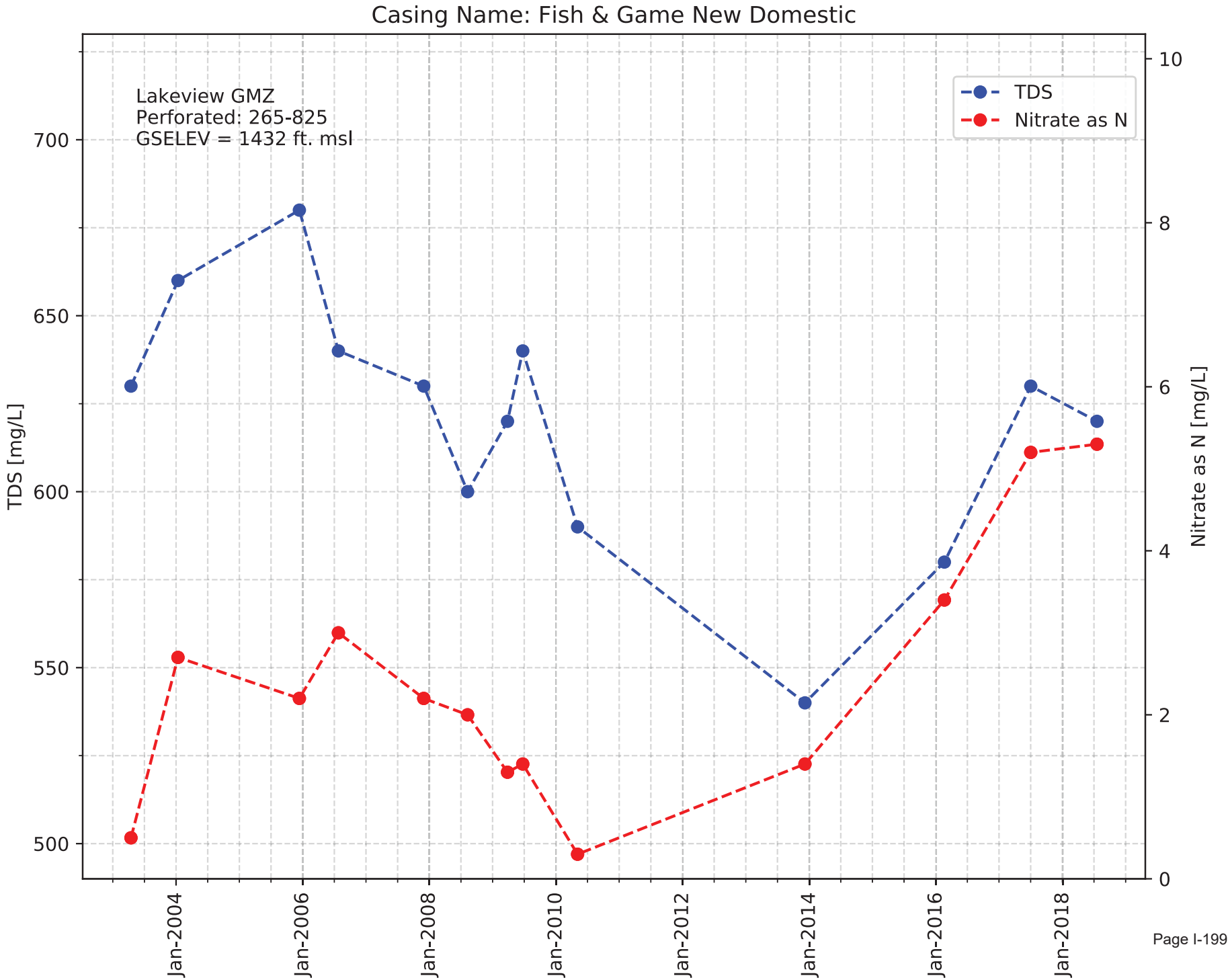


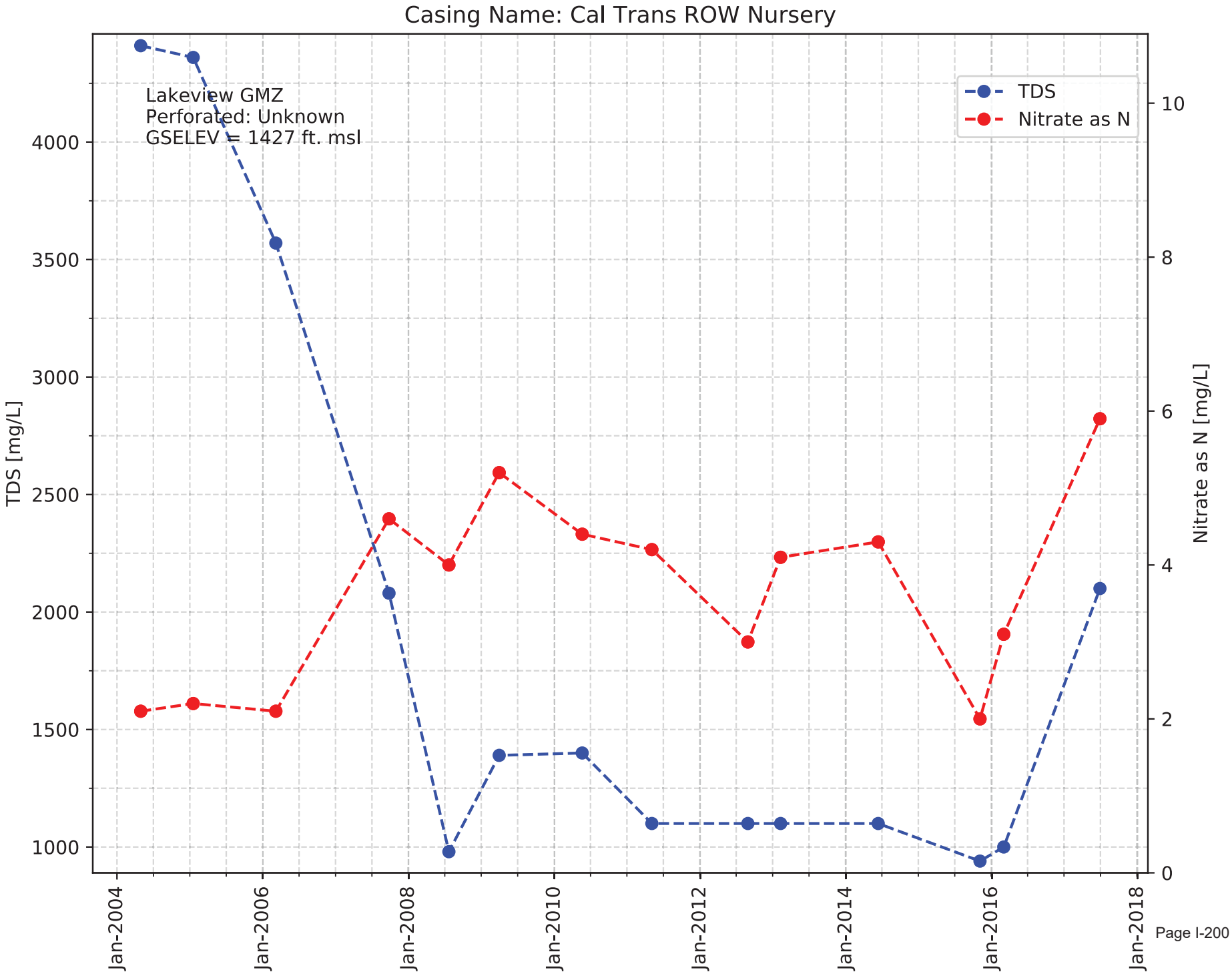

Casing Name: Fish & Game West
Lakeview GMZ
Perforated: Unknown
GSELEV = 1471 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
425
400
375
350
325
300
275
250
225
16
14
12
10
8
6
4
2
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

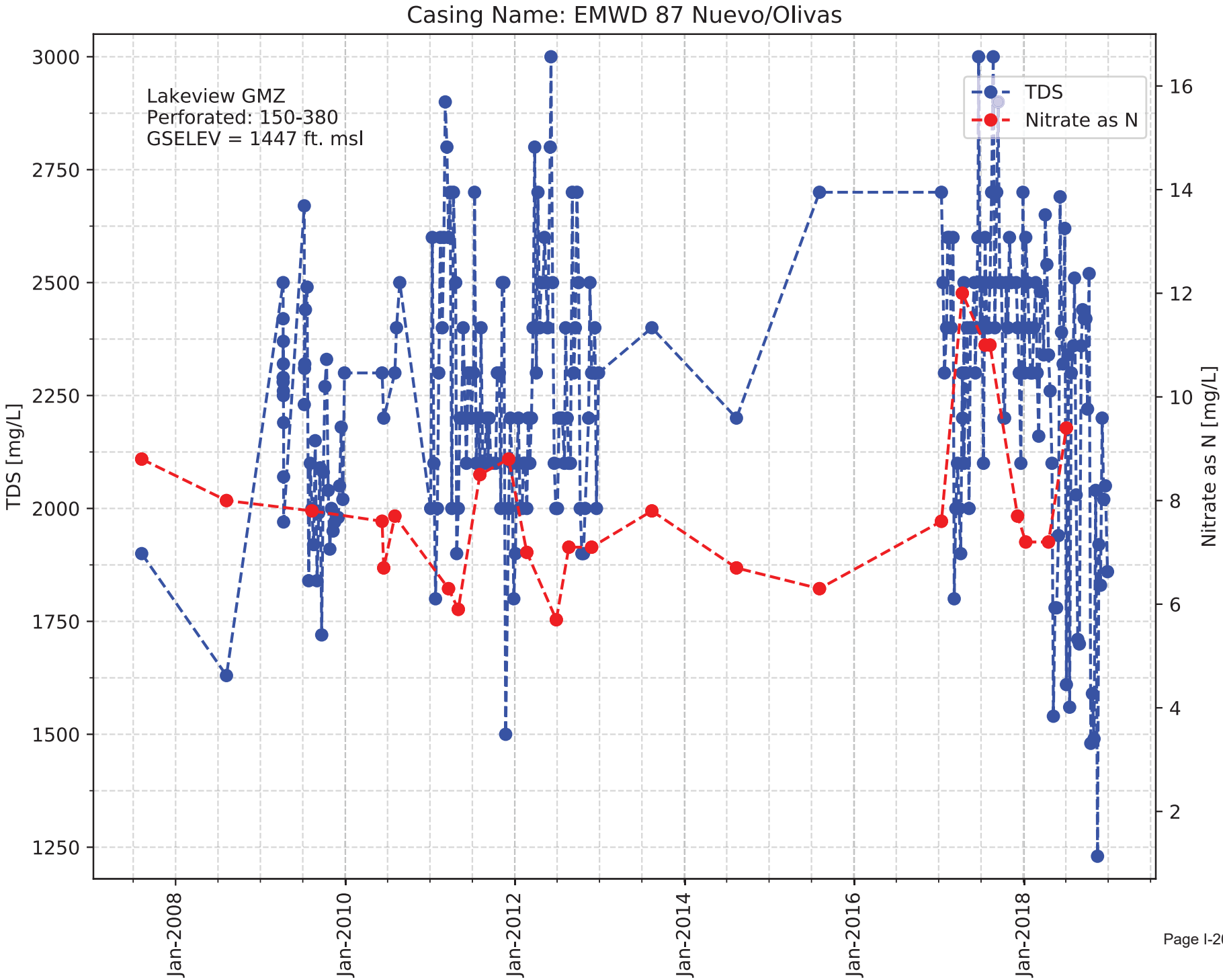

Casing Name: McAnally Farms
Lakeview GMZ
Perforated: Unknown
GSELEV = 1440 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
575
550
525
500
475
450
425
400
12
10
8
6
4
2
0
Jan-2000
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016

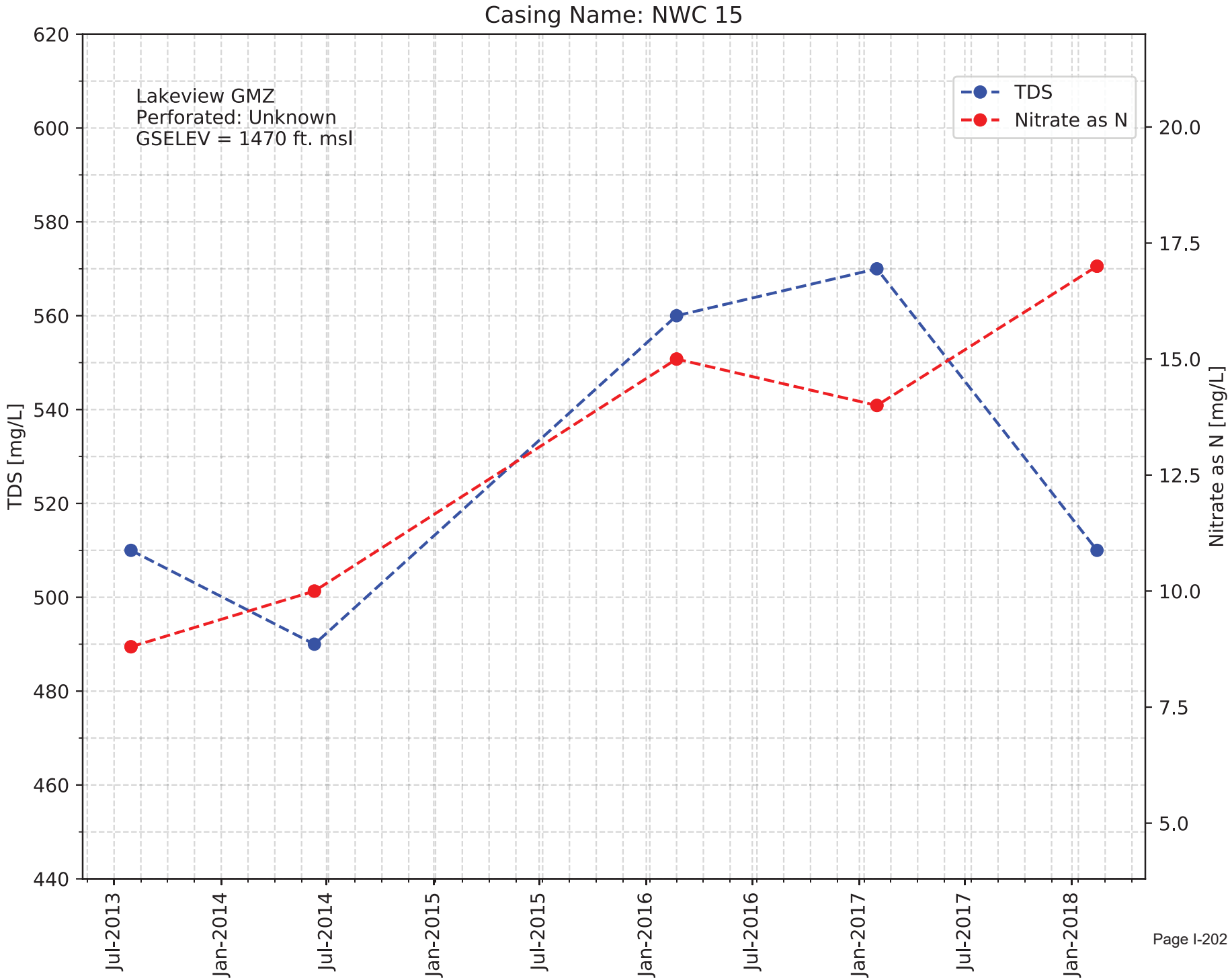

Casing Name: Bootsma/Ferriera
Lakeview GMZ
Perforated: Unknown
GSELEV = 1435 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
650
600
550
500
450
8
6
4
2
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

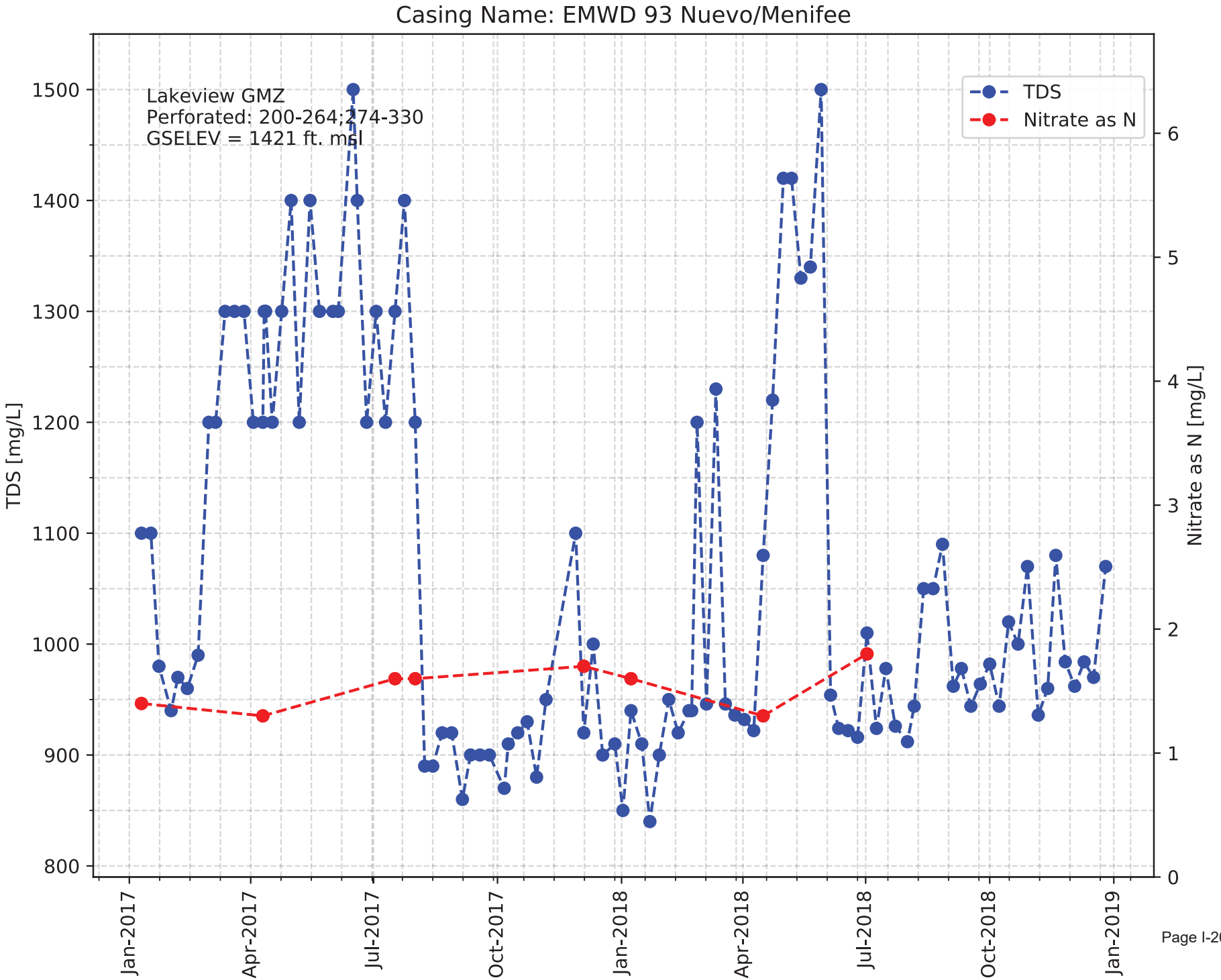

Casing Name: EMWD DW-7
Lakeview GMZ
Perforated: Unknown
GSELEV = 1422 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3500
3000
2500
2000
1500
1000
500
7
6
5
4
3
2
1
0
May-2002
May-2002
May-2002
May-2002
May-2002
May-2002
May-2002
May-2002

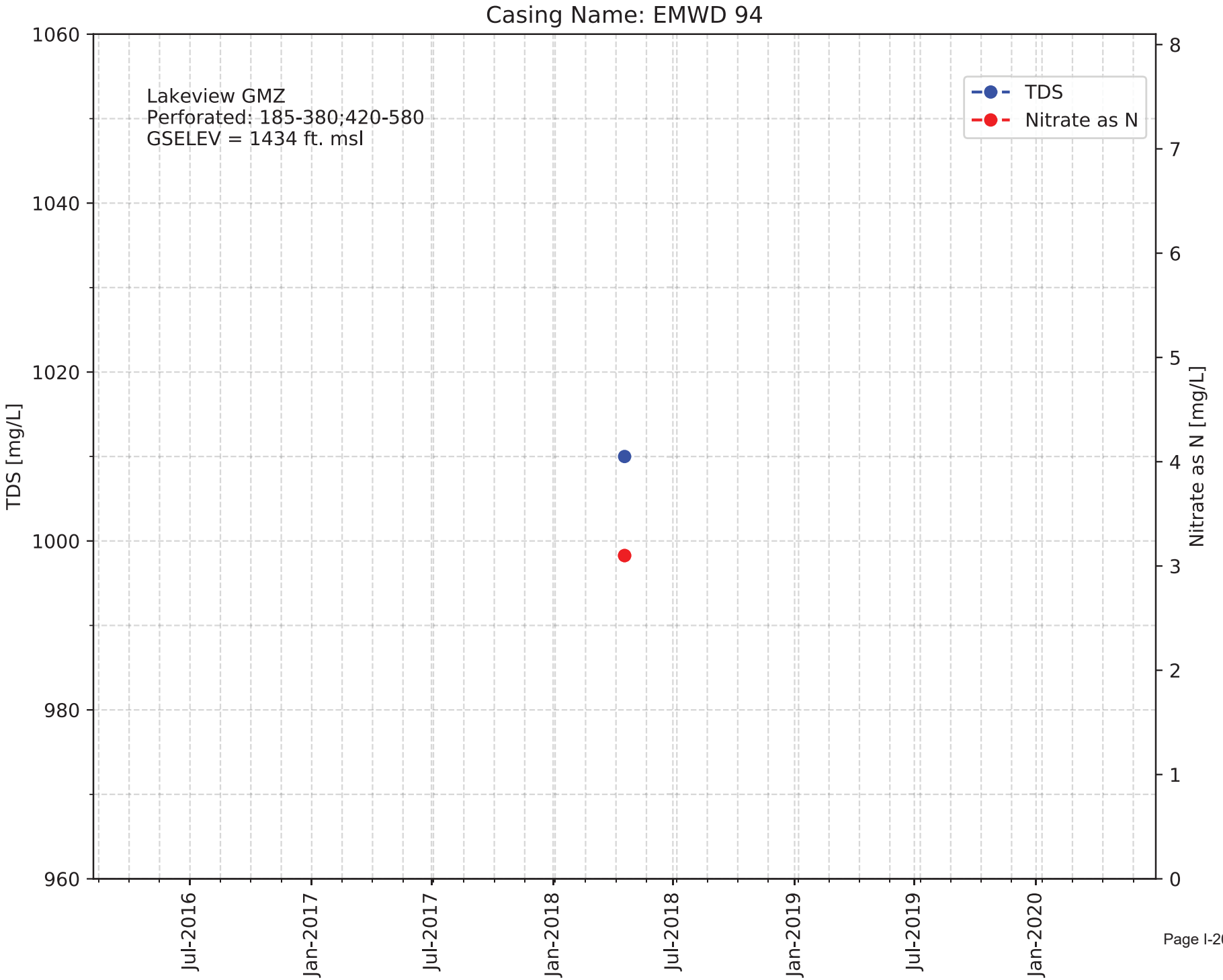

Casing Name: Fish & Game New Domestic
Lakeview GMZ
Perforated: 265-825
GSELEV = 1432 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
650
600
550
500
10
8
6
4
2
0
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

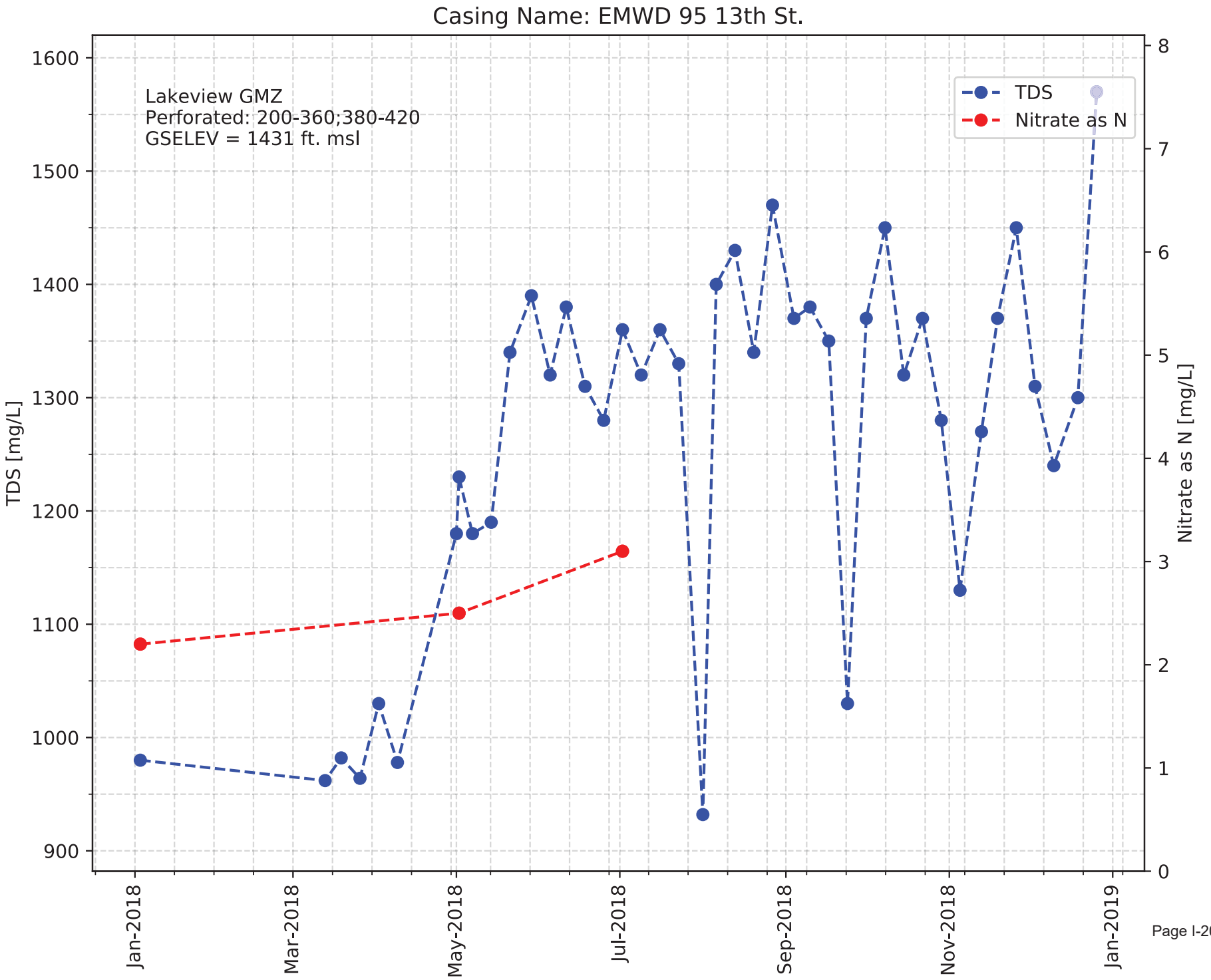

Casing Name: Cal Trans ROW Nursery
Lakeview GMZ
Perforated: Unknown
GSELEV = 1427 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3500
3000
2500
2000
1500
1000
10
8
6
4
2
0
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

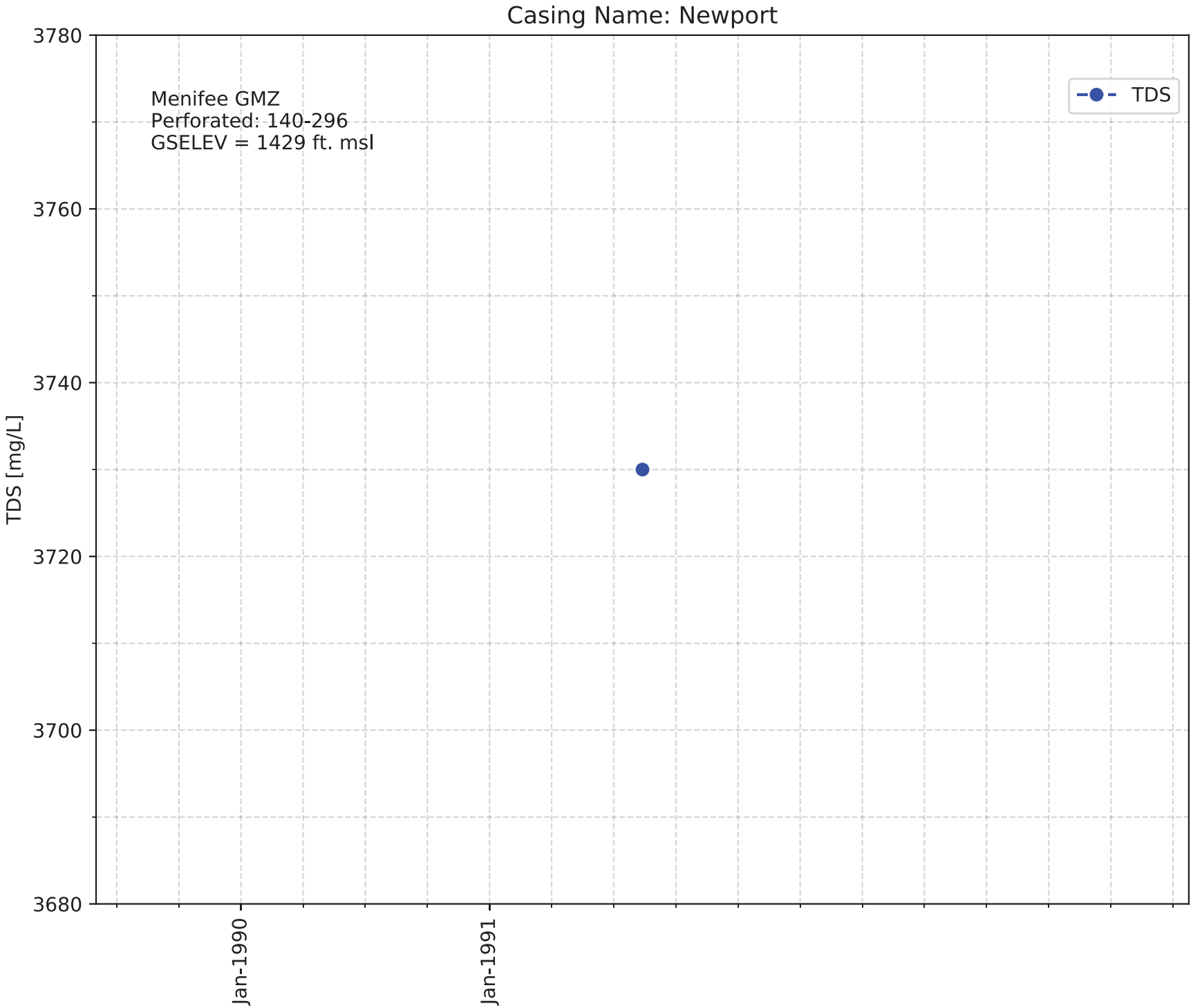

Casing Name: EMWD 87 Nuevo/Olivas
Lakeview GMZ
Perforated: 150-380
GSELEV = 1447 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3000
2750
2500
2250
2000
1750
1500
1250
16
14
12
10
8
6
4
2
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

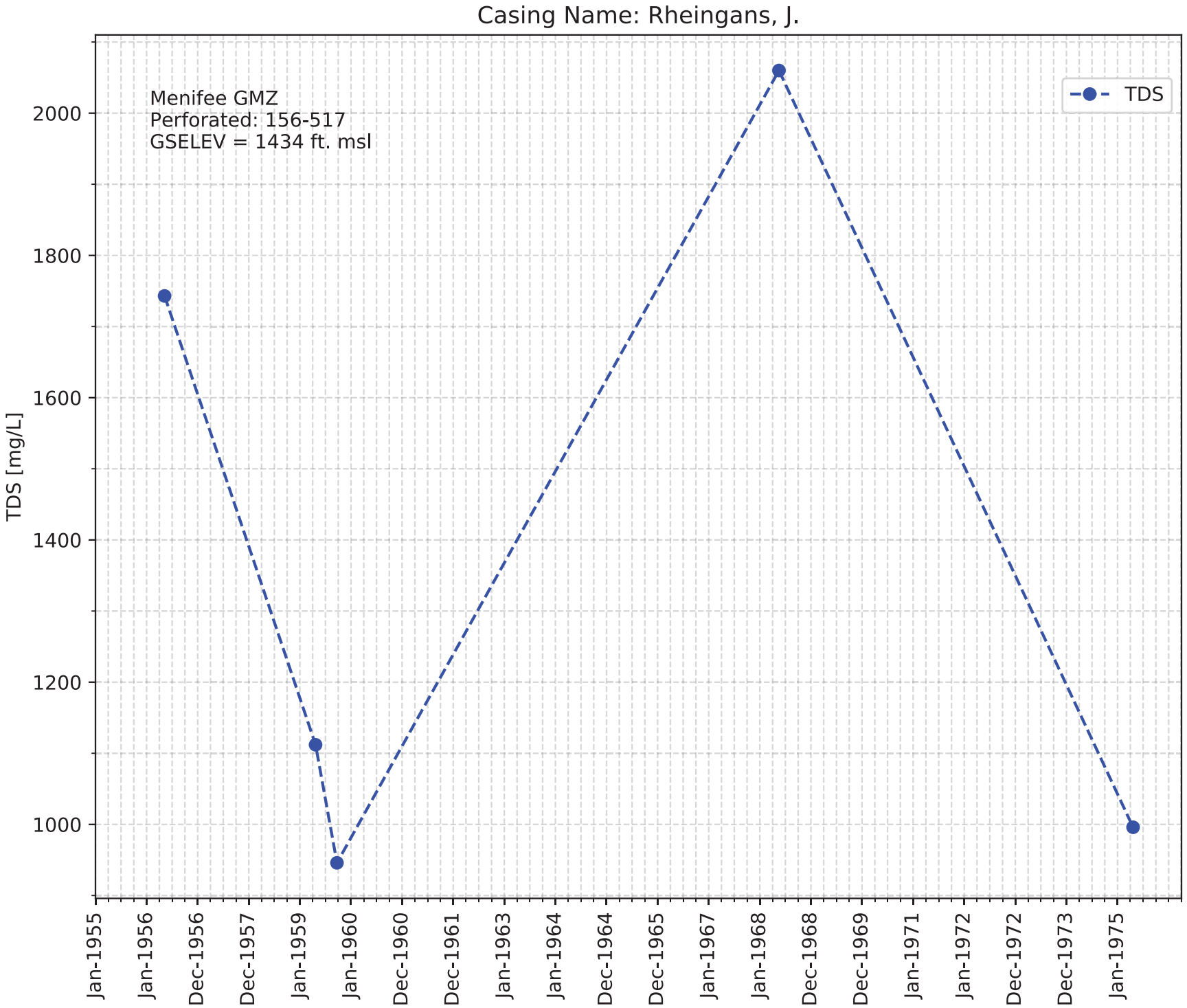

Casing Name: NWC 15
Lakeview GMZ
Perforated: Unknown
GSELEV = 1470 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
620
600
580
560
540
520
500
480
460
440
20.0
17.5
15.0
12.5
10.0
7.5
5.0
Jul-2013
Jan-2014
Jul-2014
Jan-2015
Jul-2015
Jan-2016
Jul-2016
Jan-2017
Jul-2017
Jan-2018

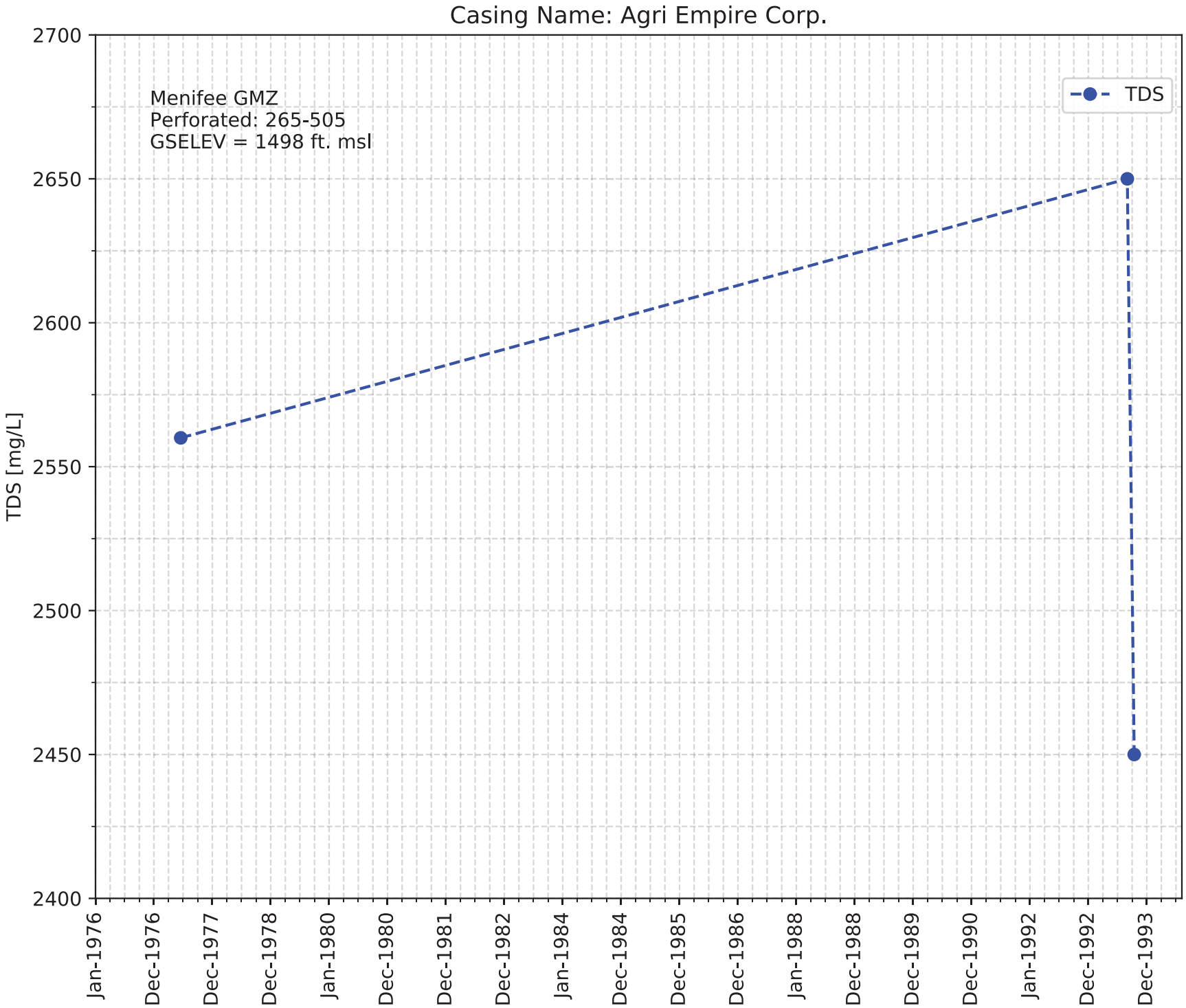

Casing Name: EMWD 93 Nuevo/Menifee
Lakeview GMZ
Perforated: 200-264;274-330
GSELEV = 1421 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1500
1400
1300
1200
1100
1000
900
800
6
5
4
3
2
1
0
Jan-2017
Apr-2017
Jul-2017
Oct-2017
Jan-2018
Apr-2018
Jul-2018
Oct-2018
Jan-2019

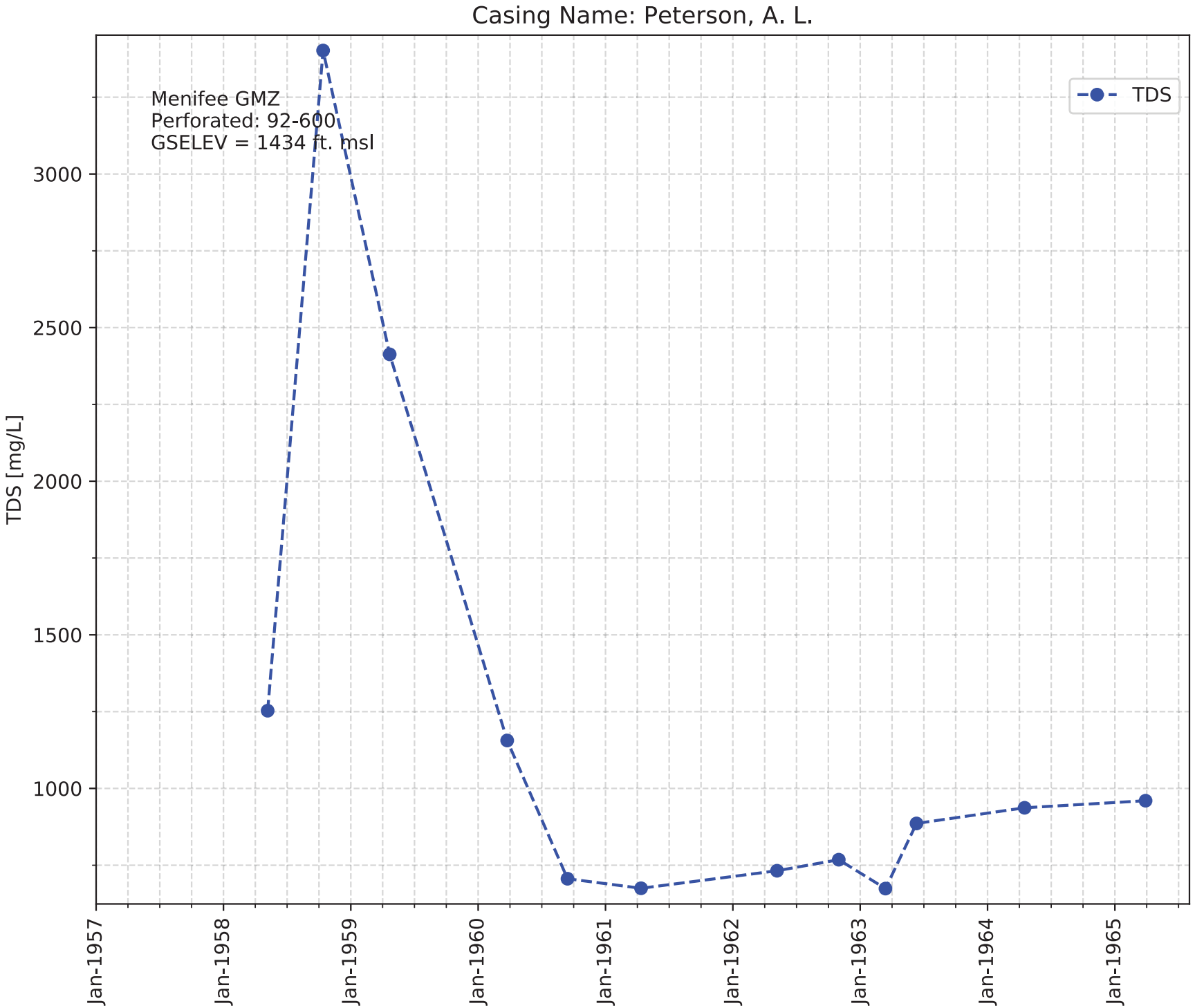

Casing Name: EMWD 94
Lakeview GMZ
Perforated: 185-380;420-580
GSELEV = 1434 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1060
1040
1020
1000
980
960
8
7
6
5
4
3
2
1
0
Jul-2016
Jan-2017
Jul-2017
Jan-2018
Jul-2018
Jan-2019
Jul-2019
Jan-2020

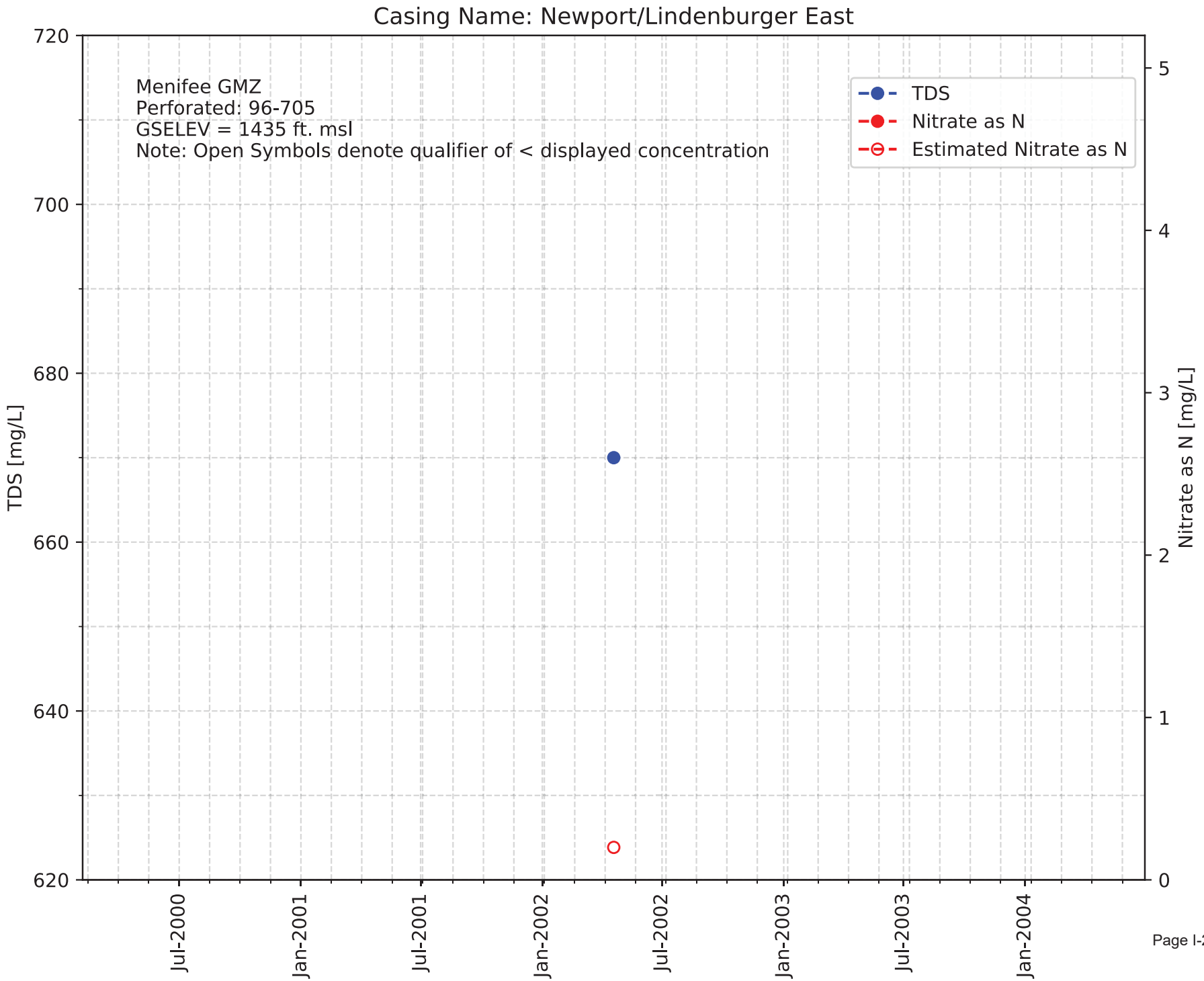

Casing Name: EMWD 95 13th St.
Lakeview GMZ
Perforated: 200-360;380-420
GSELEV = 1431 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1600
1500
1400
1300
1200
1100
1000
900
8
7
6
5
4
3
2
1
0
Jan-2018
Mar-2018
May-2018
Jul-2018
Sep-2018
Nov-2018
Jan-2019

