Response to NRC Comments on *Assessment Report for Well 1319 Area*

For

Cimarron Corporation's Former
Nuclear Fuel Fabrication Facility
Crescent, Oklahoma

License Number: SNM-928
Docket Number: 70-0925

Cimarron Corporation
Crescent, OK

December, 2004

MMS501

CIMARRON CORPORATION

P.O. BOX 315 • CRESCENT, OK 73028

December 22, 2004

Mr. Kenneth Kalman
Low-Level Waste & Decommissioning Projects Branch
Division of Waste Management
Office of Nuclear Materials Safety & Safeguards
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Docket No. 70-925; License No. SNM-928
Response to NRC Comments on Assessment Report for Well 1319 Area

Dear Mr. Kalman:
Cimarron Corporation (Cimarron) received NRC comments on the subject report in a letter dated November 24, 2004. Cimarron's responses follow NRC's comments below.

NRC Comment #1:
The licensee should discuss the history of groundwater pumpage (dates and time periods), approximate volume of groundwater pumped, and water levels before and after pumping for wells 1319, 1319B-1, and 1319C-1.

Cimarron Response:
Well 1319 was installed during the facility's operating years to provide a water supply for the plant. However, the well was never used; consequently, there is no history of pumping from this well. Cimarron installed air tubing and discharge piping in wells 1319B-1 and 1319C-1 in November 2003. These wells were pumped relatively continuously by air purging from November 2003 to July 2004. Freezing temperatures during winter and air compressor breakdown caused periodic temporary shutdown of the pumping effort. In addition, pumping was intentionally discontinued for a brief time period (one to two weeks) for quarterly sampling events. This enabled sampling personnel to measure depth to groundwater, since water level indicators cannot be extended down the 2" diameter wells with the tubing installed. Pumping was terminated for Well 1319C-1 in June 2004. Pumping was terminated for Well 1319B-1 in August 2004.

Attachment 1 to this response includes a table and a graph entitled, "1319 On-Site Trends". This table lists the on-site gross alpha results for samples collected from these wells, and shows that over 420,000 gallons of water were pumped from Well 1319B-1, and over 425,000 gallons of water were pumped from Well 1319C-1 since pumping began in November 2003. Attachment 2 includes a table showing all gross alpha and total uranium results obtained from our off-site analytical

laboratory for wells in the Well 1319 Area. Cimarron believes groundwater decommissioning is complete for this area.

Water levels in these wells were not collected during pumping because the airline and discharge tubing obstructed the well. Groundwater elevations were only recorded during sampling events. A table entitled, "Well 1319 Area Groundwater Elevations", included in Attachment 3, provides all groundwater elevation data recorded for wells in the area since the groundwater assessment began.

NRC Comment #2:
The licensee should provide additional water levels, groundwater flow directions, and total uranium analytical results since the September 2003 sampling event.

Cimarron Response:
Cimarron provided potentiometric surface maps in Figures 8, 9, and 10 for Sandstones A, B, and C, respectively, in "Assessment Report for Well 1319 Area". Those maps have been updated to include total uranium concentration for the September 2003 sampling event. Groundwater elevations were recorded for wells in the Well 1319 area during the December 2003, May 2004, and August 2004 sampling events. Sets of similar figures were created for each of these three events, presenting the potentiometric surface and groundwater flow directions for each of the three sandstone units. Total uranium concentrations are not shown on all figures because only Wells 1319B-1 and 1319C-1 were sampled during some events. Most of the wells in the area were sampled during the August 2004 sampling event, so figures for that event include total uranium concentrations for all wells in the Well 1319 Area that were sampled. These figures are included in this submittal as Attachment 4.

NRC Comment #3:
The licensee should evaluate the feasibility of estimating the drawdown and recovery rates from the historical pumpage at wells 1319B-1 and 1319C-1. These data should be compiled for any future pumpage of these wells. It may be possible to use these data to calculate aquifer parameters, hydraulic conductivity and storage. The aquifer parameters can then be used to estimate the impact of pumpage on the uranium plumes in Sandstones B and C.

Cimarron Response:
Cimarron evaluated the feasibility of estimating drawdown and recovery rates. Due to the extremely low flow rates achievable from these low-conductivity zones, estimates for these

parameters would have a high degree of uncertainty associated with them.

Historic aquifer tests provided approximate hydraulic conductivity information for the sandstones at the Cimarron site. Table 3.3 from "Site Investigation Report for the Cimarron Corporation Facility", submitted to NRC in September, 1989, reported hydraulic conductivity values for Sandstones A and C. The hydraulic conductivity for Sandstone A ranged from 2.34E-04 to 5.70E-03 cm/sec, based on the results of slug tests performed in 13 wells. The hydraulic conductivity for Sandstone C ranged from 1.59E-05 to 1.06E-03 cm/sec, based on the results of slug tests performed in four wells. Appendix E from "Burial Area #1 Groundwater Assessment Report", submitted to NRC in January 2003, reported hydraulic conductivity values for Sandstone B. The hydraulic conductivity for Sandstone B ranged from 5.5E-06 to 9.97E-04 cm/sec, based on the results of slug tests performed in four wells.

The groundwater plumes in Sandstones B and C were very small, and pumping appears to have removed groundwater exceeding the decommissioning criteria; samples from all wells in the area yield concentrations well below the license-stipulated limit. Consequently, Cimarron determined that it is no longer appropriate to develop more refined estimated values for these parameters.

NRC Comment #4:

The licensee should discuss the significance of the total uranium results (Table 2) for wells in each sandstone unit (that is, wells 1319-A1, 1319-A2, and 1319-A3 in Sandstone A; wells 1319-B1, 1319-B2, 1319-B3, 1319-B4, and 1319-B5 in Sandstone B; and wells 1319-C1, 1319-C2, and 1319-C3 in Sandstone C). For example, are the total uranium results for well 1319-A3 representative of Sandstone A background levels in the groundwater for total uranium? Also, explain the approximately 30 pCi/L increase in total uranium in well 1319-A2 from the June to the September 2003 sampling events. For the Sandstone B wells, are wells 1319-B2, 1319-B4, and 1319-B5 representative of the Sandstone B background levels in the groundwater for total uranium? For well 1319-B3, does the 60 pCi/L of total uranium in the groundwater represent contamination from well 1319? For the Sandstone C wells, explain the significance of the total uranium in the groundwater from wells 1319-C2 and 1319-C3.

Cimarron Response:

Cimarron has installed monitoring wells located upgradient from specific areas, such as BA#1, uranium ponds U-Pond #1 and U-Pond #2, and the Well 1319 plant area. Examination of these upgradient wells and the associated groundwater analytical data suggests that an estimate of

"background" total uranium for Sandstone A would be in the range of 1.4 to 11.3 pCi/L; for Sandstone B the estimated background uranium would be about 1.9 pCi/L; and for Sandstone C the estimated background for total uranium would be about 32 to 33 pCi/L. These estimates are based on upgradient well or wells that show no increase or decrease in total uranium concentrations since 1995. Total uranium concentrations in Sandstones B and C, inclusive of background, have already been reduced below the license criteria as demonstrated by the data provided in Attachment 1 (also see response above to Comment #3)

NRC Comment #5:

The licensee should discuss its plans for lowering the total uranium groundwater concentrations below the 180 pCi/L criteria in Sandstones B and C in this area. In this discussion, the licensee should consider its responses to comments 1 and 2 above and the figure entitled, "1319 On-Site Gross Alpha Trends", in Appendix B it is recommended that sampling all or most of the 11 wells in the Well 1319 Area be conducted during the November 2004 sampling event.

Cimarron Response:

Cimarron has already reduced total uranium concentrations in Sandstones B and C below the license criteria, as demonstrated by both gross alpha and total uranium concentrations in Wells 1319B-1 and 1319C-1. This data is provided in Attachment 1. Groundwater decommissioning is complete, and it is appropriate to transition from an environmental monitoring program to a post-decommissioning monitoring program for this area.

Page 14 of "Assessment Report for Well 1319 Area" stated, "Once groundwater assessment is complete site-wide, Cimarron will request a license amendment that will replace the existing environmental monitoring program with a post-decommissioning monitoring program." Cimarron now recognizes that there is no reason to wait until groundwater assessment is complete site-wide to initiate post-decommissioning monitoring for areas that already comply with license criteria. Cimarron plans to transition areas from environmental monitoring to post-decommissioning monitoring area by area, as decommissioning activities are completed.

Consequently, by separate submittal, Cimarron will request that license condition 27(b) be amended to incorporate a proposed post-decommissioning monitoring plan providing for continued groundwater monitoring in this area. The post-decommissioning monitoring plan will specify periodic sampling and analysis from Wells 1319B-1 and 1319C-1, as well as abandonment of other wells. Upon NRC approval of the post-decommissioning monitoring plan, Cimarron will remove

these wells from the environmental monitoring program.

Regarding further sampling of the Well 1319 Area, no groundwater sampling of the 1319 Area wells was scheduled for November 2004. However, Cimarron sampled the following wells associated with the Well 1319 Area during the last annual sampling event in August 2004 prior to receipt of your review comments dated November 24, 2004:

Sandstone A	Sandstone B	Sandstone C
1319A-1	1319B-1	1319C-1
1322	1319B-3	1323
1326		1328
1327B		
1329		
1330		

Gross alpha and total uranium (off site laboratory) results for the August 2004 sampling event are reported in Attachment 1.

NRC Comment #6:
The licensee should recommend to the NRC which wells will replace well 1319 in the Environmental Monitoring Program.

Cimarron Response:
Wells 1319B-1 and 1319C-1 have already replaced former Well 1319 in the Environmental Monitoring Program. This change was approved by the ALARA committee in accordance with License Condition 27(e). The Environmental Monitoring Program will be replaced by the Post-Decommissioning Monitoring Program for the Well 1319 Area when the license is amended as discussed in the response to NRC Comment #5.

If you have questions or comments, please call me at 405-642-5152.

