SUMTER COUNTY
CLOSED CLASS I LANDFILL
WATER QUALITY EVALUATION REPORT
(QUARTER IV 2008 - QUARTER I 2011)

Prepared for:

SUMTER COUNTY
BOARD OF COUNTY COMMISSIONERS
Sumter County, Florida

Prepared by:

THE COLINAS GROUP, INC.
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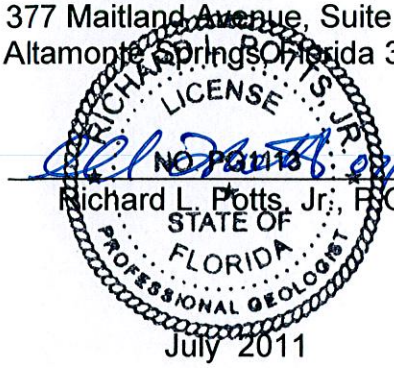

Richard L. Potts, Jr., P.G.

July 2011

THE COLINAS GROUP, INC.
HYDROGEOLOGISTS & ENGINEERS

July 28, 2011

Mr. John Morris, P.G.
Florida Department of Environmental Protection
13051 N. Telecom Parkway
Temple Terrace, Florida 33637

Subj: **Water Quality Evaluation Report**
(Quarter IV 2008 - Quarter I 2011)
Sumter County Closed Class I Landfill
Sumter County, Florida
FDEP Permit No. 22926-003-SF
WACS #53008
TCG Project No. P-452

Dear Mr. Morris:

On behalf of Sumter County Board of County Commissioners, The Colinas Group, Inc. (TCG) herewith submits one Electronic Data Deliverable and one (1) paper copy of the attached report prepared by TCG entitled:

Sumter County Closed Class I Landfill Water Quality Evaluation Report (Quarter IV 2008 - Quarter I 2011)

The report was prepared for Sumter County in accordance with the requirements of the Sumter County Closed Landfill FDEP Long-Term Care Permit. If you have any questions concerning the contents of the report please do not hesitate to contact our office at your convenience.

Very truly yours,
THE COLINAS GROUP, INC.

By: 7/28/11

Richard L. Potts, Jr., P.G.
Principal Consultant
Fl. P.G. Reg. No. 1113

cc: Mr. Jackey Jackson (Sumter County)
Ms. Denise Warnock (Sumter County)

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SUMTER COUNTY
CLOSED CLASS I LANDFILL
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(QUARTER IV 2008 – QUARTER I 2011)

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SUMTER COUNTY
CLOSED CLASS I LANDFILL
WACS ID No: SWD/60/53008
WATER QUALITY EVALUATION REPORT
(Quarter IV 2008 - Quarter I 2011)

1.0 INTRODUCTION

This report has been prepared to summarize and interpret groundwater quality and elevation data and trends at the Sumter County Closed Class I Landfill located in northern Sumter County, Florida. This report is intended to satisfy Specific Condition No. 21b of the Long-Term Care Permit (Permit No. 22926-003-SF) issued to Sumter County by the Florida Department of Environmental Protection (FDEP). The permit condition requires submission of an evaluation of the water quality monitoring data collected at the landfill for the period beginning the fourth quarter of 2008 and extending to the first quarter of 2011, inclusive. The report provides applicable information listed in rule 62-701.510(9)(b) of the Florida Administrative Code.

This report presents information from ten (10) sampling events that occurred at the Sumter County Landfill from Quarter IV (November) 2008 through Quarter I (February) 2011. Information presented in accordance with rule 62-701.510(9)(b) F.A.C. includes:

- Tabular and graphical data presentations that identify detected groundwater monitoring parameters, including water level hydrographs for each monitoring well;
- Analyses of apparent trends of detected parameters;
- Comparisons between up-gradient and down-gradient monitoring wells;
- Correlation between related parameters
- Discussion of erratic or poorly-correlated data;
- Interpretation of groundwater elevation contour maps and groundwater movement, and;
- Evaluation of the adequacy of water quality monitoring location and frequency.

The report presents an assessment of the effectiveness of the existing landfill design and operation as related to the prevention of ground water contamination, in accordance with Specific Condition No.21b of the FDEP Long-Term Care Permit.

2.0 GROUNDWATER MONITORING NETWORK

2.1 Groundwater Monitoring Wells

The groundwater monitoring network at the landfill consists of thirteen (13) total wells. Of these, nine (9) are active groundwater monitoring wells and four (4) are used only as piezometers for water level measurement. Locations of wells, arrayed around the perimeter of the closed landfill, are shown on Figure 1.

Three (3) of the piezometers are former groundwater monitoring wells (**MW-1**, **MW-7** and **MW-9**) since converted to piezometer use. The remaining piezometer (**MW-2A**) was installed as part of Preliminary Contamination Assessment actions completed at the landfill in 2004.

Monitoring wells **MW-4A** and **MW-4B** were installed as part of Preliminary Contamination Assessment Actions in January 2006 and reported in the Preliminary Contamination Assessment Report (PCAR) for the landfill. The wells were added to the landfill monitoring plan in May 2006.

A summary of the groundwater monitoring network of wells is tabulated below:

Well ID	Use	Water Quality Data Availability	Well ID	Use	Water Quality Data Availability
MW-1	P	None	**MW-7**	P	None
MW-2	MW	QIV 2008 - QI 2011	**MW-8**	MW	QIV 2008 - QI 2011
MW-2A	P	None	**MW-9**	P	None
MW-4	MW	QIV 2008 - QI 2011	**MW-9A**	MW	QIV 2008 - QI 2011
MW-4A	MW	QIV 2008 - QI 2011	**MW-10**	MW	QIV 2008 - QI 2011
MW-4B	MW	QIV 2008 - QI 2011	**MW-11**	MW	QIV 2008 - QI 2011
MW-6A	MW	QIV 2008 - QI 2011			

Monitoring wells MW-6A and MW-8, situated along the eastern perimeter of the landfill appear to be located hydraulically up-gradient of the waste disposal area and are considered background monitoring wells as defined in Chapter 62-701, F.A.C.

2.2 Monitoring Parameters and Frequency

The groundwater monitoring network is sampled on a recurring quarterly basis. Analytical chemical parameters for the first three quarters of each year are listed in permit Specific Condition No.16c:

Aluminum	Fluoride	Nitrate
Ammonia, total	Gross alpha	Radium 226+228
Antimony	Iron	Silver
Cadmium	Lead	Sodium
Chloride	Manganese	Thallium
Chromium	Mercury	Total dissolved solids (TDS)

An expanded list of analytical parameters is required by permit Specific Condition No.16d during the fourth quarter of each year. The expanded list includes the above listed constituents plus the parameters listed in *40 CFR Part 258, Appendix I.*

3.0 WATER QUALITY SUMMARY

3.1 Field Parameters

Measurements of certain parameters are taken in the field by sampling personnel during sample collection. Field parameters measured include:

pH
Dissolved oxygen (DO)
Groundwater temperature
Specific conductance
Turbidity

These data are useful as indicators of monitoring well performance and sampling procedure as well as general water quality characteristics.

Test results for field parameters are summarized in Table I in Appendix I to this report. Results are taken from the Quarterly Groundwater Monitoring Reports submitted to the FDEP over the period Quarter IV (November) 2008 through Quarter I (February) 2011. Graphs of selected constituent concentrations over time at individual monitoring wells are presented in Appendix II.

pH
The range of pH values measured in groundwater from the monitoring wells is considered reasonably typical for groundwaters in west-central Florida. Groundwater produced by most of the monitoring wells is slightly acidic to slightly basic. Lower pH values are reported

for detection wells **MW-2**, **MW-9A** and **MW-11**. Higher values are reported for well **MW-4B**, ranging from pH of 8.20 to 9.34. Groundwater samples from upgradient monitoring wells **MW-6A** and **MW-8** were generally slightly basic.

Dissolved Oxygen (DO)

Groundwaters in Florida commonly contain dissolved oxygen at concentrations less than 20% of saturation. While in certain instances groundwater may contain higher levels of oxygen, concentrations in monitoring well samples above 20% saturation for a given temperature may indicate aeration of the water column in the well during sampling and potential loss by degassing of certain volatile organic compounds.

Field-measured DO concentrations in groundwater samples are plotted graphically in Appendix II. Four (4) monitoring wells (**MW-2**, **MW-4B**, **MW-6A** and **MW-8**) demonstrate consistent elevated DO concentrations above 20% saturation over the past ten quarterly sampling events. Highest DO levels are reported for upgradient monitoring well **MW-6A**. Dissolved oxygen concentrations in samples from the remaining monitoring wells were, with few exceptions, below 20% saturation.

Specific Conductance

Specific conductance measurements are plotted in Appendix II for the groundwater monitoring wells at the landfill. As shown, specific conductance varies somewhat between monitoring wells and is relatively consistent at each well over the period of record. Highest specific conductance is routinely reported for detection well **MW-9A**.

Groundwater Temperature

For the most part, the temperatures reported for groundwater samples appear consistent between wells and between sampling event data sets. Groundwater temperatures varied from season to season through a relatively small range.

Fluid Turbidity

Turbid groundwaters do not occur naturally in most Florida aquifers. Relatively low hydraulic gradients and resultant laminar flow conditions are not conducive to sediment transport and, hence, natural groundwater turbidity is generally very low. Some exceptions may occur in cavernous portions of carbonate rocks where highly transmissive formations are at or near land surface.

Elevated turbidity in groundwater monitoring well samples generally result from very small particle sizes in screened-off formations and high fluid entrance velocities during sample withdrawal. Elevated turbidity levels may interfere with certain analytical laboratory tests and result in inaccurate parameter measurements. The FDEP recommends a maximum acceptable sample turbidity of 20 NTU, a relatively low turbidity level.

As indicated in Table I, fluid turbidity was measured and reported at values less than 20 NTUs in all ninety groundwater samples collected from facility monitoring wells over the monitoring period. Most turbidity measurements are reported at less than 10 NTUs.

3.2 Laboratory Analytical Parameters

Concentrations of monitoring parameters detected above laboratory method detection limits (MDLs) in groundwater samples from each of the monitoring wells are taken from monitoring reports submitted by Sumter County to the FDEP and summarized in Table II in Appendix I to this report. The summary for each of the monitoring wells includes quarterly sampling results for the period Quarter IV 2008 through Quarter I 2011.

The analytical results summary in Table II includes parameters that were detected at least one time in groundwater samples collected over the monitoring period. Analytical constituents that were never reported above laboratory MDLs are excluded. Analytical results shown in bold-face type indicate that the reported concentration exceeds the FDEP regulatory level for that specific parameter.

Table II includes laboratory results of analyses for twenty individual chemical and radiological parameters. Most of these parameters were detected by the laboratory at low concentrations, well below respective Groundwater Cleanup Target Levels (GCTLs) presented in Chapter 62-777, F.A.C. Seven of the twenty parameters were either consistently detected or exceeded regulatory levels during one or more sampling events at one or more monitoring wells over the monitoring period.

Graphic plots of field testing and laboratory analytical results for constituents regularly detected over the period of record in monitoring wells are presented in Appendix II. Constituent graphs include:

pH vs dissolved oxygen
Specific conductance vs total dissolved solids (TDS)
Sodium vs chloride
Aluminum
Manganese
Nitrate nitrogen
Gross alpha
Radium 226 and radium 228

Aluminum

Aluminum was detected in groundwater samples from each of the monitoring wells, consistently in some (**MW-4B, MW-9A** and **MW-10**) and sporadically in others (**MW-2** and **MW-8**). Aluminum concentrations regularly exceeded the FDEP secondary MCL at **MW-4, MW-4B, MW-9A, MW-10** and **MW-11**.

Chloride

Chloride concentrations in all wells are low and well below the MCL of 250 mg/l. Two wells, **MW-4** and **MW-4A**, produced samples with chloride notably higher than the other

monitoring wells, ranging from 21 mg/l to 39 mg/l over the period of record. Average chloride concentrations reported for these two wells (28.5 mg/l) is somewhat higher than at background wells and remaining detection wells.

Iron

Iron is consistently reported below the FDEP MCL of 300 ug/l in background well **MW-6A**, upgradient well **MW-8** and most of the other monitoring wells throughout the period of record. Iron concentrations slightly above the MCL are reported for detection well **MW-9A**. Higher iron values are generally reported for detection well **MW-10**.

Manganese

Manganese is generally either not detected or detected at very low concentrations at most monitoring wells. The exceptions are newer monitoring wells **MW-9A** and **MW-10**. Manganese is consistently reported at concentrations above the MCL of 50 ug/l at **MW-9A**. Manganese concentrations below the MCL are consistently reported at **MW-10**.

