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LOS OSOS
NITRATE MONITORING PROGRAM

APRIL 2005
GROUND WATER MONITORING

Prepared for the

LOS OSOS COMMUNITY SERVICES DISTRICT

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STATE OF CALIFORNIA

June 2005

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INTRODUCTION

A semi-annual monitoring event for the Los Osos Nitrate Monitoring Program was performed in April 2005. The purpose of monitoring is to assess upper aquifer salt loading, to identify trends in ground water flow and quality over time, and to assist the Los Osos Community Services District (LOCSD) in complying with future waste discharge requirements associated with the proposed wastewater project. This report presents the results of the current monitoring event.

The current event includes analytical results of water sampling from 25 of the 27 wells in the monitoring network. Two private domestic wells, 30S/10E-13A7 and 30S/11E-18H3, have not been included in recent sampling events due to access issues. Water sampling for the April 2005 event was performed by LOCSD staff.

WATER LEVELS

Depth to ground water was measured in 23 wells across the basin during April 2005. The depths to water, along with monitoring network well construction information, are summarized in Table 1. Well locations are presented in Figure 1.

Table 1
April 2005 Ground Water Elevations
LOCSD Monitoring Well Network

Well ID	Location	Type	Depth (ft)	Perforated interval (ft)	Well diam. (in)	R.P. Elev. (ft)	Water Depth* (ft)	Water Elevation (ft)
30S/10E								
13A7	Pine St.	Private	40	30-40	8	14.15	--	--
13G	South Court	CSD mon	52	47-52	2	50.95	37.67	13.3
13H	Broderson/Skyline	CSD mon	34	29-34	2	49.33	23.10	26.2
13L5r	Howard/ Del Norte	CSD mon	37	26-36	2	32.63	19.25	13.4
13Q1r	Woodland Dr.	CSD mon	105	95-105	2	101.27	83.08	18.2
24A	Highland/ Alexander	CSD mon	164	154-164	2	193.04	154.13	38.9
30S/11E								
7Kr	12th/ Santa Ysabel	CSD mon	70	55-65	2	90.71	47.83	42.9
7L3r	Santa Ysabel/ 5th	CSD mon	50	40-50	2	45.76	34.00	11.8
7N1	3rd St.	CSD prod	83	61-71, 73-83	8	na	2.40	--
7Q1	El Moro/ 8th St.	CSD mon	75	29-43, 54-75	8	25.29	2.67	22.6
7R1r	El Moro/ 12th St.	CSD mon	35	25-35	2	61.93	18.33	43.6
8N2r	South Bay Blvd.	CSD mon	50	40-50	2	95.99	32.08	63.9
17D	Pismo / 18th	Private	120	na	10	na	49.42	--
17F4	Hollister Ln.	Private	72	48-72	8	78.57	43.92	34.7
17N4	Willow Dr.	Private	60	40-60	6	162.61	--	--
18A	San Luis Ave.	Private	na	"Shallow"	6	na	--	--
18B1r	Ramona Ave./10th St.	CSD mon	35	25-35	2	79.89	14.42	65.5
18C1r	Pismo Ave./ 5th St.	CSD mon	35	25-35	2	34.55	14.33	20.2
18E1	Ramona/private road	Private	100	40-60	6	39.61	20.75	18.9
18H3	Nipomo Ave.	Private	110	50-100	6	109.98	--	--
18J6r	Los Olivos/ Fairchild	CSD mon	35	25-35	2	125.74	18.04	107.7
18L3r	Palisades Ave.	CSD mon	55	43-53	2	88.02	35.00	53.0
18L4r	Ferrell Ave.	CSD mon	35	25-35	2	103.85	15.50	88.4
18N1r	Manzanita/ Ravenna	CSD mon	95	85-95	2	125.53	72.00	53.5
18R1	Los Osos Valley Rd.	Private	50	40-50	8	170.96	10.50	160.5
20B	Eto Lane	Private	na	"Shallow"	4	na	--	--
21D	Sombrero	Private	116	na	8	na	6.00	na

Notes: *See Table 3 for specific dates.
Well ID's ending with "r" are replacement wells.
Elevations in feet above mean sea level

R.P. = reference point
CSD = Los Osos CSD
na = not available

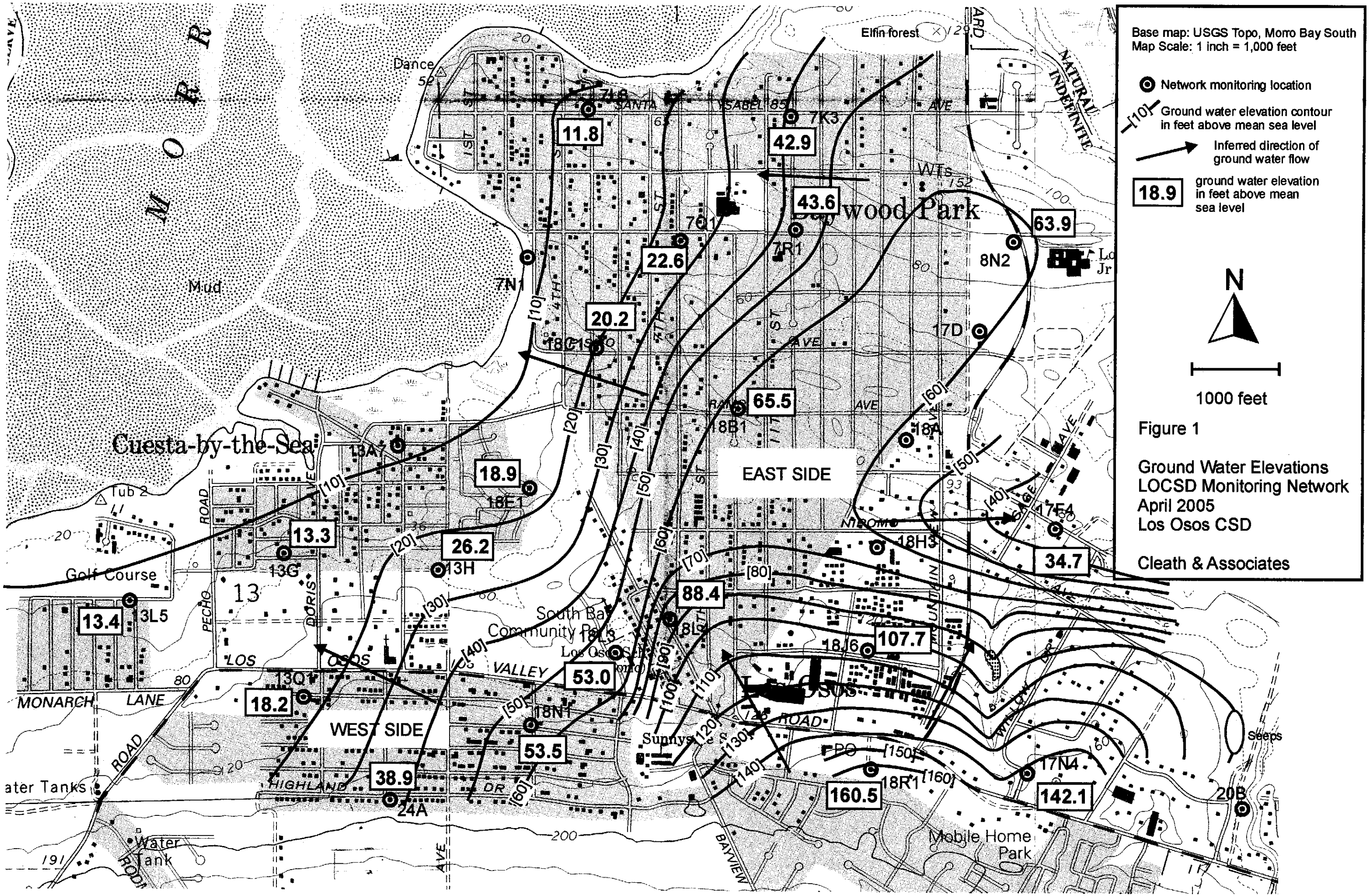
Estimated ground water flow directions and hydraulic gradients for first water are shown in Figure 1. Ground water on the West side is inferred to flow to the northwest at an estimated average hydraulic gradient of 0.017 vertical feet of head loss per horizontal foot of distance (ft/ft) beneath Redfield Woods, 0.01 ft/ft beneath Cuesta-by-the-Sea, and as low as 0.002 ft/ft beneath Sunset Terrace. On the East side, ground water is inferred to flow to the northwest toward the bay from downtown Los Osos, shifting to a westerly flow direction across Baywood Park. Shallow water beneath the easternmost portions of Los Osos/Baywood Park flows to the east and northeast toward Los Osos Creek. A ground water high is inferred across eastern Baywood Park, separating the flow moving toward the creek from that moving toward the bay (Figure 1).

The hydraulic gradients for shallow water moving toward the bay on the East side range from flat (along the ground water high in eastern Baywood Park) to a high of 0.026 ft/ft to the northwest between Ramona and Pismo Avenues. The hydraulic gradients toward Eto and Los Osos Creeks range from a low of close to 0.013 ft/ft near Nipomo Avenue and South Bay Boulevard to a high of close to 0.05 ft/ft near Willow Drive.

The April 2004 ground water flow directions and hydraulic gradients are similar to those from prior monitoring events. The water level contour map in Figure 1 is a composite of perched and non-perched water zones. Overall, water levels averaged 4 feet higher in April 2005, compared to October 2004, and were the shallowest levels since 1998 for most of the network monitoring wells. Table 2 below compares water levels over the last six monitoring events.

Table 2
Water Level Comparison

Well ID	Depth to Water (ft)					
	September 2003	Dec - Jan 2003-04	March 2004	June 2004	October 2004	April 2005
30S/10E-13A7	5.42	4.75	4.33	5.50	–	–
30S/10E-13G	39.79	39.83	38.46	39.88	40.13	37.67
30S/10E-13H	26.50	26.88	26.96	27.50	28.10	23.10
30S/10E-13L5	21.92	21.92	21.58	22.13	22.25	19.25
30S/10E-13Q1	83.65	83.58	83.25	83.92	84.50	83.08
30S/10E-24A	151.46	152.00	152.17	152.67	153.80	154.13
30S/11E-7K	51.23	51.42	51.02	51.25	51.83	47.83
30S/11E-7L3	36.08	36.25	35.66	36.27	36.50	34.00
30S/11E-7N1	2.91	3.10	3.90	5.70	3.45	2.40
30S/11E-7Q1	4.00	4.50	3.75	4.63	5.17	2.67
30S/11E-7R1	21.46	22.00	21.08	21.63	22.02	18.33
30S/11E-8N2	35.58	34.83	34.67	35.79	36.33	32.08
30S/11E-17D	51.00	52.75	57.63	–	51.90	49.42
30S/11E-17F4	–	44.08	44.29	44.66	45.58	43.92
30S/11E-17N4	22.08	22.42	21.42	25.42	–	20.50
30S/11E-18B1	17.75	18.58	17.08	18.25	18.92	14.42
30S/11E-18C1	16.23	16.50	15.92	16.58	17.00	14.33
30S/11E-18E1	26.08	23.92	23.83	24.75	24.50	20.75
30S/11E-18J6	23.21	24.67	23.50	24.44	24.80	18.04
30S/11E-18L3	39.69	40.83	40.33	41.08	42.75	35.00
30S/11E-18L4	19.46	20.21	19.83	20.42	21.25	15.50
30S/11E-18N1	70.38	70.44	71.83	72.58	73.83	72.00
30S/11E-18R1	13.58	13.42	12.06	13.75	13.16	10.50
30S/11E-21D	–	–	19.00	20.04	24.50	6.00


Base map: USGS Topo, Morro Bay South
Map Scale: 1 inch = 1,000 feet
Network monitoring location
Ground water elevation contour in feet above mean sea level
Inferred direction of ground water flow
18.9 ground water elevation in feet above mean sea level
N
1000 feet
Figure 1
Ground Water Elevations
LOCSD Monitoring Network
April 2005
Los Osos CSD
Cleath & Associates
EAST SIDE
WEST SIDE
Cuesta-by-the-Sea
Baywood Park
Los Osos
Golf Course
South Bay Community Park
Mobile Home Park
Elfin forest
Dance
Mud
Water Tank
Seeps
11.8
42.9
43.6
63.9
22.6
20.2
65.5
18.9
13.3
26.2
13.4
88.4
107.7
53.0
18.2
53.5
38.9
160.5
142.1
34.7
7K3
7Q1
7R1
8N2
7N1
17D
18C1
18B1
18A
13A7
18E1
13G
13H
13L5
18H3
17F4
18L3
18J6
13Q1
18N1
24A
18R1
17N4
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GROUND WATER QUALITY

A total of 25 ground water samples were collected from monitoring network wells across the basin. Monitoring wells generally tap first water within the upper aquifer or the perched aquifer. First water is the interface where percolating waters, including precipitation and return flows from irrigation and wastewater, mix with ground water. The upper aquifer includes all (non-perched) water bearing zones between first water and the regional AT2 Clay aquitard. The perched aquifer is located on the east side of the basin, and includes downtown Los Osos. Sampling was conducted by District staff. Sampled procedures are in Appendix A. Ground water monitoring field logs are in Appendix B.

Water Quality Results

The water samples were analyzed by Zymax Envirotechnology and Creek Environmental (San Luis Obispo). The analyses included general mineral constituents, including all forms of nitrogen. Table 3 presents a summary of the analytical results of water samples for the April 2005 sampling event.

Purveyor water quality is presented in Table 4. Analyses of general minerals are typically required by the California Department of Health Services every three years (except nitrate-nitrogen, which is required more frequently in Los Osos). The purveyor well data sets have been updated to include results of sampling funded by the Department of Water Resources for sea water intrusion and lower aquifer recharge studies.

Figure 2 presents an isoconcentration map of nitrate as nitrogen (NO_3-N) for monitoring network wells. Figure 3 presents an isoconcentration map of total dissolved solids (TDS) for monitoring network wells. Laboratory reports are in Appendix C.

Table 3
April 2005 Water Quality Results

Well ID	Sample Date	Temp ° C	pH-field units	TDS mg/l	EC µmhos/cm	Ca mg/l	Mg mg/l	K mg/l	Na mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NO3-N mg/l	B mg/l	DTW feet
30S/10E-13G	4/15/05	18.3	6.05	270	450	19	19	1.1	43	65	12	65	8.9	<0.2	37.67
30S/10E-13H	4/19/05	18.5	6.31	130	180	14	7	0.4	17	50	13	11	1.3*	0.059	23.10
30S/10E-13L5	4/14/05	19.0	5.78	1100	2100	90	99	1.2	97	60	44	460	28	<0.2	19.25
30S/10E-13Q1	4/19/05	19.0	6.11	470	710	28	21	1.5	77	73	24	120	21*	0.097	83.08
30S/10E-24A	4/21/05	18.1	6.52	220	340	14	9.7	1.7	38	44	5.1	46	11	0.036	154.13
30S/11E-7K	4/14/05	19.5	6.60	410	800	36	34	2.0	63	140	47	82	14*	<0.2	47.83
30S/11E-7L3	4/13/05	19.5	6.44	490	900	25	22	2.3	97	140	57	110	19*	<0.2	34.00
30S/11E-7N1	4/13/05	21.2	6.37	120	240	12	9.4	1.1	21	70	5.9	28	2.2	<0.2	2.40
30S/11E-7Q1	4/14/05	18.5	6.08	340	720	30	23	4.3	65	75	38	84	18*	<0.2	2.67
30S/11E-7R1	4/13/05	18.5	5.99	260	530	25	17	2.4	41	95	28	51	12	<0.2	18.33
30S/11E-8N2	4/15/05	17.7	6.49	67	88	4.2	3.9	0.8	8.7	32	6.5	3.7	<0.5*	<0.2	32.08
30S/11E-17D	4/19/05	17.6	6.42	360	600	23	20	1.6	68	80	31	64	20*	0.19	49.42
30S/11E-17F4	4/21/05	18.6	6.13	330	560	30	24	1.4	58	130	15	99	0.5*	0.049	43.92
30S/11E-17N4	4/20/05	17.1	5.96	200	320	13	11	0.91	34	40	12	48	5.1	0.058	20.50
30S/11E-18A	4/21/05	18.7	6.27	330	520	32	19	3.5	51	82	34	63	14*	0.18	na
30S/11E-18B1	4/14/05	17.3	6.18	110	210	9.8	5.2	3.3	26	80	12	6.7	2.4*	<0.2	14.42
30S/11E-18C1	4/13/05	17.9	6.08	280	580	22	19	1.5	51	100	38	55	10	<0.2	14.33
30S/11E-18E1	4/15/05	18.2	6.10	240	440	22	18	1.5	46	85	30	44	7.9*	<0.2	20.75
30S/11E-18J6	4/20/05	18.2	6.25	330	530	36	22	3.2	54	180	19	55	4.4*	0.10	18.04
30S/11E-18L3	4/13/05	19.2	6.03	210	480	22	14	2.8	42	60	25	59	13*	<0.2	35.00
30S/11E-18L4	4/15/05	18.1	5.99	360	630	33	26	3.2	61	100	34	78	9.6*	<0.2	15.50
30S/11E-18N1	4/19/05	19.5	6.07	370	600	23	23	1.8	56	46	31	110	12*	0.14	72.00
30S/11E-18R1	4/20/05	16.8	5.87	390	580	24	21	0.9	59	50	17	110	15	0.14	10.50
30S/11E-20B	4/21/05	18.7	6.34	340	570	30	30	1.7	47	100	27	100	2.5*	0.06	na
30S/11E-21D	4/12/05	18.9	6.71	600	1100	63	64	<1.0	69	380	70	79	9.2	<0.2	6.00

*other forms of nitrogen detected - see lab sheets. Note: HCO3 reported as mg/l CaCO3.

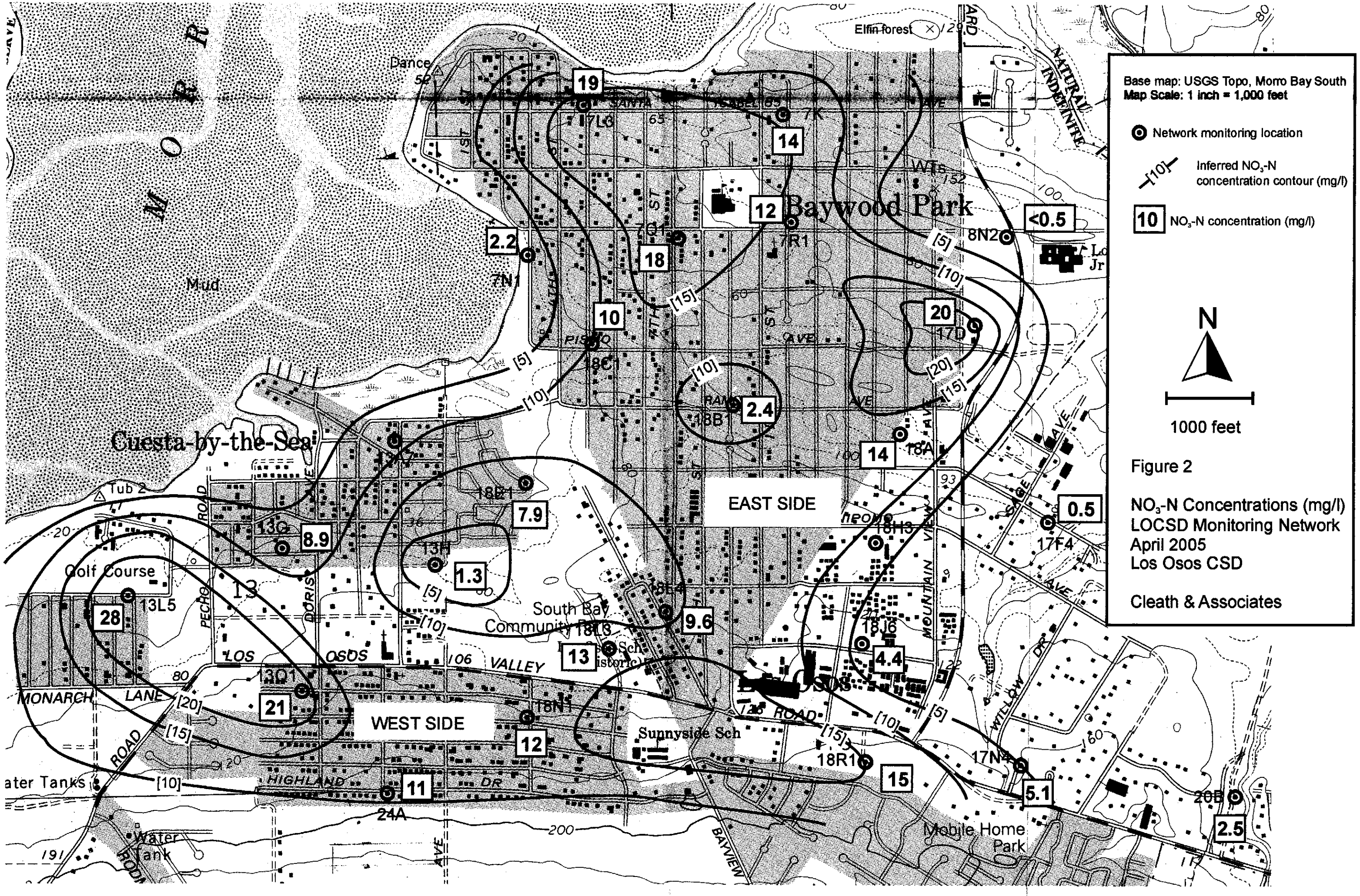
Table 4
Purveyor Water Quality Results

Well ID	Date sampled	Temp ° C	pH - Field units	TDS mg/l	EC µmhos/cm	Ca mg/l	Mg mg/l	K mg/l	Na mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NO3-N mg/l	Supply Aquifer
LOCSD Wells														
30S/11E-7Q3 8th Street	May 2002	17.7	7.03	430	730	45	41	na	51	280	40	67	<0.4	lower
	Apr 2003												<0.4	
	Nov 2004			410	790	44	40	2.3	48	250	39	73	<0.4	
30S/11E-7N1 3rd Street	May 2002	17.2	6.74	170	260	14	8.7	na	22	88	7	31	<0.1	upper
	Apr 2003												2.4	
	Jan 2005			170	250	13	9.3	1.1	21	66	6.1	28	2.2	
30S/11E-17E11 South Bay	May 2002	20.3	6.8	310	520	33	32	na	32	240	16	35	1.6	mixed
	Apr 2003												1.4	
30S/11E-18K9 10th Street	May 2002	19.5	6.86	320	550	31	32	na	39	250	26	37	0.94	mixed
	Apr 2003												0.96	
30S/11E-18L2 Palisades	May 2002	18.8	6.83	390	680	47	40	na	40	260	33	61	0.4	lower
	Apr 2003												<0.4	
	Nov 2004			420	880	54	48	2.2	40	220	31	120	<0.4	
	Mar 2005												0.7	

Table 4 (Continued)
Purveyor Water Quality Results

Well ID	Date sampled	Temp ° C	pH - Field units	TDS mg/l	EC µmhos/cm	Ca mg/l	Mg mg/l	K mg/l	Na mg/l	HCO3 mg/l	SO4 mg/l	Cl mg/l	NO3-N mg/l	Supply Aquifer
CCW Wells														
30S/10E-13F1* Skyline	Aug 2002	19.9	6.9	340	590	33	18	1.7	53	110	26	64	20	upper
	Jan 2003		6.8	300	640	27	19	1.5	53	110	28	67	19	
30S/10E-24C1 Cabrillo	Jan 2000	20	7.18	297	595	31.1	20.8	1.6	52.8	97.5	18.4	112	2.7	lower
	Jan 2003		7.2	330	640	37	26	2.2	49	91	22	130	4.3	
	Dec 2004			310	610	22	19	1.6	50	64	19	110	4.5	
30S/10E-13J1 Rosina	Aug 2001	19.4	7.4	310	570	47	23	1.5	31	130	14	110	1.4	lower
	May 2002			650								280		
	Feb 2003		7.1	250	480	41	18	2.6	25	87	11	98	1.7	
	Dec 2004			410	720	38	33	1.4	29	72	14	150	1.6	
30S/10E-13L4 Pecho	Aug 2001	18.8	7.2	590	1200	89	55	1.6	51	130	18	290	1.7	lower
	May 2002			420								170		
	Jan 2003		7.4	640	1300	96	66	3.7	46	110	21	340	1.9	
	Dec 2004			590	1000	56	47	1.9	48	82	27	230	2.2	
30S/11E-18K3 Los Olivos #3	Jan 2000		7.1	146	275	12.5	10.6	1	25.9	76.1	6.8	30.3	5.0	upper
	Jul 2002												9.1	
	Jan 2003	20.1	7.0	190	340	20	18	2.4	20	75	9.6	39	10	
	Sep 2003												7.6	
30S/11E-17N South Bay #1	Feb 2001	16.7	7.1	290	510	41	25	1.3	35	250	21	37	0.79	mixed
	Jan 2003		7.7	340	640	50	25	2.0	44	300	29	42	<0.4	

*** Well 13F1 is inactive**


Base map: USGS Topo, Morro Bay South
Map Scale: 1 inch = 1,000 feet
Network monitoring location
Inferred NO_3-N concentration contour (mg/l)
10 NO_3-N concentration (mg/l)
N
1000 feet
Figure 2
NO_3-N Concentrations (mg/l)
LOCSD Monitoring Network
April 2005
Los Osos CSD
Cleath & Associates
Baywood Park
Cuesta-by-the-Sea
EAST SIDE
WEST SIDE
Golf Course
South Bay Community
Sunnyside Sch
Mobile Home Park
Water Tank
Elfin forest
Dance
Mud
Tub 2
19
14
12
18
10
2.2
7N1
7Q1
7R1
7K
7L3
8N2
<0.5
20
17D
2.4
18B1
14
18A
0.5
17F4
18H3
18J6
4.4
18E1
7.9
13G
8.9
13H
1.3
13L5
28
18E4
9.6
18L3
13
13Q1
21
18N1
12
18R1
15
17N4
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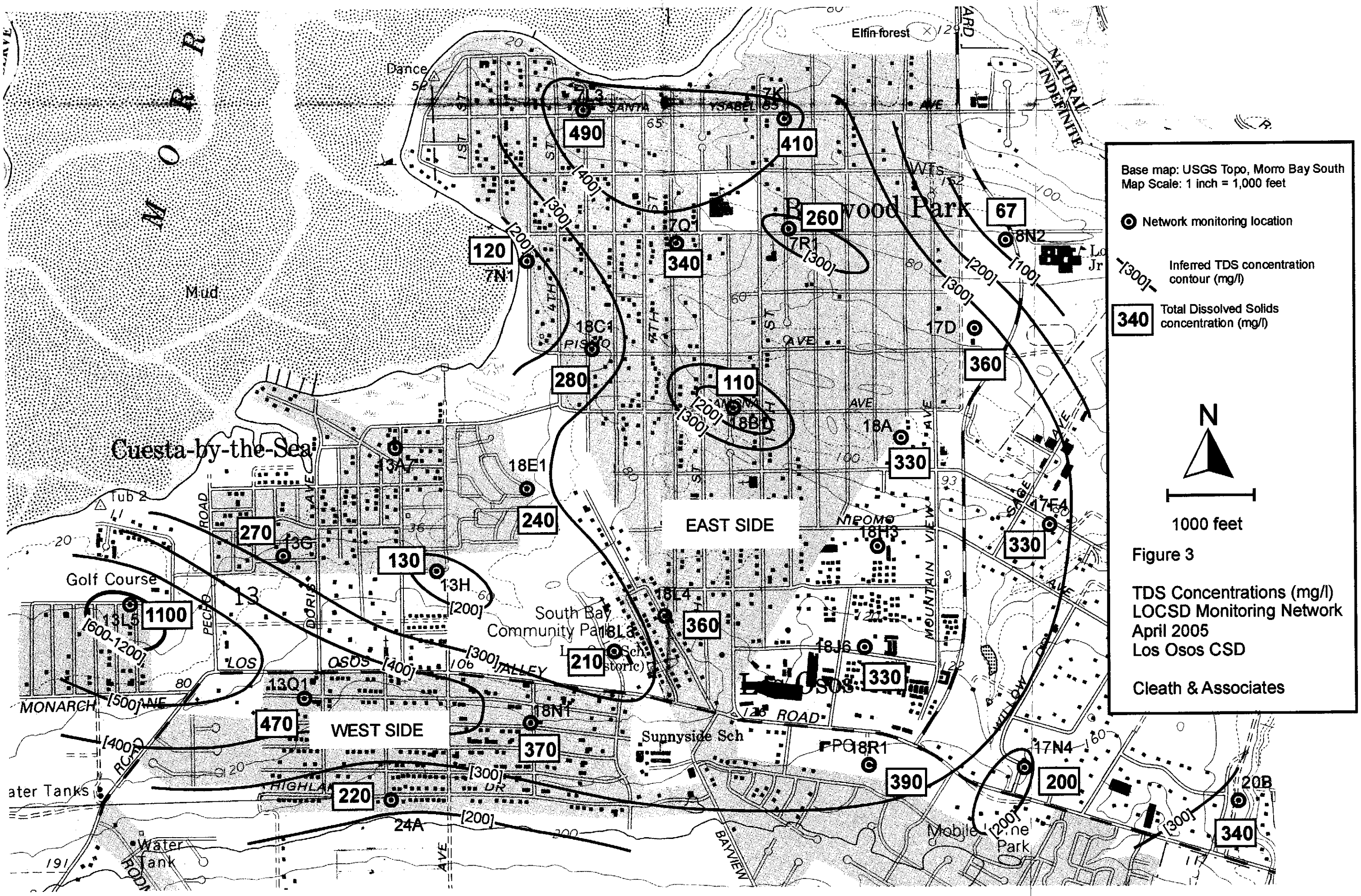
Base map: USGS Topo, Morro Bay South
Map Scale: 1 inch = 1,000 feet
Network monitoring location
[300] Inferred TDS concentration contour (mg/l)
340 Total Dissolved Solids concentration (mg/l)
N
1000 feet
Figure 3
TDS Concentrations (mg/l)
LOCSD Monitoring Network
April 2005
Los Osos CSD
Cleath & Associates
EAST SIDE
WEST SIDE
Cuesta-by-the-Sea
Golf Course
South Bay Community Park
Sunnyside Sch
Mobile Home Park
Elfin forest
Dance
Mud
Tub 2
Water Tank
NATURAL INDEFINITE
490
410
260
67
120
340
280
110
360
330
240
270
130
1100
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470
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7L3
7K
7Q1
7R1
8N2
7N1
18C1
17D
18B1
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13G
13H
18H3
17F4
18L4
18L3
18J6
13L5
13Q1
18N1
18R1
17N4
20B
24A

Sample results presented in Table 3 and Figure 2 show NO_3-N concentrations measured at monitoring network wells range from less than 1 milligram per liter (mg/l) to 28 mg/l. There is an NO_3-N concentration low inferred to extend across the open space west of the South Bay Community Library. This is an area where considerable surface runoff from up-slope percolates to ground water. The NO_3-N concentrations are inferred to decrease at the bay front. NO_3-N concentrations also decrease to the east, across South Bay Boulevard.

The distribution of total dissolved solids (TDS) in shallow ground water shown in Figure 3 indicates the areas with highest concentrations roughly correspond to some of the areas of higher NO_3-N concentrations. The range of TDS is generally between 200 and 400 mg/l, with a low of 67 mg/l in well 30S/11E-8N2 along South Bay Boulevard and a high of 1,100 mg/l in Sunset Terrace monitoring well 30S/10E-13L5.

Water Quality Trends

Short-terms trends in water quality are reported for every monitoring event. Long-term trends in water quality have been evaluated in the June-July 2002 and the September 2003 reports by plotting NO_3-N and TDS concentrations over time, and are also evaluated herein.

Short-Term Trends

There have been few significant changes in the results for individual wells between the last two monitoring events. The greatest shift in NO_3-N concentrations over the last quarter was a 6.4 mg/l decrease at first water monitoring well 30S/11E-18L4 (from 16 mg/l to 9.6 mg/l). This sampling event is the first in which NO_3-N concentrations at well 30S/11E-18L4 have declined below 10 mg/l.

The greatest increase in NO_3-N concentrations over the last quarter was at well 30S/11E-21D, where a rise of 6.2 mg/l was observed (from 3.0 mg/l to 9.2 mg/l). This well taps the alluvial aquifer in the Los Osos Creek valley, and has had NO_3-N concentrations of up to 11 mg/l in past monitoring events.

The greatest shift in TDS over the last quarter was a 270 mg/l decrease at downtown Los Osos monitoring well 30S/11E-18J6, from 600 to 330 mg/l. The greatest increase in TDS over the last quarter was reported at Redfield Woods monitoring well 30S/10E-13Q1 (from 430 mg/l to 470 mg/l).

Declining NO_3-N concentrations over the last period were reported at 15 wells, increased NO_3-N concentrations were reported at 6 wells, and 4 wells were unchanged. Individual fluctuations in NO_3-N concentrations across the basin, when averaged together, showed an 0.6 mg/l decrease. The number of monitoring program wells with water quality in excess of the 10 mg/l NO_3-N drinking water standard decline from 14 wells in October 2004 to 12 wells in April 2005.

A decline in TDS concentrations was reported at 17 wells, 7 wells showed increased TDS concentrations, and one well was unchanged over the last quarter. Individual fluctuations in TDS concentrations, when averaged together, decreased by an average of 42 mg/l at monitoring network wells. Table 5 presents a comparison of NO_3-N concentrations and TDS concentrations over the past five monitoring events.

Table 5
Water Quality Comparison

Well ID	NO_3-N (mg/l)					TDS (mg/l)				
	Dec-Jan 2004	Mar 2004	Jun 2004	Oct 2004	Apr 2005	Dec-Jan 2004	Mar 2004	Jun 2004	Oct 2004	Apr 2005
30S/10E-13A7	11	11	12	na	na	290	220	270	na	na
30S/10E-13G	9.7	9.4	7.1	11	8.9	320	300	330	300	270
30S/10E-13H	1.5	2	2.9	3.2	1.3	190	180	250	210	130
30S/10E-13L5	46	35	24	26	28	1300	1100	1200	1200	1100
30S/10E-13Q1	20	20	19	21	21	450	400	390	430	470
30S/10E-24A	11	12	11	11	11	240	190	190	200	220
30S/11E-7K	12	15	11	14	14	390	410	420	380	410
30S/11E-7L3	28	17	18	16	19	580	500	550	510	490
30S/11E-7N1	2.4	2.3	2.3	2.4	2.2	150	130	150	180	120
30S/11E-7Q1	17	19	19	16	18	420	400	400	430	340
30S/11E-7R1	14	14	12	15	12	360	350	320	330	260
30S/11E-8N2	0.7	0.8	0.6	0.8	<0.5	90	87	79	100	67
30S/11E-17D	19	19	17	17	20	370	300	300	360	360
30S/11E-17F4	1.3	1.1	0.8	0.7	0.5	340	330	330	320	330
30S/11E-17N4	6.3	6.3	6.1	6.3	5.1	240	200	190	210	200
30S/11E-18A	14	15	14	15	14	340	300	300	310	330
30S/11E-18B1	11	11	9.8	7.4	2.4	400	420	310	350	110
30S/11E-18C1	15	15	14	15	10	380	320	350	290	280
30S/11E-18E1	9.1	9.7	7.9	7.9	7.9	320	280	280	280	240
30S/11E-18H3	10	na	na	na	na	280	na	na	na	na
30S/11E-18J6	3.7	2.8	3.5	4.9	4.4	430	360	340	600	330
30S/11E-18L3	11	9.3	8.6	9.4	13	300	270	210	280	210
30S/11E-18L4	22	18	15	16	9.6	440	360	390	380	360
30S/11E-18N1	15	14	13	15	12	400	360	390	420	270
30S/11E-18R1	15	15	15	17	15	380	300	370	370	390
30S/11E-20B	4.6	3.7	2.8	3.8	2.5	330	300	300	320	340
30S/11E-21D	na	11	4.9	3.0	9.2	na	570	540	610	600
Averages	12.7	11.9	10.4	11.0	10.4	374	343	352	375	333

Short-term trends over the last year show overall decreases in NO_3-N and TDS concentrations between December 2003 and June 2004, followed by an overall increase in both NO_3-N and TDS between June 2004 and October 2004. Since October 2004, both NO_3-N and TDS concentrations have generally declined at network monitoring wells.

Seasonal fluctuations in water quality have been more pronounced over the last year than in the prior two years of monitoring. This greater fluctuation is interpreted to be due to a much higher amount of precipitation during the last year, compared to the prior two years.

Long-Term Trends

Graphs 1 through 54 in Appendix D present the NO_3-N concentrations and TDS concentrations over time for all 27 network wells in the Nitrate Monitoring Program. The graphs differentiate between historical (CSA9) data and new (LOCSD) data for those wells which were replaced in 2002. Many of the chemical hydrographs show a relatively large fluctuation in NO_3-N and TDS concentrations over time (300% fluctuation not uncommon).

The interpretation of long-term trends was conducted visually from the graphs. Fifteen wells show no discernable long-term trend of increasing or decreasing NO_3-N and TDS concentrations, and two wells had records considered too short for interpretation. Three wells that appeared to have long-term trends in the September 2003 review have since reversed. Potential long-term trends for the remaining seven wells in the monitoring network are discussed below.