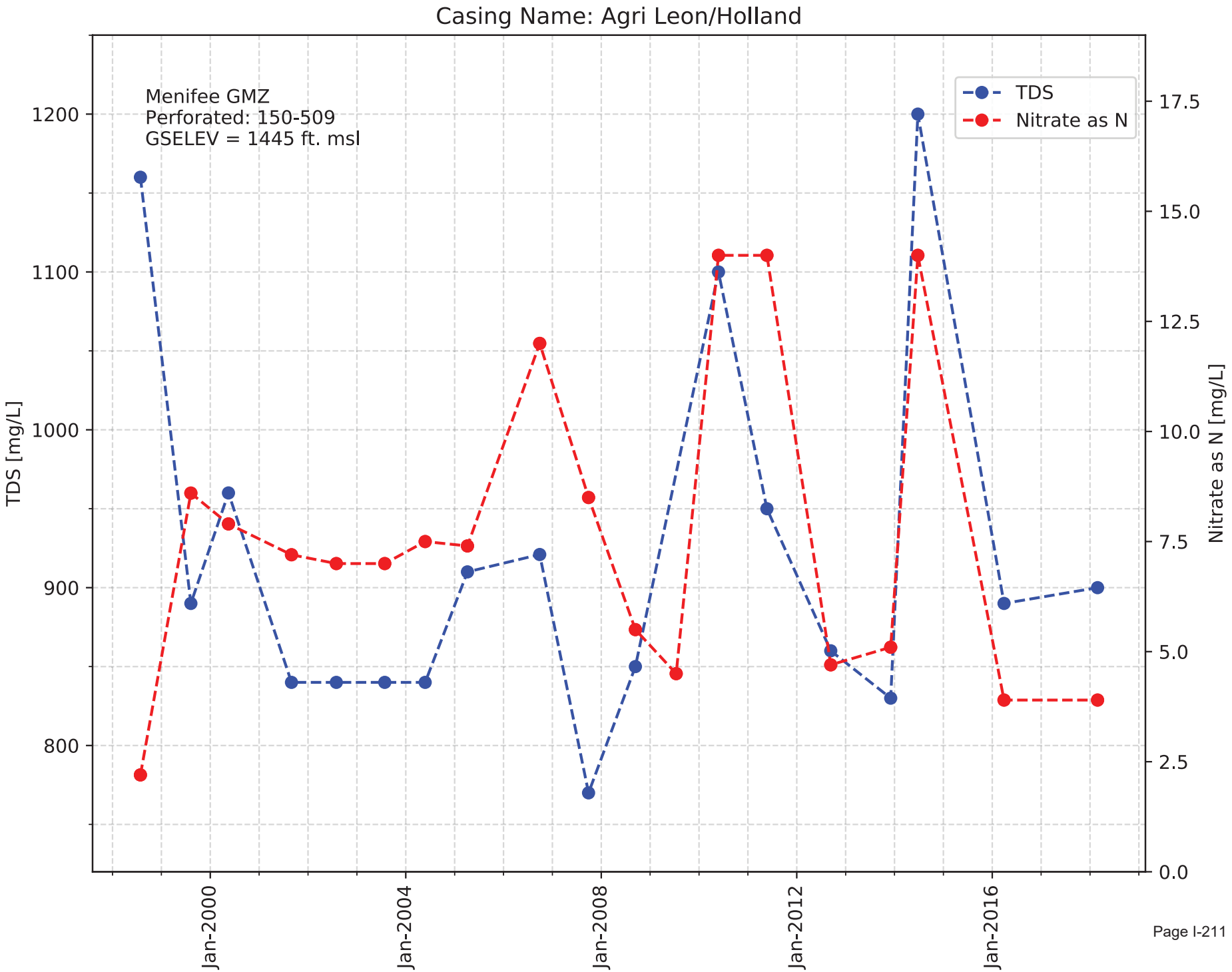

Casing Name: Newport
Menifee GMZ
Perforated: 140-296
GSELEV = 1429 ft. msl
TDS
TDS [mg/L]
3780
3760
3740
3720
3700
3680
Jan-1990
Jan-1991

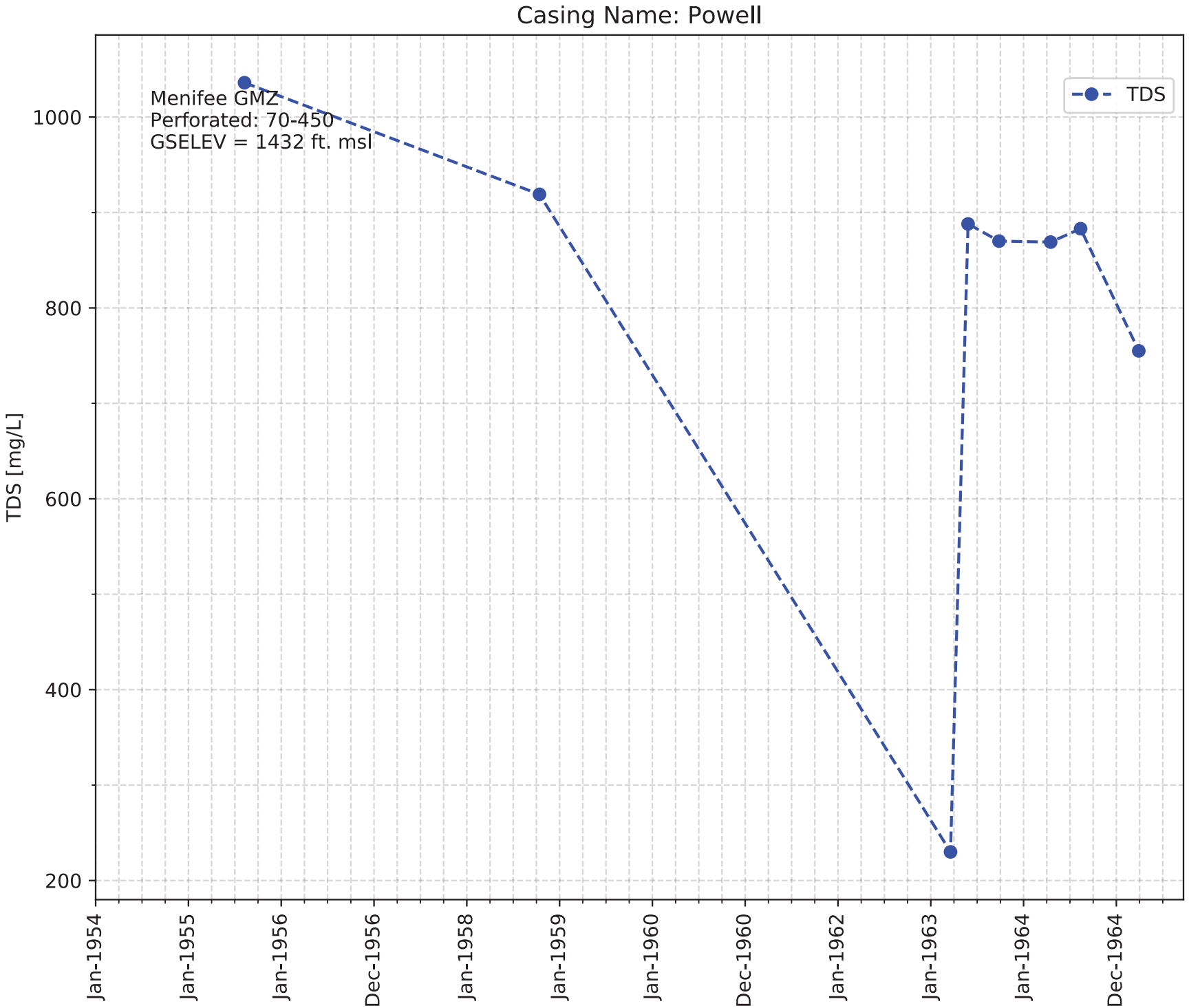

Casing Name: Rheingans, J.
Menifee GMZ
Perforated: 156-517
GSELEV = 1434 ft. msl
TDS
TDS [mg/L]
2000
1800
1600
1400
1200
1000
Jan-1955
Jan-1956
Dec-1956
Dec-1957
Jan-1959
Jan-1960
Dec-1960
Dec-1961
Jan-1963
Jan-1964
Dec-1964
Dec-1965
Jan-1967
Jan-1968
Dec-1968
Dec-1969
Jan-1971
Jan-1972
Dec-1972
Dec-1973
Jan-1975

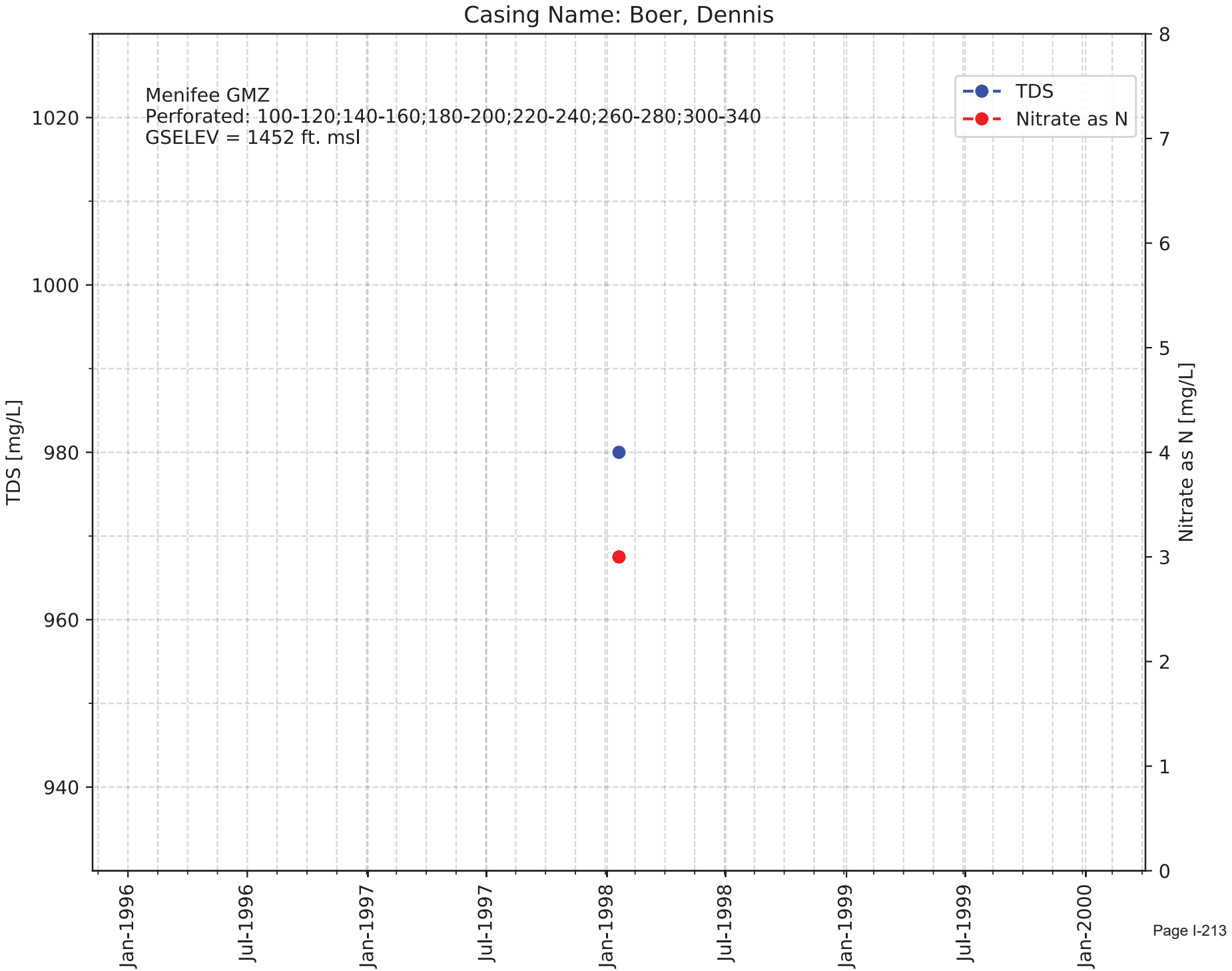

Casing Name: Agri Empire Corp.
Menifee GMZ
Perforated: 265-505
GSELEV = 1498 ft. msl
TDS
TDS [mg/L]
2700
2650
2600
2550
2500
2450
2400
Jan-1976
Dec-1976
Dec-1977
Dec-1978
Jan-1980
Dec-1980
Dec-1981
Dec-1982
Jan-1984
Dec-1984
Dec-1985
Dec-1986
Jan-1988
Dec-1988
Dec-1989
Dec-1990
Jan-1992
Dec-1992
Dec-1993

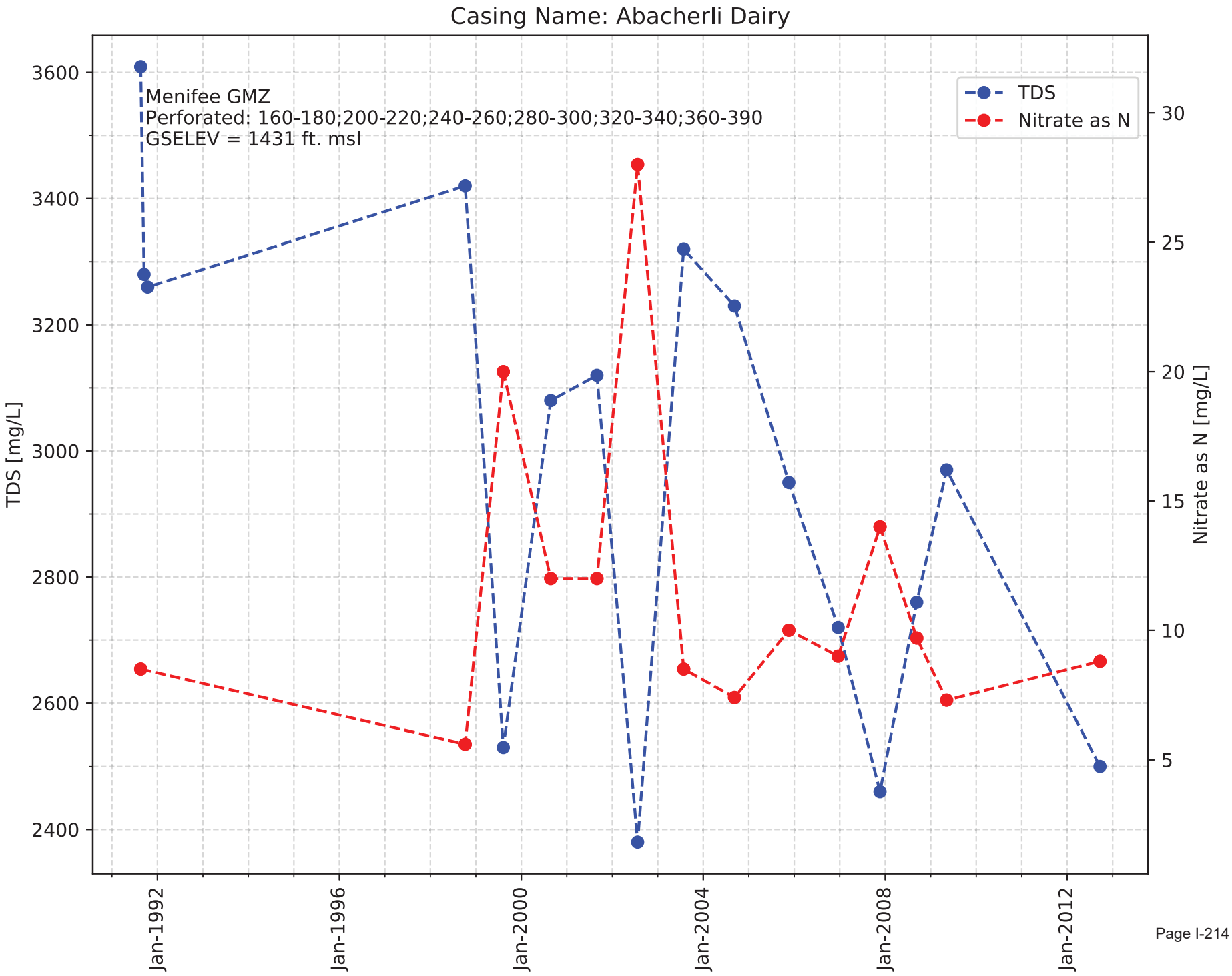

Casing Name: Peterson, A. L.
Menifee GMZ
Perforated: 92-600
GSELEV = 1434 ft. msl
TDS
TDS [mg/L]
3000
2500
2000
1500
1000
Jan-1957
Jan-1958
Jan-1959
Jan-1960
Jan-1961
Jan-1962
Jan-1963
Jan-1964
Jan-1965

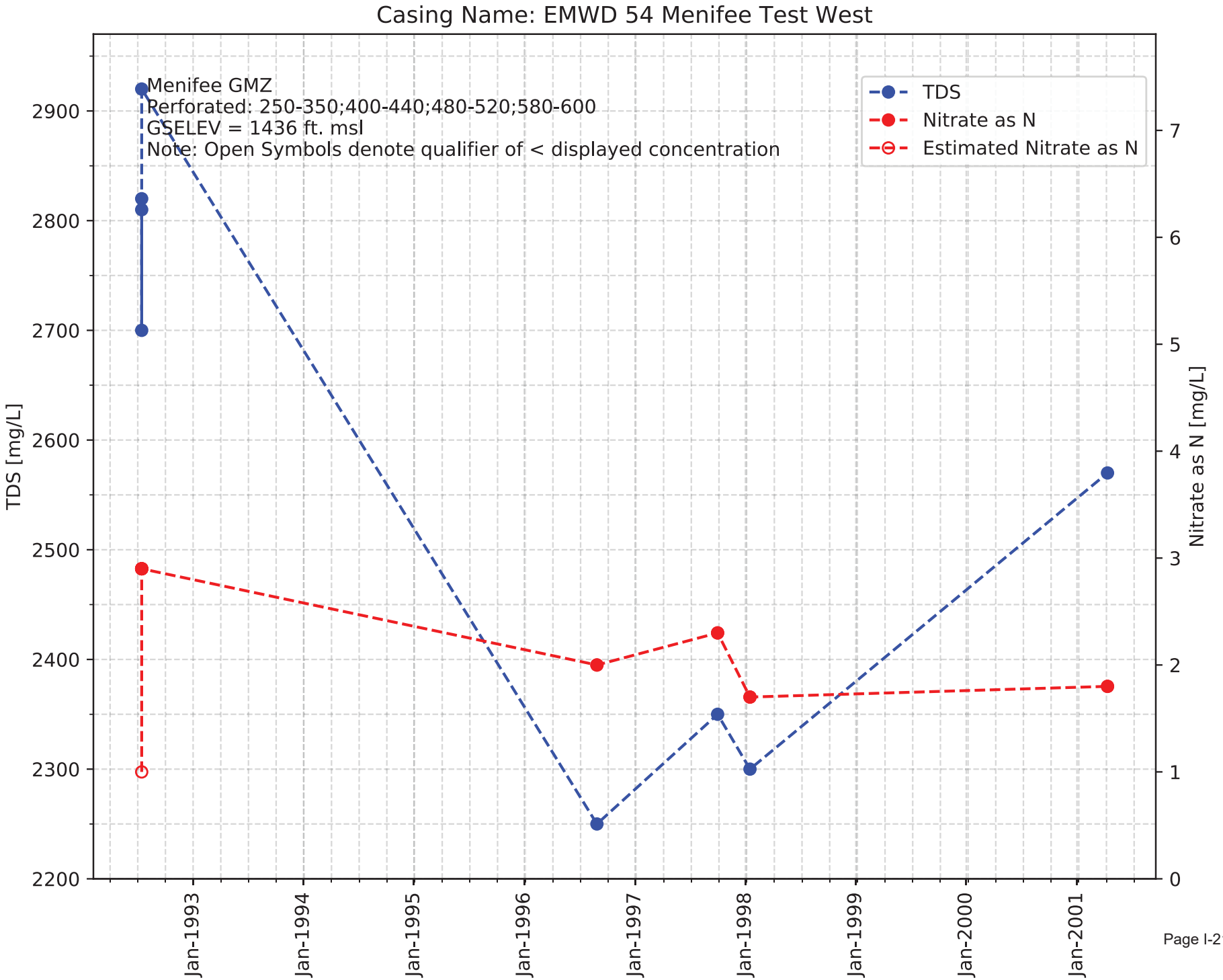

Casing Name: Newport/Lindenburger East
Menifee GMZ
Perforated: 96-705
GSELEV = 1435 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
720
700
680
660
640
620
5
4
3
2
1
0
Jul-2000
Jan-2001
Jul-2001
Jan-2002
Jul-2002
Jan-2003
Jul-2003
Jan-2004

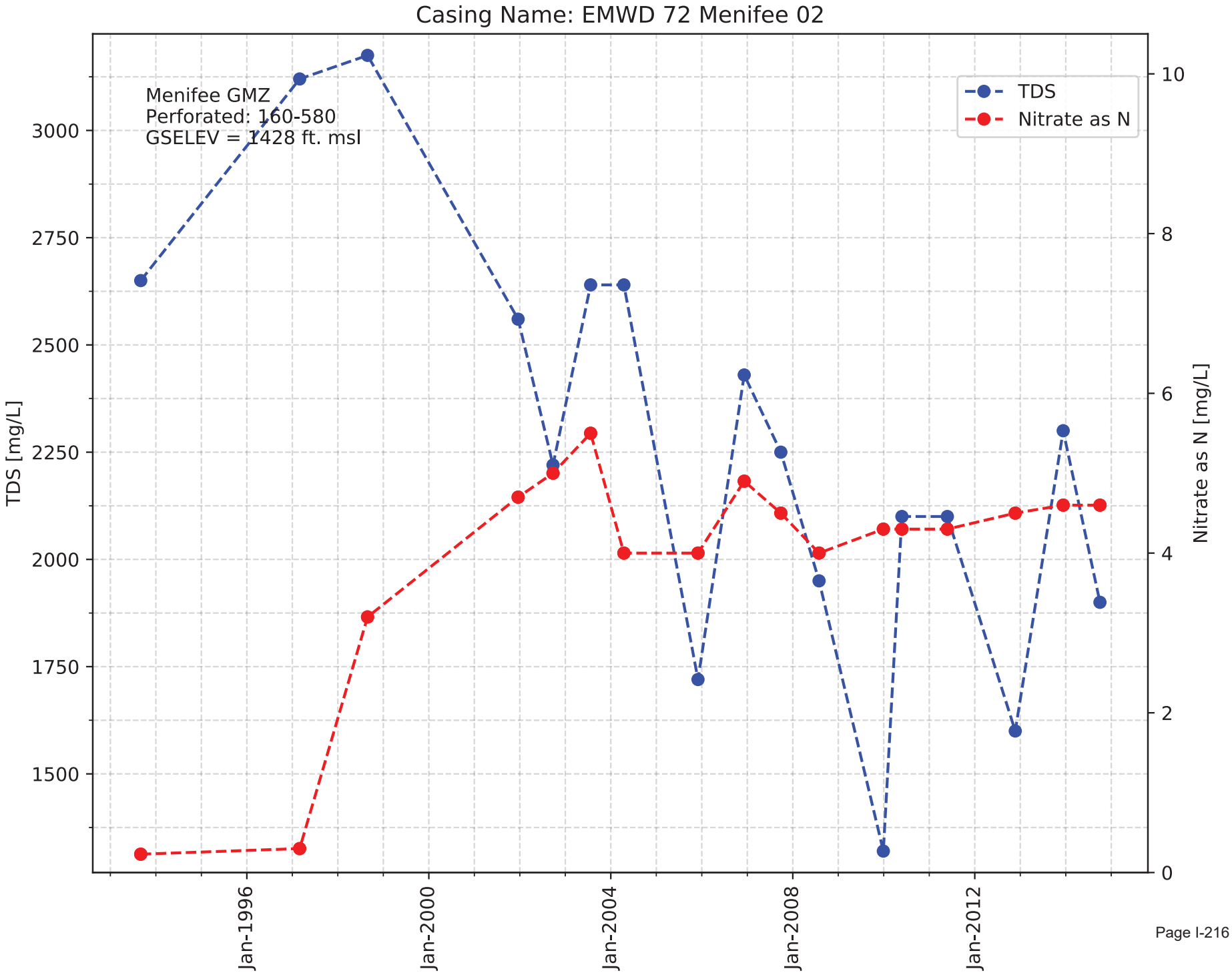

Casing Name: Agri Leon/Holland
Menifee GMZ
Perforated: 150-509
GSELEV = 1445 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1200
1100
1000
900
800
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

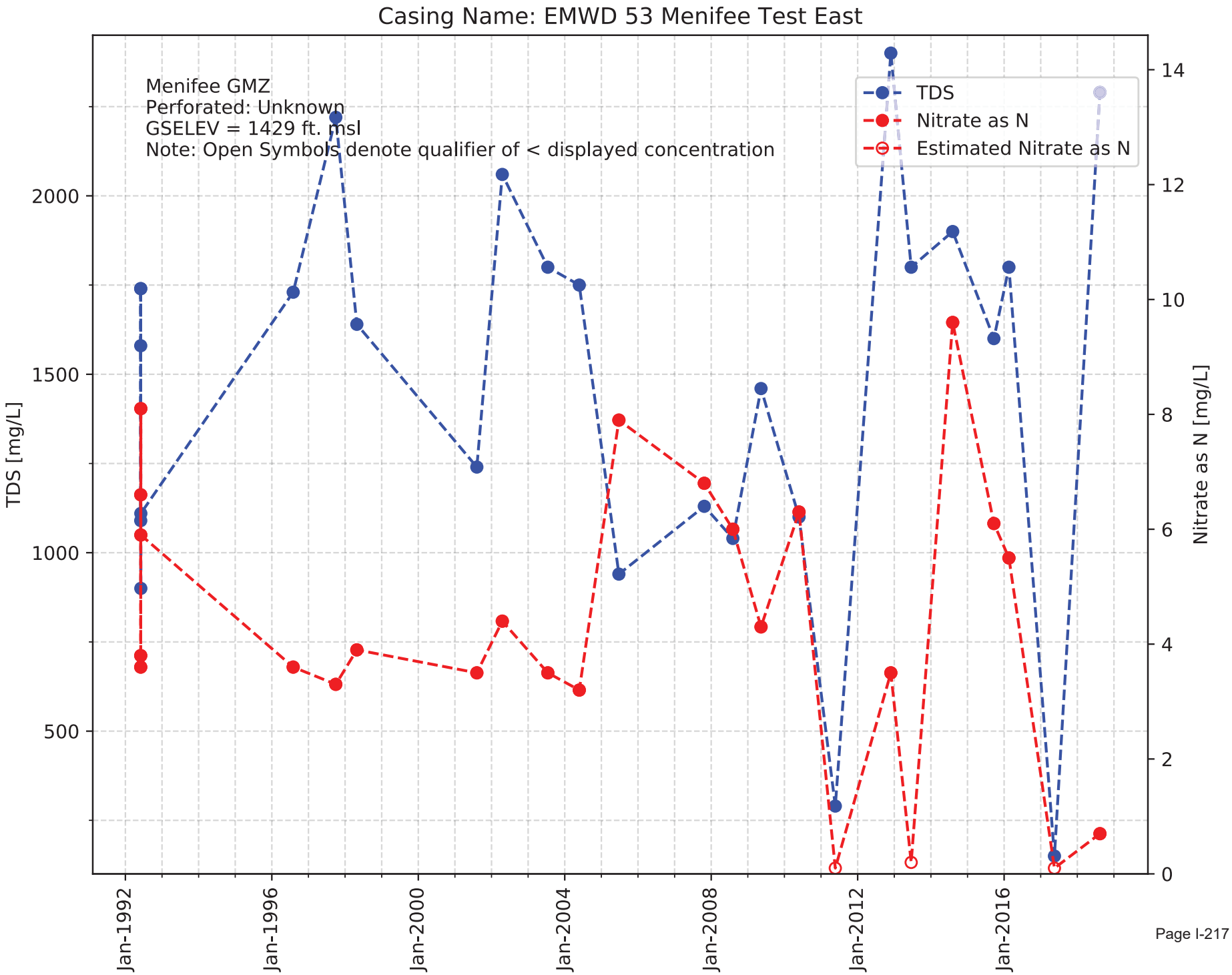

Casing Name: Powell
Menifee GMZ
Perforated: 70-450
GSELEV = 1432 ft. msl
TDS
TDS [mg/L]
1000
800
600
400
200
Jan-1954
Jan-1955
Jan-1956
Dec-1956
Jan-1958
Jan-1959
Jan-1960
Dec-1960
Jan-1962
Jan-1963
Jan-1964
Dec-1964

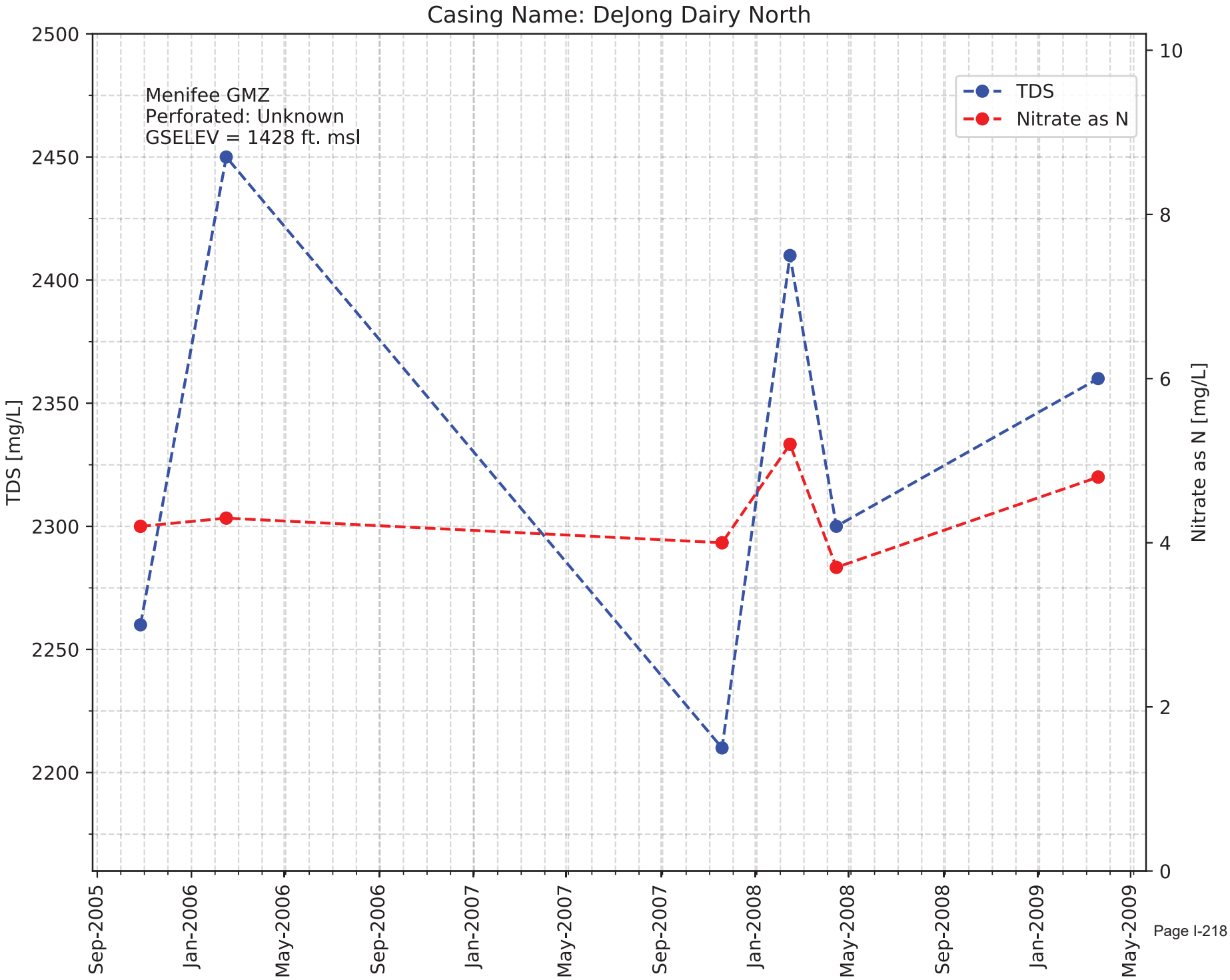

Casing Name: Boer, Dennis
Menifee GMZ
Perforated: 100-120;140-160;180-200;220-240;260-280;300-340
GSELEV = 1452 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1020
1000
980
960
940
8
7
6
5
4
3
2
1
0
Jan-1996
Jul-1996
Jan-1997
Jul-1997
Jan-1998
Jul-1998
Jan-1999
Jul-1999
Jan-2000

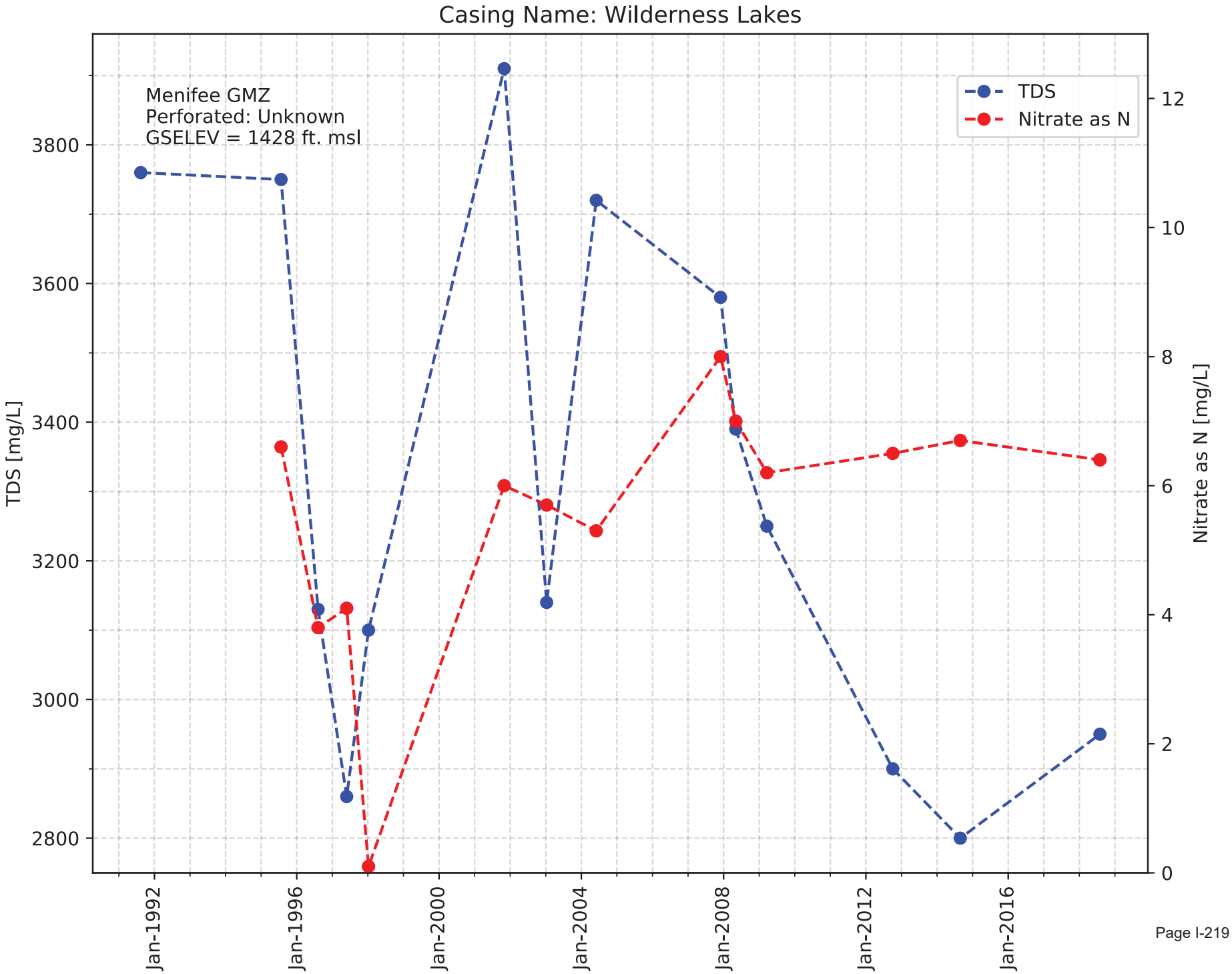

Casing Name: Abacherli Dairy
Menifee GMZ
Perforated: 160-180;200-220;240-260;280-300;320-340;360-390
GSELEV = 1431 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3600
3400
3200
3000
2800
2600
2400
30
25
20
15
10
5
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012

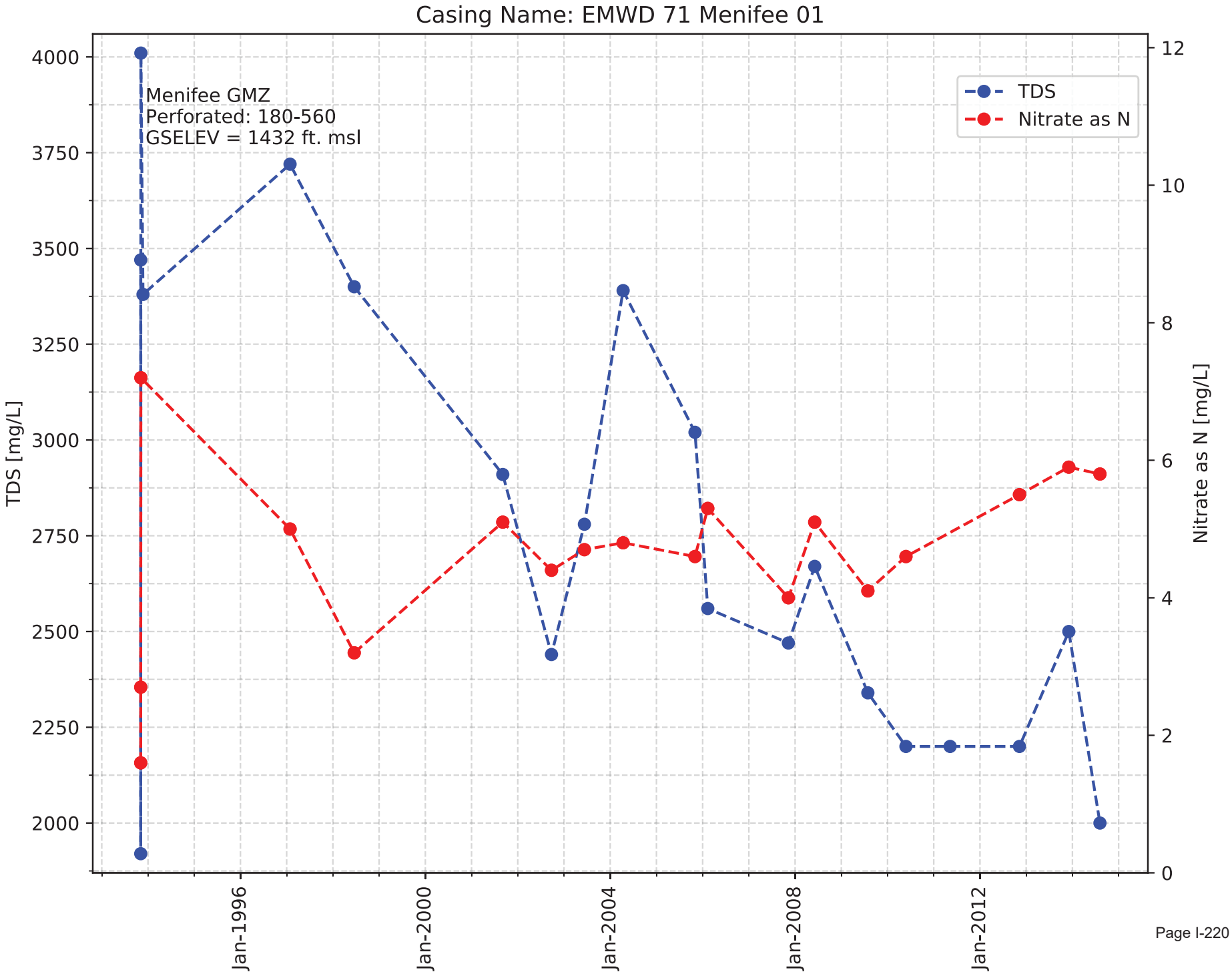

Casing Name: EMWD 54 Menifee Test West
Menifee GMZ
Perforated: 250-350;400-440;480-520;580-600
GSELEV = 1436 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2900
2800
2700
2600
2500
2400
2300
2200
7
6
5
4
3
2
1
0
Jan-1993
Jan-1994
Jan-1995
Jan-1996
Jan-1997
Jan-1998
Jan-1999
Jan-2000
Jan-2001

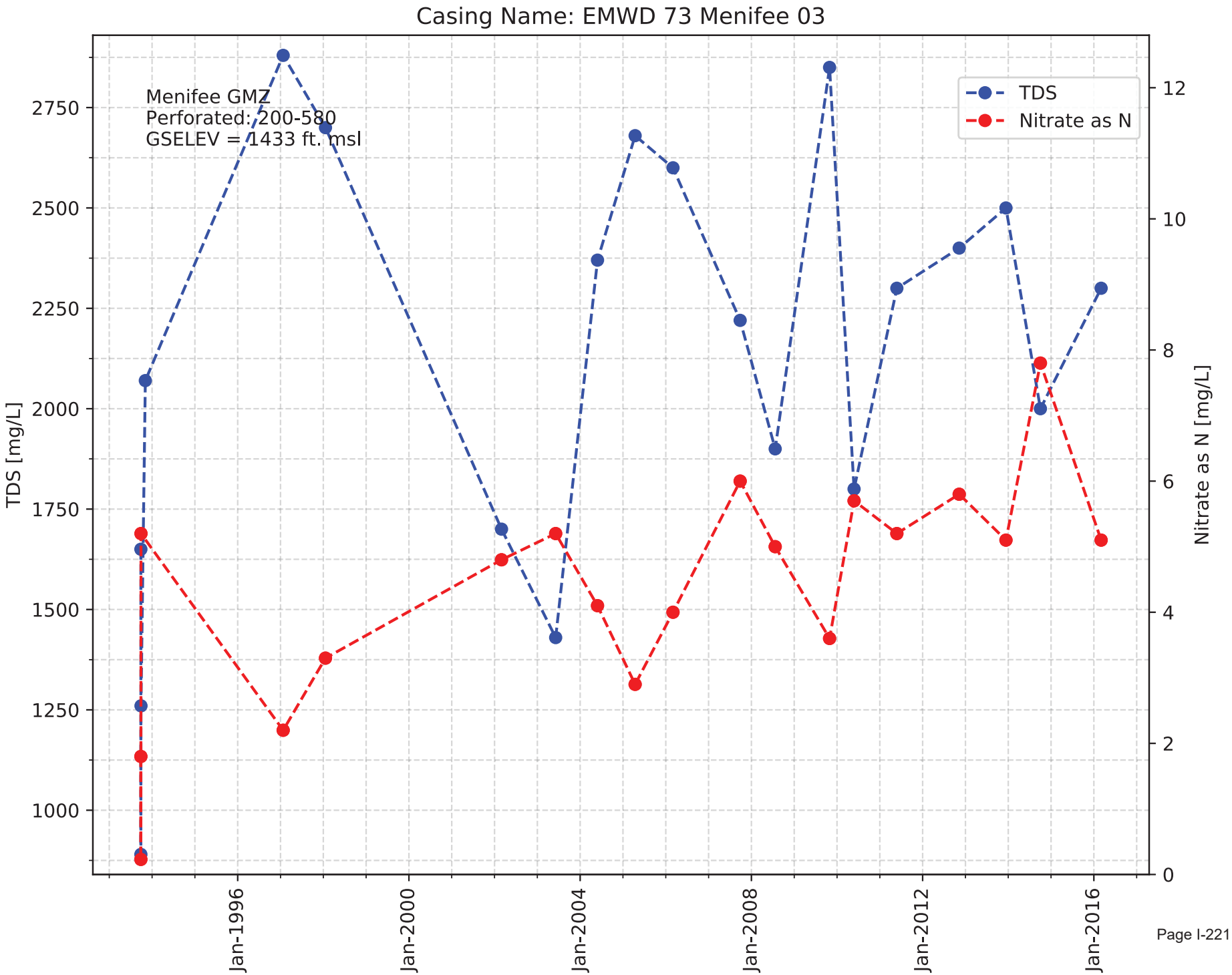

Casing Name: EMWD 72 Menifee 02
Menifee GMZ
Perforated: 160-580
GSELEV = 1428 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3000
2750
2500
2250
2000
1750
1500
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012

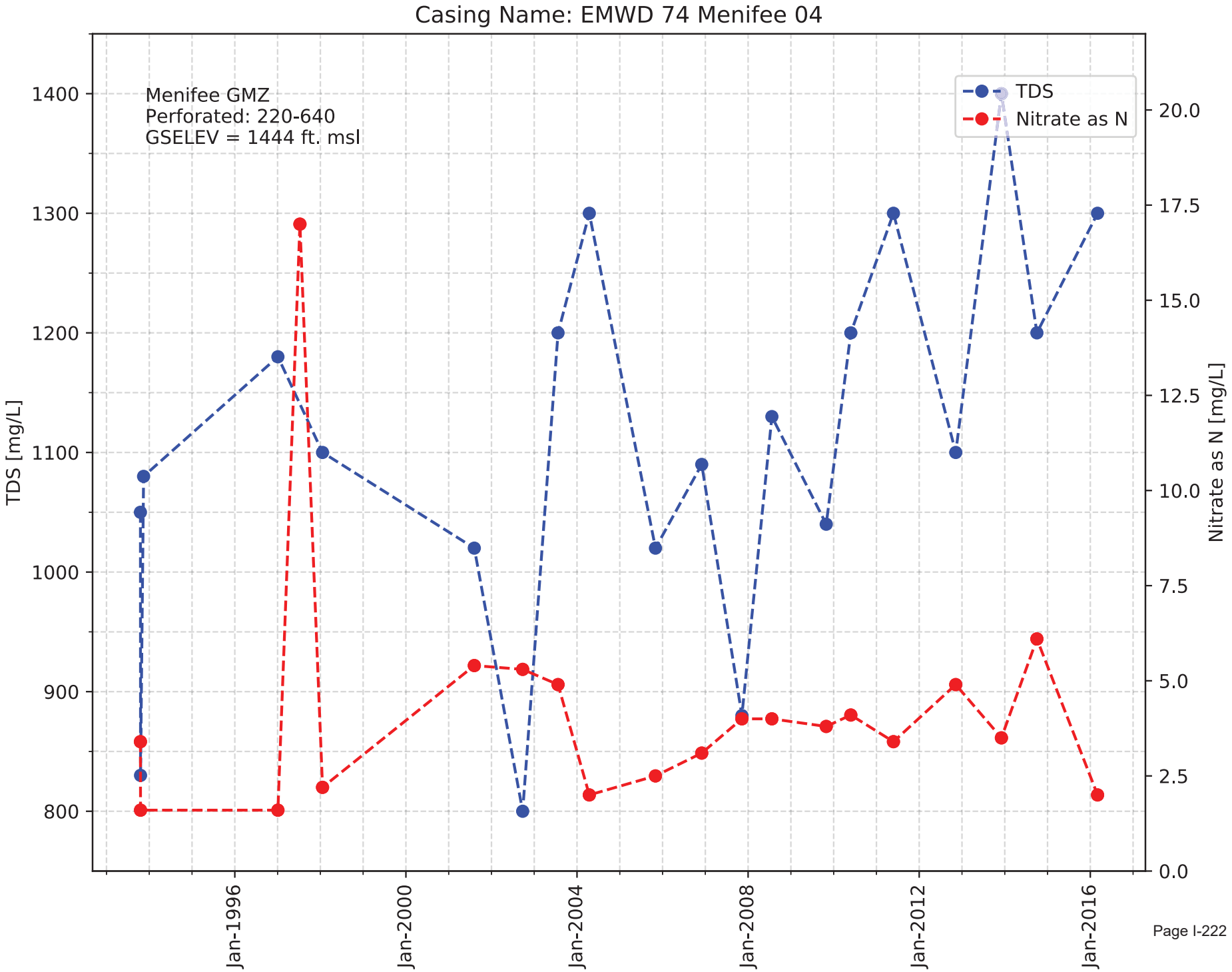

Casing Name: EMWD 53 Menifee Test East
Menifee GMZ
Perforated: Unknown
GSELEV = 1429 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2000
1500
1000
500
14
12
10
8
6
4
2
0
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