Nitrate Nitrogen

Nitrate nitrogen was reported just above the FDEP MCL (10 mg/l) in two of the samples collected from well **MW-4** (12 mg/l - 13 mg/l) and for most samples from **MW-4A** (11 mg/l to 12 mg/l). Although below the MCL, nitrate concentrations in background well **MW-6A**, upgradient well **MW-8** and remaining detection wells, excepting **MW-9A**, are reported at concentrations considered elevated above typical naturally-occurring levels of nitrate in groundwater.

Sodium

Sodium is reported in groundwater samples from most wells at very low concentrations generally between ranging from 3 mg/l - 12 mg/l. Background well **MW-6A** and upgradient well **MW-8** consistently produce similar low sodium values of around 10 mg/l and less. Wells **MW-4** and **MW-4A**, and to a lesser extent **MW-9A**, consistently produce sodium values markedly higher than the other monitoring wells. Sodium concentrations reported over the period of record at **MW-4** ranged from 40 mg/l - 53 mg/l, and at **MW-4A** from 26 mg/l - 29 mg/l, well below the Primary Drinking Water Standards MCL of 160 mg/l, but considered elevated for natural groundwater in the landfill area.

Total Dissolved Solids

TDS was measured slightly above the FDEP provisional MCL (500 mg/l) in seven of ten samples from **MW-9A**. TDS at background well **MW-6A**, upgradient well **MW-8** and wells **MW-2** and **MW-4B** is reported at less than 300 mg/l. TDS is reported somewhat higher at most other wells. Higher consistent TDS values are reported for **MW-4**, **MW-4A**, **MW-9A**, **MW-10** and **MW-11**. TDS values slightly exceeding the MCL are reported for **MW-9A**.

4.0 TREND ANALYSIS

Apparent trends of concentration versus time for selected parameters monitored in groundwater at the Sumter County landfill are depicted graphically for each currently active monitoring well in charts attached in Appendix II. Graphs of individual parameters include a trend line through the plotted data calculated by linear regression and depicting the orientation (increasing or decreasing) and the slope (magnitude of flux) of the data trend over time.

The trend analysis graphs indicate apparent trends of both increasing and decreasing concentrations of specific analyzed constituents over time at the landfill. Trends for specific parameters at specific monitoring wells are apparent.

Aluminum

Forecast trends for aluminum are increasing in some wells (**MW-4, MW-4B, MW-10** and **MW-11**) and decreasing in others. Larger absolute values for aluminum are reported for **MW-10** and **MW-11**.

Gross Alpha

Declining trends for gross alpha radioactivity are apparent at four monitoring wells (**MW-2, MW-4, MW-4A** and **MW-4B**), through both low and high relative values. Increasing low-value gross alpha trends are noted at upgradient wells **MW-6A** and **MW-8**. Increasing trends at higher values are apparent at wells **MW-9A, MW-10** and **MW-11**. Persistent test results exceeding the Chapter 62-777,F.A.C. Groundwater Cleanup Target Level (15 pCi/l) are reported for **MW-11**.

Manganese

Increasing trends for manganese are noted at four wells (**MW-4A, MW-4B** and upgradient wells **MW-6A** and **MW-8**). As shown on the charts in Appendix II, values for manganese are very low at these wells. A trend of slightly increasing manganese at concentrations exceeding the MCL (50 ug/l) is noted for **MW-9A**. Trends at other wells are stable to declining over the monitoring period.

Nitrate Nitrogen

Nitrate nitrogen concentrations show an increasing trend in three of the nine monitoring wells over the period of record: The trend in nitrate values reported for **MW-4B** and **MW-10** are increasing over the period through a range of relatively low values as compared to background well **MW-6A** and the FDEP MCL of 10 mg/l; nitrate values at **MW-4A** increased slightly by 1 mg/l over the period. Trends at other wells were either stable (**MW-6A**) or declining over the monitoring period. Nitrate at **MW-4** exhibits a significant declining trend over the period with concentrations reported at or less than the MCL since May 2009.

5.0 CORRELATION OF RELATED PARAMETERS

The relationships between groundwater pH and dissolved oxygen (DO), specific conductance and total dissolved solids (TDS) and sodium and chloride are shown graphically on the Summary Charts presented in Appendix II for each monitoring well. As shown, consistent correlative trends between these parameters, either directly or inversely, are apparent over the reporting period.

Fluctuations in groundwater pH, although generally small, are apparent on graphs of pH vs.DO. Variations in pH values over the period of record are likely related to periods of rainfall and subsequent recharge to the groundwater monitoring zone at the landfill. Periods of relatively high groundwater recharge from rainfall tend to decrease pH in the monitoring zone near the top of the underlying limestone formation. Increasing pH probably reflects the effect of reduced recharge.

Conversely, DO concentrations in groundwater can be expected to increase during periods of high rainfall and decline during extended dry periods and reduced recharge. This inverse relationship is apparent at most of the landfill monitoring wells.

Specific conductance is plotted versus TDS for each of the monitoring wells. A direct correlation between the two parameters is noted for most of the monitoring wells. A poor correlation is noted for background well **MW-6A**.

Correlation of the typically associated constituents sodium and chloride is good at most monitoring wells, including wells **MW-4** and **MW-4A** which both report comparably higher values for these constituents as compared to other monitoring wells. Correlation at wells with lower values reported for sodium and chloride is less apparent.

6.0 COMPARISON OF MONITORING WELLS

Aluminum has been reported at concentrations above the Florida Secondary Drinking Water Standards MCL more than once at five monitoring wells. Correlation between groundwater sample turbidity and reported aluminum concentrations and comparison between individual monitoring wells is plotted on the Comparison Charts presented in Appendix III.

Correlation between turbidity and aluminum dissolved in groundwater is fair to poor at wells reporting relatively low concentrations of aluminum and good at wells reporting higher values (**MW-4, MW-4B, MW-9A, MW-10** and **MW-11**). Turbidity values reported over the period are relatively low and always below the FDEP recommended 20 NTUs.

Aluminum and sample turbidity data support the conclusion that aluminum concentrations in groundwater samples from the landfill monitoring wells are likely the result of naturally-

occurring clay minerals present in sediments penetrated by the wells. Deposits of clay minerals and residual clays derived from limestone weathering in Florida are chiefly composed of the hydrous aluminum silicates belonging to the kaolinite group of clay minerals.

Comparisons of selected constituent concentrations over time reported for monitoring well **MW-4** and nearby wells **MW-4A** and **MW-4B** are presented graphically on Comparison Charts in Appendix III. With the exception of aluminum, plots of the other parameters, groundwater pH, DO, specific conductance/TDS, sodium/chloride and nitrate nitrogen, illustrate a similarity in water chemistry between wells **MW-4** and **MW-4A**. Marked differences in concentrations of these constituents at **MW-4B** suggest a nearby source of fresh recharge from rainfall.

7.0 GROUNDWATER FLOW

Hydrographs, constructed from water level measurements taken over the reporting period, are presented for each monitoring well and piezometer in Appendix IV. The trend of seasonal rising and falling water levels in the wells is consistent across the 2-year data set and between individual monitoring wells and piezometers. The magnitude of water level fluctuations is remarkably similar between wells over the hydrograph period.

Groundwater contour maps have been prepared for each sampling event as part of routine monitoring and reporting requirements for the landfill. Copies of the contour maps for the period Quarter IV 2008 through Quarter I 2011 are included in Appendix V.

Generally, the contour maps depict relatively stable groundwater flow conditions over the reporting period. The maps consistently indicate local highs on the water table surface centered near background monitoring well **MW-6A** and monitoring well **MW-8** along the eastern margin of the closed landfill. Apparent groundwater flow is from these highs to lower groundwater levels toward the west and northwest of the closed landfill. Hydraulic gradients across the landfill site are very shallow, with generally less than 2 feet of head difference measured in wells along the eastern side (upgradient) and the western side of the landfill (downgradient).

Groundwater contour maps indicate the potential for local groundwater flow toward landfill compliance monitoring well **MW-4** from areas away from (outside the landfill zone-of-discharge) and to the west/northwest of the closed landfill waste disposal cells. A persistent localized low on the groundwater surface in the vicinity of **MW-4** appears on contour maps constructed since installation of newer wells **MW-4A** and **MW-4B**, installed as part of a Preliminary Contamination Assessment completed at the landfill in 2006.

Site-specific hydraulic conductivity, or permeability, test data are not available for the Sumter County closed landfill. Consequently, bulk groundwater velocity at the landfill cannot be estimated with any degree of confidence.

8.0 EVALUATION OF WATER QUALITY MONITORING REQUIREMENTS

The groundwater monitoring requirements specified in the FDEP Long-Term Care Permit for the Sumter County Closed Class I Landfill and the array of monitoring wells appear to allow for a good assessment of groundwater movement and water quality conditions at the facility. The current array of monitoring well locations around the perimeter of the closed waste disposal cell appears to be suitable to intercept groundwater containing contaminants generated by the closed waste disposal facility.

Evaluations of field and laboratory analytical data for the previous 2-year monitoring period indicate that current sampling procedures and field testing methods are suitable for the site and facility conditions. Water quality data appear consistent from sampling event to sampling event over the 2-year reporting period with relatively few spurious or suspect data.

9.0 GROUNDWATER MONITORING SUMMARY

Groundwater quality analytical and field-screening data produced from quarterly sampling events in the past indicate that the primary concern at the landfill is the persistent detection of nitrate nitrogen in groundwater samples from monitoring wells **MW-4** and **MW-4A** at concentrations exceeding the Florida Primary Drinking Water Standards Maximum Contaminant Level of 10 mg/l.

Monitoring well **MW-4** is situated at the edge of the zone-of-discharge established for the landfill and is considered a Compliance Well in accordance with Chapter 62-701, F.A.C. Nitrate concentrations reported for **MW-4** in this report ranged from 7.6 mg/l to 13 mg/l and exceeded the MCL in two of ten samples analyzed from Quarter IV 2008 through Quarter I 2011. Nitrate concentrations in groundwater at **MW-4** exceeded the MCL (10 mg/l) in the first two samples of the monitoring period and are reported at and less than the MCL in eight quarterly samples collected since May 2009. The most recent nitrate result for the well in February 2011 was reported at 8.1 mg/l. The forecast trend for nitrate at **MW-4** is declining over the monitoring period.

Nitrate concentrations reported for nearby PCAR well **MW-4A** ranged from 10 mg/l to 12 mg/l over the period of record. Nitrate exceeded the MCL in eight of ten groundwater samples from the well. Water level measuring data over the period of record indicate that well **MW-4A** is situated upgradient from **MW-4** with respect to groundwater movement in the monitoring zone. Trends of increasing nitrate in groundwater at **MW-4A** and, at lower sub-MCL values at nearby **MW-4B**, are apparent over the monitoring period.

Elevated nitrate levels in groundwater are consistently indicated at landfill background well **MW-6A** and upgradient monitoring well **MW-8**. Nitrate concentrations reported for these wells averaged 6.5 mg/l and 2.7 mg/l, respectively, over the 2-year period of record. These data indicate that groundwater with elevated nitrate nitrogen concentrations is moving beneath the landfill property from adjacent areas to the east historically used for intensive agricultural purposes. Trends in nitrate over the monitoring period are declining at **MW-6A** and **MW-8**.

Aluminum, iron and manganese are reported at concentrations exceeding respective Florida Secondary Drinking Water Standards MCLs for these constituents at some wells. Aluminum is typically reported above the MCL in five of the nine groundwater monitoring wells. Trends of increasing aluminum concentrations are noted in some wells and decreasing trends are noted in others.

Iron, commonly found in shallow groundwaters in Florida above the 300 ug/l Secondary MCL, is relatively low throughout the monitoring network. Iron is reported at concentrations just above the MCL in newer detection well **MW-9A** and at higher levels in newer detection well **MW-10**. Iron levels at **MW-10** declined over the monitoring period and were increasing at **MW-9A**.

Manganese is consistently reported above the Secondary MCL of 50 ug/l at detection well **MW-9A** over the monitoring period, reported at values ranging from 70.3 ug/l to 87.0 ug/l and averaging 78.2 ug/l in samples from **MW-9A**. A trend of declining manganese concentrations is apparent over the monitoring period.

Sodium and chloride concentrations in groundwater, while well below respective regulatory MCLs, appear to be elevated at monitoring wells **MW-4** and **MW-4A** when compared to background levels and concentrations reported for other wells at the landfill. Trends of stable to slightly declining sodium and chloride concentrations are generally noted throughout the network of monitoring wells over the 2-year period of record.

10.0 CONCLUSIONS AND RECOMMENDATIONS

1. The groundwater monitoring requirements specified in the FDEP Long-Term Care Permit for the Sumter County Closed Class I Landfill and the array of monitoring wells appear to allow for a good assessment of groundwater movement and water quality conditions at the facility. Evaluations of field and laboratory analytical data for the previous 2-year monitoring period indicate that current sampling procedures and field testing methods are suitable for the site and facility conditions. Water quality data appear consistent from sampling event to sampling event over the monitoring period with relatively few spurious or suspect data.