- 30S/10E-13L5 — Increasing TDS concentrations since 1996
- 30S/10E-13Q1 — Increasing NO_3-N and TDS concentrations between 1982 and 1998. NO_3-N concentrations lower at replacement well.
- 30S/11E-7Q1 — Increasing NO_3-N concentrations between 1982 and 1996.
- 30S/11E-8N2 — Generally decreasing NO_3-N and TDS concentrations since 2002.
- 30S/11E-18N1 — Decreasing NO_3-N concentrations, mostly since 2003.
- 30S/11E-18R1 — Increasing TDS concentrations, mostly since 1994.
- 30S/11E-20B — Decreasing NO_3-N concentrations since 2002.

CONCLUSIONS

Shallow ground water generally flows to the northwest toward the bay. On the east side of the basin, a portion of the shallow water moves toward Eto Creek and Los Osos Creek. The ground water flow pattern for April 2005 is similar to historical flow patterns. Water levels averaged 4 feet higher in April 2005, compared to October 2004, and were the shallowest since 1998 for most of the network monitoring wells

Water quality results at network wells for April 2005 indicate a decline in shallow ground water salinity compared to the results obtained in October 2004. NO_3-N and TDS concentrations in water collected from network wells across the basin decreased an average of 0.6 mg/l and 42 mg/l, respectively, over the last quarter. The number of monitoring network wells with water quality in excess of the NO_3-N drinking water standard of 10 mg/l has declined from 14 wells in October 2004 to 12 wells in April 2005.

Water quality trends mostly involve seasonal fluctuations, with occasional long-term trends of increasing or decreasing salinity. Water quality trends are interpreted to indicate that general mineral concentrations in shallow ground water are close to equilibrium conditions under the current land uses and septic discharges, which have been relatively stable since the 1980's.

APPENDIX A

Sampling Procedures

Sampling Procedures

Water sampling procedures for general mineral and nitrogen sampling are presented below. The purpose of the sampling procedures are to ensure that communication is established with the aquifer prior to sample collection.

Non-equipped monitoring wells:

8) Calibrate field monitoring instruments each day prior to sampling.
9) Inspect wellhead condition and note any maintenance required (perform at earliest convenience).
10) Measure depth to static water (record to 0.01 inches) from surveyed reference point.
11) Install temporary pump to at least three feet below the water surface (deeper setting may be needed if water level draw down is too great).
12) Begin well purge, record flow rate.
13) Measure discharge water EC (measured to 10 μmhos/cm), pH (measured to 0.01 units), and temperature (measured to 0.1 degrees C) at regular intervals during well purging. Record time and gallons purged. Note discharge water color, odor, and turbidity (visual).
14) A minimum of three casing volumes of water should be removed during purging, or one borehole volume for small diameter monitoring wells*. In addition, a set of at least three consecutive field monitoring measurements with stable values should be recorded. For EC, stability within 5 percent of the first value in the set is sufficient (typically within 20-30 μmhos/cm). For pH, stability within 1 percent of the first value is sufficient (typically within 0.07 units). For temperature, stability within 1 percent of the first value is sufficient (typically within 0.2 degrees).
15) Collect sample directly from discharge tube, note sample color, odor, turbidity (visual). Use only laboratory-provided containers.
16) Place samples on-ice for transport to the laboratory.
17) Remove temporary pump and rinse with clean water.
18) Close well and secure well box lid.

*note: If a well is pumped dry at the minimum pumping rate, the well may be allowed to recover and then sampled by bailer within 24 hours.

Equipped wells:

The sampling port for an equipped well must be upstream of any water filtration or chemical feeds. Sample from the discharge line as close to the wellhead as possible. Sampling procedures for equipped wells will vary, based on whether the well is active or inactive. For active wells (i.e. wells used daily), the need for purging three casing volumes is unnecessary. The well should be turned on for a nominal 5 minutes, and one set of EC, pH, and temperature readings collected prior to sampling. For inactive wells, a field monitoring procedure similar to that described above for unequipped wells would be appropriate. Static water level measurements should also be taken before sampling, if a sounder access port is available. Water samples should always be transported on-ice to the laboratory.

APPENDIX B

Ground Water Monitoring Field Logs

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/15/2005
Operator: BSC/JS
Well number and location: 30S10E-13G South Court
Site and wellhead conditions: Sun, clear, Breezy
Gasket intact. Casing below grade in vault. Locking slip plug OK.

Static water depth (feet): 37.67
Well depth (feet): 52
Water column (feet): 14.33
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 15
Pump rate (gpm): 1.6
HZ: 192.2
Pumping water level (feet): 39.3
Pump setting (feet): 36.67
Minimum purge time (min): 9.4
Time begin purge: 8:32

Time	Gallons	EC	pH	Temp.	Comments*
8:32	<1	463	5.87	15.3	Milky, biege, odorless
8:36	5	463	5.91	17.1	Very lt. Milky, lt. Grey, slight sediment, Odorless
8:40	10	461	5.93	17.7	Clear, Colorless, Lt. Sediment, odorless
8:44	15	456	6.03	17.9	Clear, Colorless, Odorless
8:47	20	453	6.04	18.3	Clear, Colorless, Odorless
8:50	25	454	6.05	18.3	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/19/2005
Operator: BSC/JS
Well number and location: 30S/10E-13H Skyline & Broderson
Site and wellhead conditions: Sun, mild temperature
Casing below grade in vault, gasket intact, plug in place

Static water depth (feet): 23.10
Well depth (feet): 34
Water column (feet): 10.90
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 11
Pump rate (gpm): N/A
HZ: N/A
Pumping water level (feet): N/A
Pump setting (feet): N/A
Minimum purge time (min): N/A
Time begin purge: 8:45

Time	Gallons	EC	pH	Temp.	Comments*
8:45	<1	196	5.93	16.5	Turbid, light brown, odorless
					purged water out casing by hand
					Come back to grab samples
					after casing recharges.
					Purged 11.25 Gallons
12:58	11.5	193	6.31	18.5	Lt. Turbid, Lt Grey, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/14/2005
Operator: BSC/JS
Well number and location: 30S/10E-13L5 Howard & Del Norte
Site and wellhead conditions: Sunny, clear, light breeze
Casing below grade in well box. Gasket intact. Locking slip plug in place.

Static water depth (feet): 19.25
Well depth (feet): 36
Water column (feet): 16.75
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 17
Pump rate (gpm): 1.4
HZ: 160.3
Pumping water level (feet): 20.67
Pump setting (feet): 28.96
Minimum purge time (min): 12.1
Time begin purge: 8:57

Time	Gallons	EC	pH	Temp.	Comments*
8:57	<1	927	5.70	16.6	Turbid, Lt. Brown, odorless
9:00	5	1402	5.75	18.1	Turbid, Grey, odorless
9:03	10	1540	5.74	18.7	Very Lt. Turbid, Lt. Grey, odorless
9:06	15	1628	5.79	18.8	Very Lt. Turbid, very lt. Grey, odorless
9:09	20	1694	5.79	18.9	Very Lt. Turbid, very lt. Grey, odorless
9:14	25	1750	5.78	18.9	Very Lt. Turbid, very lt. Grey, odorless
9:18	30	1780	5.80	18.8	Clear, colorless, odorless
9:21	35	1821	5.79	18.8	Clear, colorless, odorless
9:25	40	1847	5.78	18.9	Clear, colorless, odorless
9:28	45	1871	5.79	18.8	Clear, colorless, odorless
9:32	50	1870	5.80	18.9	Clear, colorless, odorless
9:36	55	1882	5.79	18.9	Clear, colorless, odorless
9:39	60	1908	5.78	19.0	Clear, colorless, odorless
9:43	65	1908	5.78	19.0	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/19/2005
Operator: BSC/JS
Well number and location: 30S/ 10E-13Q1 Woodland Dr. W. of Doris
Site and wellhead conditions: Sun, Clear, Light Breeze
Casing below grade inside vault, gasket intact, locking slip plug OK.

Static water depth (feet): 83.08
Well depth (feet): 104.50
Water column (feet): 21.42
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 22.00
Pump rate (gpm): 1.72
HZ: 253.0
Pumping water level (feet): 84.50
Pump setting (feet): 90.00
Minimum purge time (min): 12.80
Time begin purge: 14:07

Time	Gallons	EC	pH	Temp.	Comments*
14:07	<1	713	6.37	20.2	Lt. Turbid, lt. Grey, odorless
14:10	5	735	6.14	19.5	Clear, Colorless, Odorless
14:13	10	714	6.15	19.3	Clear, Colorless, Odorless
14:16	15	725	6.11	19.2	Clear, Colorless, Odorless
14:20	20	706	6.12	19.3	Clear, Colorless, Odorless
14:23	25	689	6.14	19.1	Clear, Colorless, Odorless
14:26	30	711	6.10	19.1	Clear, Colorless, Odorless
14:29	35	691	6.13	19.1	Clear, Colorless, Odorless
14:33	40	705	6.12	19.2	Clear, Colorless, Odorless
14:36	45	712	6.11	19.1	Clear, Colorless, Odorless
14:38	50	706	6.11	19.1	Clear, Colorless, Odorless
14:41	55	723	6.11	19.1	Clear, Colorless, Odorless
14:44	60	700	6.11	19.0	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/21/2005
Operator: BSC/JS
Well number and location: 30S/10E - 24A Alexander & Highland
Site and wellhead conditions: Sun, Clear, Mild
Casing above grade inside steel monument. Slip plug in place

Static water depth (feet): 154.30
Well depth (feet): 164
Water column (feet): 9.70
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 10
Pump rate (gpm): 1.45
HZ: 300.5
Pumping water level (feet): 154.5
Pump setting (feet): 164
Minimum purge time (min): 6.90
Time begin purge: 9:08

Time	Gallons	EC	pH	Temp.	Comments*
9:08	<1	373	6.36	15.4	Cloudy Turbidity, Grey, Odorless
9:11	5	347	6.33	17.0	Lighter Turbidity, Light Grey, Odorless
9:15	10	342	6.40	17.5	Clear, Very Light Grey, Odorless
9:18	15	338	6.45	17.8	Clear, Colorless, Odorless
9:21	20	337	6.49	18.0	Clear, Colorless, Odorless
9:25	25	335	6.51	18.1	Clear, Colorless, Odorless
9:29	30	335	6.52	18.1	Clear, Colorless, Odorless
9:33	35	334	6.52	18.1	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/14/2005
Operator: BSC/WHS
Well number and location: 30S/ 11E-7K Santa Ysabel & 12th
Site and wellhead conditions: Sunny, Breezy
Casing below grade in well box, gasket intact, locking plug good

Static water depth (feet): 47.83
Well depth (feet): 65.5
Water column (feet): 17.67
Casing diameter (inches): 2
Borehole vol. W/pack (gal) 18
Pump rate (gpm): 1.79
HZ: 225.6
Pumping water level (feet): 52.25
Pump setting (feet): 58.66
Minimum purge time (min): 10.1
Time begin purge: 10:24

Time	Gallons	EC	pH	Temp.	Comments*
10:24	<1	753	6.60	18.9	Cloudy, lt. Brown, odorless
10:28	5	761	6.54	18.7	Cloudy, grey, odorless
10:30	10	690	6.57	19.1	Slight cloudiness, lt. Grey, odorless
10:33	15	751	6.58	19.4	Clear, colorless, odorless
10:37	20	746	6.58	19.7	Clear, Colorless, odorless
10:40	25	750	6.60	19.5	Clear, colorless, odorless
10:43	30	749	6.60	19.5	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/13/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-7L3 Santa Ysabel & 5th Street
Site and wellhead conditions: Sunny clear Mild Breeze
Casing below grade inside well box, gasket in tact. 1/4 " water and some dirt in box

Static water depth (feet): 34
Well depth (feet): 50
Water column (feet): 16
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 17
Pump rate (gpm): 1.3
HZ: 173.1
Pumping water level (feet): 34.75
Pump setting (feet): 41.2
Minimum purge time (min): 13.1
Time begin purge: 11:08

Time	Gallons	EC	pH	Temp.	Comments*
11:08	<1	860	6.29	19.5	Turbid, Light Brown, Odorless
11:12	5	872	6.36	19.4	Clear, Colorless, odorless
11:16	10	875	6.40	19.4	Clear, Colorless, odorless
11:19	15	874	6.42	19.5	Clear, Colorless, odorless
11:23	20	873	6.44	19.5	Clear, Colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/13/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-7N1 3rd St. well
Site and wellhead conditions: Sunny Clear Mild Breeze
Equipped LOCSD well - operated daily. Sample raw sample point.

Static water depth (feet): 2.4
Well depth (feet): 83
Water column (feet): 80.6
Casing diameter (inches): 8
Three casing volumes (gal): 631
Pump rate (gpm): 81.1
Pumping water level (feet): 49.26
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 12:30

Time	Gallons	EC	pH	Temp.	Comments*
12:47	1378.7	256	6.37	21.2	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/14/2005
Operator: BSC/JS
Well number and location: 30S/11E-7Q1 8th Street/El Moro Ave.
Site and wellhead conditions: Sun, clear, slight breeze
Casing below grade.

Static water depth (feet): 2.67
Well depth (feet): 75
Water column (feet): 72.33
Casing diameter (inches): 6
Three casing volumes (gal): 319.0
Pump rate (gpm): 4.06
HZ: 322
Pumping water level (feet): 17.5
Pump setting (feet): 40
Minimum purge time (min): 78.6
Time begin purge: 12:52

Time	Gallons	EC	pH	Temp.	Comments*
12:52	<1	616	7.01	23.0	Turbid, Brown, Odorless
12:54	5	624	7.01	20.6	Turbid, Brown, Odorless
12:57	15	640	6.84	19.7	Lt. Turbid, Lt. Brown, Odorless
13:02	35	649	6.60	18.8	Lt. Turbid, Lt. Brown, Odorless
13:07	55	679	6.44	18.5	Lt. Turbid, Tan, Odorless
13:12	75	691	6.36	18.5	Lt. Turbid, Tan, Odorless
13:22	115	701	6.24	18.7	Clear, Tan, Odorless
13:32	155	701	6.20	18.7	Clear, Lt. Tan, Odorless
13:42	195	701	6.20	18.7	Clear, Colorless, Odorless
13:52	235	706	6.16	18.7	Clear, Colorless, Odorless
14:02	275	711	6.11	18.4	Clear, Colorless, Odorless
14:12	315	710	6.08	18.5	Clear, Very Lt. Tan, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/13/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-7R1 El Morro Ave. / 12th St.
Site and wellhead conditions: Sunny Clear Mild Breeze
Casing below grade inside vault, gasket intact, locking plug in place.

Static water depth (feet):	18.33
Well depth (feet):	35.00
Water column (feet):	16.67
Casing diameter (inches):	2
Three casing volumes (gal):	17
Pump rate (gpm):	1.7
HZ:	176
Pumping water level (feet):	24.58
Pump setting (feet):	16.33
Minimum purge time (min):	10.00
Time begin purge:	15:03

Time	Gallons	EC	pH	Temp.	Comments*
15:03	<1	441	5.92	19.7	Turbid, Brown, Odorless
15:06	5	487	5.97	19.7	Turbid, Lt. Brown, Odorless
15:09	10	496	6.00	19.3	Turbid, Lt. Grey, Odorless
15:11	15	502	6.00	19.0	Lt. Turbid, Lt. Grey, Odorless
15:14	20	504	6.02	18.5	Very Lt. Turbid, Very Lt. Grey, Odorless
15:17	25	506	6.00	18.5	Very Lt. Turbid, Colorless, Odorless
15:21	30	507	5.99	18.5	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/15/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-8N2 South Bay Blvd.
Site and wellhead conditions: Sunny, clear, light wind, mild
Plug in place, casing below grade inside vault. Gasket in tact. Bolt mount missing.

Static water depth (feet): 32.08
Well depth (feet): 50
Water column (feet): 17.92
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 19
Pump rate (gpm): 1.5
HZ: 185.1
Pumping water level (feet): 35.16
Pump setting (feet): 30.08
Minimum purge time (min): 12.7
Time begin purge: 10:49

Time	Gallons	EC	pH	Temp.	Comments*
10:49	<1	106.4	6.51	20.9	Lt. Turbid, Lt. Sediment, Lt. Tan, odorless
10:53	5	104.1	6.51	18.6	Lt. Turbid, Lt. Sediment, Lt. Tan, odorless
10:57	10	104.8	6.53	18.1	Clear, colorless, odorless
11:00	15	105.4	6.50	17.7	Clear, colorless, odorless
11:04	20	105.5	6.49	17.8	Clear, colorless, odorless
11:07	25	106.0	6.49	17.7	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/19/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-17D Pismo Ave. & 18th St.
Site and wellhead conditions: Sunny, Clear, mild

Equipped private well operated daily. Sample from spigot at well.

Static water depth (feet):	49.42
Well depth (feet):	120
Water column (feet):	70.58
Casing diameter (inches):	10
Three casing volumes (gal):	864.0
Pump rate (gpm):	27.8
Pumping water level (feet):	66.167
Pump setting (feet):	N/A
Minimum purge time (min):	5
Time begin purge:	11:02

Time	Gallons	EC	pH	Temp.	Comments*
11:02	<1				
11:09	194.6	610	6.42	17.6	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/21/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-17F4 Hollister Lane
Site and wellhead conditions: Sun, Clear, Mild Temp.
Equipped private well, operated daily. Well realigned to 62 feet

Static water depth (feet): 43.92
Well depth (feet): 62
Water column (feet): 18.1
Casing diameter (inches): 6
Three casing volumes (gal): 80
Pump rate (gpm): 3.1
Pumping water level (feet): 49.42
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 10:43

Time	Gallons	EC	pH	Temp.	Comments*
10:43	<1	553	6.07	18.6	Clear, Colorless, Odorless
10:50	21.7	576	6.13	18.6	Clear, Colorless, Odorless

*Turbidity, color, odor,sheen, debris, etc.
N/A represents information not available

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/20/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-17N4 Willow Road
Site and wellhead conditions: Sun, clear, mild temperature
Equipped private well operated daily, sample from spigot at well head.

Static water depth (feet): 20.5
Well depth (feet): 60
Water column (feet): 39.5
Casing diameter (inches): 8
Three casing volumes (gal): 309
Pump rate (gpm): 3
Pumping water level (feet): 34.04
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 11:05 AM

Time	Gallons	EC	pH	Temp.	Comments*
11:05	<1	314	5.91	16.4	Clear, Colorless, Odorless
11:12	21	322	5.96	17.1	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/21/2005
Operator: BSC, JS
Well number and location: 30S/11E-18A San Luis Avenue
Site and wellhead conditions: Sun, Clear, Breeze
Equipped private well operated daily. Sample from spigot near well

Static water depth (feet): No Access Port
Well depth (feet): Shallow per owner
Water column (feet): N/A
Casing diameter (inches): 6
Three Casing Volumes (gal): N/A
Pump rate (gpm): 5.7
Pumping water level (feet): N/A
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 13:45

Time	Gallons	EC	pH	Temp.	Comments*
13:52	40	541	6.27	18.7	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.
N/A represents information not available

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/14/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-18B1 Ramona & 10th St.
Site and wellhead conditions: Sunny, Clear, Breeze
Water inside casing 1/4 " above locking slip plug

Static water depth (feet): 14.42
Well depth (feet): 35
Water column (feet): 20.58
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 21
Pump rate (gpm): 1.69
HZ: 171.1
Pumping water level (feet): 16.3
Pump setting (feet): 28.37
Minimum purge time (min): 12.4
Time begin purge: 14:57

Time	Gallons	EC	pH	Temp.	Comments*
14:57	<1	190	6.21	19.4	Turbid, lt. Brown, odorless
15:00	5	201	6.20	18.1	Lt. Turbid, Lt. Brown, Odorless
15:03	10	205	6.19	17.7	Lighter turbid, lighter brown odorless
15:06	15	205	6.20	17.6	Lighter turbid, very light color, odorless
15:08	20	207	6.18	17.5	Very Lt. Turbid, colorless, odorless
15:11	25	207	6.20	17.5	Very Lt. Turbid, colorless, odorless
15:14	30	208	6.18	17.3	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/13/2005
Operator: BSC, WHS
Well number and location: 30S/ 11E-18C1 Pismo Ave. / 5th Street
Site and wellhead conditions: Sunny, warm, dry
Casing below grade inside well box vault.

Static water depth (feet):	14.33
Well depth (feet):	34.5
Water column (feet):	20.17
Casing diameter (inches):	2
Borehole vol. W/pack (gal):	21
Pump rate (gpm):	1.59
HZ:	158.6
Pumping water level (feet):	16.46
Pump setting (feet):	29.5
Minimum purge time (min):	13.2
Time begin purge:	1:33

Time	Gallons	EC	pH	Temp.	Comments*
1:33	<1	508	5.97	20.6	Lt. Brown, odorless
1:38	5	517	6.04	18.8	Slight Cloudy, odorless
1:42	10	524	6.07	18.2	Clear, Colorless, Odorless
1:46	15	534	6.06	18.1	Clear, Colorless, Odorless
1:49	20	535	6.07	18.1	Clear, Colorless, Odorless
1:52	25	512	6.07	18.0	Clear, Colorless, Odorless
1:55	30	544	6.07	18.0	Clear, Colorless, Odorless
1:59	35	545	6.08	17.9	Clear, Colorless, Odorless
2:03	40	548	6.08	17.9	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/15/2005
Operator: BSC
Well number and location: 30S/ 11E-18E1 Private property Ramona Ave.
Site and wellhead conditions: Sunny, breeze
6" end cap. No locking slip plug

Static water depth (feet): 20.75
Well depth (feet): 100
Water column (feet): 79.25
Casing diameter (inches): 6
Three casing volumes (gal): 349
Pump rate (gpm): 3.3
HZ: 280
Pumping water level (feet): 23.83
Pump setting (feet): 40
Minimum purge time (min): 94
Time begin purge: 13:15

Time	Gallons	EC	pH	Temp.	Comments*
13:15	<1	448	6.43	21.1	Clear, colorless, odorless
13:17	10	465	6.21	19.6	Clear, colorless, odorless
13:20	20	467	6.15	18.2	Clear, colorless, odorless
13:30	53	470	6.09	18.1	Clear, colorless, odorless
13:40	86	469	6.08	18.0	Clear, colorless, odorless
13:50	119	469	6.10	17.8	Clear, colorless, odorless
14:00	152	467	6.09	17.9	Clear, colorless, odorless
14:10	185	467	6.09	17.9	Clear, colorless, odorless
14:20	218	466	6.09	17.9	Clear, colorless, odorless
14:30	251	466	6.10	18.3	Clear, colorless, odorless
14:40	284	464	6.10	18.2	Clear, colorless, odorless
14:50	317	465	6.10	18.2	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/20/2005
Operator: BSC/JS
Well number and location: 30S/11E-18J6 Los Olivos & Fairchild
Site and wellhead conditions: Sun, Clear, lt. Breeze
Casing below grade. Vault was full of water. Pumped out by hand. Slip plug in place.
Gasket looked good.

Static water depth (feet): 18.04
Well depth (feet): 35
Water column (feet): 16.96
Casing diameter (inches): 2
Borehole vol. W/pack (gal) 18
Pump rate (gpm): N/A
Pumping water level (feet): N/A
Pump setting (feet): N/A
Minimum purge time (min): N/A
Time begin purge: 10:19

Time	Gallons	EC	pH	Temp.	Comments*
10:19	<1	608	6.18	18.5	Turbid, Brown, Odorless
13:27	7.5	608	6.25	18.2	Turbid, Milky grey, odorless
					Purged 7.5 gallons by hand

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/13/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-18L3 Palisades across from library
Site and wellhead conditions: Sun, Clear, Breezy
Casing below grade inside box vault, water tight gasket OK.

Static water depth (feet): 35.00
Well depth (feet): 53.4
Water column (feet): 18.40
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 19
Pump rate (gpm): 1.5
HZ: 185.1
Pumping water level (feet): 37.00
Pump setting (feet): 46.3
Minimum purge time (min): 12.7
Time begin purge: 9:37

Time	Gallons	EC	pH	Temp.	Comments*
9:37	<1	466	5.90	16.8	Turbid, brown, odorless
9:40	5	440	6.01	18.1	Lighter turbid, Light grey, odorless
9:44	10	455	6.04	18.7	Very lt. Turbid, colorless, odorless
9:48	15	464	6.05	19.1	Clear, colorless, odorless
9:51	20	469	6.05	19.1	Clear, colorless, odorless
9:55	25	472	6.05	19.1	Clear, colorless, odorless
9:59	30	473	6.03	19.2	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/15/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-18L4 Ferrell Avenue
Site and wellhead conditions: Sunny, Clear, Cool Breeze
Casing below grade in vault. Gasket intact. One bold missing. 5" of water in vault

Static water depth (feet): 15.50
Well depth (feet): 35
Water column (feet): 19.50
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 20
Pump rate (gpm): 1.42
HZ: 155.1
Pumping water level (feet): 17
Pump setting (feet): 30.46
Minimum purge time (min): 14.1
Time begin purge: 9:22

Time	Gallons	EC	pH	Temp.	Comments*
9:22	<1	677	5.98	17.8	Lt. Turbid, Lt. Grey, odorless
9:26	5	659	5.97	17.9	Clear, colorless, odorless
9:29	10	663	5.98	18.0	Clear, colorless, odorless
9:33	15	665	5.98	18.0	Clear, colorless, odorless
9:36	20	664	6.00	18.1	Clear, colorless, odorless
9:39	25	665	5.99	18.1	Clear, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/19/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-18N1 Manzanita & Ravenna
Site and wellhead conditions: Sun, clear, mild
Casing below grade in vault, gasket intact, plug in place

Static water depth (feet): 72
Well depth (feet): 94.5
Water column (feet): 22.50
Casing diameter (inches): 2
Borehole vol. W/pack (gal): 23
Pump rate (gpm): 1.67
HZ: 242.5
Pumping water level (feet): 76.50
Pump setting (feet): 80
Minimum purge time (min): 13.8
Time begin purge: 10:08

Time	Gallons	EC	pH	Temp.	Comments*
10:08	<1	720	7.43	18.7	Light turbid, lt. Grey, odorless
10:11	5	617	6.04	19.2	Turbid, lt. Brown, odorless
10:14	10	618	6.04	19.3	Turbid, grey, odorless
10:18	15	617	6.05	19.5	Lt. Turbid, Lt grey, odorless
10:21	20	617	6.07	19.5	Lighter turbid, lighter grey, odorless
10:25	25	617	6.07	19.5	Very light turbid, colorless, odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/20/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-18R1 LOVR and Chaparral
Site and wellhead conditions: Sun, Clear, Breezy
Equipped private well. Sample from spigot on west side of garage.

Static water depth (feet): 10.5
Well depth (feet): 50
Water column (feet) 39.5
Casing diameter (inches): 8
Three casing volumes (gal): 309
Pump rate (gpm): 7.70
Pumping water level (feet): 14.5
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 1:05 PM

Time	Gallons	EC	pH	Temp.	Comments*
13:05	<1	594	5.84	18.0	Clear, Colorless, Odorless
13:13	61.6	604	5.87	16.8	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/21/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-20B Eto Lane
Site and wellhead conditions: Sun, Clear, Mild Temp
Equipped private well - operated daily. Sample from spigot at well head.

Static water depth (feet): No Access Port
Well depth (feet): Shallow per owner
Water column (feet): N/A
Casing diameter (inches): 4
Three casing volumes (gal): N/A
Pump rate (gpm): 7.8
Pumping water level (feet): N/A
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 13:00

Time	Gallons	EC	pH	Temp.	Comments*
13:06	46.8	575	6.34	18.7	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

Ground Water Monitoring Field Log
Los Osos Nitrate Monitoring Program

Date: 4/12/2005
Operator: BSC/JS
Well number and location: 30S/ 11E-21D Sombrero
Site and wellhead conditions: Clear and Mild
Equipped private well - operated daily

Static water depth (feet): 6
Well depth (feet): 116
Water column (feet): 110
Casing diameter (inches): 8
Three casing volumes (gal): 862
Pump rate (gpm): 3.8
Pumping water level (feet): 9.96
Pump setting (feet): N/A
Minimum purge time (min): 5
Time begin purge: 2:19 AM

Time	Gallons	EC	pH	Temp.	Comments*
2:19	<1	1009	6.51	20.4	Slight brown (first 5 sec.) running clear
2:22	10	1032	6.71	19.5	Clear, Colorless, Odorless
2:30	30	1049	6.72	18.9	Clear, Colorless, Odorless
2:34	40	1045	6.71	18.9	Clear, Colorless, Odorless

*Turbidity, color, odor, sheen, debris, etc.

APPENDIX C

Laboratory Reports

ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412

Lab Number:	39645-1
Collected:	04/15/05
Received:	04/15/05
Matrix:	Aqueous

Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Sample Description:	30S/10E-13G
Analyzed:	04/15/05 - 04/28/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	65.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	65.
Specific Conductance	EPA 120.1	umhos/cm	1.0	450.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	270.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	65.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	8.9
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	ND
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	12.
Calcium	EPA 200.7	mg/L	1.0	19.
Magnesium	EPA 200.7	mg/L	1.0	19.
Potassium	EPA 200.7	mg/L	1.0	1.1
Sodium	EPA 200.7	mg/L	1.0	43.

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39645-1g.xls
SD/sks/ss/mal

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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4305
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/10E-13H	BSC (Bob Santa Cruz)	04/19/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	50	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	50	2	mg/L	SM 2320B	04/29/05
Chloride	11	1	mg/L	EPA 300.0	04/20/05
Electrical Conductance	180	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	1.1	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	2.4	0.1	mg/L	Calculated	
Ammonia, Total, as N	Not Detected	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	1.3	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	13	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	130	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	1.1	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.059	0.01	mg/L	EPA 200.8	04/29/05
Calcium	14	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	7.0	0.03	mg/L	EPA 200.8	04/29/05
Potassium	0.42	0.1	mg/L	EPA 200.8	04/29/05
Sodium	17	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Manager, Mary Ann Long

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39632-1
Collected:	04/14/05
Received:	04/14/05
Matrix:	Aqueous
Sample Description:	30S/10E-13L5
Analyzed:	04/15/05 - 05/05/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	60.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	60.
Specific Conductance	EPA 120.1	umhos/cm	1.0	2100.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	1100.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	460.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	28.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	ND
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	44.
Calcium	EPA 200.7	mg/L	1.0	90.
Magnesium	EPA 200.7	mg/L	1.0	99.
Potassium	EPA 200.7	mg/L	1.0	1.2
Sodium	EPA 200.7	mg/L	1.0	97.

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39632-1g.xls
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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4304
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/10E-13Q1	BSC (Bob Santa Cruz)	04/19/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	73	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	73	2	mg/L	SM 2320B	04/29/05
Chloride	120	10	mg/L	EPA 300.0	04/26/05
Electrical Conductance	710	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	1.0	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	21	0.1	mg/L	Calculated	
Ammonia, Total, as N	Not Detected	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	20	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	24	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	470	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	1.0	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.097	0.01	mg/L	EPA 200.8	04/29/05
Calcium	28	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	21	0.03	mg/L	EPA 200.8	04/29/05
Potassium	1.5	0.1	mg/L	EPA 200.8	04/29/05
Sodium	77	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Manager, Mary Ann Long

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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4364
Order: M2060
Project: Nitrate monitoring progra
Received: 04/21/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/10E-24A	Santa Cruz	04/21/05@09:33	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Bicarbonate Alkalinity as CaCO3	44	1	mg/L	SM 2320B	05/02/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Total Alkalinity as CaCO3	44	2	mg/L	SM 2320B	05/02/05
Chloride	46	1	mg/L	EPA 300.0	04/22/05
Electrical Conductance	340	1	umhos/cm	SM 2510	04/28/05
Organic Nitrogen Value	0.3	---	mg/L	Calculated	05/06/05
Total Nitrogen Value	12	0.1	mg/L	Calculated	
Ammonia, Total, as N	0.4	0.3	mg/L	EPA 350.2	05/05/05
Nitrate as N	11	0.1	mg/L	EPA 300.0	04/22/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/22/05
Sulfate	5.1	0.5	mg/L	EPA 300.0	04/22/05
Total Dissolved Solids	220	10	mg/L	EPA 160.1	04/28/05
Total Kjeldahl Nitrogen	0.7	0.5	mg/L	EPA 351.3	05/02/05
Boron	0.036	0.01	mg/L	EPA 200.8	04/29/05
Calcium	14	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	9.7	0.03	mg/L	EPA 200.8	04/29/05
Potassium	1.7	0.1	mg/L	EPA 200.8	04/29/05
Sodium	38	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Manager, Mary Ann Long

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39632-2
Collected:	04/14/05
Received:	04/14/05
Matrix:	Aqueous
Sample Description:	30S/11E-7K
Analyzed:	04/15/05 - 05/05/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	140.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	140.
Specific Conductance	EPA 120.1	umhos/cm	1.0	800.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	410.
Boron	EPA 200.7	mg/L	0.2	0.2
Chloride	EPA 300.0	mg/L	0.5	82.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	14.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	0.6
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	0.7
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	47.
Calcium	EPA 200.7	mg/L	1.0	36.
Magnesium	EPA 200.7	mg/L	1.0	34.
Potassium	EPA 200.7	mg/L	1.0	2.0
Sodium	EPA 200.7	mg/L	1.0	63.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39632-2g.xls
SD/sks/mm/crk/am/mal

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39618-2
Collected:	04/13/05
Received:	04/13/05
Matrix:	Aqueous
Sample Description:	30S/11E-7L3
Analyzed:	04/13/05 - 04/25/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	140.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	140.
Specific Conductance	EPA 120.1	umhos/cm	1.0	900.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	490.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	110.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	19.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.3	mg/L	0.1	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	0.6
Organic Nitrogen	Calculation	mg/L	0.5	0.6
Sulfate	EPA 300.0	mg/L	0.5	57.
Calcium	EPA 200.7	mg/L	1.0	25.
Magnesium	EPA 200.7	mg/L	1.0	22.
Potassium	EPA 200.7	mg/L	1.0	2.3
Sodium	EPA 200.7	mg/L	1.0	97.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

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REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39618-3
Collected:	04/13/05
Received:	04/13/05
Matrix:	Aqueous
Sample Description:	30S/11E-7N1
Analyzed:	04/13/05 - 04/25/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	70.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	70.
Specific Conductance	EPA 120.1	umhos/cm	1.0	240.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	120.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	28.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	2.2
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.3	mg/L	0.1	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	ND
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	5.9
Calcium	EPA 200.7	mg/L	1.0	12.
Magnesium	EPA 200.7	mg/L	1.0	9.4
Potassium	EPA 200.7	mg/L	1.0	1.1
Sodium	EPA 200.7	mg/L	1.0	21.

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39618-3g.xls
SD/sks/mm/ss/crk/am/mal

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REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39632-4
Collected:	04/14/05
Received:	04/14/05
Matrix:	Aqueous
Sample Description:	30S/11E-7Q1
Analyzed:	04/15/05 - 05/05/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	75.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	75.
Specific Conductance	EPA 120.1	umhos/cm	1.0	720.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	340.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	84.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	18.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	1.6
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	0.6
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	38.
Calcium	EPA 200.7	mg/L	1.0	30.
Magnesium	EPA 200.7	mg/L	1.0	23.
Potassium	EPA 200.7	mg/L	1.0	4.3
Sodium	EPA 200.7	mg/L	1.0	65.

ZymaX envirotechnology, inc. is certified by CA Department of Health Services: Laboratory #1717

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**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

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REPORT OF ANALYTICAL RESULTS

Client: George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412	Lab Number: 39618-5 Collected: 04/13/05 Received: 04/13/05 Matrix: Aqueous
Project: Nitrate Monitoring Program Project Number: Collected by: Santa Cruz	Sample Description: 30S/11E-7R1 Analyzed: 04/13/05 - 04/25/05 Method: See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	95.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	95.
Specific Conductance	EPA 120.1	umhos/cm	1.0	530.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	260.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	51.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	12.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.3	mg/L	0.1	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	ND
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	28.
Calcium	EPA 200.7	mg/L	1.0	25.
Magnesium	EPA 200.7	mg/L	1.0	17.
Potassium	EPA 200.7	mg/L	1.0	2.4
Sodium	EPA 200.7	mg/L	1.0	41.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

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SD/sks/mm/ss/crk/am/mal

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39645-3
Collected:	04/15/05
Received:	04/15/05
Matrix:	Aqueous
Sample Description:	30S/11E-8N2
Analyzed:	04/15/05 - 04/28/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	32.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	32.
Specific Conductance	EPA 120.1	umhos/cm	1.0	88.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	67.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	3.7
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	ND
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	0.7
Organic Nitrogen	Calculation	mg/L	0.5	0.7
Sulfate	EPA 300.0	mg/L	0.5	6.5
Calcium	EPA 200.7	mg/L	1.0	4.2
Magnesium	EPA 200.7	mg/L	1.0	3.9
Potassium	EPA 200.7	mg/L	1.0	0.8
Sodium	EPA 200.7	mg/L	1.0	8.7

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39645-3g.xls
SD/sks/ss/mal

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MAY 26 2005
BY: ...