Sincerely,

Jeff Lux
Manager, Planning and Regulatory Compliance

cc: D. Blair Spitzberg, NRC Region IV
David Cates, DEQ

ATTACHMENT 1

1319 ON-SITE TRENDS

ENSR INTERNATIONAL

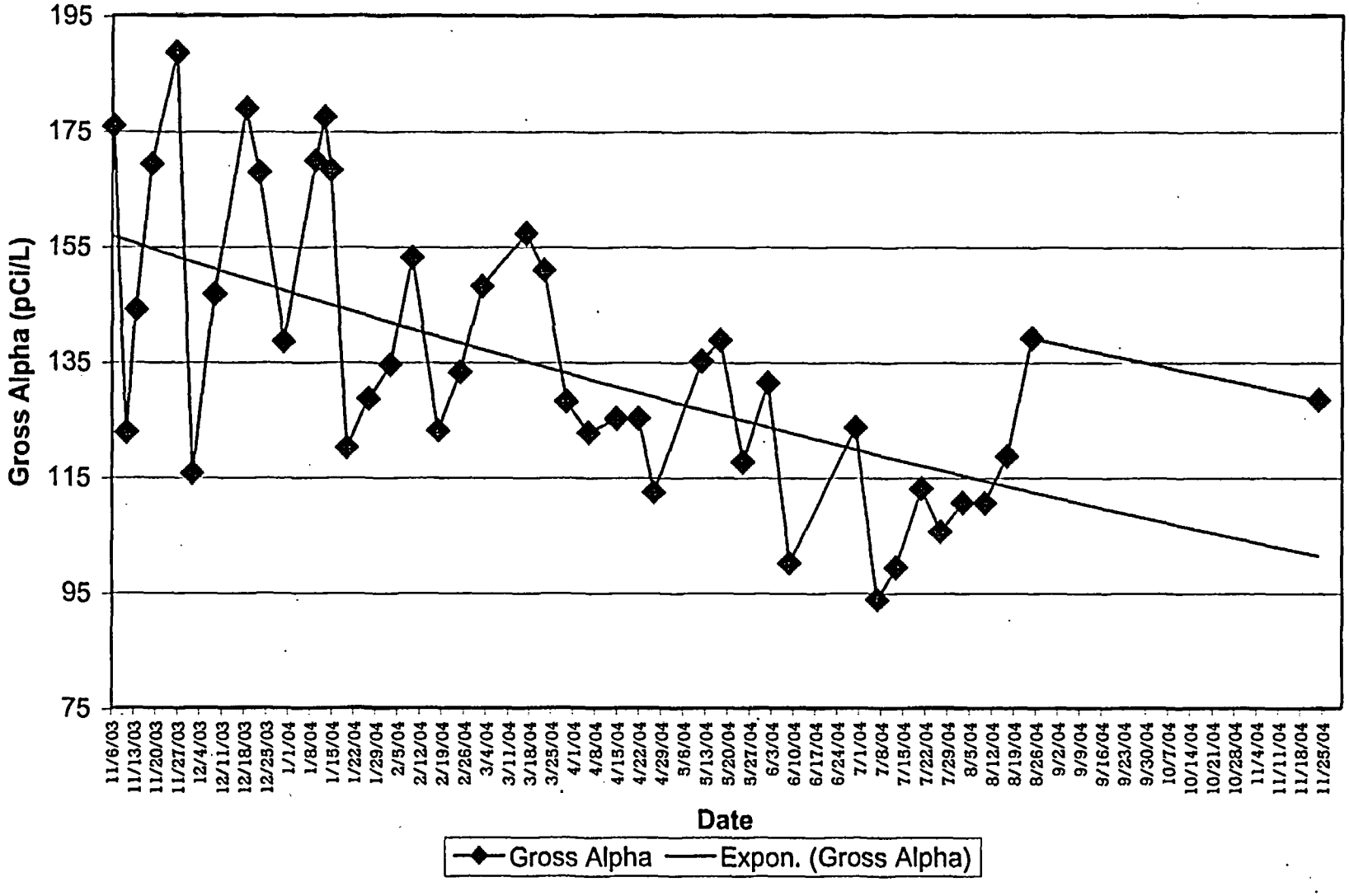
On-Site Analytical Results/Groundwater Removal
Well 1319 Area
Cimarron Project

WELL 1319B-1		
DATE OF ANALYSIS	On-Site Gross Alpha (pCi/L)	Cumulative Volume Pumped (gallons)
11/6/03	176	
11/10/03	123	
11/13/03	144	
11/18/03	169	
11/26/03	188	Pump Down 1 Week
12/1/03	116	
12/8/03	147	
12/18/03	179	Pump Down 1 Week
12/22/03	168	
12/30/03	138	
1/9/04	170	
1/12/04	177	
1/14/04	168	
1/19/04	120	
1/26/04	128	
2/2/04	134	
2/9/04	153	
2/17/04	123	
2/24/04	133	
3/2/04	148	
3/16/04	157	Pump Down 2 Weeks
3/22/04	151	226,477
3/29/04	128	
4/5/04	123	
4/14/04	125	Pump Down 24 hrs
4/21/04	125	264,277
4/26/04	112	
5/11/04	135	296,677
5/17/04	139	
5/24/04	118	
6/1/04	131	Pump Down 1 Week
6/8/04	100	
6/29/04	123	352,477
7/6/04	94	362,557
7/12/04	99	371,197
7/20/04	113	382,717
7/26/04	105	391,357
8/2/04	110	401,437
8/9/04	110	411,517
8/16/04	118	421,597 Pump down till after sampling event
8/24/04	139	Pump Down Annual Sample
11/23/04	128	Pump Down

WELL 1319C-1		
DATE OF ANALYSIS	On-Site Gross Alpha (pCi/L)	Cumulative Volume Pumped (gallons)
11/6/03	149	
11/10/03	110	
11/13/03	131	
11/18/03	208	
11/26/03	194	Pump Down 1 Week
12/1/03	129	
12/8/03	155	
12/18/03	145	Pump Down 1 Week
12/22/03	139	
12/30/03	155	
1/9/04	112	
1/12/04	78	
1/14/04	105	
1/19/04	137	
1/26/04	101	
2/2/04	126	
2/9/04	134	
2/17/04	105	
2/24/04	105	
3/2/04	97	
3/16/04	37	Pump Down 2 Weeks
3/22/04	69	296,145
3/29/04	68	
4/5/04	54	
4/14/04	73	Pump Down 24 hrs
4/21/04	107	341,505
4/26/04	63	
5/11/04	79	384,705
5/17/04	73	
5/24/04	47	
6/1/04	28	Pumping Stopped 427,905
7/1/04	28	
8/24/04	27	Annual Sample
11/22/04	28	Pump Down

ENSR INTERNATIONAL

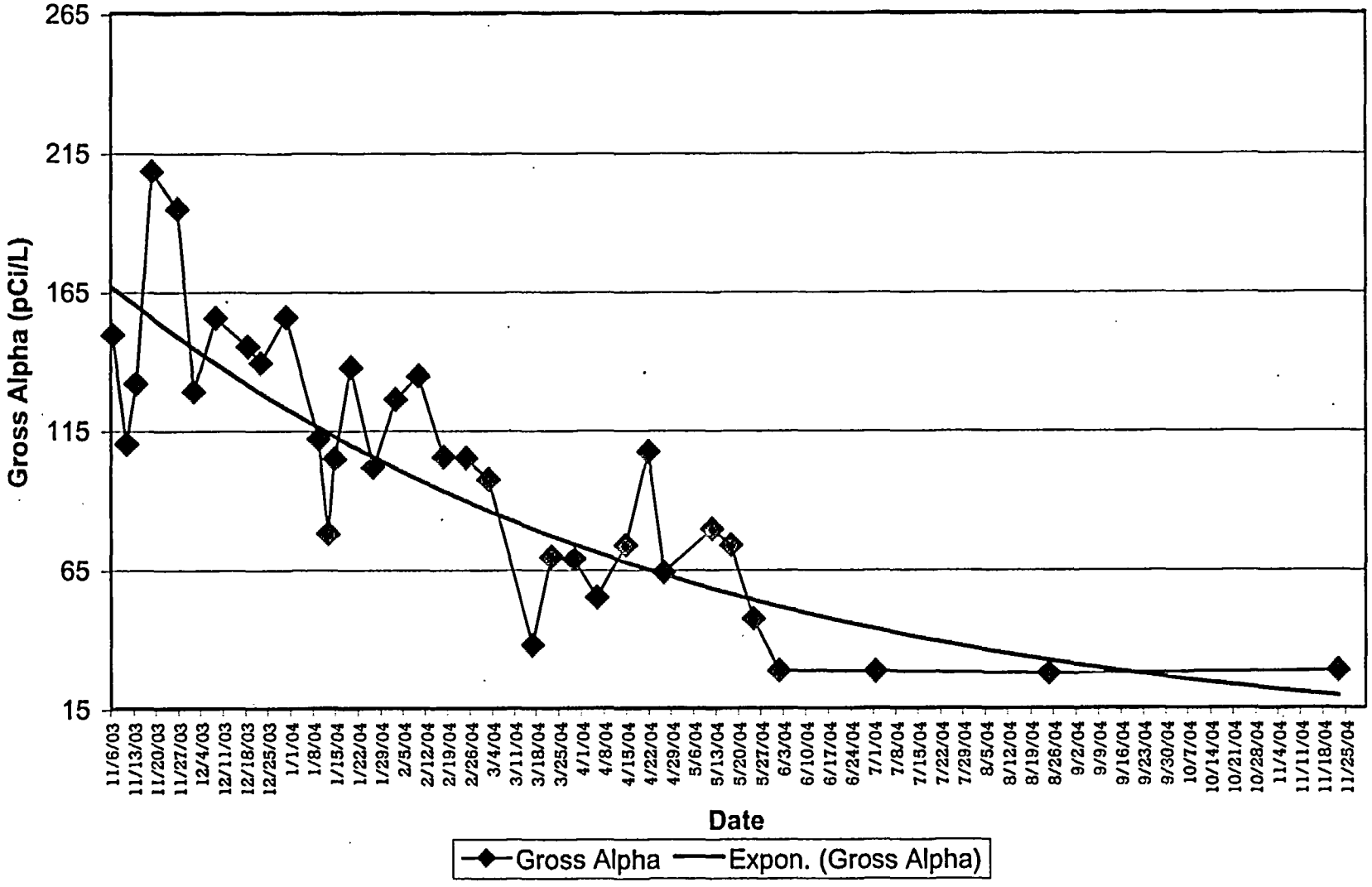
Well 1319 B-1 Concentration Trend
On-Site Alpha Results
Cimarron Project