2. Nitrate concentrations in groundwater at **MW-4** exceeded the MCL (10 mg/l) in the first two samples of the monitoring period and are reported at and less than the MCL in eight quarterly samples collected since May 2009. The most recent nitrate result for the well in February 2011 was reported at 8.1 mg/l. The forecast trend for nitrate at **MW-4** is declining over the monitoring period. Nitrate levels at nearby well **MW-4A** increased slightly over the period at values just over the MCL.

3. Sumter County entered into a Model Consent Order (OGC Case No. 04-0131) with the Florida Department of Environmental Protection on March 17, 2004. Among other issues, the Model Consent Order identified historical exceedances of groundwater quality standards at landfill monitoring wells **MW-2** and **MW-4** and directed the County to complete Preliminary Contamination Assessment actions.

   Results of this Water Quality Evaluation Report indicate that nitrate nitrogen, a Florida Primary Drinking Water Standards constituent-of-concern at the landfill, no longer exceeds the Primary Drinking Water Standards MCL in samples collected from detection well **MW-2** and compliance well **MW-4**. With the sole exception of aluminum at **MW-2**, a naturally-occurring element found in sediments penetrated by monitoring wells at the landfill, no other monitored parameter exceeded its MCL or GCTL criterion in samples from these wells over the November 2008 - February 2011 monitoring period.

4. The Preliminary Contamination Assessment Report (PCAR) completed by Sumter County identified likely sources of nitrate dissolved in groundwater at compliance well **MW-4**, other than buried solid waste, to include several septic tank systems formerly located in the vicinity of the monitoring well. Water quality and groundwater level monitoring results presented in this 2-year evaluation continue to support the PCAR conclusions.

5. Groundwater contour maps prepared from quarterly water level measurements indicate a persistent, localized shallow water table gradient toward the landfill in the vicinity of monitoring well **MW-4, MW-4A** and **MW-4B**. Considering the very shallow hydraulic gradients at the landfill, the Florida Department of Environmental Protection (FDEP) has requested that Sumter County confirm apparent groundwater elevations in this area as supplemental information for the PCAR.

6. TCG recommends installation of two new piezometers in the vicinity of the above referenced monitoring wells for the purpose of confirming water table elevations near the northwest corner of the closed landfill. Recommended locations for the two new piezometers are shown on Figure 2 as **MW-4C** and **MW-4D**.

   The two new piezometers should be constructed using hollow-stem auger methods and installed and screened to similar depths as the nearby existing wells. To the extent practical, well screens should be set to intercept the same geologic formations screened-off in the existing wells. Continuous spit-spoon formation samples should

be collected through the monitoring zone to determine final depth setting of the screens for the new piezometers. Recommended construction design for the new piezometers is attached as Figure 3.

7. The new piezometers are intended to provide a means of refining groundwater elevations in the subject part of the landfill property. Given the relatively minor differences in construction cost, we recommend that the new piezometers be constructed in accordance with the requirements for groundwater monitoring wells at solid waste facilities (Rule 62-701.510, F.A.C.) and relevant rules contained in Chapters 62-520 and 62,522, F.A.C. to allow conversion of the piezometers for groundwater sampling purposes in the future if necessary.

8. Given the relatively small differences in water table elevations over the landfill property in general, and in the vicinity of monitoring well **MW-4** in particular, we recommend that Sumter County retain a Florida licensed professional land surveyor and mapper to survey and report top-of-casing elevations at each of the landfill's existing piezometers and monitoring wells. The same surveyor, using benchmarks established for the existing monitoring wells, should be retained to establish top-of-casing and land surface elevations at the two recommended new piezometers.

9. Following completion of piezometer installations and receipt of the surveyor's reports, one round of water level measurements should be completed and a groundwater contour map prepared for the closed landfill suitable for submission to the FDEP.

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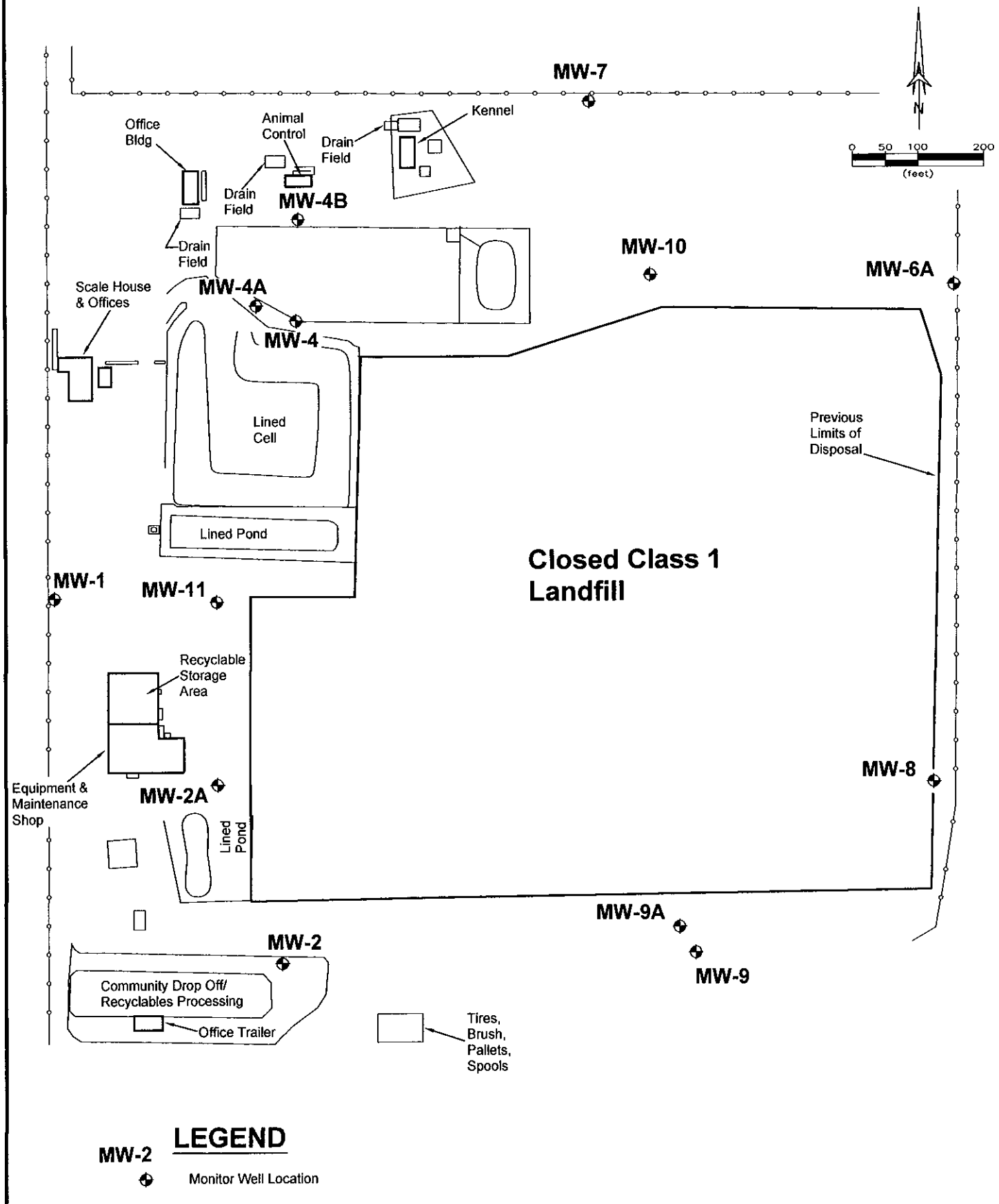
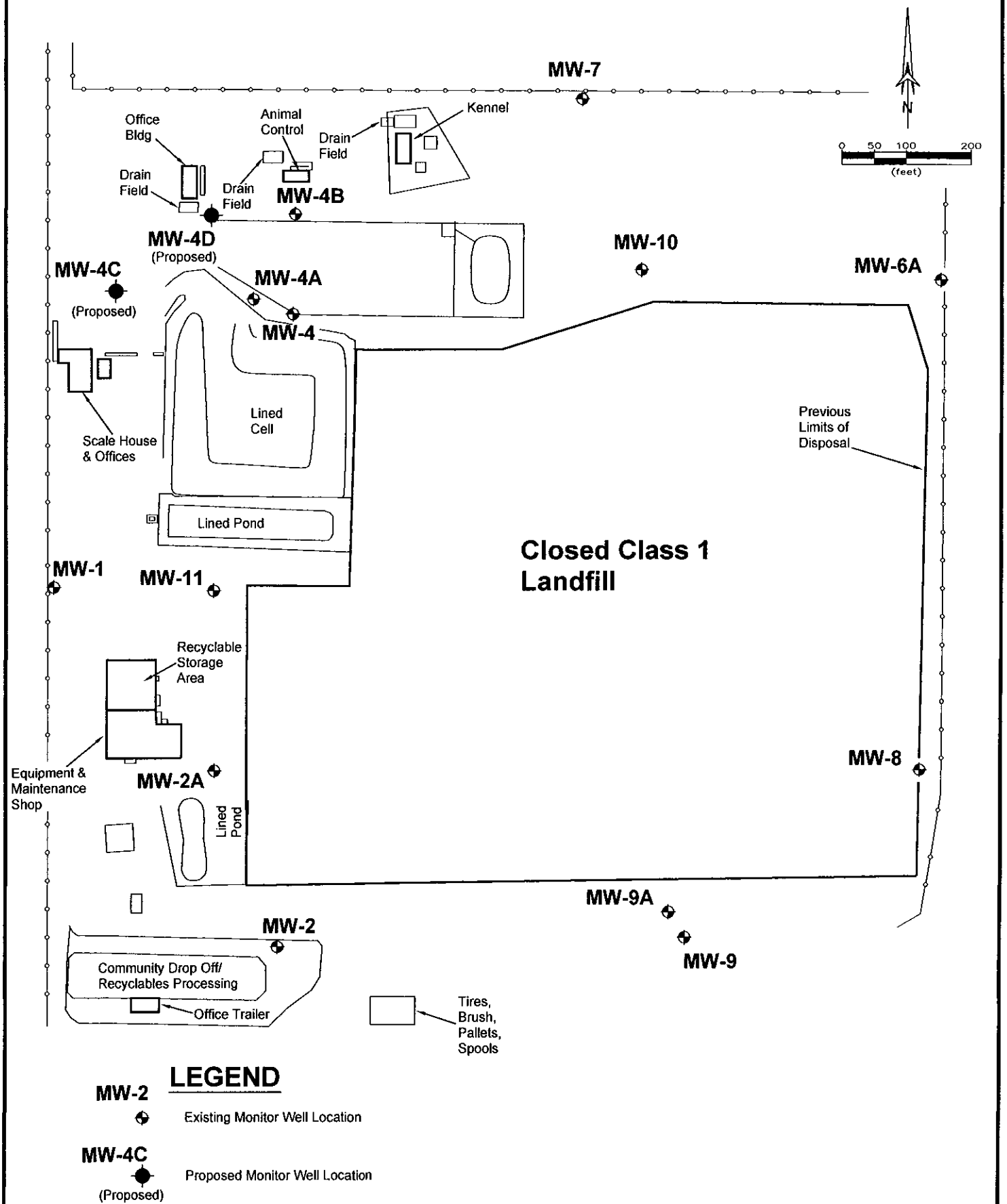
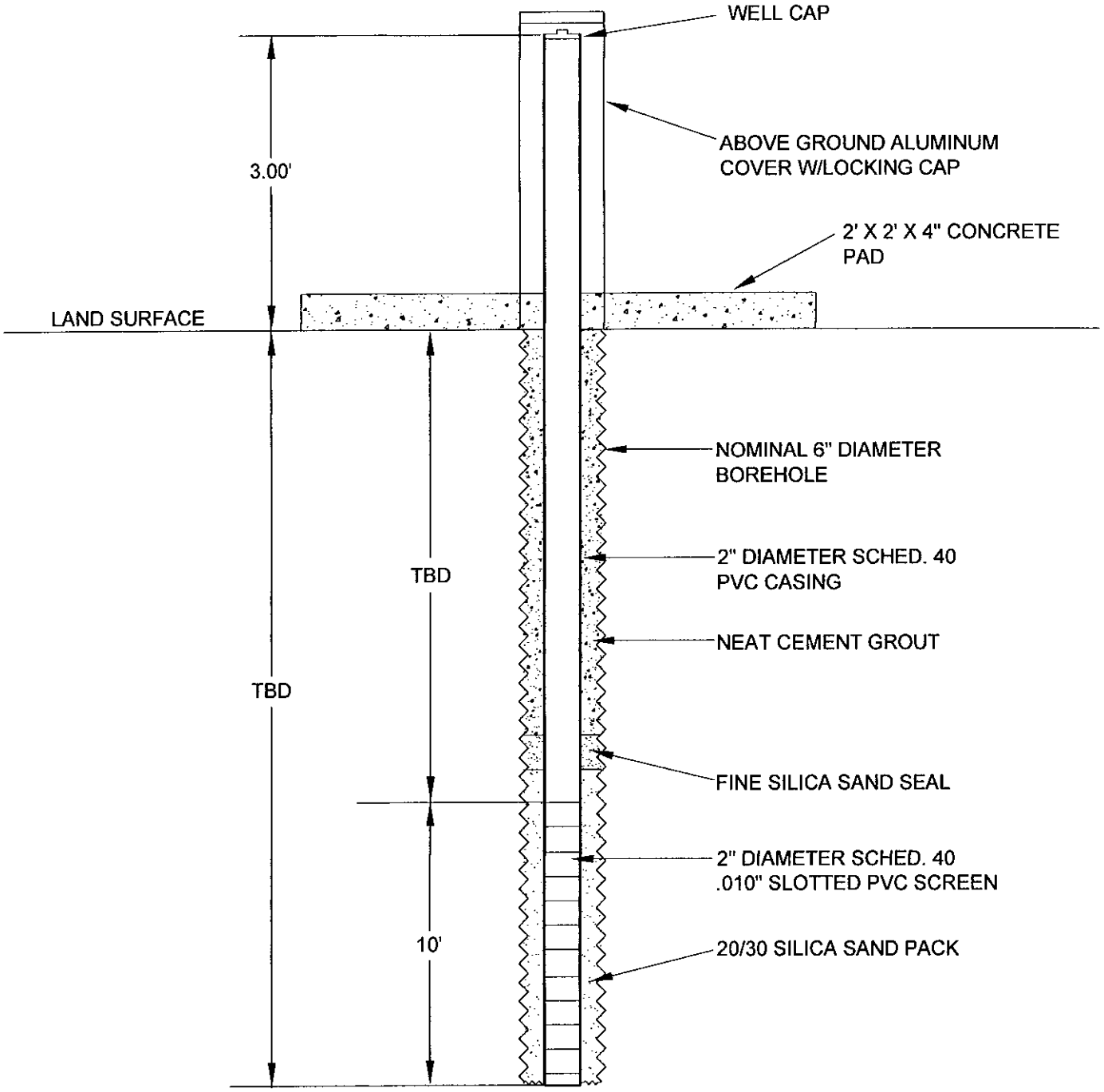