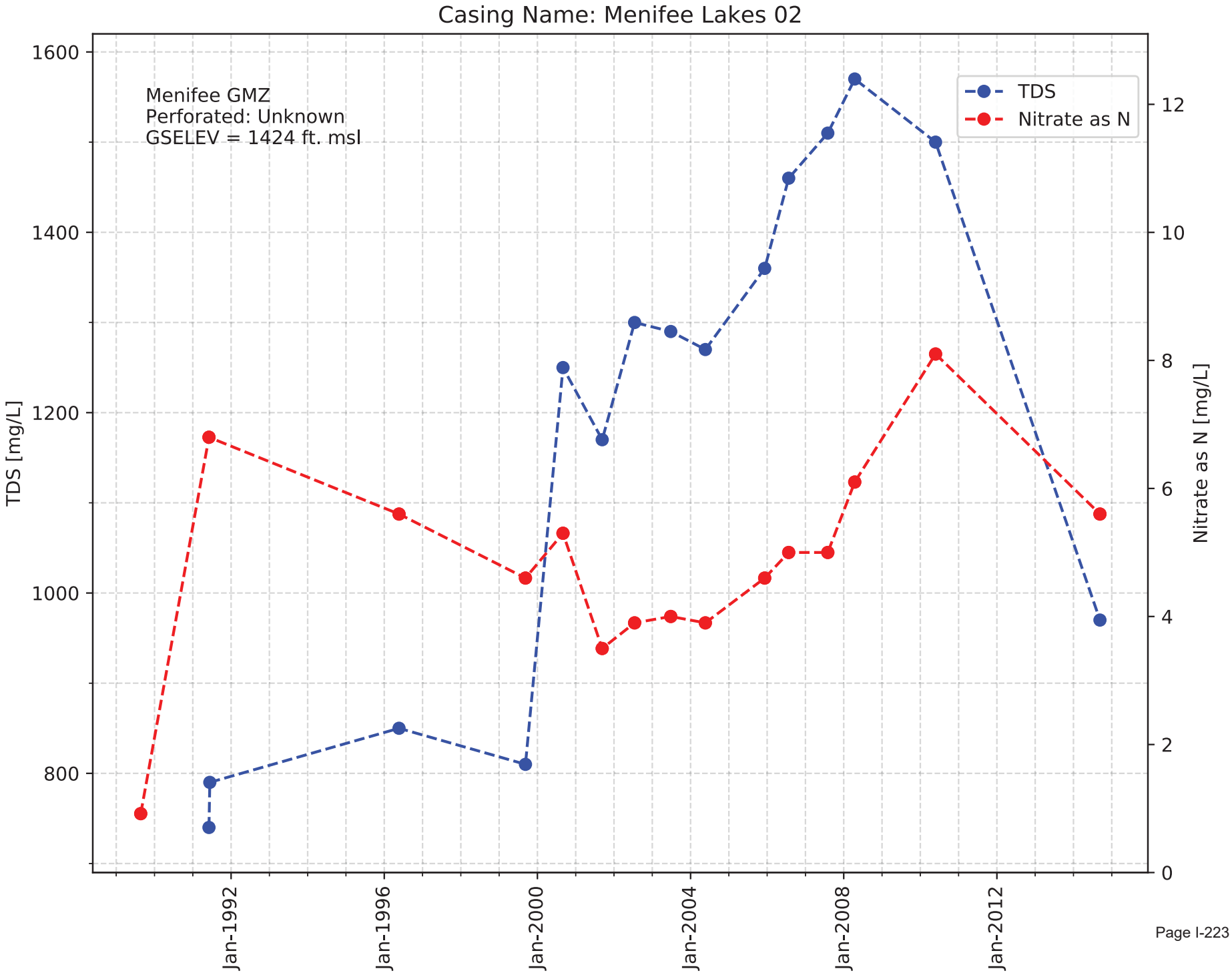

Casing Name: DeJong Dairy North
Menifee GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2450
2400
2350
2300
2250
2200
10
8
6
4
2
0
Sep-2005
Jan-2006
May-2006
Sep-2006
Jan-2007
May-2007
Sep-2007
Jan-2008
May-2008
Sep-2008
Jan-2009
May-2009

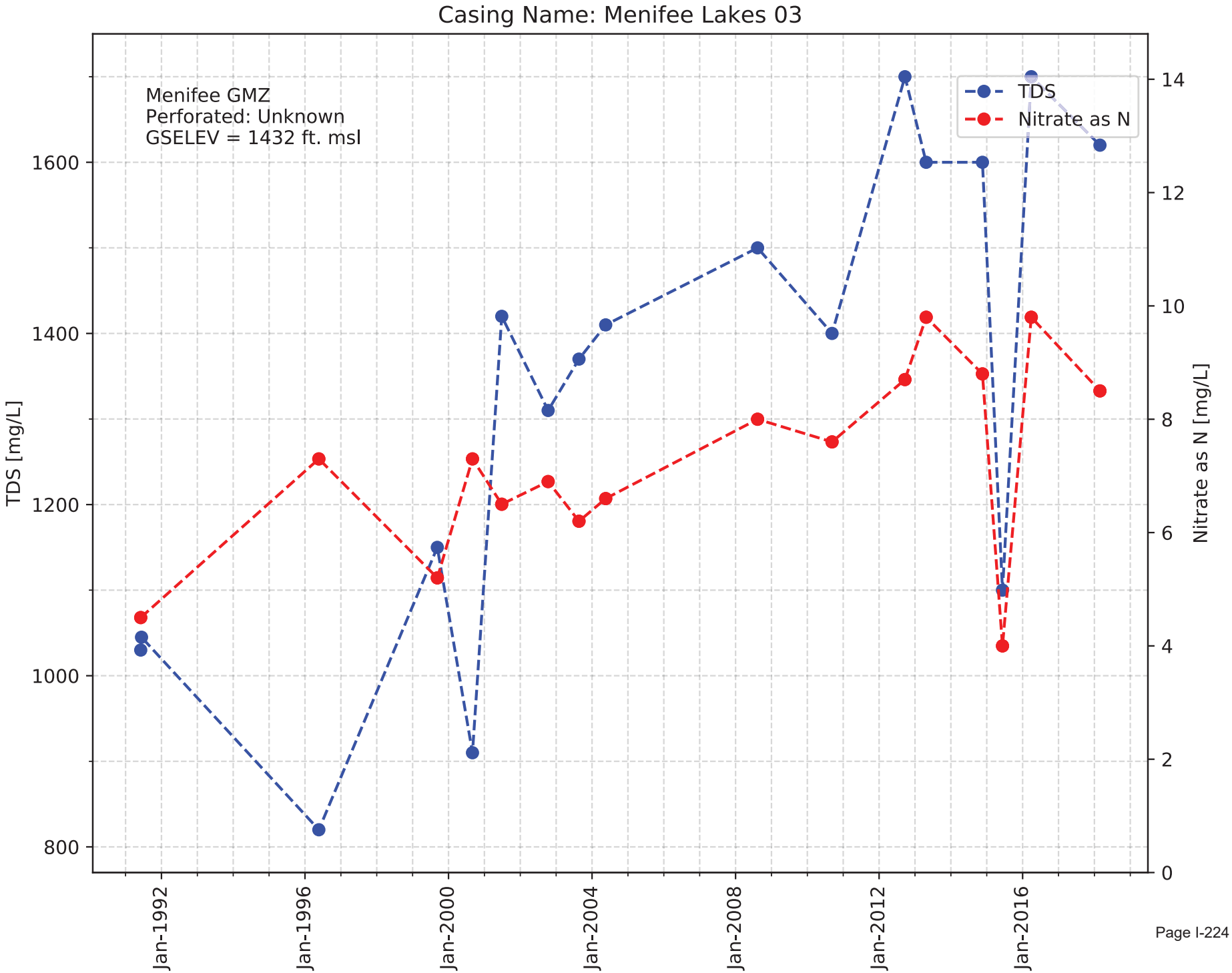

Casing Name: Wilderness Lakes
Menifee GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
3800
3600
3400
3200
3000
2800
12
10
8
6
4
2
0
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

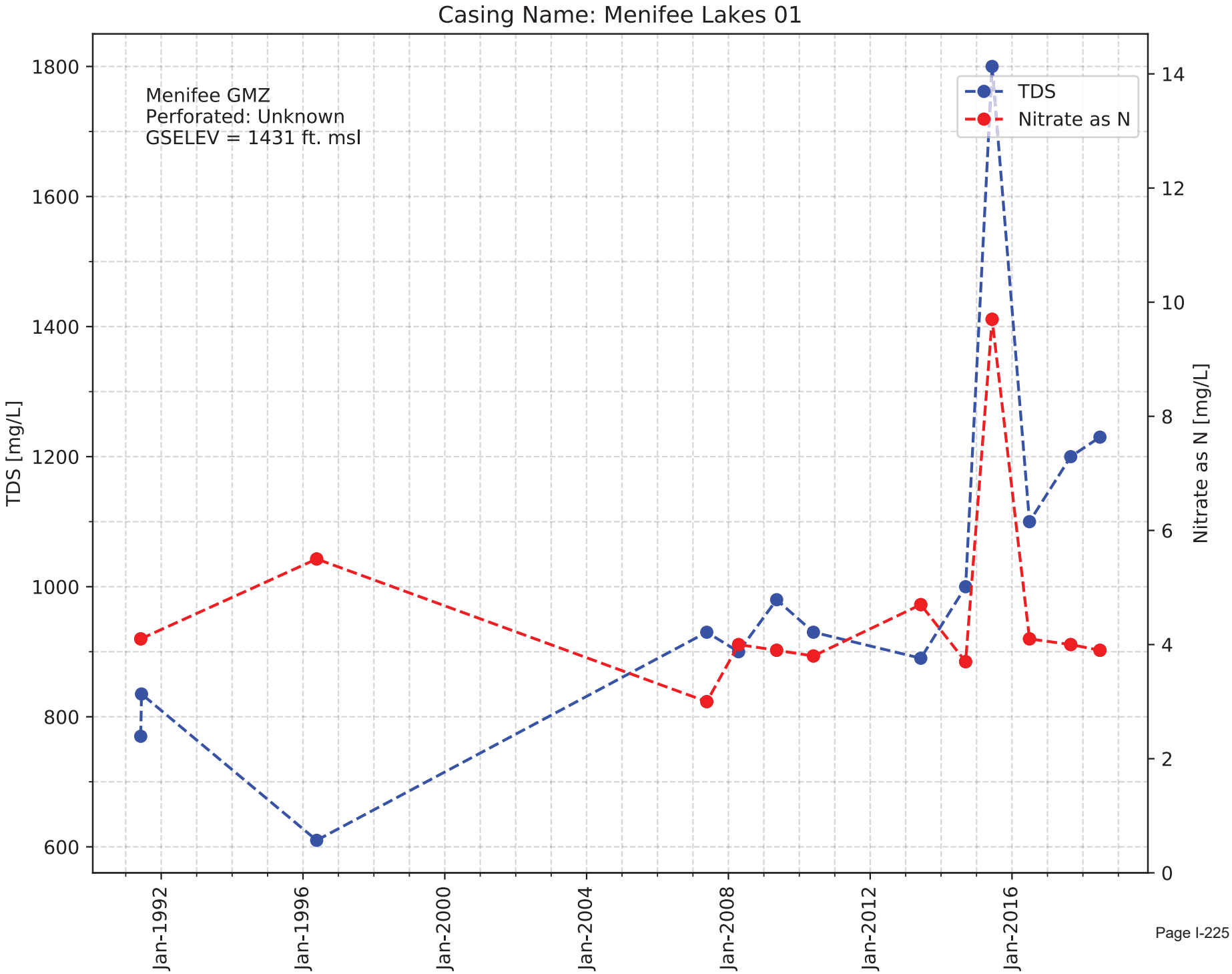

Casing Name: EMWD 71 Menifee 01
Menifee GMZ
Perforated: 180-560
GSELEV = 1432 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4000
3750
3500
3250
3000
2750
2500
2250
2000
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012

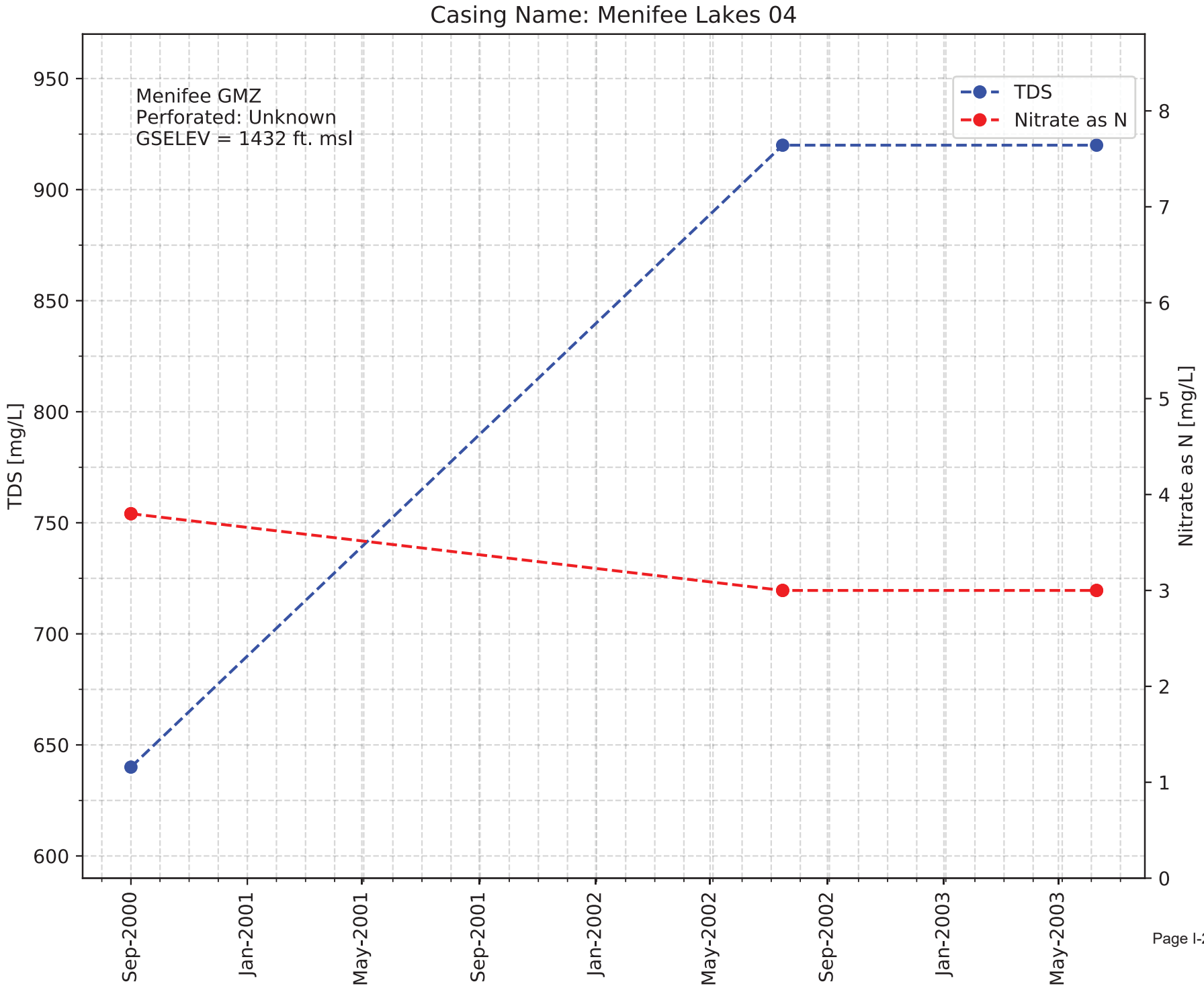

Casing Name: EMWD 73 Menifee 03
Menifee GMZ
Perforated: 200-580
GSELEV = 1433 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2750
2500
2250
2000
1750
1500
1250
1000
12
10
8
6
4
2
0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

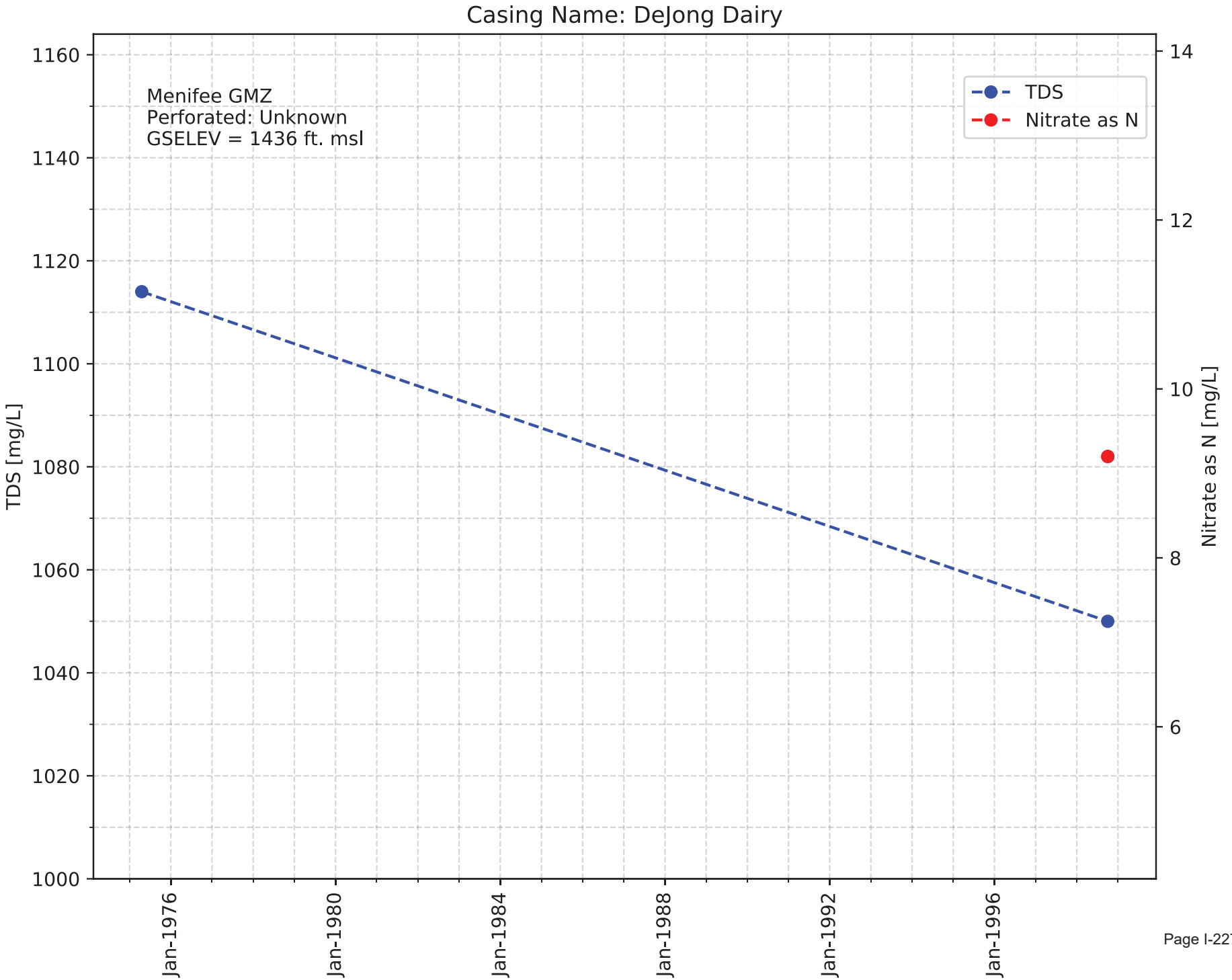

Casing Name: EMWD 74 Menifee 04
Menifee GMZ
Perforated: 220-640
GSELEV = 1444 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1400
1300
1200
1100
1000
900
800
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

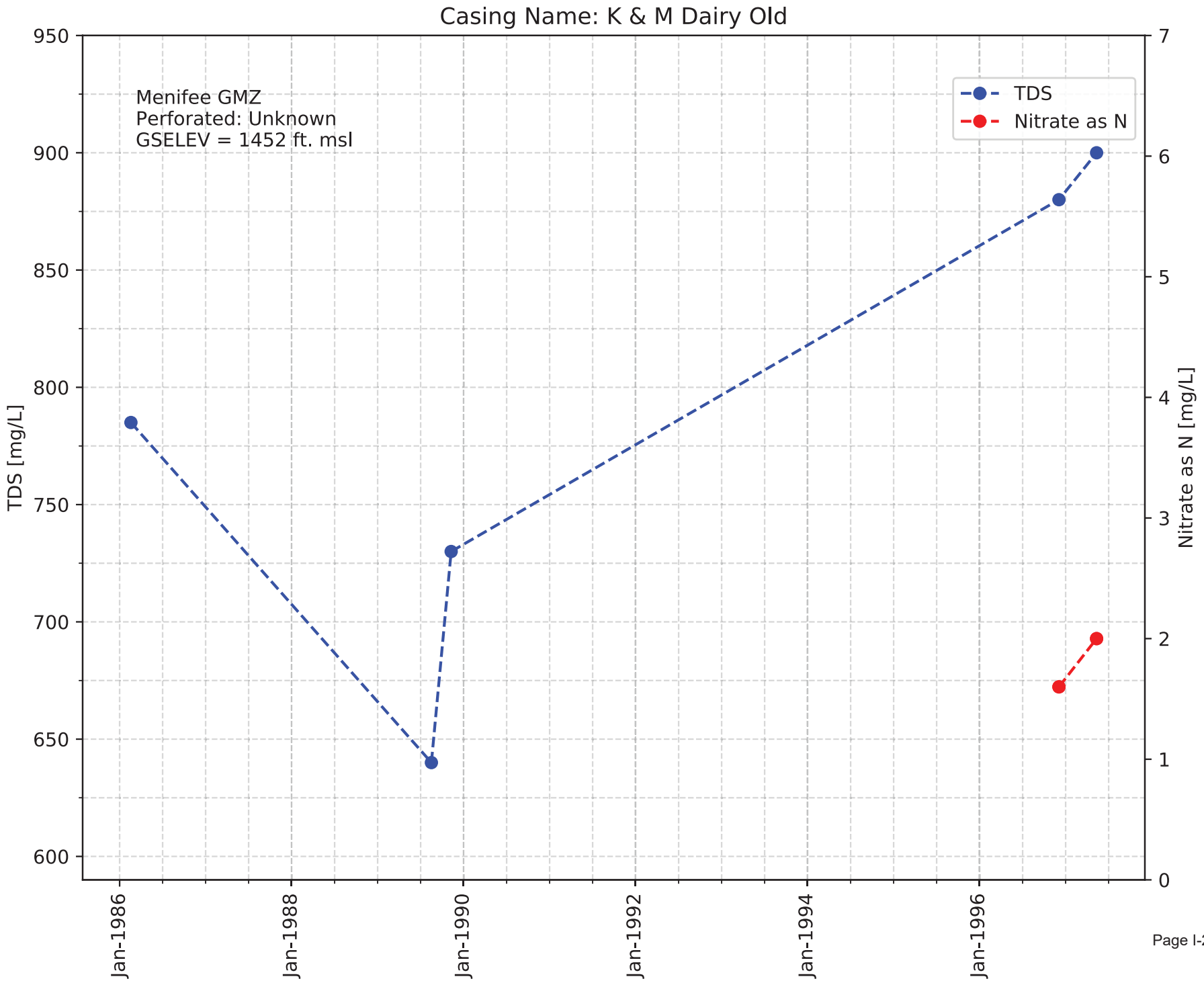

Casing Name: Menifee Lakes 02
Menifee GMZ
Perforated: Unknown
GSELEV = 1424 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1600
1400
1200
1000
800
12
10
8
6
4
2
0
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012

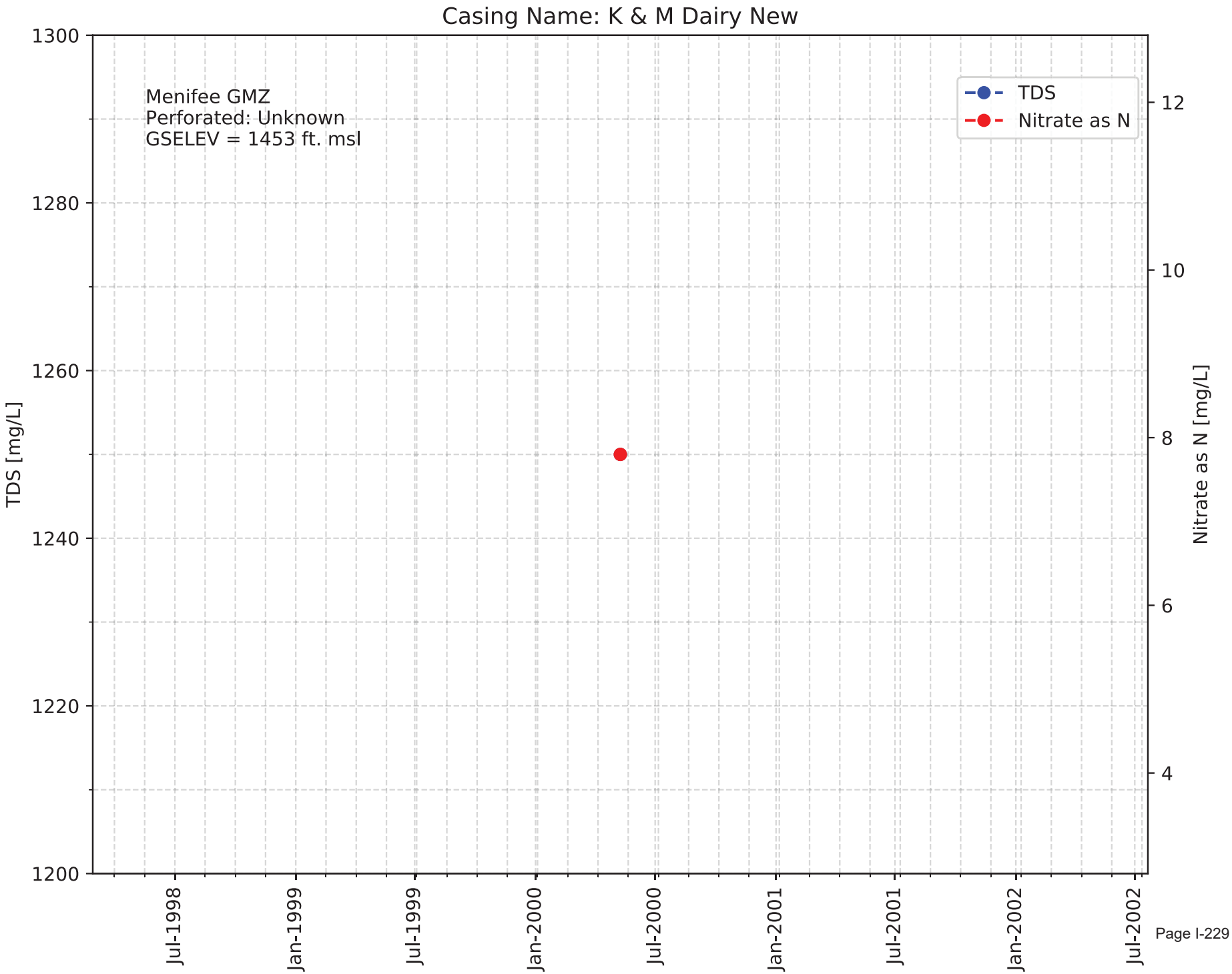

Casing Name: Menifee Lakes 03
Menifee GMZ
Perforated: Unknown
GSELEV = 1432 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
800
1000
1200
1400
1600
0
2
4
6
8
10
12
14
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

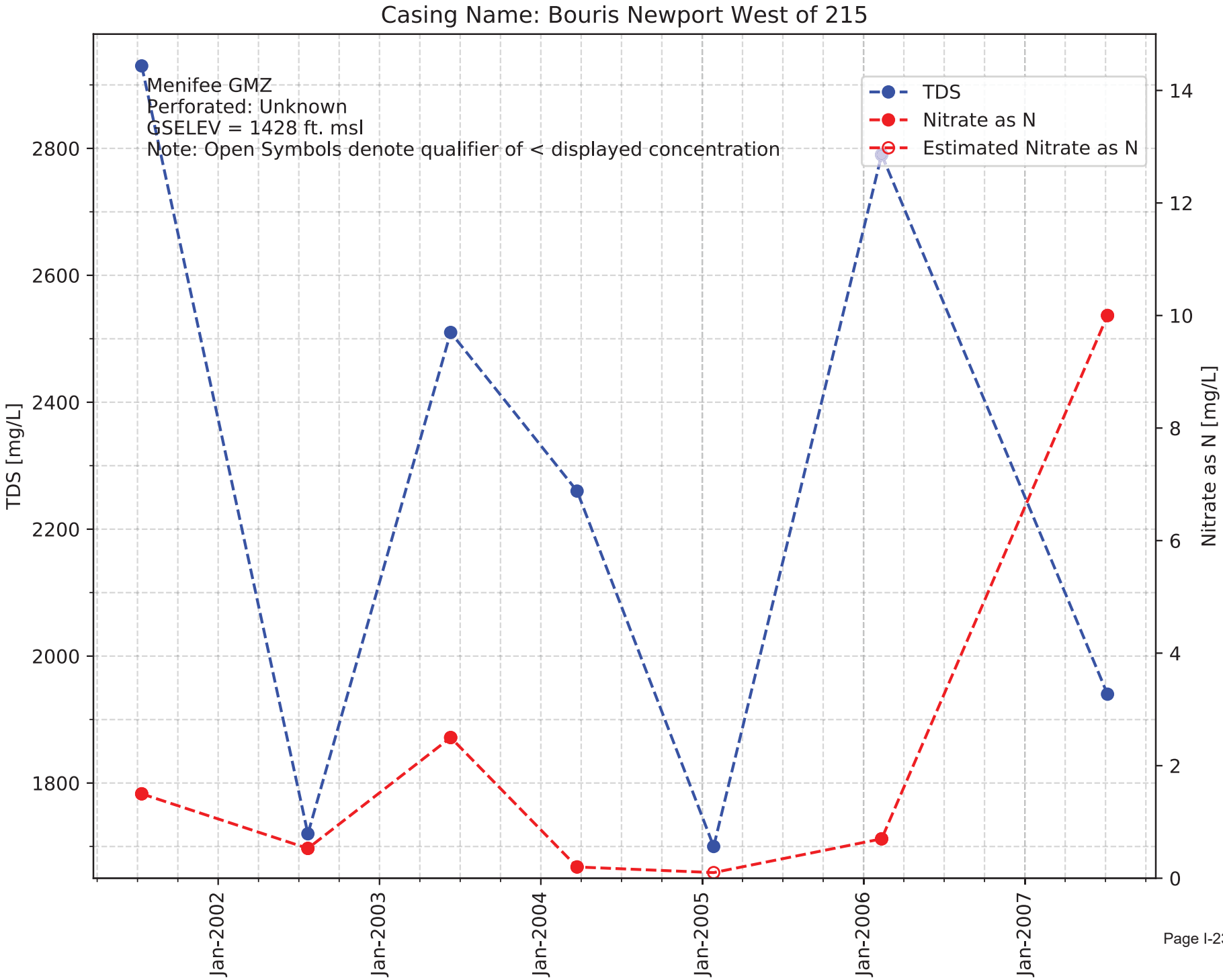

Casing Name: Menifee Lakes 01
Menifee GMZ
Perforated: Unknown
GSELEV = 1431 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1800
1600
1400
1200
1000
800
600
14
12
10
8
6
4
2
0
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016

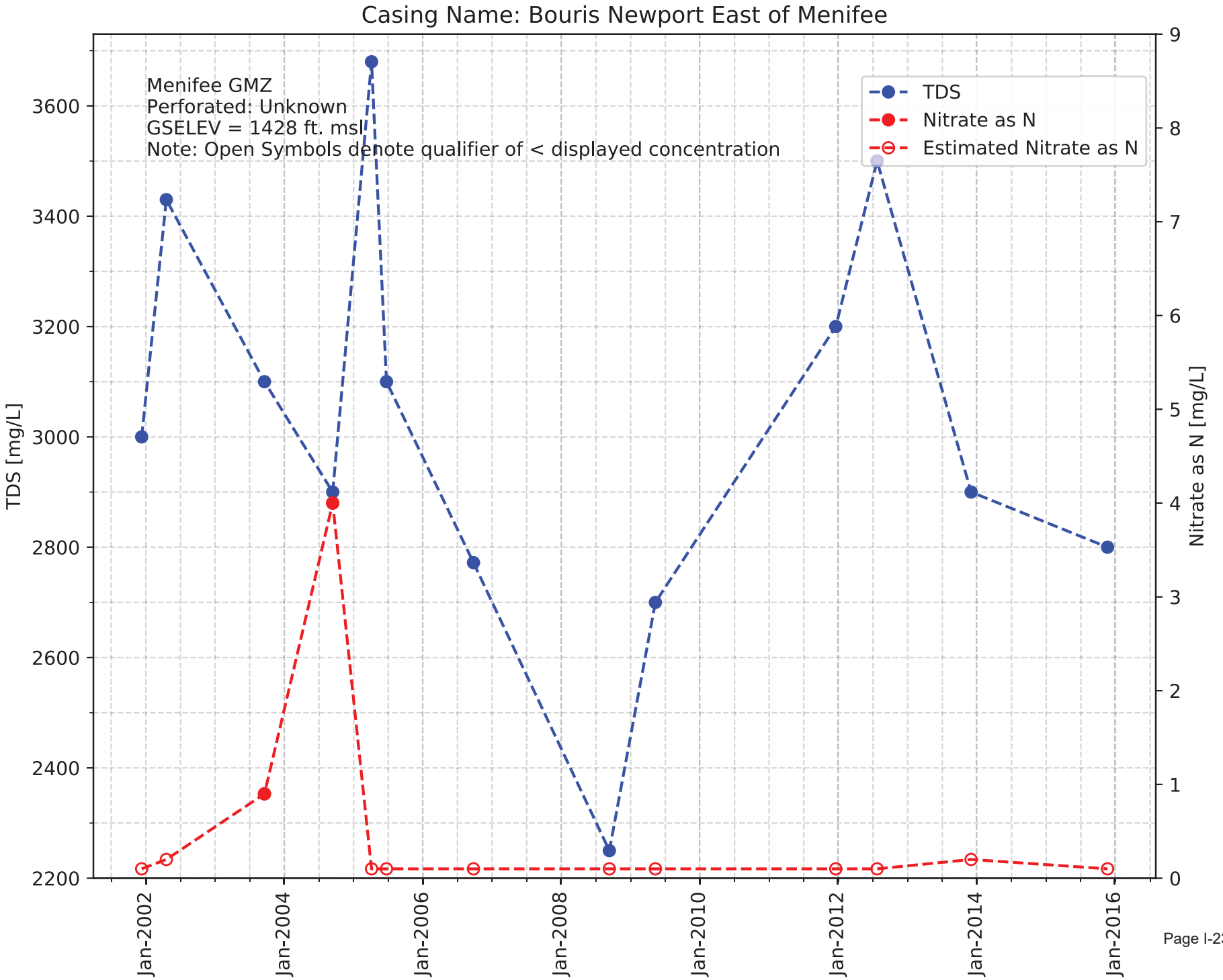

Casing Name: Menifee Lakes 04
Menifee GMZ
Perforated: Unknown
GSELEV = 1432 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
950
900
850
800
750
700
650
600
8
7
6
5
4
3
2
1
0
Sep-2000
Jan-2001
May-2001
Sep-2001
Jan-2002
May-2002
Sep-2002
Jan-2003
May-2003

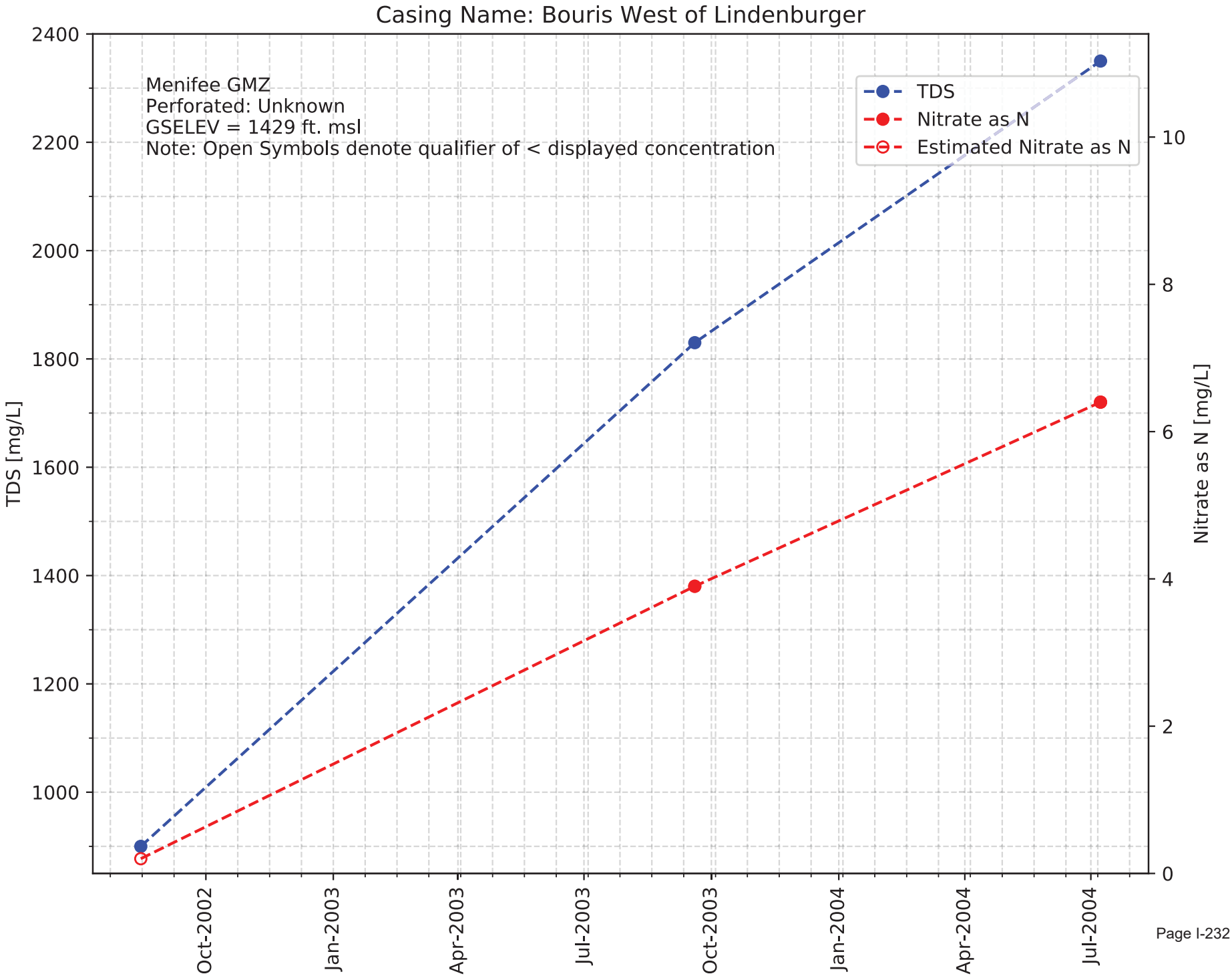

Casing Name: DeJong Dairy
Menifee GMZ
Perforated: Unknown
GSELEV = 1436 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1160
1140
1120
1100
1080
1060
1040
1020
1000
14
12
10
8
6
Jan-1976
Jan-1980
Jan-1984
Jan-1988
Jan-1992
Jan-1996

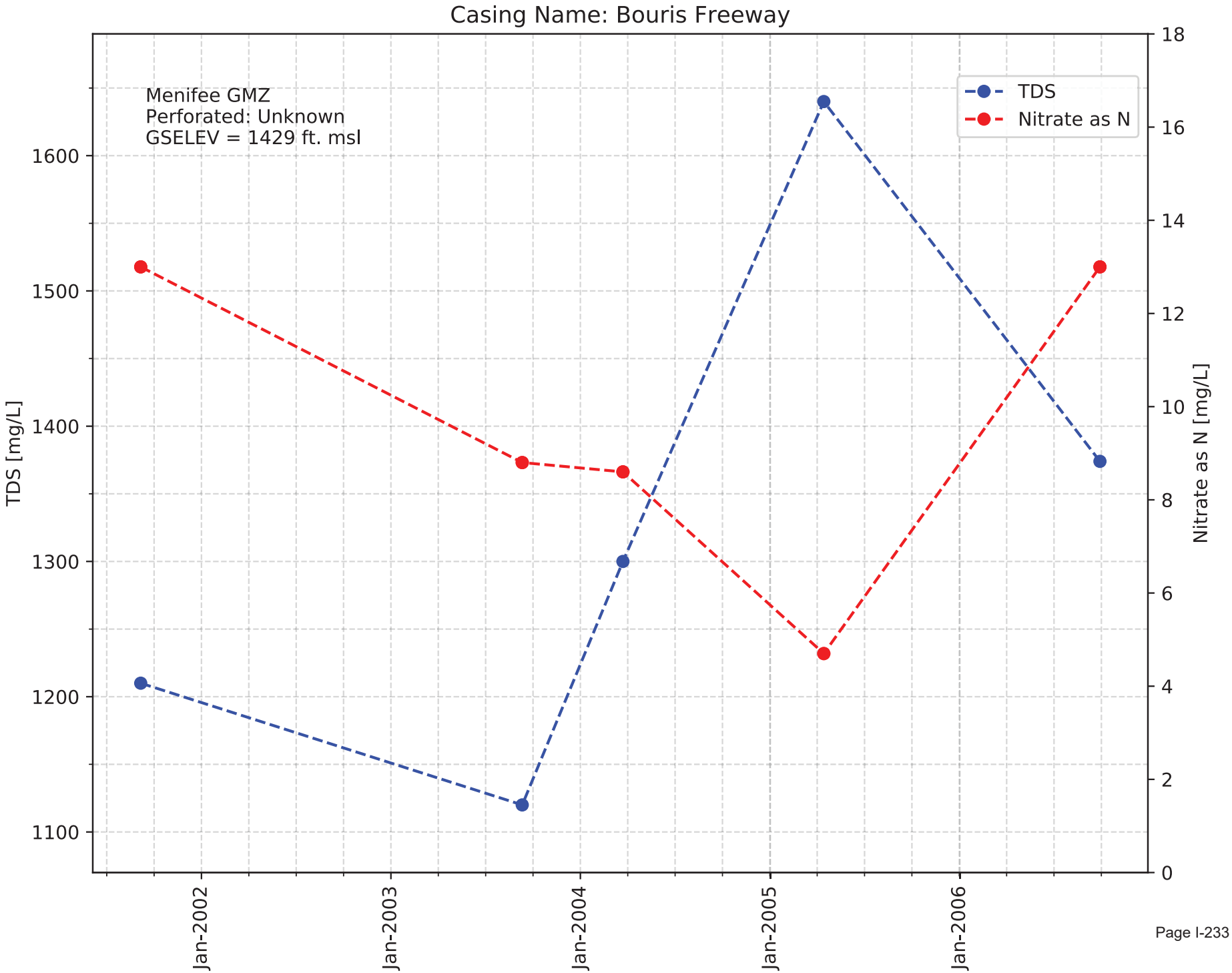

Casing Name: K & M Dairy Old
Menifee GMZ
Perforated: Unknown
GSELEV = 1452 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
950
900
850
800
750
700
650
600
7
6
5
4
3
2
1
0
Jan-1986
Jan-1988
Jan-1990
Jan-1992
Jan-1994
Jan-1996

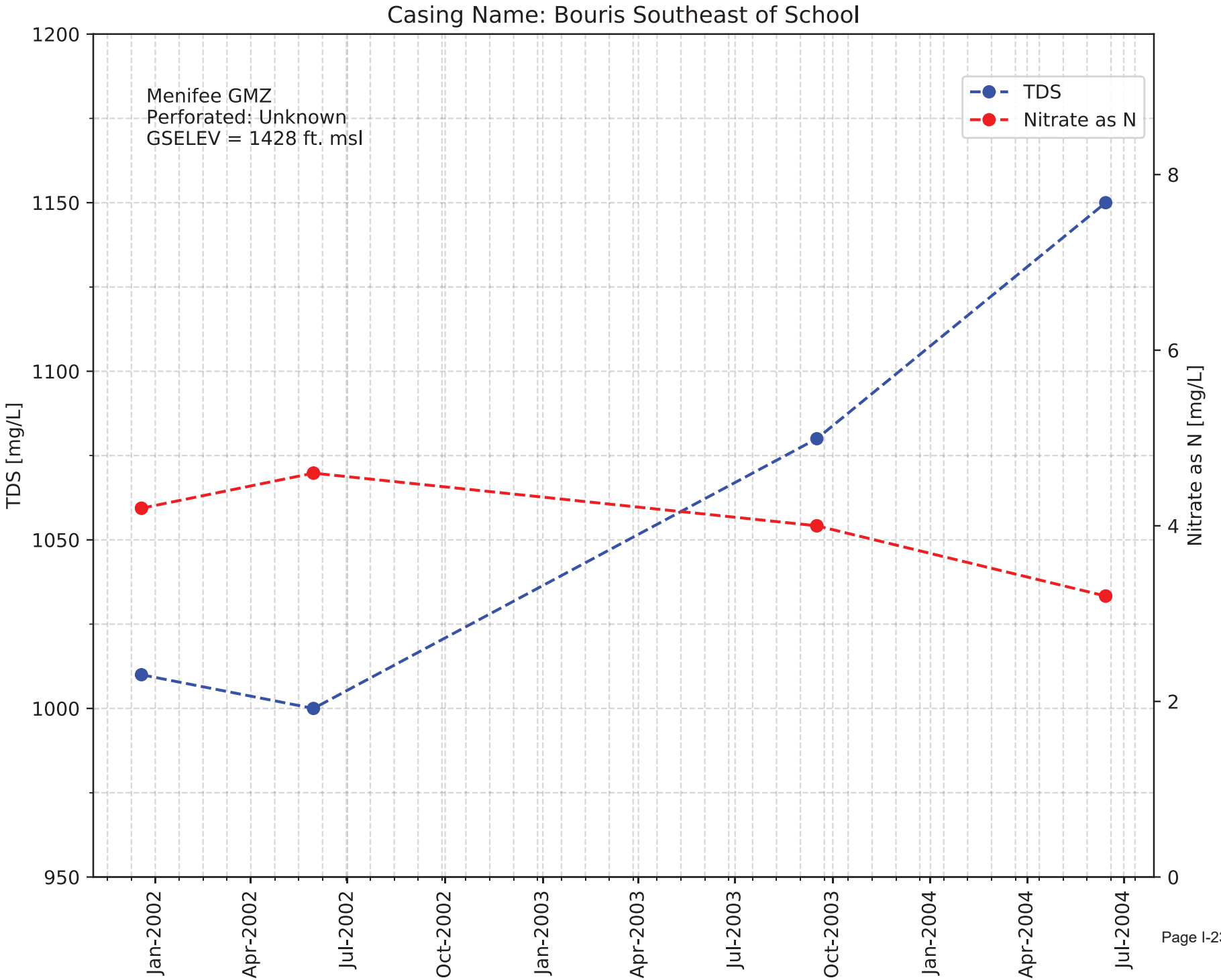

Casing Name: K & M Dairy New
Menifee GMZ
Perforated: Unknown
GSELEV = 1453 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1300
1280
1260
1240
1220
1200
12
10
8
6
4
Jul-1998
Jan-1999
Jul-1999
Jan-2000
Jul-2000
Jan-2001
Jul-2001
Jan-2002
Jul-2002

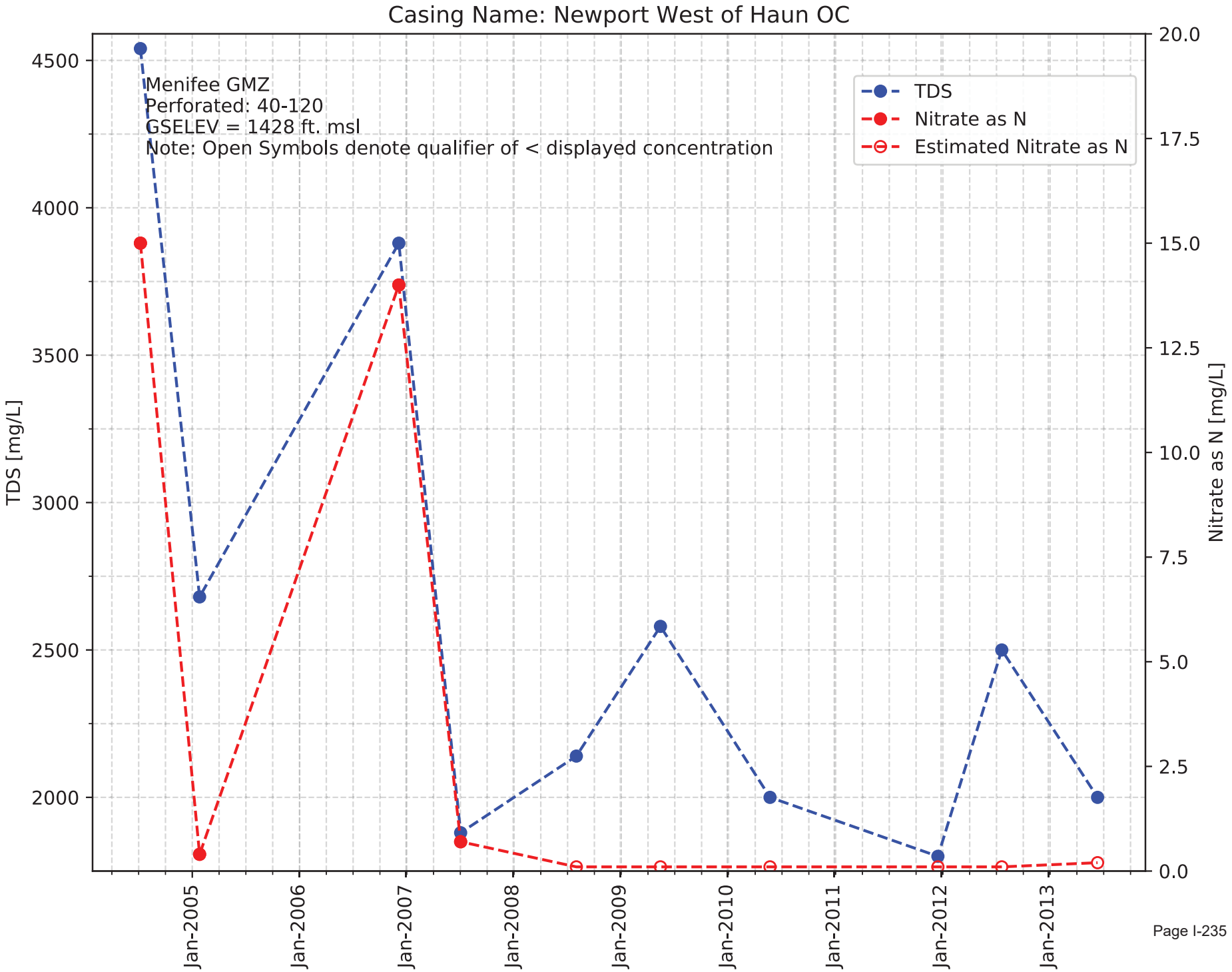

Casing Name: Bouris Newport West of 215
Menifee GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2800
2600
2400
2200
2000
1800
14
12
10
8
6
4
2
0
Jan-2002
Jan-2003
Jan-2004
Jan-2005
Jan-2006
Jan-2007