Rev. 1
12/8/2004

ENSR INTERNATIONAL

Well 1319 C-1
On-Site Gross Alpha Results
Cimarron Project



Rev. 1
12/8/2004

ATTACHMENT 2

OFF-SITE LAB ANALYTICAL RESULTS
WELL 1319 AREA

ENSR INTERNATIONAL

Well 1319 Area Radiological Analytical Results
(Off-Site Laboratory)
Cimarron Project

Well	Date / Analysis (pCi/L)	Apr-03	Jun-03	Sep-03	5-Dec-03	18-Dec-03	2-Mar-04	16-Mar-04	May-04	Aug-04
1319A1	Total U Alpha Spec	53.19	48.01	11.59						19.605
	Gross Alpha	54.4	53.3	14.6						23.7
1319A2	Total U Alpha Spec	40.99		71.66						
	Gross Alpha	39.3		65.5						
1319A3	Total U Alpha Spec	15.836								
	Gross Alpha	16.4								
1319B1	Total U Alpha Spec	151.36	200.48	195.3	146.6	179.45	177.4	179.2	132.6	132.67
	Gross Alpha	152	151	229	170	182	172	185	117	140
1319B2	Total U Alpha Spec	3.209	1.8399	1.4806						
	Gross Alpha	1.12	1.98	4.67						
1319B3	Total U Alpha Spec	59.26	59.6	61.25						76.93
	Gross Alpha	62.5	54.9	59.7						84.6
1319B4	Total U Alpha Spec		3.168	2.285						
	Gross Alpha		4.8	5.8						
1319B5	Total U Alpha Spec		2.3101	1.3847						
	Gross Alpha		6.58	3.24						
1319C1	Total U Alpha Spec	149.89	232.2	308.5	105.56	98.85	75.14	39.43	51.07	29.18
	Gross Alpha	150	225	250	28.9	59.7	70	40.4	41.3	25.7
1319C2	Total U Alpha Spec		29.21	33.42						
	Gross Alpha		23.9	20.3						
1319C3	Total U Alpha Spec		14.708	15.74						
	Gross Alpha		23.2	12.6						
1322	Total U Alpha Spec		10.114	12.653						14.861
	Gross Alpha		10.2	14.6						15.5
1323	Total U Alpha Spec		33.639	34.45						33.54
	Gross Alpha		30.4	19						31.7
1326	Total U Alpha Spec		5.752	6.493						6.474
	Gross Alpha		7.15	5.79						9.04
1327B	Total U Alpha Spec		3.685	3.774						4.009
	Gross Alpha		2.99	3.89						4.38
1328	Total U Alpha Spec		34.01	34.255				29.861		35.74
	Gross Alpha		17.9	33.5				20		34.9
1329	Total U Alpha Spec		4.9	5.158						5.033
	Gross Alpha		6.06	4.97						6.39
1330	Total U Alpha Spec		17.244	19.827						16.83
	Gross Alpha		13.5	16.6						13.9
1331	Total U Alpha Spec		93.68	139.56						82.21
	Gross Alpha		91.3	135						83.2
1332	Total U Alpha Spec		32.609							32.45
	Gross Alpha		26.9							29.8
1333	Total U Alpha Spec		23							15.12
	Gross Alpha		11.7							15.6
1334	Total U Alpha Spec	11.885	11.796	10.711						13.302
	Gross Alpha	9.24	9.05	8.49						18.3

ATTACHMENT 3

WELL 1319 AREA GROUNDWATER ELEVATIONS

ENSR INTERNATIONAL

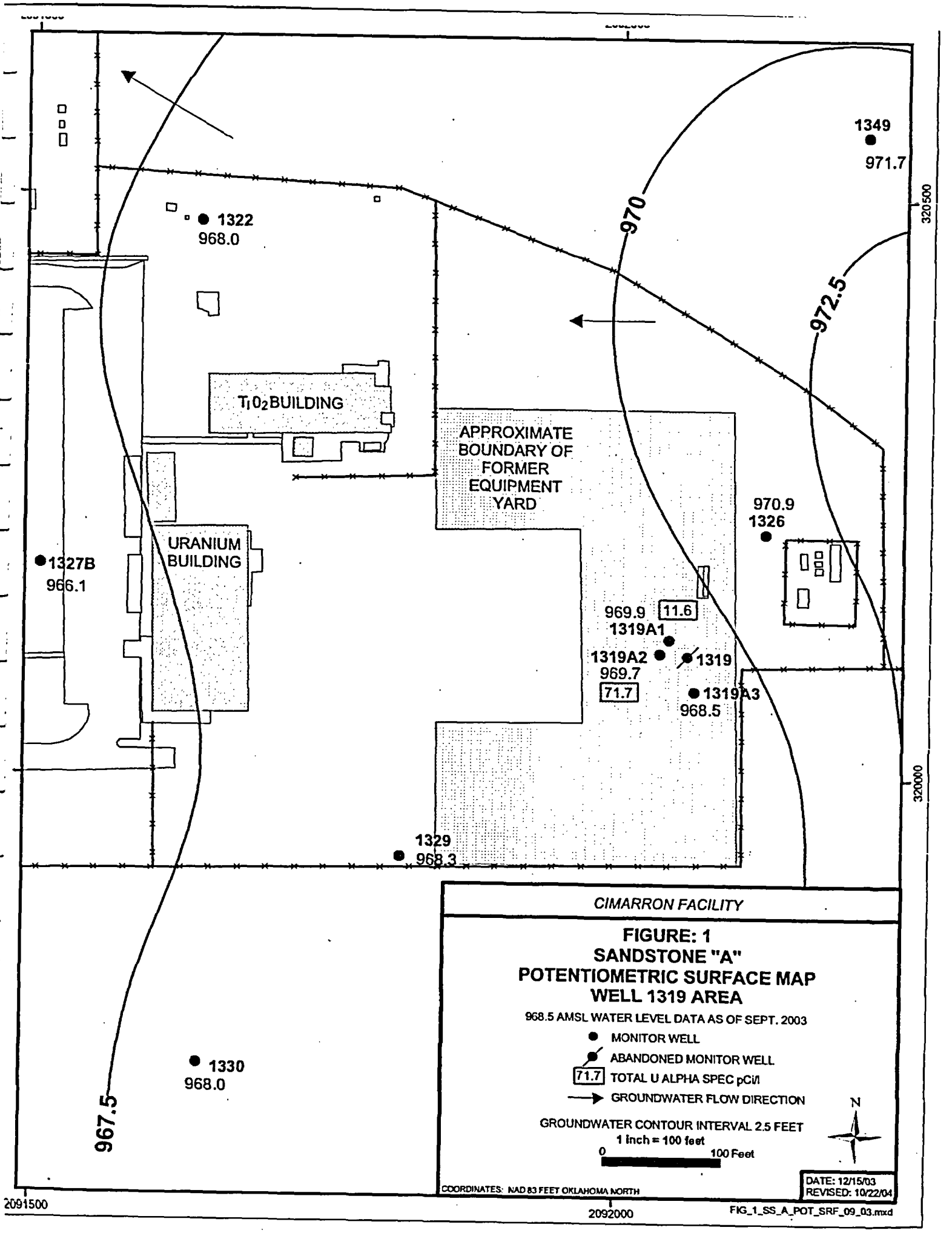
Well 1319 Area Groundwater Elevations
May/August '04 and Sept/Dec '03 Groundwater Sampling Events
Cimarron Project