The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 ltamonte Springs, Florida 32701	PROJ. NO.: P-431 DATE: JUNE 2011 SCALE: 1" = 200'	MONITOR WELL LOCATION MAP SUMTER COUNTY LANDFILL	FIGURE 1



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-431 DATE: JUNE 2011 SCALE: 1" = 200'	PROPOSED MONITOR WELL LOCATION MAP SUMTER COUNTY LANDFILL	FIGURE 2

PROPOSED PIEZOMETERS
MW-4C & MW-4D



TBD = To be determined in the field

The Colinas Group, Inc. 377 Maitland Blvd Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-431 DATE: JULY 2011 SCALE: NOT TO SCALE	**MW-4C & MW-4D** **PROPOSED PIEZOMETER** **CONSTRUCTION DIAGRAM** **SUMTER COUNTY LANDFILL**	**FIGURE 3**

APPENDIX I

FIELD/LABORATORY TEST RESULTS

SUMMARY TABLES

TABLE I
FIELD PARAMETER RESULTS SUMMARY
SUMTER COUNTY (CLOSED) LANDFILL
SUMTER COUNTY, FLORIDA
2011 BIENNIAL REPORT (NOVEMBER 2008 - FEBRUARY 2011)

Parameter	Units	Sample Date	Location								
			MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Temp.	C	11/08	28.1	27.4	27.7	26.8	25.3	24.9	26.2	25.8	26.9
		2/09	27.80	27.40	27.60	27.00	25.30	25.30	26.50	25.80	27.20
		5/09	26.40	27.30	27.00	26.60	25.10	25.20	25.80	25.80	26.00
		8/09	27.2	26.7	27.2	26.7	25.2	24.6	25.9	25.1	26.1
		11/09	26.87	26.59	27.06	26.45	24.62	24.51	25.65	25.32	26.15
		2/10	26.22	26.57	26.30	25.83	24.62	24.13	25.20	24.69	26.02
		5/10	26.51	25.92	27.36	26.98	25.99	24.70	25.76	25.20	25.59
		8/10	27.44	26.37	26.71	27.32	25.37	24.8	25.39	25.35	25.53
		11/10	27.62	26.78	26.86	27.11	24.9	24.55	25.26	25.32	25.82
		2/11	25.66	26.54	26.52	26.12	24.4	24.12	25.03	25.2	25.69
Dissolved Oxygen	mg/L	11/08	**7.21**	0.89	1.20	**6.57**	**7.84**	**4.32**	0.27	0.63	1.02
		2/09	**5.47**	1.49	1.16	**6.68**	**9.28**	**4.86**	0.92	0.53	1.29
		5/09	**6.55**	1.35	1.11	**4.68**	**7.07**	**3.03**	1.06	1.52	1.07
		8/09	**4.55**	0.48	0.19	**5.86**	**6.11**	**3.87**	0.31	0.41	1.37
		11/09	**4.26**	1.37	1.05	**6.08**	**7.04**	**3.22**	1.31	**1.77**	**1.73**
		2/10	**4.42**	1.11	0.58	**5.05**	**6.68**	**3.56**	0.54	**1.98**	1.27
		5/10	**3.92**	0.71	0.23	**5.40**	**5.32**	**3.27**	0.05	1.11	1.31
		8/10	**6.23**	0.96	0.22	**5.84**	**7.99**	**3.70**	0.10	1.23	**1.92**
		11/10	**4.61**	0.54	0.20	**5.32**	**7.05**	**3.77**	0.32	1.42	0.74
		2/11	**5.72**	0.59	0.30	**4.02**	**7.04**	**4.56**	0.35	1.55	0.70
pH	su	11/08	**6.42**	7.28	7.18	**8.66**	7.73	7.18	6.55	6.65	**6.25**
		2/09	**6.29**	7.19	7.16	8.43	7.53	7.29	6.62	6.74	**6.17**
		5/09	6.69	7.01	6.96	8.20	7.41	7.03	6.52	6.67	**6.26**
		8/09	6.65	7.34	7.23	**9.26**	7.75	7.40	6.67	7.07	6.62
		11/09	7.20	7.11	6.99	**9.34**	7.80	7.03	6.52	6.83	**6.47**
		2/10	6.81	7.21	7.00	**9.13**	7.79	7.19	6.55	6.93	6.65
		5/10	7.09	7.25	7.37	**8.95**	7.79	7.37	6.80	7.21	6.73
		8/10	6.97	7.19	7.04	**8.63**	7.63	7.24	6.75	7.15	6.69
		11/10	6.91	7.23	7.05	**9.17**	7.76	7.22	**6.42**	6.93	**6.46**
		2/11	6.97	7.15	7.02	**8.60**	6.92	7.10	**6.35**	6.87	6.55
Specific Conductance	umhos/cm	11/08	342	686	644	143	258	373	853	613	556
		2/09	288	618	606	136	244	363	843	542	503
		5/09	223	631	635	208	282	466	825	572	462
		8/09	226	638	639	149	259	367	841	596	507
		11/09	324	741	773	158	291	551	1010	673	617
		2/10	264	707	726	148	281	434	876	537	594
		5/10	236	602	682	142	261	411	898	570	437
		8/10	203	591	650	130	250	389	883	562	502
		11/10	262	609	683	145	259	377	905	542	550
		2/11	320	608	679	148	264	358	887	513	544
Turbidity	NTU	11/08	4.42	2.85	10.65	5.71	7.73	0.88	13.94	5.08	4.20
		2/09	5.81	4.63	6.17	9.11	9.73	0.77	9.42	11.41	10.31
		5/09	8.85	8.24	2.85	2.76	7.99	1.31	12.97	8.66	2.18
		8/09	10.14	6.46	9.42	8.67	13.34	2.81	9.80	7.20	4.20
		11/09	3.23	7.51	7.76	4.39	16.10	5.54	10.03	13.20	9.43
		2/10	0.62	10.87	10.39	4.08	12.20	3.50	8.51	15.20	10.96
		5/10	3.82	7.10	13.3	1.38	13.3	5.01	6.33	9.47	17.80
		8/10	0.91	3.9	2.52	3.38	7.84	4.99	8.05	9.29	8.81
		11/10	0.73	6.14	8.32	3.53	9.56	7.24	10.69	7.81	14.8
		2/11	0.79	9.25	7.51	9.04	4.93	0.86	5.73	13.2	13.4

Notes: **BOLD** lettering Indicates: Exceedance of FDEP 20% saturation dissolved oxygen limit
Exceedance of pH range (6.5 - 8.5)
Exceedance of FDEP recommended turbidity (≤ 20 NTU)

TABLE II
SUMMARY OF LABORATORY DETECTIONS
SUMTER COUNTY (CLOSED) LANDFILL
2011 BIENNIAL REPORT (NOVEMBER 2008 - FEBRUARY 2011)

Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Acetone	ug/L	6,300	11/08									
			2/09									
			5/09									
			8/09									
			11/09		9.8	9.4	11	5	6		4.2	
			2/10									
			5/10									
			8/10									
			11/10								3.5	51
			2/11									
Ammonia, as N	mg/L	2.8	11/08							0.15	0.04	
			2/09	0.023	0.023	0.022	0.025	0.027	0.039	0.29	0.068	0.018
			5/09		0.021				0.054	0.18	0.023	
			8/09							0.24	0.024	
			11/09						0.011	0.18	0.018	
			2/10							0.2	0.035	
			5/10							0.29	0.024	
			8/10							0.38	0.011	
			11/10	0.048	0.053	0.053	0.28	0.049	0.059	0.54	0.081	0.061
			2/11	0.03	0.03		0.03		0.039	0.41	0.071	
Aluminum	ug/L	200	11/08	136		181	**400**	171		**556**	200	181
			2/09	91.5	102	160	**645**	123		176	**494**	**213**
			5/09		**211**		138	82.5		**492**	189	88.9
			8/09	117	69	**424**	**337**		171	**313**	106	
			11/09		**268**	75.7	**266**	73.6		**290**	**367**	**342**
			2/10		**320**		**366**			133	**351**	**355**
			5/10		102	124	**312**	131		**217**	170	**388**
			8/10		160		**450**	130	190	**420**	**540**	**840**
			11/10		**230**	110	**310**	78		**280**	**400**	**670**
			2/11		**820**	100	**720**			**360**	**1300**	**960**
Antimony	ug/L	6	11/08		0.799							
			2/09									
			5/09	0.878								
			8/09									
			11/09									
			2/10									
			5/10									
			8/10	0.54	0.21	0.078	0.12		0.39	0.23	0.26	0.13
			11/10	0.37	0.28	0.086	0.11	0.078	0.076	0.1	0.25	0.57
			2/11	1	0.36	0.16	0.17	0.083	0.095	0.11	0.2	0.13
Barium	ug/L	2,000	11/08	11.1		11					21.4	
			2/09									
			5/09									
			8/09									
			11/09	12.6		12.4				12.0	13.1	
			2/10									
			5/10									
			8/10									
			11/10	19	9.8	14	3.9	2.9	4.5	13	14	12
			2/11									

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Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Cadmium	ug/L	5	11/08							1.63		2.34
			2/09							1.26		3.06
			5/09		3.06	1.15				2.22		2.60
			8/09							1.61		2.68
			11/09							2.01		3.34
			2/10							1.27		2.89
			5/10							2.34	1.15	3.63
			8/10							1.6		2.3
			11/10							1.8		2.5
			2/11							1.3		2.6
Chloride	mg/L	250	11/08	3.8	39	31	3.7	8.5	9.8	18	9.9	3.1
			2/09	5.2	36	31	3.8	8.3	9.6	18	9.1	3.2
			5/09	5.5	32	30	7.4	8.1	11	12	9	4
			8/09	10	30	29	4.3	8.8	9.3	14	8.7	4
			11/09	10	28	28	4.3	8.9	16	18	8.1	3.8
			2/10	7.1	29	29	4.1	9.2	13	19	8.2	3.5
			5/10	5.7	26	30	3.9	9.1	12	22	8.1	3.5
			8/10	4	22	25	2	6.7	8.3	19	5.8	1.7
			11/10	6.2	21	26	5.2	8.9	9.5	22	7.9	4.1
			2/11	5.8	21	27	5.4	8.8	9.1	21	8	4.2
Chromium	ug/L	100	11/08									
			2/09				5.07					5.66
			5/09				6.16					
			8/09									
			11/09		6.27			4.58			7.85	7.16
			2/10		23.0			9.91			11.6	6.22
			5/10					7.38				4.84
			8/10	0.82	7.2	1.4	3.3	8	4.2	3.5	16	9.6
			11/10	1.6	2.6	1.9	4.8	8.7	4.2	2.9	5.7	8.9
			2/11	1	29	2.7	120	5.2	3.6	3.8	19	6.6
Cobalt	ug/L	140	11/08									
			2/09									
			5/09									
			8/09									
			11/09							20.8		
			2/10									
			5/10							18.3		
			8/10									
			11/10		1.1	7				19		0.64
			2/11									
Copper	ug/L	1,000	11/08									
			2/09									
			5/09									
			8/09									
			11/09									3.42
			2/10									
			5/10									2.48
			8/10									
			11/10	0.63	1.6	0.68	0.24	0.18	0.24	2.5	0.52	2.2
			2/11									