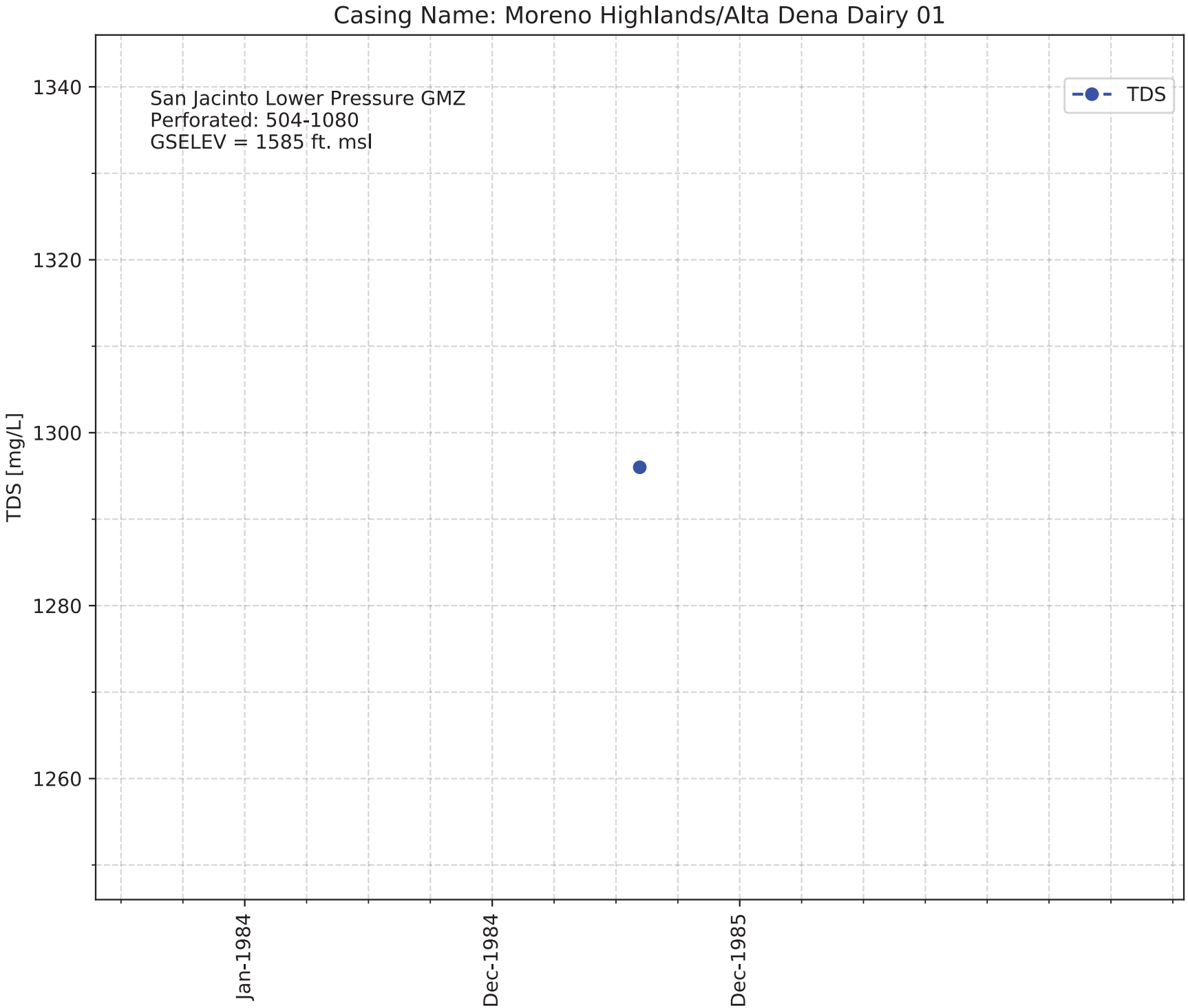

Casing Name: Bouris Newport East of Menifee
Menifee GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2400
2600
2800
3000
3200
3400
3600
0
1
2
3
4
5
6
7
8
9
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016

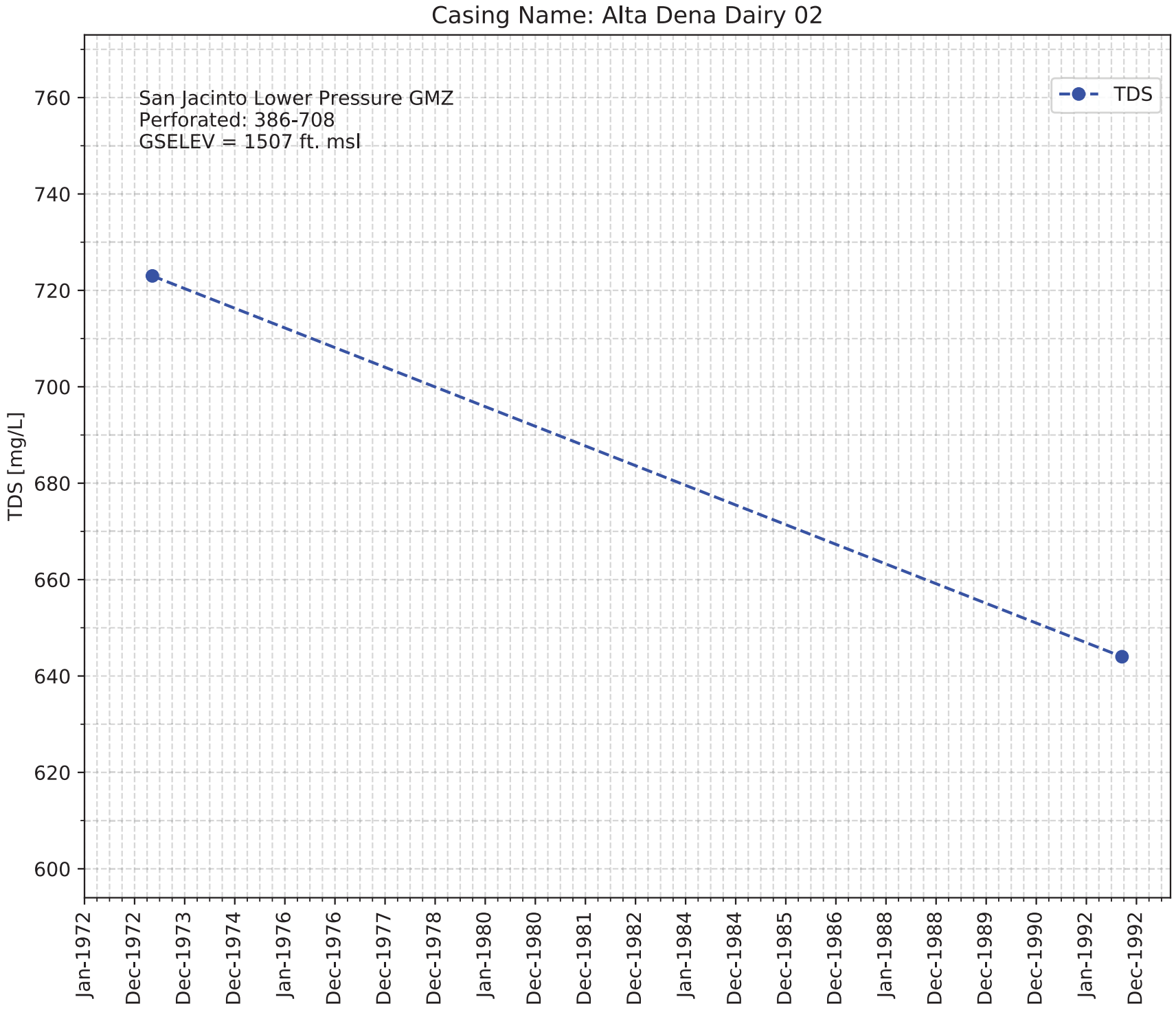

Casing Name: Bouris West of Lindenburger
Menifee GMZ
Perforated: Unknown
GSELEV = 1429 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2400
2200
2000
1800
1600
1400
1200
1000
10
8
6
4
2
0
Oct-2002
Jan-2003
Apr-2003
Jul-2003
Oct-2003
Jan-2004
Apr-2004
Jul-2004

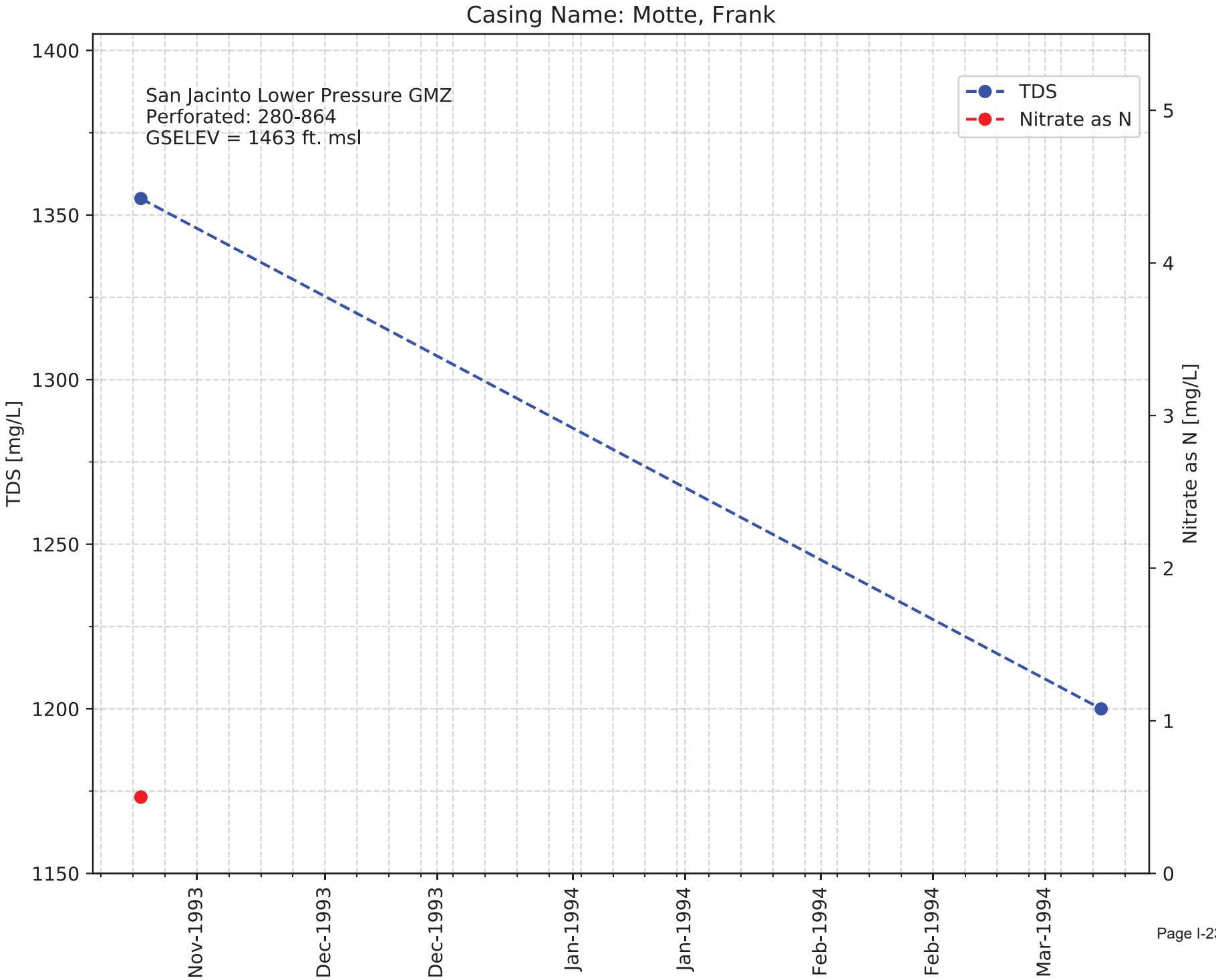

Casing Name: Bouris Freeway
Menifee GMZ
Perforated: Unknown
GSELEV = 1429 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1600
1500
1400
1300
1200
1100
18
16
14
12
10
8
6
4
2
0
Jan-2002
Jan-2003
Jan-2004
Jan-2005
Jan-2006

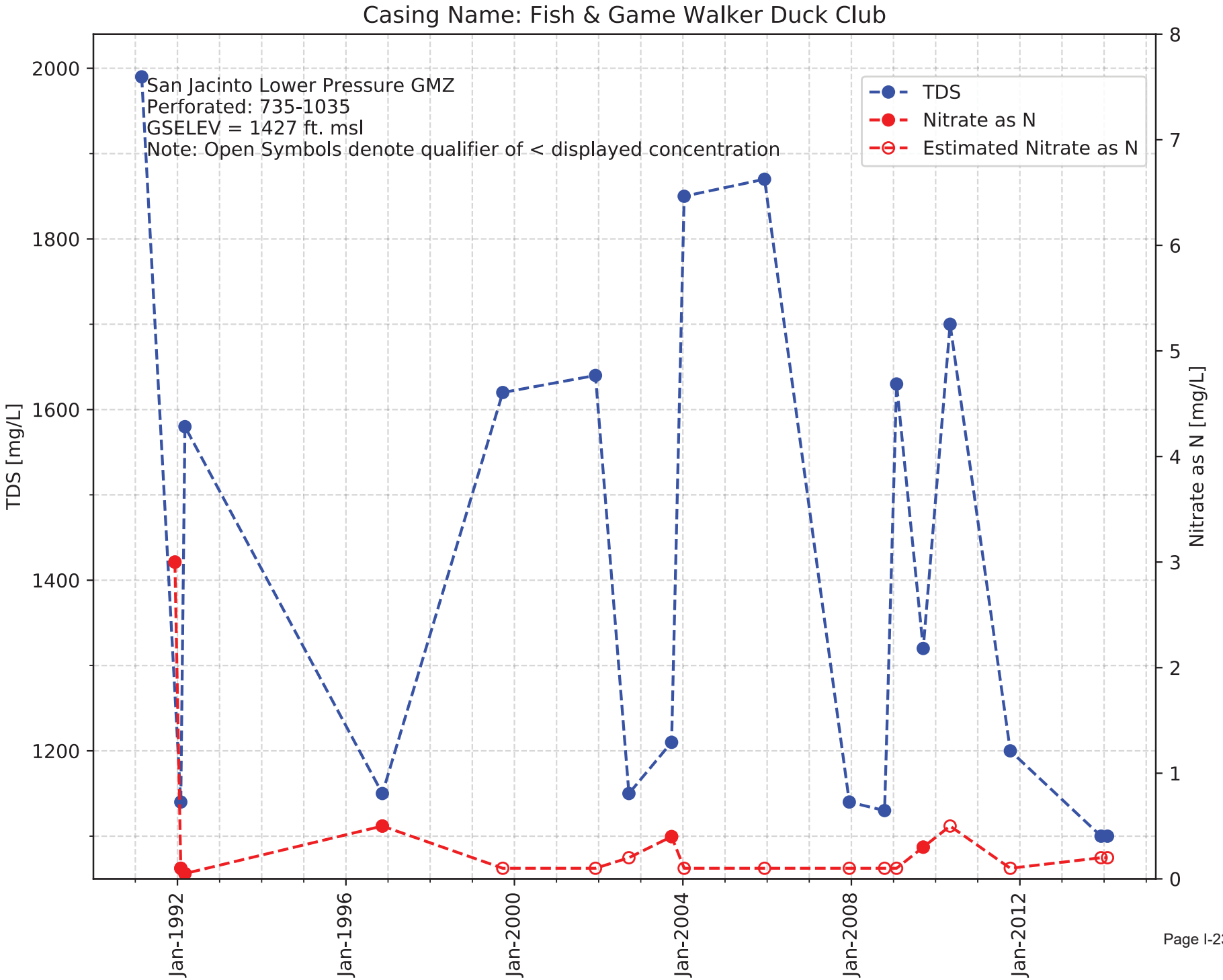

Casing Name: Bouris Southeast of School
Menifee GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1200
1150
1100
1050
1000
950
8
6
4
2
0
Jan-2002
Apr-2002
Jul-2002
Oct-2002
Jan-2003
Apr-2003
Jul-2003
Oct-2003
Jan-2004
Apr-2004
Jul-2004

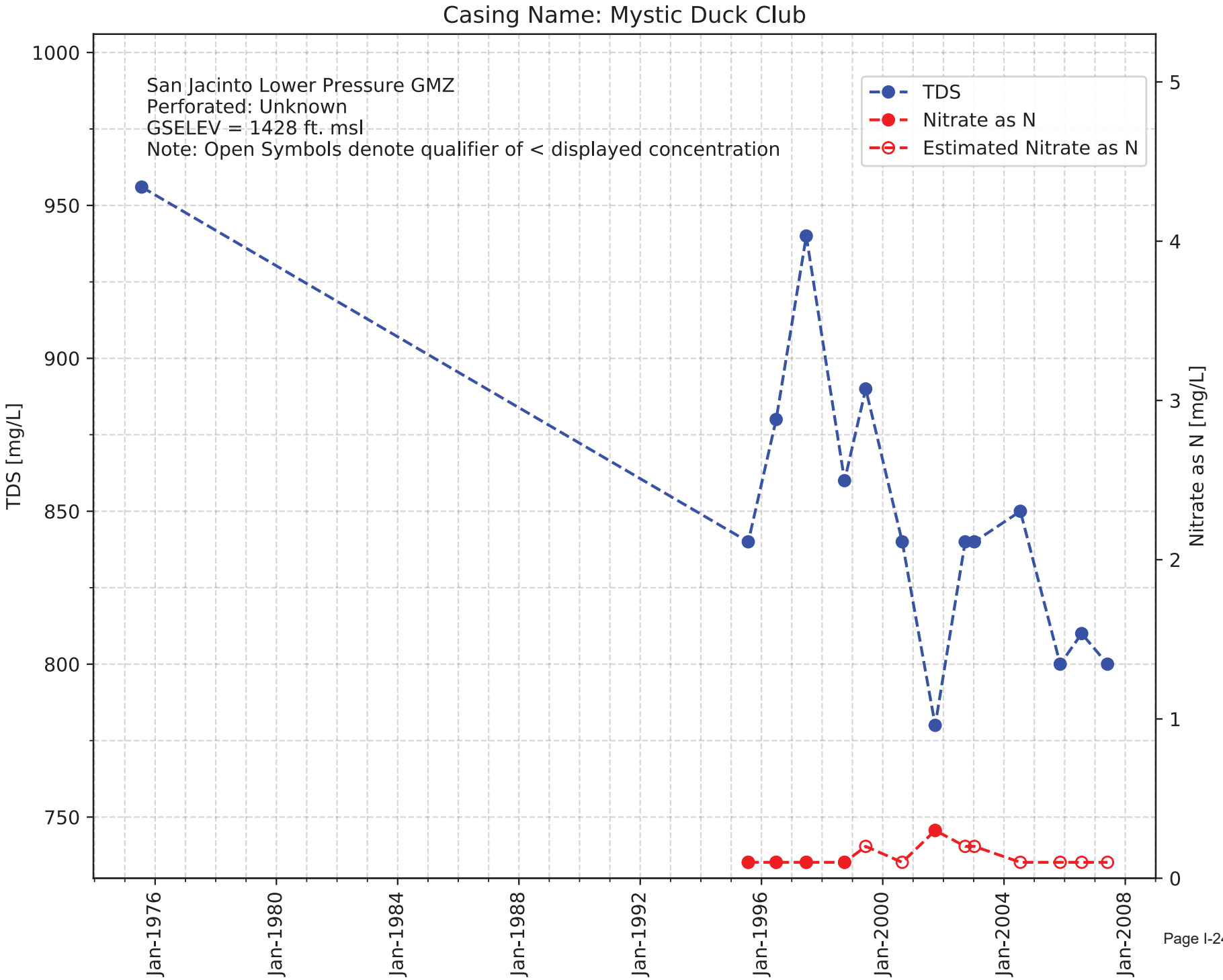

Casing Name: Newport West of Haun OC
Menifee GMZ
Perforated: 40-120
GSELEV = 1428 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
4500
4000
3500
3000
2500
2000
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
Jan-2005
Jan-2006
Jan-2007
Jan-2008
Jan-2009
Jan-2010
Jan-2011
Jan-2012
Jan-2013

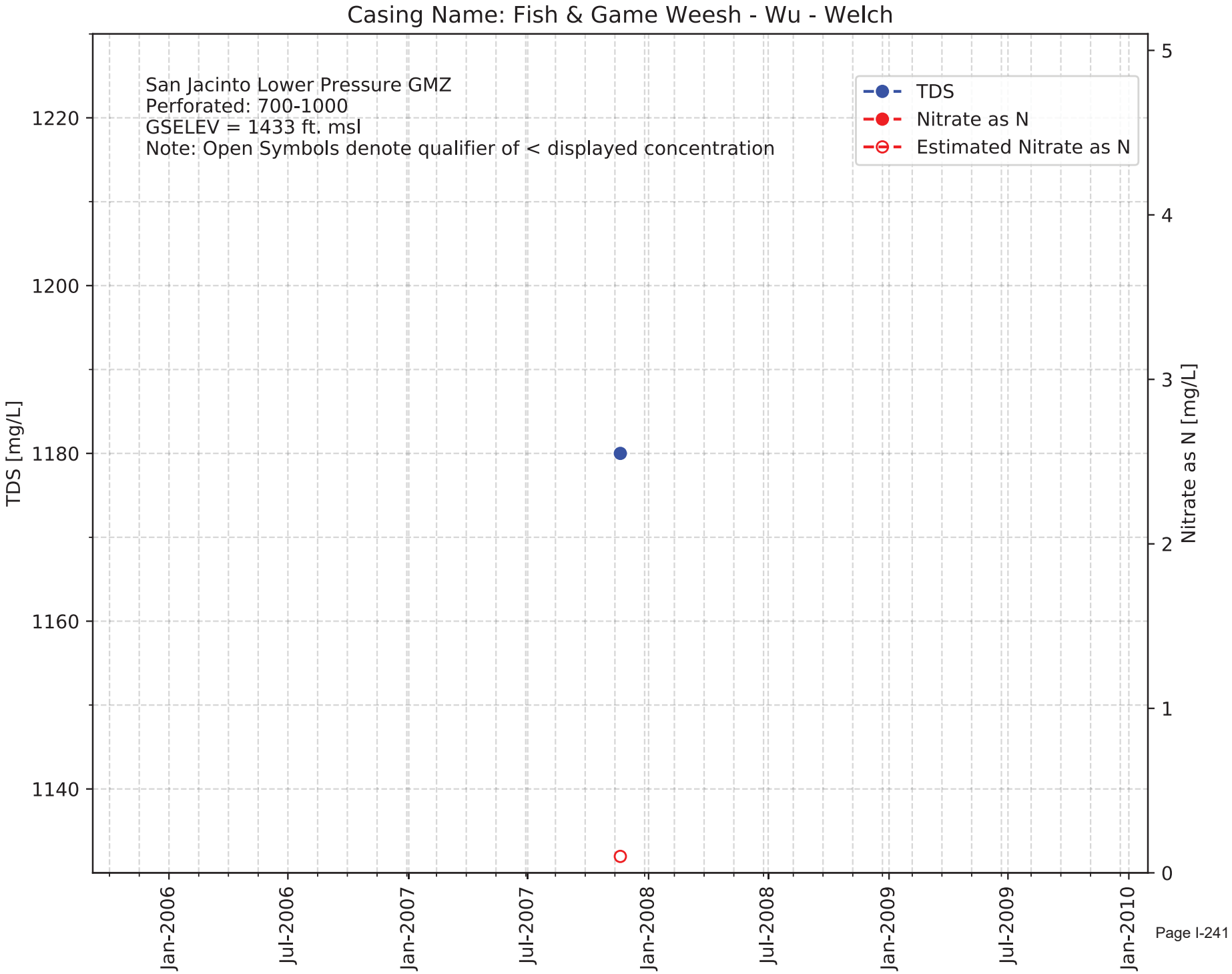

Casing Name: Moreno Highlands/Alta Dena Dairy 01
San Jacinto Lower Pressure GMZ
Perforated: 504-1080
GSELEV = 1585 ft. msl
TDS
TDS [mg/L]
1340
1320
1300
1280
1260
Jan-1984
Dec-1984
Dec-1985

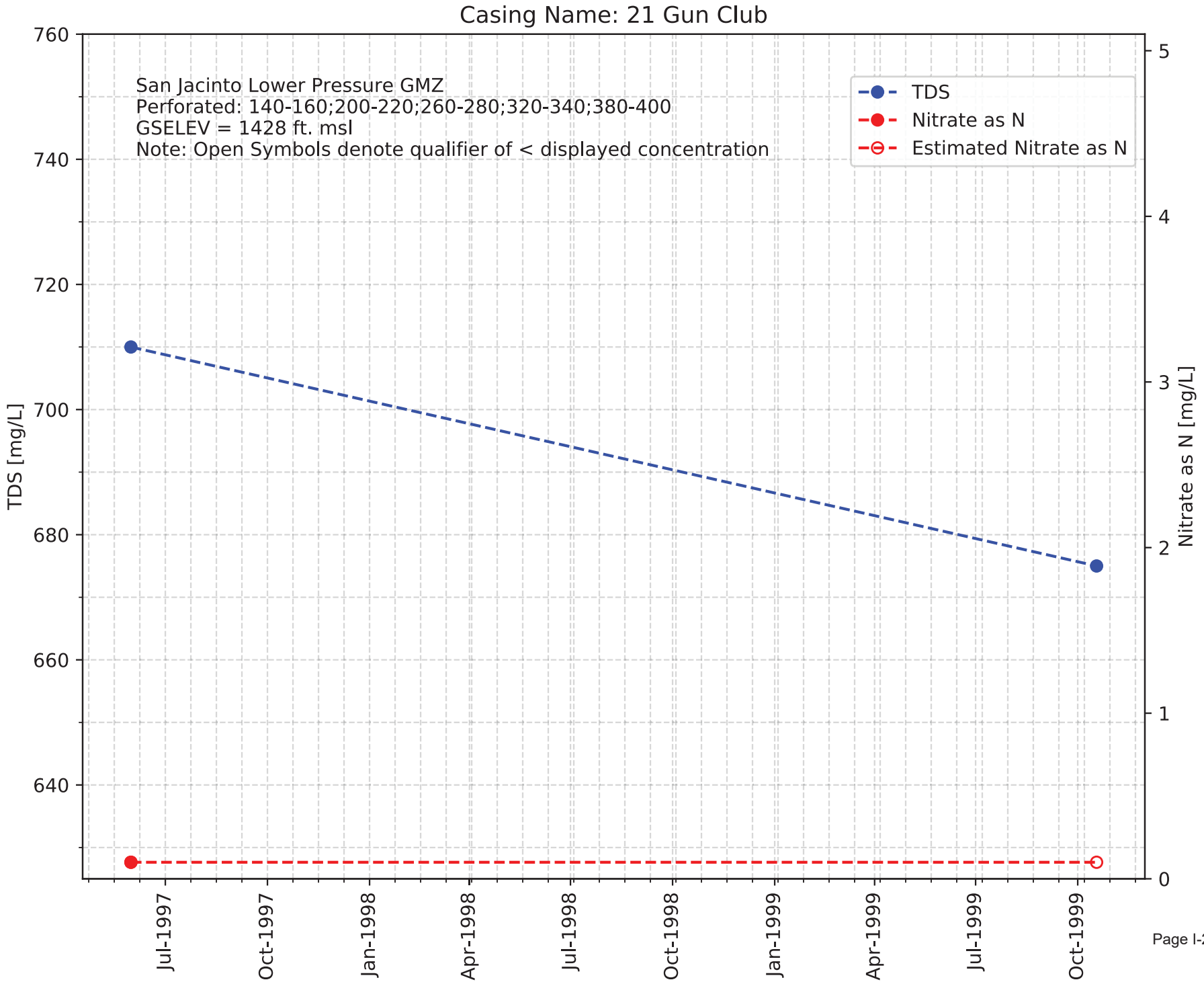

Casing Name: Alta Dena Dairy 02
San Jacinto Lower Pressure GMZ
Perforated: 386-708
GSELEV = 1507 ft. msl
TDS
TDS [mg/L]
760
740
720
700
680
660
640
620
600
Jan-1972
Dec-1972
Dec-1973
Dec-1974
Jan-1976
Dec-1976
Dec-1977
Dec-1978
Jan-1980
Dec-1980
Dec-1981
Dec-1982
Jan-1984
Dec-1984
Dec-1985
Dec-1986
Jan-1988
Dec-1988
Dec-1989
Dec-1990
Jan-1992
Dec-1992

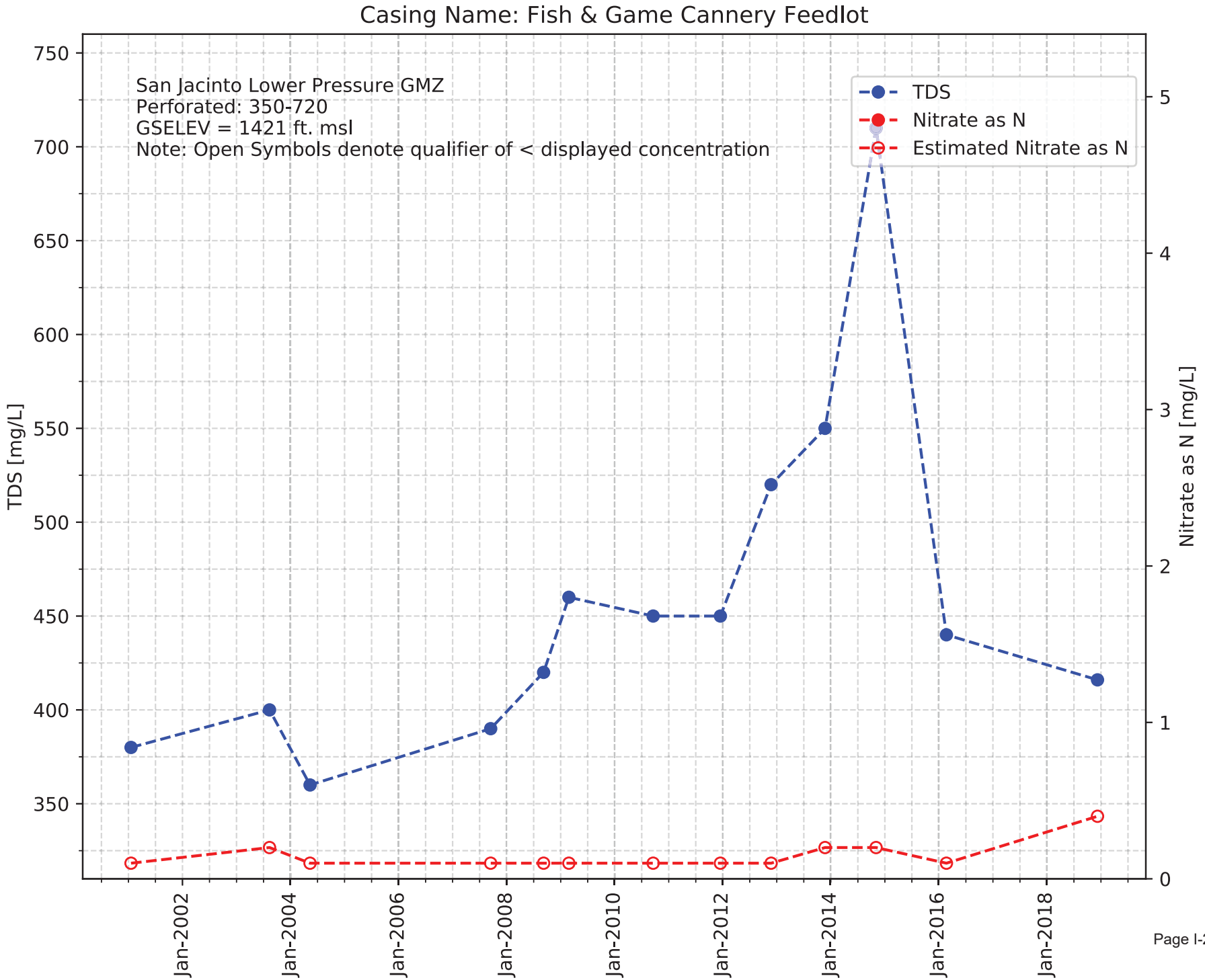

Casing Name: Motte, Frank
San Jacinto Lower Pressure GMZ
Perforated: 280-864
GSELEV = 1463 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1400
1350
1300
1250
1200
1150
5
4
3
2
1
0
Nov-1993
Dec-1993
Dec-1993
Jan-1994
Jan-1994
Feb-1994
Feb-1994
Mar-1994

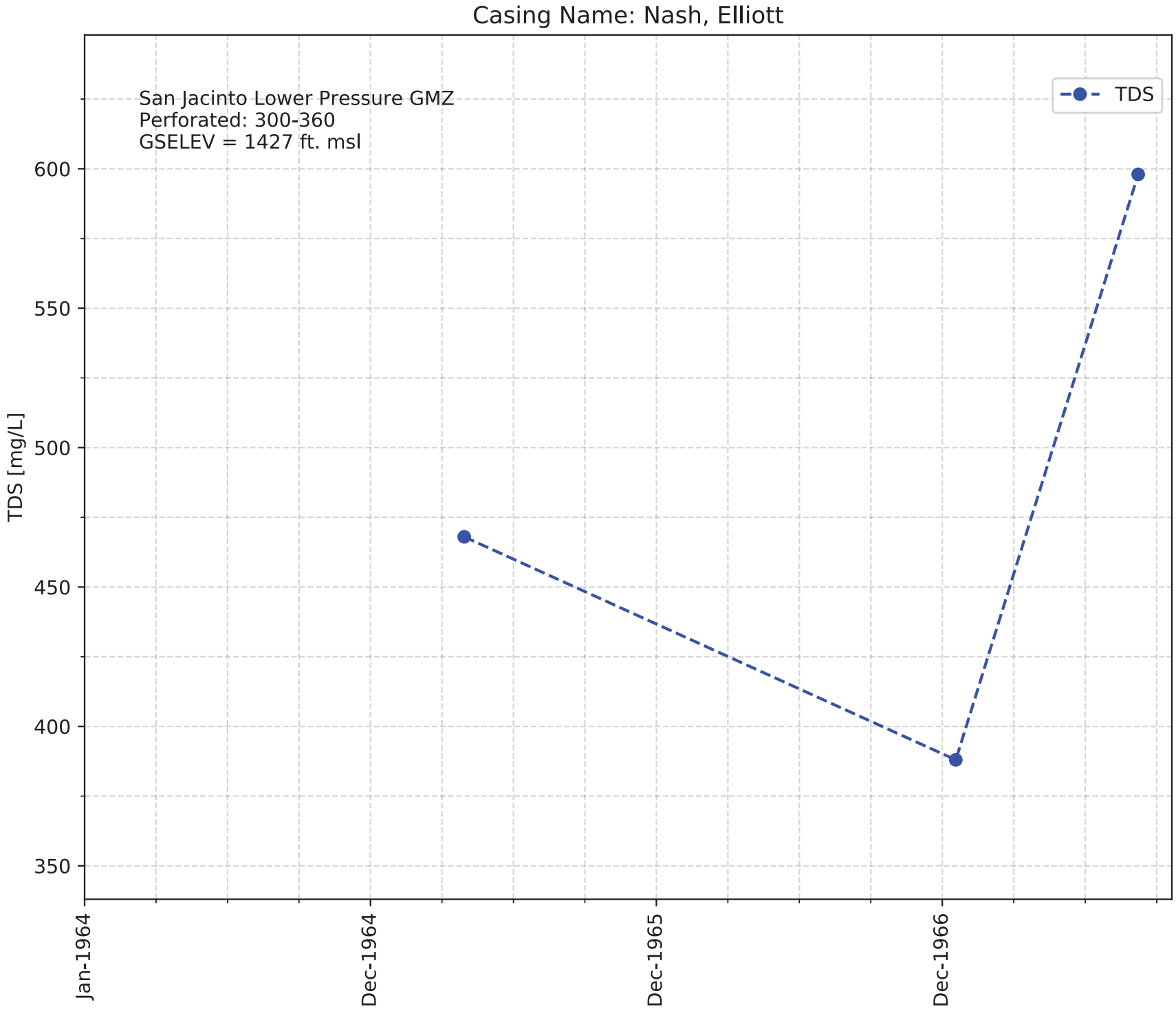

Casing Name: Fish & Game Walker Duck Club
San Jacinto Lower Pressure GMZ
Perforated: 735-1035
GSELEV = 1427 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2000
1800
1600
1400
1200
8
7
6
5
4
3
2
1
0
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012

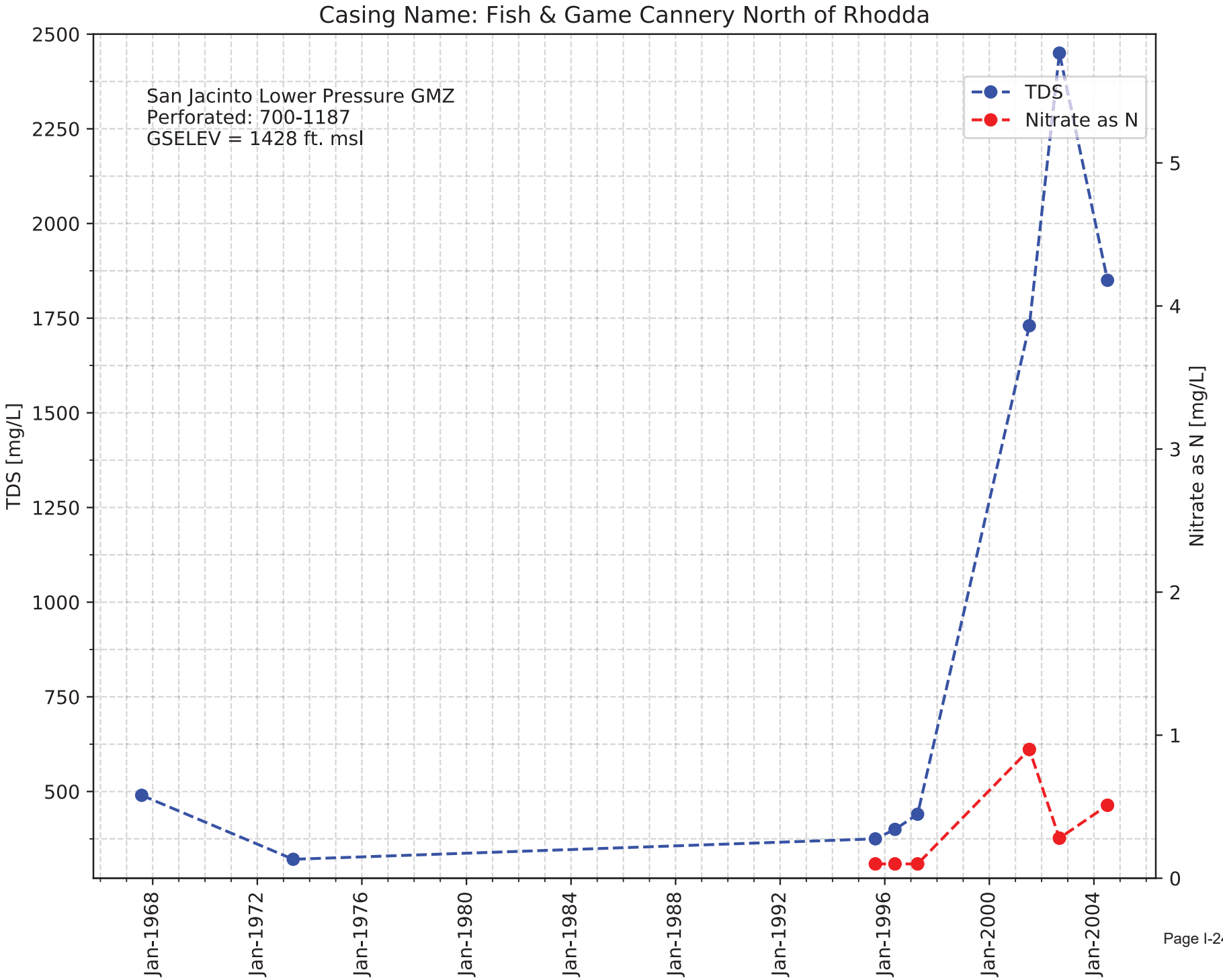

Casing Name: Mystic Duck Club
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1000
950
900
850
800
750
5
4
3
2
1
0
Jan-1976
Jan-1980
Jan-1984
Jan-1988
Jan-1992
Jan-1996
Jan-2000
Jan-2004
Jan-2008

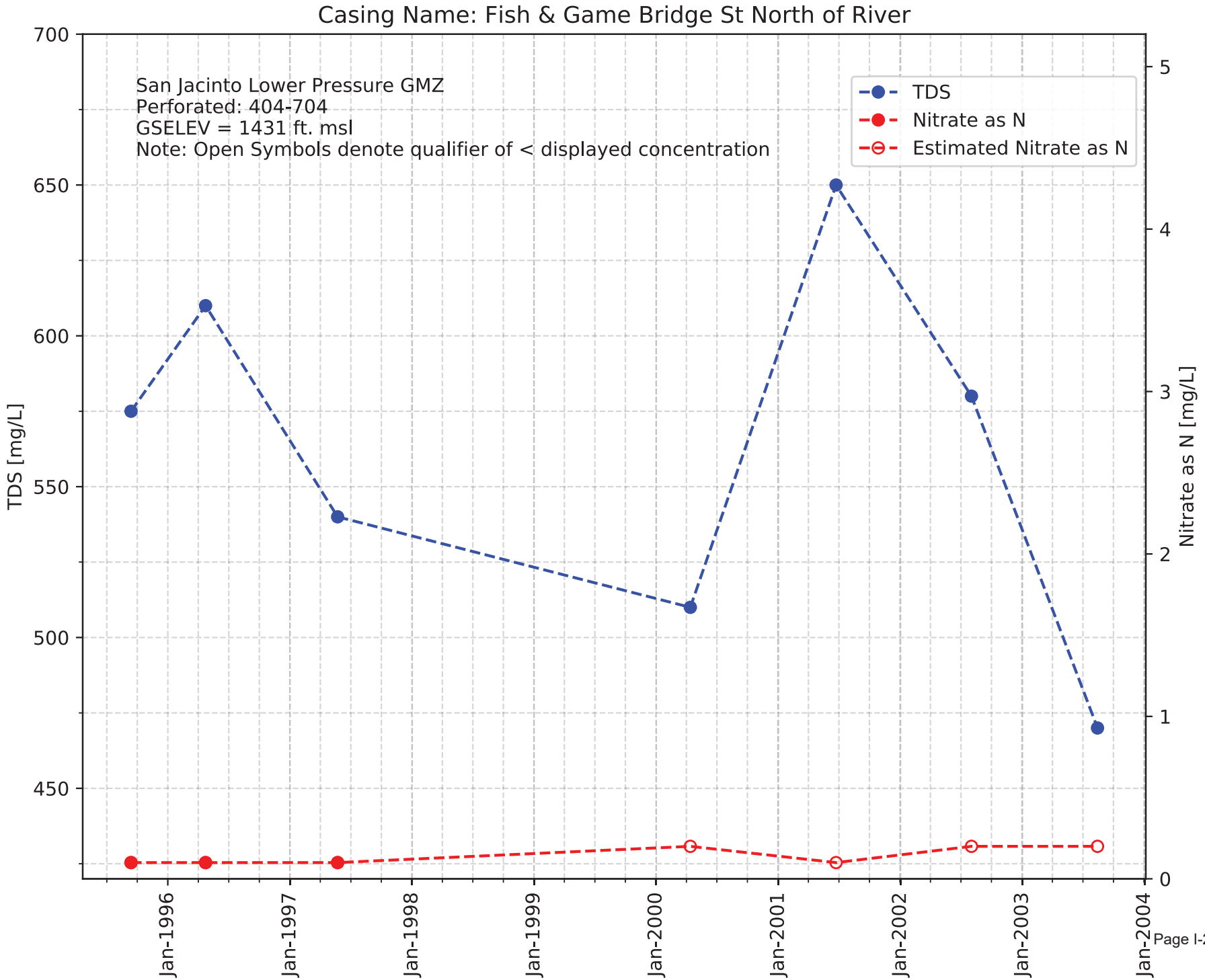

Casing Name: Fish & Game Weesh - Wu - Welch
San Jacinto Lower Pressure GMZ
Perforated: 700-1000
GSELEV = 1433 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1220
1200
1180
1160
1140
5
4
3
2
1
0
Jan-2006
Jul-2006
Jan-2007
Jul-2007
Jan-2008
Jul-2008
Jan-2009
Jul-2009
Jan-2010

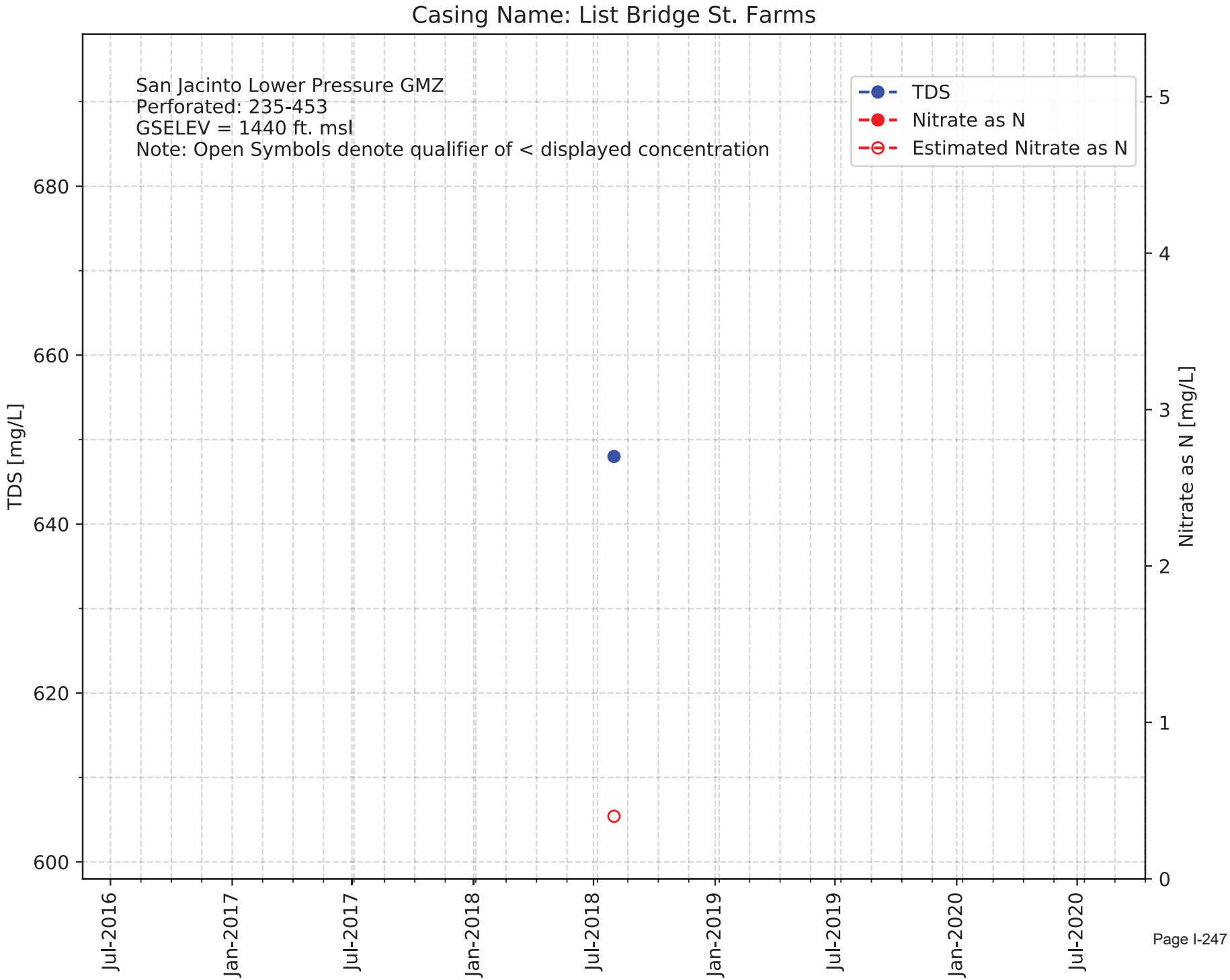

Casing Name: 21 Gun Club
San Jacinto Lower Pressure GMZ
Perforated: 140-160;200-220;260-280;320-340;380-400
GSELEV = 1428 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
760
740
720
700
680
660
640
5
4
3
2
1
0
Jul-1997
Oct-1997
Jan-1998
Apr-1998
Jul-1998
Oct-1998
Jan-1999
Apr-1999
Jul-1999
Oct-1999