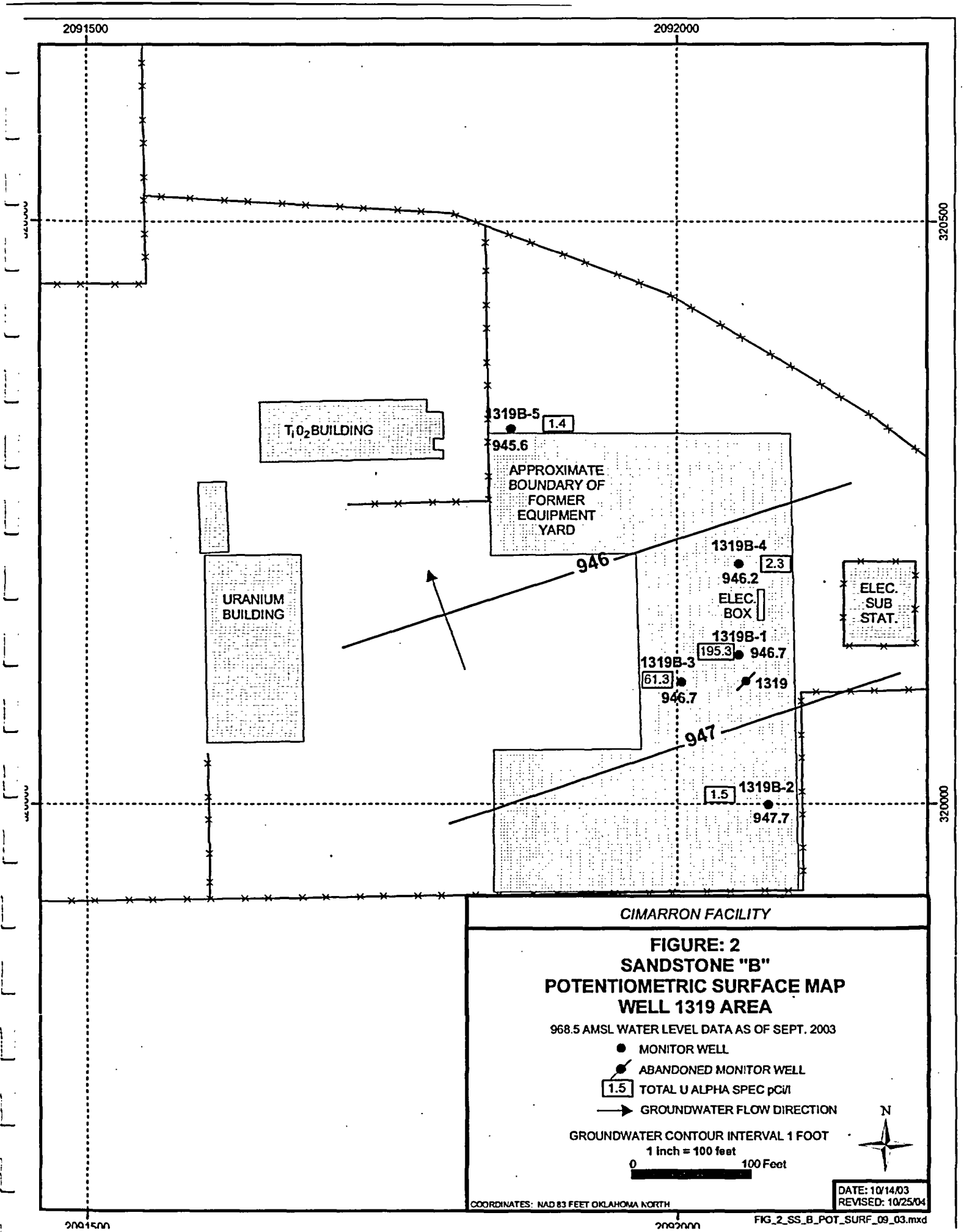
Well No.	Ground Elevation (AMSL)	Well Depth (FT)	Stick Up (FEET)	Water Elevation (AMSL) Aug. '04	Water Elevation (AMSL) May '04	Water Elevation (AMSL) Dec. '03	Water Elevation (AMSL) Sept. '03
1319 A-1	1008	42.1	2.2	970.37	969.88	969.63	969.9
1319 A-2	1008.1	42.2	2.3	-	969.79	969.49	969.7
1319 A-3	1008.3	42.1	2.2	968.45	968.35	968.56	968.5
1319 B-1	1008	82.3	1.9	948.35	-	947.13	946.7
1319 B-2	1009.5	82.1	2.1	949.44	950.06	948.25	947.7
1319 B-3	1009	82.1	2.3	948.37	949.02	947.12	946.7
1319 B-4	1007.3	83.2	2.4	947.84	948.54	946.52	946.2
1319 B-5	1008.1	85.4	2.6	946.24	947.37	944.87	945.6
1319 C-1	1007.4	121.9	2.2	946.01	-	943.81	942.3
1319 C-2	1008.4	122.9	2.4	941.94	941.5	940.69	939.8
1319 C-3	1006.5	118.5	1.9	941.07	940.85	939.78	939.1
1322	998.6	37.9	2.6	968.88	968.48	966.43	968
1323	998.9	129.6	2.7	943.61	944.19	942.49	941.8
1326	1006.5	45.1	3	971.73	971.54	970.49	970.9
1327 B	1006.2	51.8	2.2	966.95	966.63	965.55	966.1
1328	1006	137.8	2.6	951.31	-	950.79	948.9
1329	1005.9	47.8	2.6	968.69	968.62	967.97	968.3
1330	995.3	41.5	0	969.44	970.07	967.72	968
1331	975.3	25	2.4	966.59	966.63	965.3	965.8
1332	987.1	118.8	2	941.86	942.43	940.47	940
1333	986.8	34.8	2.5	968.78	969.03	967.16	967.9
1334	977.6	22.8	2.3	968.1	967.72	966.58	966.5

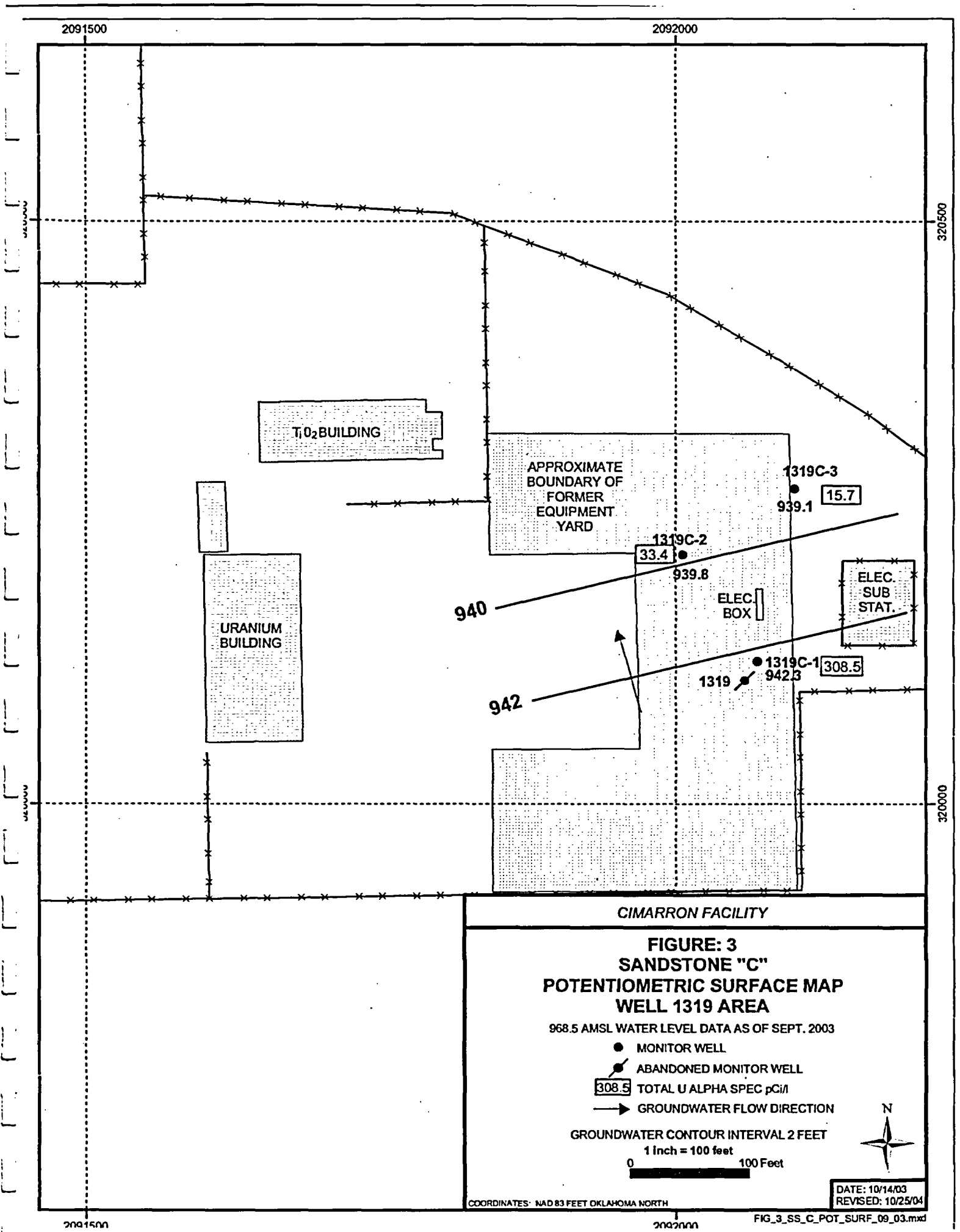
AMSL - "Above Mean Sea Level"