George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4303
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-17D	BSC (Bob Santa Cruz)	04/19/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	80	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	80	2	mg/L	SM 2320B	04/29/05
Chloride	64	1	mg/L	EPA 300.0	04/20/05
Electrical Conductance	600	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	< 0.5	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	20	0.1	mg/L	Calculated	
Ammonia, Total, as N	0.4	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	20	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	31	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	360	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	Not Detected	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.19	0.01	mg/L	EPA 200.8	04/29/05
Calcium	23	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	20	0.03	mg/L	EPA 200.8	04/29/05
Potassium	1.6	0.1	mg/L	EPA 200.8	04/29/05
Sodium	68	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Director, Michael Ng

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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4365
Order: M2060
Project: Nitrate monitoring progra
Received: 04/21/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-17F4	Santa Cruz	04/21/05@10:50	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Bicarbonate Alkalinity as CaCO3	130	1	mg/L	SM 2320B	05/02/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Total Alkalinity as CaCO3	130	2	mg/L	SM 2320B	05/02/05
Chloride	99	1	mg/L	EPA 300.0	04/22/05
Electrical Conductance	560	1	umhos/cm	SM 2510	04/28/05
Organic Nitrogen Value	0.1	---	mg/L	Calculated	05/06/05
Total Nitrogen Value	1.1	0.1	mg/L	Calculated	
Ammonia, Total, as N	0.5	0.3	mg/L	EPA 350.2	05/05/05
Nitrate as N	0.5	0.1	mg/L	EPA 300.0	04/22/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/22/05
Sulfate	15	0.5	mg/L	EPA 300.0	04/22/05
Total Dissolved Solids	330	10	mg/L	EPA 160.1	04/28/05
Total Kjeldahl Nitrogen	0.6	0.5	mg/L	EPA 351.3	05/02/05
Boron	0.049	0.01	mg/L	EPA 200.8	04/29/05
Calcium	30	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	24	0.03	mg/L	EPA 200.8	04/29/05
Potassium	1.4	0.1	mg/L	EPA 200.8	04/29/05
Sodium	58	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Manager, Mary Ann Long

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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4308
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-17N4	BSC (Bob Santa Cruz)	04/20/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	40	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	40	2	mg/L	SM 2320B	04/29/05
Chloride	48	1	mg/L	EPA 300.0	04/20/05
Electrical Conductance	320	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	< 0.5	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	5.1	0.1	mg/L	Calculated	
Ammonia, Total, as N	Not Detected	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	5.1	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	12	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	200	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	Not Detected	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.058	0.01	mg/L	EPA 200.8	04/29/05
Calcium	13	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	11	0.03	mg/L	EPA 200.8	04/29/05
Potassium	0.91	0.1	mg/L	EPA 200.8	04/29/05
Sodium	34	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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Lab Manager, Mary Ann Long

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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4366
Order: M2060
Project: Nitrate monitoring progra
Received: 04/21/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-18A	Santa Cruz	04/21/05@13:52	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Bicarbonate Alkalinity as CaCO3	82	1	mg/L	SM 2320B	05/02/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Total Alkalinity as CaCO3	82	2	mg/L	SM 2320B	05/02/05
Chloride	63	1	mg/L	EPA 300.0	04/22/05
Electrical Conductance	520	1	umhos/cm	SM 2510	04/28/05
Organic Nitrogen Value	0.0	---	mg/L	Calculated	05/06/05
Total Nitrogen Value	14	0.1	mg/L	Calculated	
Ammonia, Total, as N	0.4	0.3	mg/L	EPA 350.2	05/05/05
Nitrate as N	14	0.1	mg/L	EPA 300.0	04/22/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/22/05
Sulfate	34	0.5	mg/L	EPA 300.0	04/22/05
Total Dissolved Solids	330	10	mg/L	EPA 160.1	04/28/05
Total Kjeldahl Nitrogen	Not Detected	0.5	mg/L	EPA 351.3	05/02/05
Boron	0.18	0.01	mg/L	EPA 200.8	04/29/05
Calcium	32	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	19	0.03	mg/L	EPA 200.8	04/29/05
Potassium	3.5	0.1	mg/L	EPA 200.8	04/29/05
Sodium	51	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Manager, Mary Ann Long

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Lab Number:	39632-3
Collected:	04/14/05
Received:	04/14/05
Matrix:	Aqueous
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz
Sample Description:	30S/11E-18B1
Analyzed:	04/15/05 - 05/05/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	80.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	80.
Specific Conductance	EPA 120.1	umhos/cm	1.0	210.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	110.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	6.7
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	2.4
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	1.1
Organic Nitrogen	Calculation	mg/L	0.5	1.1
Sulfate	EPA 300.0	mg/L	0.5	12.
Calcium	EPA 200.7	mg/L	1.0	9.8
Magnesium	EPA 200.7	mg/L	1.0	5.2
Potassium	EPA 200.7	mg/L	1.0	3.3
Sodium	EPA 200.7	mg/L	1.0	26.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39632-3g.xls
SD/sks/mm/crk/am/mal

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39618-4
Collected:	04/13/05
Received:	04/13/05
Matrix:	Aqueous
Sample Description:	30S/11E-18C1
Analyzed:	04/13/05 - 04/25/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	100.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	100.
Specific Conductance	EPA 120.1	umhos/cm	1.0	580.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	280.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	55.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	10.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.3	mg/L	0.1	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	ND
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	38.
Calcium	EPA 200.7	mg/L	1.0	22.
Magnesium	EPA 200.7	mg/L	1.0	19.
Potassium	EPA 200.7	mg/L	1.0	1.5
Sodium	EPA 200.7	mg/L	1.0	51.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39618-4g.xls
SD/sks/mm/ss/crk/am/mal

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REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39645-4
Collected:	04/15/05
Received:	04/15/05
Matrix:	Aqueous
Sample Description:	30S/11E-18E
Analyzed:	04/15/05 - 04/28/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	85.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	85.
Specific Conductance	EPA 120.1	umhos/cm	1.0	440.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	240.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	44.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	7.9
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	0.4
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	0.7
Organic Nitrogen	Calculation	mg/L	0.5	0.3
Sulfate	EPA 300.0	mg/L	0.5	30.
Calcium	EPA 200.7	mg/L	1.0	22.
Magnesium	EPA 200.7	mg/L	1.0	18.
Potassium	EPA 200.7	mg/L	1.0	1.5
Sodium	EPA 200.7	mg/L	1.0	46.

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Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

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George Milanes
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PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4307
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-18J6	BSC (Bob Santa Cruz)	04/20/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	180	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	180	2	mg/L	SM 2320B	04/29/05
Chloride	55	1	mg/L	EPA 300.0	04/20/05
Electrical Conductance	530	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	1.4	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	7.5	0.1	mg/L	Calculated	
Ammonia, Total, as N	1.7	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	4.4	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	19	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	330	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	3.1	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.10	0.01	mg/L	EPA 200.8	04/29/05
Calcium	36	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	22	0.03	mg/L	EPA 200.8	04/29/05
Potassium	3.2	0.1	mg/L	EPA 200.8	04/29/05
Sodium	54	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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Lab Manager, Mary Ann Long

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REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Lab Number:	39618-1
Collected:	04/13/05
Received:	04/13/05
Matrix:	Aqueous
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz
Sample Description:	30S/11E-18L3
Analyzed:	04/13/05 - 04/25/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	60.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	60.
Specific Conductance	EPA 120.1	umhos/cm	1.0	480.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	210.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	59.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	13.
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.3	mg/L	0.1	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	1.4
Organic Nitrogen	Calculation	mg/L	0.5	1.4
Sulfate	EPA 300.0	mg/L	0.5	25.
Calcium	EPA 200.7	mg/L	1.0	22.
Magnesium	EPA 200.7	mg/L	1.0	14.
Potassium	EPA 200.7	mg/L	1.0	2.8
Sodium	EPA 200.7	mg/L	1.0	42.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client: George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412	Lab Number: 39645-2 Collected: 04/15/05 Received: 04/15/05 Matrix: Aqueous
Project: Nitrate Monitoring Program Project Number: Collected by: Santa Cruz	Sample Description: 30S/11E-18L4 Analyzed: 04/15/05 - 04/28/05 Method: See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	100.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	100.
Specific Conductance	EPA 120.1	umhos/cm	1.0	630.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	360.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	78.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	9.6
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.2	mg/L	0.3	0.3
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	0.8
Organic Nitrogen	Calculation	mg/L	0.5	0.5
Sulfate	EPA 300.0	mg/L	0.5	34.
Calcium	EPA 200.7	mg/L	1.0	33.
Magnesium	EPA 200.7	mg/L	1.0	26.
Potassium	EPA 200.7	mg/L	1.0	3.2
Sodium	EPA 200.7	mg/L	1.0	61.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

39645-2g.xls
SD/sks/ss/mal

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George Milanes
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PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4302
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-18N1	BSC (Bob Santa Cruz)	04/19/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	46	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	46	2	mg/L	SM 2320B	04/29/05
Chloride	110	10	mg/L	EPA 300.0	04/26/05
Electrical Conductance	600	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	1.1	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	13	0.1	mg/L	Calculated	
Ammonia, Total, as N	Not Detected	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	12	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	31	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	370	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	1.1	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.14	0.01	mg/L	EPA 200.8	04/29/05
Calcium	23	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	23	0.03	mg/L	EPA 200.8	04/29/05
Potassium	1.8	0.1	mg/L	EPA 200.8	04/29/05
Sodium	56	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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Lab Manager, Mary Ann Long

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Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4306
Order: M2029
Project: Nitrate monitoring progra
Received: 04/20/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-18R1	BSC (Bob Santa Cruz)	04/20/05@	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Bicarbonate Alkalinity as CaCO3	50	1	mg/L	SM 2320B	04/29/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	04/29/05
Total Alkalinity as CaCO3	50	2	mg/L	SM 2320B	04/29/05
Chloride	110	10	mg/L	EPA 300.0	04/26/05
Electrical Conductance	580	1	umhos/cm	SM 2510	04/25/05
Organic Nitrogen Value	< 0.5	---	mg/L	Calculated	05/02/05
Total Nitrogen Value	15	0.1	mg/L	Calculated	
Ammonia, Total, as N	Not Detected	0.3	mg/L	EPA 350.2	04/29/05
Nitrate as N	15	0.1	mg/L	EPA 300.0	04/20/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/20/05
Sulfate	17	0.5	mg/L	EPA 300.0	04/20/05
Total Dissolved Solids	390	10	mg/L	EPA 160.1	04/25/05
Total Kjeldahl Nitrogen	Not Detected	0.5	mg/L	EPA 351.3	04/28/05
Boron	0.14	0.01	mg/L	EPA 200.8	04/29/05
Calcium	24	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	21	0.03	mg/L	EPA 200.8	04/29/05
Potassium	0.90	0.1	mg/L	EPA 200.8	04/29/05
Sodium	59	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

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George Milanes
Los Osos CSD
PO Box 6064
Los Osos, CA 93402

Log Number: 05-C4367
Order: M2060
Project: Nitrate monitoring progra
Received: 04/21/05

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
30S/11E-20B	Santa Cruz	04/21/05@13:06	Aqueous

ANALYTE	RESULT	DLR	UNITS	METHOD	ANALYZED
Carbonate Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Bicarbonate Alkalinity as CaCO3	100	1	mg/L	SM 2320B	05/02/05
Hydroxide Alkalinity as CaCO3	Not Detected	1	mg/L	SM 2320B	05/02/05
Total Alkalinity as CaCO3	100	2	mg/L	SM 2320B	05/02/05
Chloride	100	1	mg/L	EPA 300.0	04/22/05
Electrical Conductance	570	1	umhos/cm	SM 2510	04/28/05
Organic Nitrogen Value	0.1	---	mg/L	Calculated	05/06/05
Total Nitrogen Value	3.1	0.1	mg/L	Calculated	
Ammonia, Total, as N	0.5	0.3	mg/L	EPA 350.2	05/03/05
Nitrate as N	2.5	0.1	mg/L	EPA 300.0	04/22/05
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	04/22/05
Sulfate	27	0.5	mg/L	EPA 300.0	04/22/05
Total Dissolved Solids	340	10	mg/L	EPA 160.1	04/28/05
Total Kjeldahl Nitrogen	0.6	0.5	mg/L	EPA 351.3	05/02/05
Boron	0.060	0.01	mg/L	EPA 200.8	04/29/05
Calcium	30	0.1	mg/L	EPA 200.8	04/29/05
Magnesium	30	0.03	mg/L	EPA 200.8	04/29/05
Potassium	1.7	0.1	mg/L	EPA 200.8	04/29/05
Sodium	47	0.05	mg/L	EPA 200.8	04/29/05

DLR = Detection Limit for Reporting. Results of "Not Detected" are below DLR.

CREEK ENVIRONMENTAL LABORATORIES

Lab Manager, Mary Ann Long

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ZymaX envirotechnology

REPORT OF ANALYTICAL RESULTS

Client:	George Milanes Los Osos CSD P.O. Box 6064 Los Osos, CA 93412
Project:	Nitrate Monitoring Program
Project Number:	
Collected by:	Santa Cruz

Lab Number:	39605-1
Collected:	04/12/05
Received:	04/12/05
Matrix:	Aqueous
Sample Description:	30S/11E-21D
Analyzed:	04/13/05 - 04/26/05
Method:	See Below

GENERAL MINERALS

CONSTITUENT	METHOD	UNITS	PQL*	RESULT**
Total Alkalinity	SM 2320B	mg/L CaCO3	5.0	380.
Hydroxide Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Carbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	ND
Bicarbonate Alkalinity	SM 2320B	mg/L CaCO3	5.0	380.
Specific Conductance	EPA 120.1	umhos/cm	1.0	1100.
Total Dissolved Solids	EPA 160.1	mg/L	5.0	600.
Boron	EPA 200.7	mg/L	0.2	ND
Chloride	EPA 300.0	mg/L	0.5	79.
Nitrate as Nitrogen (NO3-N)	EPA 300.0	mg/L	0.4	9.2
Nitrite as Nitrogen (NO2-N)	EPA 300.0	mg/L	0.4	ND
Ammonia - Nitrogen	EPA 350.3	mg/L	0.1	ND
Total Kjeldahl Nitrogen	EPA 351.3	mg/L	0.5	ND
Organic Nitrogen	Calculation	mg/L	0.5	ND
Sulfate	EPA 300.0	mg/L	0.5	70.
Calcium	EPA 200.7	mg/L	1.0	63.
Magnesium	EPA 200.7	mg/L	1.0	64.
Potassium	EPA 200.7	mg/L	1.0	ND
Sodium	EPA 200.7	mg/L	1.0	69.

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*PQL - Practical Quantitation Limit

**Results listed as ND would have been reported if present at or above the listed PQL.

Note: Analyses performed by CA Department of Health Services certified laboratories #1717, and #1958

Submitted by,
ZymaX envirotechnology, inc.

for Stephanie Dollahite
Project Manager

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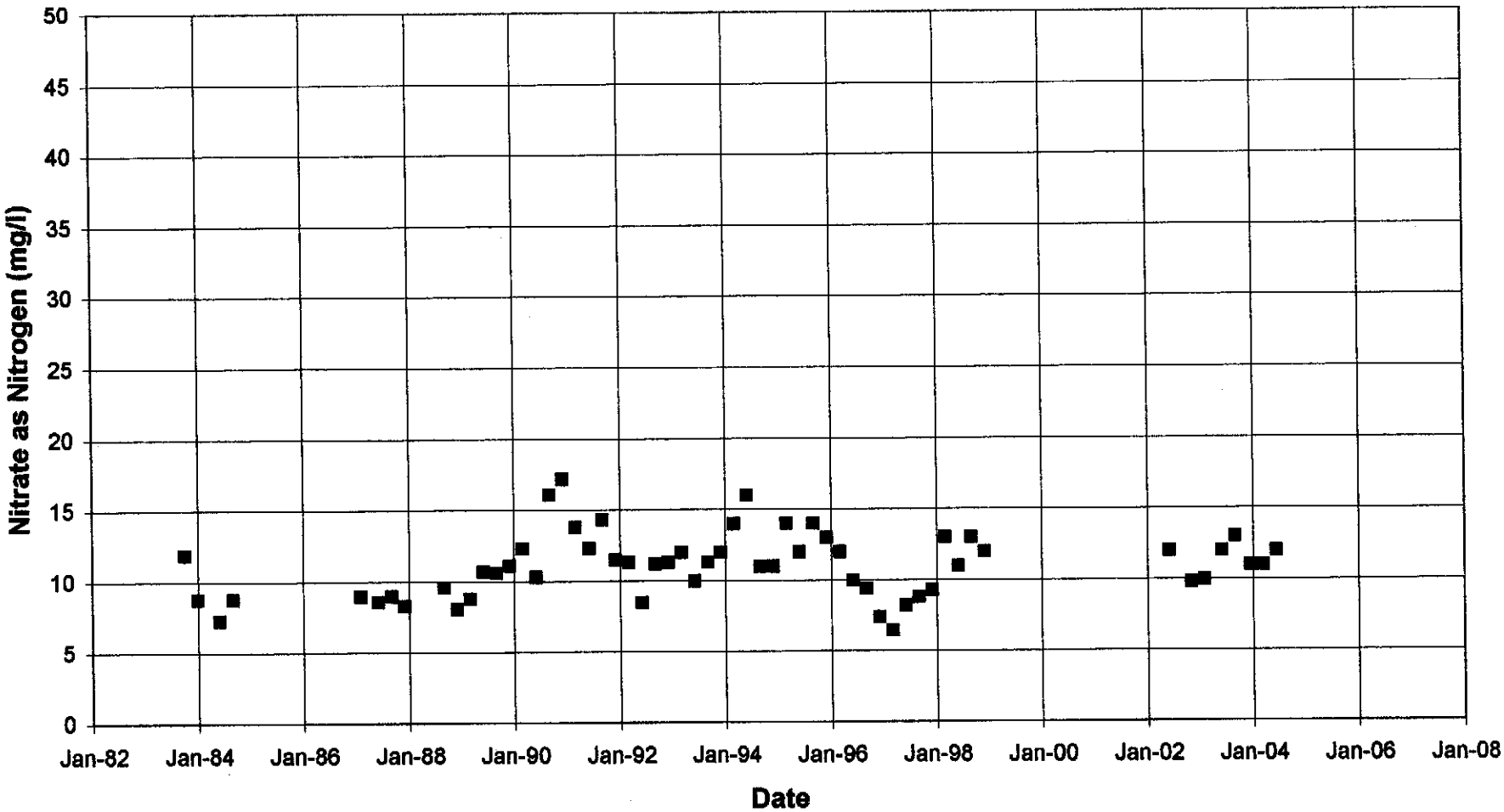
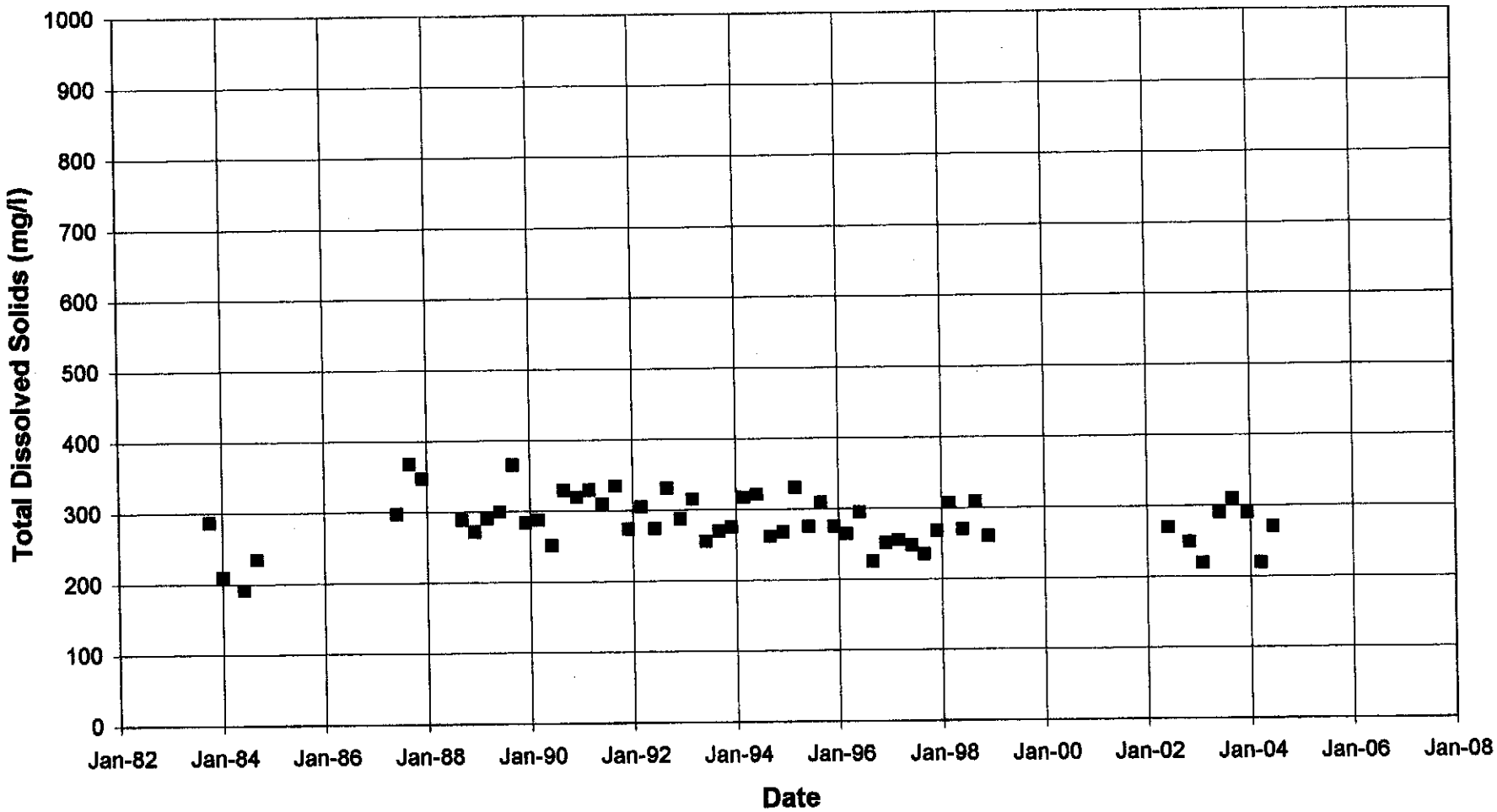
APPENDIX D

Water Quality Graphs

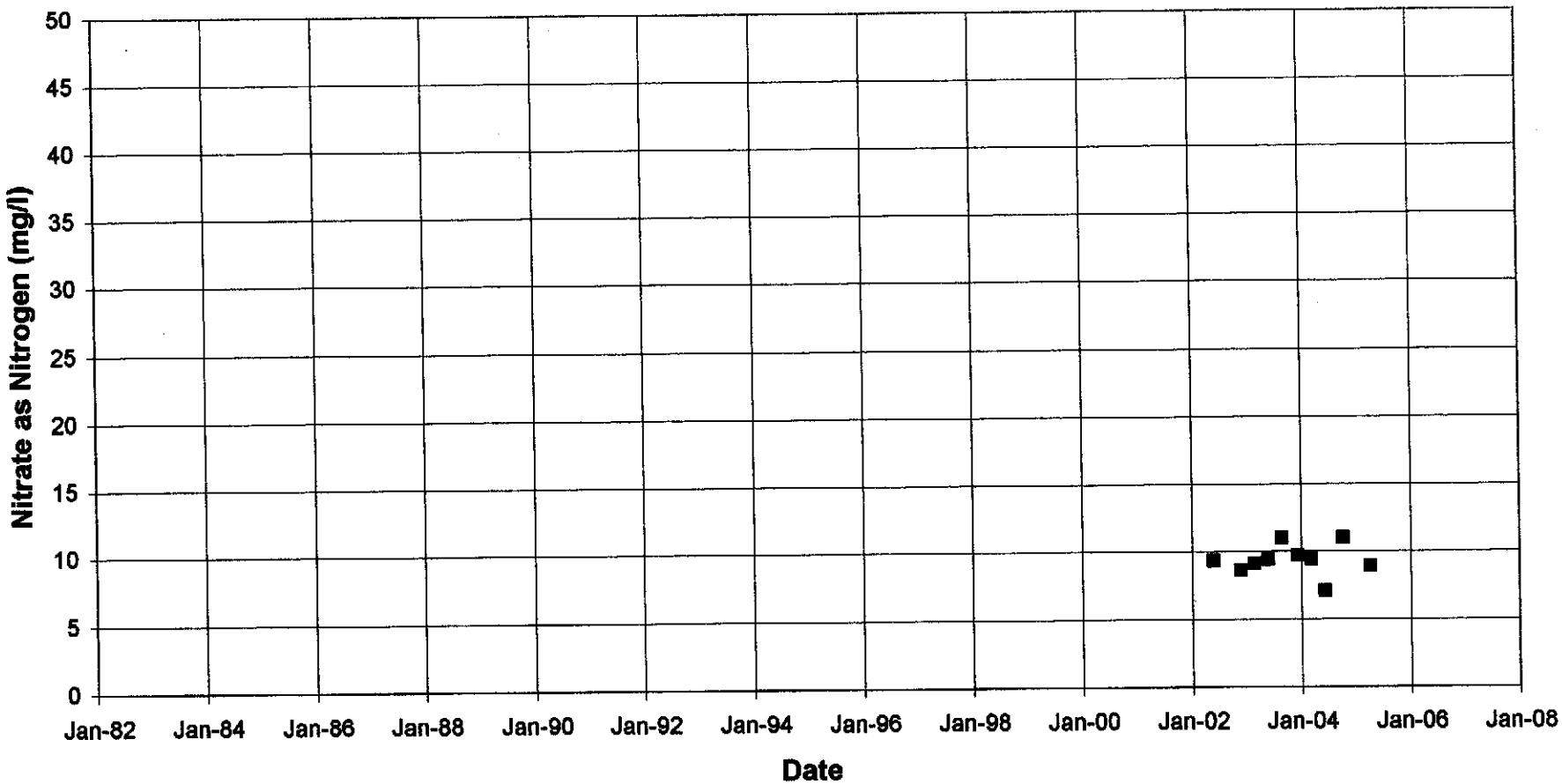
Graph 1
Well 30S/10E-13A7
NO_3-N vs Time