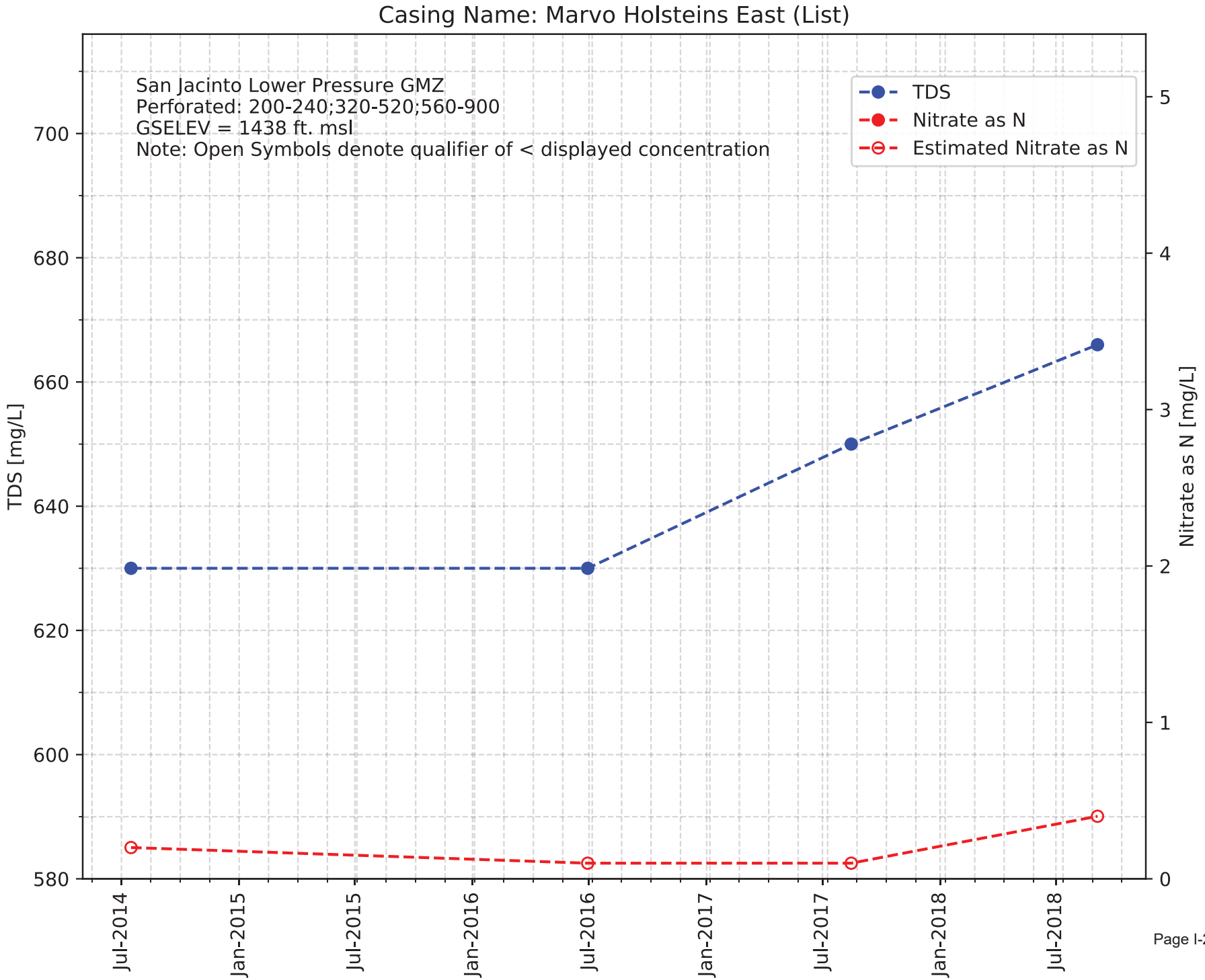

Casing Name: Fish & Game Cannery Feedlot
San Jacinto Lower Pressure GMZ
Perforated: 350-720
GSELEV = 1421 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
750
700
650
600
550
500
450
400
350
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018

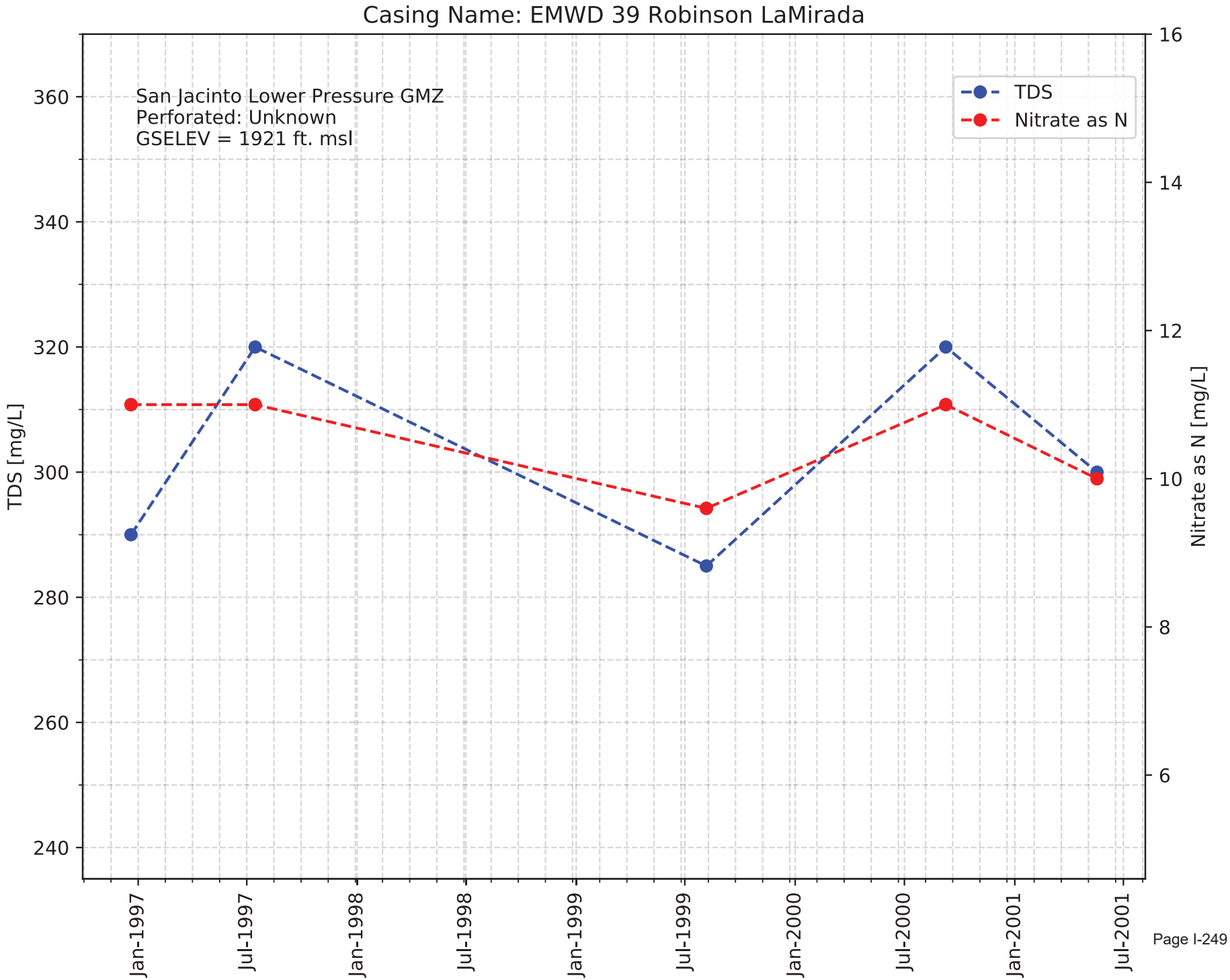

Casing Name: Nash, Elliott
San Jacinto Lower Pressure GMZ
Perforated: 300-360
GSELEV = 1427 ft. msl
TDS
TDS [mg/L]
600
550
500
450
400
350
Jan-1964
Dec-1964
Dec-1965
Dec-1966

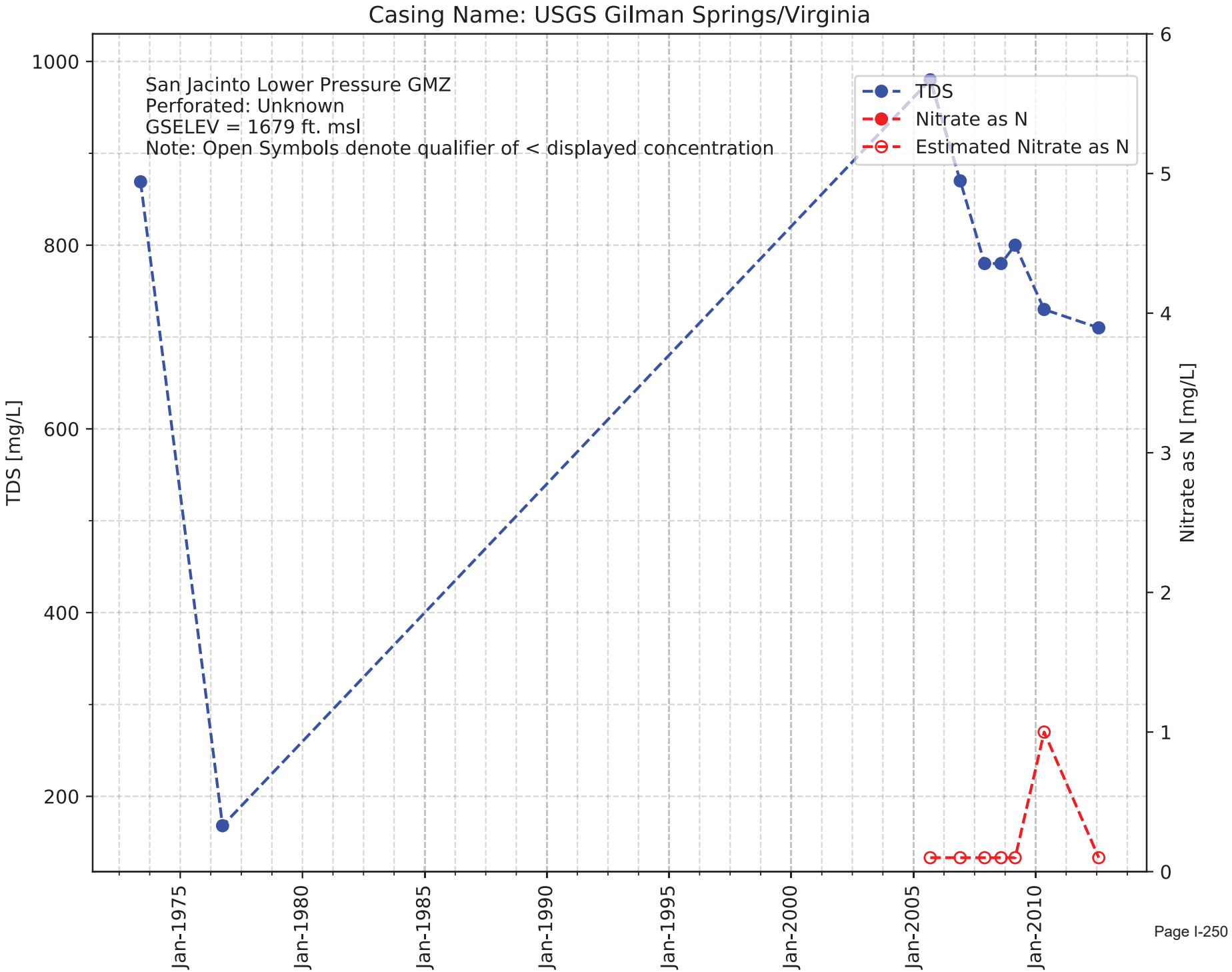

Casing Name: Fish & Game Cannery North of Rhodda
San Jacinto Lower Pressure GMZ
Perforated: 700-1187
GSELEV = 1428 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2500
2250
2000
1750
1500
1250
1000
750
500
5
4
3
2
1
0
Jan-1968
Jan-1972
Jan-1976
Jan-1980
Jan-1984
Jan-1988
Jan-1992
Jan-1996
Jan-2000
Jan-2004

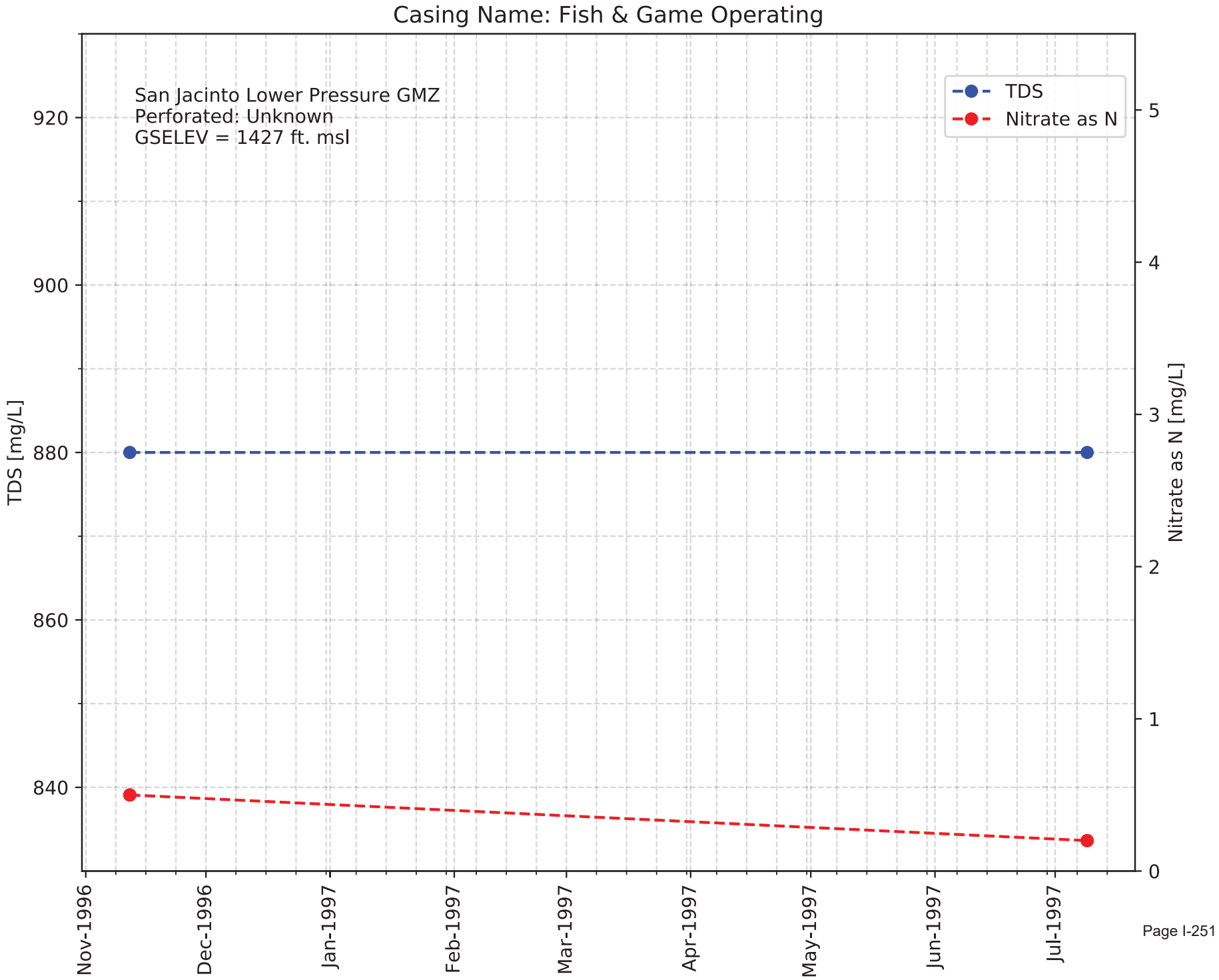

Casing Name: Fish & Game Bridge St North of River
San Jacinto Lower Pressure GMZ
Perforated: 404-704
GSELEV = 1431 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
650
600
550
500
450
5
4
3
2
1
0
Jan-1996
Jan-1997
Jan-1998
Jan-1999
Jan-2000
Jan-2001
Jan-2002
Jan-2003
Jan-2004

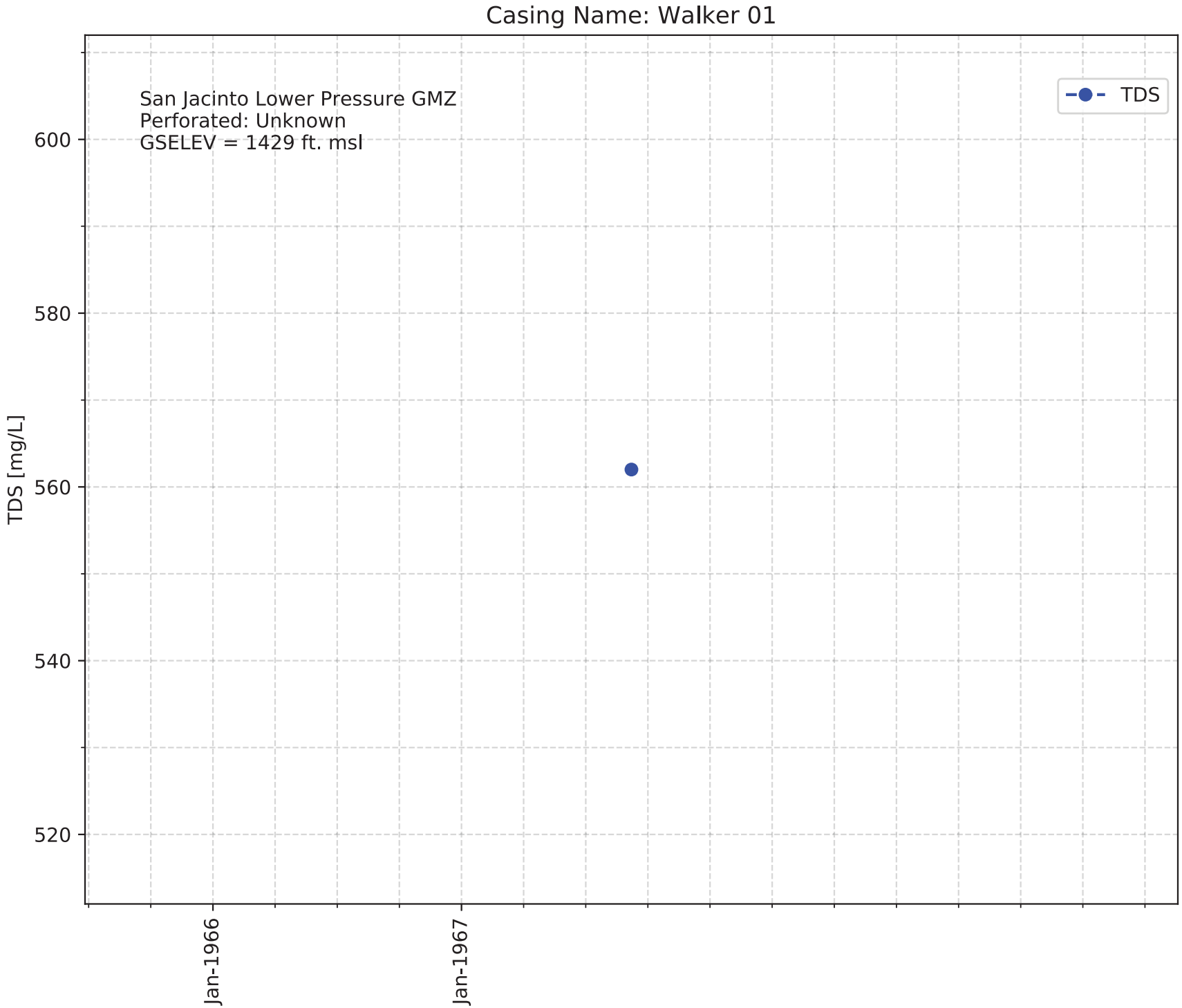

Casing Name: List Bridge St. Farms
San Jacinto Lower Pressure GMZ
Perforated: 235-453
GSELEV = 1440 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
680
660
640
620
600
5
4
3
2
1
0
Jul-2016
Jan-2017
Jul-2017
Jan-2018
Jul-2018
Jan-2019
Jul-2019
Jan-2020
Jul-2020

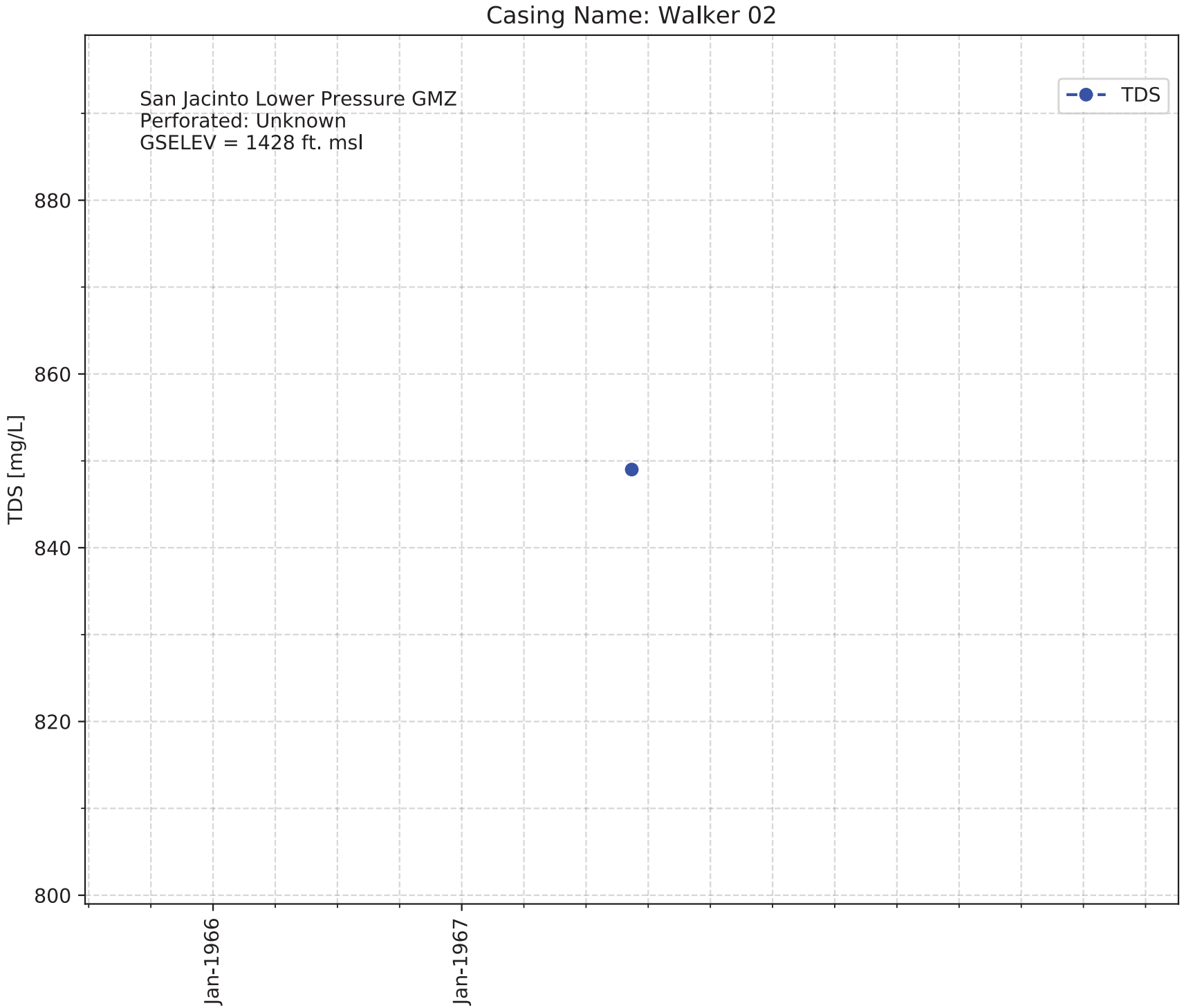

Casing Name: Marvo Holsteins East (List)
San Jacinto Lower Pressure GMZ
Perforated: 200-240;320-520;560-900
GSELEV = 1438 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
700
680
660
640
620
600
580
5
4
3
2
1
0
Jul-2014
Jan-2015
Jul-2015
Jan-2016
Jul-2016
Jan-2017
Jul-2017
Jan-2018
Jul-2018

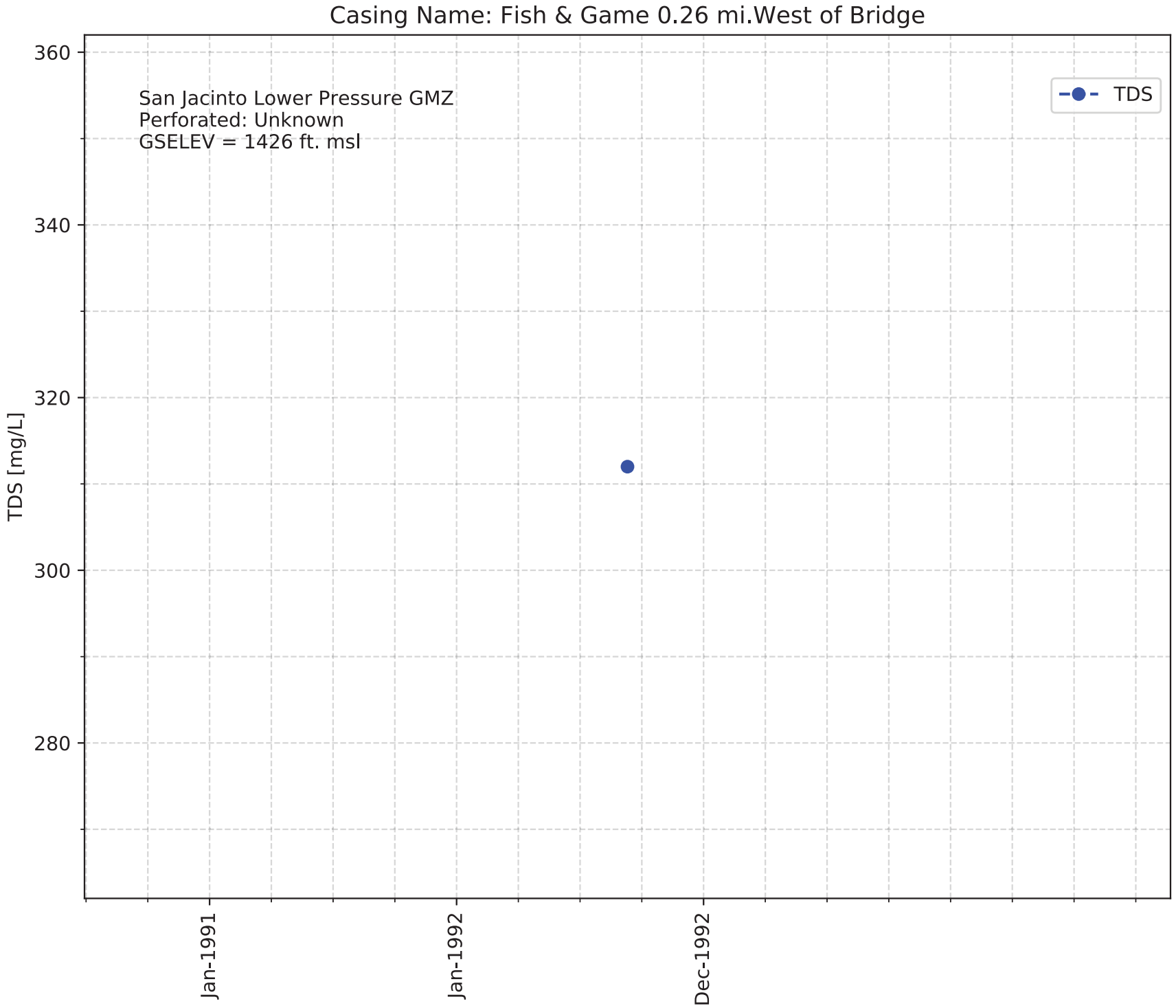

Casing Name: EMWD 39 Robinson LaMirada
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1921 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
360
340
320
300
280
260
240
16
14
12
10
8
6
Jan-1997
Jul-1997
Jan-1998
Jul-1998
Jan-1999
Jul-1999
Jan-2000
Jul-2000
Jan-2001
Jul-2001

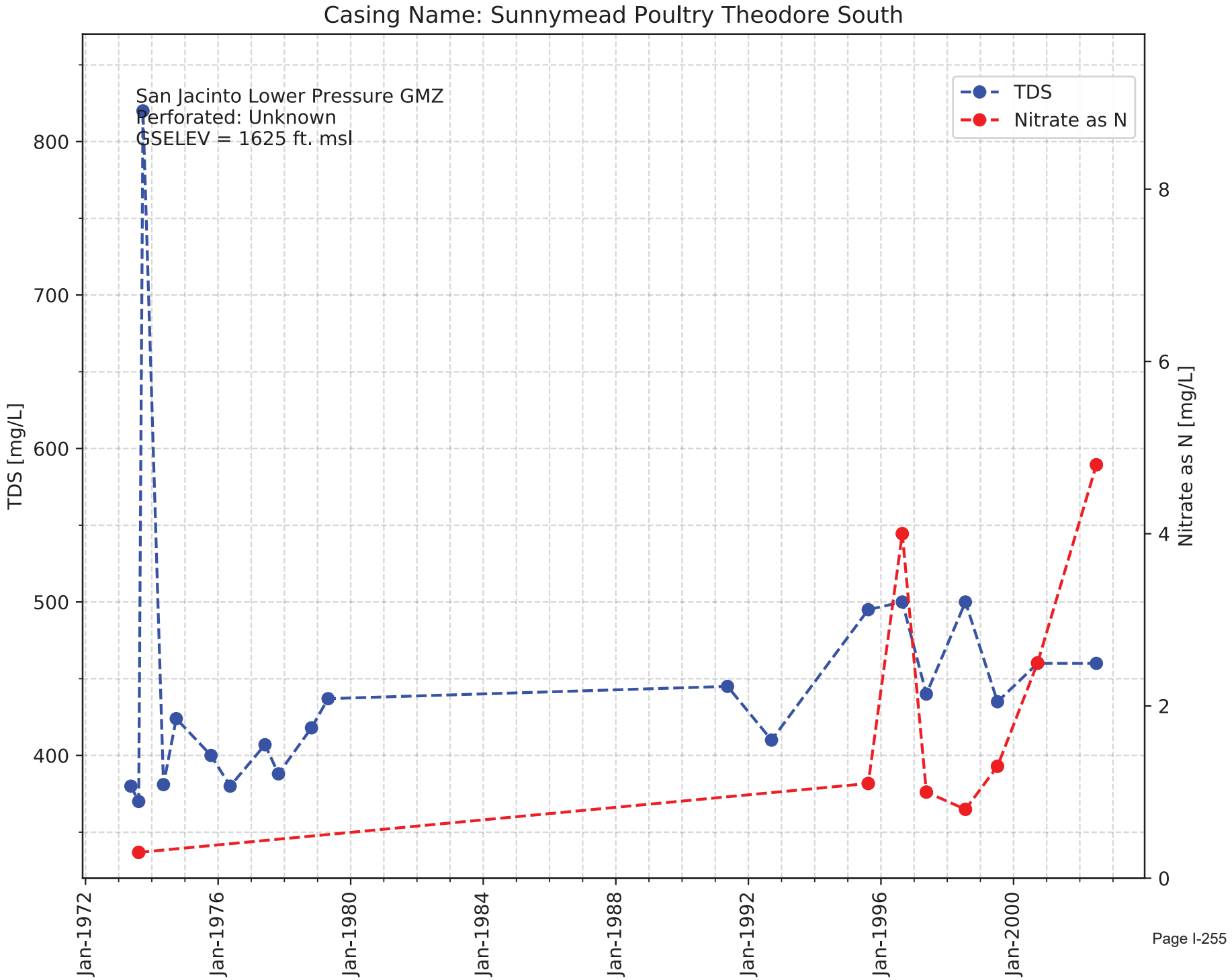

Casing Name: USGS Gilman Springs/Virginia
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1679 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1000
800
600
400
200
6
5
4
3
2
1
0
Jan-1975
Jan-1980
Jan-1985
Jan-1990
Jan-1995
Jan-2000
Jan-2005
Jan-2010

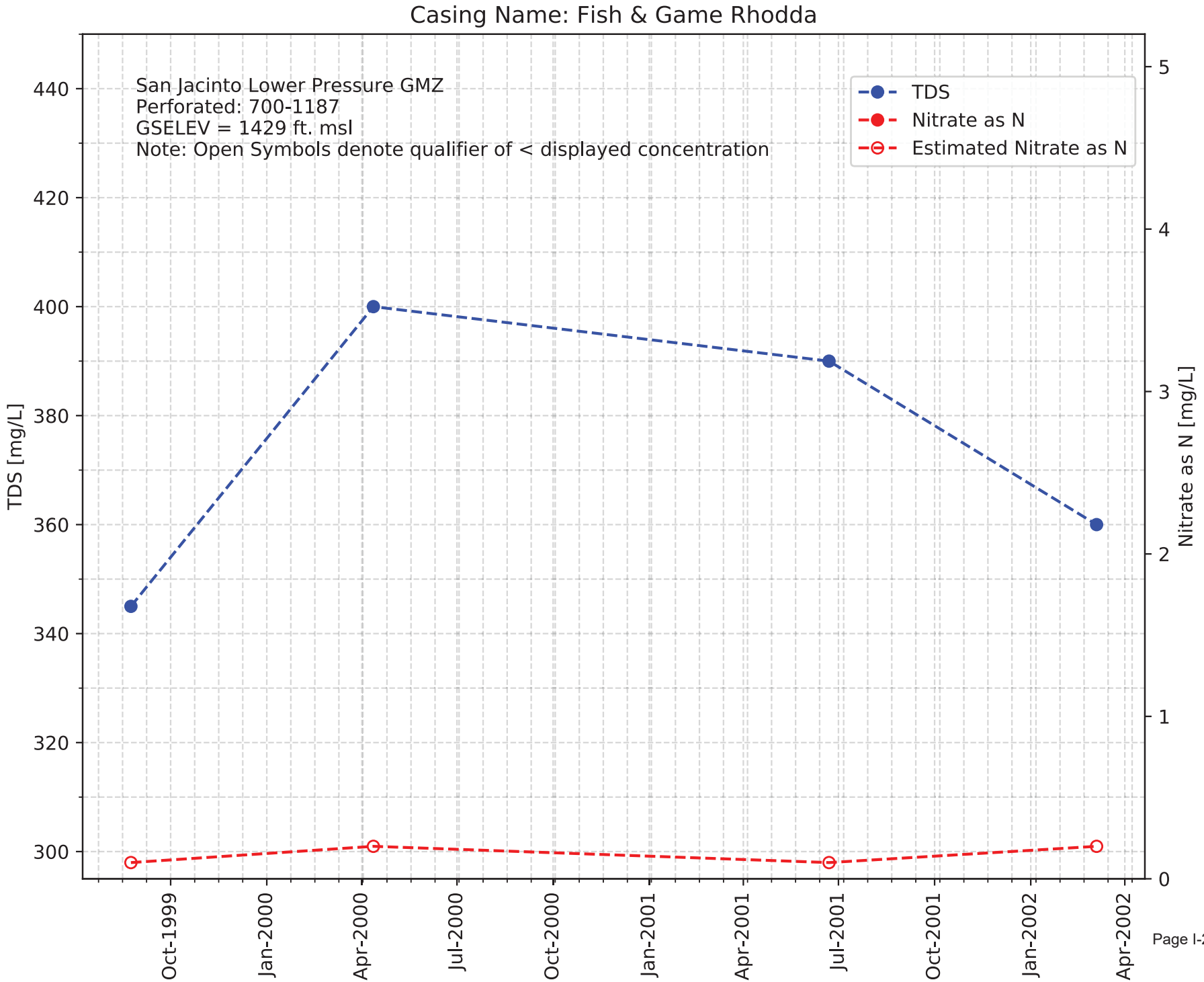

Casing Name: Fish & Game Operating
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1427 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
920
900
880
860
840
5
4
3
2
1
0
Nov-1996
Dec-1996
Jan-1997
Feb-1997
Mar-1997
Apr-1997
May-1997
Jun-1997
Jul-1997

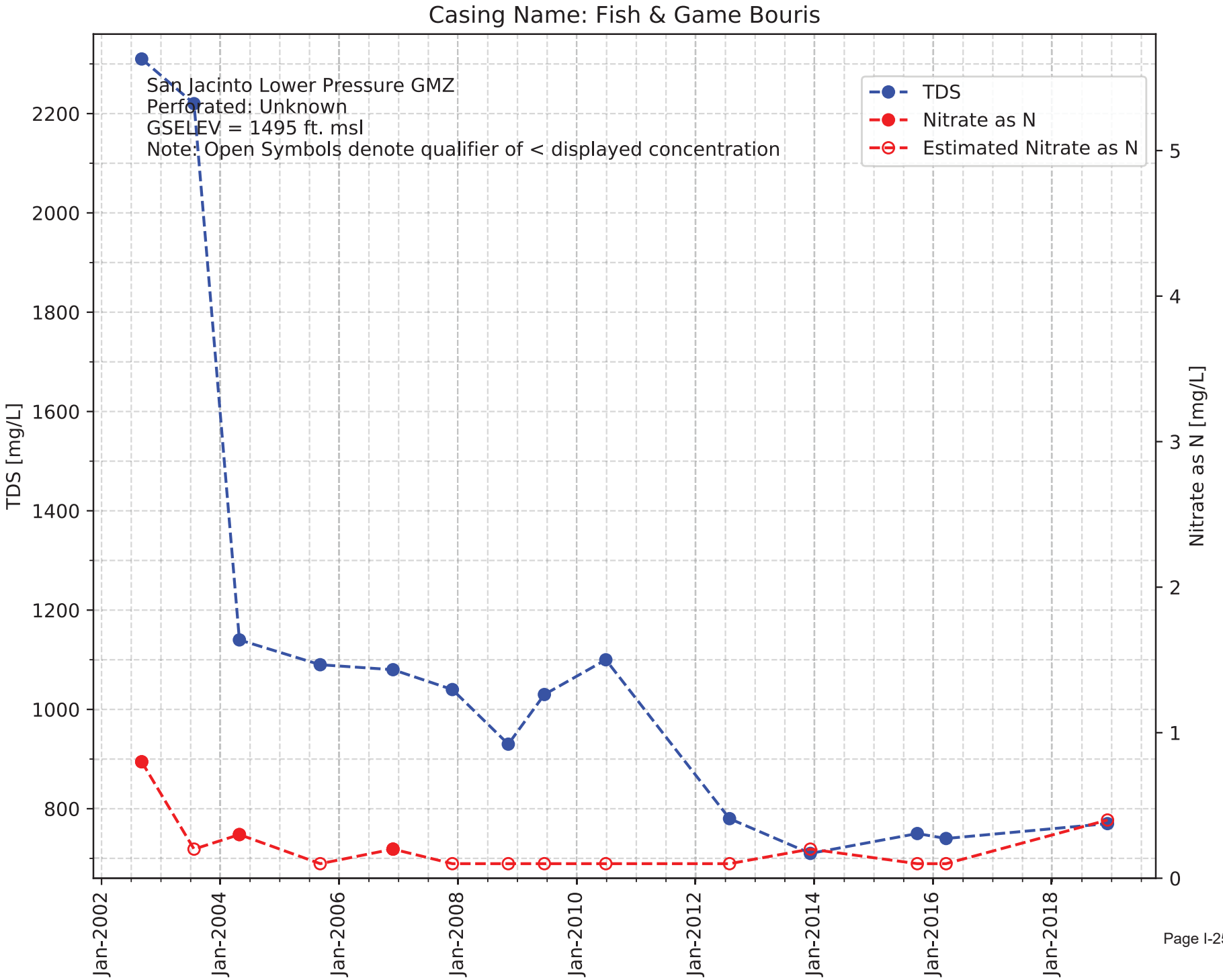

Casing Name: Walker 01
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1429 ft. msl
TDS
TDS [mg/L]
600
580
560
540
520
Jan-1966
Jan-1967

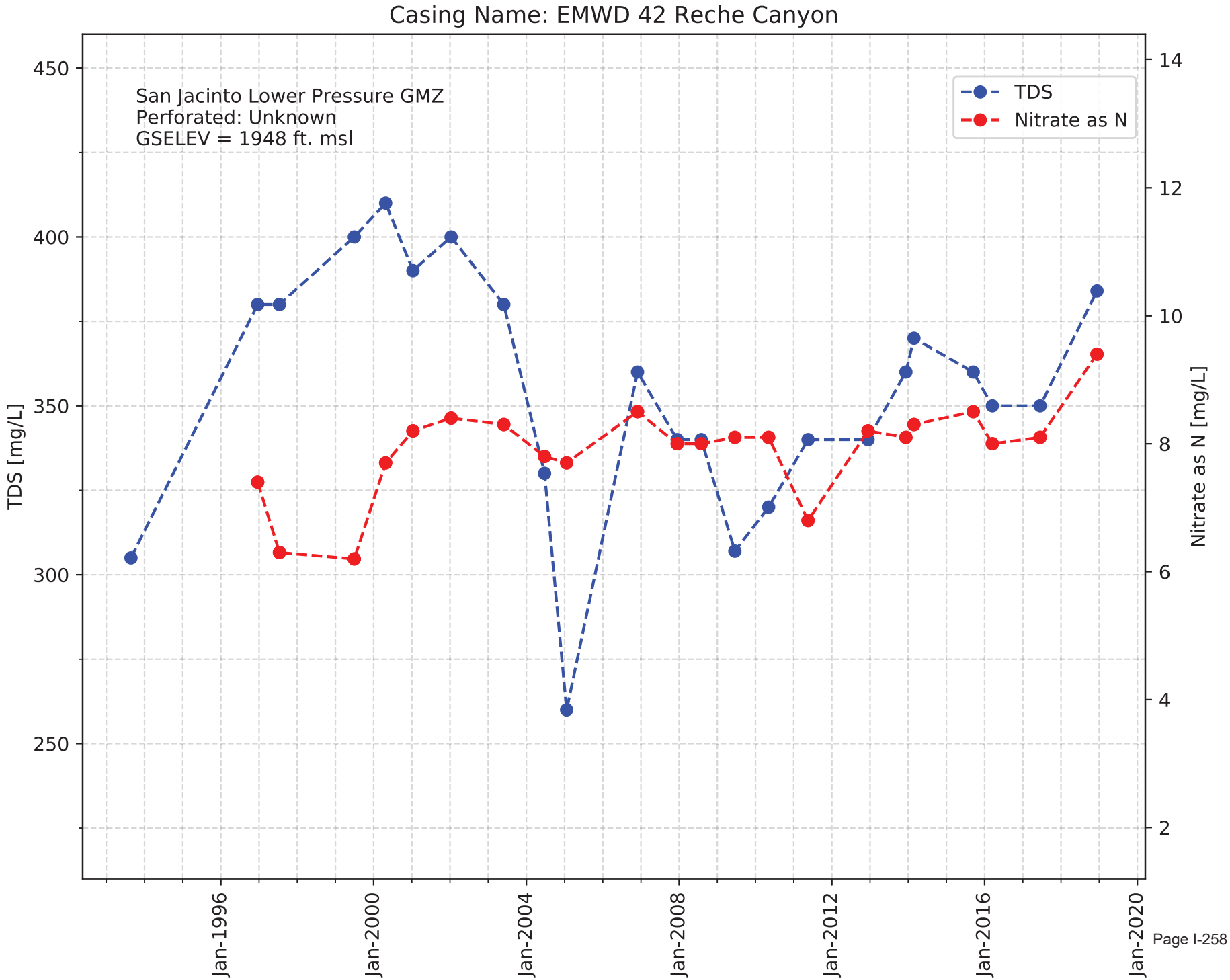

Casing Name: Walker 02
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1428 ft. msl
TDS
TDS [mg/L]
880
860
840
820
800
Jan-1966
Jan-1967

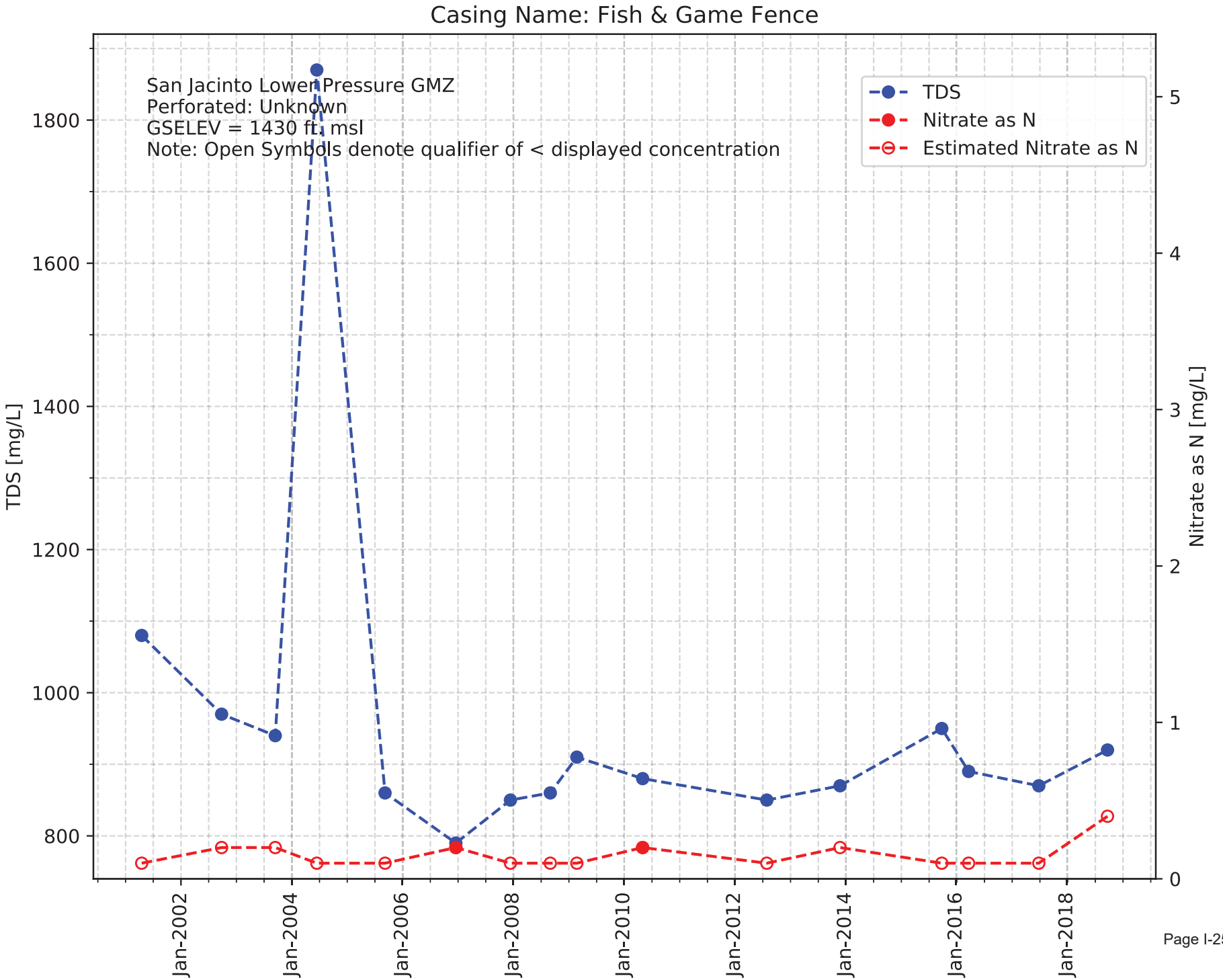

Casing Name: Fish & Game 0.26 mi.West of Bridge
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1426 ft. msl
TDS
TDS [mg/L]
360
340
320
300
280
Jan-1991
Jan-1992
Dec-1992