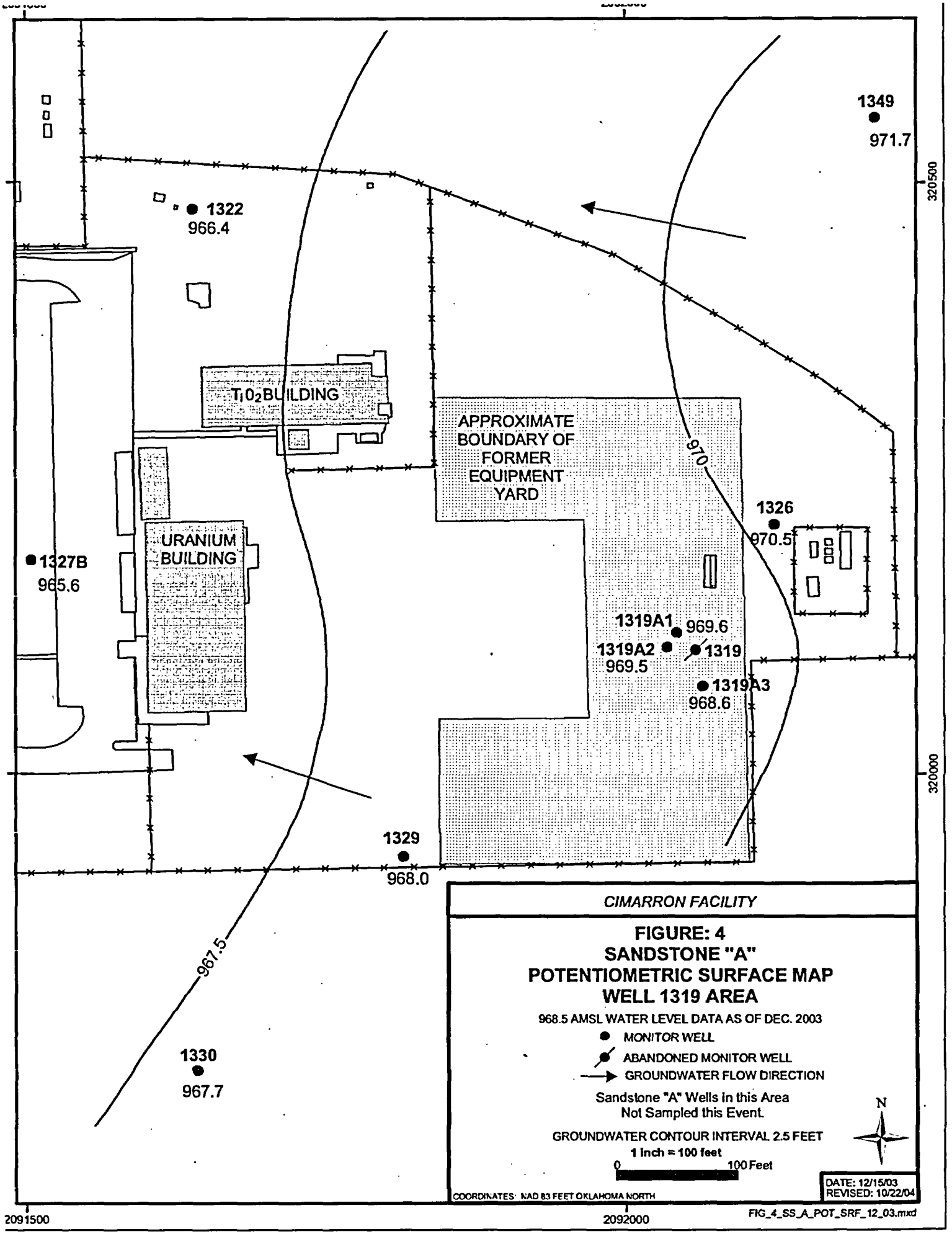
ATTACHMENT 4

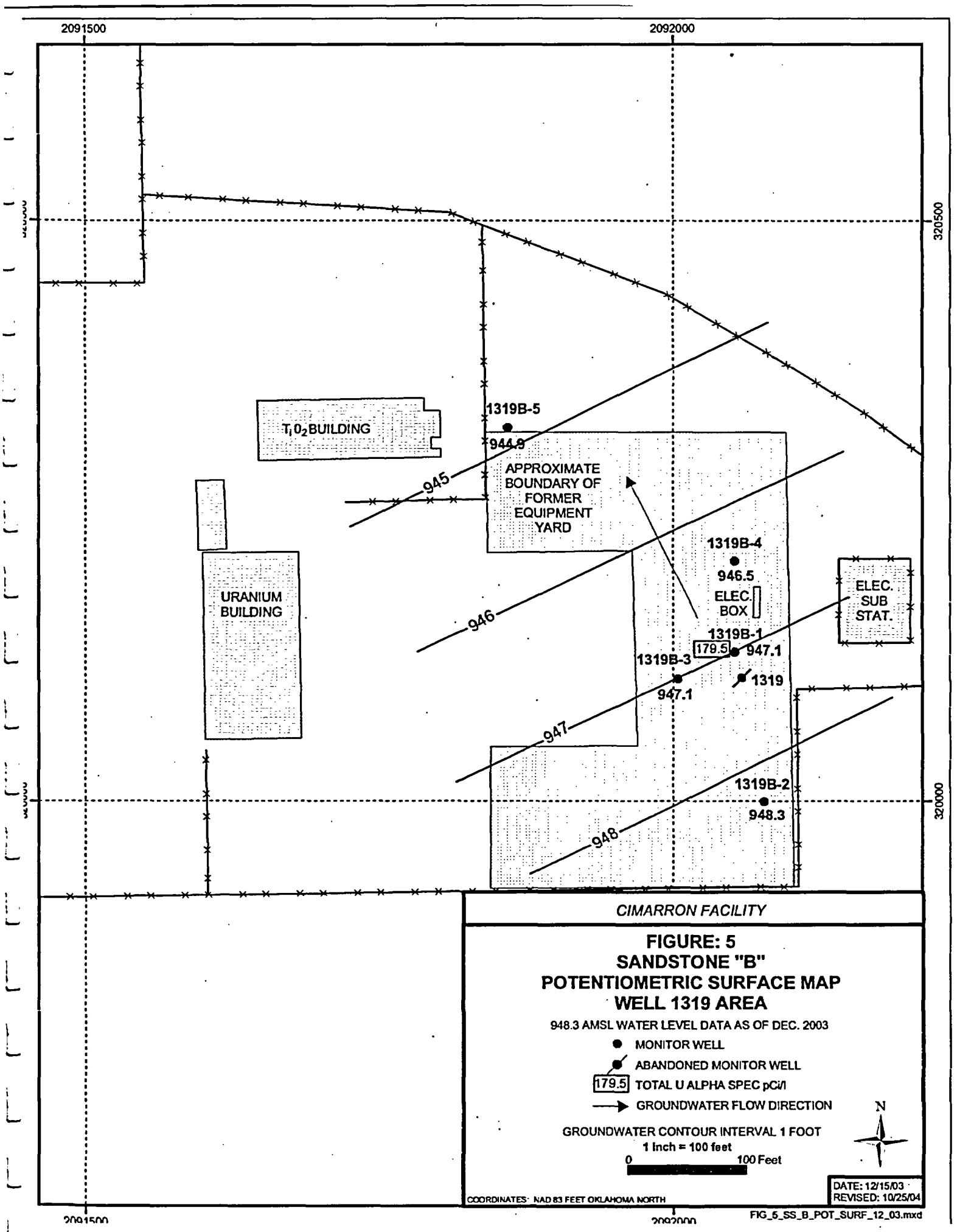
POTENTIOMETRIC/TOTAL URANIUM CONCENTRATIONS
(DEC. 2003, May 2004 and Aug. 2004)

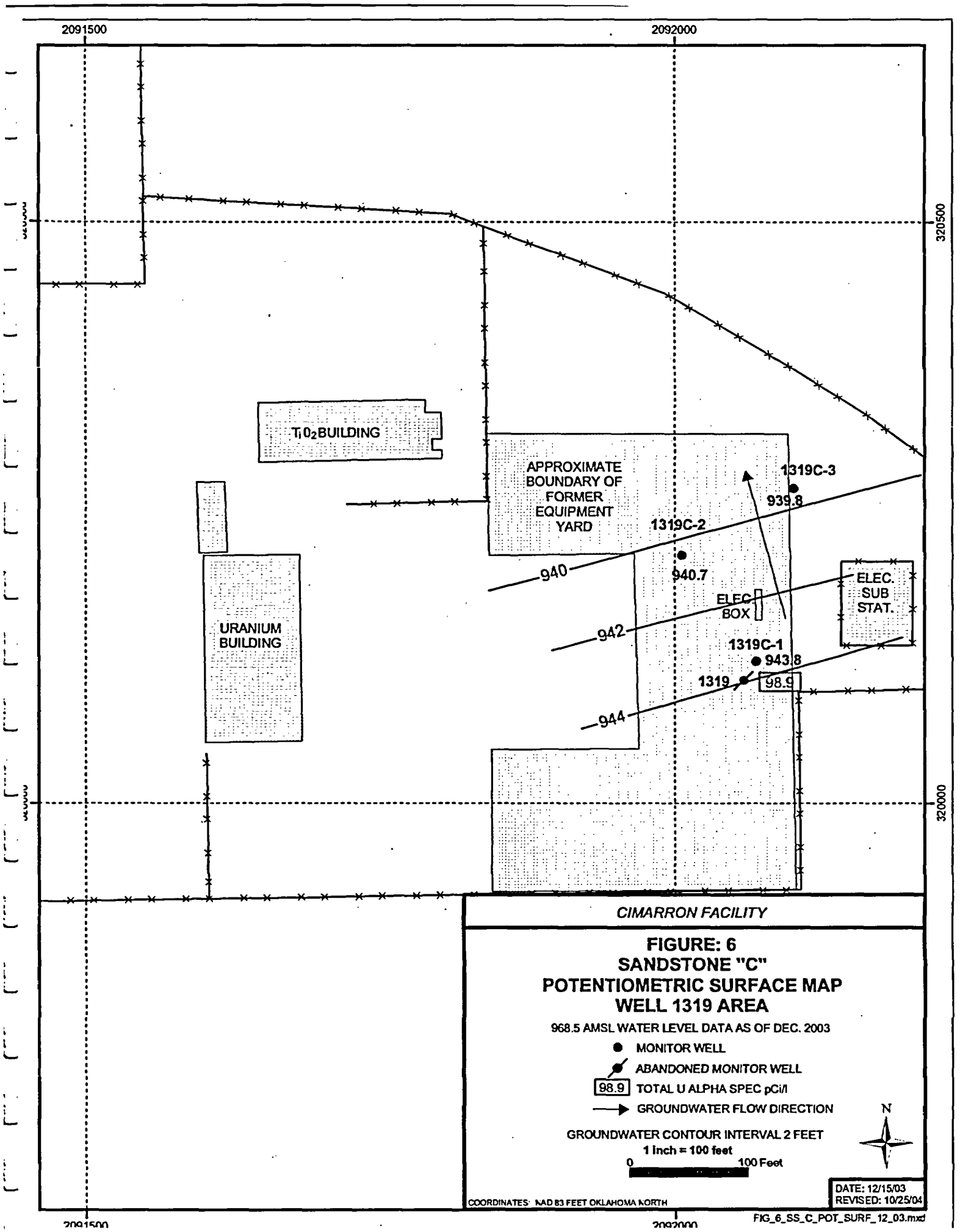

1349
971.7
1322
968.0
970
972.5
320500
$Ti0_2$BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
970.9
1326
URANIUM BUILDING
1327B
966.1
969.9
11.6
1319A1
1319A2
969.7
71.7
1319
1319A3
968.5
320000
1329
968.3
1330
968.0
967.5
2091500
2092000
CIMARRON FACILITY
FIGURE: 1
SANDSTONE "A"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
968.5 AMSL WATER LEVEL DATA AS OF SEPT. 2003
MONITOR WELL
ABANDONED MONITOR WELL
71.7 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 2.5 FEET
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 12/15/03
REVISED: 10/22/04
FIG_1_SS_A_POT_SRF_09_03.mxd