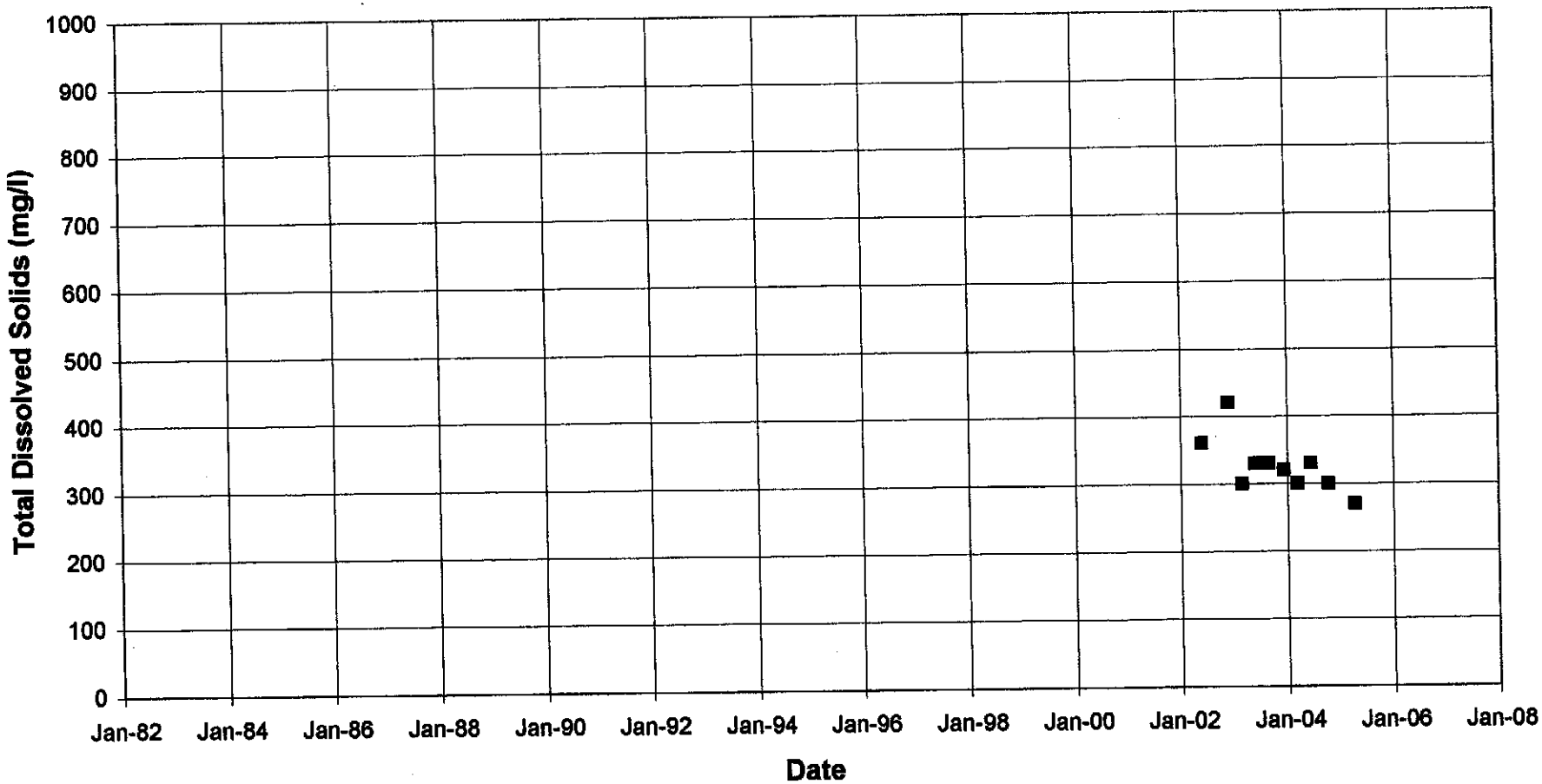
Graph 2
Well 30S/10E-13A7
TDS vs Time



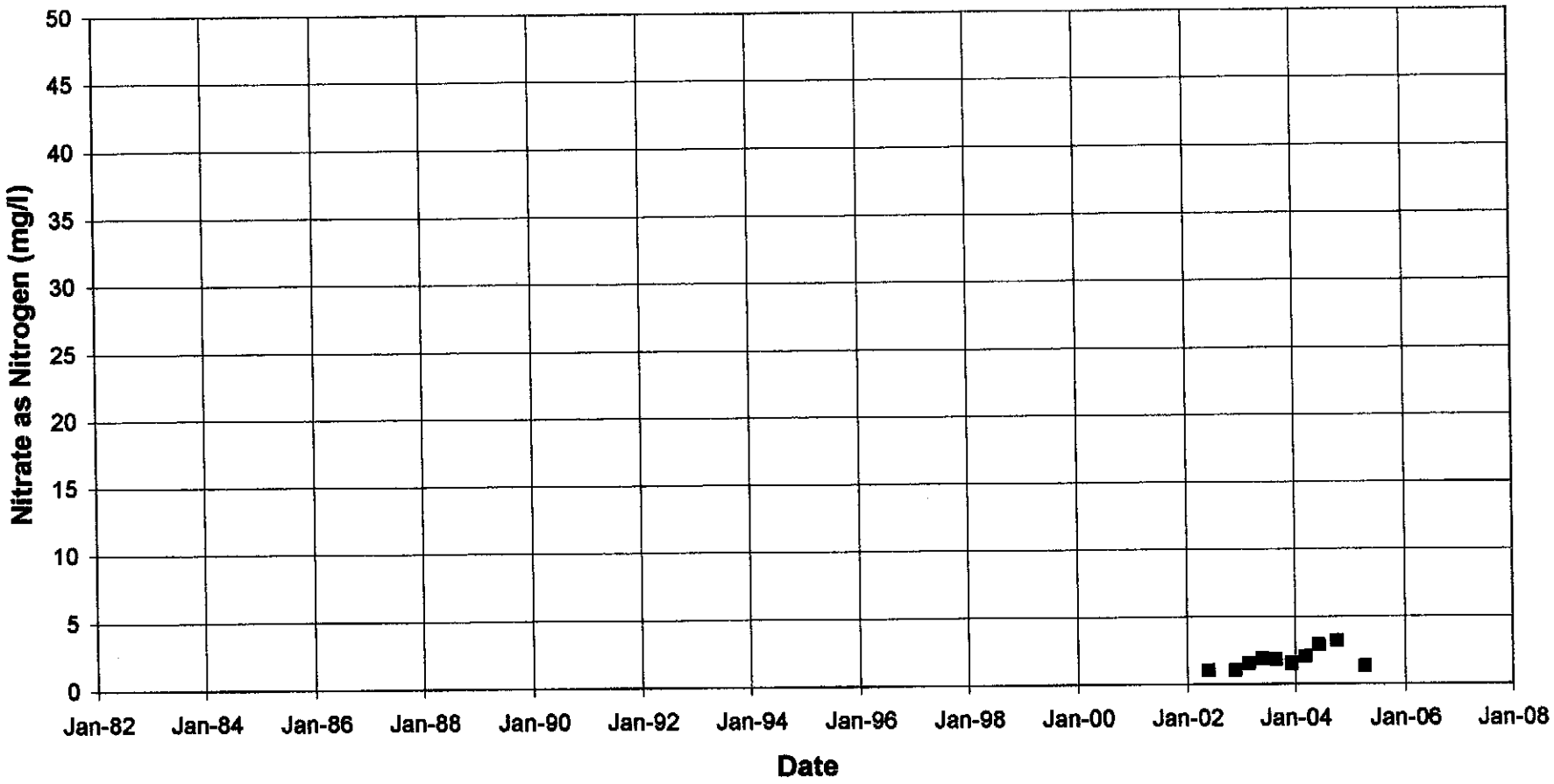
Graph 3
Well 30S/10E-13G
NO_3-N vs Time



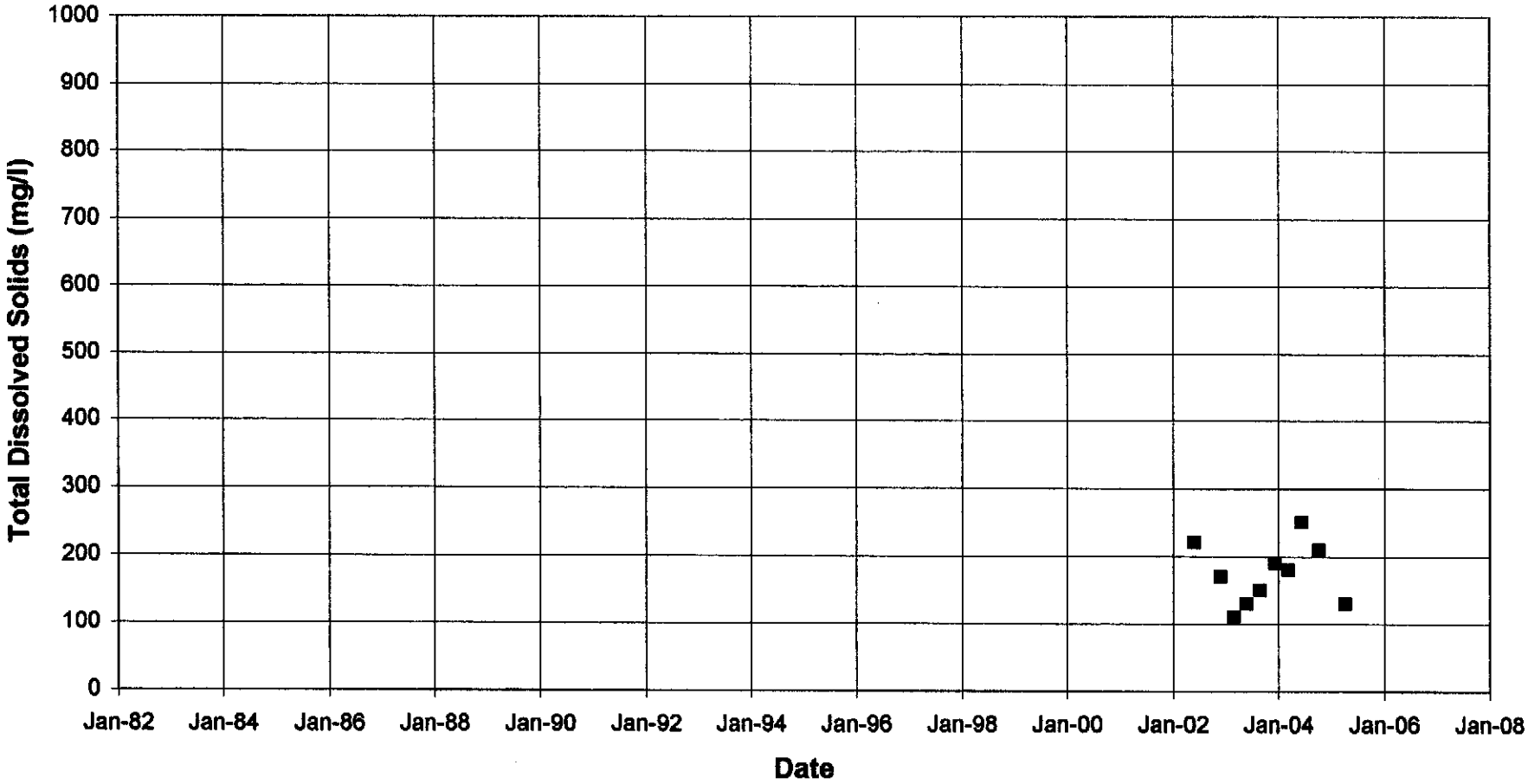
Graph 4
Well 30S/10E-13G
TDS vs Time



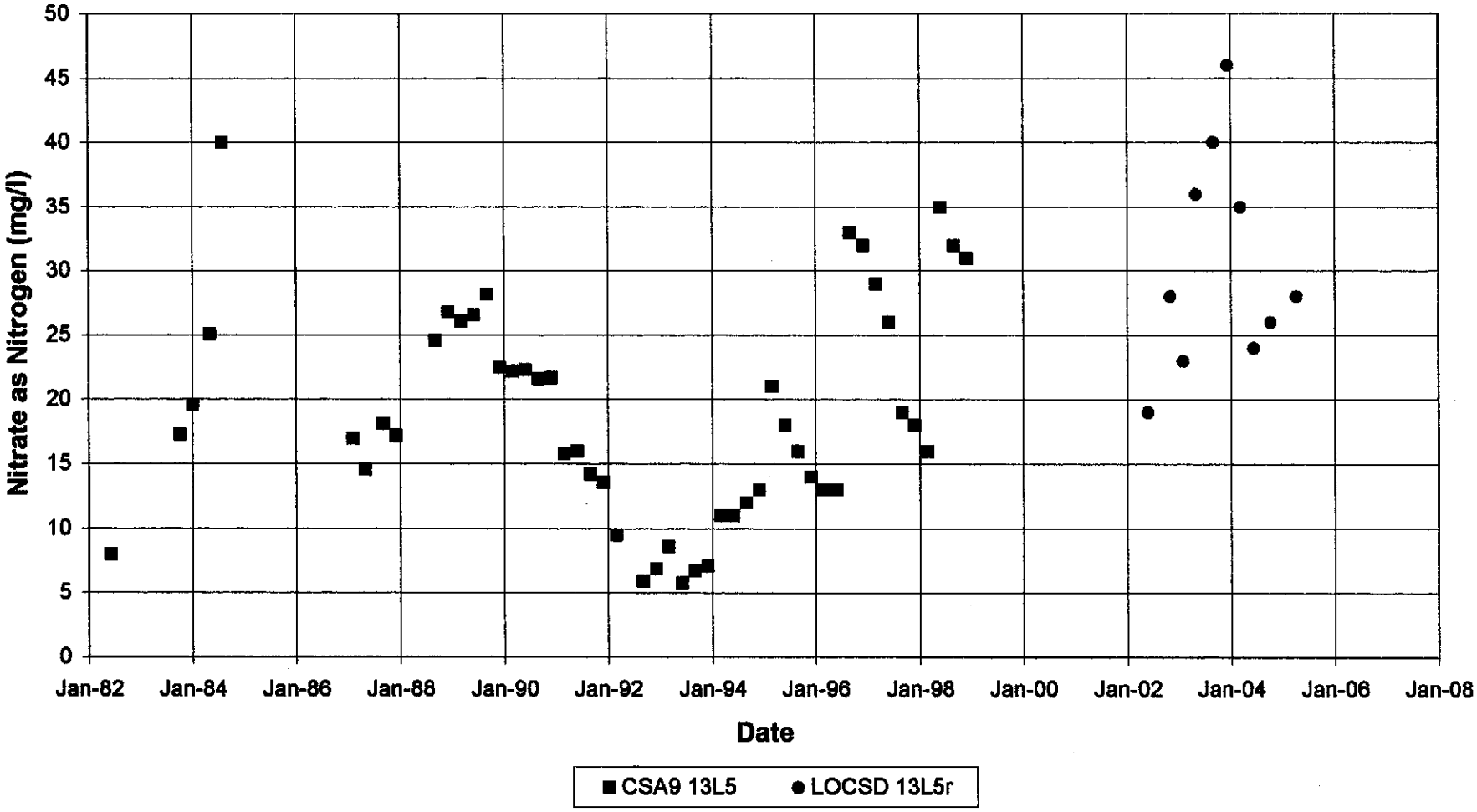
Graph 5
Well 30S/10E-13H
NO_3-N vs Time



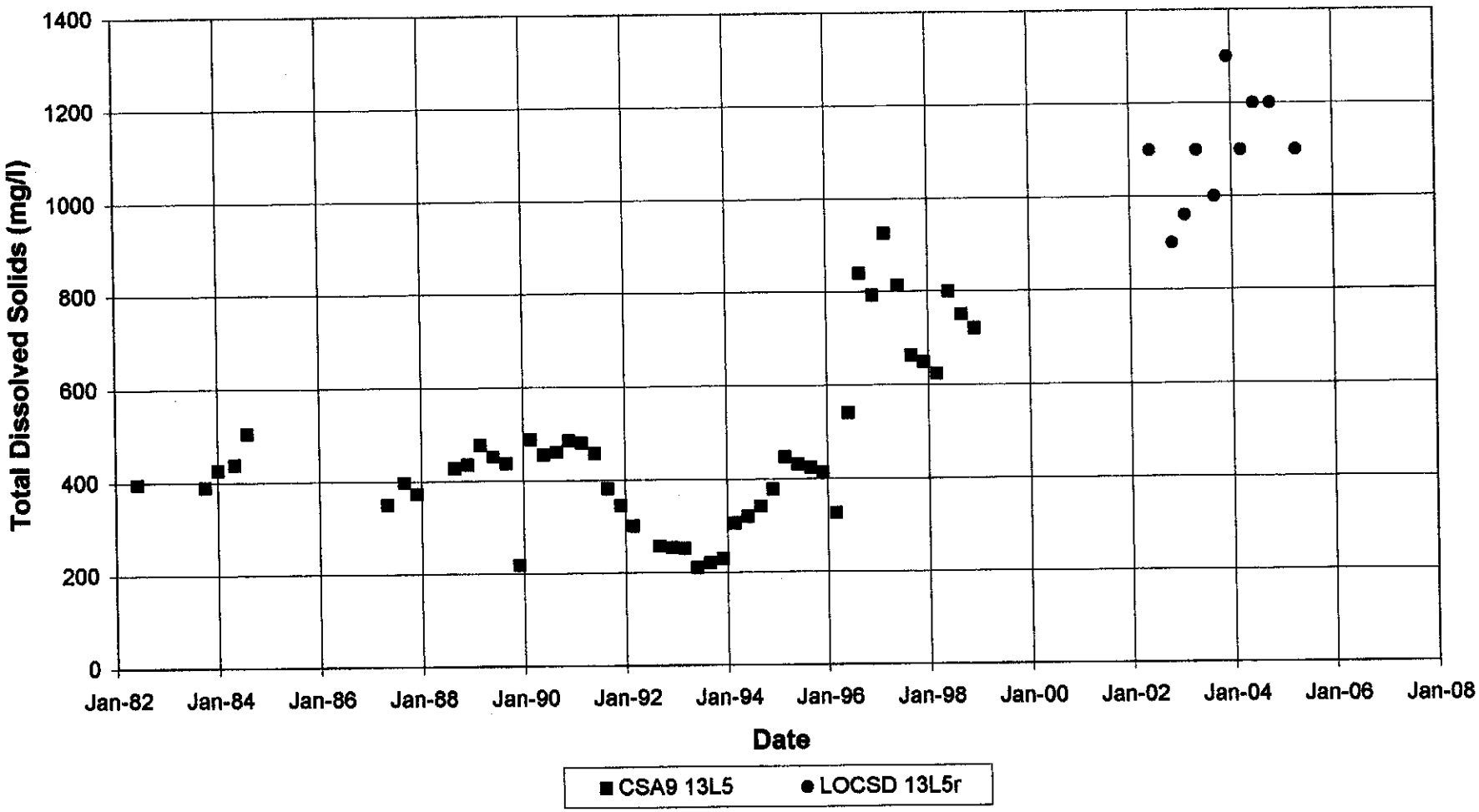
Graph 6
Well 30S/10E-13H
TDS vs Time



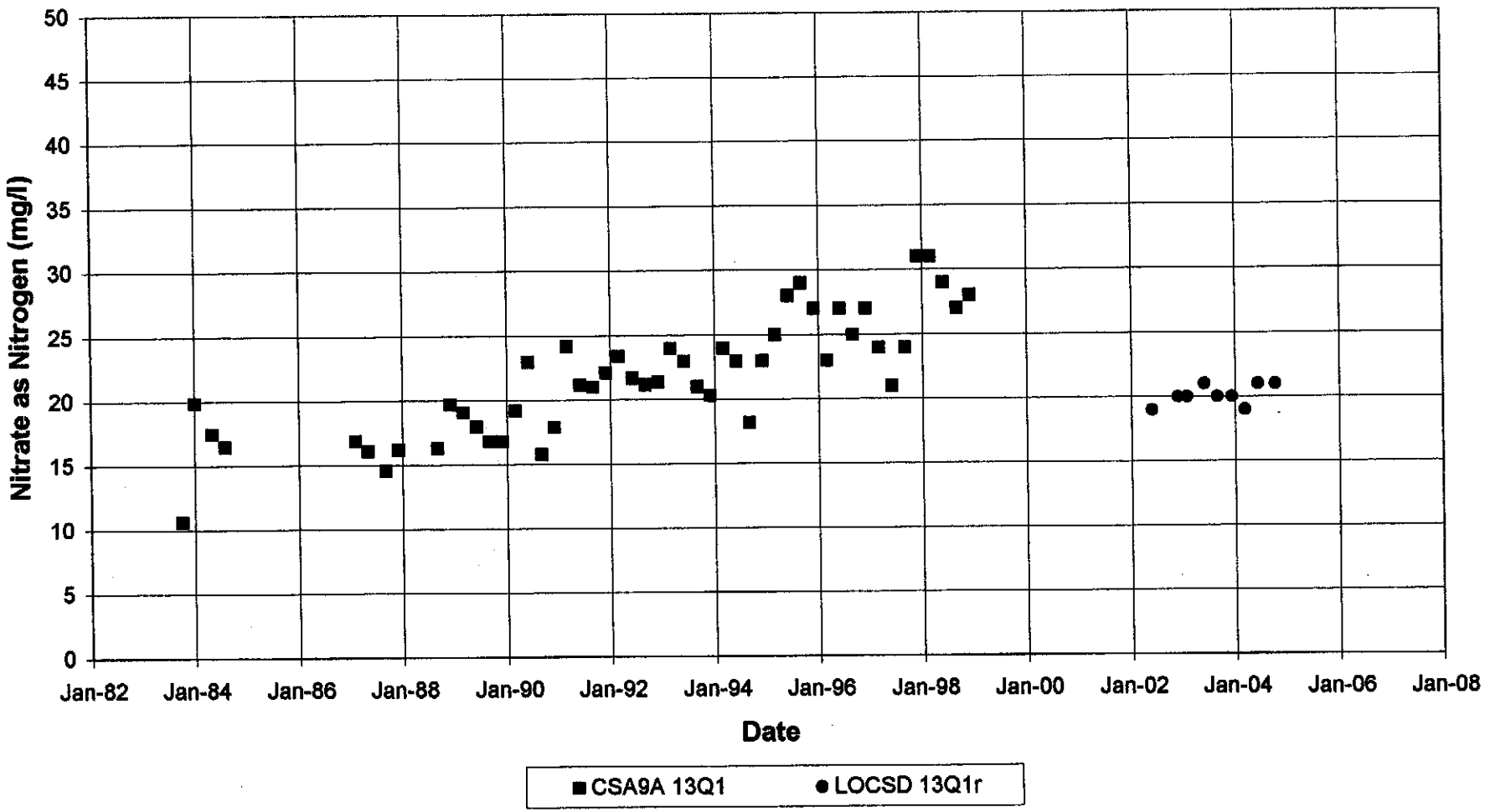
Graph 7
Well 30S/10E-13L5
NO_3-N vs Time

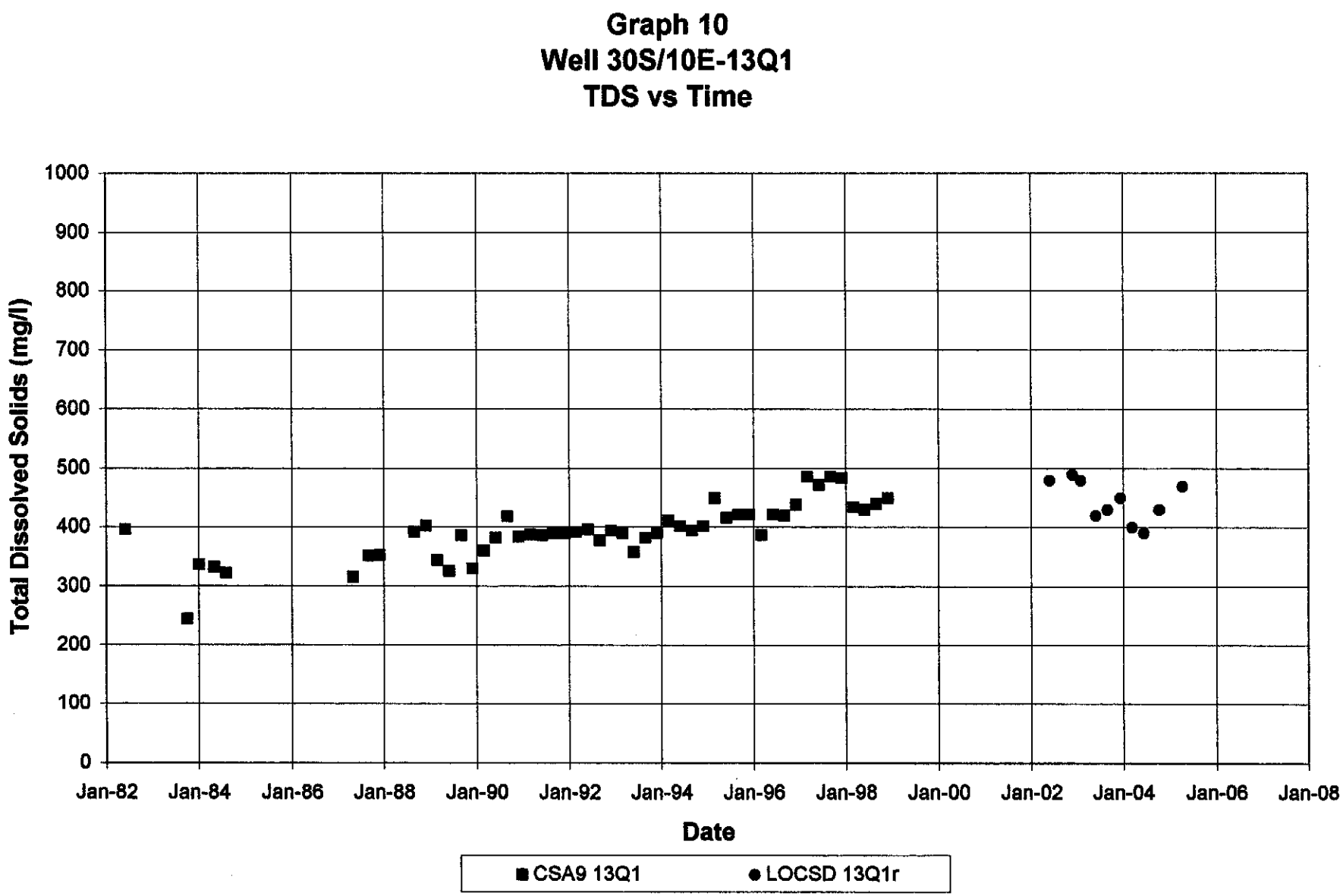


Graph 8
Well 30S/10E-13L5
TDS vs Time

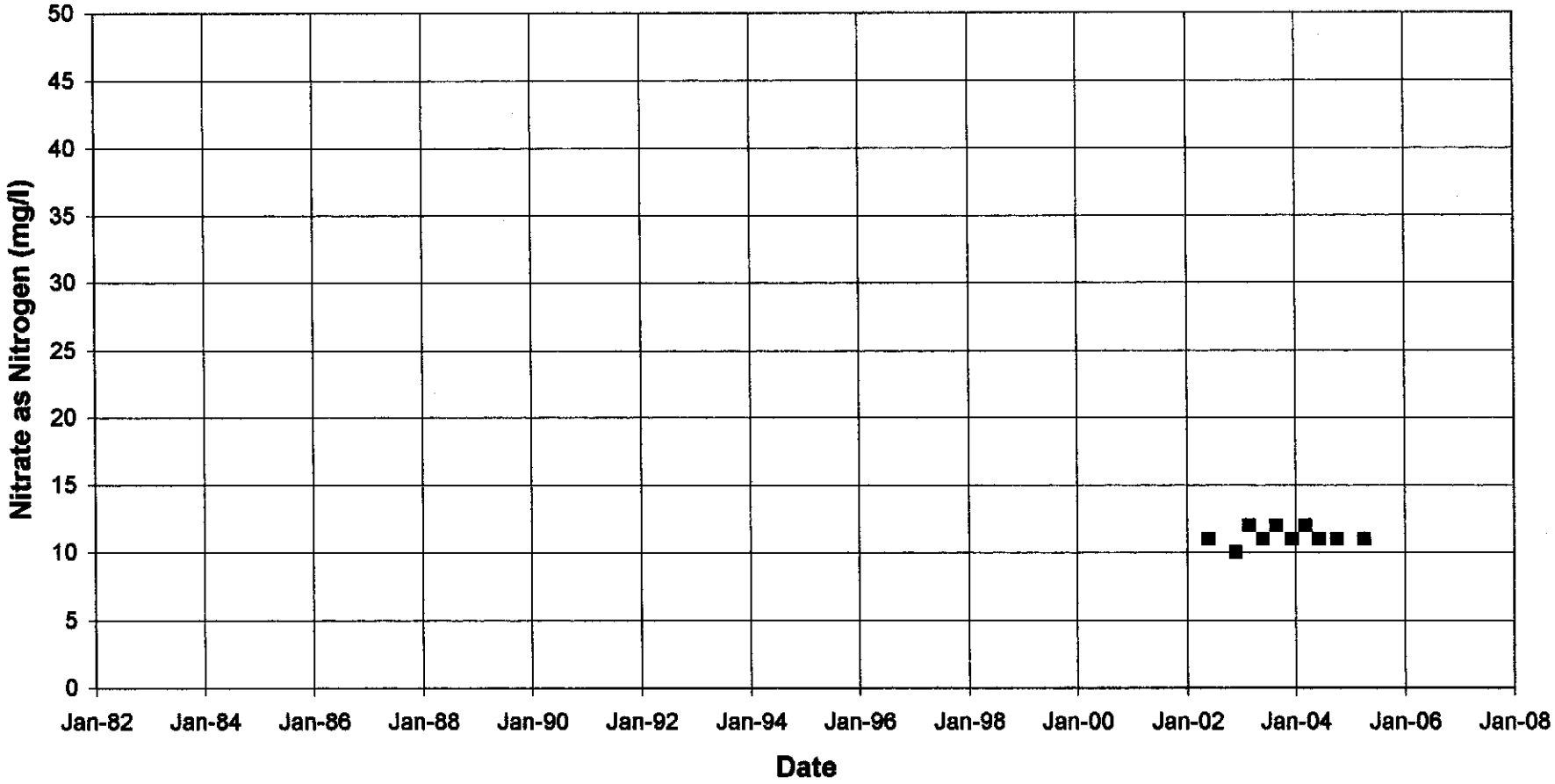


Graph 9
Well 30S/10E-13Q1
NO_3-N vs Time

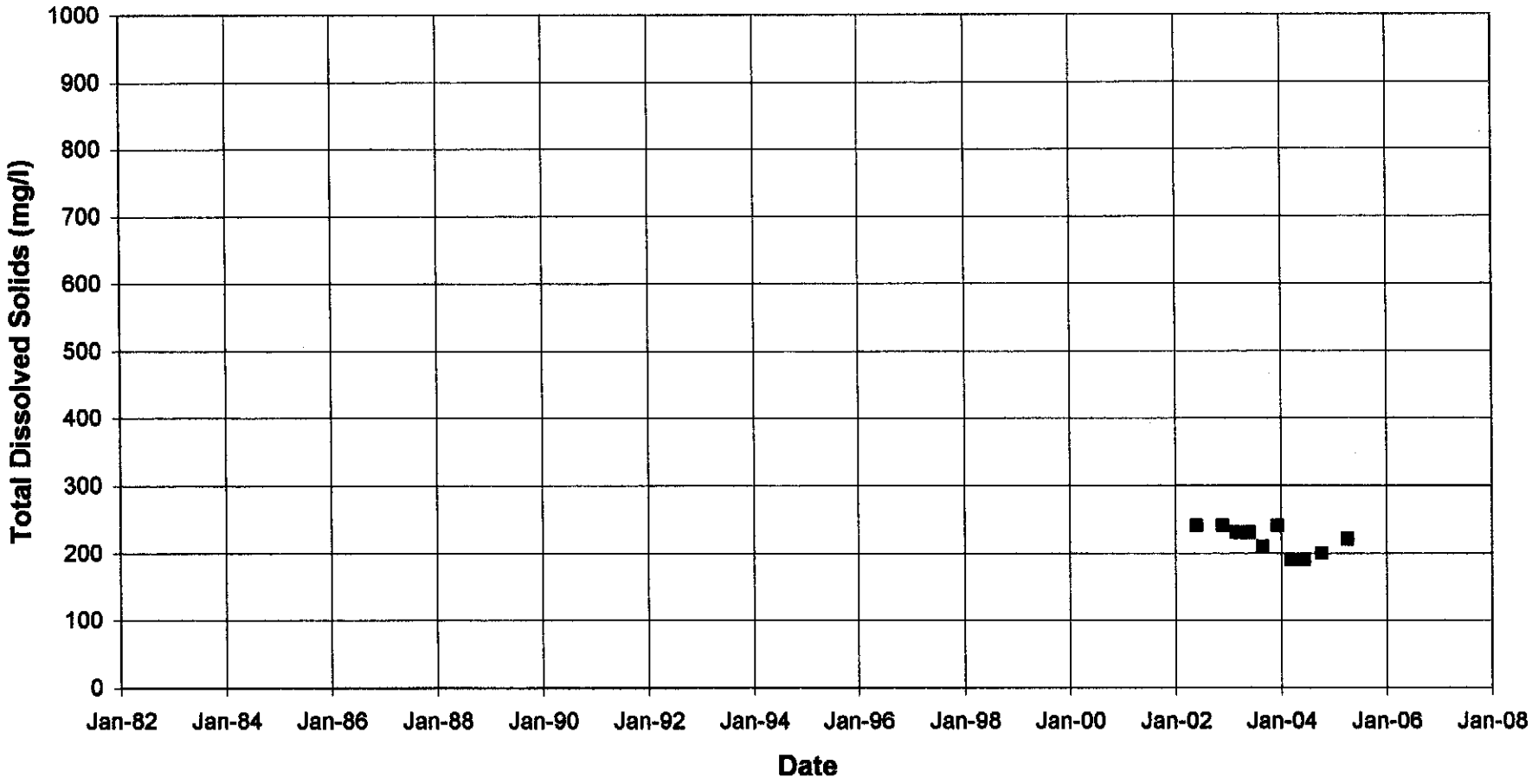



Graph 10
Well 30S/10E-13Q1
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 13Q1
LOCSD 13Q1r

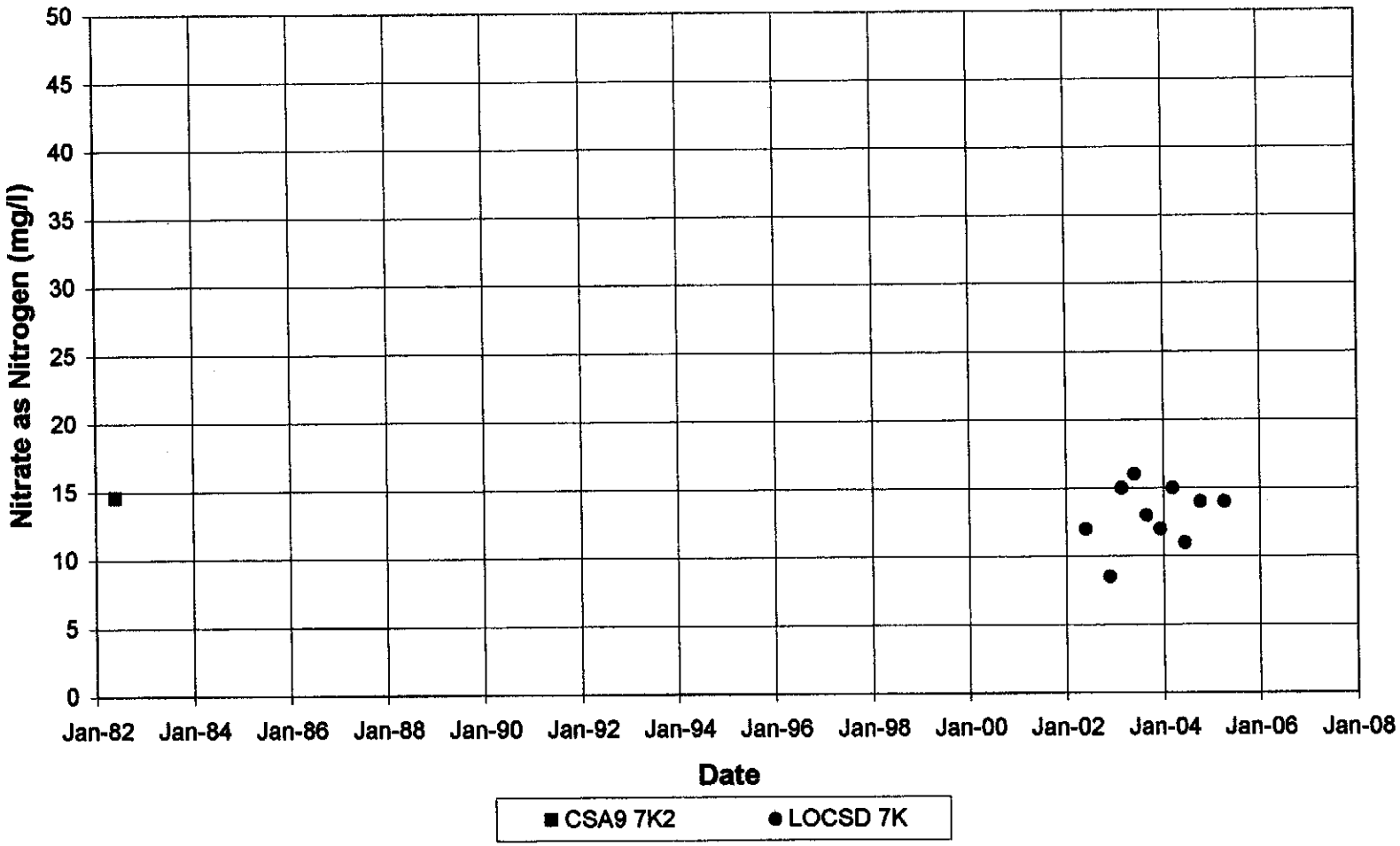
Graph 11
Well 30S/10E-24A
NO_3-N vs Time



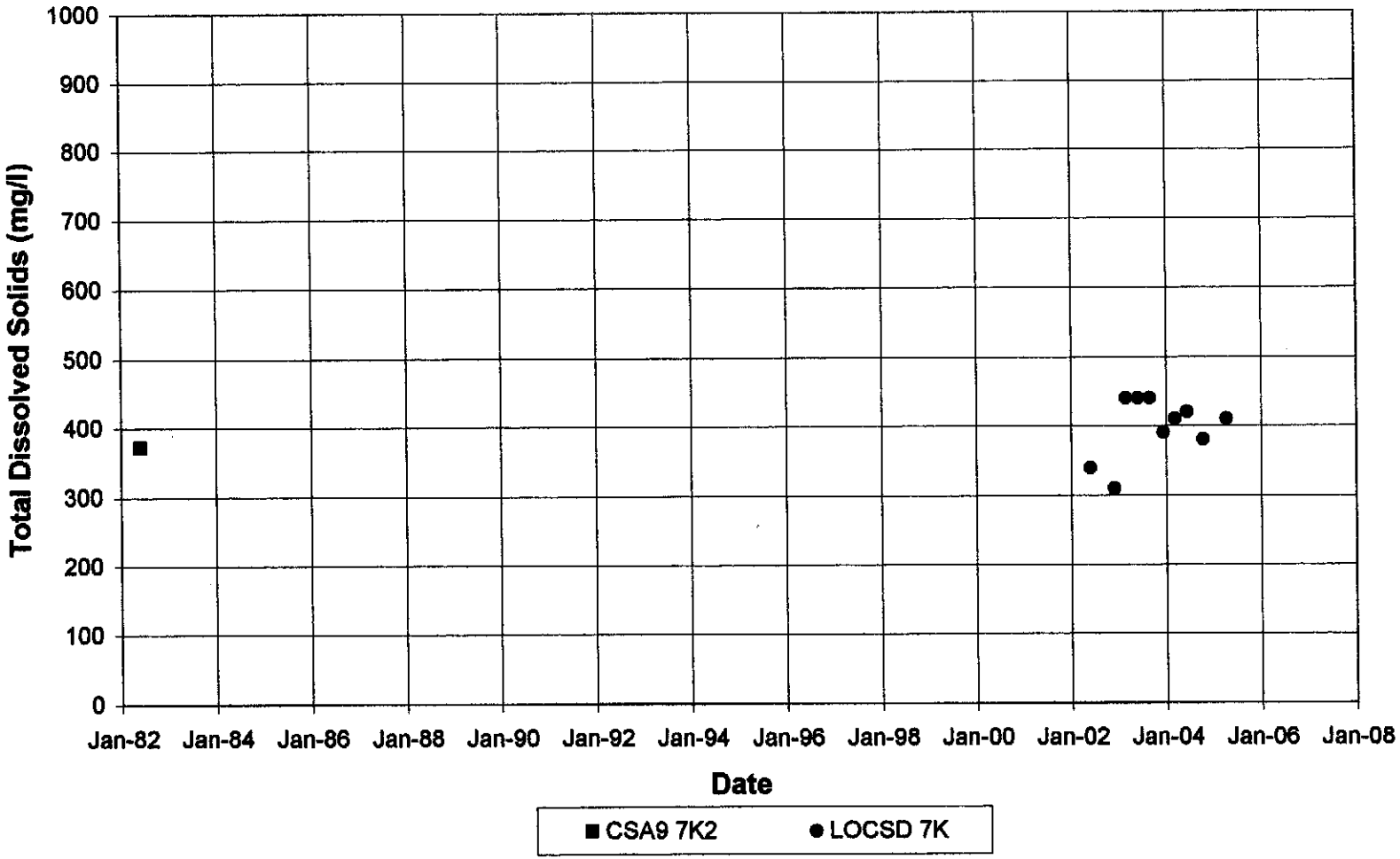
Graph 12
Well 30S/10E-24A
TDS vs Time



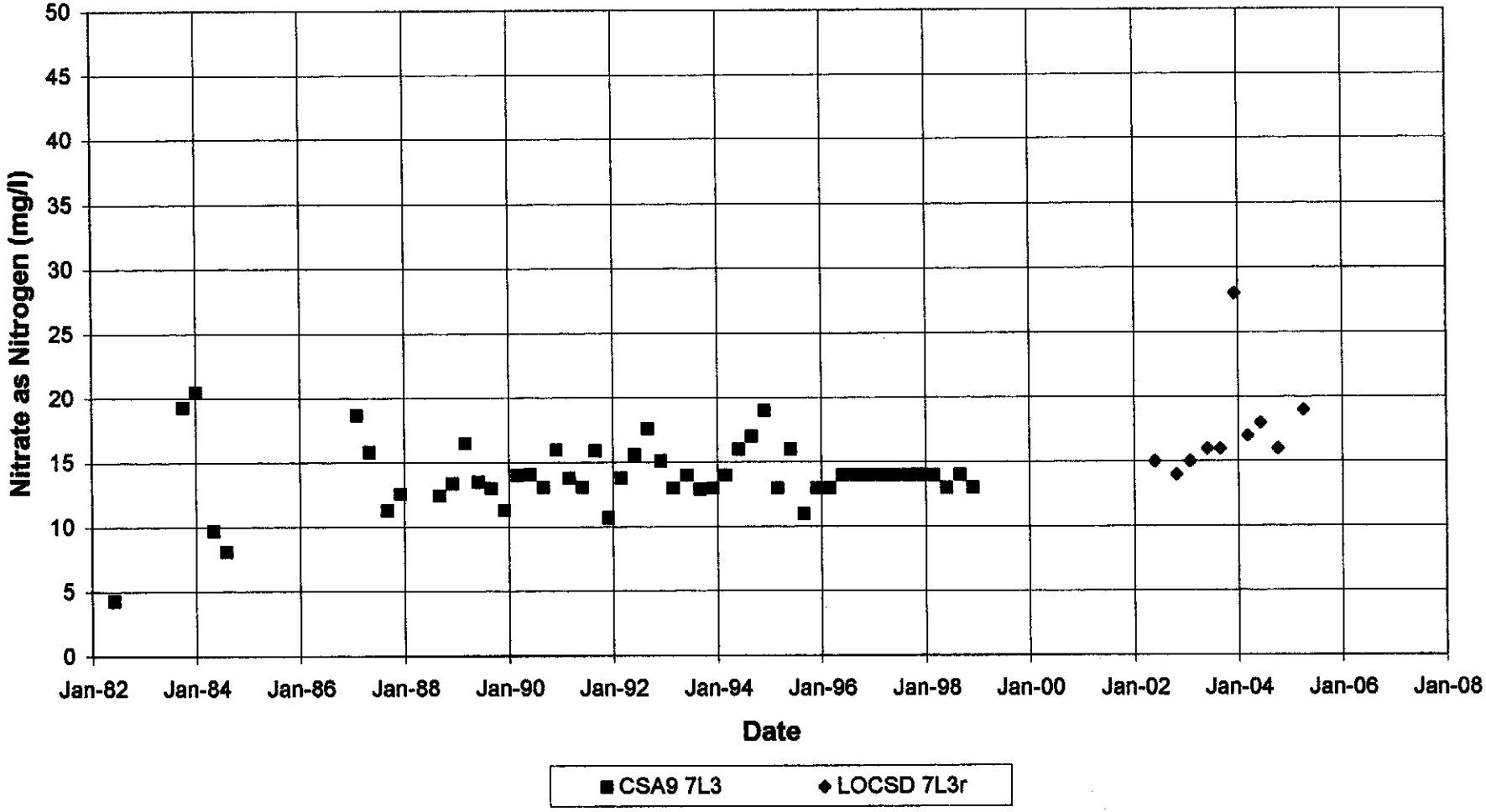
Graph 13
Well 30S/11E-7K
NO_3-N vs Time



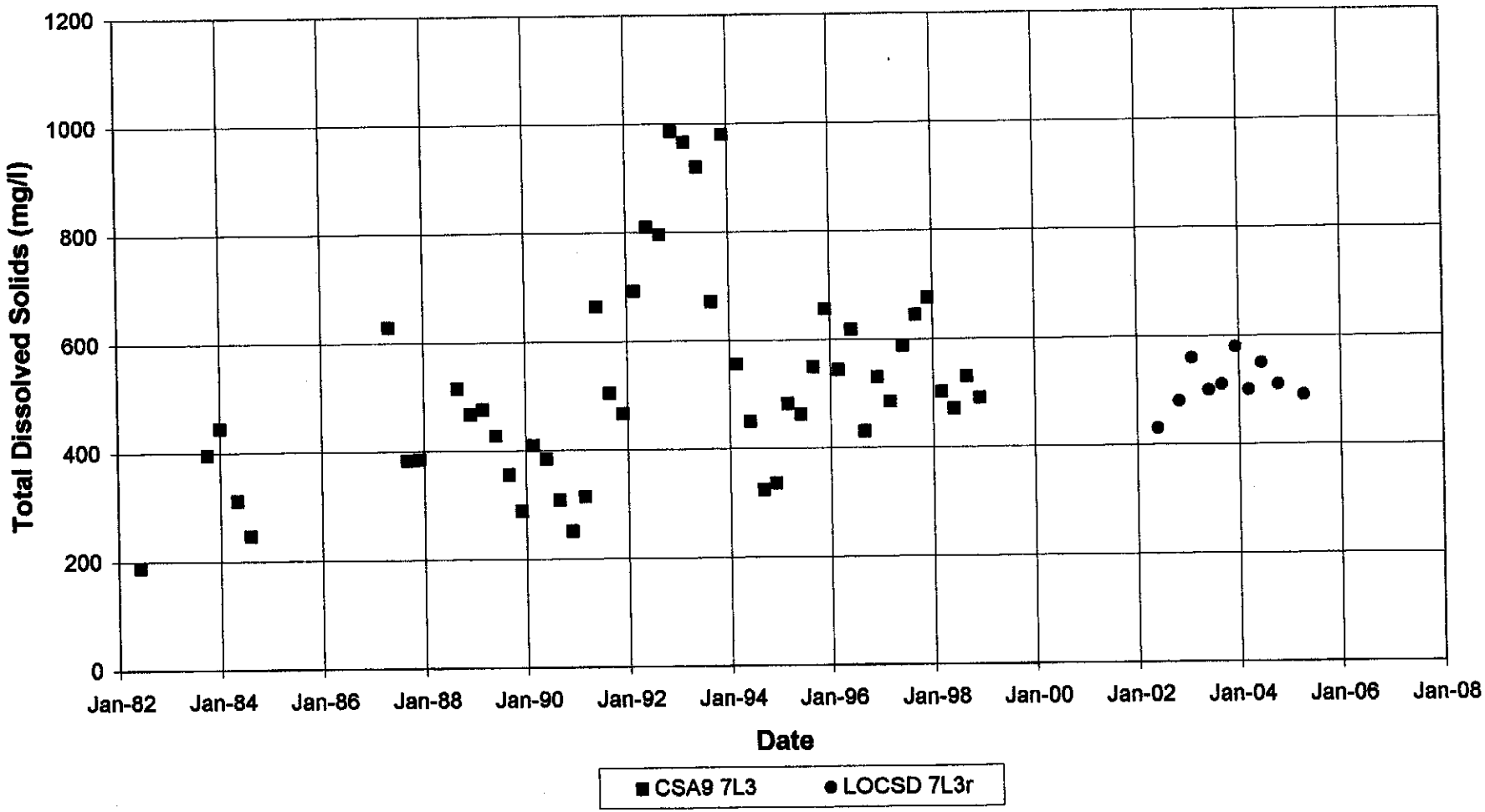
Graph 14
Well 30S/11E-7K
TDS vs Time



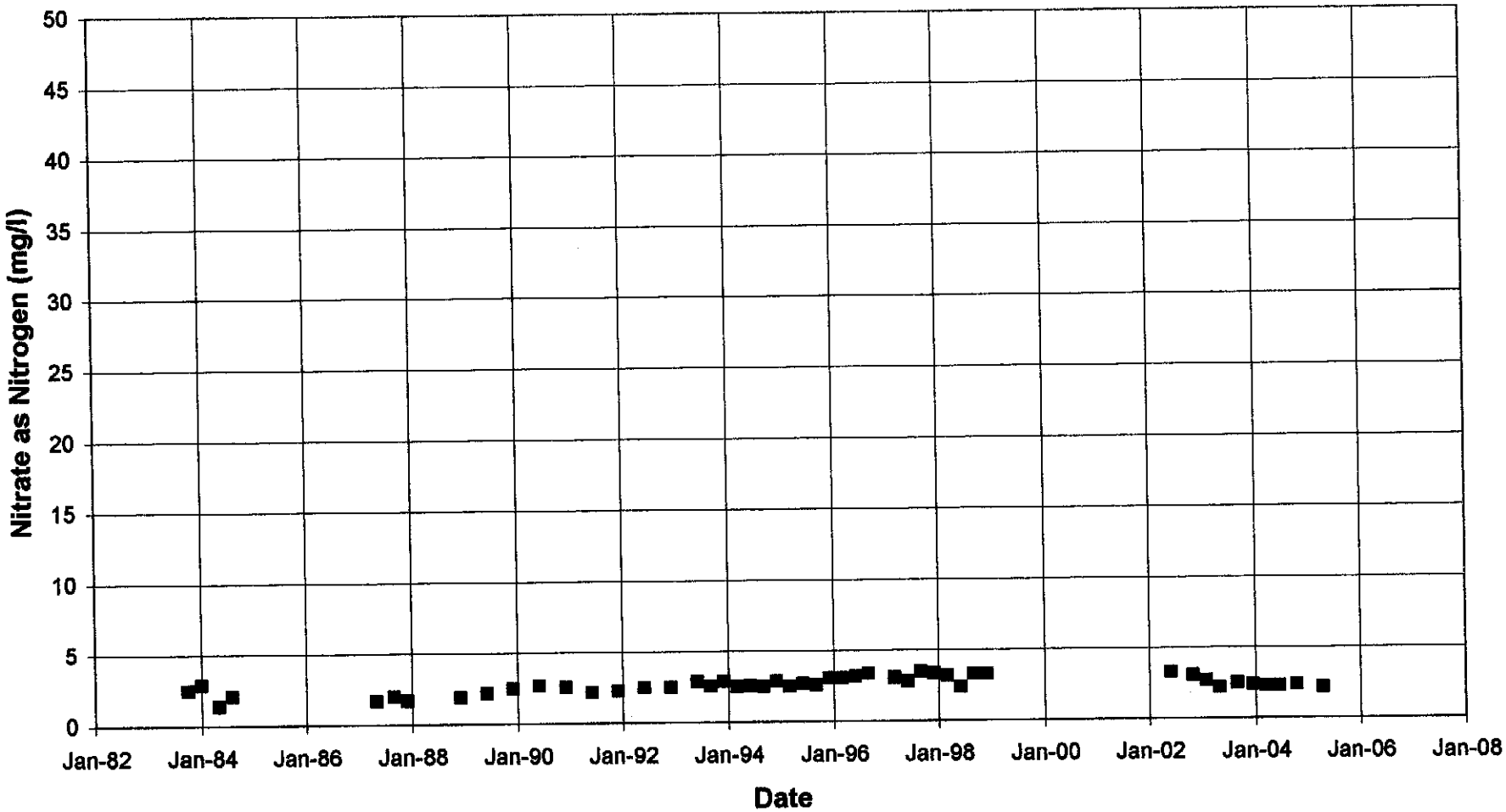
Graph 15
Well 30S/11E-7L3
NO_3-N vs Time