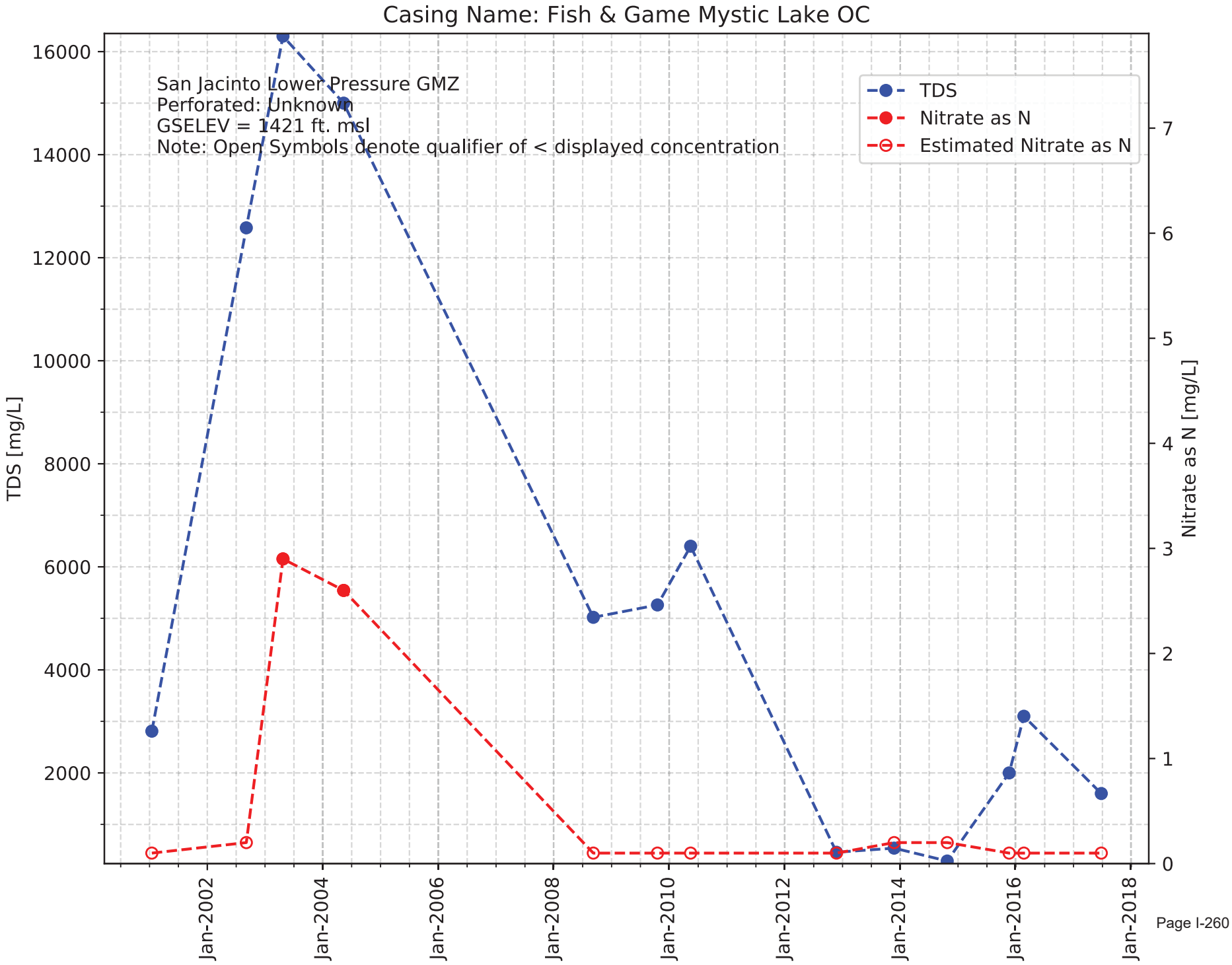

Casing Name: Sunnymead Poultry Theodore South
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1625 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
800
700
600
500
400
8
6
4
2
0
Jan-1972
Jan-1976
Jan-1980
Jan-1984
Jan-1988
Jan-1992
Jan-1996
Jan-2000

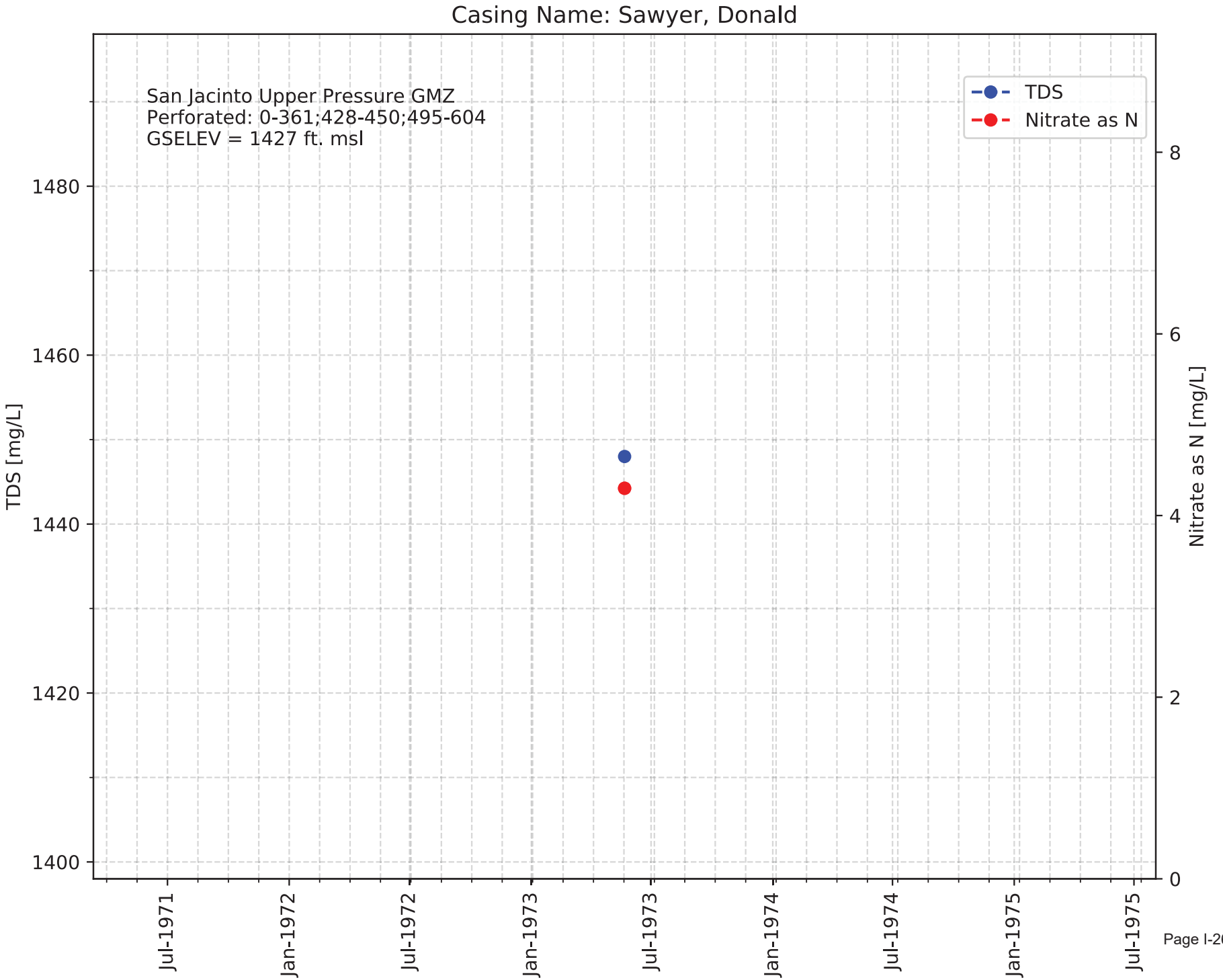

Casing Name: Fish & Game Rhodda
San Jacinto Lower Pressure GMZ
Perforated: 700-1187
GSELEV = 1429 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
440
420
400
380
360
340
320
300
5
4
3
2
1
0
Oct-1999
Jan-2000
Apr-2000
Jul-2000
Oct-2000
Jan-2001
Apr-2001
Jul-2001
Oct-2001
Jan-2002
Apr-2002

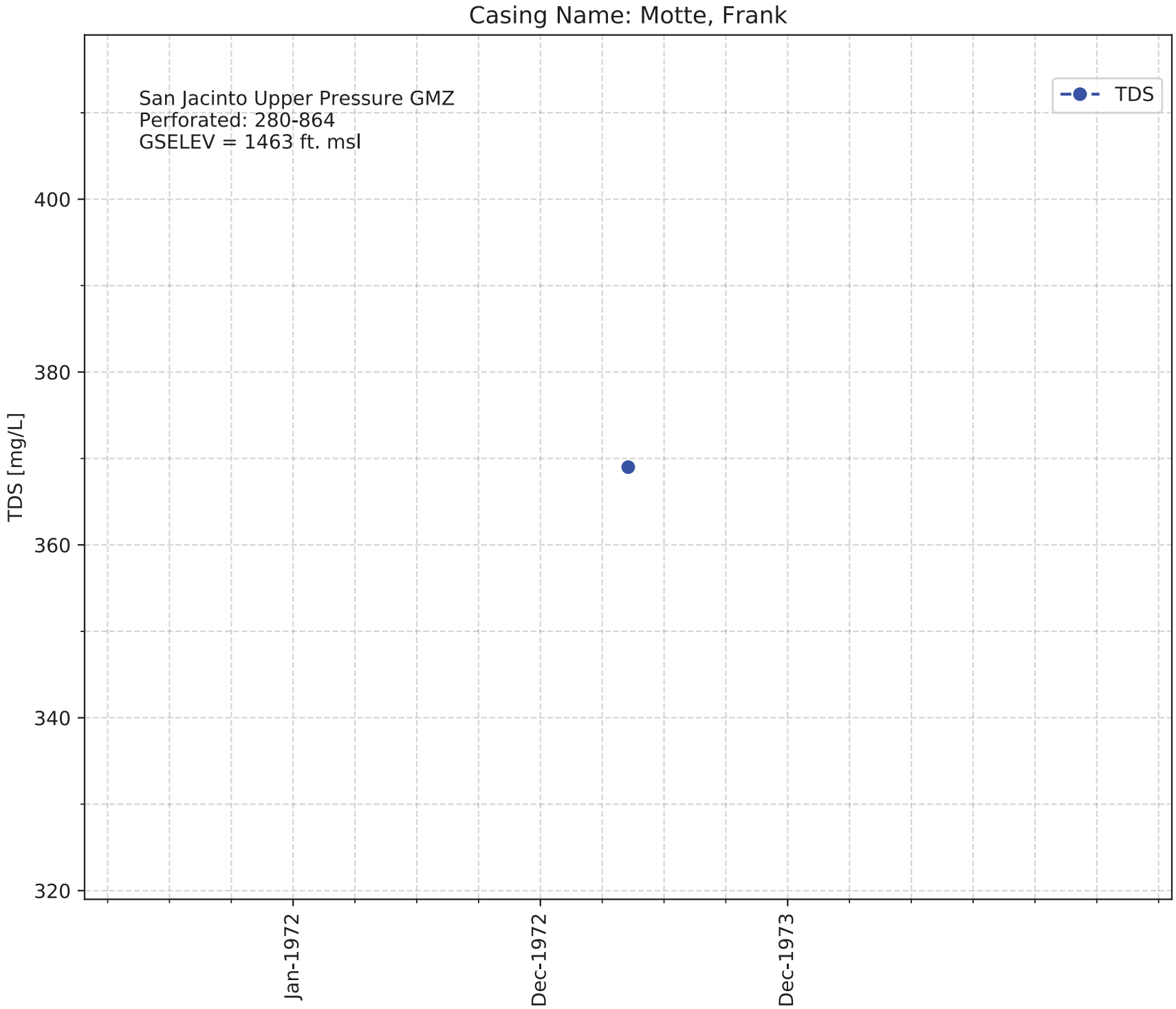

Casing Name: Fish & Game Bouris
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1495 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
2200
2000
1800
1600
1400
1200
1000
800
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018


Casing Name: EMWD 42 Reche Canyon
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1948 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
450
400
350
300
250
14
12
10
8
6
4
2
Jan-1996
Jan-2000
Jan-2004
Jan-2008
Jan-2012
Jan-2016
Jan-2020


Casing Name: Fish & Game Fence
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1430 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1800
1600
1400
1200
1000
800
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018


Casing Name: Fish & Game Mystic Lake OC
San Jacinto Lower Pressure GMZ
Perforated: Unknown
GSELEV = 1421 ft. msl
Note: Open Symbols denote qualifier of < displayed concentration
TDS
Nitrate as N
Estimated Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
16000
14000
12000
10000
8000
6000
4000
2000
7
6
5
4
3
2
1
0
Jan-2002
Jan-2004
Jan-2006
Jan-2008
Jan-2010
Jan-2012
Jan-2014
Jan-2016
Jan-2018


Casing Name: Sawyer, Donald
San Jacinto Upper Pressure GMZ
Perforated: 0-361;428-450;495-604
GSELEV = 1427 ft. msl
TDS
Nitrate as N
TDS [mg/L]
Nitrate as N [mg/L]
1480
1460
1440
1420
1400
8
6
4
2
0
Jul-1971
Jan-1972
Jul-1972
Jan-1973
Jul-1973
Jan-1974
Jul-1974
Jan-1975
Jul-1975


Casing Name: Motte, Frank
San Jacinto Upper Pressure GMZ
Perforated: 280-864
GSELEV = 1463 ft. msl
TDS
TDS [mg/L]
400
380
360
340
320
Jan-1972
Dec-1972
Dec-1973

APPENDIX J

GDEs in the Plan Area

MEMORANDUM

To:	Rachel Gray
From:	Trevor Jones, Dylan Duverge, and Jill Weinberger
Subject:	Characterization of Potential Groundwater Dependent Ecosystems in West San Jacinto GSP Plan Area
Date:	August 18, 2021
cc:	
Attachment(s):	Figures 1-13, Tables 1-8

The Sustainable Groundwater Management Act (SGMA) requires that all beneficial uses and users of groundwater, including environmental users of groundwater, be considered in Groundwater Sustainability Plans (GSPs) (California Water Code (CWC) Section 10723.2).[1] Each GSP shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes: Identification of groundwater dependent ecosystems (GDE) within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information (Title 23 California Code of Regulations (CCR) Section 354.16(g)).[2]

A GDE is defined under SGMA as "ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" (Title 23 CCR Section 351.(m)). GDEs encompass a wide range of natural communities, such as seeps and springs, wetlands and lakes, terrestrial vegetation and, rivers, streams, and estuaries.

The Natural Communities Commonly Associated with Groundwater (NCCAG) dataset is provided by the Department of Water Resources (DWR) as a reference dataset and starting point for the identification of GDEs in groundwater basins (DWR, 2018). Because the scale of the NCCAG dataset is statewide (i.e., coarse), and consists of a compilation of vegetation and surface hydrology feature (e.g., wetlands) mapping, it does not incorporate local, basin-specific groundwater conditions such as aquifer characteristics or current data on depth to groundwater. Therefore, the dataset is most appropriately used as an indicator of where GDEs, as defined by SGMA, are more likely to be present. A local, basin-specific analysis is required to verify the degree to which features mapped in the NCCAG dataset depend on groundwater emerging from aquifers or on groundwater occurring shallower than 30 feet below ground surface (ft. bgs).

The NCCAG dataset and its source data can be reviewed in the context of local understanding of surface water hydrology, groundwater conditions, and geology. The NCCAG dataset comprises 48 publicly available state and

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1 SGMA is codified in California Water Code (CWC), Part 2.75 (Sustainable Groundwater Management), Section 10720–10737.8, et al.

2 GSP Regulations refers to the emergency regulations adopted by DWR as California Code of Regulations (CCR), Title 23 (Waters), Division 2 (Department of Water Resources), Chapter 1.5 (Groundwater Management), Section 350 et seq. Title 23 CCR Section 353.2(B). States, "The Department [DWR] shall provide information, to the extent available, to assist Agencies in the preparation and implementation of Plans, which shall be posted on the Department's website.

federal agency mapping datasets.[3] After the vegetation, wetland, seeps, and springs data from these 48 datasets were compiled into the NCCAG dataset, data were screened to exclude vegetation and wetland types less likely to be associated with groundwater and retain types commonly associated with groundwater (DWR, 2018). This initial screening was conducted by DWR, California Department of Fish and Wildlife (CDFW), and the Nature Conservancy (TNC).

1 Overview of the NCCAG Dataset within the Plan Area

The GDE characterization described in this document focuses on NCCAG indicators mapped within the non-adjudicated area of the San Jacinto Groundwater Basin (DWR Bulletin 118 Groundwater Basin 8-005), herein referred to as the Plan Area (Figure 1). The Plan Area lies within the Lower and Middle San Jacinto watersheds (USGS and USDA, 2013). Combined, these watersheds cover over 300,000 acres and extend from the Box Spring Mountains, south to the Hemet-San Jacinto Management Area of the San Jacinto Groundwater Basin (Figure 2). The Lower and Middle San Jacinto watersheds are further subdivided into six subwatersheds that lie within the Plan Area (Figure 2): (1) Moreno Valley, (2) Mount Rudolph-San Jacinto River, (3) Perris Reservoir, (4) Perris Valley-San Jacinto River, (5) San Jacinto Valley, and (6) Menifee (USGS, 2013). The six subwatersheds drain to the Lake Perris Reservoir, Mystic Lake, San Jacinto River, Salt Creek, and Perris Drain. The earthen San Jacinto River, Salt Creek, and Perris Drain carry surface water runoff out of the Plan Area boundaries into Canyon Lake.

Within the Plan Area boundary, the NCCAG dataset identified wetland features commonly associated with the surface expression of groundwater (wetland GDEs) and vegetation communities that consist of common phreatophytes (vegetation GDEs). The geographic location of the wetland and vegetation communities were broadly grouped by the six subwatershed boundaries shown in Figure 2.

The NCCAG dataset identified 79 unique potential vegetation GDEs within the Plan Area. Table 1 provides a summary of the potential vegetation GDEs within the Plan Area and shows the areal extent of each species within the six subwatersheds described above. The prominent phreatophyte species identified within the Plan Area are Mule Fat, Goodding's Willow, and Southwestern North American salt basin and high marsh. These vegetation communities are concentrated within the Moreno Valley, Perris Reservoir, and Mount Rudolph-San Jacinto River subwatersheds.

The NCCAG dataset identified 28 unique potential wetland GDEs within the Plan Area. Table 2 provides a summary of the potential wetland GDEs that lie with the Plan Area and shows the areal extent of each wetland type within the six subwatersheds. The dominant wetlands are lacustrine and palustrine seasonally and permanently flooded wetlands. The largest wetland community is located within the Mount Rudolph-San Jacinto River subwatershed.

[3] NCCAG dataset includes, but is not limited to, the following: VegCAMP – The Vegetation Classification and Mapping Program, California Department of Fish and Wildlife (CDFW); CALVEG – Classification and Assessment with Landsat Of Visible Ecological Groupings, USDA Forest Service; NWI V 2.0 – National Wetlands Inventory (Version 2.0), United States Fish and Wildlife Service; FVEG – California Department of Forestry and Fire Protection, Fire and Resources Assessment Program (CALFIRE FRAP); United States Geologic Survey (USGS) National Hydrography Dataset (NHD); and Mojave Desert Springs and Waterholes (Mojave Desert Spring Survey). NCCAG dataset viewer is available online at: https://gis.water.ca.gov/app/NCDatasetViewer/

This mapped potential wetland GDE is managed by the California Department of Fish and Wildlife (CDFW) and private duck club owners.

Due to the variety and abundance of small-scale ecosystems identified in the NCCAG dataset, potential wetland and vegetation GDEs were aggregated into larger "GDE Evaluation Units" within a subwatershed. The likely interaction between groundwater and the habitats within each GDE Evaluation Unit are described in Section 3 of this document.

2 Methods for Identifying Groundwater Dependent Ecosystems

GDE Evaluation Units in the Plan Area were characterized by reviewing the NCCAG dataset alongside measured groundwater elevations, aerial photographs, lithologic data, and Landsat[4] data analyzed by TNC. TNC used Landsat data to calculate historical variations in the Normalized Derived Vegetation Index (NDVI) and Normalized Derived Moisture Index (NDMI) (TNC, 2019). These indices provide a quantitative measure of a habitat's greenness and moisture content during prolonged dry periods. Long-term variations in NDVI and NDMI act as a proxy for habitat health. Groundwater elevation measurements, aerial photographs, lithologic data, and NDVI and NDMI indicators were reviewed following the general guidelines outlined by TNC (2018).

GDE Evaluation Units were characterized as:

(1) Groundwater dependent ecosystems

(2) Ecosystems that are not groundwater dependent

(3) Potential groundwater ecosystems

Ecosystems were characterized as groundwater dependent if NDVI and NDMI were positively correlated with groundwater elevations in the production aquifer adjacent to the habitat, and: (1) groundwater levels measured at nearby (<1km from GDE Evaluation Unit boundary (TNC, 2018)) wells were shallower than 30 ft. bgs underlying potential vegetation GDEs identified in the NCCAG dataset, or (2) groundwater is actively discharged to land surface at potential wetland GDEs identified in the NCCAG dataset. This criteria for groundwater depth is identified by TNC as representative groundwater conditions that may sustain common phreatophytes and wetland ecosystems (TNC, 2018).

Ecosystems were characterized as not groundwater dependent if groundwater levels were not correlated with NDVI and NDMI, there was geologic evidence of a local confining layer separating shallow groundwater from the underlying production zone, the habitats persisted during periods where underlying groundwater levels were much deeper than 30 ft. bgs, or previous site investigations indicate that the habitats are sustained by applied surface water.

[4] The Landsat mission is the longest running satellite monitoring program used to capture space-based images of the Earth's surface every 16 days. Landsat is managed by NASA and records visible, near-infrared, middle-infrared, and thermal wavelengths reflected from the Earth's surface. TNC aggregated this data to generate NDVI and NDMI.

Ecosystems were characterized as potentially groundwater dependent if the source of water sustaining the habitat was not easily identifiable and/or groundwater levels underlying the habitat have not been measured. In these ecosystems, an additional flag was provided to indicate whether or not the habitat will likely be impacted by current production within the Plan Area. GDE Evaluation Units that were farther than 1km from the nearest groundwater extraction well were characterized as not likely impacted by current production within the Plan Area. EMWD will consider the distance from the mapped potential GDEs in the location, design, and pumping rate of new wells drilled in the future within the basin. The GSA will work with Riverside County DEH to add a field to its well permitting form that would require permit applications to identify the closest GDE, and would require Riverside DEH to notify the GSA.

To supplement this analysis, simulated depth to water values for Fall and Spring 2019 were extracted from the San Jacinto Flow Model (SJFM-2014) to characterize potential groundwater conditions in regions of the Plan Area with limited groundwater elevation measurements. The SJFM-2014 is a numerical groundwater flow model developed to characterize groundwater conditions across the entire San Jacinto Groundwater Basin (EMWD 2016). The simulated depth to water values extracted from the SJFM-2014 are uncertain in regions of the Plan Area with limited groundwater elevation measurement. However, these simulated depths provide a high-level screening method to identify where mapped vegetation and wetlands may be connected to shallow groundwater where measured data is limited.

3 GDE Characterization

This section describes the characterization of each GDE Evaluation unit within the six subwatersheds. Data supporting the characterization of each unit is described in detail below.

3.1 Moreno Valley Subwatershed

The Moreno Valley subwatershed (Hydrologic Unit Code: 180702020304) encompasses the northern reaches of the Lower San Jacinto watershed (Figure 2). This subwatershed drains over 31,300 acres and extends from the ridgeline of the Box Springs Mountains and San Timoteo Badlands to Lake Perris. Within the subwatershed boundary, the Box Springs Mountains rise to an elevation of approximately 3,000 feet mean sea level (ft msl) and the San Timoteo Badlands rise to an elevation of approximately 2,500 ft msl. The basin floor lies at approximately 1,800 ft msl at the foothills of the Box Springs Mountains, and approximately 2,000 ft msl at the foothills of the San Timoteo Badlands (Google Earth Pro, 2019). Precipitation within the Box Springs Mountains and San Timoteo Badlands is drained into the Perris North and Lower Pressure groundwater management zones (Figure 1).

The NCCAG dataset identified potential wetland and vegetation GDEs within the Moreno Valley subwatershed (Figure 3). Common phreatophytes include Mule Fat (Baccharis salicifolia), California Sycamore (Platanus racemose), Red Willow (Salix laevigata), Common Elderberry (Sambucus nigra), Giant Reed (Arundo donax), and Scalebroom (Lepidospartum squamatum) (Table 3; DWR, 2018). NCCAG-identified wetland habitats include riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands and palustrine, emergent, persistent, seasonally flooded wetlands (Table 3; DWR, 2018).

These NCCAG data were grouped into four distinct GDE Evaluation Units based on geographic location and hydrogeologic settings: (1) Box Springs Mountains, (2) Perris North-Lower Pressure Boundary, (3) North San Timoteo Badlands, and (4) Perris North Area. Figure 3 shows the location and extent of each GDE Evaluation unit

within the Moreno Valley subwatershed. Characterization of the four GDE Evaluation Units are described below and a summary of the NCCAG polygon characteristics within the Moreno Valley subwatershed is provided in Table 3.

3.1.1 Box Springs Mountains GDE Evaluation Unit

Vegetation and wetland communities mapped within the Box Springs Mountains GDE Evaluation unit are located along the banks and beds of naturally-derived stream channels in the northern section of the Perris North groundwater management zone (Figures 1 and 3). These communities consist of Mule Fat, California Sycamore, Red Willow, and the Common Elderberry, as well as riverine, unknown perennial, unconsolidated bottom, permanently flooded wetlands (Table 3; DWR, 2018). Aerial photographs indicate that the stream channels originate within the Box Springs Mountains and coalesce to form larger, earthen channels that route surface water runoff through developed communities. The southern extent of this GDE Evaluation Unit ends in a partially-lined, engineered pit. Stream flows are not measured in this GDE Evaluation unit.

NDVI and NDMI trends for the mapped communities vary across this GDE Evaluation unit. Along the Plan Area margins, NDVI and NDMI have slightly decreased since 2009, indicating a reduction in general habitat health. These trends are correlated with measured annual precipitation (TNC, 2018). Alternatively, NDVI and NDMI have slightly increased in the southern extent of this unit. These trends are not correlated with measured precipitation.

There are a number of privately owned wells within a 1km radius of the Box Springs Mountains GDE Evaluation Unit (Figure 3). However, groundwater levels, production, and lithology at these wells are not reported; therefore, groundwater interactions with the ecosystems within the Box Springs Mountains GDE Evaluation Unit cannot be characterized.

Results from the SJFM-2014 indicate that depth to groundwater is shallower than 30 feet below land surface in the vicinity of this GDE Unit (Figures 12 and 13). These simulation results suggest that the vegetation habitats located at the foothills of the Box Spring Mountains may rely on shallow groundwater as a source of supply. The simulated depth to water in this region of the Plan Area is uncertain due to a lack of measured groundwater elevation data. Because there is not enough measured data to characterize groundwater-habitat interactions in this GDE Evaluation Unit, the Box Springs Mountains GDE Evaluation Unit was characterized as a potential groundwater dependent ecosystem. Further characterization of the habitat and its potential dependence on groundwater will be warranted if future groundwater extractions are planned for this area.

3.1.1.1 Exceptions within the Box Springs Mountains GDE Evaluation Unit

The vegetation community indicated by “X0” in Figure 3 lies within the drainage channel that conveys surface water flows to Poorman’s Reservoir (City of Moreno Valley 2019). Surface water flows into Poorman’s Reservoir are contained by Pigeon Dam, which has the capacity to store up to 912 acre-feet of surface water and peak flows up to 120 cfs (RCFCD 2006). Vegetation communities lining Poorman’s Reservoir identified in the NCCAG database include California Sycamore (*Platanus racemosa*), Red Willow (*Salix laevigata*), and Mule Fat (*Baccharis salicifolia)*.

Groundwater elevations were measured within 1km of these habitats between April 2005 and October 2015 at the Shell Sunnymead Ranch LUST cleanup site (Site number: T0606506567, Geotracker 2020a). Groundwater levels historically varied across the site and were encountered at depths that ranged from approximately 44 ft.

bgs (measured at MW-4 on 2/2/2005) to approximately 23 ft. bgs (measured at MW-10 on 10/28/2009). Groundwater investigations and monitoring at the site indicate that groundwater underlying the Sunnymead Ranch LUST cleanup site occurs in three perched zones (Geotracker 2020a). Between 2005 and 2015, wells screened in the shallow perched zone were generally dry, but intermittently contained groundwater encountered at depths that ranged from 14 to 22 ft. bgs. Groundwater in the middle perched zone was consistently encountered from 23 to 54 ft. bgs. Wells screened in the deep zone were generally dry, indicating that there is little hydraulic connection between the deep zone and the middle or shallow perched zones. Bedrock was encountered approximately 96 feet below ground surface (Geotracker 2020a).

Groundwater in the middle zone was encountered across the Site at depths that may sustain the vegetation communities that line Poorman's Reservoir. The lack of groundwater occurrence in the principal aquifer underlying the perched zones throughout the 10-year measurement record suggests that this water is derived from infiltrating surface water. While measurements collected at the Site indicate that there is limited connectivity between the principal aquifer and the shallow and middle perched zones underlying the site, the lateral extent of these perched zones is not well constrained. Because the degree of connectivity between the shallow and middle perched zones and the principal aquifer are not well constrained, these vegetation habitats were characterized as potential GDEs.

Groundwater elevations are anticipated to decline in this region of the Plan Area in response to operations of the Perris North Basin Groundwater Contamination Prevention and Remediation Project. This project is intended to remediate, and prevent the spread of, co-mingled VOC, perchlorate, and nitrate plumes in the Moreno Valley area. Operation of this project is critical to the long-term beneficial use of groundwater in the Plan Area.

One wetland habitat (indicated as "X1" in Figure 3) at the southern tip of the Box Springs Mountains GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent. This habitat was originally identified by DWR as a riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland (Table 3; DWR, 2018).

Aerial photographs of this habitat indicate that the mapped area is a concrete-lined channel that does not contain vegetation or wetland features. Photographs show that channel was lined by 2002 and diverts surface water runoff to an engineered retention pit managed by Riverside County Flood Control District.

3.1.2 North San Timoteo Badlands GDE Evaluation Unit

Vegetation and wetland communities mapped within the North San Timoteo Badlands GDE Evaluation Unit are located at the base of the San Timoteo Badlands, along the eastern fringe of the Lower Pressure groundwater management zone (Figures 1 and 3). The vegetation communities in this GDE Evaluation Unit consist of Scalebroom and the Common Elderberry (Table 3; DWR, 2018). Mapped wetland communities are characterized as riverine, unknown perennial, unconsolidated bottom, permanently flooded wetlands (Table 3; DWR, 2018).

Aerial photographs from this GDE Evaluation Unit indicate that the vegetation communities are located near earthen stream channels that route surface water runoff into the Lower Pressure groundwater management zone. Stream flows within this GDE Evaluation Unit are not measured.

NDVI and NDMI for the vegetation communities have increased since 2009 within the North San Timoteo Badlands GDE Evaluation Unit. This is not correlated with the general decreasing trend in measured precipitation during this time period (DWR, 2018). Simulation results from the SJFM-2014 indicate that groundwater occurs much deeper that 30 feet bgs in the vicinity of these habitats (Figures 12 and 13). Simulated groundwater elevations in this region of the model are not well constrained by measured data.

There are no groundwater wells located within 1km of this GDE Evaluation Unit. Therefore, the interaction between groundwater and the overlying ecosystems cannot be characterized. Because of this, the North San Timoteo Badlands GDE Evaluation Unit was characterized as a potential groundwater dependent ecosystem. Further characterization of the habitat and its potential dependence on groundwater will be warranted if future groundwater extractions are planned for this area.

3.1.2.1 Exceptions within the North San Timoteo Badlands GDE Evaluation Unit

The NCCAG dataset identified a riverine, unknown perennial, unconsolidated bottom, permanently flood wetland habitat within the North San Timoteo Badlands GDE Evaluation Unit (indicated as “X2” in Figure 3). Aerial photographs of this habitat indicate that the mapped ecosystem traverses a mixture of natural and developed landscape near the intersection of Redlands Blvd and Locust Avenue. Aerial photographs between 1996 and 2018 do not show the presence of ponded water or saturated land within the NCCAG polygon, which suggests that a wetland habitat is not supported in this area. Because there is no evidence of wetland conditions, this habitat was characterized as not groundwater dependent.

3.1.3 Perris North-Lower Pressure GDE Evaluation Unit

Vegetation and wetland communities located within the Perris North-Lower Pressure GDE Evaluation Unit extend from the eastern foothills of the Box Springs Mountains, south along the border of the Perris North and Lower Pressure groundwater management zones (Figures 1 and 3). The vegetation communities within this GDE Evaluation Unit consist of Giant Reed, Mule fat, and Scalebroom (Table 3; DWR, 2018). Mapped wetland communities within this GDE Evaluation Unit consist of palustrine, emergent, seasonally flooded wetlands (Table 3; DWR, 2018).

Aerial photographs of this GDE Evaluation Unit indicate that the mapped vegetation and wetland communities surround earthen stream channels that originate at the foothills of the Box Springs Mountains and San Timoteo Badlands. These stream channels divert runoff southward and become deeply incised within the Perris North groundwater management zone. The natural trajectories of these streams are interrupted by residential and agricultural development. The lithology underlying these streams is predominantly composed of clays (EMWD, 2016).

NDVI and NDMI trends vary across the Perris North-Lower Pressure GDE Evaluation Unit. Along the foothills of the Box Springs Mountains, NDVI and NDMI have moderately increased since 2009, which indicates recent improvement in habitat health. Alternatively, NDVI and NDMI show large declines at the southern end of the GDE Evaluation Unit since 2009, which indicates a general decline in habitat health. The decline in NDVI and NDMI in the southern portion of the GDE Evaluation Unit is correlated with a decreasing trend in measured precipitation.

Static groundwater levels in the northern region of this GDE Evaluation Unit were measured at EMWD 42 Reche Canyon (well ID: 21912) and EMWD 9 Robinson LaMirada (well ID 21009) (Figure 3). EMWD 42 Reche Canyon has been used to measure groundwater levels within this GDE Evaluation Unit since 1995. The shallowest depth to groundwater recorded at EMWD 42 Reche Canyon was 90.01 ft. bgs in March 1995. Current depth to groundwater at EMWD 42 Reche Canyon is 145.9 ft. bgs (measured on 9/27/2018). South of EMWD 42 Reche Canyon, static groundwater levels are measured at EMWD 9 Robinson LaMirada. The shallowest depth to groundwater measured at EMWD 9 Robinson LaMirada was 192.2 ft. bgs (measured on 9/8/1995). The current groundwater level at well 21009 is 240.9 ft. bgs (measured on 3/8/2018).

Along the Perris North-Lower Pressure groundwater management zone border, static groundwater levels were measured at Lantz East (well ID: 21052) and Sunnymead Poultry (well ID: 21065) (Figure 3). The shallowest depth to groundwater water measured at Lantz East was 206.7 ft. bgs (measured on 4/12/2016). The average depth to groundwater at Sunnymead Poultry from March 1995 to April 2016 was approximately 230 ft. bgs. Sunnymead Poultry was used to measure static groundwater levels between May 1991 and November 2007. During this record of measurement, the shallowest depth to groundwater was 127.1 ft. bgs (measured on 11/6/2007).

Groundwater was historically extracted from within 1km of this GDE Evaluation Unit at Lantz West (well ID: 21051) and Lantz East (well ID: 21052) (Figure 3). Well 21051 actively extracted groundwater between 1997 and 2002, and well 21052 actively extracted groundwater between 1997 and 2014. Between 1997 and 2002, well 21051 extracted an average of 225 acre-feet per year (AFY), with a minimum extraction of 75 AFY in 2002 and a maximum extraction of 244 AFY in 1999. Between 1997 and 2014, well 21052 extracted an average of 225 AFY, with a minimum extraction of 6.5 AFY in 2014 and a maximum of extraction of 304.5 AFY in 2003. Historical aerial photographs between 1997 and 2014 indicate that the NCCAG-mapped ecosystems persisted during this period of active groundwater extractions

Because water levels have not been measured shallower than 90 ft. bgs throughout this GDE Evaluation Unit the Perris North-Lower Pressure GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.1.3.1 Exceptions within the Perris North-Lake Perris GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potential GDEs or groundwater dependent ecosystems.

3.1.4 Perris North Area GDE Evaluation Unit

There are two NCCAG mapped habitats within Moreno Valley subwatershed that lie outside of the Box Springs Mountains, North San Timoteo Badlands, and Perris North-Lower Pressure GDE Evaluation Units. These two remaining habitats are collectively called the Perris North Area GDE Evaluation Unit (Figure 3). The vegetation community within the NCCAG-identified habitat located directly north of the Bernasconi Hills is composed of Mule Fat, and the wetland community located along the western fringe of the Perris North groundwater management zone is characterized as a palustrine, emergent seasonally flooded wetland (Table 3; DWR, 2018).

Aerial photographs of the Mule Fat north of the Bernasconi Hills indicate that this habitat is located at the downstream segment of an earthen stream channel that diverts surface water runoff from the Box Springs Mountains into Moreno Valley. Surface water exiting this habitat runs off into a lined channel that diverts water to the Moreno Valley Regional Water Reclamation Facility (RWRF).

Groundwater was extracted near this habitat from well 21082 (Casing Name: UCR Scott) between 1984 and 2003. During the period from 1984 to 2003, well 21082 extracted well 21082 extracted an average of 290 AFY, with a minimum extraction of 39 AF in 2001 and a maximum extraction of 386 AF in 1996. During this period, static groundwater levels averaged 156 ft. bgs, and ranged between 126 ft. bgs and 169.7 ft. bgs. Aerial photographs indicate that the habitat persisted during the period from 1984 to 2003 despite the relatively deep groundwater levels.

Because the habitat was sustained during periods where static groundwater levels were much deeper than 30 ft. bgs, the vegetation community within the Central Perris North GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

The wetland community identified in the NCCAG dataset located on the west side of the Perris North management area was characterized as a habitat that is not groundwater dependent because the natural habitat was replaced by a parking lot in 2008.

3.1.4.1 Exceptions within the Central Perris North GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potentially groundwater dependent or groundwater dependent ecosystems.

3.2 Perris Reservoir Subwatershed

The Perris Reservoir subwatershed (Hydrologic Unit Code: 180702020305) lies near the center of the Lower San Jacinto watershed, within the Perris North management zone (Figures 1 and 2). This subwatershed drains over 31,800 acres and extends from the March Airforce Reserve Base (MARB) to the eastern edges of the Bernasconi Hills. The topographic highs in the Perris Reservoir subwatershed occur along the ridge of the Bernasconi Hills and along the western side of Perris Valley. Within the subwatershed boundary, the Bernasconi Hills rise to a maximum elevation of approximately 2,500 ft msl, and Perris Valley rises to a maximum elevation of approximately 1,900 ft msl. The basin floor reaches a topographic low of approximately 1,400 ft msl near the intersection of E. Rider Street and N. Perris Blvd (Google Earth Pro, 2019).

The NCCAG dataset identified potential wetland and vegetation GDEs within the Perris Reservoir subwatershed (Figure 4). Common phreatophytes included Mule Fat (Baccharis salicifolia), California Sycamore (Platanus racemose), Arid West freshwater emergent marsh, Red Willow (Salix Laevigata), Common Elderberry (Sambucus nigra), and Gooding's Willow (Salix Gooddingii) (Table 4; DWR, 2018). NCCAG-identified wetland habitats include riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands (Table 4; DWR, 2018).

These NCCAG data were grouped into three distinct GDE Evaluation Units based on geographic location and hydrogeologic settings (Figure 4): (1) Lake Perris, (2) March Air force Reserve Base (MARB), and (3) the Western Edge of Perris North. Table 4 provides a summary of the NCCAG polygon characteristics within the Perris Reservoir subwatershed.

3.2.1 Lake Perris GDE Evaluation Unit

NCCAG-mapped vegetation and wetland communities located within the Lake Perris GDE Evaluation Unit surround Lake Perris. Lake Perris is an artificial lake that serves as a reservoir for imported State Water Project water. The vegetation communities within this GDE Evaluation Unit consist of Mule fat, California Sycamore, Goodding's Willow, Arid West freshwater emergent marsh, and Scalebroom (Table 4; DWR, 2018). Mapped wetland communities within this GDE Evaluation Unit consist of riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands (Table 4; DWR, 2018).

Historical aerial photographs indicate that these habitats are submerged during wet years, and become exposed during dry years when surface water levels in Lake Perris decline. Groundwater elevations are not measured within 1km of these mapped habitats.

NDVI and NDMI changes in these habitats are correlated to Lake Perris surface water levels that either expose or submerge the mapped habitats. Between 2005 and 2006 these habitats went from being mostly submerged, to fully-exposed along the shoreline of Lake Perris. Figure 5 shows NDVI (orange) and NDMI (blue) for the Lake Perris GDE Evaluation Unit. Measurements along the shoreline of Lake Perris (triangles) show that surface water level declines between 2005 and 2006 correspond with a 400% NDVI increase and a 90% NDMI decrease. From 2006 to 2015, reservoir levels were low and the habitats were not submerged by State Water Project water that was stored in Lake Perris. NDVI increased during this period and NDMI showed little to no change. The habitats remained exposed until early 2018 when water levels in the reservoir rose in response to increased imported water supplies. The increased lake levels in 2018 correspond to a 130% decrease in NDVI and a 230% increase in NDMI.

Because historical aerial photographs and measured NDVI/NDMI indicate that the health of these ecosystems are correlated with surface water levels in Lake Perris, the Lake Perris GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.2.1.1 Exceptions within the Lake Perris GDE Evaluation Unit

The NCCAG dataset contains a mapped vegetation community located directly west of the Lake Perris Dam. This habitat is denoted as "X3" in Figure 4. This ecosystem contains California Sycamore (Table 4; DWR, 2018).

Aerial photographs indicate that this habitat occurs along the banks of a stream channel that collects surface water from a series of toe drains located along the base of the Lake Perris Dam. Comparison of aerial photographs from 1967 to 1978 suggests that the habitat developed after construction of the dam, and is therefore related to surface water levels in Lake Perris.

Although aerial photographs suggest that the habitat may rely on Lake Perris surface water, NDVI trends measured at X3 show different responses to Lake Perris surface water levels than the habitats located along the shoreline of Lake Perris. Figure 5 shows the NDVI (orange) and NDMI (blue) values measured at X3 (circles). Between 1985 and 2005, Figure 5 shows that NDVI steadily declined at X3, while NDVI showed little to no change along the shoreline (triangles) of Lake Perris. Between 2005 and 2007, NDVI increased by approximately 375% along the shoreline of Lake Perris. During this period, NDVI decreased at X3 by approximately 30%.

NDMI trends measured at X3 show some temporal similarity to NDMI measured along the shoreline of Lake Perris. Figure 5 shows that NDMI generally decreased in both habitats between 1985 and 2005. Between 2005 and 2006, NDVMI decreased by over 90% along Lake Perris Shoreline and by approximately 50% at X3. However, more recent NDMI measurements show divergent trends between the two habitats. Along the Lake Perris shoreline, NDMI has increased since 2015 in response to rising surface water levels within Lake Perris, while NDMI has steadily declined since 2015 at X3.

Groundwater levels are not measured within 1km of the mapped vegetation community. Simulation results from the SJFM-2014 suggest that groundwater levels underlying this habitat may occur at depths within the rooting zone of the California Sycamore (Figures 12 and 13). These simulated groundwater elevations are influenced by the Lake Perris Dam boundary condition that simulate a constant underflow of approximately 7,200 AFY of Lake Perris water into the groundwater basin.

Because groundwater levels are not measured within 1km of the mapped vegetation community, and NDVI and NDMI are not as clearly linked to Lake Perris Surface water levels as the habitats located along the Lake Perris shoreline, the habitat denoted by X3 in Figure 4 was characterized as potentially groundwater dependent. This habitat may be supported by surface water that seeps under the Lake Perris dam and is captured by toe drains in the vicinity of the habitat. Further characterization of the habitat and its potential dependence on surface water or groundwater will be warranted if future groundwater extractions are planned for this area.

3.2.2 March Air force Reserve Base GDE Evaluation Unit

The vegetation and wetland communities within the March Air force Reserve Base (MARB) GDE Evaluation Unit are located along the western fringe of the Plan Area (Figure 4). Vegetation communities within this GDE Evaluation Unit are characterized as Red Willow and Common Elderberry (Table 4; DWR, 2018). Wetland communities within this GDE Evaluation Unit are characterized as Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands (Table 4; DWR, 2018).

NDVI and NDMI trends vary across the MARB GDE Evaluation Unit. In the western edge of the GDE Evaluation Unit, NDVI and NDMI have decreased since 2009. This decline is correlated with a period of below-average precipitation. In the southwestern edge of the GDE Evaluation Unit (near Western Water Reclamation Facility), NDVI has shown little to no change. Vegetation communities located in the southwestern corner of the MARB GDE Evaluation Unit are near the unlined storage pond that holds excess tertiary water treated at the Western Water Reclamation Facility.

Groundwater levels are generally shallower than 30 ft. bgs underlying the MARB GDE Evaluation Unit (Figure 4). Static groundwater levels measured at the military cleanup site T0606545483 (Site Name: US Army Camp Haan (Former), Site Y, Landfill at Riverside) show that shallow groundwater exists in the southwestern region of the GDE Evaluation Unit (Geotracker, 2019). Along the western edge of the cleanup site, groundwater levels have fluctuated between 19 and 6 ft. bgs between January 2005 and November 2012.Static groundwater levels measured at US Air Force, Former March Air Force Base (DOD100277100) also demonstrate that groundwater occurs at depths shallower than 30 ft. bgs underlying the Riverside National Cemetery (Geotracker, 2020b). Measurements collected in January 2017 indicate that groundwater in this region occurs at depths ranging from 7.51 to 21.94 ft. bgs (Air Force Civil Engineer Center, 2018).

Lithologic data suggests that the MARB GDE Evaluation Unit is underlain by a mixture of sands and gravels with discontinuous lenses of clay (EMWD, 2016).

Because static groundwater levels are generally shallower than 30 ft. bgs, the MARB GDE Evaluation Unit was characterized as a groundwater dependent ecosystem.

3.2.2.1 Exceptions within the March Air Force Reserve Base GDE Evaluation Unit

The wetland habitat located directly adjacent to Cactus II Feeder MW-2 (well ID: 25838) was characterized as a habitat that is not groundwater dependent. Static groundwater levels measured at this well indicate that groundwater is encountered between 19 and 20 ft. bgs in the vicinity of this wetland habitat. Because groundwater does not emerge at land surface at this location, the wetland ecosystem was characterized as a habitat that is not groundwater dependent.

3.3.3 Western Edge of Perris North

The vegetation community mapped within the Western Edge of Perris North GDE Evaluation Unit is located along the periphery of the Perris North groundwater management zone (Figures 1 and 4). The dominant species within this GDE Evaluation Unit is characterized as Mule Fat (Table 4; DWR, 2018).

Aerial photographs indicate that this habitat occurs along the bed of a local wash. NDVI and NDMI have slightly decreased since 2009. This decrease in habitat greenness and wetness is correlated with a decreasing trend in annual precipitation.

There are no groundwater wells within a 1km radius of this GDE Evaluation Unit and the SJFM-2014 model domain does not extend to this western boundary of the Plan Area (Figures 12 and 13). Because there is limited data describing underlying groundwater, the Western Edge of Perris North GDE Evaluation Unit was characterized as a potential GDE. Further characterization of the habitat and its potential dependence on groundwater will be warranted if future groundwater extractions are planned for this area.

3.3 Mount Rudolph-San Jacinto River Subwatershed

The Mount Rudolph-San Jacinto River subwatershed (Hydrologic Unit Code: 180702020203) lies in the northwestern region of the Middle San Jacinto watershed (Figure 2). This subwatershed drains over 34,100 acres and extends from the ridgeline of the San Timoteo Badlands into the Hemet-San Jacinto management area. The topographic highs in the Mount Rudolph-San Jacinto River subwatershed occur along the ridge of the San Timoteo Badlands. Within the subwatershed boundary, the San Timoteo Badlands rise to a maximum elevation of approximately 2,400 ft. msl. The basin floor reaches a topographic low of approximately 1,400 ft. msl near the boundary between the Lower Pressure and Lakeview groundwater management zones (Google Earth Pro, 2019).

The dominant hydrologic features within this subwatershed are the San Jacinto River and Mystic Lake (Figure 6). Historically, the San Jacinto River drained into Mystic Lake, a natural sump formed by subsidence between the Casa Loma and San Jacinto Faults (San Jacinto Basin Resource Conservation District, 2009). EMWD currently diverts up to 5,760 AFY of surface water flow from the San Jacinto River upstream of the Plan Area to recharge the groundwater basin within the Hemet-San Jacinto management area (EMWD, 2016b). As a result, surface water only flows into Mystic Lake during wet years or large storms events when surface water flows are not captured. When water levels in Mystic Lake rise above 1,423 ft. msl, surface water will exit Mystic Lake and flow through an earthen channel that reconnects to the San Jacinto River within the Lakeview groundwater management zone (CDFW, 2017).