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Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Fluoride	mg/L	2	11/08	0.09	0.07		0.07	0.05	0.04	0.05	0.07	0.13
			2/09	0.08			0.07		0.05	0.07	0.10	0.15
			5/09	0.12	0.07		0.05	0.06	0.05	0.09	0.09	0.13
			8/09	0.05	0.05		0.06	0.04	0.07	0.09	0.1	0.16
			11/09	0.04	0.08		0.03					0.20
			2/10									
			5/10									0.14
			8/10									
			11/10									
			2/11									
Gross Alpha	pCi/L	15	11/08	1.5	6.2	2.3	1.8	1.3	1.4	4.9	9.7	8.2
			2/09	1.4	4.6	4.1	2.6	1.3	1.2	5.6	9.6	3.5
			5/09	1.3	14.0	4.0	6.0	1.8	1.6	7.8	9.6	**19.7**
			8/09	1.1	8.0	4.3	2.5	0.9	1.3	5.7	10.3	**17.9**
			11/09	1.6	5.6	1.8	2.6	1.5	1.5	8.6	9.7	**16.5**
			2/10	1.4	3.8	1.6	2.5	1.2	1.3	6.3	7.0	13.4
			5/10	1.0	6.3	0.6	1.7	1.4	1.4	6.9	6.9	**16.9**
			8/10	1.4	6.6	2.4	1.5	1.3	2.1	8.4	11.0	**15.4**
			11/10	1.1	3.9	2.7	2.2	2.0	2.3	6.7	11.4	14.3
			2/11	1.5	7.6	3.6	2.6	2.1	1.2	6.4	9.9	**15.4**
Iron	ug/L	300	11/08	42.7	54.2	43.6				**377**	**1280**	42.8
			2/09	55.6	52.1		48.3			**310**	**1250**	72.1
			5/09	64.7	90.8				44.5	236	**903**	121
			8/09	68.4	39.1				72.1	**390**	**1040**	41.1
			11/09		40.7				125	**357**	**1190**	72.5
			2/10		171			55.5	68.7	**303**	**825**	83.1
			5/10		47.7			39.0	49.7	**390**	**666**	129
			8/10		43				220	**620**	**630**	150
			11/10		44				170	**830**	**590**	160
			2/11		220		**640**			**630**	**600**	170
Lead	ug/L	15	11/08									
			2/09									
			5/09		1.63							
			8/09									
			11/09									
			2/10									
			5/10									
			8/10		0.16		0.16	0.097	0.15	0.37	0.35	0.68
			11/10		0.24					0.38	0.32	1
			2/11		0.52		0.2			0.096	0.72	0.75
Manganese	ug/L	50	11/08	5.60	14.5	5.10				**82.1**	39.1	4.08
			2/09	6.34	13.4	5.84				**81.1**	38.2	5.92
			5/09	8.88	16.0					**70.3**	33.5	4.80
			8/09	8.18	11.4	6.94				**72.2**	35.2	2.25
			11/09	2.36	9.07	5.67			3.80	**76.6**	33.9	2.99
			2/10		14.6	7.44		2.40	2.02	**77.2**	28.8	4.37
			5/10		2.97	3.65				**79.2**	26.0	4.61
			8/10	2.1	7.8	4.2	0.36	0.96	7.1	**75**	25	4
			11/10	1.2	9.6	7.4	0.44	1.3	4.2	**87**	23	5.9
			2/11	2.3	14	7.6	18	1	0.87	**81**	22	4.6

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SUMTER COUNTY (CLOSED) LANDFILL
2011 BIENNIAL REPORT (NOVEMBER 2008 - FEBRUARY 2011)

Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Mercury	ug/L	2	11/08							0.789		0.034
			2/09							0.676		
			5/09							0.207		0.025
			8/09							0.551		0.031
			11/09							0.708		0.0578
			2/10							0.489		0.032
			5/10							0.478		0.0719
			8/10							0.55		0.04
			11/10							0.71	0.018	0.12
			2/11				0.04	0.018	0.047	0.55		0.067
Nickel	ug/L	100	11/08							13	2.52	2.31
			2/09									
			5/09									
			8/09									
			11/09		5.48	3.1				12.6	5.06	5.49
			2/10									
			5/10		4.14	3.94		5.28		13.2	4.75	4.01
			8/10									
			11/10							5.3		
			2/11									
Nitrate, as N	mg/L	10	11/08	5.7	**13**	**11**	2.4	6.7	3.1	0.67	1.8	5.0
			2/09	4.0	**12**	**11**	2.3	6.6	2.7	0.39	2.4	4.5
			5/09	2.7	10	10	3.0	5.6	3.0	0.41	1.6	4.5
			8/09	4.4	9.7	10	5.2	6.7	2.5	0.41	1.7	4.9
			11/09	3.3	9.5	**11**	4.2	6.7	3.3	0.73	2.2	4.7
			2/10	3.2	9.7	**11**	4.1	6.8	2.9	0.9	3.2	5.0
			5/10	2.1	7.9	**12**	4.5	6.2	2.5	0.55	2.2	4.2
			8/10	2.5	8.1	**11**	3.4	6.5	2.4	0.11	1.5	3.4
			11/10	2.4	7.6	**12**	3.9	6.4	2.2	0.32	2.2	3.7
			2/11	2.1	8.1	**12**	3.4	6.3	2.1	0.6	3.0	4.3
Radium 226	pCi/L	Combined Radium 226 and Radium 228 is 5	11/08	0.6	1.4	0.7	0.3	0.4	0.6	1.9	2.4	2.4
			2/09	0.2	1.6	1.5	0.4	0.2	0.4	2.6	2.5	2.4
			5/09	0.2	1.4	0.9	0.5	0.4	0.5	2.8	2.5	2.9
			8/09	0.4	1.7	1.0	0.1	0.2	0.6	2.0	2.1	3.6
			11/09	0.3	1.3	1.0	0.2	0.2	1.1	3.4	2.2	3.2
			2/10	0.5	1.0	2.3	0.7	0.2	0.5	2.2	1.3	3.7
			5/10	0.3	1.2	0.4	1.0	0.2	0.5	2.1	1.6	3.1
			8/10	0.4	1.2	1.4	0.3	0.4	0.7	2.7	1.7	3.0
			11/10	0.3	0.9	1.1	0.3	0.4	0.7	2.0	1.3	2.4
			2/11	0.4	0.8	0.9	0.4	1.3	0.7	2.4	1.7	3.5
Radium 228	pCi/L	Combined Radium 226 and Radium 228 is 5	11/08	0.8	0.9	0.7	0.7	0.7	0.7	1.0	0.7	1.0
			2/09	0.8	1.0	0.6	0.9	0.8	0.8	1.1	0.9	1.0
			5/09	0.9	0.9	0.8	0.8	0.8	0.8	0.9	1.3	0.8
			8/09	0.8	0.7	0.7	0.6	0.6	0.8	1.0	0.7	0.9
			11/09	1.1	0.9	0.9	0.8	1.0	0.8	0.9	0.8	0.8
			2/10	0.7	0.8	0.8	0.7	0.7	0.8	0.9	0.8	0.8
			5/10	0.9	1.6	1.3	0.9	0.8	0.7	1.2	0.8	1.1
			8/10	0.8	0.8	0.7	0.7	0.7	0.7	1.1	0.2	0.9
			11/10	0.9	0.8	0.8	0.8	0.8	0.8	1.1	0.9	0.9
			2/11	0.7	0.7	0.6	0.7	0.6	0.7	0.8	0.7	0.6

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SUMMARY OF LABORATORY DETECTIONS
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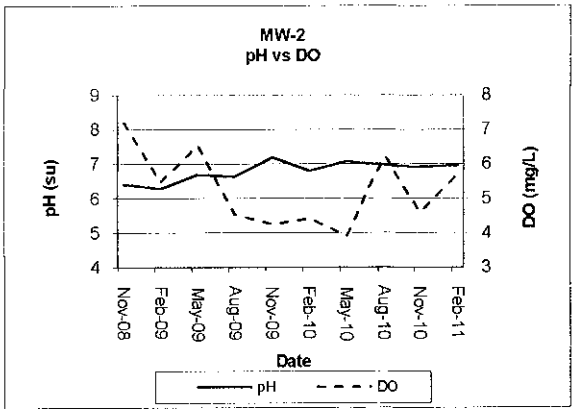
Parameter	Units	MCL	Sample Date	Location								
				MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11
Sodium	**mg/L**	**160**	11/08	3.55	53.1	27.9	9.58	3.45	5.19	17.9	9.39	10.2
			2/09	3.64	51.2	28.3	10.6	3.26	5.14	19.2	9.09	12.2
			5/09	4.17	51.6	28.6	12.5	3.37	7.89	21.5	9.07	12.2
			8/09	4.17	51.6	27.3	12.2	3.12	5.29	20.3	8.67	10.2
			11/09	5.08	50.1	26.1	11	3.15	9.94	18.9	8.26	10.2
			2/10	4.53	50.4	27.3	11	3.16	7.24	19.2	7.28	10.6
			5/10	4.1	47.1	26.9	10.1	3.15	6.62	18.4	7.58	9.15
			8/10	4.2	45	26	9.4	3.2	6.2	20	7.3	9.6
			11/10	3.6	43	26	9.7	3.3	5.7	20	7.2	9.5
			2/11	3.9	40	26	9	3	5.3	19	6.1	9.6
Thallium	**ug/L**	**2**	11/08									
			2/09		0.276	0.459						
			5/09			0.359						
			8/09		0.291	0.364						
			11/09		0.293	0.462				0.321		
			2/10		0.591	0.735				0.573		
			5/10		0.331	0.401				0.303		
			8/10		0.11	0.27				0.2		0.093
			11/10			0.19				0.14		0.1
			2/11		0.091	0.22				0.16		0.086
Total Dissolved Solids	**mg/L**	**500**	11/08	210	450	410	130	180	210	**530**	380	340
			2/09	210	390	400	140	190	230	480	310	320
			5/09	160	390	380	130	190	270	490	330	300
			8/09	160	400	420	120	190	240	**530**	360	330
			11/09	180	380	380	82	190	280	**510**	310	320
			2/10	170	390	410	100	180	270	**540**	320	340
			5/10	150	360	420	90	200	250	**520**	340	290
			8/10	130	390	440	88	200	240	**520**	330	300
			11/10	150	350	390	90	170	220	**520**	320	320
			2/11	190	350	430	84	200	210	500	290	300
Vanadium	**ug/L**	**49**	11/08		9.22	4.84	21.3	6.46	6.67	4.98	6.8	7.65
			2/09									
			5/09									
			8/09									
			11/09	1.01	11.3	5.72	18.7	7.48	9.48	2.08	8.16	9.42
			2/10									
			5/10		10	5	18.2	6.79	7.74	1.92	8.43	8.62
			8/10									
			11/10	0.88	12	6.3	15	8.4	9.4	3.1	10	13
			2/11									
Zinc	**ug/L**	**5000**	11/08		464	51.2	29.7	356		18.3		
			2/09									
			5/09									
			8/09									
			11/09									
			2/10									
			5/10									
			8/10									
			11/10	4.8	6.3	6	4.1	4.6	7.4	11	6.9	8.8
			2/11									

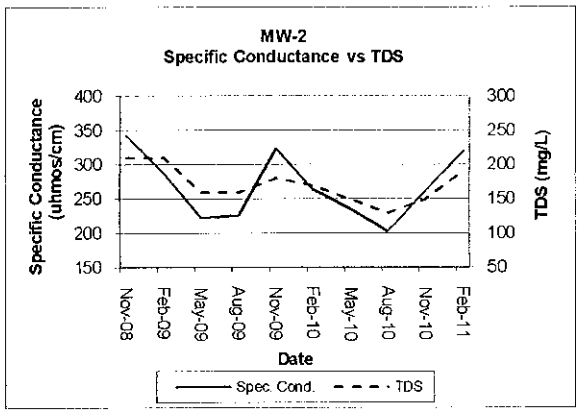
Note: **BOLD** lettering indicates exceedance of the Maximum Contamination Limit (MCL). Blank indicates non-detect/below method detection limit.