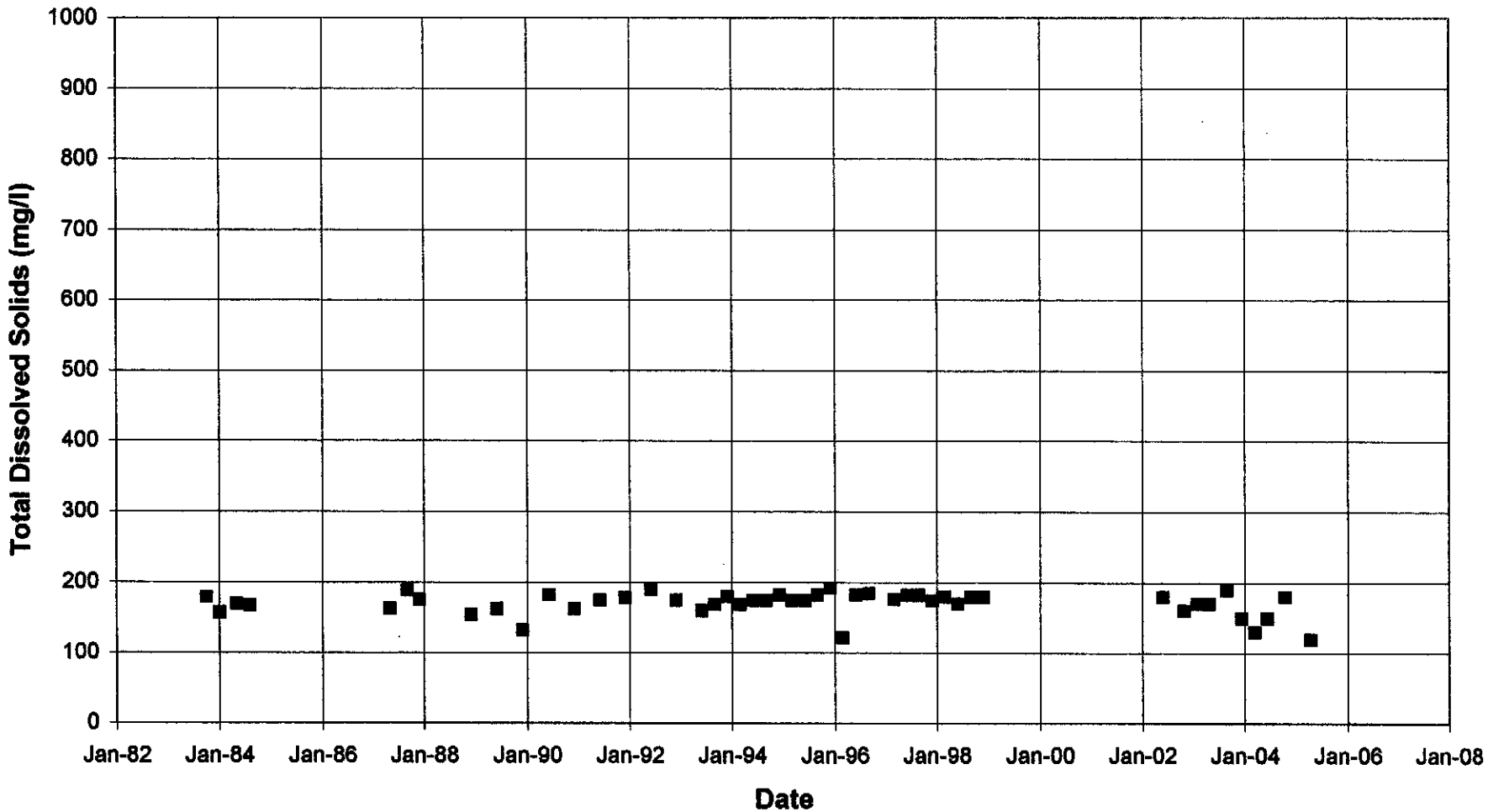
Graph 16
Well 30S/11E-7L3
TDS vs Time



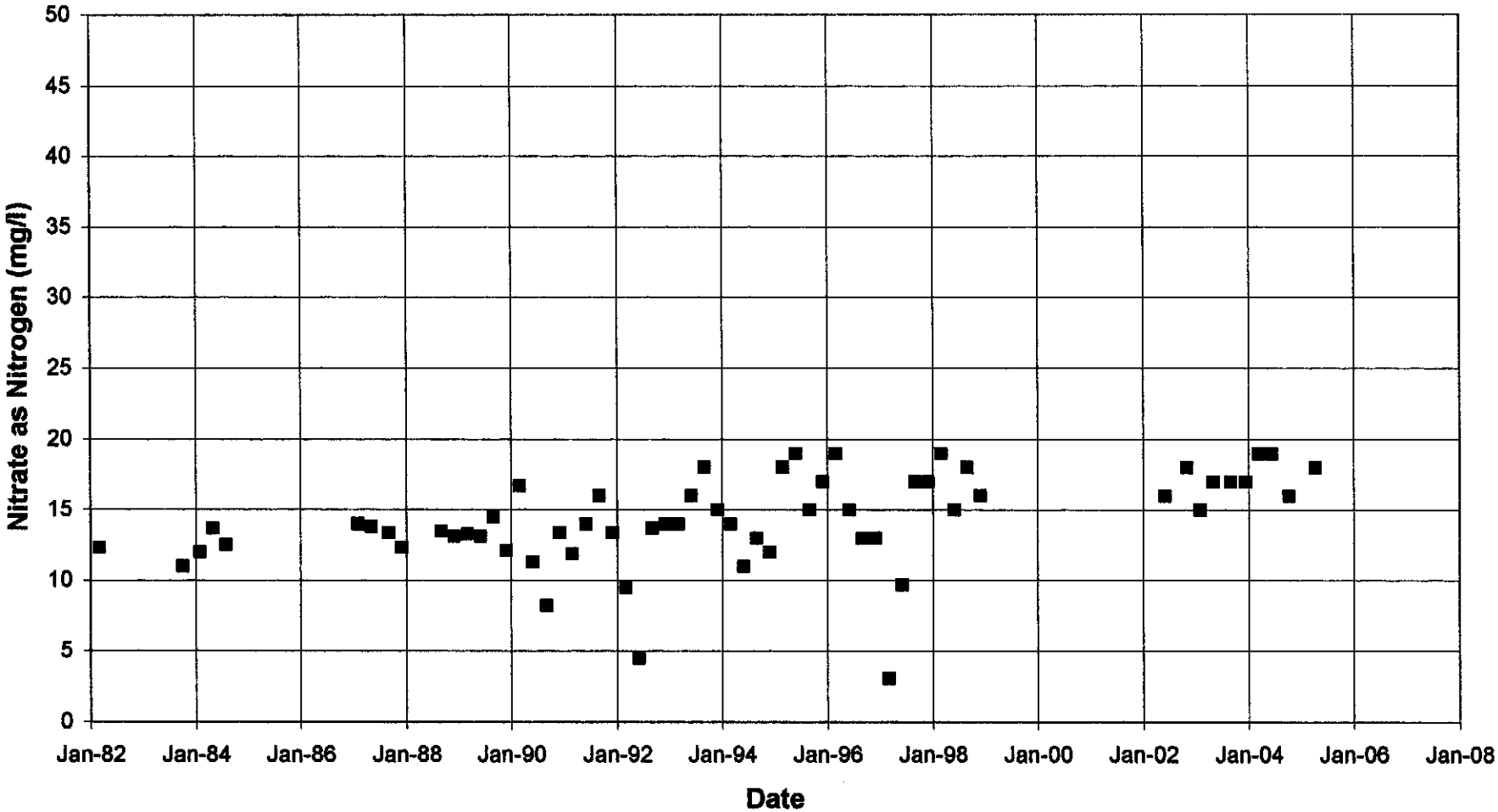
Graph 17
Well 30S/11E-7N1
NO_3-N vs Time



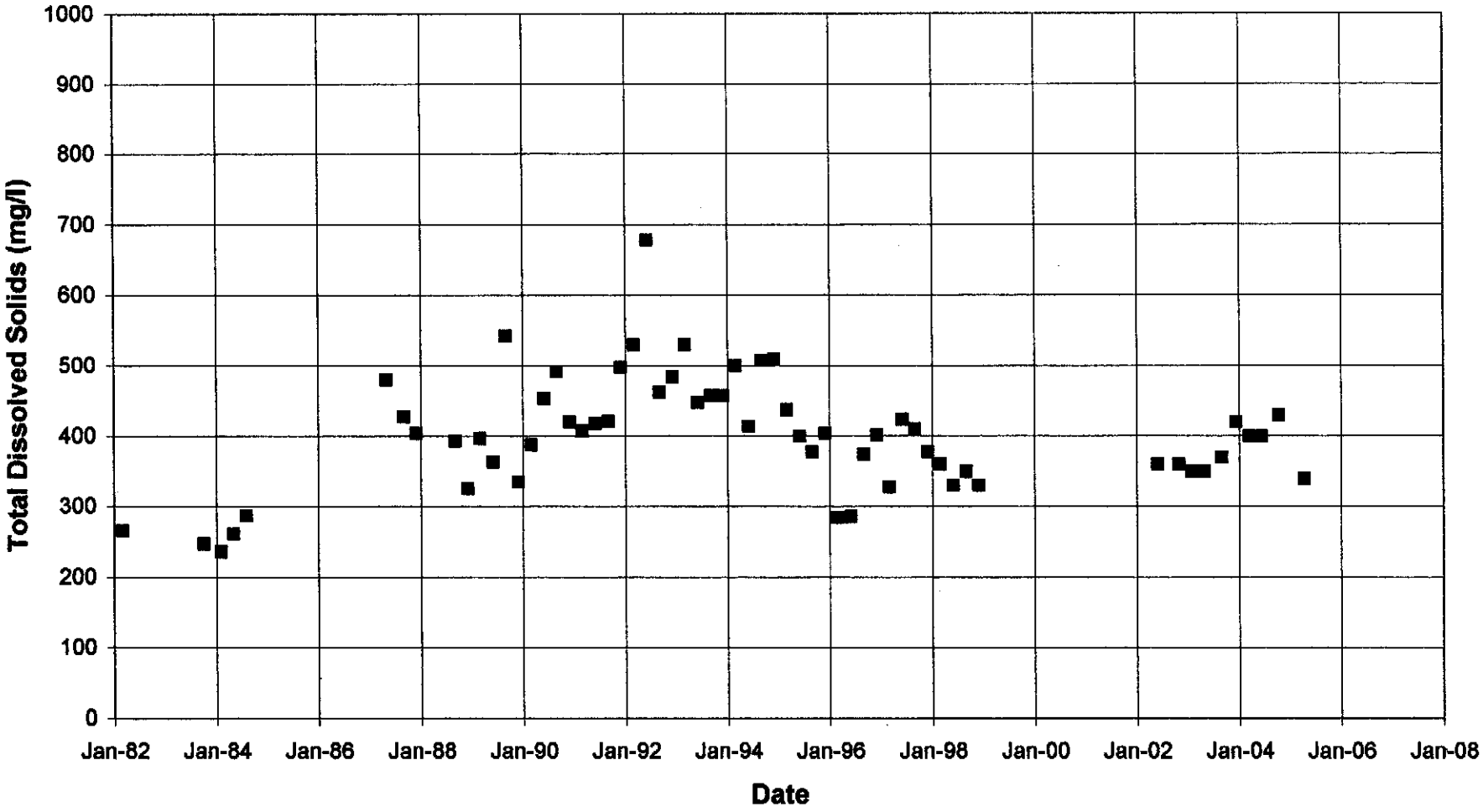
Graph 18
Well 30S/11E-7N1
TDS vs Time

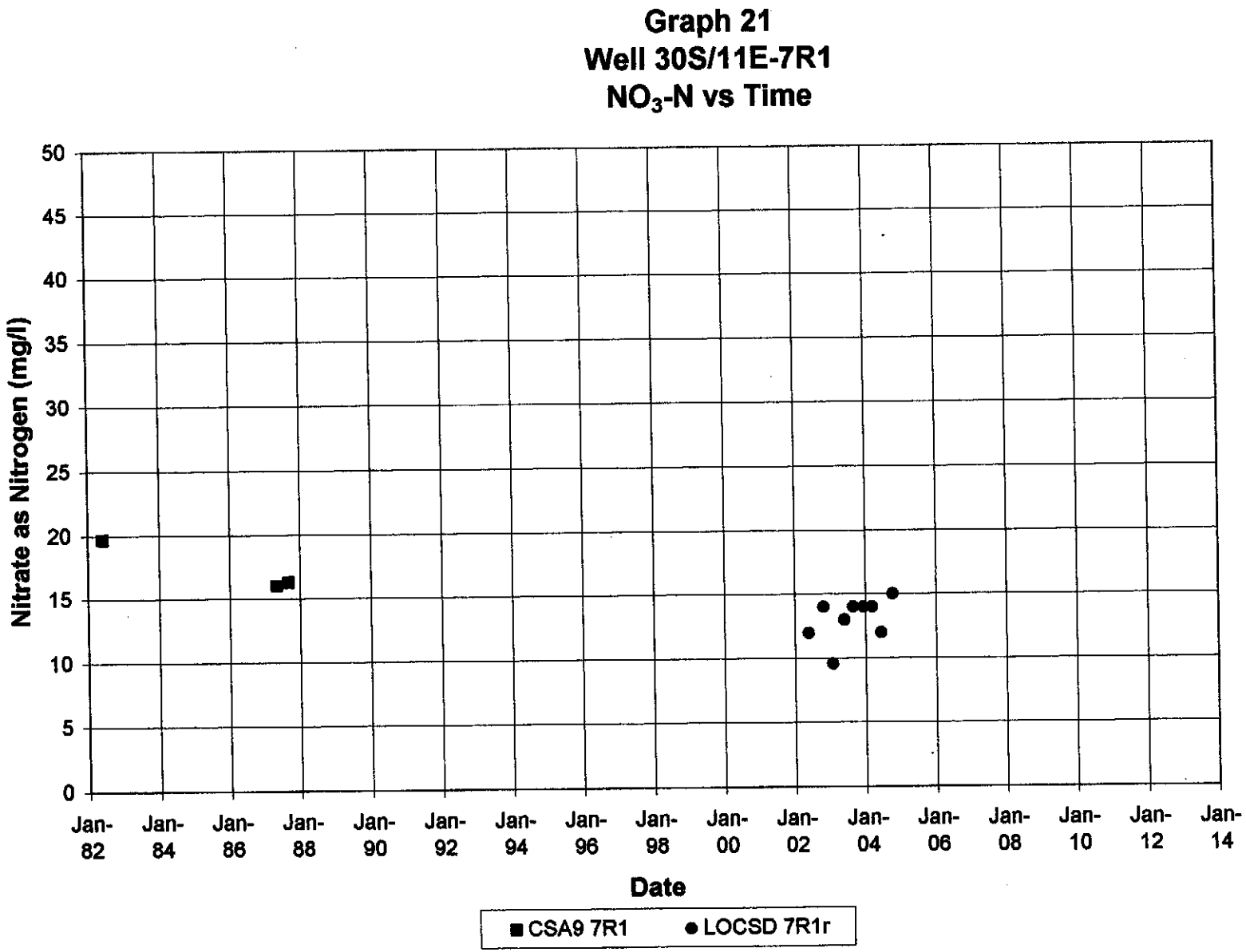


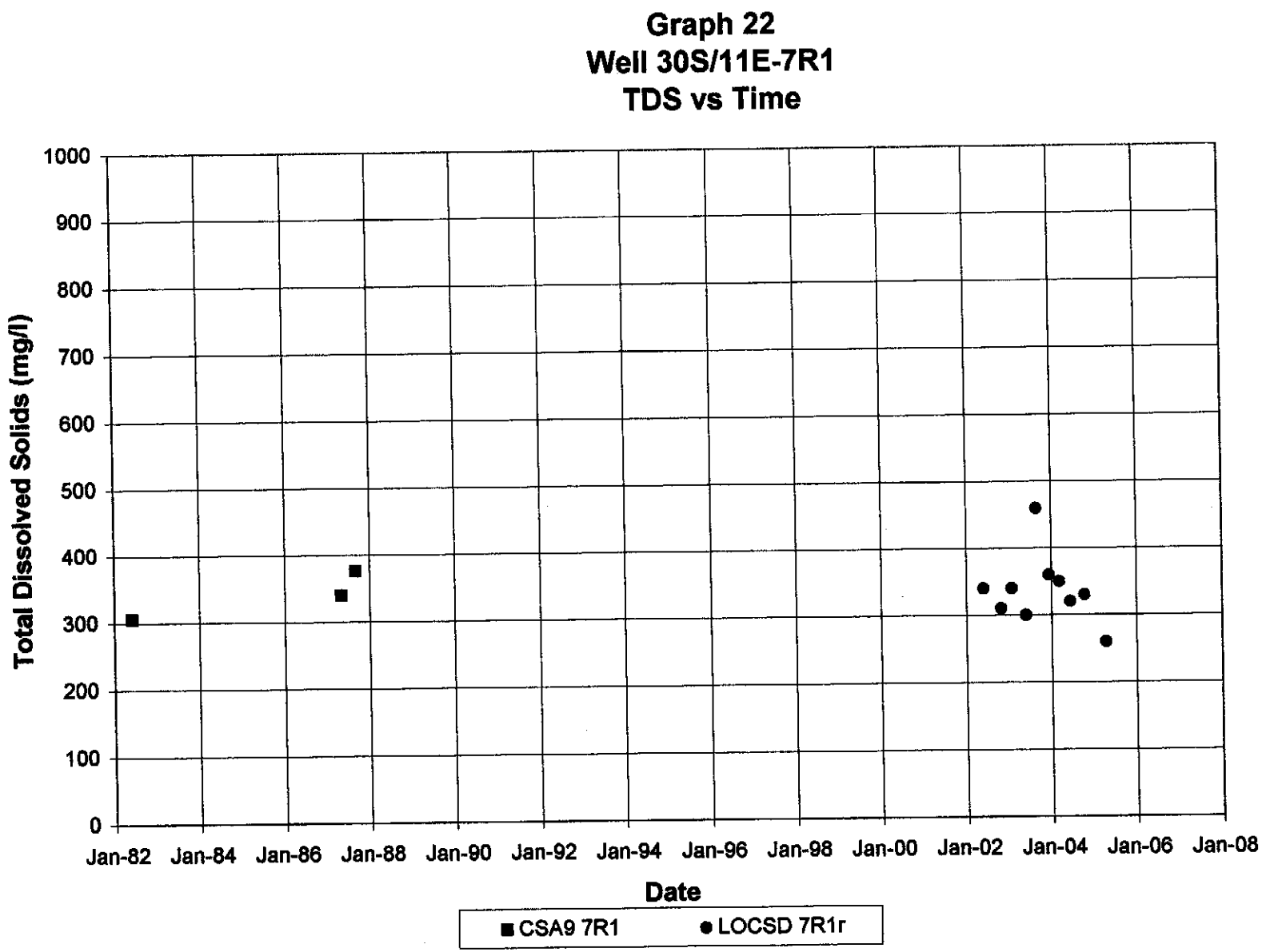
Graph 19
Well 30S/11E-7Q1
NO_3-N vs Time

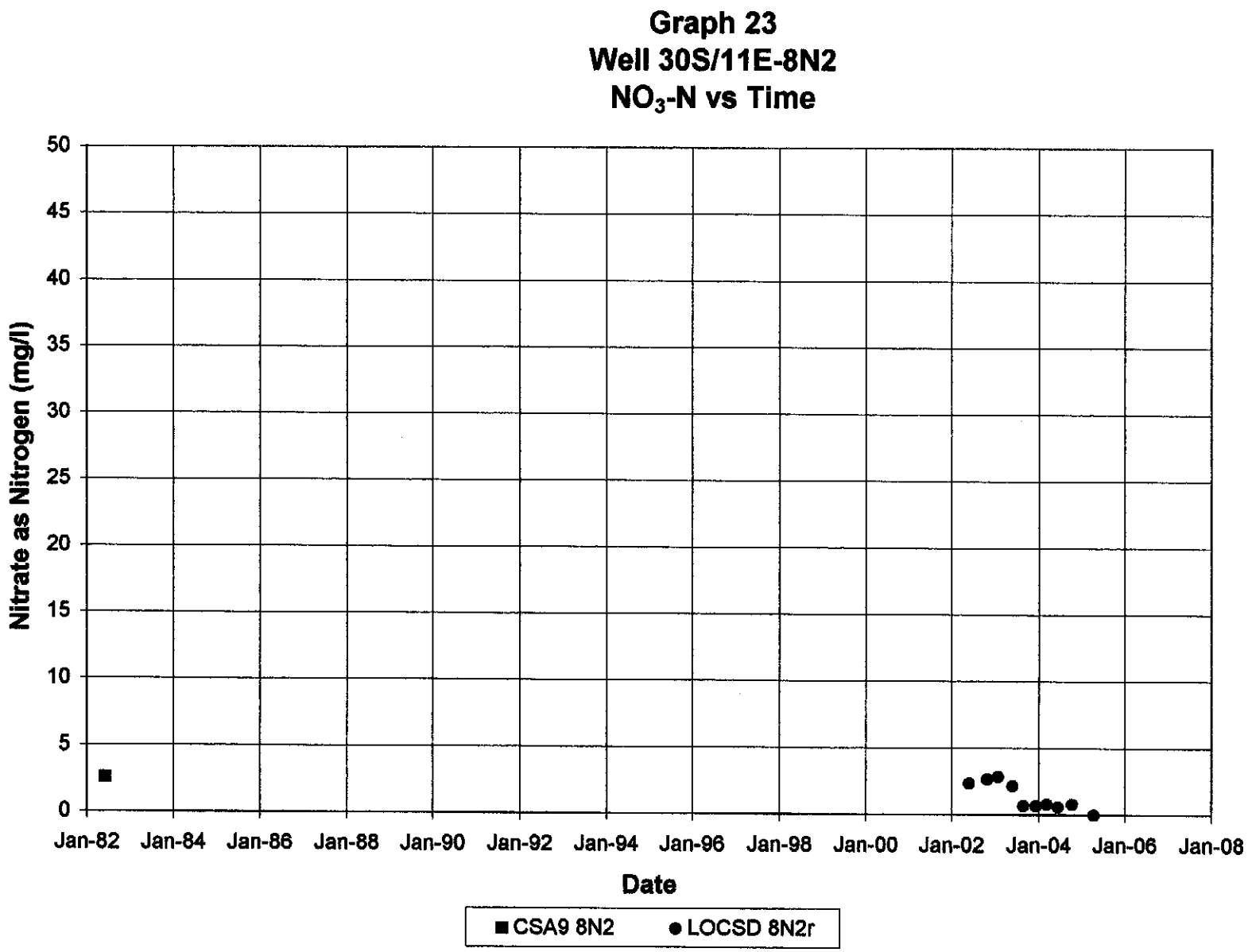


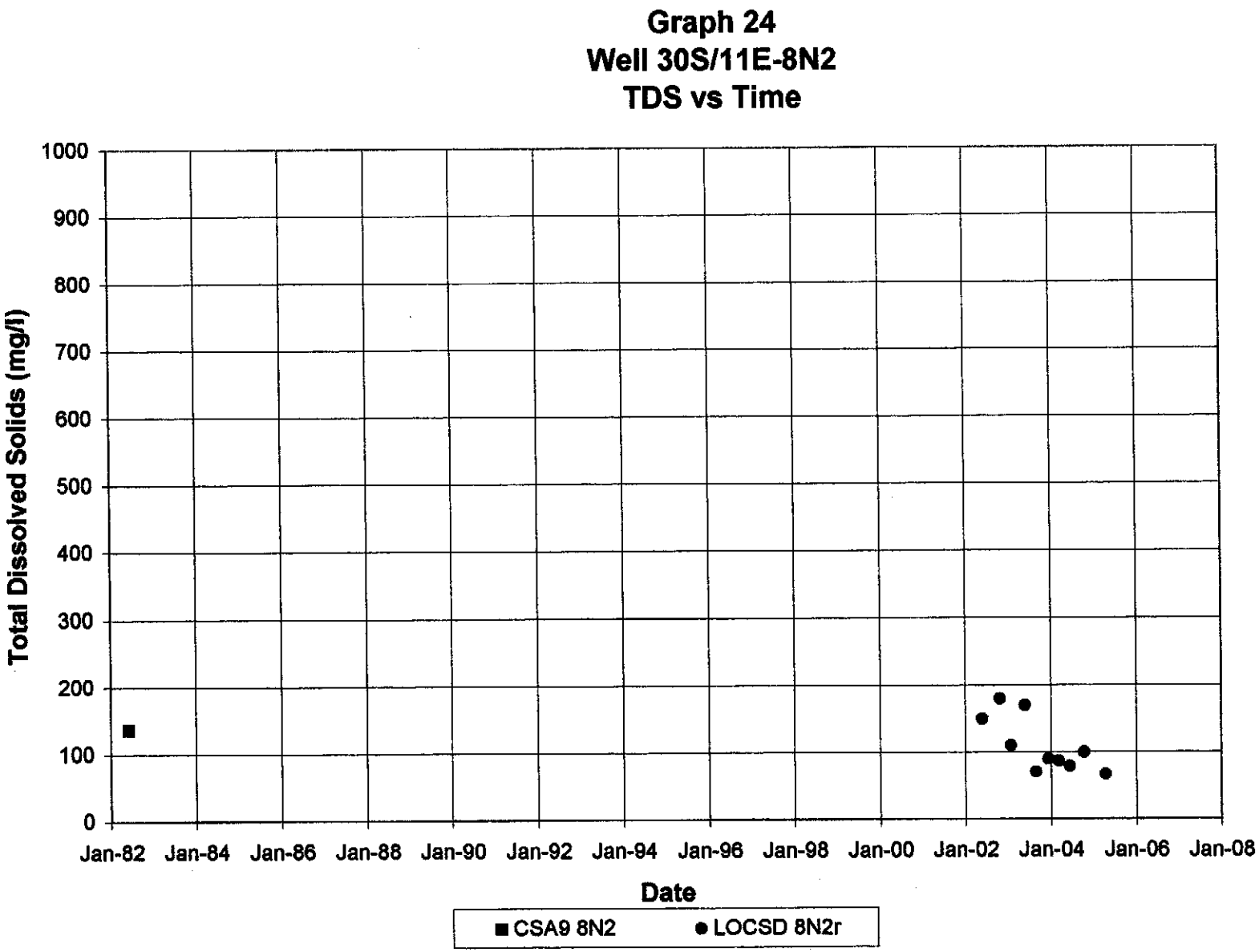
Graph 20
Well 30S/11E-7Q1
TDS vs Time



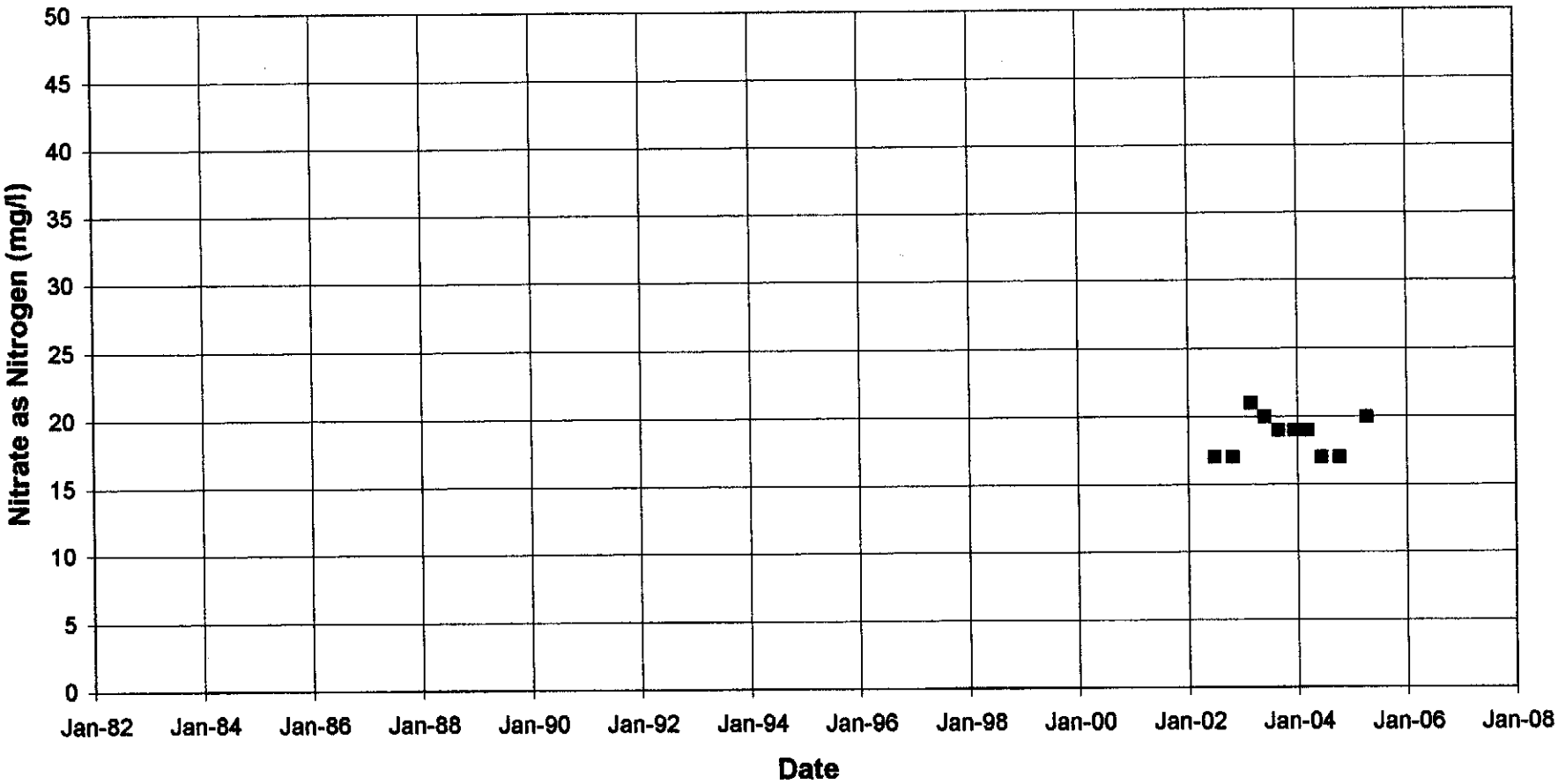

Graph 21
Well 30S/11E-7R1
NO3-N vs Time
Nitrate as Nitrogen (mg/l)
50
45
40
35
30
25
20
15
10
5
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Jan-10
Jan-12
Jan-14
Date
CSA9 7R1
LOCSD 7R1r


Graph 22
Well 30S/11E-7R1
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 7R1
LOCSD 7R1r