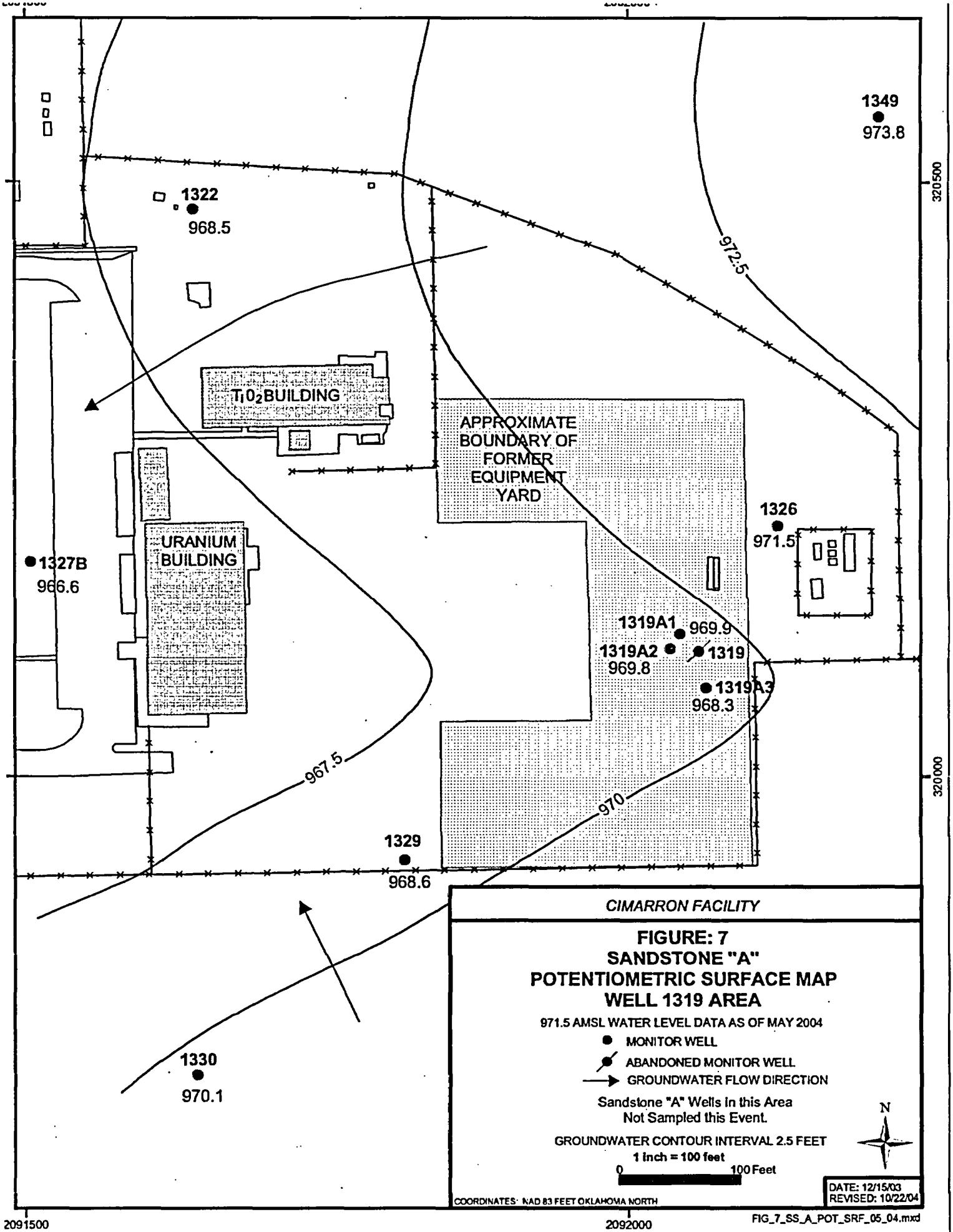

2091500
2092000
320500
320000
T_iO_2BUILDING
1319B-5
1.4
945.6
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
URANIUM BUILDING
946
1319B-4
2.3
946.2
ELEC. BOX
ELEC. SUB STAT.
1319B-1
195.3
946.7
1319B-3
61.3
946.7
1319
947
1.5
1319B-2
947.7
CIMARRON FACILITY
FIGURE: 2
SANDSTONE "B"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
968.5 AMSL WATER LEVEL DATA AS OF SEPT. 2003
MONITOR WELL
ABANDONED MONITOR WELL
1.5 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 1 FOOT
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 10/14/03
REVISED: 10/25/04
FIG_2_SS_B_POT_SURF_09_03.mxd

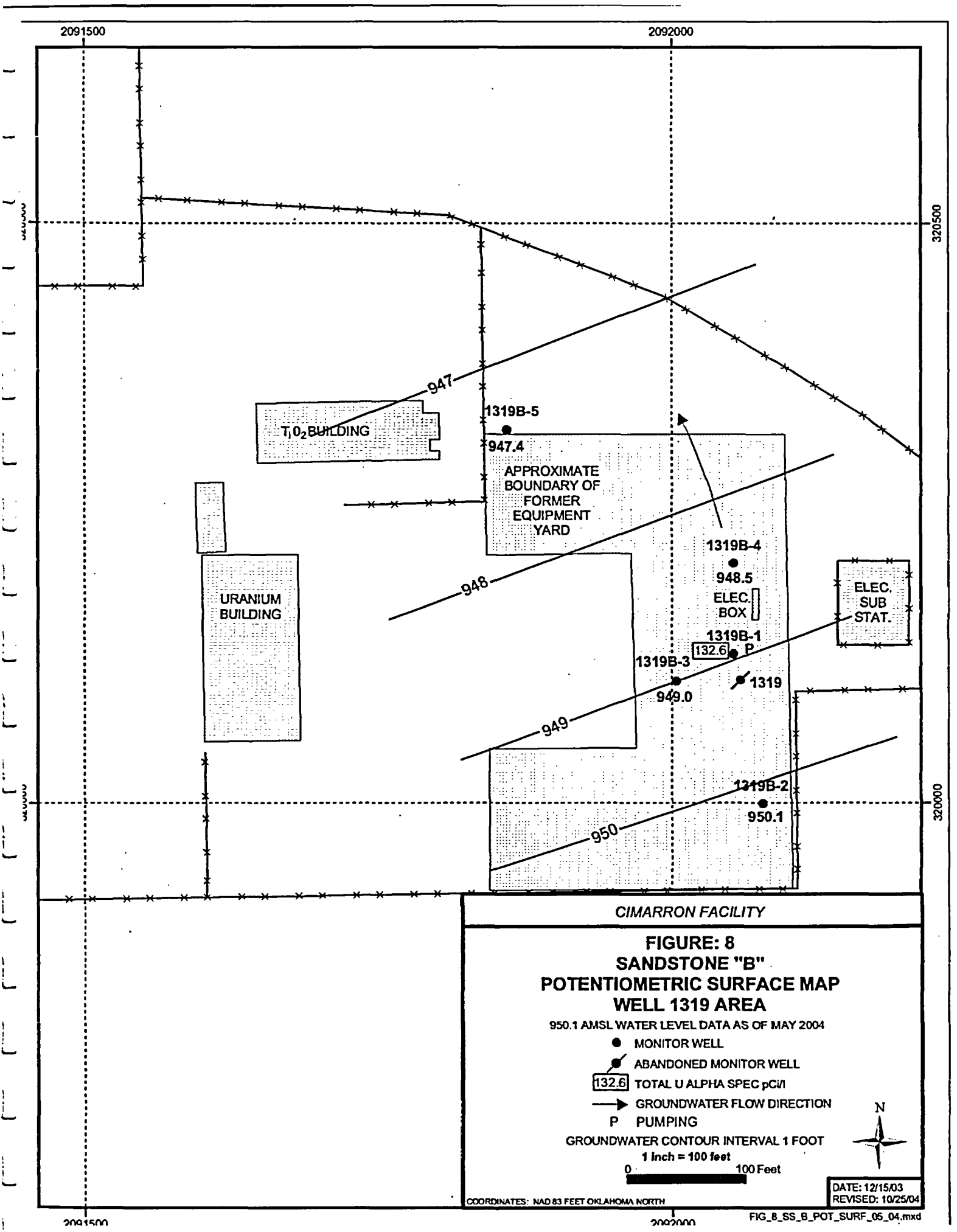

2091500
2092000
320500
320000
TiO_2 BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
URANIUM BUILDING
ELEC. BOX
ELEC. SUB STAT.
1319C-3
939.1
15.7
1319C-2
33.4
939.8
940
942
1319C-1
942.3
308.5
1319
CIMARRON FACILITY
FIGURE: 3
SANDSTONE "C"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
968.5 AMSL WATER LEVEL DATA AS OF SEPT. 2003
MONITOR WELL
ABANDONED MONITOR WELL
308.5 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 2 FEET
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 10/14/03
REVISED: 10/25/04
FIG_3_SS_C_POT_SURF_09_03.mxd


1349
971.7
1322
966.4
TiO_2 BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
970
URANIUM BUILDING
1327B
965.6
1326
970.5
1319A1
969.6
1319A2
969.5
1319
1319A3
968.6
1329
968.0
967.5
1330
967.7
320500
320000
2091500
2092000
CIMARRON FACILITY
FIGURE: 4
SANDSTONE "A"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
968.5 AMSL WATER LEVEL DATA AS OF DEC. 2003
MONITOR WELL
ABANDONED MONITOR WELL
GROUNDWATER FLOW DIRECTION
Sandstone "A" Wells in this Area
Not Sampled this Event.
GROUNDWATER CONTOUR INTERVAL 2.5 FEET
1 Inch = 100 feet
0
100 Feet
N
DATE: 12/15/03
REVISED: 10/22/04
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
FIG_4_SS_A_POT_SRF_12_03.mxd


2091500
2092000
320500
320000
T_i0_2 BUILDING
URANIUM BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
ELEC. SUB STAT.
ELEC. BOX
1319B-5
944.9
1319B-4
946.5
1319B-1
179.5
947.1
1319B-3
947.1
1319
1319B-2
948.3
945
946
947
948
CIMARRON FACILITY
FIGURE: 5
SANDSTONE "B"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
948.3 AMSL WATER LEVEL DATA AS OF DEC. 2003
MONITOR WELL
ABANDONED MONITOR WELL
179.5 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 1 FOOT
1 Inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 12/15/03
REVISED: 10/25/04
FIG_5_SS_B_POT_SURF_12_03.mxd


2091500
2092000
320500
320000
$Ti0_2$BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
URANIUM BUILDING
1319C-3
939.8
1319C-2
940.7
940
942
944
ELEC. BOX
ELEC. SUB STAT.
1319C-1
943.8
1319
98.9
CIMARRON FACILITY
FIGURE: 6
SANDSTONE "C"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
968.5 AMSL WATER LEVEL DATA AS OF DEC. 2003
MONITOR WELL
ABANDONED MONITOR WELL
98.9 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 2 FEET
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 12/15/03
REVISED: 10/25/04
FIG_6_SS_C_POT_SURF_12_03.mxd