The Mount Rudolph-San Jacinto River subwatershed houses a diverse community of wetlands and vegetation. The NCCAG dataset identified vegetation communities that contain Red Willow (Salix laevigata), Tamarisk (Tamarix spp.), Goodding's Willow (Salix gooddingii), Mule Fat (Baccharis salicifolia), Arid West freshwater emergent marsh, and Southwestern North American salt basin and high marsh (Table 5; DWR, 2018). The NCCAG dataset characterized wetlands within this subwatershed as: Palustrine, emergent, persistent, seasonally flooded wetlands; Palustrine, forested, seasonally flooded wetlands; Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands; and Lacustrine, limnetic, unconsolidated bottom, permanently flooded wetlands (Table 5; DWR, 2018).

These NCCAG data were grouped into five distinct GDE Evaluation Units based on geographic location and hydrogeologic settings: (1) California Department of Fish and Wildlife (CDFW)/Private Duck Ponds, (2) Central San Timoteo Badlands, (3) Mystic Lake, (4) Lakeview Area, and (5) the San Jacinto River unit. Table 5 provides a summary of the GDE characteristics within the Mount Rudolph-San Jacinto subwatershed.

3.3.1 CDFW/Private Duck Ponds GDE Evaluation Unit

Vegetation and wetland communities mapped within the CDFW/Private Duck Ponds GDE Evaluation Unit are located between the Bernasconi Hills (east of Lake Perris) and Mystic Lake (Figure 6). This GDE Evaluation Unit lies within the San Jacinto Wildlife Area. The wetland habitats are managed by CDFW and several privately owned

duck clubs. The NCCAG dataset mapped Red Willow, Arid West freshwater emergent marsh, and Southwestern North American salt basin and high marsh as vegetation communities located within the CDFW/Private Duck Ponds GDE Evaluation Unit (Table 5; DWR, 2018). The NCCAG dataset also identified wetlands within this GDE Evaluation Unit that were characterized as Lacustrine, limnetic, unconsolidated bottom, permanently flooded, and Palustrine, unconsolidated bottom, semi-permanently flooded wetlands (Table 5; DWR, 2018).

EMWD delivers tertiary-treated recycled water for the management of wetlands and vegetation within this GDE Evaluation Unit. In 2015, EMWD delivered approximately 3,500 AF of recycled water to the managed wetlands, and has plans to allocate up to 4,500 AFY to the San Jacinto Wildlife Area by 2040 (EMWD, 2016).

The vertical infiltration of recycled water within the CDFW/Private Duck Ponds GDE Evaluation Unit was examined by EMWD in 2011. Cone Penetrometer Tests (CPTs) were used to characterize the soils in the shallow, unsaturated zone beneath the GDE Evaluation Unit (EMWD, 2011). The CPT results show that the upper 30-feet of lithology underlying the GDE Evaluation Unit is clay-rich. Along the western bank of Mystic Lake, the first 30-feet of subsurface materials is composed of 100% clay, and along the eastern edge of the Bernasconi Hills, the upper 30-feet of subsurface materials is composed of up to 95% clay. Based on these results, the study concluded that the fine-grained materials underlying the GDE Evaluation Unit limit hydraulic communication between infiltrating surface water and groundwater that is stored in deeper groundwater aquifer units.

These conclusions are further supported by the negative correlation between groundwater production and NDVI and NDMI in the northwestern corner of this GDE Evaluation Unit. Groundwater wells Double Bar S North (well ID 20296) and Double S Bar South (well ID: 20297) actively extract groundwater approximately 0.5 km from the GDE Evaluation Unit (Figure 6). Both wells have extracted 225 AF of groundwater per year since January 2013. NDVI and NDMI measurements at the eastern edge of this GDE Evaluation unit have generally increased since 2009. The increase in NDVI and NDMI indicates habitat health is not correlated to groundwater extractions or groundwater elevations at wells Double Bar S North and Double Bar S South.

Simulation results from the SJFM-2014 suggest that groundwater levels are shallower than 30-feet bgs in the northern region of this GDE Unit (Figures 12 and 13). Simulated groundwater elevations in this region of the model are approximately 30 to 100 feet higher than measured elevations (Figures 12 and 13). Groundwater conditions in this region of the model domain are complex, and additional hydrogeological studies in this region are expected to improve model calibration and representation of groundwater conditions (EMWD 2016).

Because the vegetation and wetland communities with the CDFW/Private Duck Ponds GDE Evaluation Unit are sustained by recycled water (EMWD, 2011) and do not respond to local groundwater extractions, this GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.3.1.1 Exceptions within the CDFW/Private Duck Pond GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potentially groundwater dependent or groundwater dependent ecosystems.

3.3.2 Mystic Lake

Vegetation and wetland communities mapped by the NCCAG dataset within the Mystic Lake GDE Evaluation Unit are located along the shoreline of the ephemeral Mystic Lake (Figure 6). This GDE Evaluation Unit also lies within the San Jacinto Wildlife Area. During wet years and large storm events, Mystic Lake will fill up with surface water from the San Jacinto River and runoff from the San Timoteo Badlands. Vegetation communities mapped in the NCCAG dataset include Red Willow and Southwestern North American salt basin and high marsh (Table 5; DWR, 2018). Wetland communities mapped in the NCCAG dataset were characterized as Palustrine, emergent, persistent, and seasonally flooded wetlands (Table 5; DWR, 2018).

Groundwater was actively extracted within this GDE Evaluation unit at Fish & Game Cannery Feedlot (well ID: 20304) between January 1984 and December 1992 (Figure 6). During this period, Fish & Game Cannery Feedlot extracted an average of 335 AF per year, with a minimum extraction of 203 AF in 1991 and a maximum extraction of 637 AF in 1989. Semi-annual monitoring of static groundwater elevations at Fish & Game Cannery Feedlot began in February 2001 and is ongoing. The shallowest groundwater level was 230 ft. bgs on 11/20/2018.

Static groundwater levels measured in Fish & Game Feedlot Domestic (well ID: 20306) south of Fish & Game Cannery Feedlot, are shallower than 30 ft. bgs (Figure 6). The shallowest groundwater level measured at this well was 26.1 ft. bgs on 3/18/2003. The deepest groundwater level measured at Fish & Game Feedlot Domestic was 38.2 ft. bgs (measured on 10/12/2017). Current groundwater levels are approximately 37 ft. bgs (measured on 11/20/2018).

Along the western banks of Mystic Lake, static groundwater levels are actively measured at Mystic Duck Club (well ID: 20294) (Figure 6). The screen interval for Mystic Duck Club is unknown. Static groundwater levels have been measured semiannually at this well since 1996. Groundwater levels have averaged approximately 127 ft. bgs between 1996 and 2018. Groundwater has been as shallow as 112.5 ft. bgs (measured on 10/23/2012), and as deep as 143.7 ft. bgs (measured on 11/26/2018).

Lithologic data underlying the Mystic Lake GDE Evaluation Unit suggests Fish & Game Cannery Feedlot and Fish & Game Feedlot Domestic may be screened in different aquifer units (EMWD, 2016). Within this GDE Evaluation Unit, a thick clay extends from land surface to approximately 250-300 ft. bgs. Below approximately 250 ft. bgs, this clay is interrupted by discontinuous lenses of sands and gravels. Fish & Game Feedlot Domestic is screened 160 to 480 ft. bgs, across the thick upper clay and two hydraulically distinct beds of sands and gravel that extend from approximately 275 to 525 ft. bgs. Fish & Game Cannery Feedlot is screened 350 to 720 ft. bgs, predominantly in the lower gravel bed that lies approximately 400 ft. bgs. The thick clay that overlies the sand and gravel beds suggests that there is no hydraulic communication between water stored within the upper clay unit, and deeper gravel beds that are used for groundwater production.

NDVI and NDMI have generally decreased since 2009, which indicates a decline in habitat health. During this period, water levels measured at Fish & Game Cannery Feedlot and Fish & Game Feedlot Domestic have generally been rising. The lack of correlation between NDVI and NDMI and measured groundwater levels further suggests little hydraulic communication between shallow groundwater and deeper aquifer units.

Because the thick clay cap underlying Mystic Lake limits hydraulic communication between groundwater and the vegetation and wetland communities, the habitats within the Mystic Lake GDE Evaluation Unit were characterized as being not groundwater dependent.

3.3.2.1 Exceptions within the Mystic Lake GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potential GDEs or groundwater dependent ecosystems.

3.3.2.2 Interactions with the Hemet San Jacinto Management Area

The Mystic Lake GDE Evaluation Unit borders the management boundary that separates the Plan Area from the adjudicated Hemet-San Jacinto region of the San Jacinto Groundwater Basin (Figure 1). Groundwater management within the Hemet-San Jacinto management area is overseen by the Hemet-San Jacinto Watermaster, as defined by the Stipulated Judgement (Case No. RIC 1207274) entered on April 18, 2013 (www.emwd.org).

Groundwater was actively extracted within 1km of the Mystic Lake GDE Evaluation Unit at Lauda Beebower Lauda (well ID: 20565; located within the Hemet-San Jacinto Management area; screened 2830-604 ft. bgs) between 1985 and 2008 (Figure 6). Lauda Beebower Lauda extracted 650 AFY between 1985 and 1997; groundwater extractions at this well decreased after 1997 and ceased in 2008. Static groundwater levels have been measured semiannually at Lauda Beebower Lauda since March 1997. Groundwater levels at this well have increased from a depth of 308 ft. bgs in March 1997, to a depth of 255 ft. bgs (measured on 4/23/2018). Static groundwater levels at Lauda Beebower Lauda show no seasonal variations.

Static groundwater levels within 1km of the Mystic Lake GDE Evaluation Unit are also measured at well Lauda South of Gilman Springs Road (well ID: 20313; located within the Hemet-San Jacinto Management area; screened 460-950 ft. bgs; Figure 6). Static water levels have been measured semiannually at this well since December 2000. Static water levels at this well have generally declined from a depth of 176 ft. bgs in December 2001, to a depth of 197.9 ft. bgs in October 2018. Water levels at well Lauda South of Gilman Springs Road do not show seasonal variations.

The thick clay cap that underlies Mystic Lake does not extend into the Hemet-San Jacinto Management Area (EMWD, 2016). However, lithologic data indicates that deep aquifer units within the Hemet-San Jacinto Management Area, from which Lauda Beebower Lauda extracted groundwater, may be contiguous with the sand and gravel beds that underlie the thick clay cap within the Mystic Lake GDE Evaluation Unit. The sand and gravel units within the Hemet-San Jacinto Area contain interbedded, discontinuous lenses of relatively thick (<50-feet) clay. Groundwater level declines measured at Lauda South of Gilman Springs Road are indicative of water levels within deep aquifer units that are not hydraulically connected to the first 30-feet of sediments underlying the Mystic Lake GDE Evaluation Unit.

3.3.3 Central San Timoteo Badlands GDE Evaluation Unit

The NCCAG dataset identified vegetation communities associated with common phreatophytes located along the eastern fringe of the Lower Pressure groundwater management zone within the Mount Rudolph-San Jacinto River subwatershed (Figures 1 and 6). The vegetation communities in this region were aggregated into the Central San

Timoteo Badlands GDE Evaluation Unit. Vegetation communities within this GDE Evaluation Unit were characterized as Mule Fat, Red Willow, and Tamarisk (Table 5; DWR, 2018).

Aerial photographs of the GDE Evaluation unit indicate that these vegetation communities are located along earthen stream channels that carry water from the San Timoteo Badlands into the Lower Pressure management zone.

NDVI and NDMI trends vary across the GDE Evaluation Unit. In the southern section of this Unit, NDVI and NDMI have decreased since 2009 – this habitat health degradation is correlated with a period of below-average precipitation. In contrast, in the northern reaches of this GDE Evaluation Unit, NDVI and NDMI show very little change since 2009.

Groundwater elevation data within 1km of this GDE Evaluation Unit is limited. Therefore, the interaction between these vegetation habitats and underlying groundwater cannot be characterized. Because of this the Central San Timoteo Badlands GDE Evaluation Unit was characterized as a potential GDE. Further characterization of these habitats and their potential dependence on groundwater will be warranted if future production is planned near these habitats.

3.3.3.1 Exceptions within the Central San Timoteo Badlands GDE Unit

Three NCCAG-identified vegetation communities located approximately 2.5 miles north of Mystic Lake were characterized as habitats that are not groundwater dependent. These communities are identified as the boxed region labeled “X4” in Figure 6. The vegetation within these mapped communities are characterized as Mule Fat and Red Willow (Table 5; DWR, 2018).

NDVI and NDMI trends along the base of the San Timoteo Badlands are correlated with annual precipitation. A review of aerial photographs indicate that these habitats are located along dry streambeds.

USGS Gilman Springs/Virginia (well ID: 21015) measures groundwater elevations at the base of the San Timoteo Badlands (Figure 6). Static groundwater levels at this location have been measured since 1941. The shallowest recorded depth to groundwater was 102.4 ft. bgs, in 2006. The most recent groundwater level was 111.9 ft. bgs (measured on 11/26/2018). Aerial photographs indicate that habitats at the base of the San Timoteo Badlands have persisted since at least 1985, despite groundwater elevations that are greater than 100 feet bgs.

Static groundwater levels near the southern portion of this habitat have been measured at Moreno Highlands/Alta Dena Dairy 01 (well ID: 20285) since March 1999 (Figure 6). This well is screened between 504 and 1080 feet bgs. Water levels at this well have increased since 1999 from 125 feet bgs to 120 feet bgs. NDVI and NDMI have shown little to no change during this period, which suggests that the habitat health is not responding to increasing water levels.

Lithology underlying the habitat also suggests that the first 100 feet of subsurface materials are predominantly composed of sands and gravels (EMWD, 2016). Below this, thick units of clay extend to depths greater than 500 ft. bgs. Moreno Highlands/Alta Dena Dairy 01 is screened 504-1080 ft. bgs, in the deeper, more transmissive sand and gravel units.

Because aerial photographs indicate that these three habitats persisted during periods where static groundwater levels were deeper than 100 feet bgs, and the habitats show no clear response to changes in measured water levels, the habitats encompassed by the boxed region in Figure 5 were characterized as not groundwater dependent.

3.3.4 Lakeview GDE Evaluation Unit

Vegetation and wetland communities within the Lakeview GDE Evaluation Unit are located west of the CDFW/Private Duck Ponds GDE Evaluation Unit, within the Lakeview groundwater management zone (Figures 1 and 6). Vegetation communities mapped within the NCCAG dataset were characterized as Southwestern North American salt basin and high marsh (DWR, 2018). Wetland communities mapped within the Lakeview GDE Evaluation Unit are characterized as: Palustrine, emergent, persistent, seasonally flooded wetlands; Palustrine, forested seasonally flooded wetlands; Palustrine, unconsolidated bottom, semi-permanently flooded wetlands; and Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands (DWR, 2018).

Aerial photographs indicate that the mapped marshes and wetlands within the Lakeview GDE Evaluation Unit are located near active dairy farms.

Groundwater is actively extracted from Nutrilite 08 (well ID: 21340), Nutrilite 09 (well ID: 20797), Nutrilite 04 (well ID: 21342), Bootsma, John (well ID: 20804), and Goyentche Dairy (Ferreira) (well ID: 21345). Nutrilite 08 has extracted groundwater since 1997 at an average rate of 440 AFY, a maximum rate of 1100 AFY in 2018, and was inactive between 2006 and 2012. Nutrilite 09 extracted groundwater between 1997 and 2002. During this period, Nutrilite 09 extracted an average of 430 AFY, with a minimum extraction of 360 AF in 2002, and a maximum extraction of 465 AF in 1999. Nutrilite 04 has been active since 1984 and extracts an average of 200 AF per year, with a maximum extraction of 786 AF in 1984, and was inactive between 1997 and 2002. Bootsma, John has actively extracted groundwater since 1996. Bootsma, John extracts an average of 170 AF per year, with a minimum extraction of 100 AF in year 2001, and a maximum extraction of 250 AF in year 2009. Goyenetche Dairy (Ferreira) has actively extracted groundwater since 1984. Goyenetche Dairy extracts an average of 88 AF, with a minimum of 64 AF in year 2005, and a maximum of 121 AF in year 2011.

Static groundwater levels within the Lakeview GDE Evaluation Unit are measured at wells Nutrilite 09, Nutrilite 08, and Goyenetche Dairy (Ferrieria) (Figure 6). Water levels at these wells have characterized static groundwater levels within the GDE Evaluation Unit since 1995. Static water levels average approximately 230 ft. bgs in the three wells. The shallowest depth to water was measured at well Goyenetche Dairy (Ferriera) on 3/14/2018 (189 ft. bgs).

Lithologic data in the southern portion of the GDE Evaluation Unit indicate that beds of clay and fine sand persist from ground surface to approximately 200 ft. bgs (EMWD, 2016). These beds of clay likely separate the upper 30-feet of sediments from deeper aquifer units that groundwater is extracted from.

Aerial photographs of the southern habitats within the Lakeview GDE Evaluation Unit indicate annual variation in habitat health, despite water levels consistently being below 180 ft. bgs. NDVI and NDMI were not calculated for these wetland habitats. In the northern region of the Lakeview GDE Evaluation Unit, NDVI and NDMI generally increased between 2006 and 2018, during a period of below-average precipitation.

Variability in habitat health during periods where groundwater levels were consistently deeper than 150 ft. bgs suggests that these habitats are not sustained by groundwater. Because of this, the Lakeview GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.3.4.1 Exceptions within the Lakeview GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potential GDEs or groundwater dependent ecosystems.

3.3.5 San Jacinto River GDE Evaluation Unit

Vegetation and wetland communities within the San Jacinto River GDE Evaluation Unit are located southwest of the CDFW/Private Duck Pond GDE Evaluation Unit (Figure 6). These habitats are located within the bed, banks, and flood plains of the earthen channel that carries overflow water from Mystic Lake into the San Jacinto River. The vegetation communities within this GDE Evaluation Unit were characterized as Goodding's Willow and Southwestern North American salt basin and high marsh (Table 5; DWR, 2018). The NCCAG dataset did not identify the presence of any wetland habitats within this GDE Evaluation Unit.

Static groundwater levels are monitored semiannually at Fish & Game Domestic (well ID: 22687) (Figure 6). Between 2008 and 2019, static groundwater levels averaged approximately 171 ft. bgs, and have been generally rising over the past 10 years. Water levels underlying the habitat show little seasonal variations. The shallowest water level measured at Fish & Game Domestic was 161.5 ft. bgs on 11/26/2018. The deepest static groundwater level measured at Fish & Game Domestic was 182.4 ft. bgs on 3/14/2008. Results from the SJFM-2014 indicate that groundwater elevations remain much deeper than 100 ft. bgs along this stretch of the San Jacinto River (Figures 12 and 13).

Aerial photographs suggest that there is limited hydraulic communication between groundwater and the San Jacinto River GDE Evaluation Unit. For example, aerial photographs of Southwestern North American salt basin and high marsh located along the flood plain of the San Jacinto River shows that the habitat retreated between February and October 2016. During this period, static groundwater levels measured at Fish & Game Domestic remained constant: 164.9 feet bgs in April 2016 and 165.8 feet bgs in October 2016.

Lithology underlying the site is complex. Data from Fish & Game New Domestic (well ID: 22733, 0.1km north of Fish & Game Domestic; Figure 6), indicates that clay may extend from land surface to approximately 25-feet bgs (EMWD, 2016). This clay is underlain by an approximately 20 feet of sands and gravels, then an additional 30 feet of clay that overlies granitic bedrock. The depth to bedrock on the eastern side of this GDE Evaluation Unit is not well constrained, but lithologic data suggests that relatively thick units of sands and clays alternate in succession to depths greater than 400 ft. bgs.

The limited variation in water levels during periods of habitat change, deep (>150 ft. bgs) static groundwater levels underlying the habitat, and lithologic data suggesting that thick clay layers may separate the first 30 feet of subsurface from deeper aquifer units, suggests that the San Jacinto River GDE Evaluation Unit is not groundwater dependent.

3.3.5.1 Exceptions within the San Jacinto River GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potential GDEs or groundwater dependent ecosystems.

3.4 Perris Valley-San Jacinto River Subwatershed

The Perris Valley-San Jacinto River subwatershed (Hydrologic Unit Code: 180702020306) lies near the center of the Lower San Jacinto watershed (Figure 2). This subwatershed drains over 11,900 acres and covers most of the Lakeview and Perris South management zones. The topographic highs in the Perris Valley-San Jacinto River subwatershed occur along the Lakeview Mountains. Within the subwatershed boundary, the Lakeview Mountains rise to a maximum elevation of approximately 2,400 ft msl (Google Earth Pro, 2019). The basin floor reaches a topographic low of approximately 1,400 ft msl near the intersection Interstate 215 and California Highway 74 (Google Earth Pro, 2019).

The NCCAG dataset identified potential wetland and vegetation GDEs within the Perris Valley-San Jacinto River subwatershed (Figure 7). Common phreatophytes include Scalebroom (Lepidospartum squamatum), Fremont Cottonwood (Populus fremontii), and Common Elderberry (Sambucus nigra) (Table 6; DWR, 2018). NCCAG-identified wetland habitats include: Palustrine, emergent, persistent seasonally flooded wetlands; Palustrine, Scrub-Shrub, seasonally flooded wetlands; and Riverine, Unknown Perrenial, Unconsolidated Bottom, Semi-permanently Flooded wetlands (Table 6; DWR, 2018).

These NCCAG data were grouped into three distinct GDE Evaluation Units based on geographic location and hydrogeologic settings (see Figure 6): (1) Lakeview Mountains, (2) Lower San Jacinto River, and (3) Perris South. Table 6 provides a summary of the NCCAG polygon characteristics within the Perris Valley-San Jacinto River subwatershed.

3.4.1 Lakeview Mountains GDE Evaluation Unit

Vegetation communities mapped within the Lakeview Mountains GDE Evaluation Unit are located near the ridgeline of the Lakeview Mountains (Figure 7). NCCAG identified common phreatophytes in this GDE Evaluation Unit that consist of Scalebroom and Common Elderberry (Table 6; DWR, 2018). The NCCAG dataset did not identify wetland habitats within this GDE Evaluation Unit.

Aerial photographs indicate that these habitats lie along the banks of earthen stream channels that carry runoff from the Lakeview Mountains into the Lakeview and Perris South management zones. NDVI and NDMI has increased within this GDE Evaluation Unit since 2009. These NDVI and NDMI increases are not correlated with measured precipitation.

There is no data characterizing groundwater conditions within this GDE Evaluation Unit. Because the interaction between groundwater and this habitat cannot be characterized, this GDE Evaluation Unit was characterized as a potential groundwater dependent ecosystem. Further characterization of the habitat and its potential dependence on groundwater will be warranted if future groundwater extractions are planned for this area.

3.4.1.1 Exceptions within the Lakeview Mountains GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as potential GDEs. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as not groundwater dependent, or groundwater dependent ecosystems.

3.4.2 Lower San Jacinto River GDE Evaluation Unit

Wetland communities mapped within the Lower San Jacinto River GDE Evaluation Unit are located along the segment of the San Jacinto River that extends from the Lakeview groundwater management zone into the Perris South groundwater management zone (Figures 1 and 7). The western edge of this GDE Evaluation Unit ends directly upstream of the confluence between the San Jacinto River and Perris Drain. NCCAG characterized the wetland habitats as Palustrine, emergent, persistent, seasonally flooded wetlands, and Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetlands (DWR, 2018). There are not NCCAG-mapped vegetation communities within this GDE Evaluation Unit.

Two wells actively extract groundwater within 1km of the GDE Evaluation Unit: EMWD 93 Nuevo/Menifee (well ID: 25779, screened 200-330 ft. bgs) and EMWD 95 13th St (well ID: 25802, screened 200-420 ft. bgs; Figure 7). EMWD 93 Nuevo/Menifee has extracted groundwater since 2016 at an average rate of 930 AFY, with a minimum extraction of 195 AF in year 2018, and a maximum extraction of 1,464 AF in 2017. EMWD 95 13th St has extracted groundwater since 2018. During calendar year 2018, EMWD 95 13th St extracted 1,412 AF of groundwater. Static groundwater levels are not reported at EMWD 95 13th St. Static groundwater levels have been deeper than approximately 90 ft. bgs since 2016.

Static groundwater levels near this GDE Evaluation Unit are also measured at EMWD Skiland 05 (well ID: 21436, screened 313-567 feet bgs), and well Lakeview Hot Springs (well ID: 22681, screened 100-403 feet bgs; Figure 7). Static groundwater levels at EMWD Skiland 05 have been measured as deep as 171.8 ft. bgs (measured on 3/27/1990) and as shallow as 61.9 ft. bgs (measured on 3/10/2013). Water levels rose at EMWD Skiland 05 between 1990 and 2006, and have remained relatively stable around 65 ft. bgs. Static groundwater levels at Lakeview Hot Springs have been measured as deep as 190.1 ft. bgs (measured on 10/18/2002) and as shallow as 144.7 ft. bgs (measured on 3/5/18).

Lithologic data at EMWD Skiland 05 and Lakeview Hot Springs suggest that deeper aquifer units may be separated from groundwater within the first 30-feet of sediments by thick clay beds. At Lakeview Hot Springs, clays persist from land surface down to approximately 100 feet bgs, and are then underlain by higher conductivity sands and gravels that are more conducive to groundwater flow. Similarly, at EMWD Skiland 05, clays and fines predominate the first 200-feet of the subsurface. Groundwater extractions from EMWD 93 Nuevo/Menifee and EMWD 95 13th St occur within the sand and gravel beds that underlie the thick clay beds encountered at wells EMWD Skiland 05 and Lakeview Hot Springs.

Because static groundwater levels within 1km of the GDE Evaluation Unit are deeper than 50 ft. bgs and lithologic data suggests that infiltrating surface water is separated from deeper aquifer units by relatively thick layers of clay, the Lower San Jacinto River GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.4.2.1 Exceptions within the Lower San Jacinto River GDE Evaluation Unit

The NCCAG-identified habitats within this GDE Evaluation Unit are all characterized as habitats that are not groundwater dependent. There are no NCCAG-mapped ecosystems within this GDE Evaluation Unit that are characterized as potential GDEs or groundwater dependent ecosystems.

3.4.3 Perris South GDE Evaluation Unit

There are two habitats within the NCCAG dataset that lie within the Perris Valley-San Jacinto River subwatershed that do not lie within the Lakeview Mountains and Lower San Jacinto River GDE Evaluation Units. While these habitats are not in geographically similar regions, they have been aggregated into the Perris South GDE Evaluation Unit. These habitats are discussed independently below.

3.4.3.1 Habitat 1

The first habitat within the Perris South GDE Evaluation Unit is located along the western edge of the Plan Area boundary and is denoted by "X5" in Figure 7. DWR characterizes the dominant species in the habitat as Fremont Cottonwood (Populus fremontii).

Landsat data analyzed by The Nature Conservancy indicates that NDVI and NDMI have both increased since 2009. This is not correlated with a decrease in measured precipitation.

A review of historical aerial photographs indicate that this habitat lies along the banks of the San Jacinto River. This portion of the river is downstream of the confluence between the Perris Drain and San Jacinto River. This segment of the San Jacinto River flows during wet months due to the diversion of surface water runoff through the Perris Drain into the San Jacinto River.

There are no wells near this habitat that characterize groundwater conditions. Because there is no data characterizing groundwater conditions underling this habitat, the ecosystem was characterized as a potential GDE.

3.4.3.2 Habitat 2

The second habitat within the Perris South GDE Evaluation Unit is located in the western portion of the Perris South groundwater management zone and is denoted by "X6" in Figure 7. DWR characterizes the habitat as a riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland (Table 6; DWR, 2018).

A review of historical aerial photographs of the site encompassed by iGDE Polygon 18 indicates that no habitat currently exists. The polygon traverses a 105-acre plot of agricultural land.

Static groundwater levels near X6 are monitored at well EMWD B3 (well ID: 21729; Figure 6). Static groundwater levels increased at this well from a depth of 92 ft. bgs in September 1994 to a depth of 46 ft. bgs in October 2005. Since 2005, groundwater levels have generally declined to the current depth of approximately 58 ft. bgs (measured on 11/14/2018).

Because water levels have not been measured shallower than 40 ft. bgs, and SGMA defines a wetland GDE as a habitat where groundwater emerges at land surface (TNC, 2018), Habitat 2 was characterized as not groundwater dependent.

3.5 Menifee Subwatershed

The Menifee subwatershed (Hydrologic Unit Code: 180702020307) overlies the southern extension of the Perris South groundwater management zone and the northern half of the Menifee groundwater management zone (Figures 1 and 2). The Menifee subwatershed drains over 17,800 acres into Canyon Lake. Within the Plan Area, the Menifee subwatershed reaches a topographic high of approximately 1,700 ft. msl at the western extension of the Lakeview Mountains (Google Earth Pro, 2019). The valley floor drops to a topographic low of approximately 1,400 ft. msl at the intersection of Newport Road and Goetz Road (Google Earth Pro, 2019).

The NCCAG dataset identified two potential wetland GDEs within the Menifee subwatershed (Figure 8). These wetland habitats were characterized as: Palustrine, emergent, persistent seasonally flooded wetlands; and Riverine, Unknown Perennial, Unconsolidated Bottom, Semi-permanently Flooded wetlands (Table 7; DWR, 2018).

Due to the limited number of potential GDEs within this subwatershed, each NCCAG-identified habitat is discussed individually below. Table 7 provides a summary of the NCCAG polygon characteristics within the Menifee subwatershed.

3.5.1 Salt Creek GDE Evaluation Unit

The Salt Creek GDE Evaluation Unit is located in the southern portion of the Perris South groundwater management zone and is denoted using the green symbology in Figure 8. This GDE Evaluation unit is located immediately south of EMWD's Sun City Regional Reclamation Facility within Salt Creek, which has been modified as an engineered soft bottom channel that conveys flows between Menifee Lakes Country Club 2 miles upstream of the GDE and the eastern arm of Canyon Lake 1.8 miles downstream of the GDE. This habitat is characterized as a palustrine, emergent, persistent, seasonally flooded wetland (DWR, 2018).

TNC has not analyzed Landsat data to characterize NDVI and NDMI for this habitat.

Aerial photographs indicate that this habitat lies along the banks of the Salt Creek River and that the areal extent of the wetland varies seasonally. For example, in February 2018, photographs of the habitat show the presence of wetlands, while in August 2018, the habitat appears to be completely dry. Similar seasonal variations were observed in images that date back to 2009. The photograph below shows the Salt Creek GDE Evaluation Unit in December 2018. This image shows that water ponds locally within the engineered channel of the Salt Creek, but also that the habitat is impacted by ongoing disposal of anthropogenic waste.

Static groundwater levels near this habitat are characterized using EWMD C2 (well ID: 21783), EMWD C1 (well ID: 21786), and EMWD 85 Murrieta/Salt Creek (well ID: 25416; Figure 8). Water levels at EMWD C2 have been measured semi-annually since 1994. During the 14 year record of measurement, static groundwater levels have averaged approximately 26 ft. bgs. The shallowest depth to water measured at EMWD C2 was 17.6 ft. bgs on 10/12/2005, and the deepest static groundwater level measured at EMWD C2 was 35.6 ft. bgs on 11/19/2018. Static groundwater levels measured at EMWD C1 are very similar (within a few feet) of the water levels measured at EMWD C1.

Static groundwater levels have been measured at well EMWD 85 Murrieta/Salt Creek since October 2006. During the 11-year record of measurement, water levels have averaged approximately 28 ft. bgs. The shallowest depth to water measured at EMWD 85 Murrieta/Salt Creek was 23.3 ft. bgs on 3/7/2011, and the deepest static groundwater level measured at EMWD 85 Murrieta/Salt Creek was 40.2 ft. bgs on 7/6/2015.

Groundwater near the Salt Creek GDE Evaluation Unit has been extracted from wells EMWD 85 Murrieta/Salt Creek and EMWD 75 Salt Creek (well ID: 22701). EMWD 85 Murrieta/Salt Creek actively extracted groundwater between 2009 and 2015. During this period, EMWD 85 Murrieta/Salt Creek extracted an average of 340 AFY, with a minimum extraction of 81 AF in 2006 and a maximum extraction of 694 AF in 2014. Well EMWD 85 Murrieta/Salt Creek was inactive between 2007 and 2012. EMWD 75 Salt Creek actively extracted groundwater between 2002 and 2017. During this period, well EMWD 75 Salt Creek extracted an average of 220 AFY, with a minimum extraction of 9 AF in 2017 and a maximum extraction of 463 AF in 2015.

The Salt Creek GDE Evaluation Unit is also located directly downstream of the USGS stream gauge 11070465 (Gauge Name: Salt Creek at Murrieta Road). USGS stream gauge 11070465 has measured daily discharge through the unlined Salt Creek continuously since October 2000. Figure 9 shows monthly discharge measured at 11070465 (orange) and static depth to groundwater levels (blue) measured at well EMWD C2.

The depth to water hydrograph shown in Figure 9 indicates that water levels have remained shallower than 40 ft. bgs since December 2000. Water levels measured in the late winter/early spring months are typically shallower than the static groundwater levels measured in fall of the same year. This trend in measured groundwater levels is likely impacted by the infiltration of surface water through the unlined channel of Salt Creek

Nearby lithologic data suggests that the subsurface underlying the Salt Creek GDE Evaluation Unit is predominantly composed of sands and gravels with interbedded, discontinuous beds of thin clays and fines (EMWD, 2016). The lack of a contiguous, thick clay underlying the Salt Creek GDE Evaluation Unit further supports the conclusion that surface water percolation through Salt Creek locally recharges the underlying aquifer system.

The measured interaction between Salt Creek and the underlying groundwater indicates the Salt Creek GDE Evaluation Unit is supported by percolating surface water. Because groundwater levels have not been measured shallower than 20 ft. bgs, and SGMA defines a wetland GDE as a habitat where groundwater emerges at land surface (TNC, 2018), the Salt Creek GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.5.2 Menifee GDE Evaluation Unit

The Menifee GDE Evaluation Unit is located just outside of the Perris South groundwater management zone boundary, near Mccall Canyon Park. This small (0.2 acres) GDE Evaluation Unit is denoted using the orange symbology in Figure 8. The habitat is characterized as a riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded wetland (Table 7; DWR, 2018).

Aerial photographs shows that the NCCAG-mapped polygon overlies a single-family home that was built prior to 2005. Because this habitat no longer exists, the Menifee GDE Evaluation Unit was characterized as a habitat that is not groundwater dependent.

3.6 San Jacinto Valley Subwatershed

The San Jacinto Valley subwatershed (Hydrologic Unit Code: 180702020302) drains over 36,600 acres (Figures 2 and 10) Surface water runoff within this watershed is drained into Salt Creek. Within the Plan Area, the Menifee subwatershed reaches a topographic high of approximately 1,850 ft. msl along the ridgeline of the Lakeview Mountains (Google Earth Pro, 2019). The valley floor drops to a topographic low of approximately 1,430 ft. msl at the intersection of Newport Road and Interstate 215 (Google Earth Pro, 2019).

The NCCAG dataset identified a wetland habitat (characterized as Palustrine, unconsolidated bottom, semi-permanently flooded wetland) and vegetation community comprised of Mule Fat (Baccharis salicifolia) (Table 9; DWR, 2018).

Each NCCAG-identified habitat is discussed individually below. Table 9 provides a summary of the GDE characterizations within the San Jacinto Valley subwatershed.

3.6.1 Habitat 1

Habitat 1 (denoted by “X7” in Figure 10) is located in the southeastern portion of the Perris South groundwater management zone. The dominant species within this habitat is Mule Fat (Table 9; DWR, 2018).

There has been little to no change in NDVI since 2009. NDMI has increased since 2009. A review of historical aerial photographs shows persistent vegetation in this region.

Groundwater levels are not monitored near this habitat.

Because there is no groundwater and lithology data near this habitat, Habitat 1 was characterized as an ecosystem that is potentially groundwater dependent. Further characterization of the habitat and its potential dependence on groundwater will be warranted if future groundwater extractions are planned for this area.

3.6.2 Habitat 2

Habitat 2 (denoted by "X8" in Figure 10) is located in the Menifee groundwater management zone. This habitat is characterized as a Palustrine, unconsolidated bottom, semi-permanently flooded wetland (DWR, 2018).

Aerial photographs indicate that this habitat is located within the Wilderness Lake Recreational Vehicle (RV) Resort. The RV Park is a managed recreational area.

Nearby lithologic data suggests that the subsurface underlying Habitat 2 is predominantly sands and gravels with thin lenses of clays and fines (EMWD, 2016).

Static groundwater levels underlying the habitat have been measured at Abacherli Dairy (well ID: 20981) and DeJong Dairy South (well ID: 22669; Figure 10). Static groundwater levels were measured at 20981 between March 1998 and February 2012. During this period, groundwater levels were averaged approximately 113 ft. bgs. The shallowest depth to water measured at Abacherli Dairy was 96.2 ft. bgs on 2/16/2012, and the deepest static water level measured at Abacherli Dairy was 125.2 ft. bgs on 10/7/2004.

Static groundwater levels at DeJong Dairy South were measured between October 2004 and October 2016. During this record of measurement, groundwater levels averaged 115 ft. bgs. The shallowest depth to water measured at this well was 103.7 ft. bgs on 4/11/2016, and the deepest static water level measured at DeJong Dairy South was 134.1 ft. bgs on 10/7/2004.

Aerial photographs between 1998 and 2012 indicate that the aerial extent of the wetland environment did not diminish despite the underlying groundwater table being deeper than 90 ft. bgs. Because the habitat persists during prolonged periods where water levels are deeper than 90 ft. bgs, Habitat 2 was characterized as an ecosystem that is not groundwater dependent.

4 Concluding Remarks

SGMA requires that all beneficial uses and users of groundwater, including environmental users of groundwater (e.g. groundwater dependent ecosystems (GDEs)), be considered in the development of GSPs. GDEs within the Plan Area were identified and characterized by reviewing the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset (DWR, 2018), alongside local groundwater level and production measurements, lithology, aerial photographs, and satellite data[5]. Review of these data followed the general guidelines outlined by TNC (2018).

The NCCAG dataset identified 79 unique vegetation communities that consist of common phreatophytes (vegetation GDEs) within the Plan Area (Figure 1). The prominent phreatophytes identified within the NCCAG dataset were Mule Fat (Baccharis Salicifolia), Goodding's Willow (Salix Gooding's), and Southwestern North American salt basin and high marsh. These communities were concentrated near the San Jacinto Wildlife Area, which is managed by the California Department of Fish and Wildlife, and along base of the large topographic reliefs that border the Plan Area (Figure 1). In addition to these phreatophyte communities, the NCCAG dataset identified

[5] Landsat satellite data was analyzed by The Nature Conservancy to quantify temporal fluctuations in Normalized Derived Vegetation Index (NDVI) and Normalized Derived Moisture Index (NDMI).

28 unique wetland habitats commonly associated with the surface expression of groundwater (wetland GDEs; Figure 1). These wetlands were predominantly lacustrine and palustrine seasonally flooded wetlands. The largest wetland communities were within the San Jacinto Wildlife Area.

The 107 habitats identified by the NCCAG dataset within the Plan Area were aggregated into larger GDE Evaluation Units based on geography and hydrogeologic conditions (Figures 2-9). The GDE Evaluation Units were grouped by subwatershed (USGS and USDA, 2013) and characterized as either: (1) groundwater dependent ecosystems, (2) potentially groundwater dependent ecosystems, or (3) ecosystems that are not groundwater dependent.

73 of the habitats identified in the NCCAG dataset were characterized as habitats that are not groundwater dependent. Of these, 47 were originally identified in the NCCAG dataset as potential vegetation GDEs and 26 were originally identified as potential wetland GDEs. The characterization of these habitats as not groundwater dependent was supported by data that indicated: (1) groundwater levels underlying the habitat were too deep to support groundwater dependent vegetation, (2) the habitat was sustained by applied surface waters, or (3) the presence of local confining units that limit hydraulic communication between shallow groundwater and deeper aquifer units.

29 of the habitats identified in the NCCAG dataset were characterized as habitats that are potentially groundwater dependent (Figure 11). Dominant species within the potential GDEs are Mule Fat (Baccharis salicifolia), California Sycamore (Platanus racemosa), Red Willow (Salix laevigata), Common Elderberry (Sambucus nigra), Scalebroom (Lepidospartum squamtum), and Tamarisk (Tamarix spp.). These habitats were characterized as potentially groundwater dependent ecosystems because aerial photographs indicated the presence of persistent vegetation communities, but there was limited data characterizing groundwater conditions underlying the habitat. These potential GDEs are largely located along the Plan Area margins, at the foothills of large topographic reliefs surrounding San Jacinto Groundwater Basin. Groundwater is only extracted within 1km of these potential GDEs at the base of the Box Springs Mountains (Figure 3). There are a number of privately owned wells in this area (Figure 2) that may actively extract groundwater, but production rates and groundwater levels at these wells are not reported. Further characterization of these habitats and their potential dependence on groundwater will be warranted if future additional groundwater extractions are planned for this area.

Three of the NCCAG indicators mapped within the Plan Area were characterized as groundwater dependent ecosystems. These habitats are located along the western edge of the Plan Area boundary, near the March Air force Reserve Base (Figure 11). These habitats consist of Red Willow (Salix Laevigata), and Common Elderberry (Sambucus nigra). Water levels underlying these habitats are shallower than 30 ft. bgs and, therefore, may support the overlying ecosystem (TNC, 2018). These habitats lie outside of EMWD's service area and current groundwater extraction rates are not known.

5 References

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Attachment A

Attachment Title

Table 1: Areal coverage of NCCAG-mapped vegetation communities within the Plan Area

NCCAG Vegetation Community		Mapped Area [Acres]					
		Lower San Jacinto Watershed				Middle San Jacinto Watershed	Grand Total
Vegetation Name	Common Name	Moreno Valley	Perris Reservoir	Perris Valley-San Jacinto River	San Jacinto Valley	Mount Rudolph-San Jacinto River	
Arid West freshwater emergent marsh	N/A	-	3.9	-	-	23.9	**27.8**
Arundo donax	Giant Reed	2.1		-	-	-	**2.1**
Baccharis salicifolia	Mule Fat	52.9	47.9		1.2	3.9	**105.9**
Lepidospartum squamatum	Scalebroom	4.8	-	2.1	-	-	**6.9**
Lepidospartum squamatum - Eriogonum fasciculatum	Scalebroom	-	-	20.4	-	-	**20.4**
Platanus racemosa	California Sycamore	13.2	1.1	-	-	-	**14.3**
Populus fremontii - Salix	Fremont Cottonwood	-	-	4.7	-	-	**4.7**
Salix gooddingii	Goodding's Willow	-	-	-	-	4.1	**4.1**
Salix gooddingii / Baccharis salicifolia	Goodding's Willow	-	100	-	-	21.6	**121.6**
Salix laevigata	Red Willow	23	3.5	-	-	42.5	**68.9**
Sambucus nigra	Common Elderberry	5	1.9	23.3	-	-	**30.2**
Southwestern North American salt basin and high marsh	N/A	-	-	-	-	1580.9	**1580.9**
Tamarix spp.	Tamarisk	-	-	-	-	2.4	**2.4**
Grand Total		**101**	**158.3**	**50.5**	**1.2**	**1990.4**	**1679.4**

Table 2: Areal coverage of NCCAG-mapped wetland communities within the Plan Area

NCCAG Wetland Communities	Lower San Jacinto Watershed					Middle San Jacinto Watershed	Grand Total
Wetland Name	Menifee Valley	Perris Reservoir	Moreno Valley	Perris Valley-San Jacinto River	San Jacinto Valley	Mount Rudolph-San Jacinto River	
Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded	-	-	-	-	-	35.46	**35.46**
Palustrine, Emergent, Persistent, Seasonally Flooded	0.69	-	3.13	1.59	-	10.16	**15.56**
Palustrine, Forested, Seasonally Flooded	-	-	-	-	-	2.21	**2.21**
Palustrine, Scrub-Shrub, Seasonally Flooded	-	-	-	15.7		-	**15.7**
Palustrine, Unconsolidated Bottom, Semipermanently Flooded	-	-	-	-	2.1	15.37	**17.47**
Riverine, Unknown Perennial, Unconsolidated Bottom, Semipermanently Flooded	0.03	-	2.46	1.19	-	0.38	**4.06**
Grand Total	**0.72**	**-**	**5.59**	**18.47**	**2.1**	**63.58**	**90.47**

Table 3: Characterization of NCCAG Polygons within the Moreno Valley Subwatershed

NCCAG Polygon ID	GDE Unit	VEGETATION	Dominant Species	Dominant Common Name	GDE Characterization	Justification	Impacted by Current/Future Production?	Management Zone
91369	Box Spring Mountains	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Potential GDE	Unknown connectivity to principal aquifer	Potentially Impacted	Perris North
99223	Box Spring Mountains	Platanus racemosa	Platanus racemosa	California Sycamore	Potential GDE	Unknown connectivity to principal aquifer	Potentially Impacted	Perris North
99246	Box Spring Mountains	Platanus racemosa	Platanus racemosa	California Sycamore	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
99251	Box Spring Mountains	Platanus racemosa	Platanus racemosa	California Sycamore	Potential GDE	Unknown connectivity to principal aquifer	Potentially Impacted	Perris North
99253	Box Spring Mountains	Platanus racemosa	Platanus racemosa	California Sycamore	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
99293	Box Spring Mountains	Platanus racemosa	Platanus racemosa	California Sycamore	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
111733	Box Spring Mountains	Salix laevigata	Salix laevigata	Red Willow	Not Groundwater Dependent	GW levels are deeper than 30 ft bgs	Not Likely	Perris North
111740	Box Spring Mountains	Salix laevigata	Salix laevigata	Red Willow	Potential GDE	Unknown connectivity to principal aquifer	Potentially Impacted	Perris North
111778	Box Spring Mountains	Salix laevigata	Salix laevigata	Red Willow	Potential GDE	Unknown connectivity to principal aquifer	Potentially Impacted	Perris North
111806	Box Spring Mountains	Salix laevigata	Salix laevigata	Red Willow	Not Groundwater Dependent	GW levels are deeper than 30 ft bgs	Not Likely	Perris North
111809	Box Spring Mountains	Salix laevigata	Salix laevigata	Red Willow	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
111835	Box Spring Mountains	Salix laevigata	Salix laevigata	Red Willow	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
112941	Box Spring Mountains	Sambucus nigra	Sambucus nigra	Common Elderberry	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
97851	San Timoteo Badlands North	Lepidospartum squamatum	Lepidospartum squamatum	Scalebroom	Potential GDE	No nearby groundwater/lithology data	Not Likely	Lower Pressure
112844	San Timoteo Badlands North	Sambucus nigra	Sambucus nigra	Common Elderberry	Potential GDE	No nearby groundwater/lithology data	Not Likely	Lower Pressure
112872	San Timoteo Badlands North	Sambucus nigra	Sambucus nigra	Common Elderberry	Potential GDE	No nearby groundwater/lithology data	Not Likely	Lower Pressure

Table 3: Characterization of NCCAG Polygons within the Moreno Valley Subwatershed

88758	Lower Presssure/Perris North Boundary	Arundo donax	Arundo donax	Giant Reed	Not Groundwater Dependent	GW levels are much deeper than 30 ft bgs	No	Lower Pressure
91299	Lower Pressure/Perris North Boundary	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Not Groundwater Dependent	GW levels are much deeper than 30 ft bgs	No	Lower Pressure/Perris North
91357	Lower Pressure/Perris North Boundary	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Not Groundwater Dependent	GW levels are much deeper than 30 ft bgs	No	Lower Pressure
97844	Lower Pressure/Perris North Boundary	Lepidospartum squamatum	Lepidospartum squamatum	Scalebroom	Not Groundwater Dependent	GW levels are much deeper than 30 ft bgs	No	Lower Pressure
91206	Perris North Area	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Not Groundwater Dependent	GW levels are much deeper than 30 ft bgs	No	Perris North

	GDE Unit	Wetland Type	GDE Characterization	Justification	Impacted by Current/Future Production?	Management Zone
31757	Box Spring Mountains	Riverine, Unknown Perennial, Unconsolidated Bottom, Semipermanently Flooded	Potential GDE	No nearby groundwater/lithology data	Not Likely	Perris North
31793	Box Spring Mountains	Riverine, Unknown Perennial, Unconsolidated Bottom, Semipermanently Flooded	Not Groundwater Dependent	Mapped Habitat has been replaced by a lined pit	No	Perris North
31799	North San Timoteo Badlands	Riverine, Unknown Perennial, Unconsolidated Bottom, Semipermanently Flooded	Not Groundwater Dependent	No wetland habitat supported	No	Lower Pressure
26051	Lower Pressure/Perris North Boundary	Palustrine, Emergent, Persistent, Seasonally Flooded	Not Groundwater Dependent	GW levels are much deeper than 30 ft bgs	No	Lower Pressure
26035	Perris North Area	Palustrine, Emergent, Persistent, Seasonally Flooded	Not Groundwater Dependent	Habitat replaced by a parking lot	No	Perris North