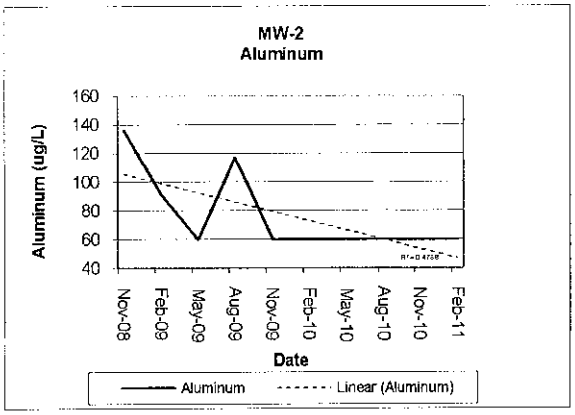
APPENDIX II

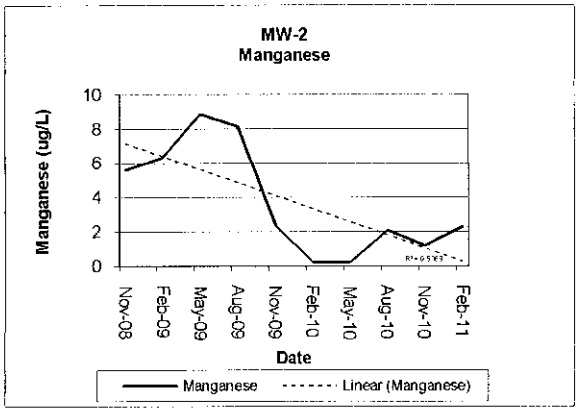
SUMMARY CHARTS

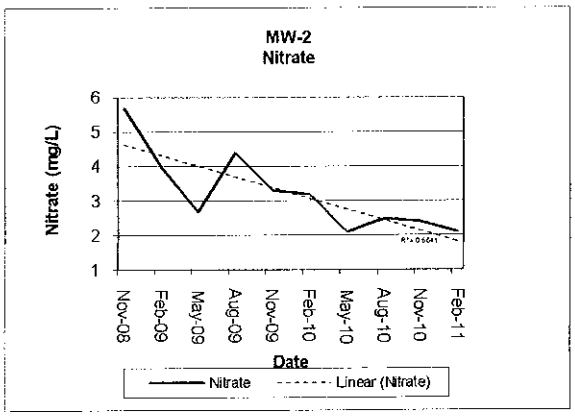
MW-2

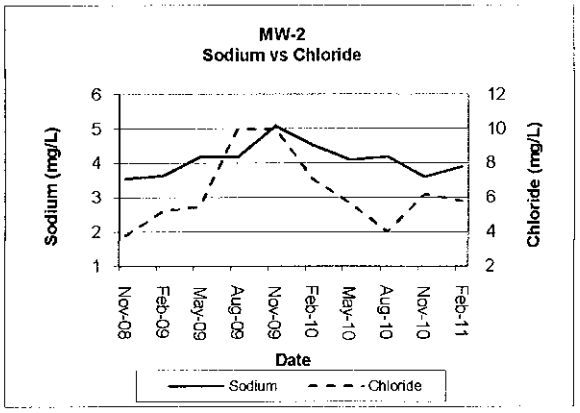


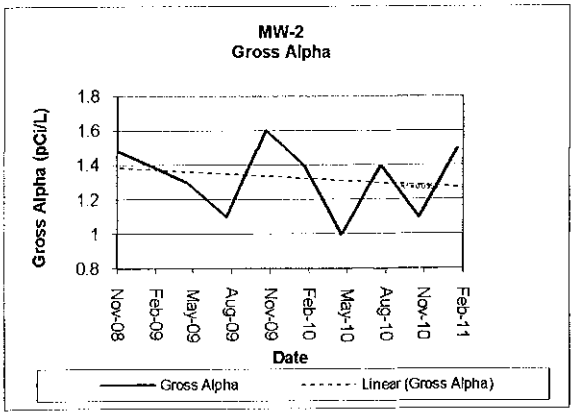


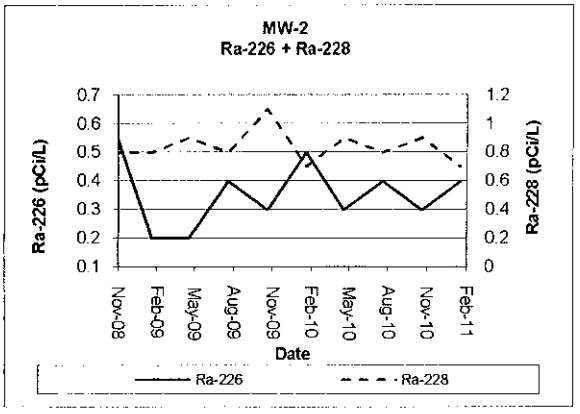






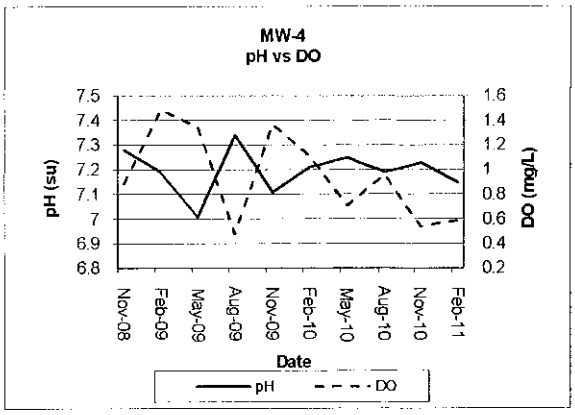


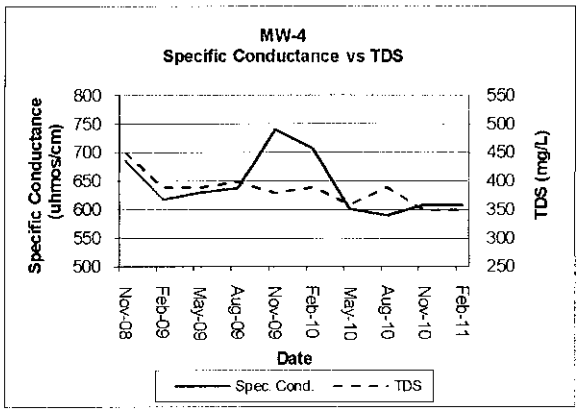


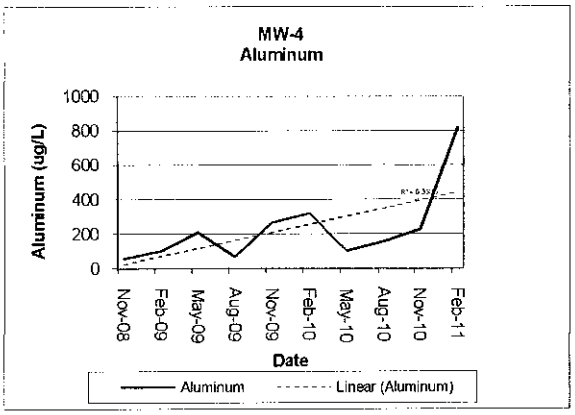


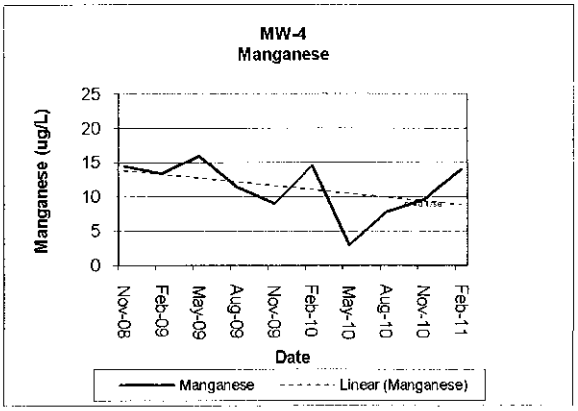
SUMMARY CHART: Well MW-2

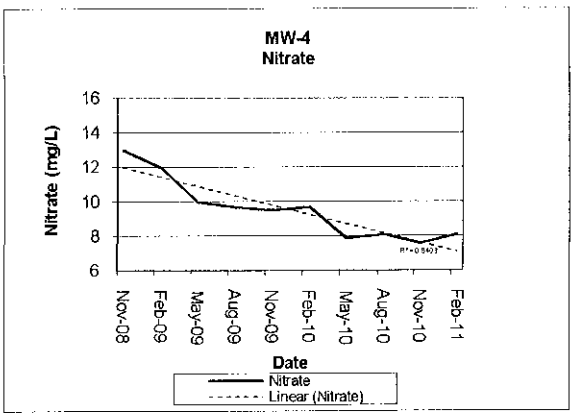
MW-4

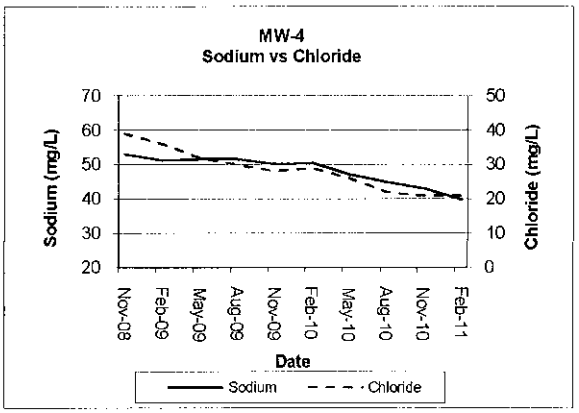


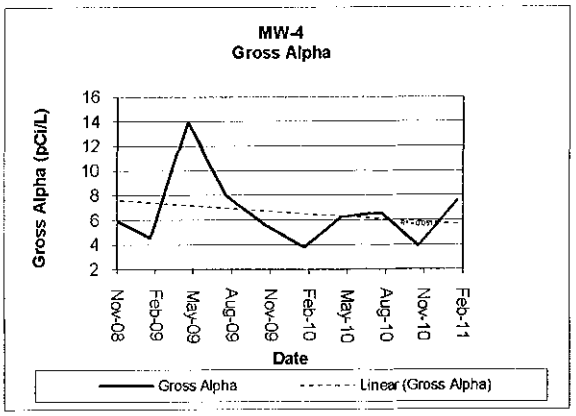


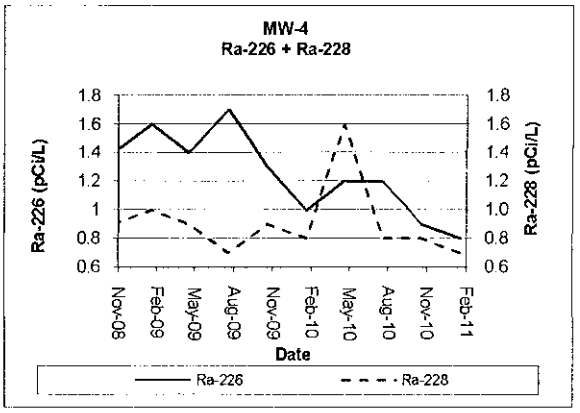






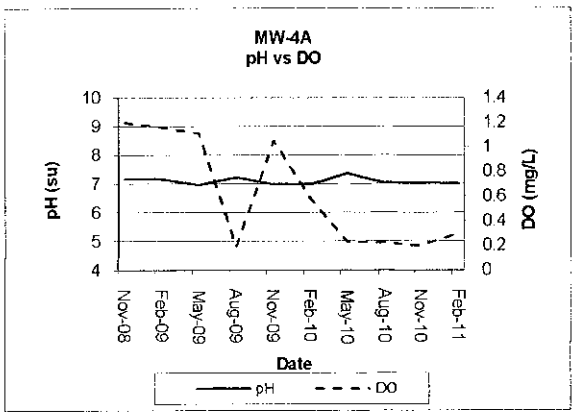


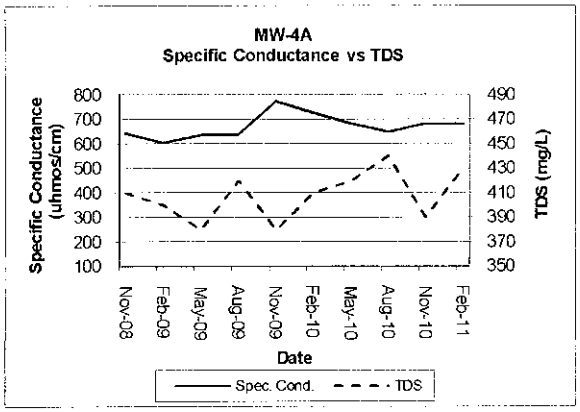