1349
973.8
1322
968.5
972.5
$Ti0_2$BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
URANIUM BUILDING
1326
971.5
1327B
966.6
1319A1
969.9
1319A2
969.8
1319
1319A3
968.3
967.5
970
1329
968.6
1330
970.1
320500
320000
2091500
2092000
CIMARRON FACILITY
FIGURE: 7
SANDSTONE "A"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
971.5 AMSL WATER LEVEL DATA AS OF MAY 2004
MONITOR WELL
ABANDONED MONITOR WELL
GROUNDWATER FLOW DIRECTION
Sandstone "A" Wells in this Area
Not Sampled this Event.
GROUNDWATER CONTOUR INTERVAL 2.5 FEET
1 inch = 100 feet
0
100 Feet
N
DATE: 12/15/03
REVISED: 10/22/04
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
FIG_7_SS_A_POT_SRF_05_04.mxd



CIMARRON FACILITY

FIGURE: 8
SANDSTONE "B"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA

950.1 AMSL WATER LEVEL DATA AS OF MAY 2004

- MONITOR WELL
- ABANDONED MONITOR WELL
- 132.6 TOTAL U ALPHA SPEC pCi/l
- GROUNDWATER FLOW DIRECTION
- P PUMPING

GROUNDWATER CONTOUR INTERVAL 1 FOOT

1 inch = 100 feet

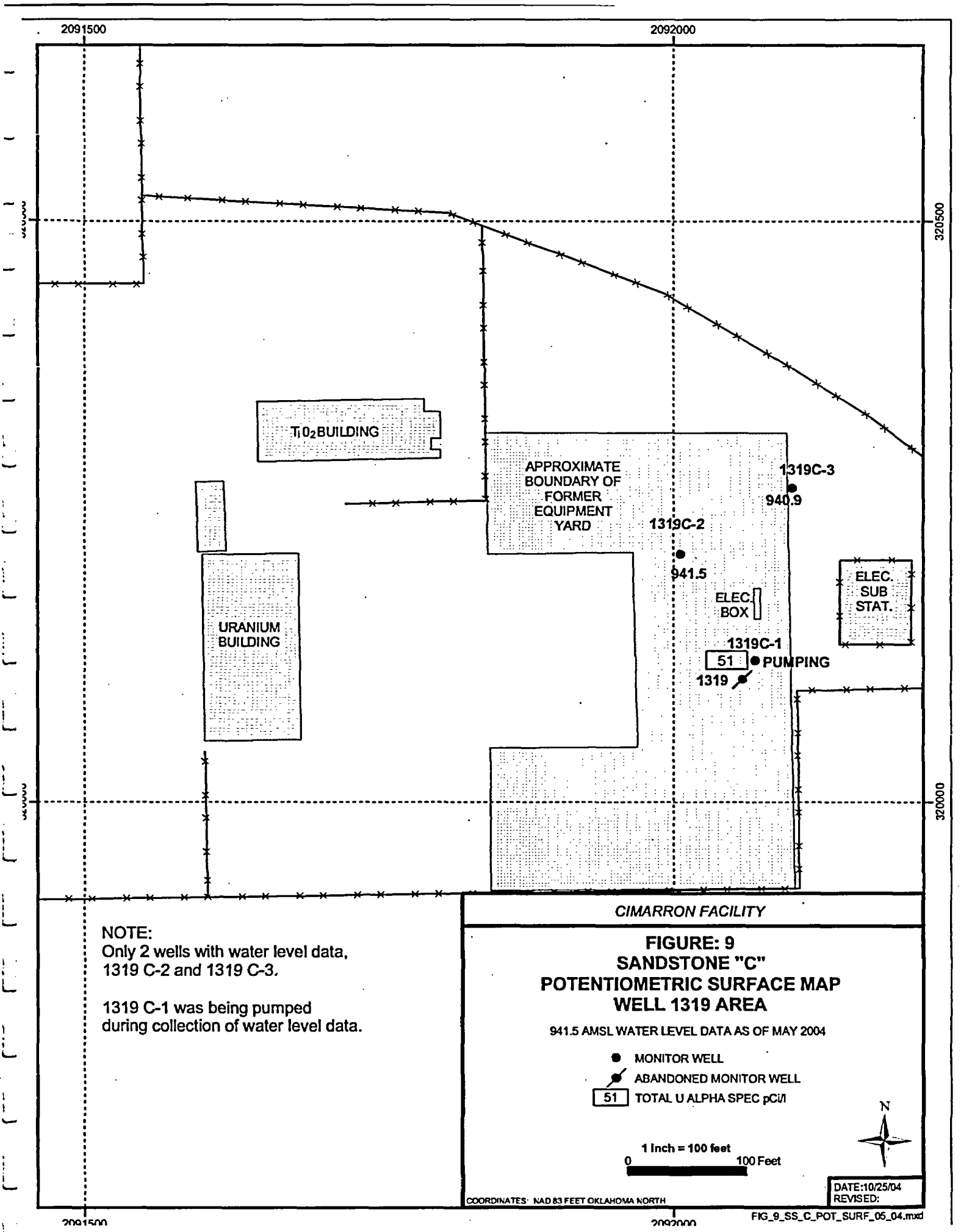
0 100 Feet

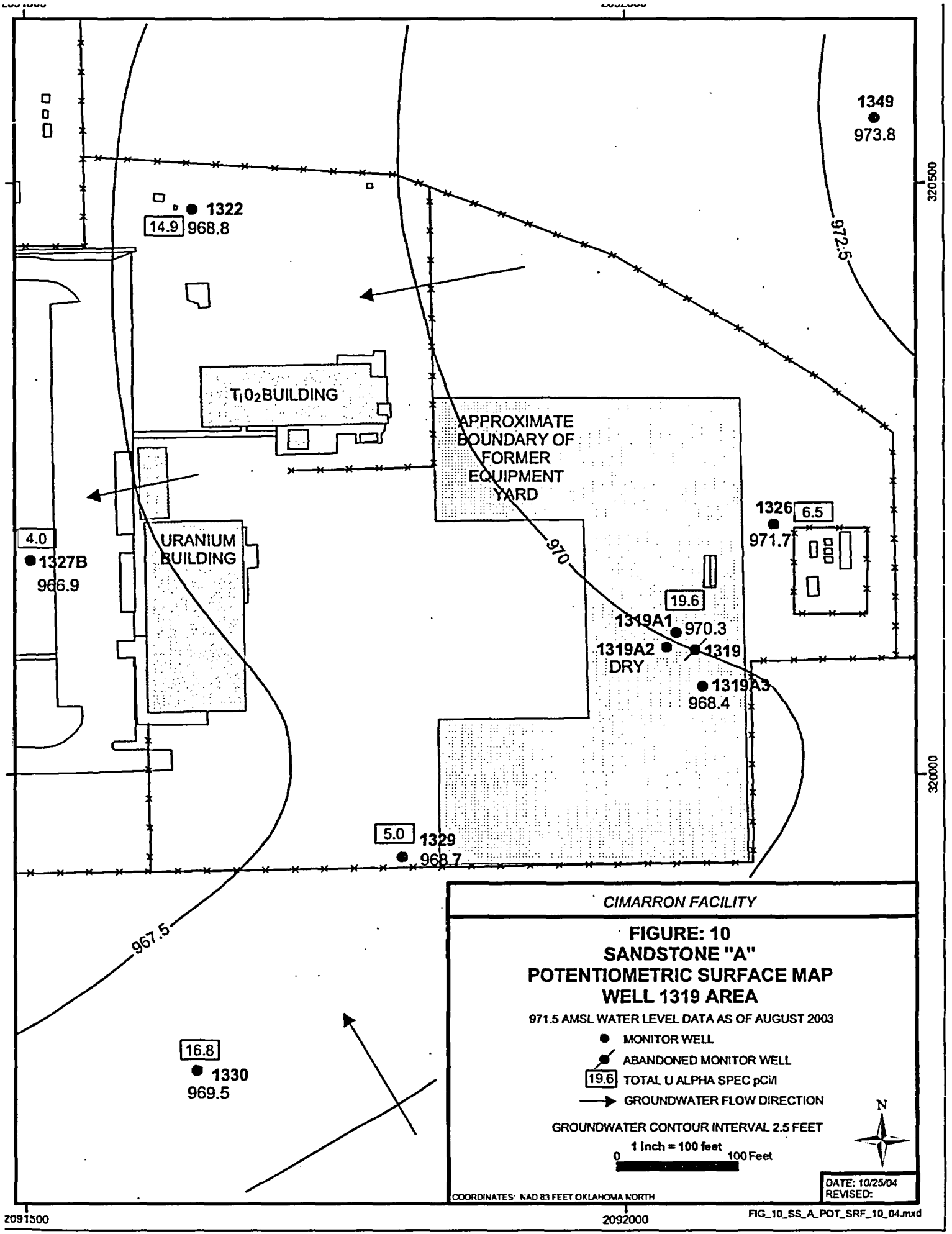
N

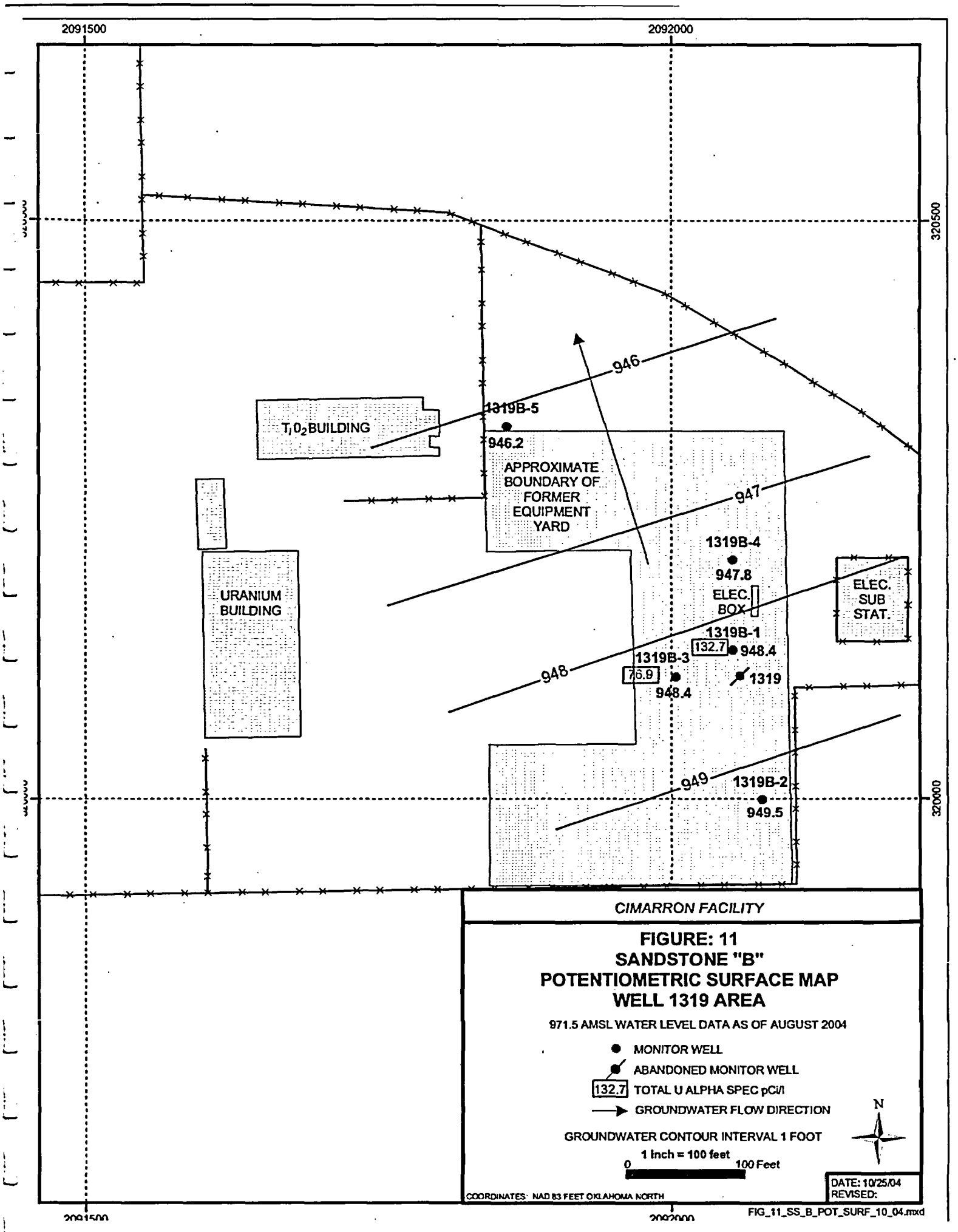
COORDINATES: NAD 83 FEET OKLAHOMA NORTH

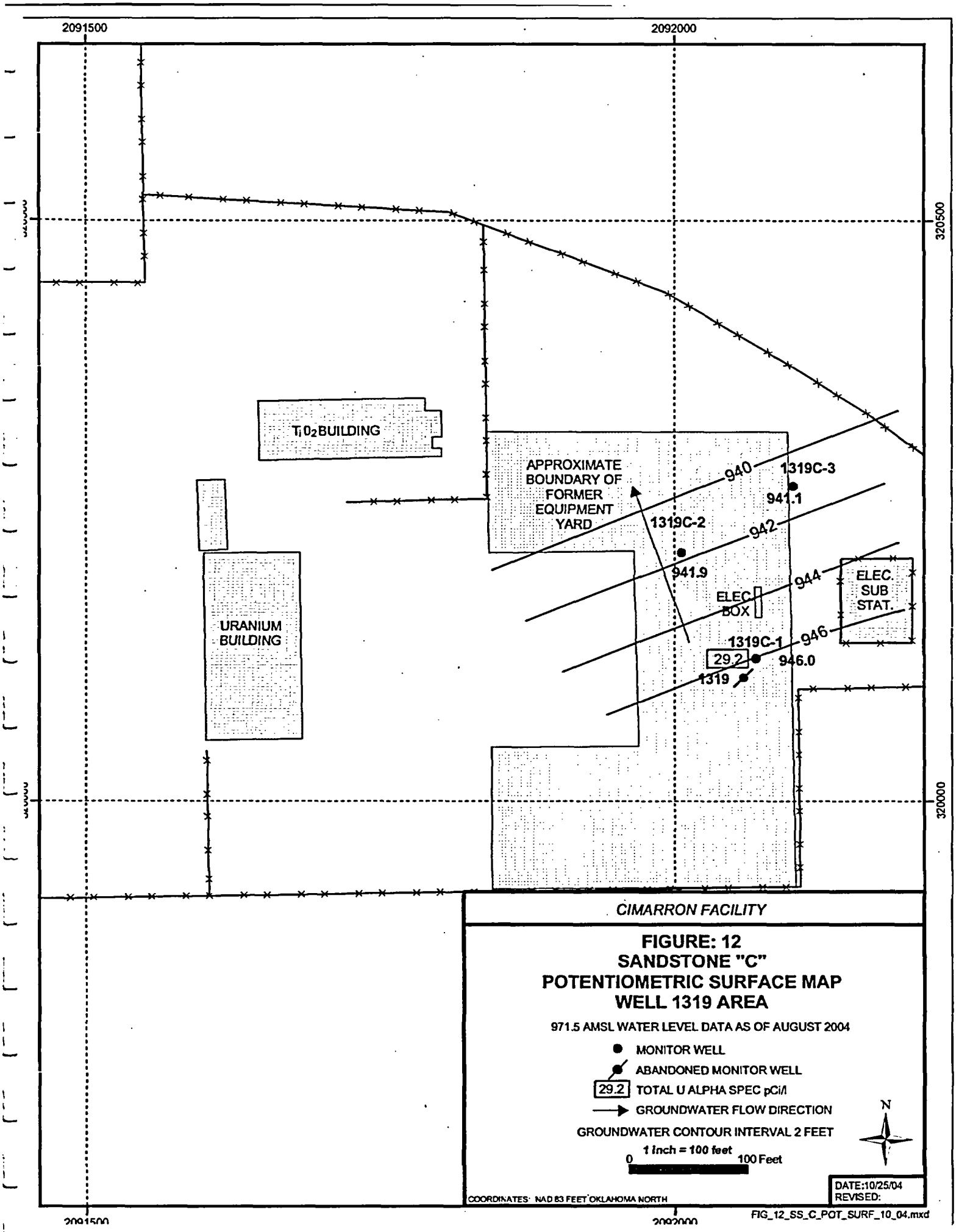
DATE: 12/15/03
REVISED: 10/25/04

FIG_8_SS_B_POT_SURF_05_04.mxd


2091500
2092000
320500
320000
$Ti0_2$BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
1319C-3
940.9
1319C-2
941.5
ELEC. BOX
ELEC. SUB STAT.
URANIUM BUILDING
1319C-1
51
PUMPING
1319
NOTE:
Only 2 wells with water level data, 1319 C-2 and 1319 C-3.
1319 C-1 was being pumped during collection of water level data.
CIMARRON FACILITY
FIGURE: 9
SANDSTONE "C"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
941.5 AMSL WATER LEVEL DATA AS OF MAY 2004
MONITOR WELL
ABANDONED MONITOR WELL
51 TOTAL U ALPHA SPEC pCi/l
N
1 Inch = 100 feet
0
100 Feet