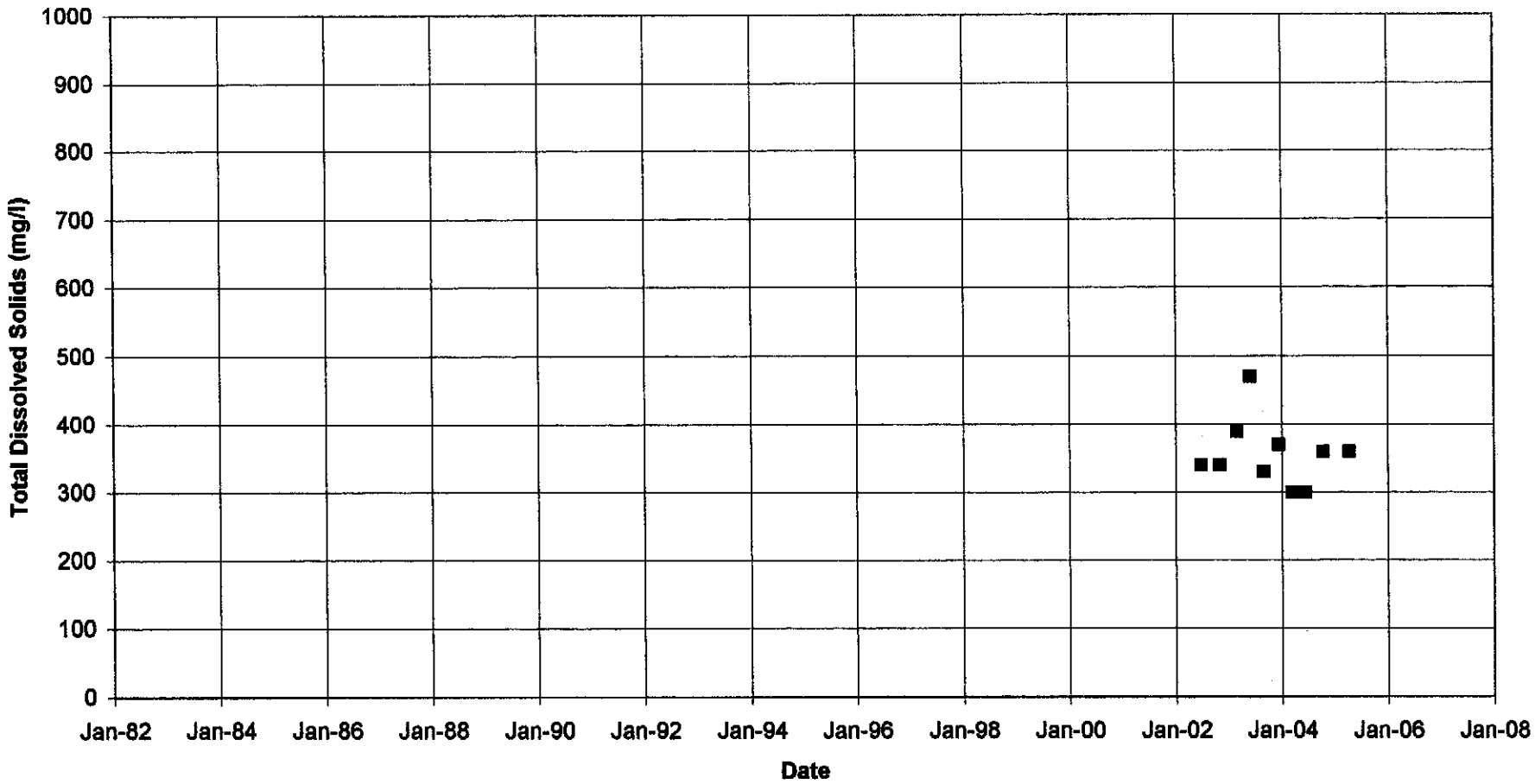

Graph 23
Well 30S/11E-8N2
NO3-N vs Time
Nitrate as Nitrogen (mg/l)
50
45
40
35
30
25
20
15
10
5
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 8N2
LOCSD 8N2r


Graph 24
Well 30S/11E-8N2
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 8N2
LOCSD 8N2r

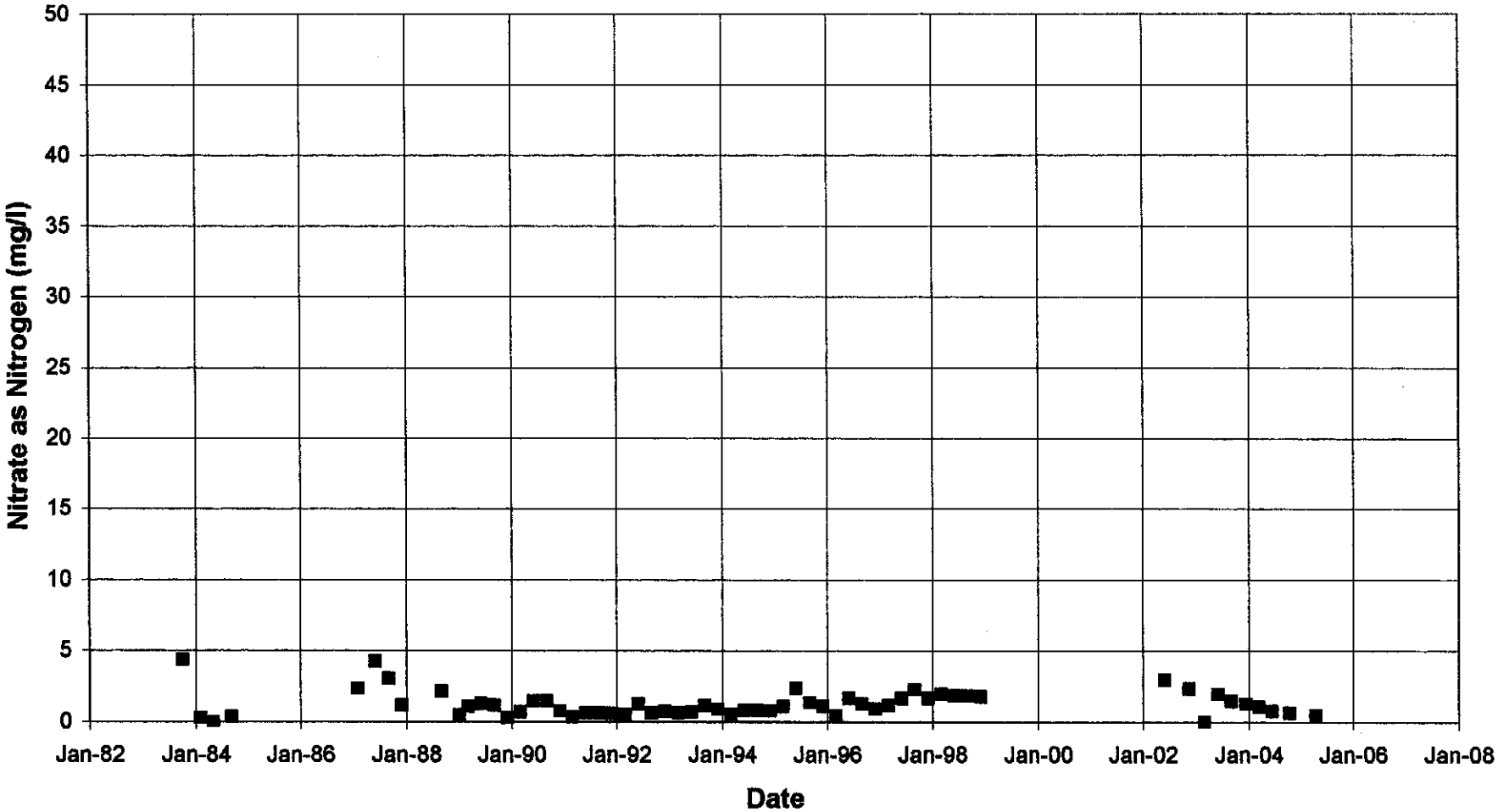
Graph 25
Well 30S/11E-17D
NO_3-N vs Time



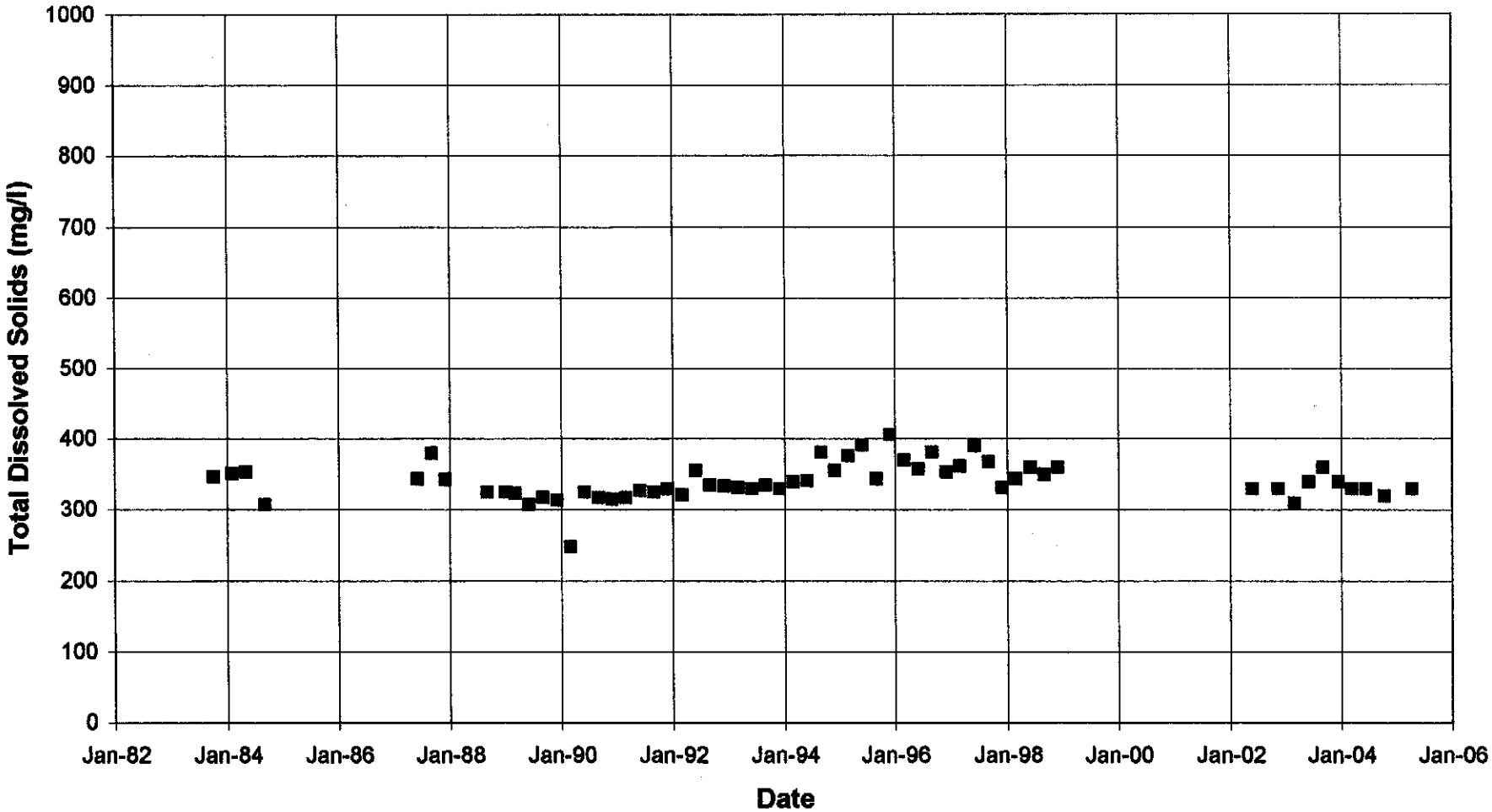
Graph 26
Well 30S/11E-17D
TDS vs Time



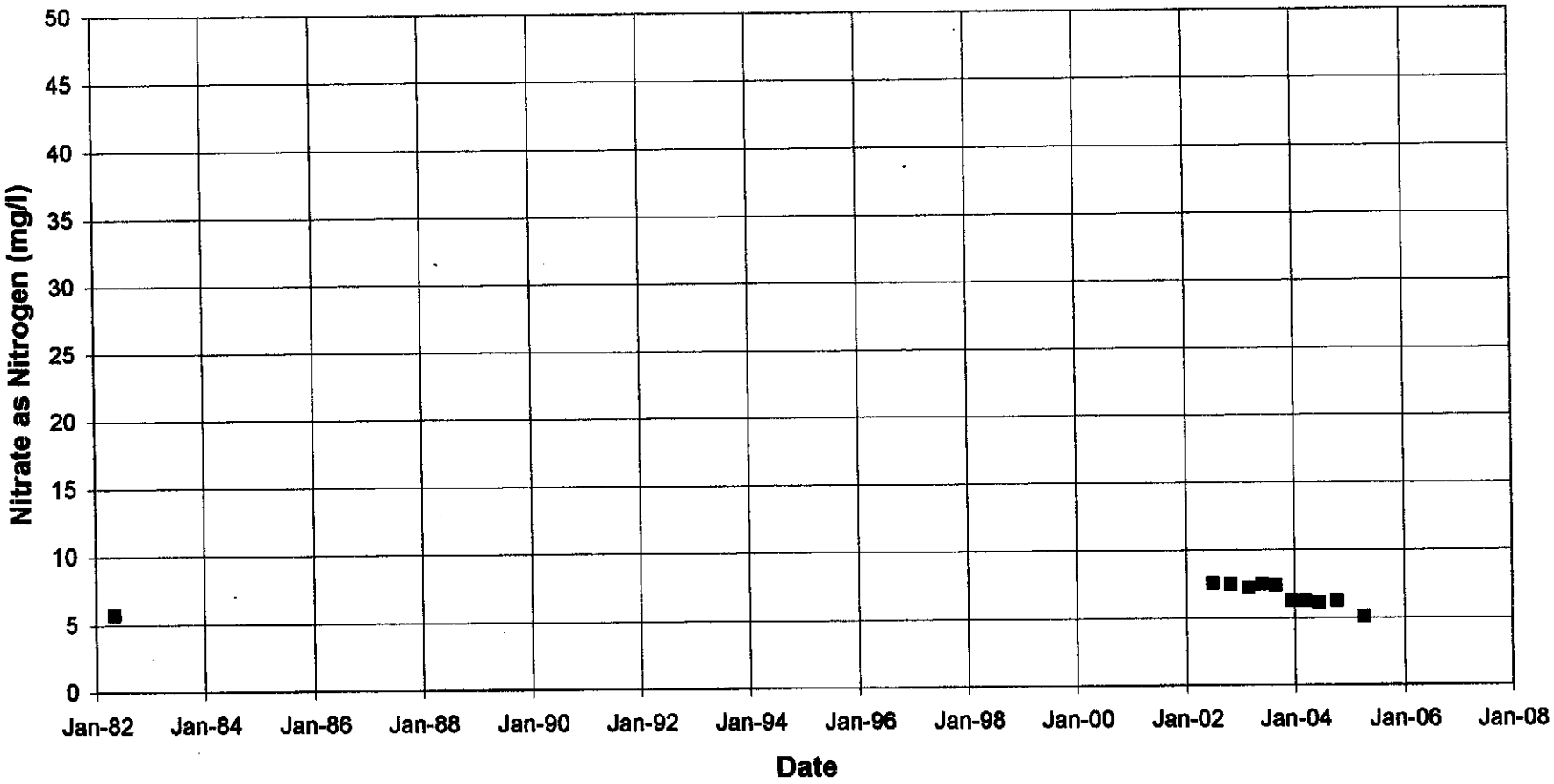
Graph 27
Well 30S/11E-17F4
NO_3-N vs Time



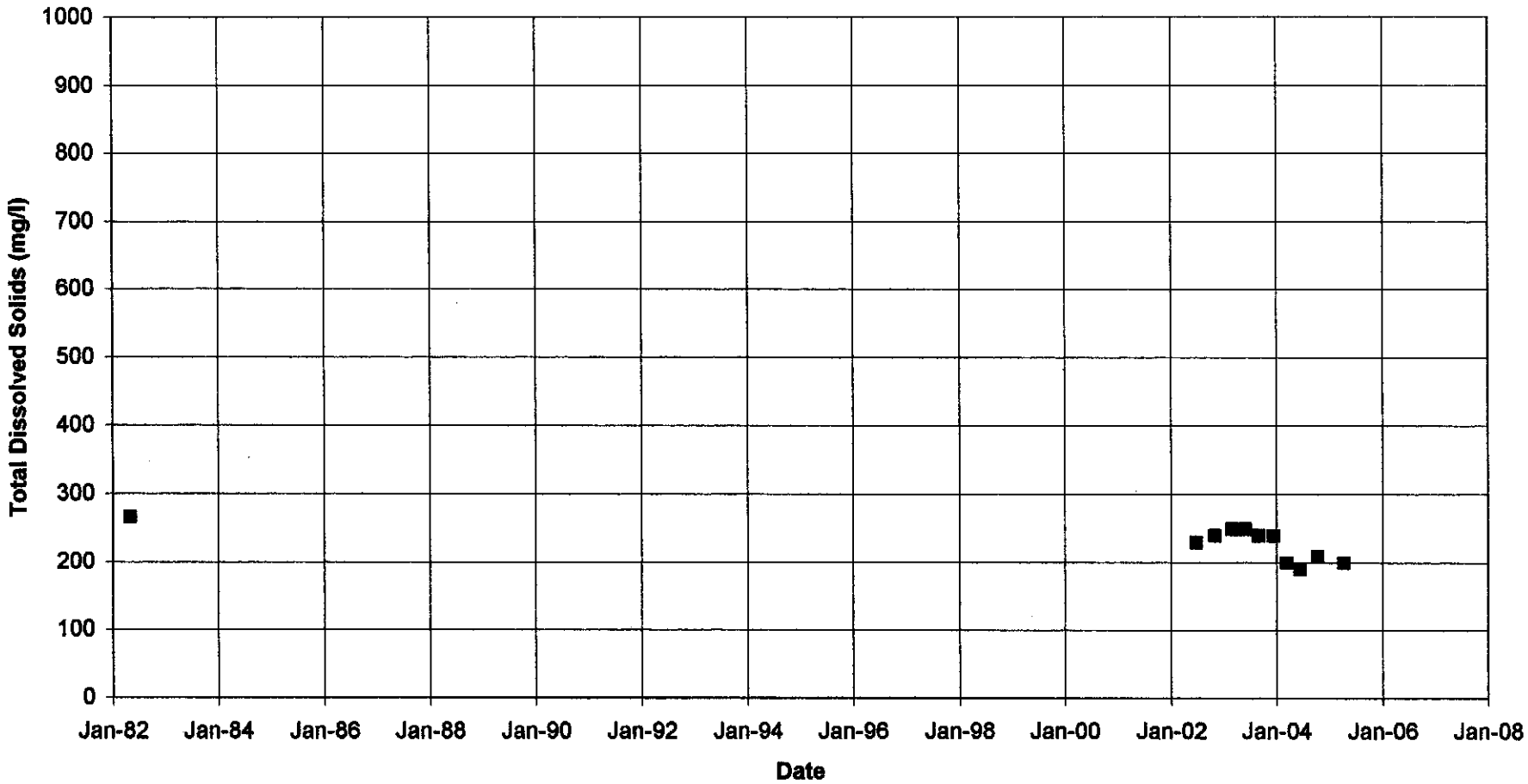
Graph 28
Well 30S/11E-17F4
TDS vs Time



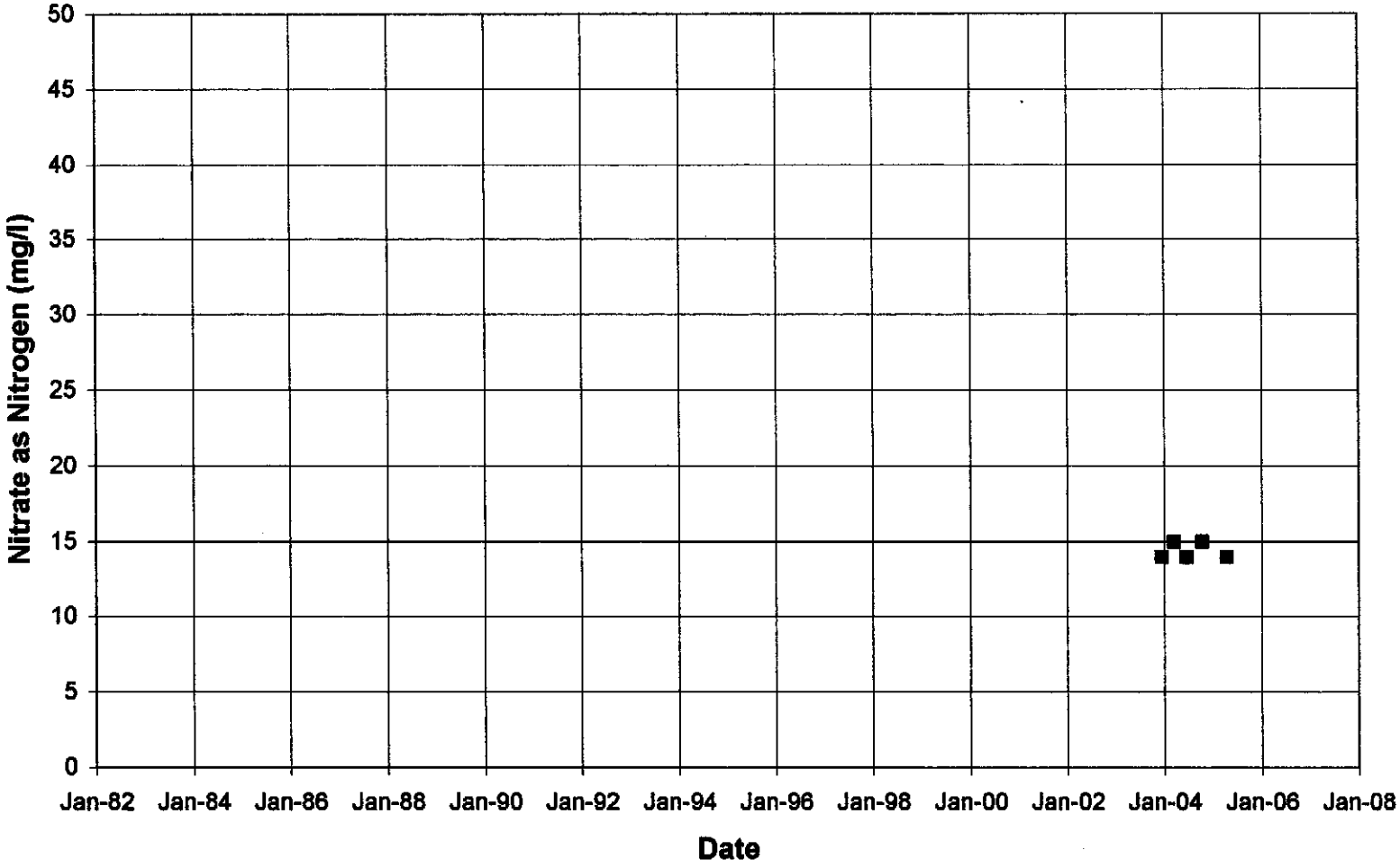
Graph 29
Well 30S/11E-17N4
NO_3-N vs Time

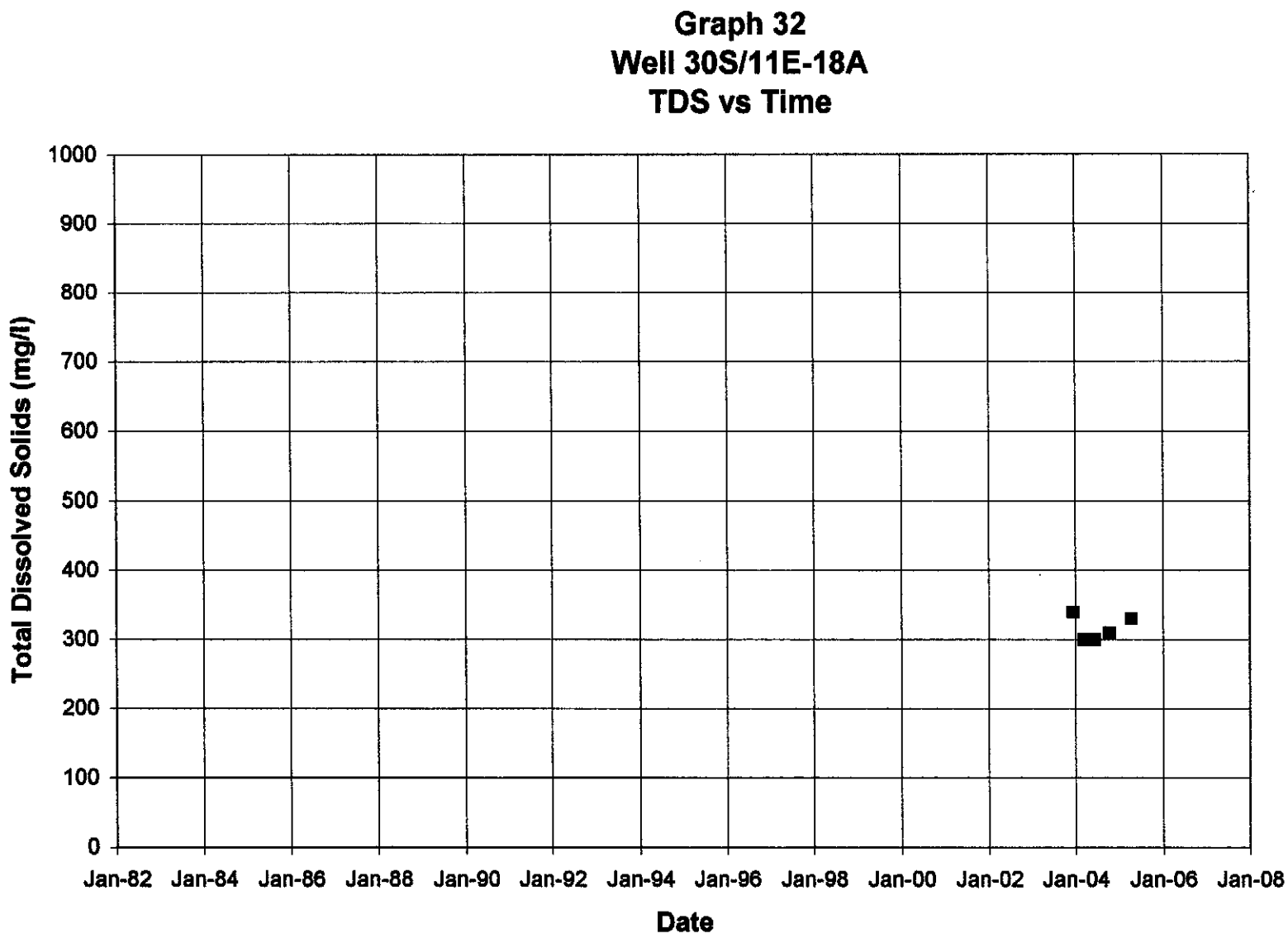


Graph 30
Well 30S/11E-17N4
TDS vs Time

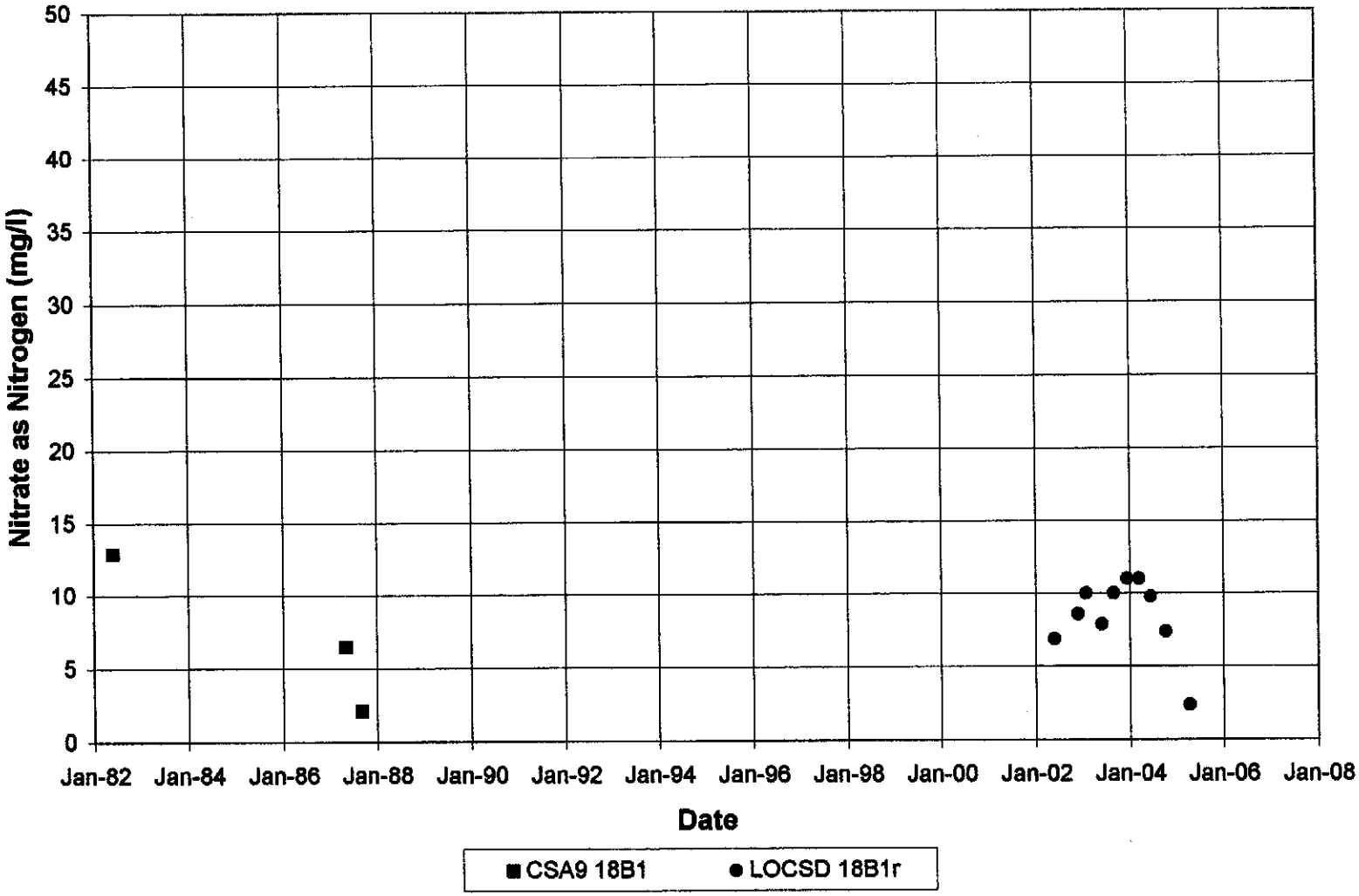


Graph 31
Well 30S/11E-18A
NO_3-N vs Time

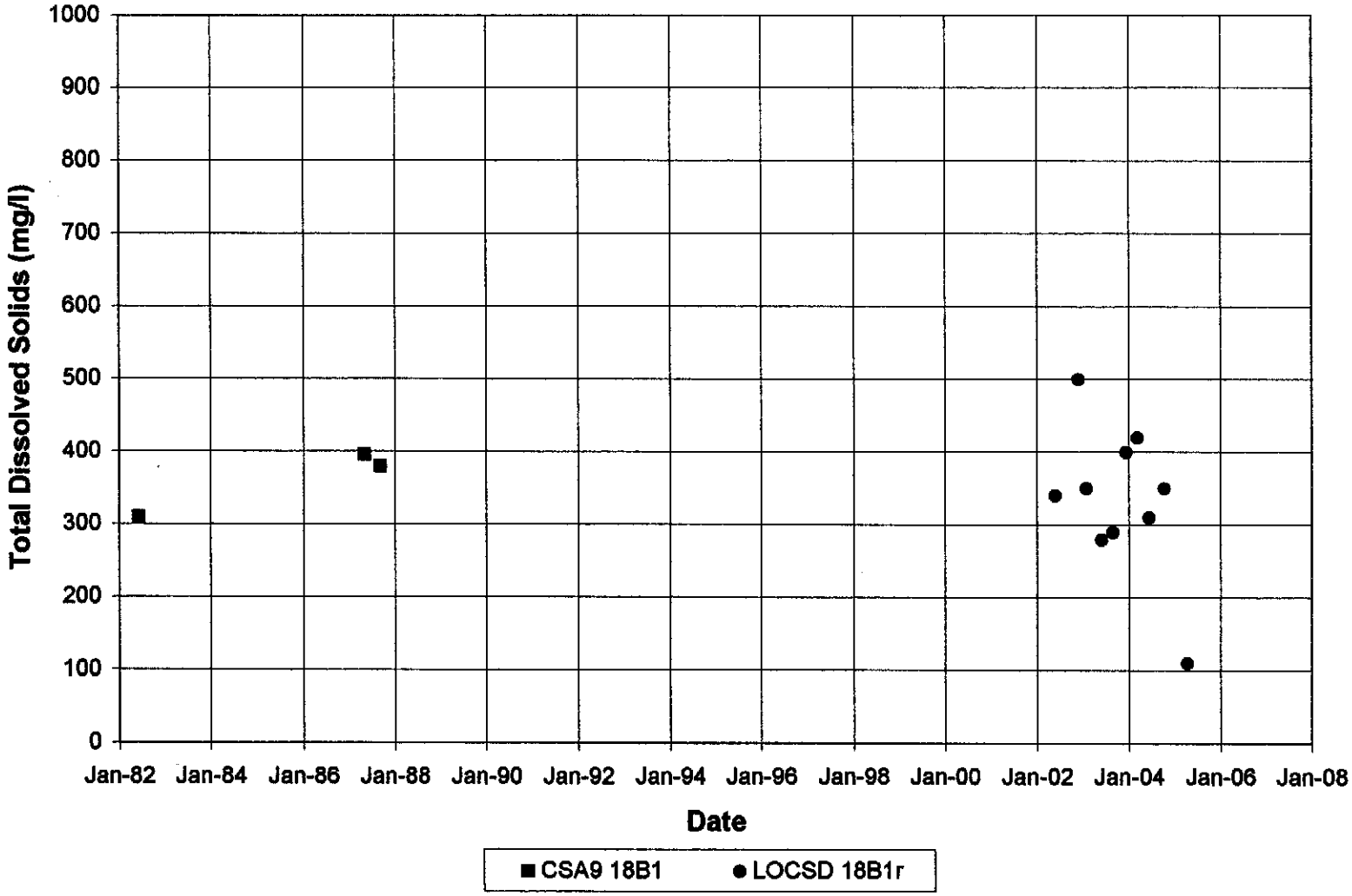



Graph 32
Well 30S/11E-18A
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date

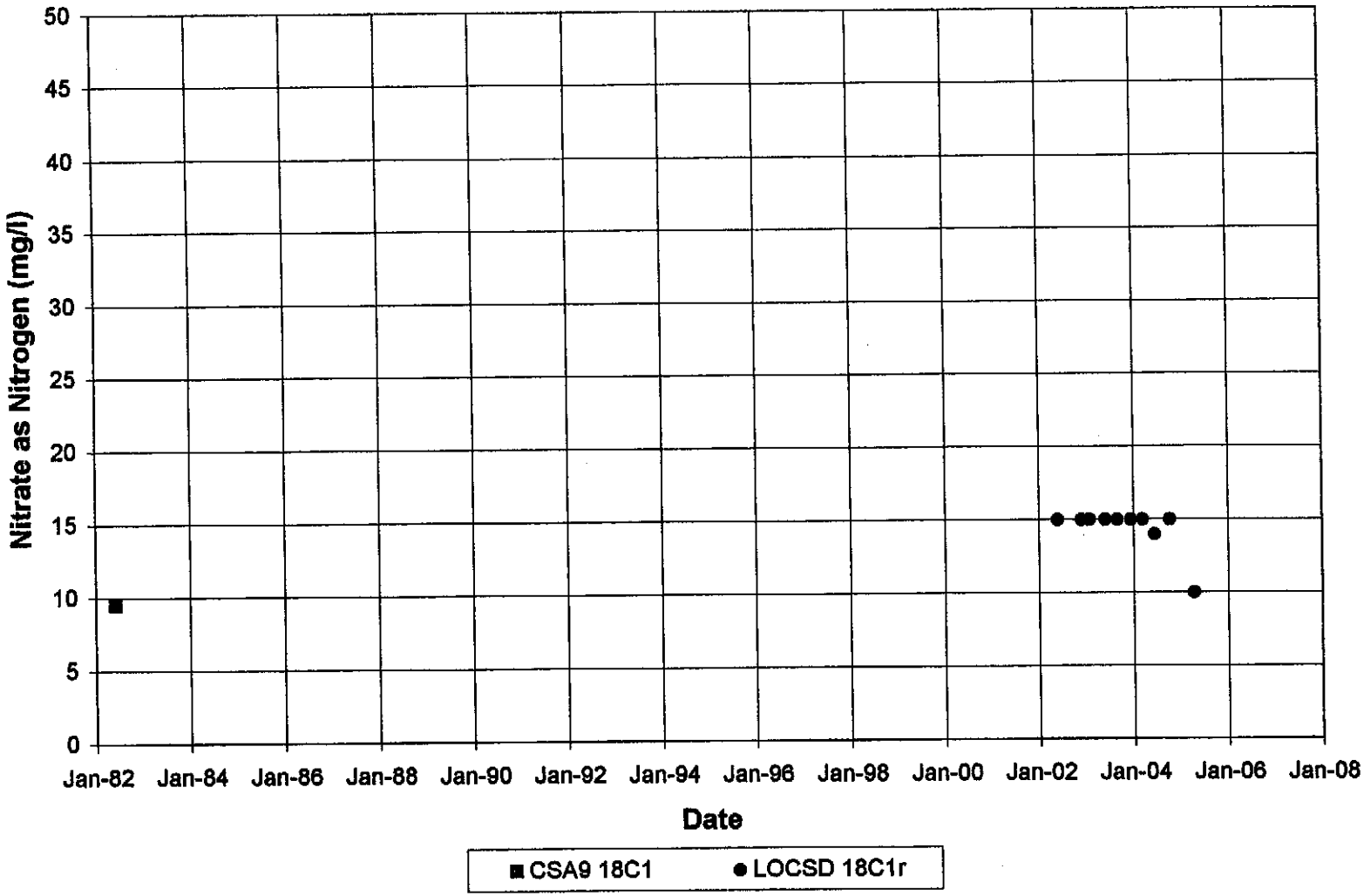
Graph 33
Well 30S/11E-18B1
NO_3-N vs Time