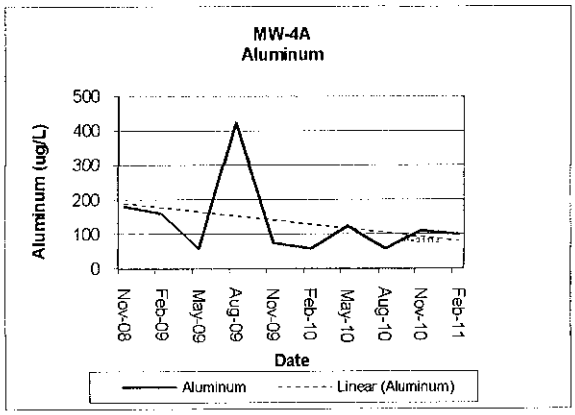


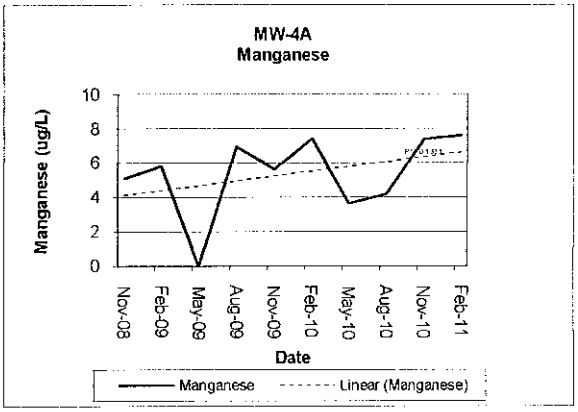
SUMMARY CHART: Well MW-4

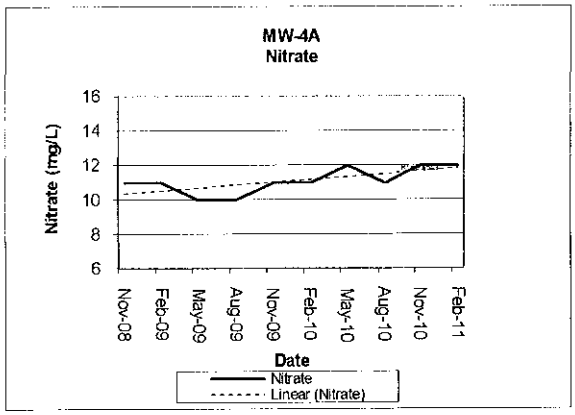
MW-4A

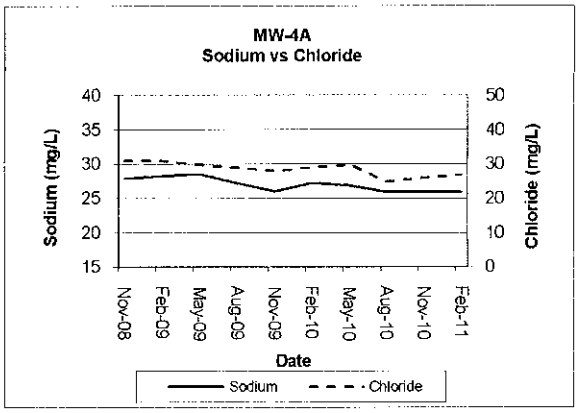


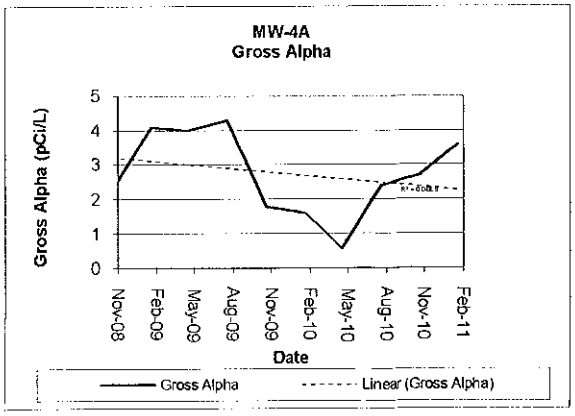


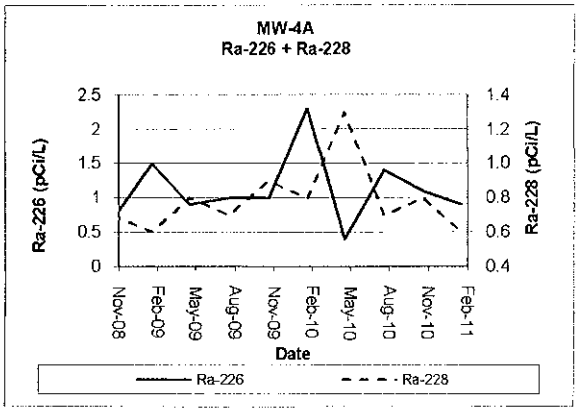






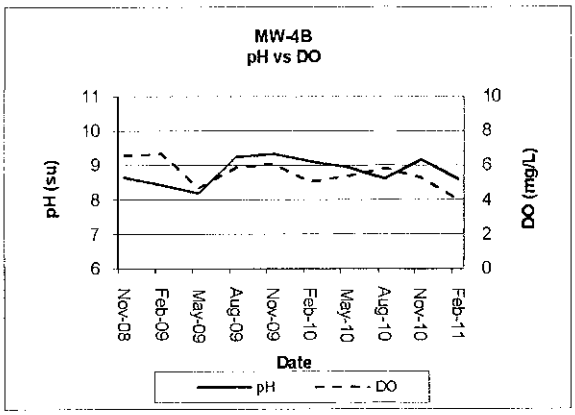


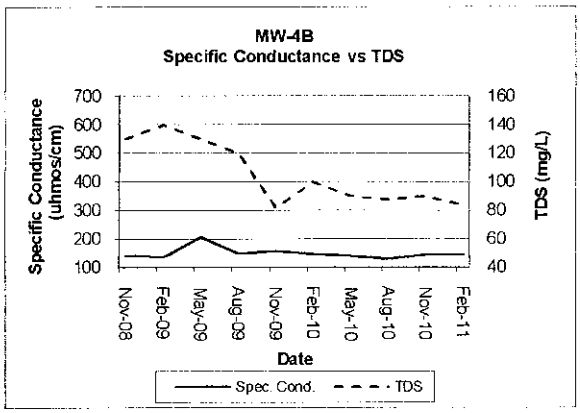


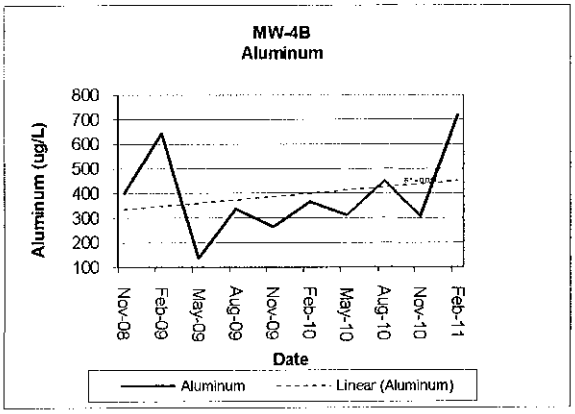


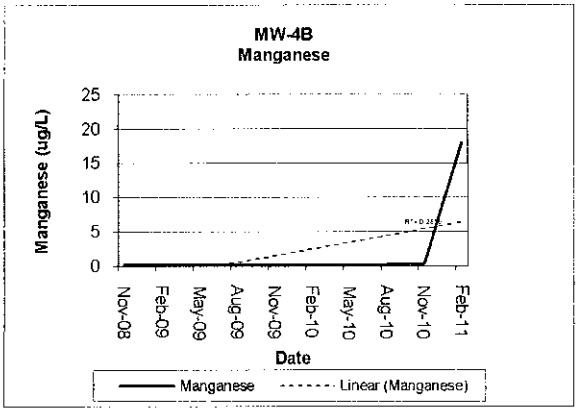
SUMMARY CHART: Well MW-4A

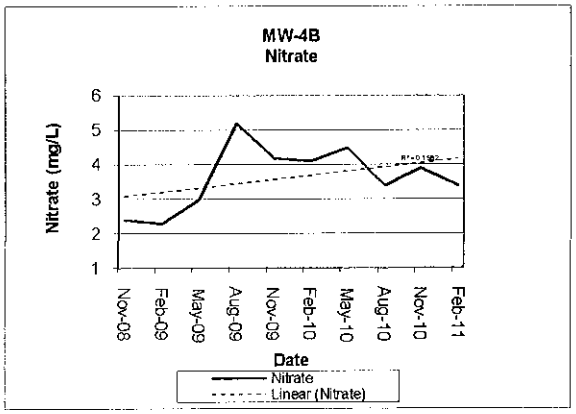
MW-4B

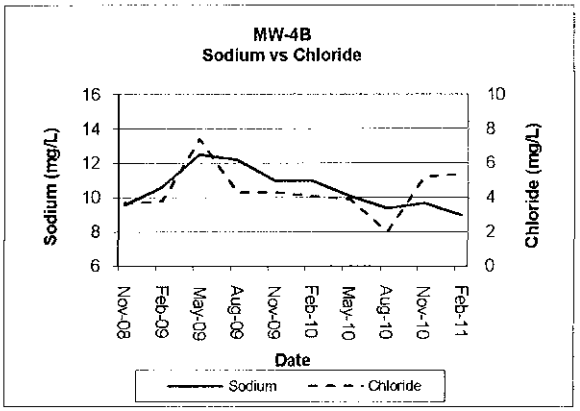


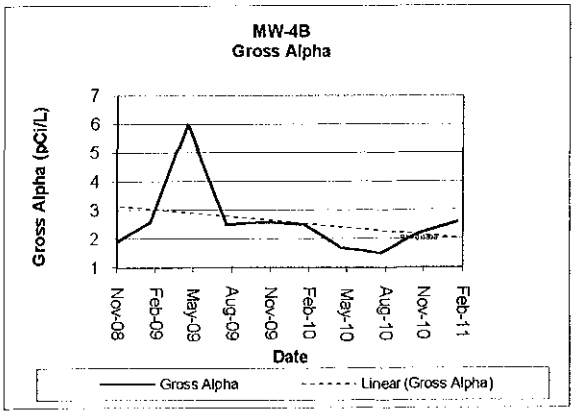


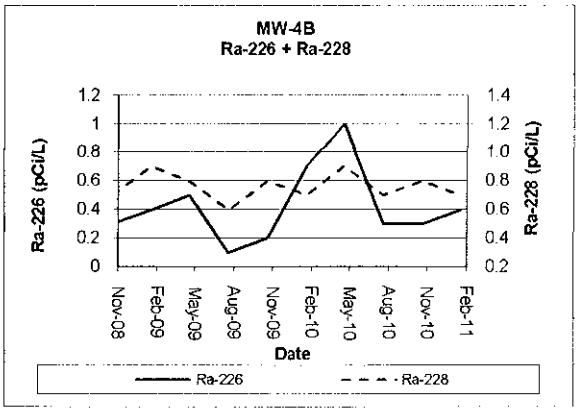






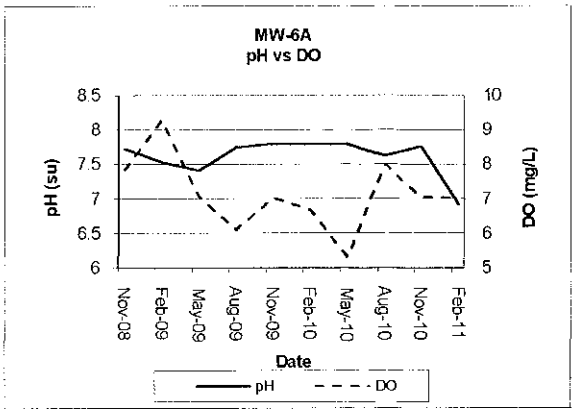


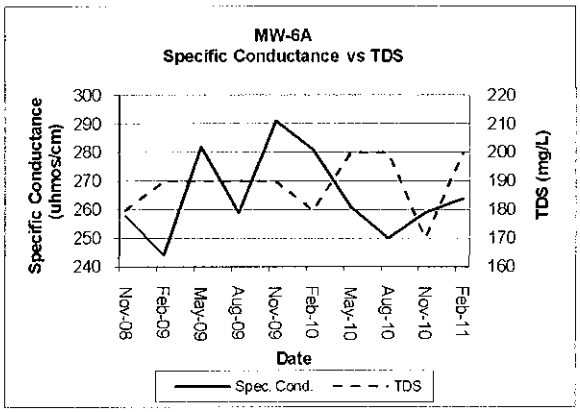