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE:10/25/04
REVISED:
FIG_9_SS_C_POT_SURF_05_04.mxd


1349
973.8
1322
14.9
968.8
972.5
320500
$Ti0_2$BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
1326
6.5
971.7
4.0
1327B
966.9
URANIUM BUILDING
970
19.6
1319A1
970.3
1319A2
DRY
1319
1319A3
968.4
320000
5.0
1329
968.7
967.5
16.8
1330
969.5
2091500
2092000
CIMARRON FACILITY
FIGURE: 10
SANDSTONE "A"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
971.5 AMSL WATER LEVEL DATA AS OF AUGUST 2003
MONITOR WELL
ABANDONED MONITOR WELL
19.6 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 2.5 FEET
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 10/25/04
REVISED:
FIG_10_SS_A_POT_SRF_10_04.mxd


2091500
2092000
320500
320000
946
947
948
949
1319B-5
946.2
1319B-4
947.8
1319B-1
132.7
948.4
1319B-3
76.9
948.4
1319
1319B-2
949.5
T_iO_2 BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
URANIUM BUILDING
ELEC. BOX
ELEC. SUB STAT.
CIMARRON FACILITY
FIGURE: 11
SANDSTONE "B"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
971.5 AMSL WATER LEVEL DATA AS OF AUGUST 2004
MONITOR WELL
ABANDONED MONITOR WELL
132.7 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 1 FOOT
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE: 10/25/04
REVISED:
FIG_11_SS_B_POT_SURF_10_04.mxd


2091500
2092000
320500
320000
$Ti0_2$BUILDING
APPROXIMATE BOUNDARY OF FORMER EQUIPMENT YARD
URANIUM BUILDING
ELEC. BOX
ELEC. SUB STAT.
940
942
944
946
1319C-3
941.1
1319C-2
941.9
1319C-1
29.2
946.0
1319
CIMARRON FACILITY
FIGURE: 12
SANDSTONE "C"
POTENTIOMETRIC SURFACE MAP
WELL 1319 AREA
971.5 AMSL WATER LEVEL DATA AS OF AUGUST 2004
MONITOR WELL
ABANDONED MONITOR WELL
29.2 TOTAL U ALPHA SPEC pCi/l
GROUNDWATER FLOW DIRECTION
GROUNDWATER CONTOUR INTERVAL 2 FEET
1 inch = 100 feet
0
100 Feet
N
COORDINATES: NAD 83 FEET OKLAHOMA NORTH
DATE:10/25/04
REVISED:
FIG_12_SS_C_POT_SURF_10_04.mxd