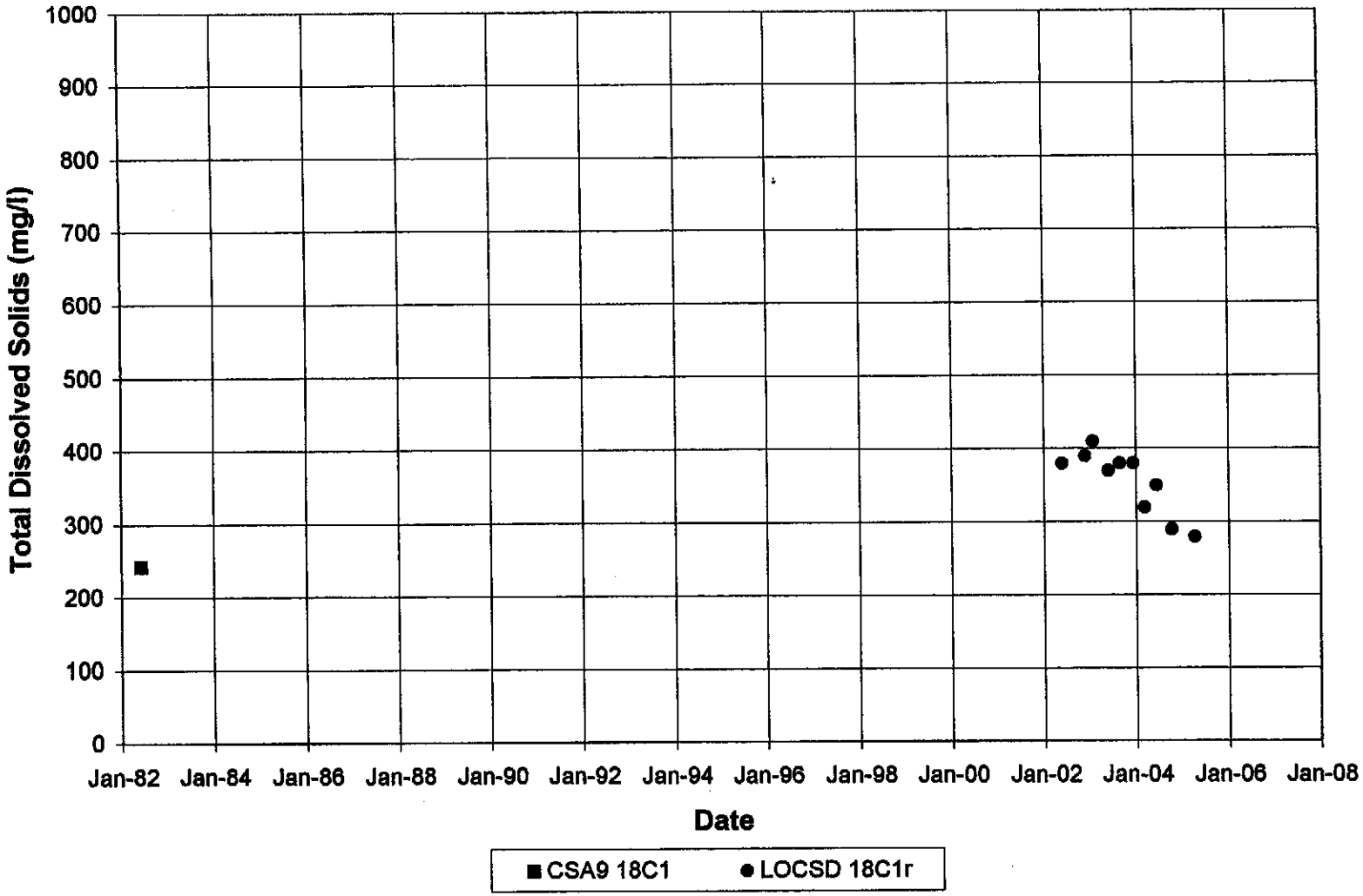
Graph 34
Well 30S/11E-18B1
TDS vs Time



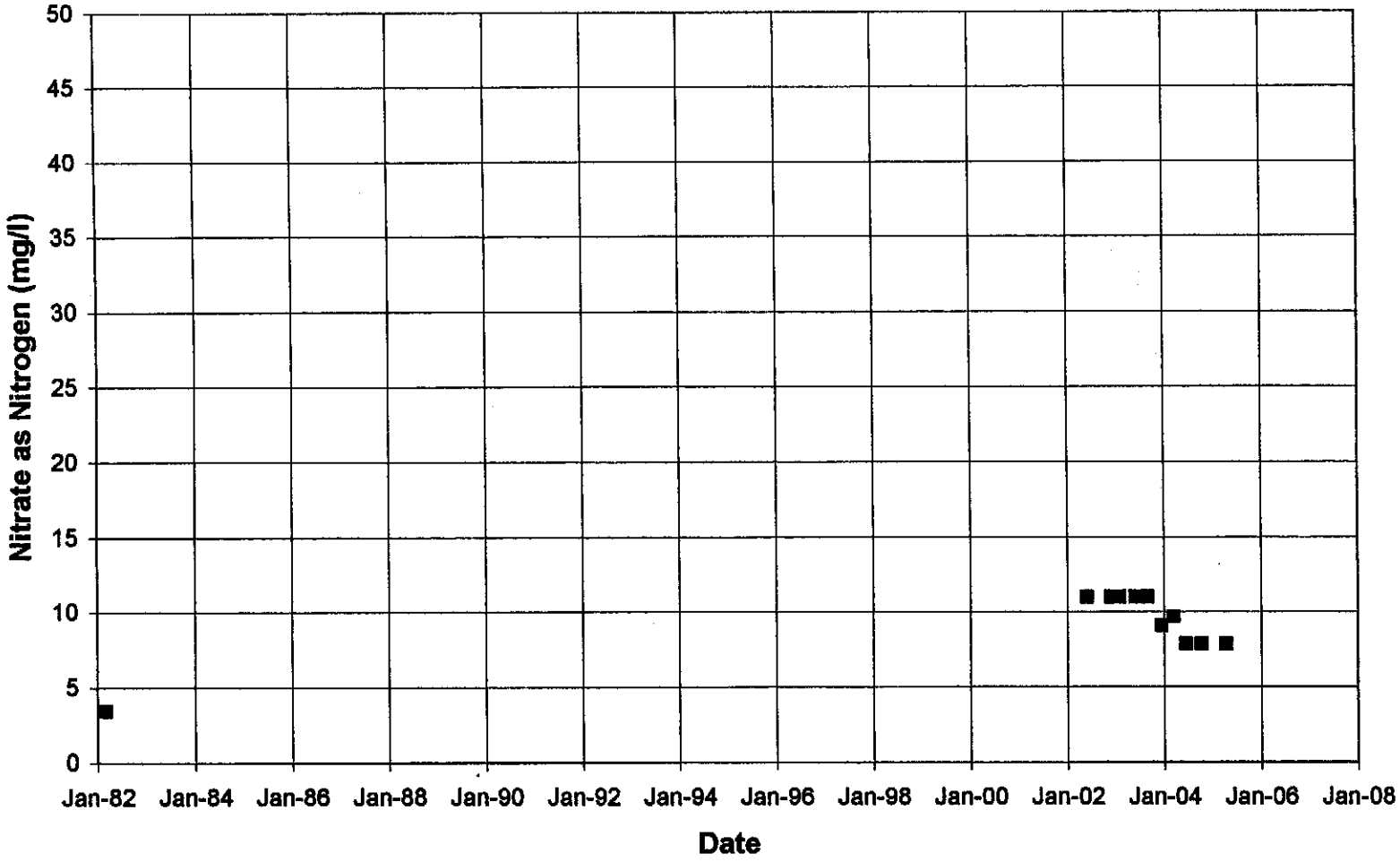
Graph 35
Well 30S/11E-18C1
NO_3-N vs Time

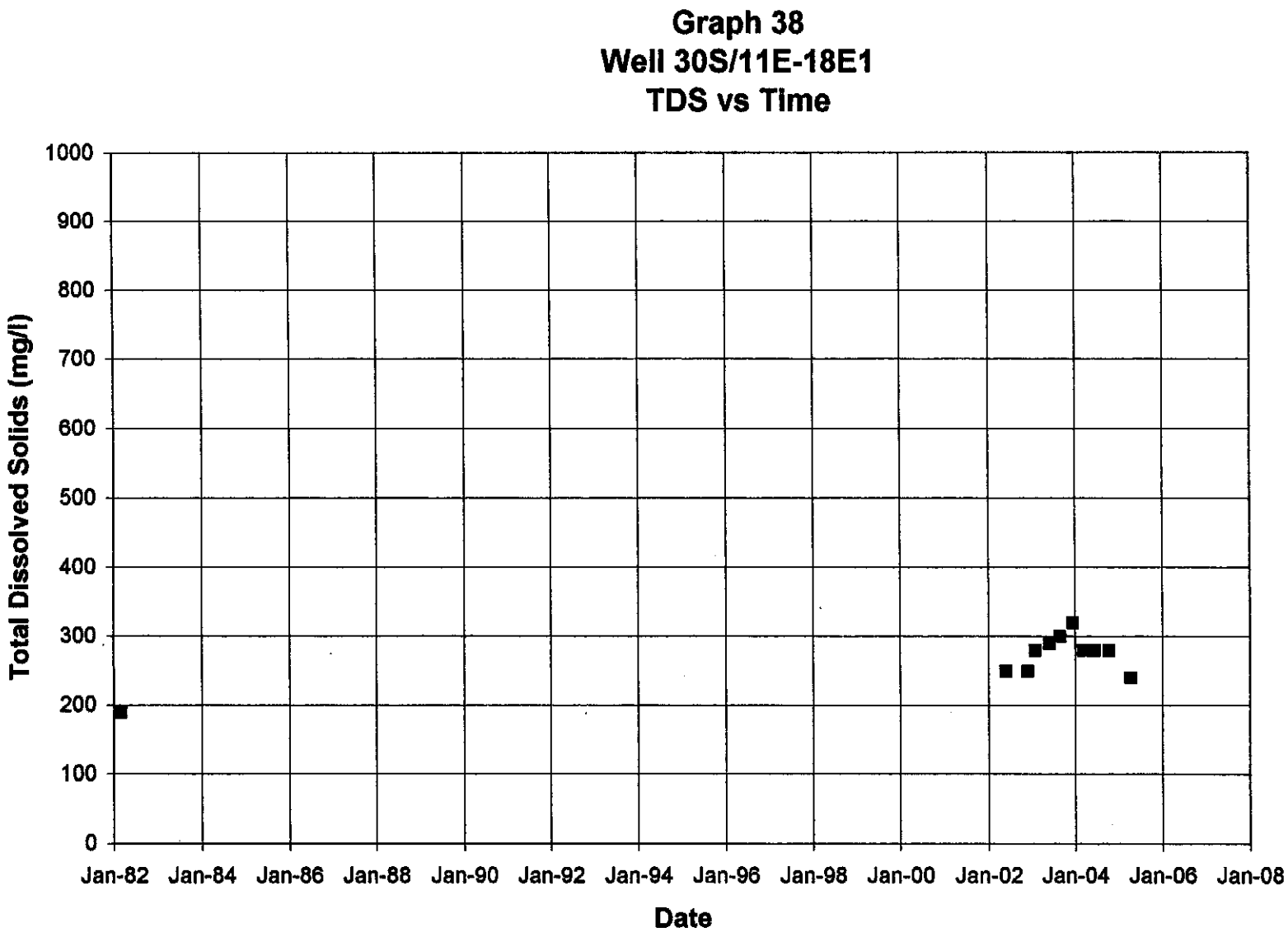


Graph 36
Well 30S/11E-18C1
TDS vs Time

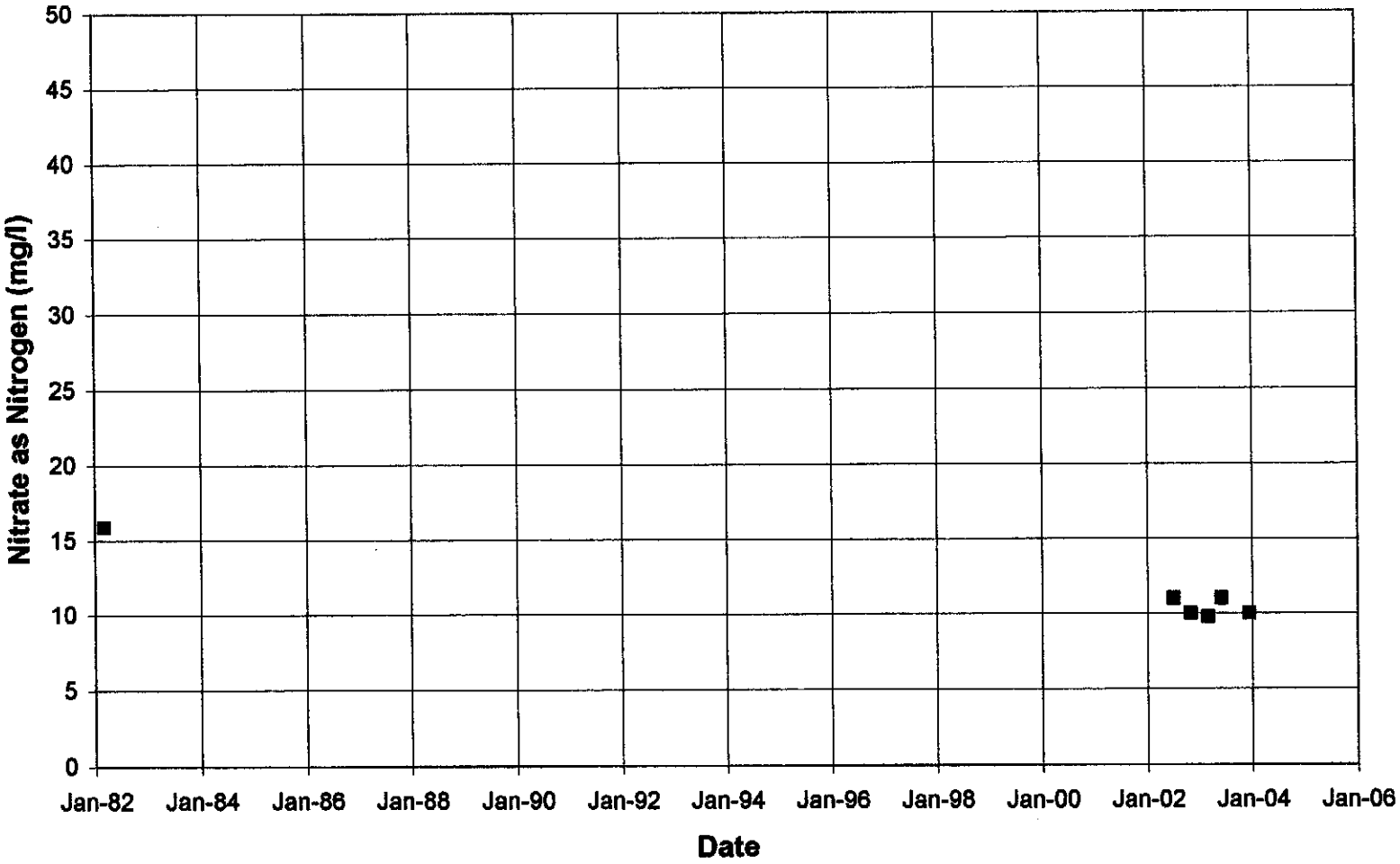


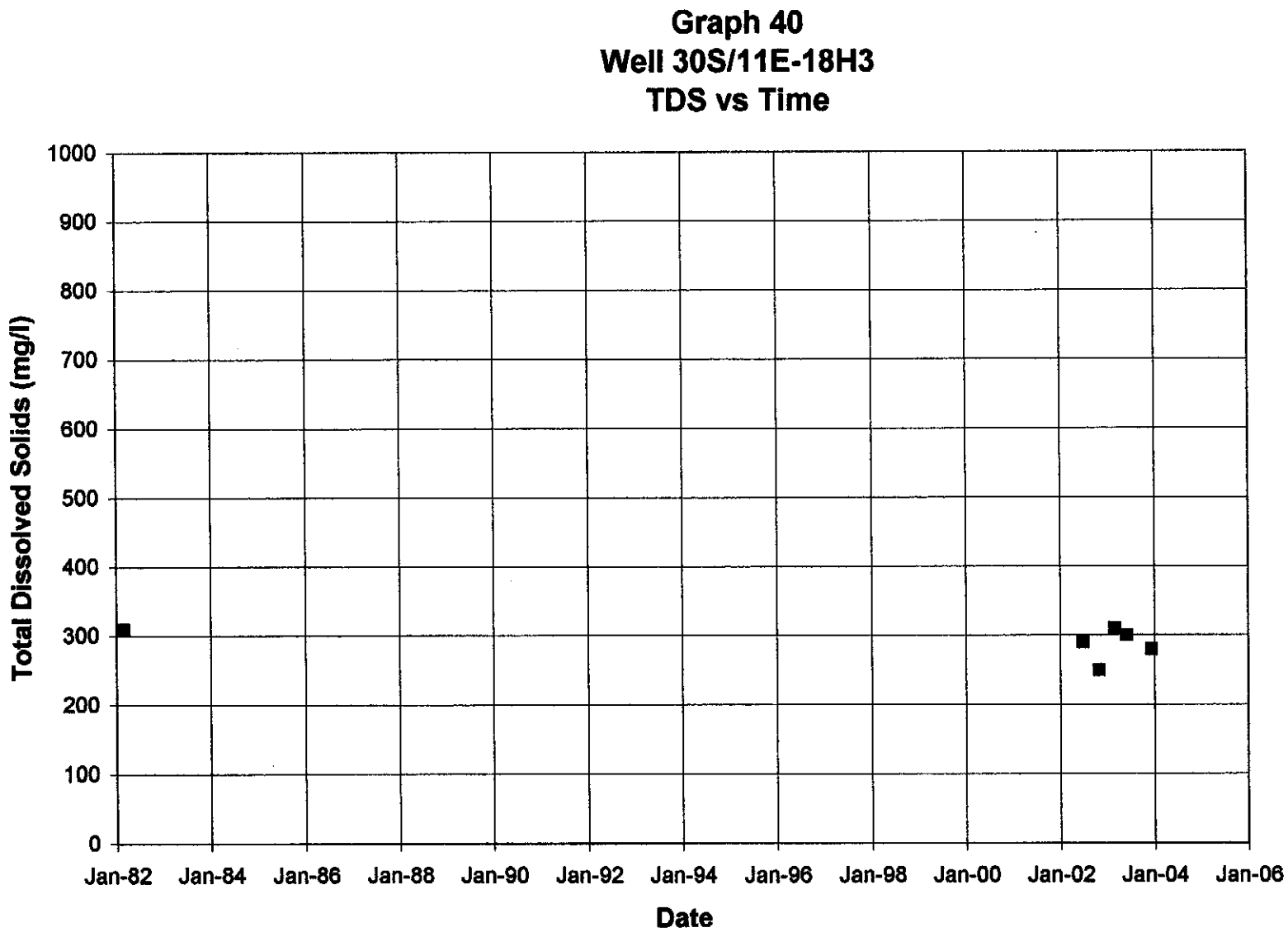
Graph 37
Well 30S/11E-18E1
NO_3-N vs Time



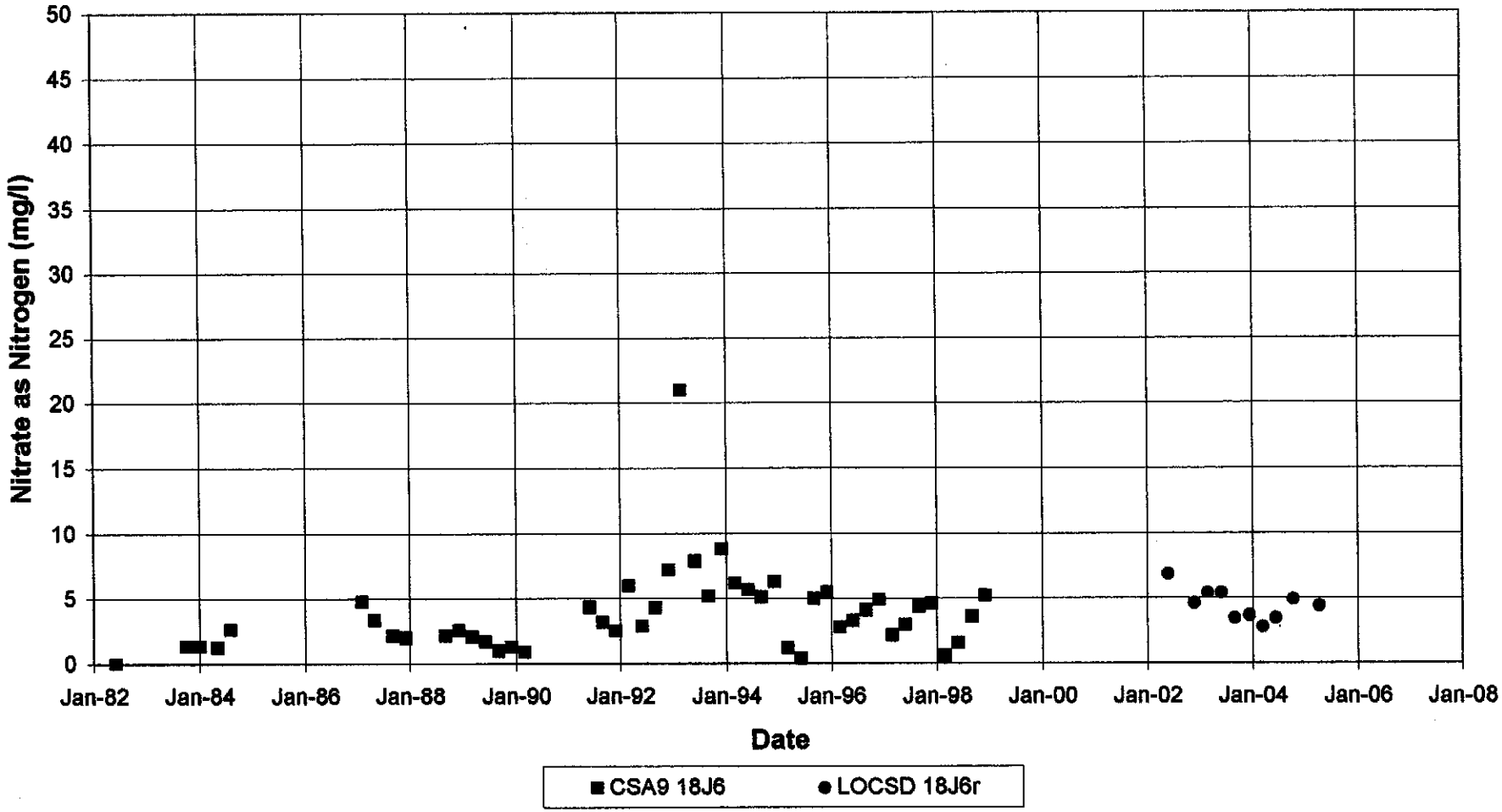

Graph 38
Well 30S/11E-18E1
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date

Graph 39
Well 30S/11E-18H3
NO_3-N vs Time

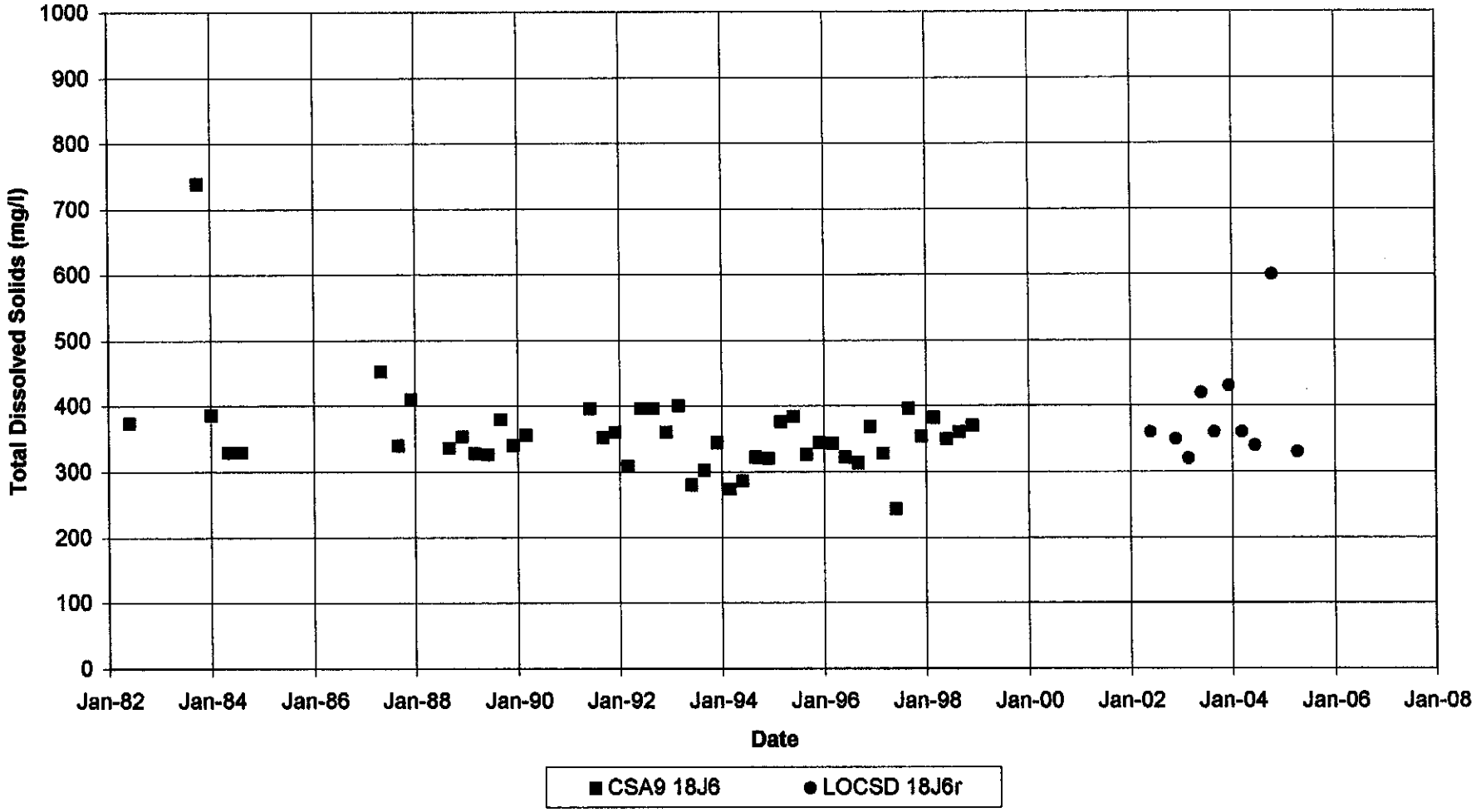


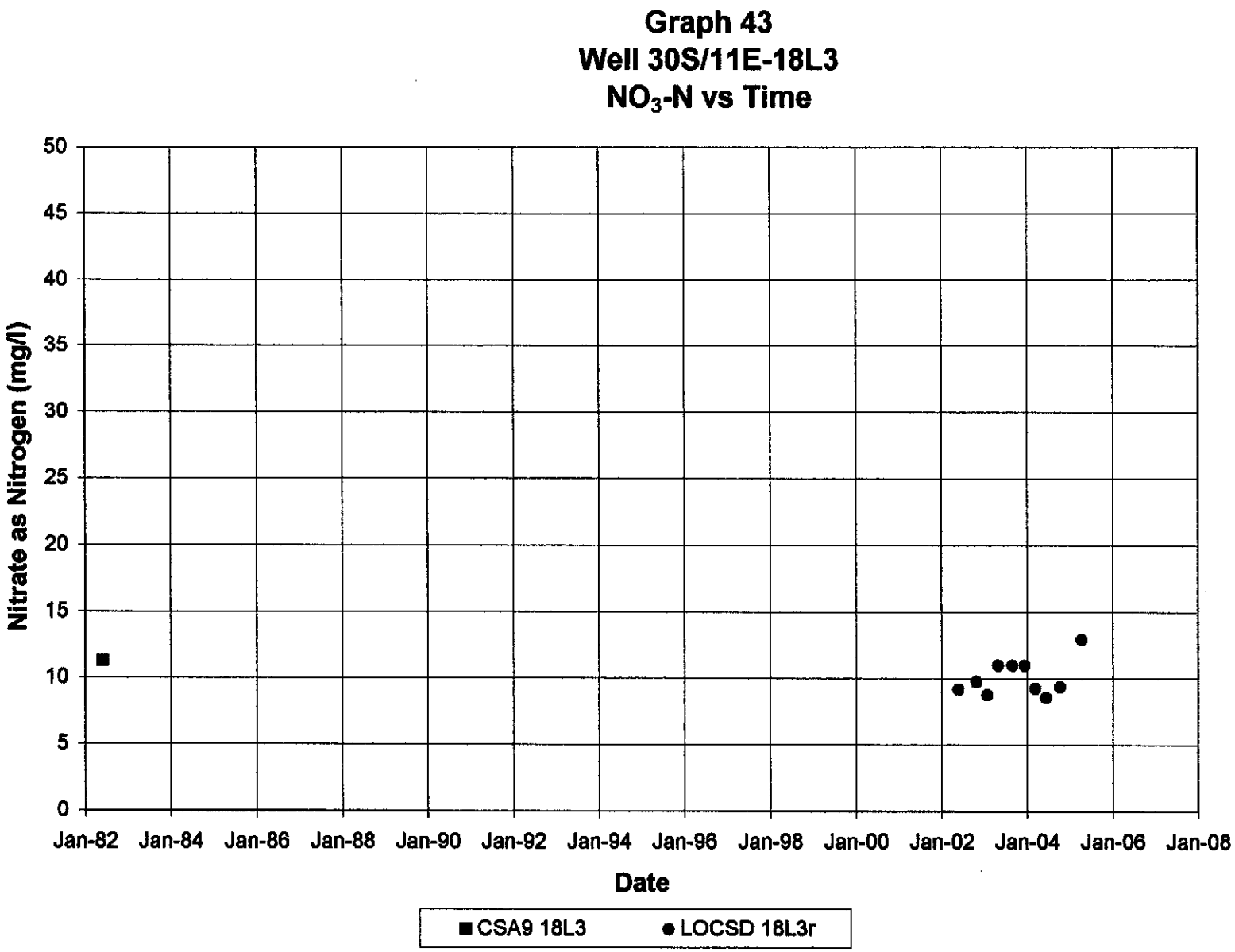

Graph 40
Well 30S/11E-18H3
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Date

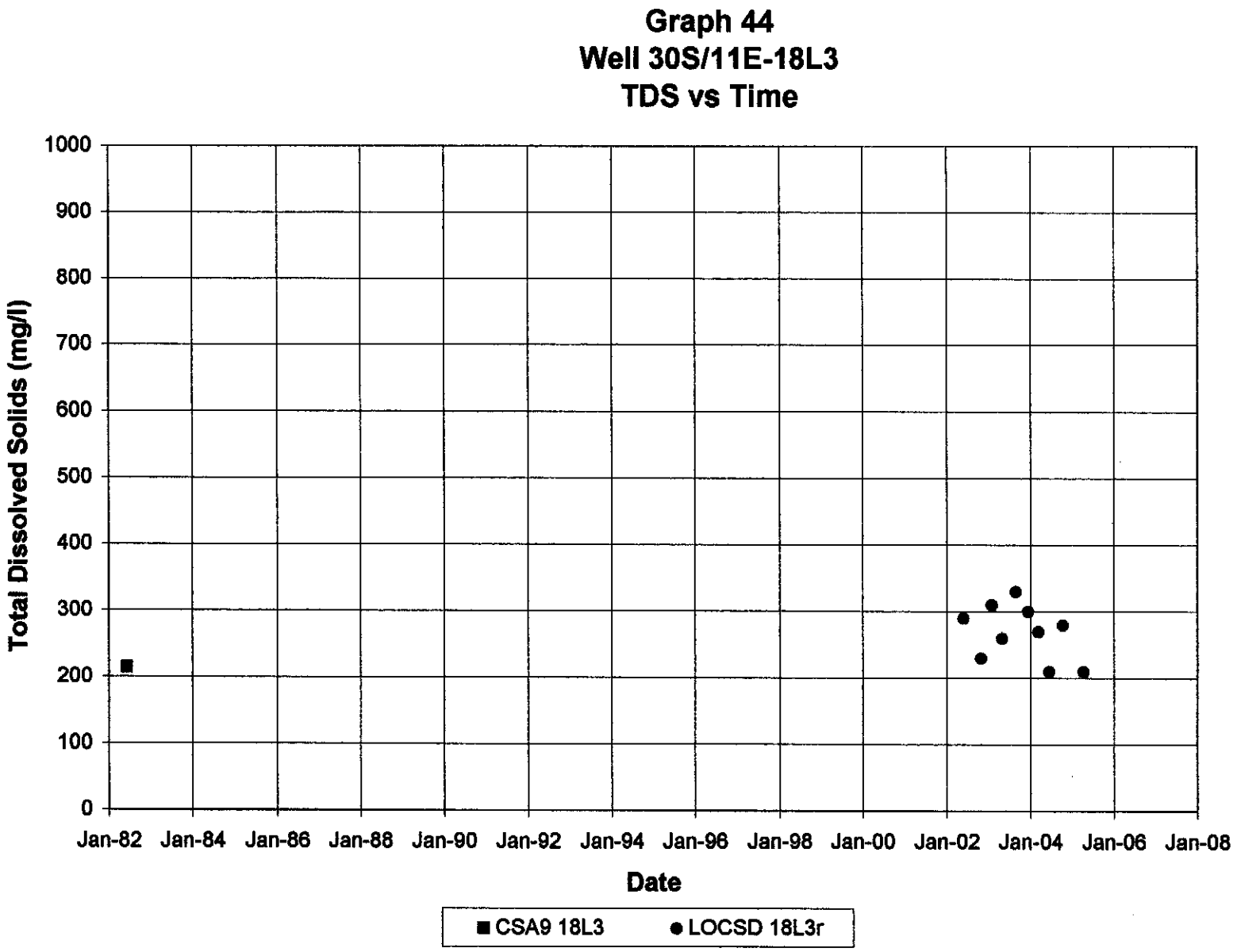
Graph 41
Well 30S/11E-18J6
NO_3-N vs Time