Table 4: Characterization of NCCAG Polygons within the Perris Reservoir Subwatershed

NCCAG Polygon ID	GDE Unit	VEGETATION	Dominant Species	Dominant Common Name	GDE Characterization	Justification	Impacted by Current/Future Production?	Management Zone
88117	Lake Perris	Arid West freshwater emergent marsh	Not applicable	Not applicable	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
91104	Lake Perris	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
91129	Lake Perris	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
99152	Lake Perris	Platanus racemosa	Platanus racemosa	California Sycamore	Potential GDE	No nearby groundwater/lithology data	No	Perris North
110921	Lake Perris	Salix gooddingii / Baccharis salicifolia	Salix gooddingii	Goodding's Willow	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
110931	Lake Perris	Salix gooddingii / Baccharis salicifolia	Salix gooddingii	Goodding's Willow	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
110933	Lake Perris	Salix gooddingii / Baccharis salicifolia	Salix gooddingii	Goodding's Willow	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
110934	Lake Perris	Salix gooddingii / Baccharis salicifolia	Salix gooddingii	Goodding's Willow	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
110936	Lake Perris	Salix gooddingii / Baccharis salicifolia	Salix gooddingii	Goodding's Willow	Not Groundwater Dependent	NDVI/NDMI correlated with Lake Perris reservoir levels	No	Lake Perris
111600	MARB	Salix Laevigata	Salix Laevigata	Red Willow	Groundwater Dependent Ecosystem	Shallow groundwater underlying Habitat	N/A	MARB
111571	MARB	Salix Laevigata	Salix Laevigata	Red Willow	Groundwater Dependent Ecosystem	Shallow groundwater underlying Habitat	N/A	MARB
112766	MARB	Sambucus nigra	Sambucus nigra	Common Elderberry	Groundwater Dependent Ecosystem	Shallow groundwater underlying Habitat	N/A	MARB
91102	Western Edge of Perris No	Baccharis salicifolia	Baccharis salicifolia	Mule fat	Potential GDE	No nearby groundwater/lithology data	No	Perris North

EASTERN MUNICIPAL WATER DISTRICT

Groundwater Sustainability Plan

San Jacinto Groundwater Basin

Groundwater Dependent Ecosystems in the Plan Area

Plan Area Boundary

Adjudicated Areas

- Hemet-San Jacinto Watermaster
- Western-San Bernardino Watermaster

Groundwater Management Zones

- Lakeview
- Menifee
- Perris North
- Perris South
- San Jacinto Lower Pressure

NCCAG GDE Indicators

- Vegetation
- Wetlands

emwd EASTERN MUNICIPAL WATER DISTRICT

SOURCE: DWR

FIGURE 1

Groundwater Dependent Ecosystem Indicators in the Plan Area

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

DUDEK

0 5,000 10,000 Feet

Eastern Municipal Water District

Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

Watersheds in the Plan Area

Plan Area

Adjudicated Areas

Hemet-San Jacinto Basin

San Bernardino Basin Area

Watersheds

Subwatersheds

NCCAG GDE Indicators

Vegetation

Wetlands

emwd EASTERN MUNICIPAL WATER DISTRICT

Moreno Valley Subwatershed

Mount Rudolph-San Jacinto River Subwatershed

Perris Reservoir Subwatershed

Middle San Jacinto River Watershed

Lower San Jacinto River Watershed

Perris Valley-San Jacinto River Subwatershed

San Jacinto Valley Subwatershed

Menifee Valley Subwatershed

SOURCE: DWR, NHD

DUDEK

0 6,500 13,000 Feet

FIGURE 2

Watersheds in the Plan Area

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

Eastern Municipal Water District
Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

Moreno Valley Subwatershed

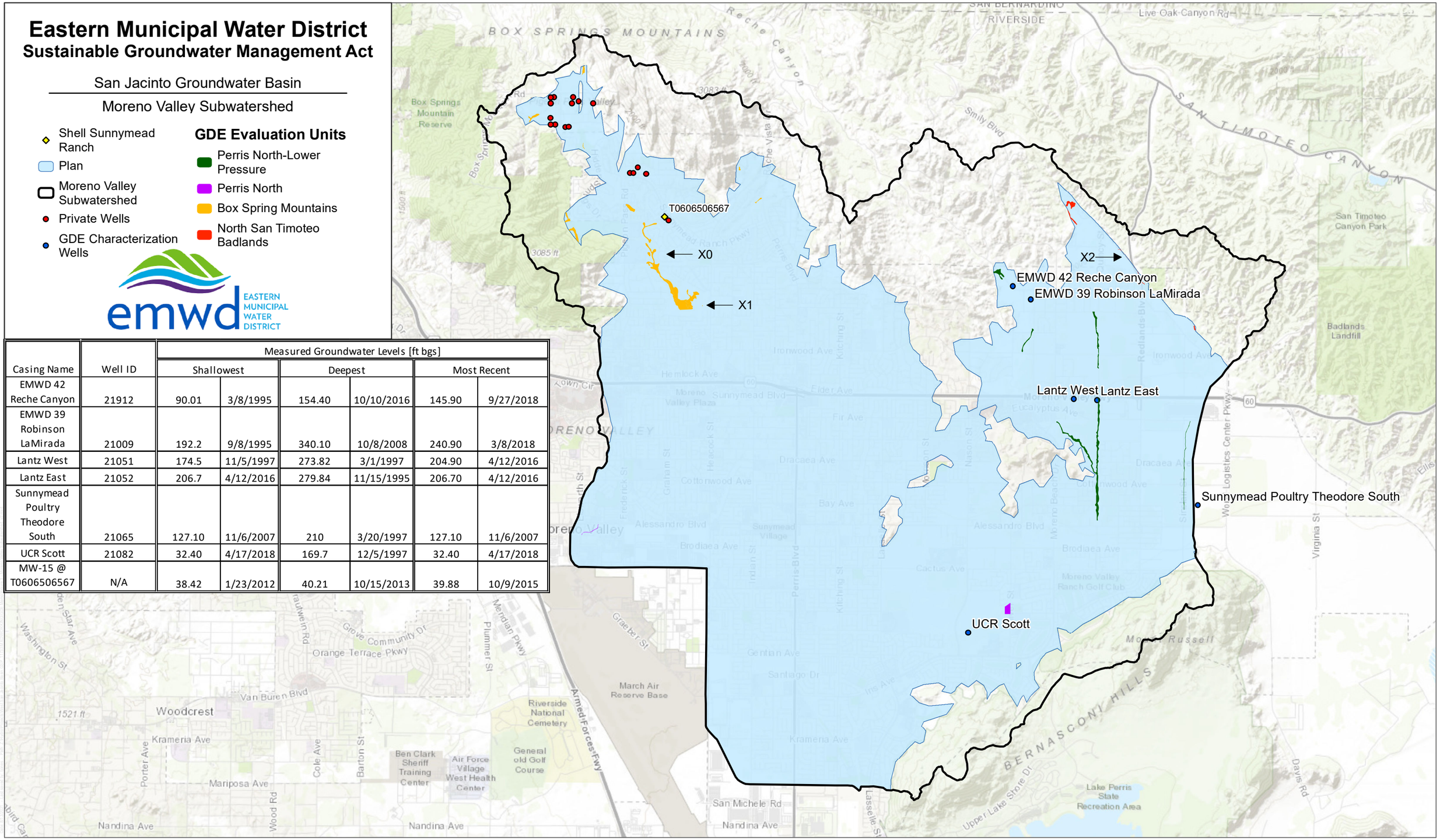
- Shell Sunnymead Ranch
- Plan
- Moreno Valley Subwatershed
- Private Wells
- GDE Characterization Wells

GDE Evaluation Units

- Perris North-Lower Pressure
- Perris North
- Box Spring Mountains
- North San Timoteo Badlands

emwd EASTERN MUNICIPAL WATER DISTRICT

Casing Name	Well ID	Measured Groundwater Levels [ft bgs]					
		Shallowest		Deepest		Most Recent	
EMWD 42 Reche Canyon	21912	90.01	3/8/1995	154.40	10/10/2016	145.90	9/27/2018
EMWD 39 Robinson LaMirada	21009	192.2	9/8/1995	340.10	10/8/2008	240.90	3/8/2018
Lantz West	21051	174.5	11/5/1997	273.82	3/1/1997	204.90	4/12/2016
Lantz East	21052	206.7	4/12/2016	279.84	11/15/1995	206.70	4/12/2016
Sunnymead Poultry Theodore South	21065	127.10	11/6/2007	210	3/20/1997	127.10	11/6/2007
UCR Scott	21082	32.40	4/17/2018	169.7	12/5/1997	32.40	4/17/2018
MW-15 @ T0606506567	N/A	38.42	1/23/2012	40.21	10/15/2013	39.88	10/9/2015



SOURCE: DWR, NHD

DUDEK 0 2,200 4,400 Feet

FIGURE 3

Moreno Valley Subwatershed

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

Eastern Municipal Water District
Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

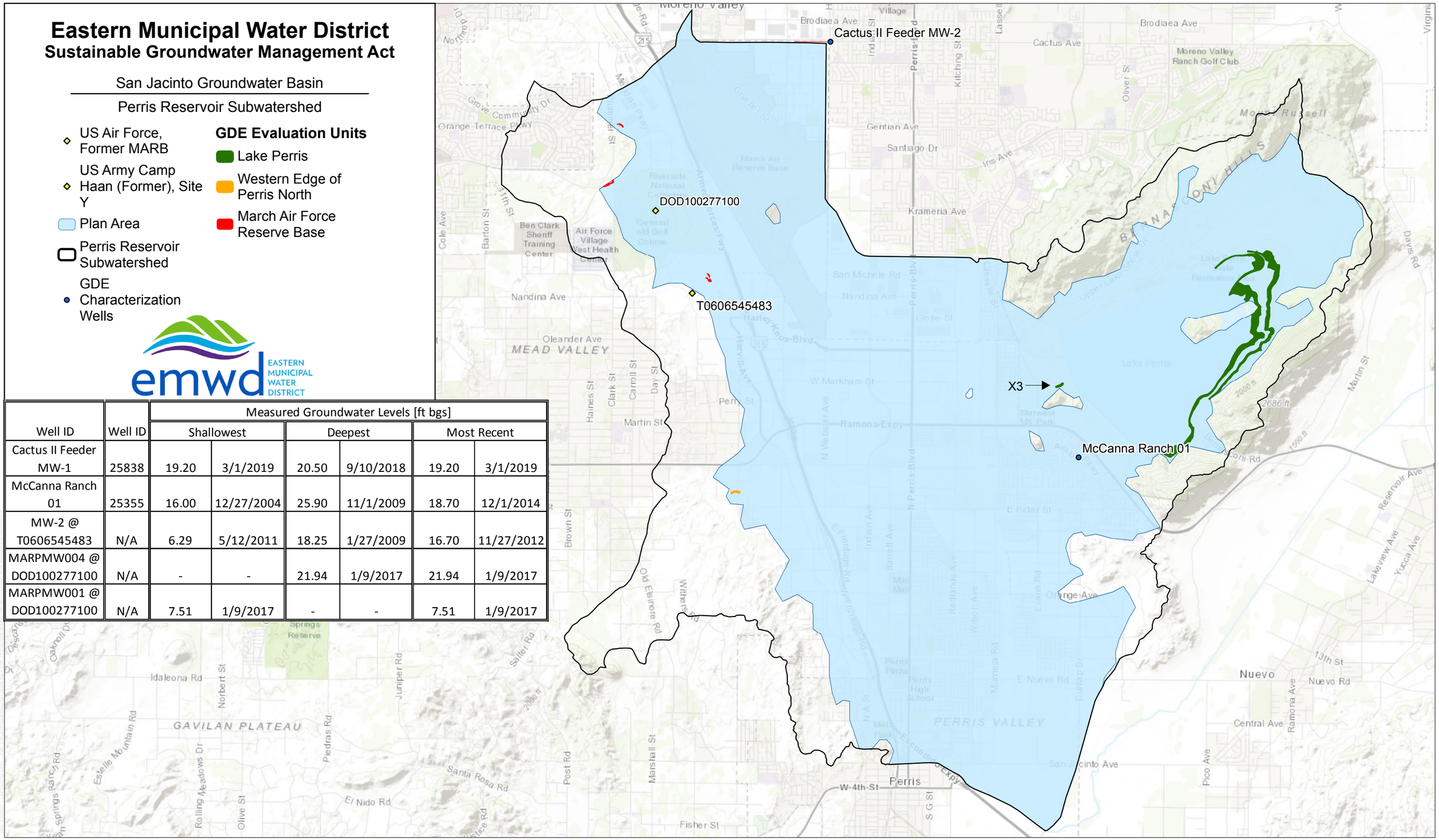
Perris Reservoir Subwatershed

- US Air Force, Former MARB
- US Army Camp Haan (Former), Site Y
- Plan Area
- Perris Reservoir Subwatershed
- GDE Characterization Wells

GDE Evaluation Units

- Lake Perris
- Western Edge of Perris North
- March Air Force Reserve Base

Well ID	Well ID	Measured Groundwater Levels [ft bgs]					
		Shallowest		Deepest		Most Recent	
Cactus II Feeder MW-1	25838	19.20	3/1/2019	20.50	9/10/2018	19.20	3/1/2019
McCanna Ranch 01	25355	16.00	12/27/2004	25.90	11/1/2009	18.70	12/1/2014
MW-2 @ T0606545483	N/A	6.29	5/12/2011	18.25	1/27/2009	16.70	11/27/2012
MARPMW004 @ DOD100277100	N/A	-	-	21.94	1/9/2017	21.94	1/9/2017
MARPMW001 @ DOD100277100	N/A	7.51	1/9/2017	-	-	7.51	1/9/2017



SOURCE: DWR, NHD

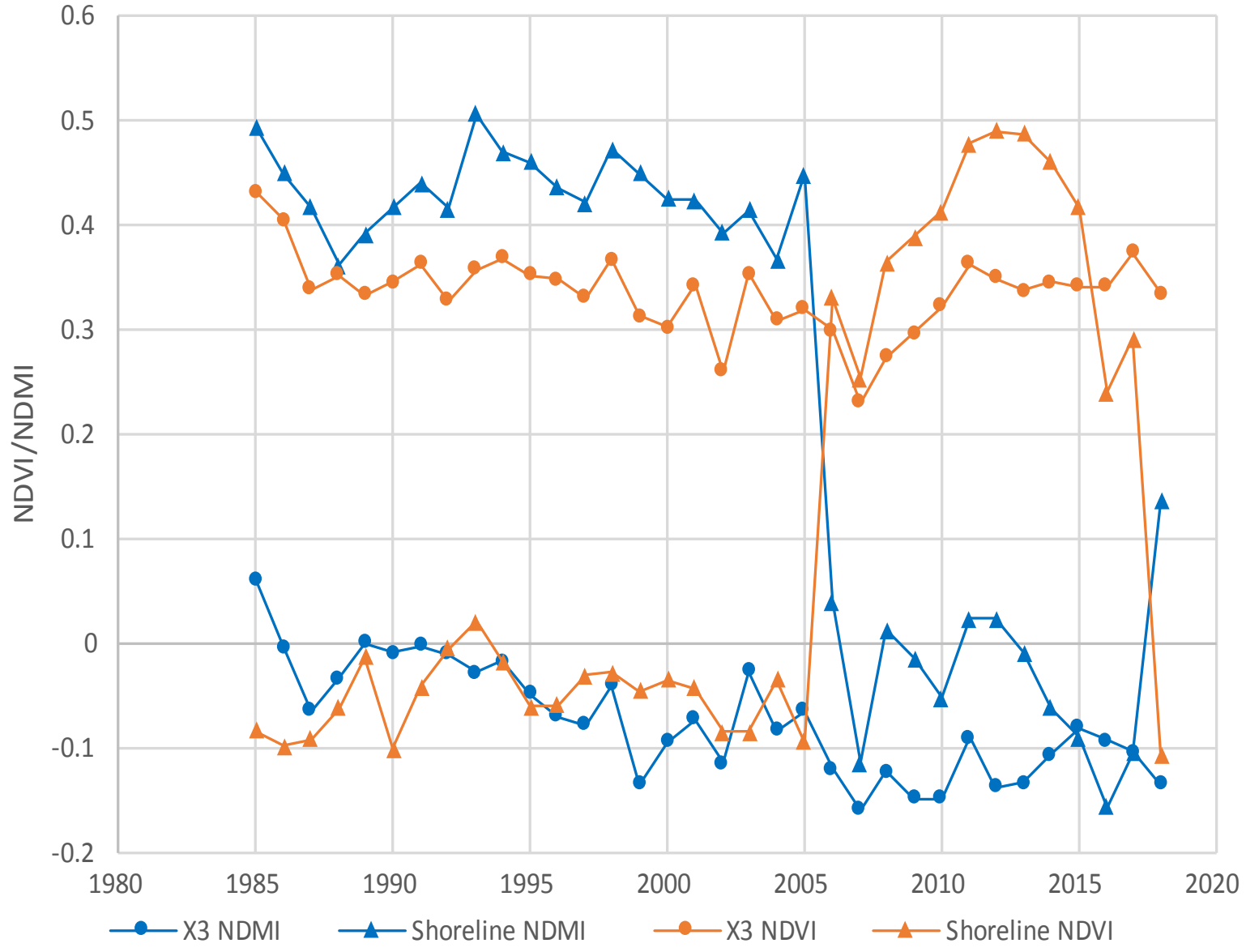
DUDEK

0 2,250 4,500 Feet

FIGURE 4

Perris Reservoir Subwatershed

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area



DUDEK

FIGURE 5

NDVI and NDMI measured along the shoreline of Lake Perris and west of Lake Perris Dam (X3)

Eastern Municipal Water District
Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

Mount Rudolph-San Jacinto River Subwatershed

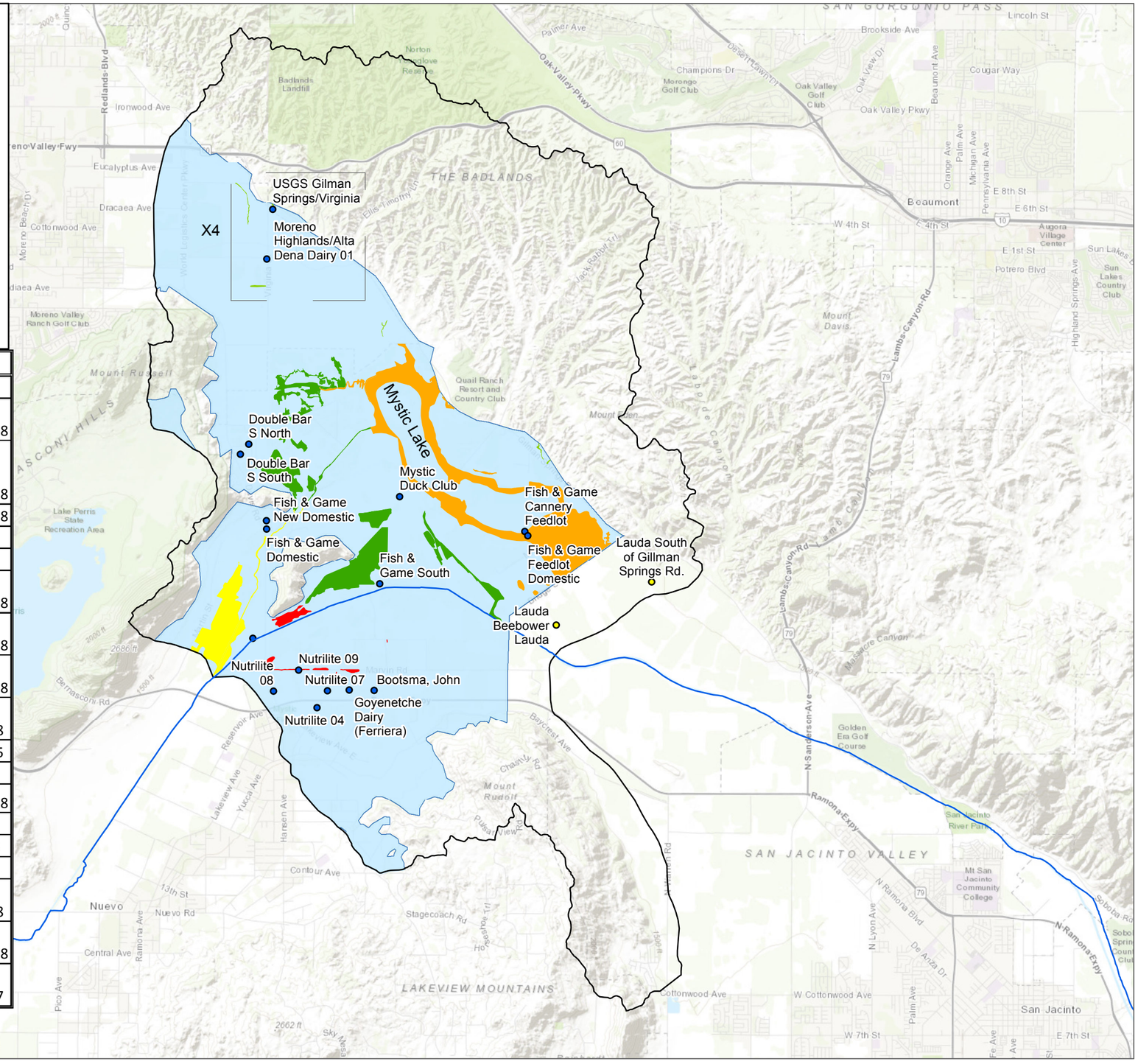
- Plan Area
- Mount Rudolph-San Jacinto River Subwatershed
- San Jacinto River
- GDE Characterization Wells
- Hemet San Jacinto Wells

GDE Units

- CDFW/Private Duck Ponds
- Central San Timoteo Badlands
- San Jacinto River
- Mystic Lake
- Lakeview

EASTERN MUNICIPAL WATER DISTRICT

Casing Name	Well ID	Measured Groundwater Levels [ft bgs]					
		Shallowest		Deepest		Most Recent	
USGS Gilman Springs/Virginia	21015	102.40	2/1/2005	141.00	1/16/1941	111.90	11/26/2018
Moreno Highlands/Alta Dena Dairy 01	20285	75.2	3/16/1999	125.70	4/1/2009	122.90	11/26/2018
Mystic Duck Club	20294	114.9	4/10/2017	143.7	11/26/2018	143.7	11/26/2018
Double Bar S North	20296	Production Data Only					
Double Bar S South	20297	Production Data Only					
Fish & Game Cannery Feedlot	20304	181.3	3/26/1998	333.3	10/21/2002	230.6	11/20/2018
Fish & Game Feedlot Domestic	20306	25.1	3/26/1998	38.2	10/12/2017	37.1	11/20/2018
Lauda South of Gilman Springs Rd.	20313	175.5	3/1/2001	197.9	10/15/2018	197.9	10/15/2018
Lauda Beebower Lauda	20565	255.1	4/23/2018	345.5	10/16/2003	255.1	4/23/2018
Nutrilite 09	20797	195.4	12/17/2013	252.8	10/13/1997	195.5	10/6/2015
Bootsma, John	20804	246.2	10/28/2003	N/A	N/A	N/A	N/A
Fish & Game South	21031	99.24	3/29/1968	188.3	10/28/2003	180.6	11/20/2018
N/A	21335	212.53	6/15/1968	N/A	N/A	N/A	N/A
Nutrilite 08	21340	196	12/20/2013	258.9	10/14/1997	198.2	4/7/2015
Nutrilite 04	21342	247.6	3/4/2004	268.5	10/15/1999	247.6	3/4/2004
Goyenetche Dairy (Ferriera)	21345	189.3	3/14/2018	257.6	10/19/1999	189.3	3/14/2018
Fish & Game Domestic	22678	161.4	3/5/2018	102.4	3/14/2008	161.5	11/26/2018
Fish & Game New Domestic	22733	93	4/16/2003	165.4	4/27/2007	165.4	4/27/2007



SOURCE: DWR, NHD

DUDEK

0 2,950 5,900 Feet

FIGURE 6

Mount Rudolph-San Jacinto River Subwatershed

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

Eastern Municipal Water District
Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

Perris Valley-San Jacinto River Subwatershed

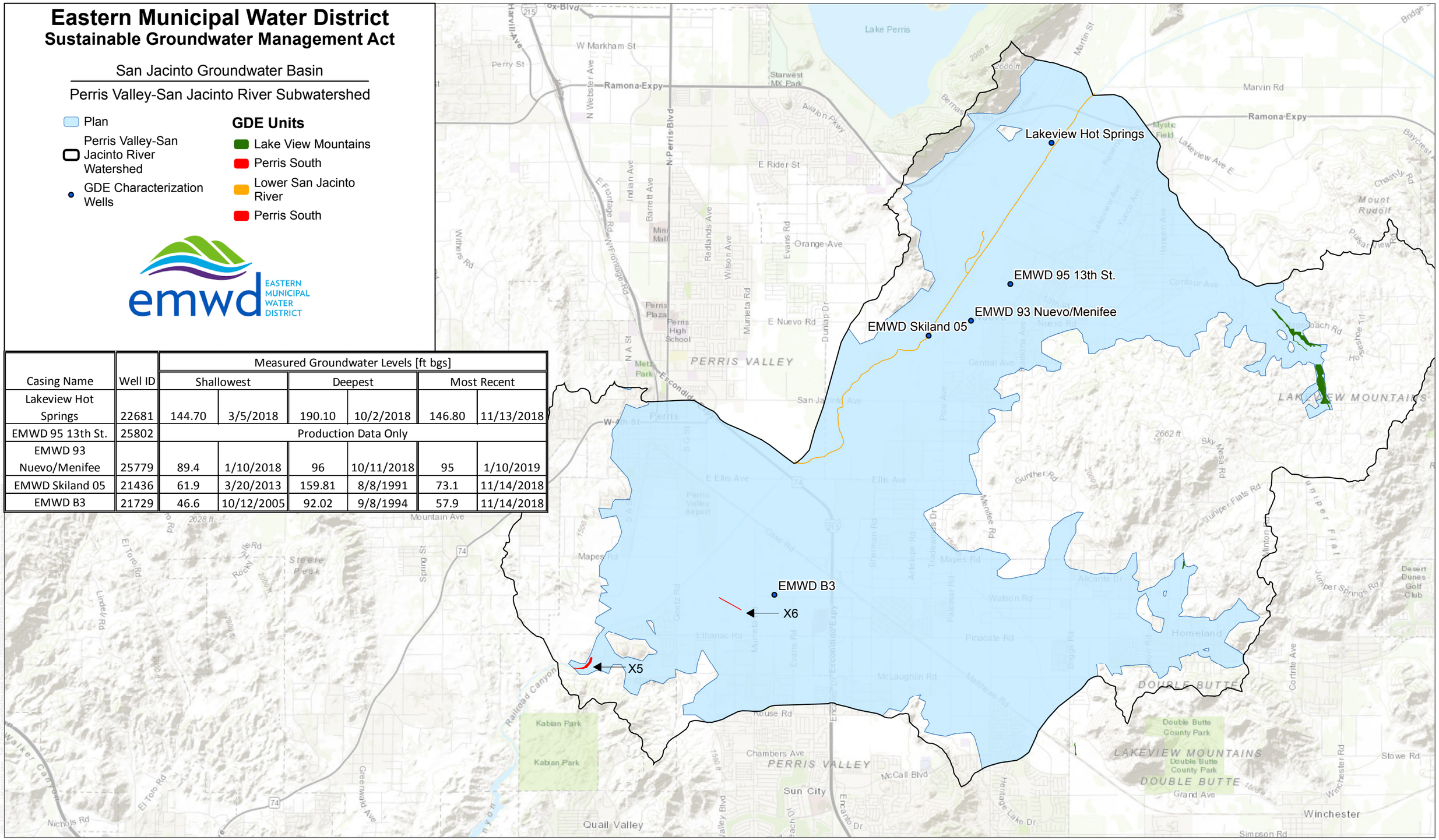
- Plan
- Perris Valley-San Jacinto River Watershed
- GDE Characterization Wells

GDE Units

- Lake View Mountains
- Perris South
- Lower San Jacinto River
- Perris South

EASTERN MUNICIPAL WATER DISTRICT

Casing Name	Well ID	Measured Groundwater Levels [ft bgs]					
		Shallowest		Deepest		Most Recent	
Lakeview Hot Springs	22681	144.70	3/5/2018	190.10	10/2/2018	146.80	11/13/2018
EMWD 95 13th St.	25802	Production Data Only					
EMWD 93 Nuevo/Menifee	25779	89.4	1/10/2018	96	10/11/2018	95	1/10/2019
EMWD Skiland 05	21436	61.9	3/20/2013	159.81	8/8/1991	73.1	11/14/2018
EMWD B3	21729	46.6	10/12/2005	92.02	9/8/1994	57.9	11/14/2018



SOURCE: DWR, NHD

DUDEK

0 2,400 4,800 Feet

FIGURE 7

Perris Valley-San Jacinto River Subwatershed

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

Eastern Municipal Water District
Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

Menifee Subwatershed

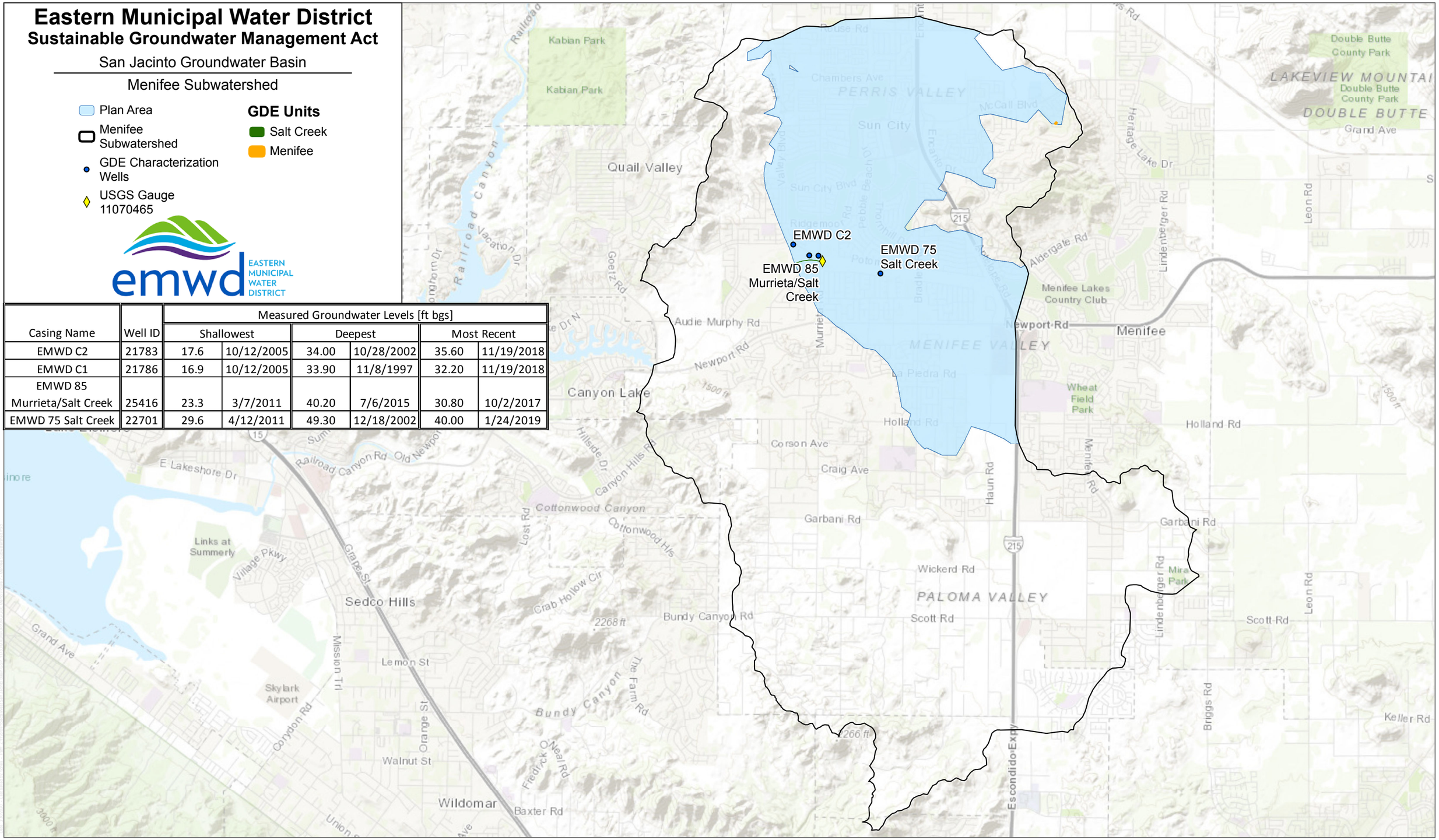
- Plan Area
- Menifee Subwatershed
- GDE Characterization Wells
- USGS Gauge 11070465

GDE Units

- Salt Creek
- Menifee

EASTERN MUNICIPAL WATER DISTRICT

Casing Name	Well ID	Measured Groundwater Levels [ft bgs]					
		Shallowest		Deepest		Most Recent	
EMWD C2	21783	17.6	10/12/2005	34.00	10/28/2002	35.60	11/19/2018
EMWD C1	21786	16.9	10/12/2005	33.90	11/8/1997	32.20	11/19/2018
EMWD 85 Murrieta/Salt Creek	25416	23.3	3/7/2011	40.20	7/6/2015	30.80	10/2/2017
EMWD 75 Salt Creek	22701	29.6	4/12/2011	49.30	12/18/2002	40.00	1/24/2019



SOURCE: DWR, NHD

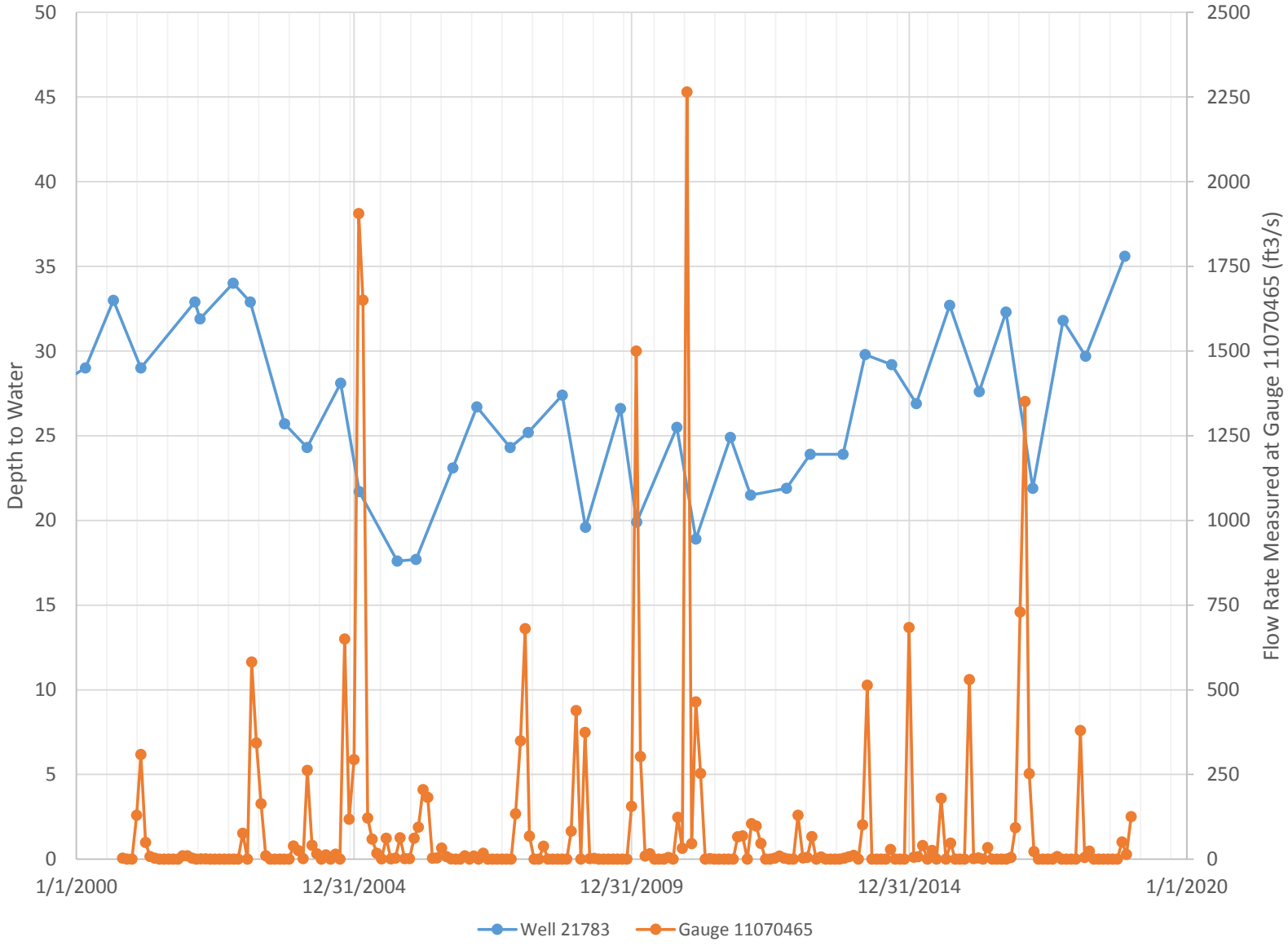
DUDEK

0 1,950 3,900 Feet

FIGURE 8

Menifee Subwatershed

Characterization of Potential Groundwater Dependent Ecosystems in the non-adjudicated portions of the San Jacinto Groundwater Basin



DUDEK

FIGURE 9

Stream flows in Salt Creek and static water levels measured at well 21783

Eastern Municipal Water District
Sustainable Groundwater Management Act

San Jacinto Groundwater Basin

San Jacinto Valley Subwatershed

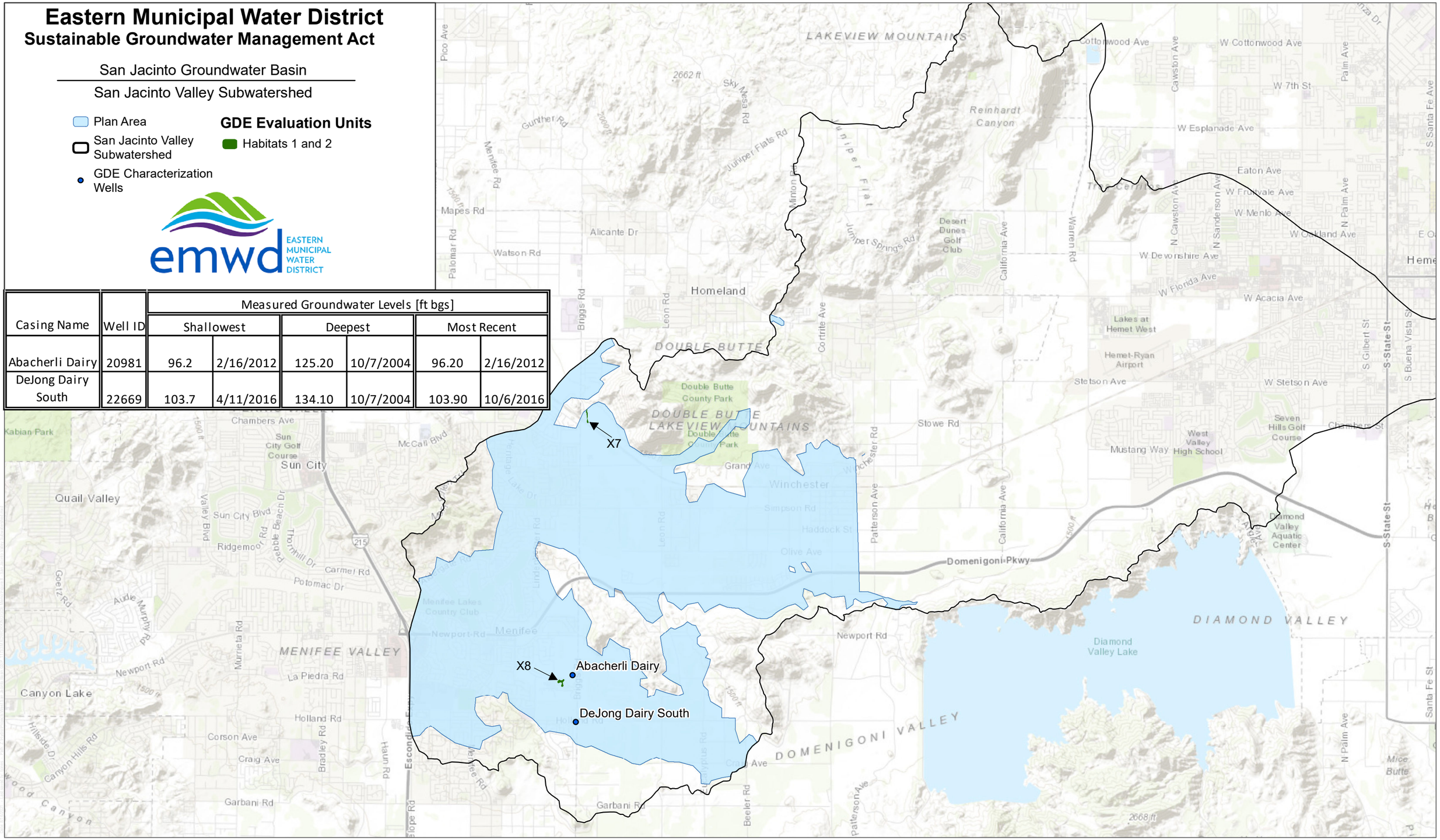
- Plan Area
- San Jacinto Valley Subwatershed
- GDE Characterization Wells

GDE Evaluation Units

- Habitats 1 and 2

EASTERN MUNICIPAL WATER DISTRICT

Casing Name	Well ID	Measured Groundwater Levels [ft bgs]					
		Shallowest		Deepest		Most Recent	
Abacherli Dairy	20981	96.2	2/16/2012	125.20	10/7/2004	96.20	2/16/2012
DeJong Dairy South	22669	103.7	4/11/2016	134.10	10/7/2004	103.90	10/6/2016



SOURCE: DWR, NHD

DUDEK

0 2,200 4,400 Feet

FIGURE 10

San Jacinto Valley Subwatershed

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

EASTERN MUNICIPAL WATER DISTRICT
Groundwater Sustainability Plan

San Jacinto Groundwater Basin

Groundwater Dependent Ecosystems in the Plan Area

Adjudicated Areas

- Hemet-San Jacinto Watermaster
- Western-San Bernardino Watermaster
- Plan Area

- Private Wells
- US Army Camp Haan (Former), Site Y
- US Air Force, Former MARB

- Vegetation GDEs
- Potential Vegetation GDEs
- Potential Wetland GDE

emwd EASTERN MUNICIPAL WATER DISTRICT

DOD100277100

T0606545483

SOURCE: DWR

DUDEK

0 3,850 7,700 Feet

FIGURE 11

Groundwater Dependent Ecosystems in the Plan Area

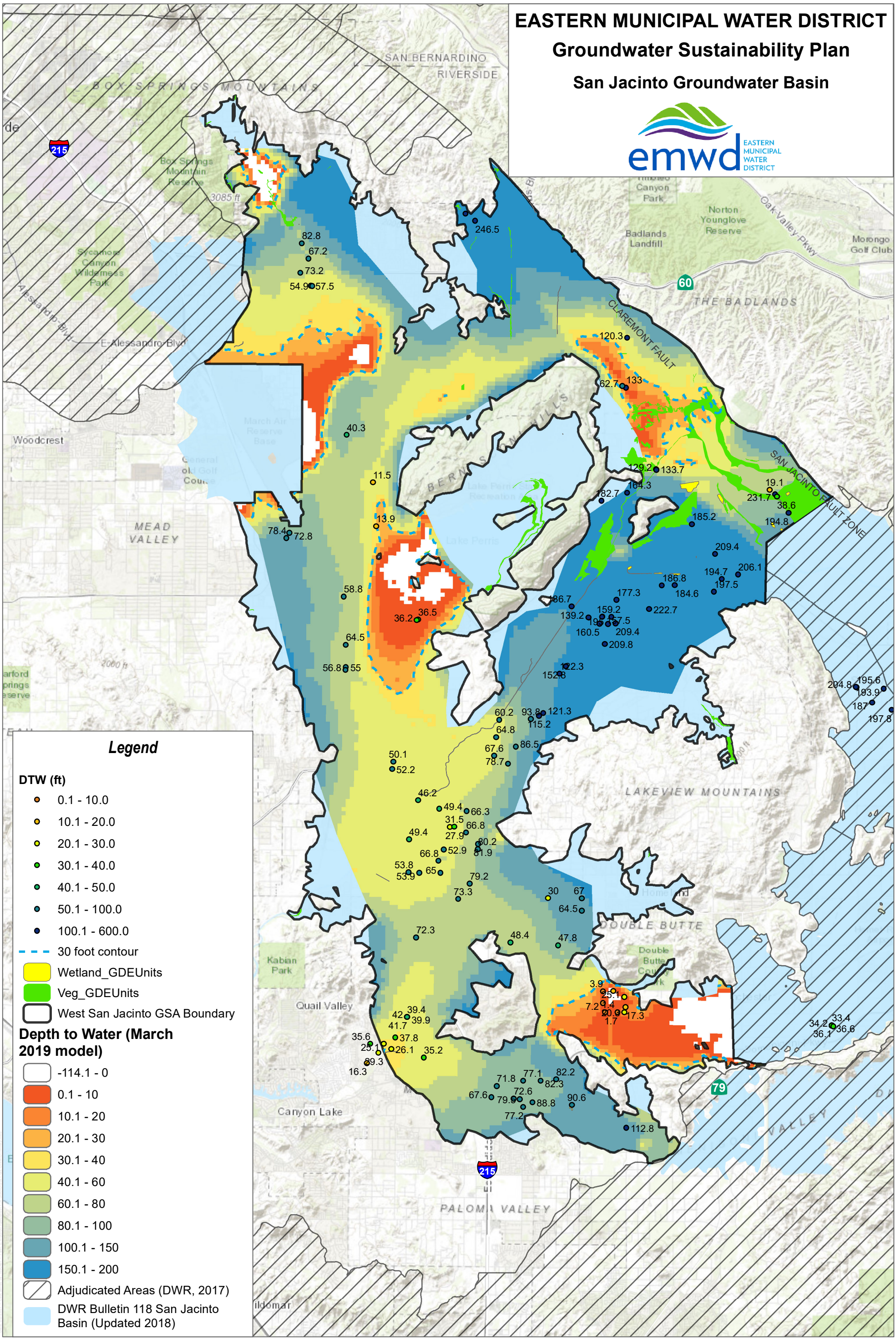
Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

EASTERN MUNICIPAL WATER DISTRICT

Groundwater Sustainability Plan

San Jacinto Groundwater Basin

emwd EASTERN MUNICIPAL WATER DISTRICT



Legend

DTW (ft)

- 0.1 - 10.0
- 10.1 - 20.0
- 20.1 - 30.0
- 30.1 - 40.0
- 40.1 - 50.0
- 50.1 - 100.0
- 100.1 - 600.0

- 30 foot contour
- Wetland_GDEUnits
- Veg_GDEUnits
- West San Jacinto GSA Boundary

Depth to Water (March 2019 model)

- -114.1 - 0
- 0.1 - 10
- 10.1 - 20
- 20.1 - 30
- 30.1 - 40
- 40.1 - 60
- 60.1 - 80
- 80.1 - 100
- 100.1 - 150
- 150.1 - 200
- Adjudicated Areas (DWR, 2017)
- DWR Bulletin 118 San Jacinto Basin (Updated 2018)

SOURCE: Data provided by EMWD

DUDEK 0 1 2 Miles

FIGURE 12

Depth to Water March 2018

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area

EASTERN MUNICIPAL WATER DISTRICT

Groundwater Sustainability Plan

San Jacinto Groundwater Basin

emwd EASTERN MUNICIPAL WATER DISTRICT

Legend

Nov 2018 Well Measurements

DTW (ft)

- 3.3 - 10.0
- 10.1 - 20.0
- 20.1 - 30.0
- 30.1 - 40.0
- 40.1 - 50.0
- 50.1 - 100.0
- 100.1 - 200.0

Wetland_GDEUnits

Veg_GDEUnits

West San Jacinto GSA Boundary

Depth to Water (October 2019 model)

- 0
- 0.1 - 10
- 10.1 - 20
- 20.1 - 30
- 30.1 - 40
- 40.1 - 60
- 60.1 - 80
- 80.1 - 100
- 100.1 - 150
- 150.1 - 200

DTW Oct2019 model

- 30 foot contour
- Adjudicated Areas (DWR, 2017)
- DWR Bulletin 118 San Jacinto Basin (Updated 2018)

SOURCE: Data provided by EMWD

DUDEK

0 1 2 Miles

FIGURE 13

Depth to Water November 2018

Characterization of Potential Groundwater Dependent Ecosystems in the West San Jacinto GSP Plan Area