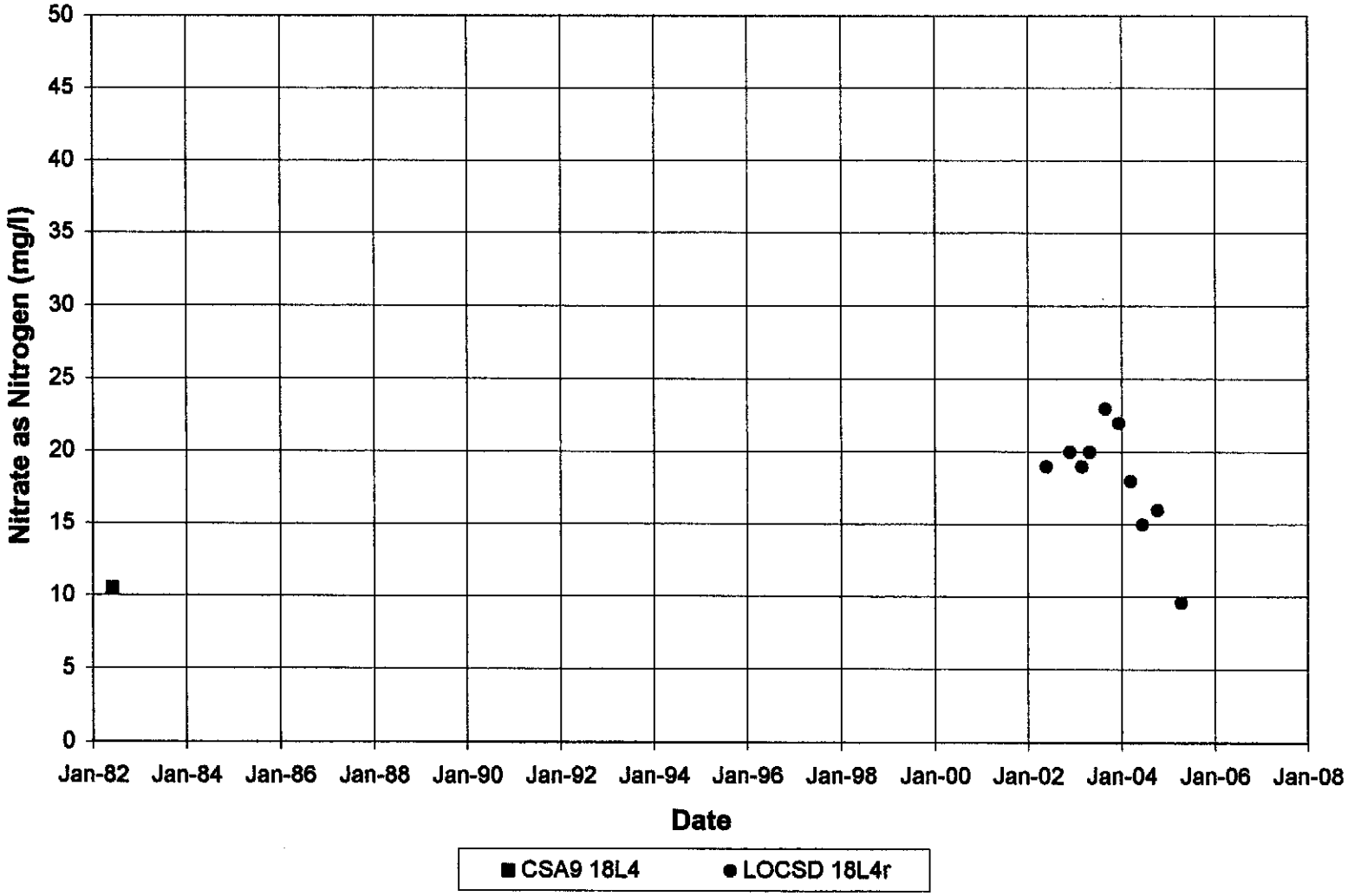
Graph 42
Well 30S/11E-18J6
TDS vs Time

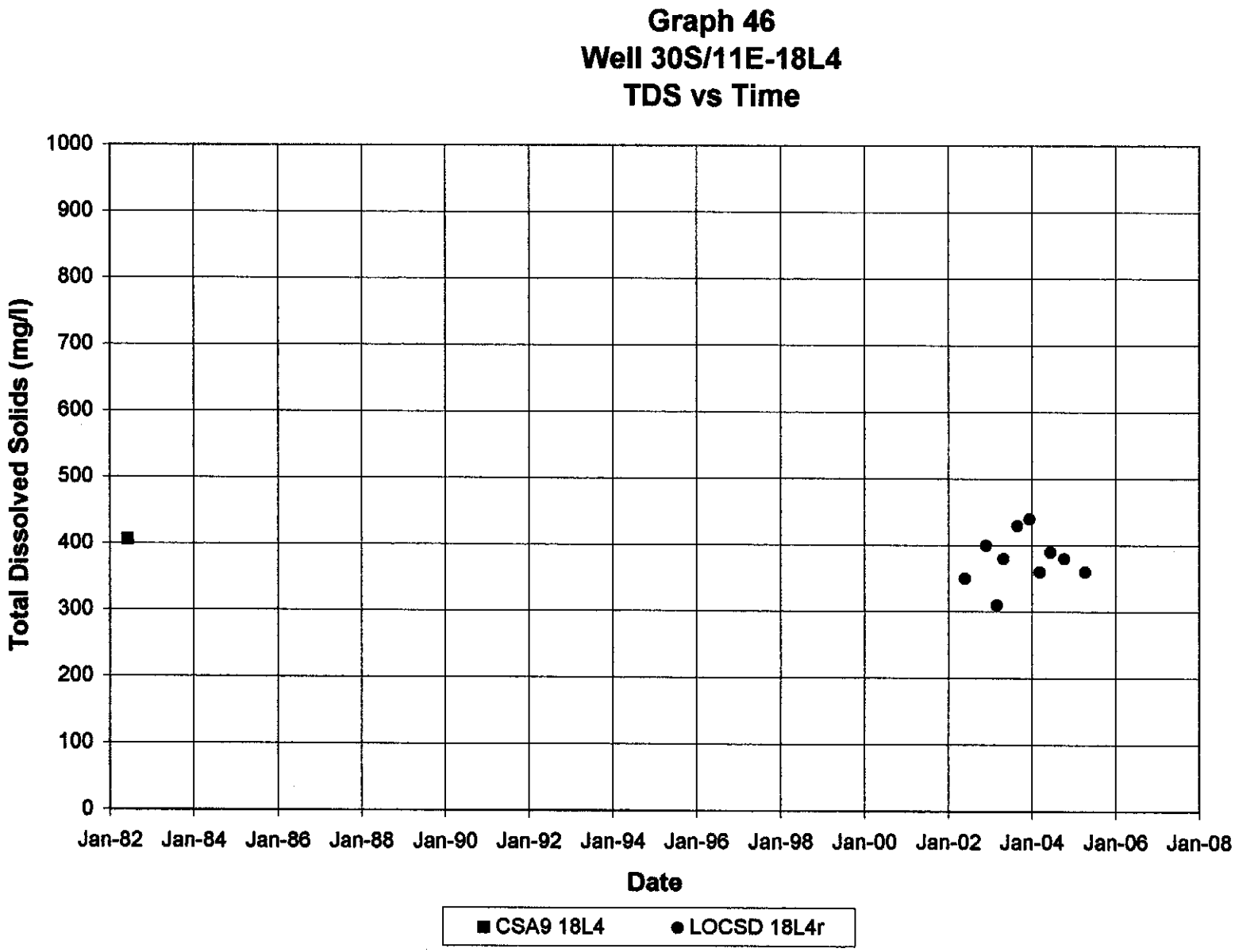


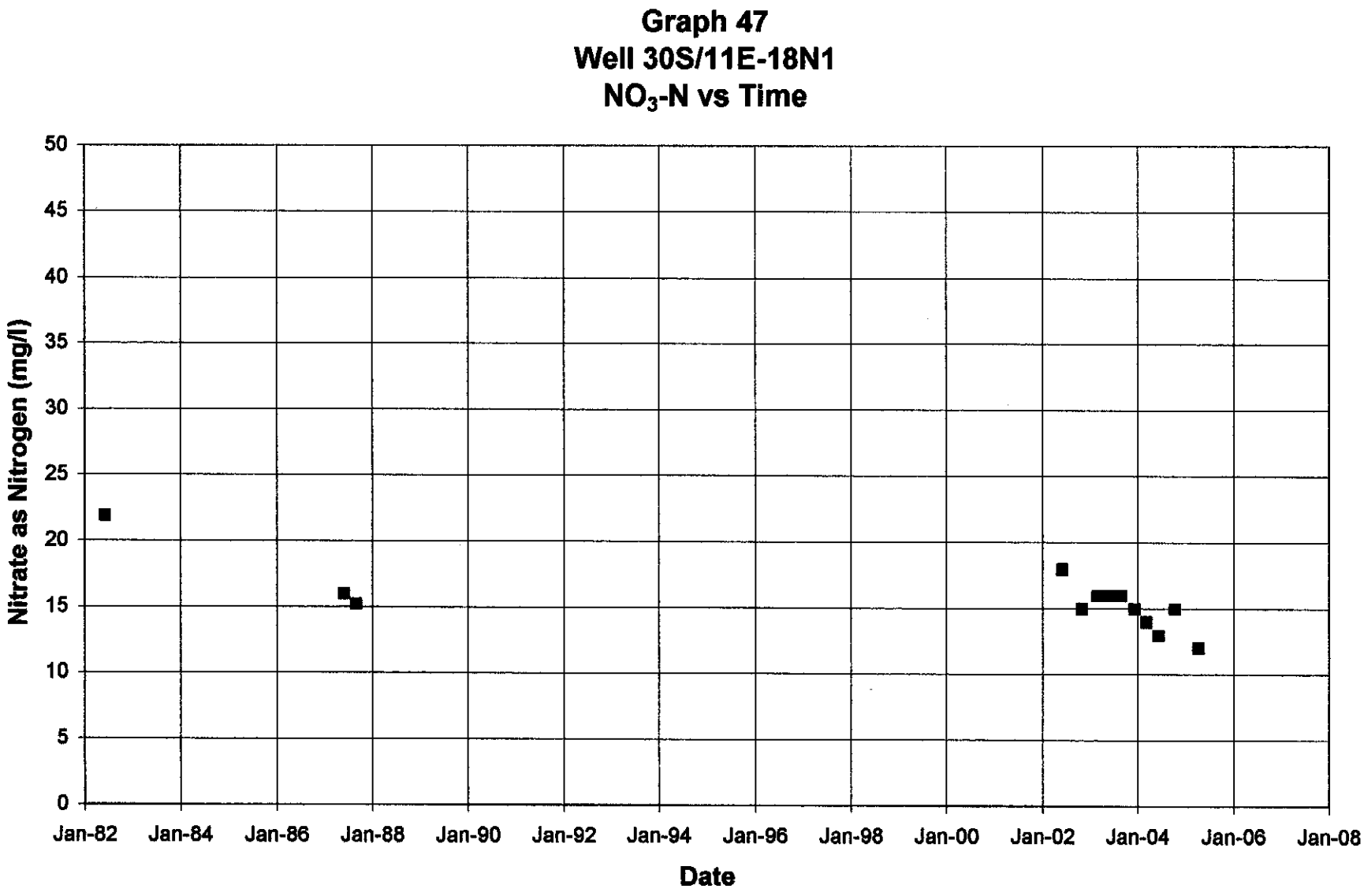

Graph 43
Well 30S/11E-18L3
NO3-N vs Time
Nitrate as Nitrogen (mg/l)
50
45
40
35
30
25
20
15
10
5
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 18L3
LOCSD 18L3r

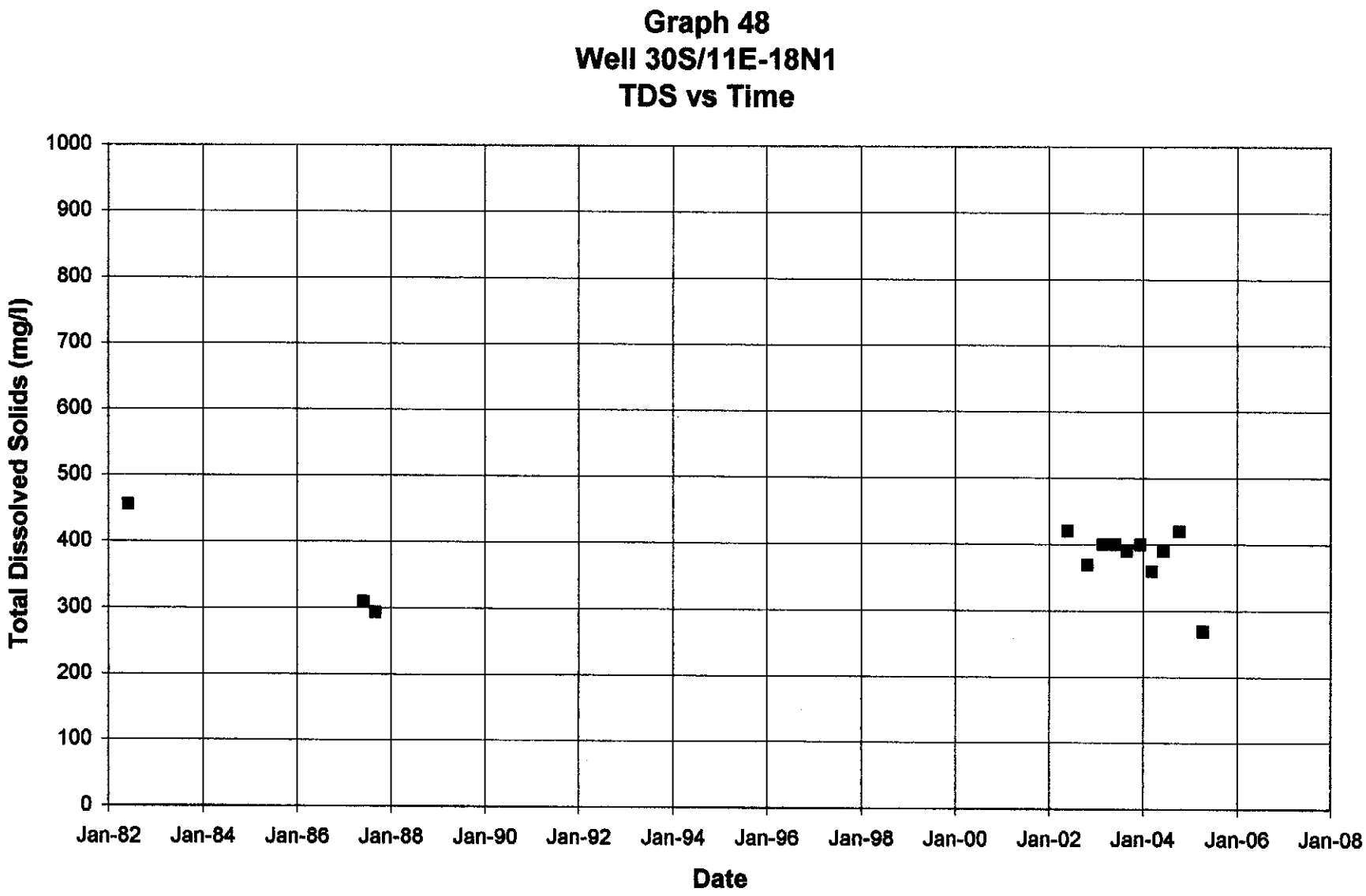

Graph 44
Well 30S/11E-18L3
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 18L3
LOCSD 18L3r

Graph 45
Well 30S/11E-18L4
NO_3-N vs Time

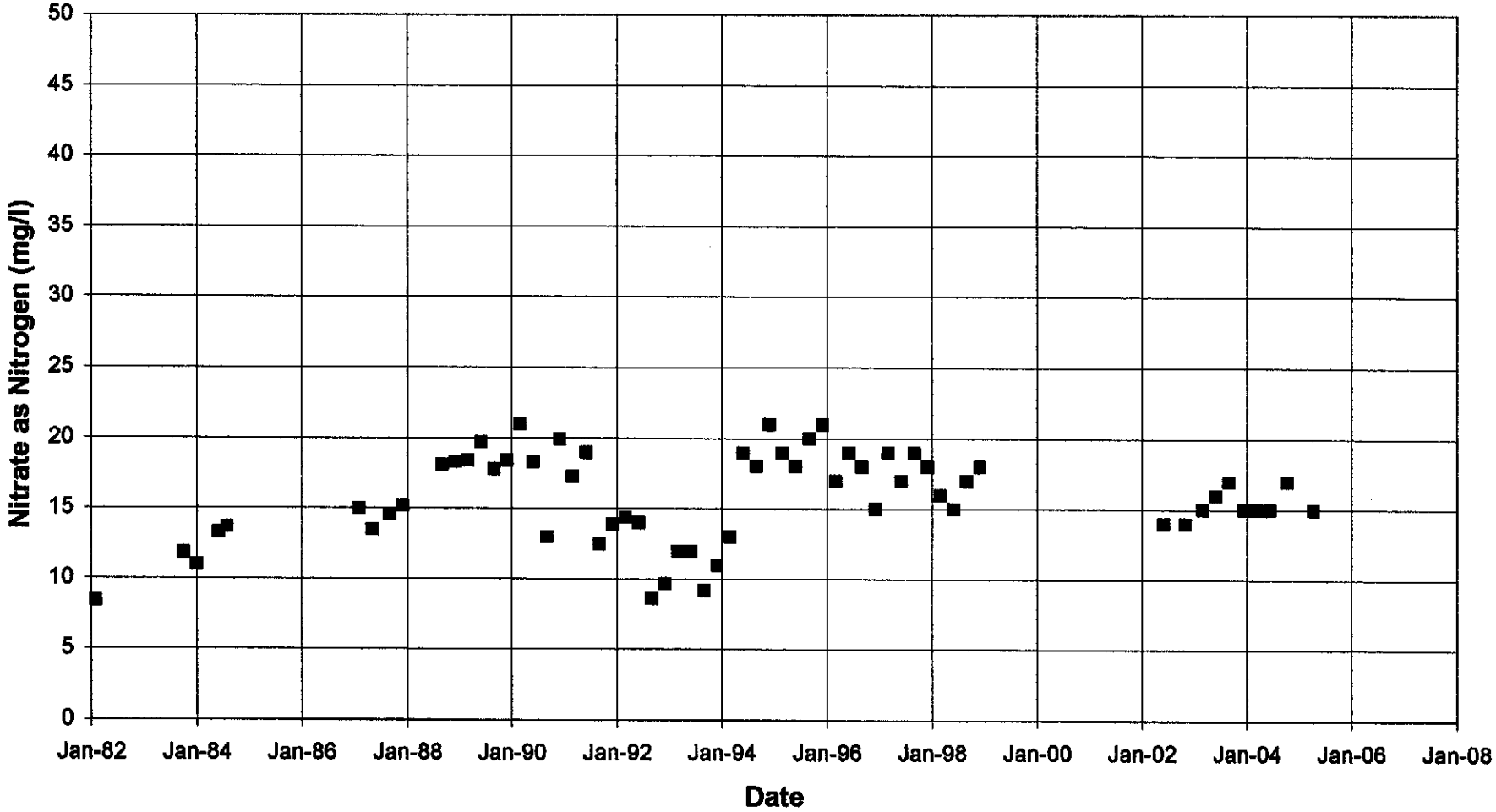



Graph 46
Well 30S/11E-18L4
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date
CSA9 18L4
LOCSD 18L4r

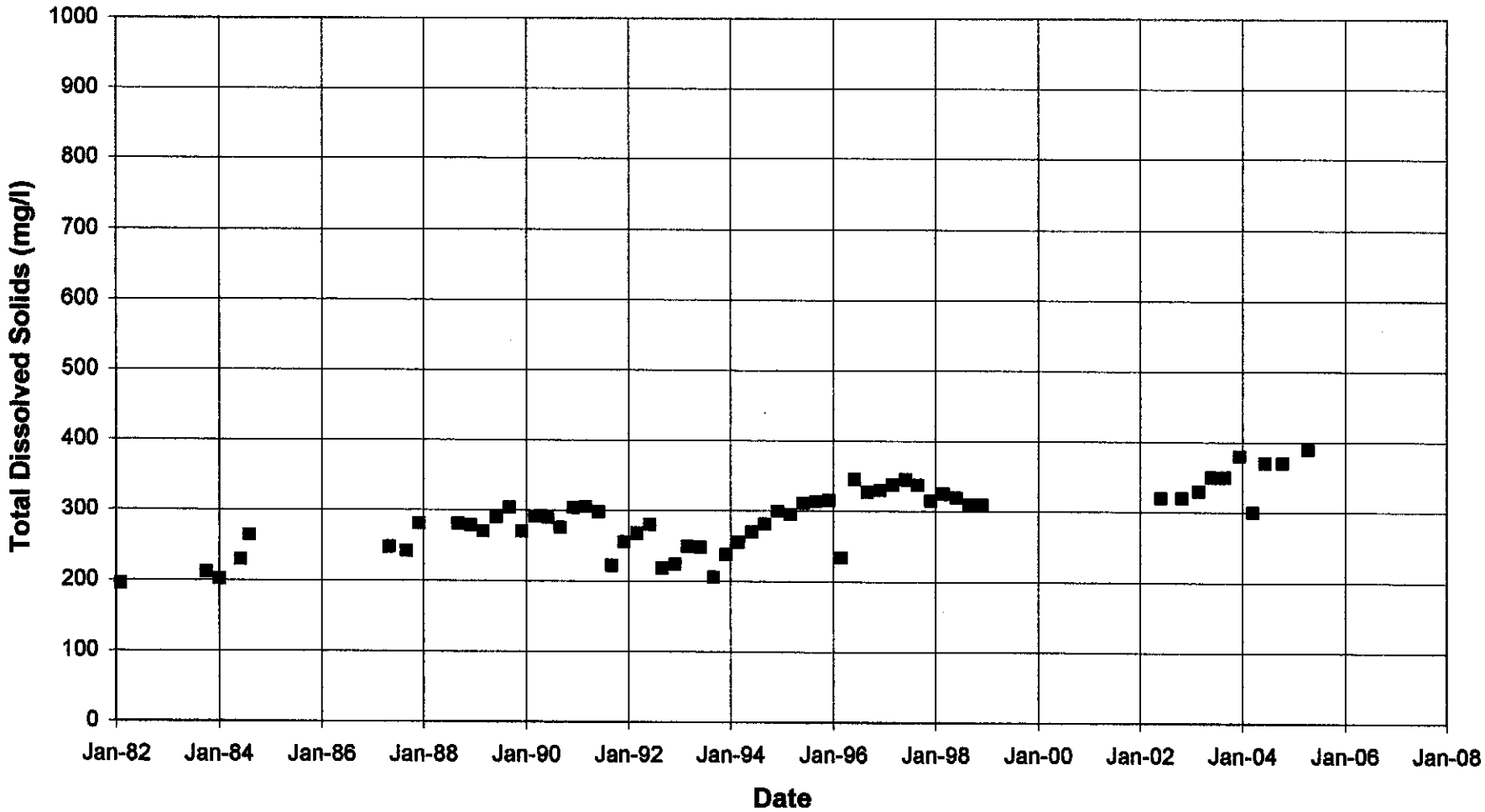

Graph 47
Well 30S/11E-18N1
NO3-N vs Time
Nitrate as Nitrogen (mg/l)
50
45
40
35
30
25
20
15
10
5
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date

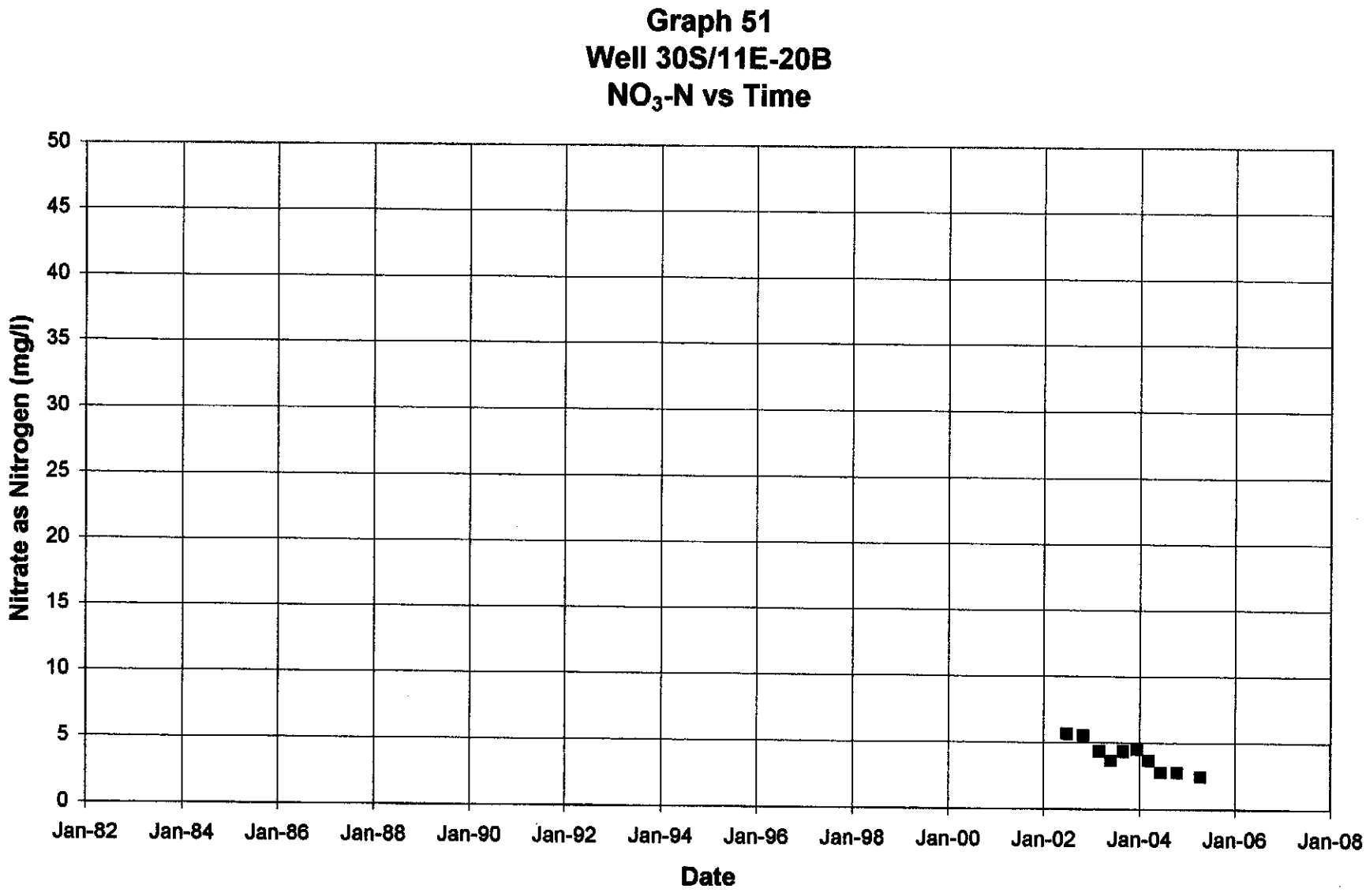

Graph 48
Well 30S/11E-18N1
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date

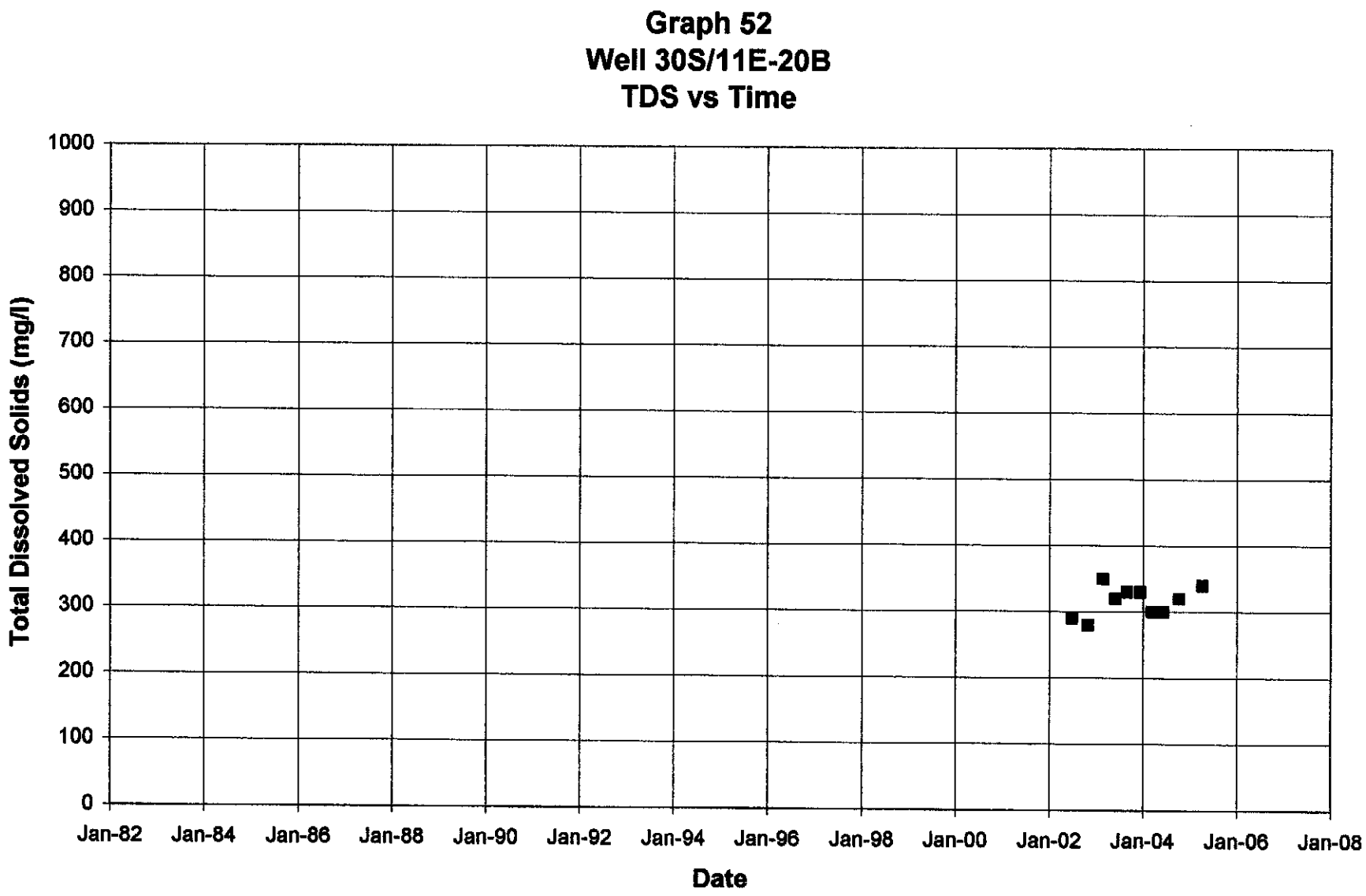
Graph 49
Well 30S/11E-18R1
NO_3-N vs Time

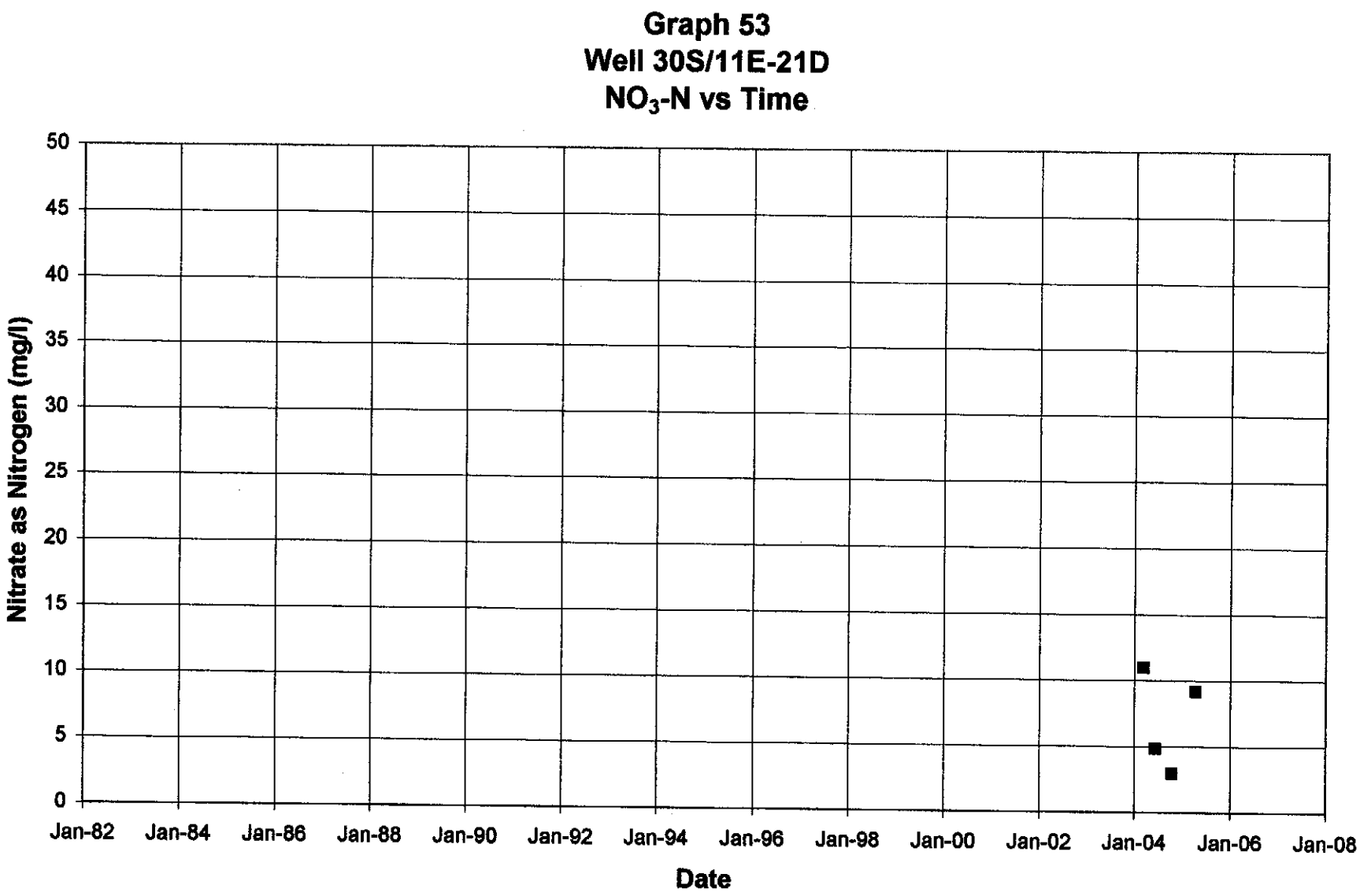


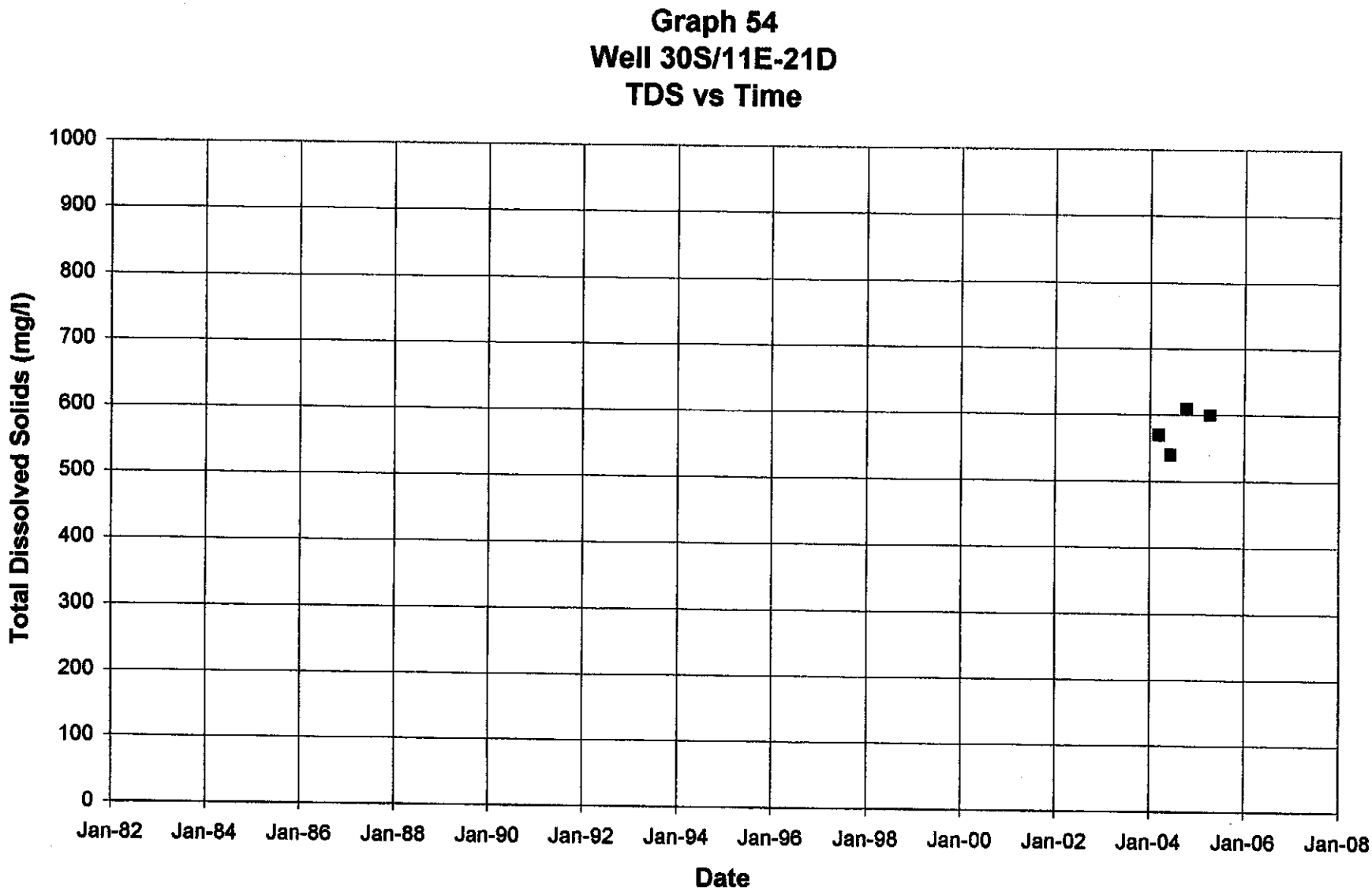
Graph 50
Well 30S/11E-18R1
TDS vs Time




Graph 51
Well 30S/11E-20B
NO3-N vs Time
Nitrate as Nitrogen (mg/l)
50
45
40
35
30
25
20
15
10
5
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date


Graph 52
Well 30S/11E-20B
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date


Graph 53
Well 30S/11E-21D
NO3-N vs Time
Nitrate as Nitrogen (mg/l)
50
45
40
35
30
25
20
15
10
5
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date


Graph 54
Well 30S/11E-21D
TDS vs Time
Total Dissolved Solids (mg/l)
1000
900
800
700
600
500
400
300
200
100
0
Jan-82
Jan-84
Jan-86
Jan-88
Jan-90
Jan-92
Jan-94
Jan-96
Jan-98
Jan-00
Jan-02
Jan-04
Jan-06
Jan-08
Date