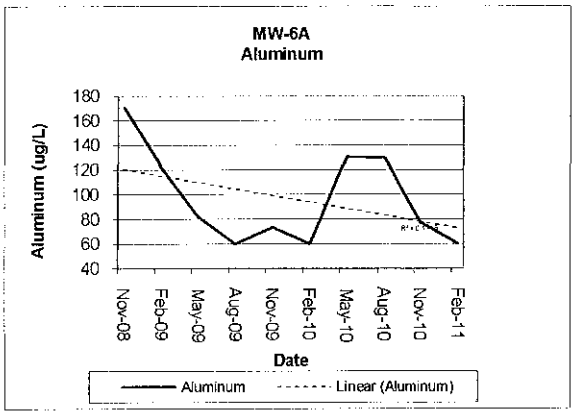


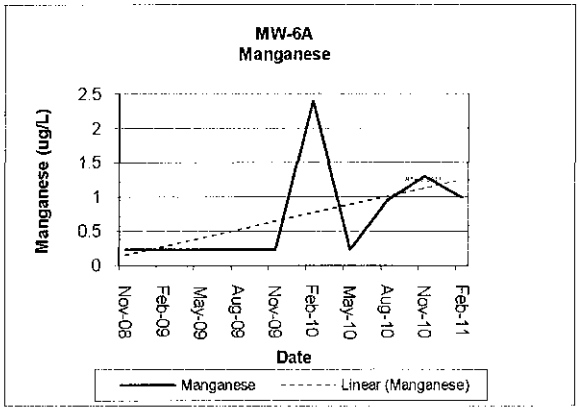
SUMMARY CHART: Well MW-4B

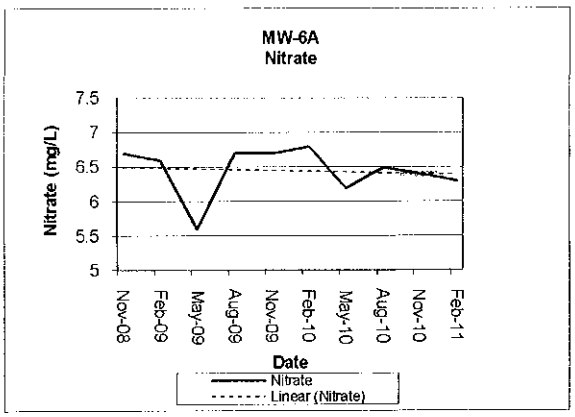
MW-6A

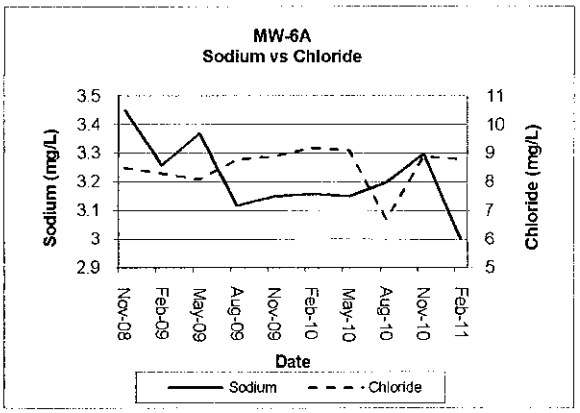


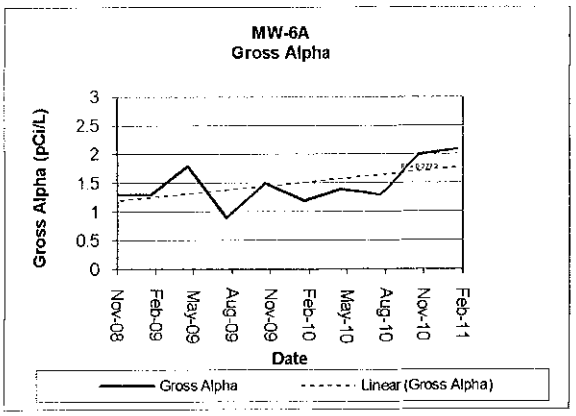


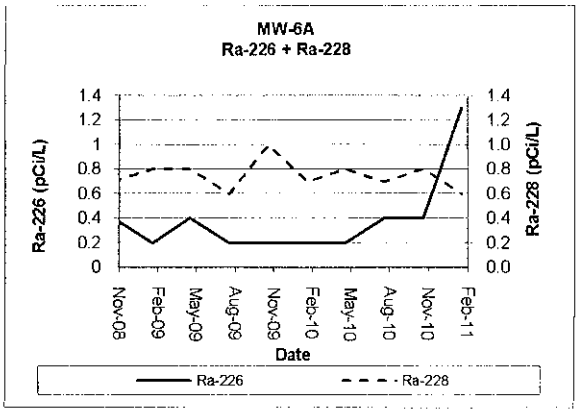






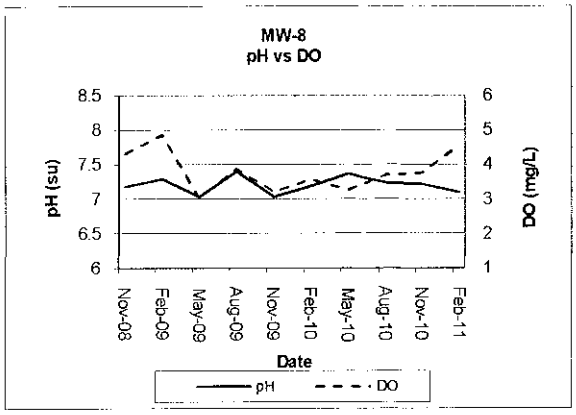


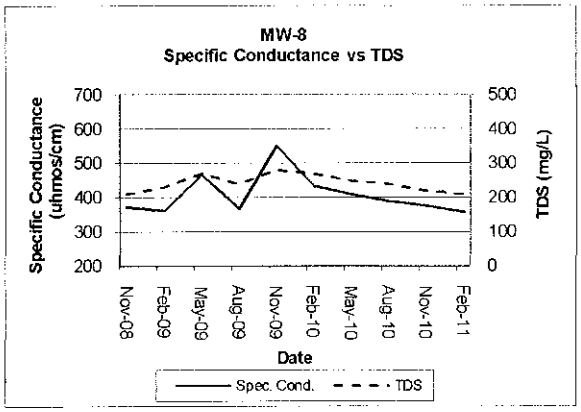


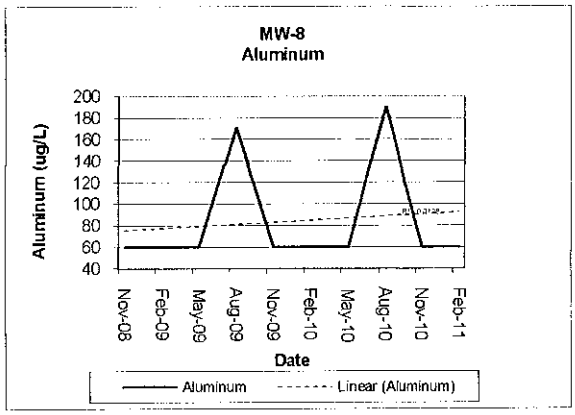


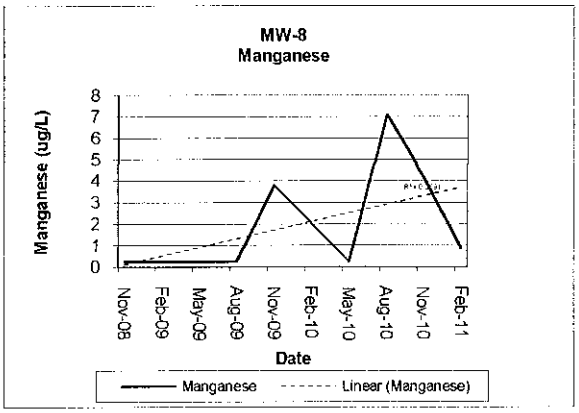
SUMMARY CHART: Well MW-6A

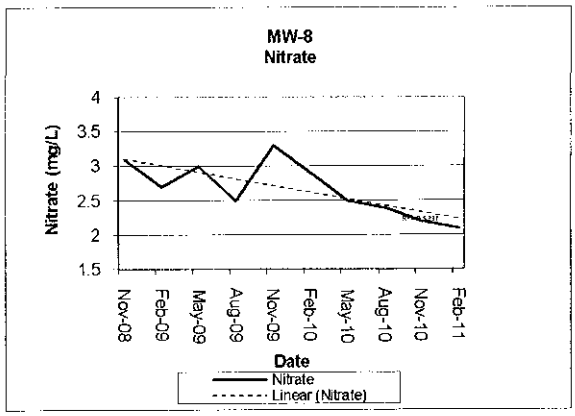
MW-8

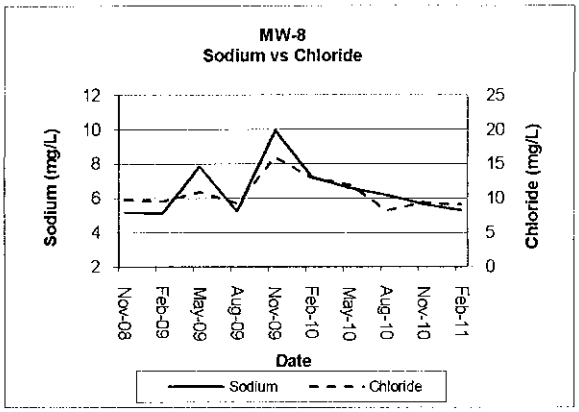


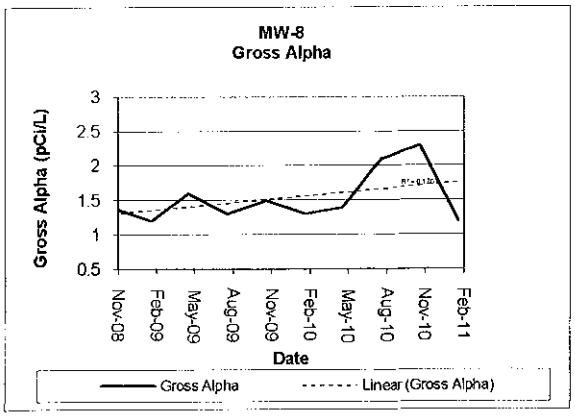


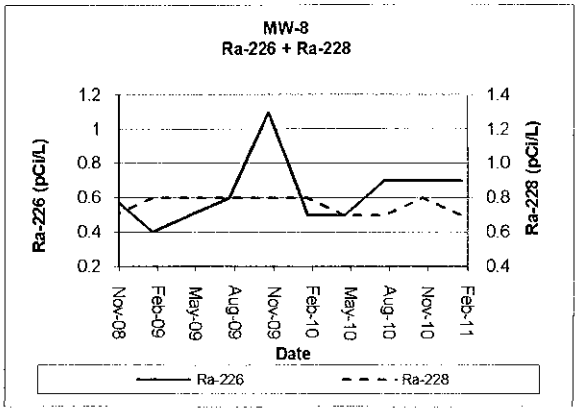






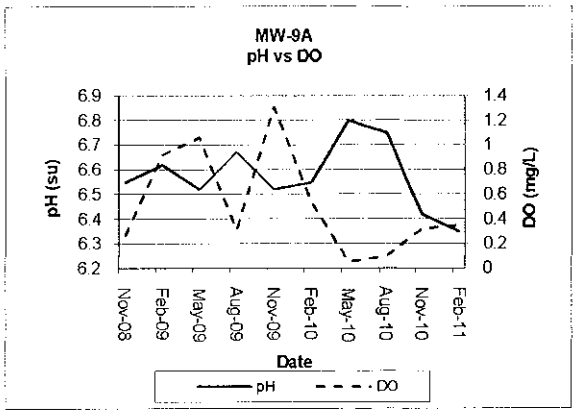


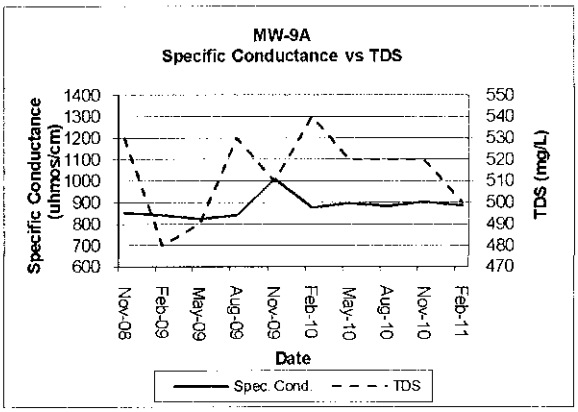


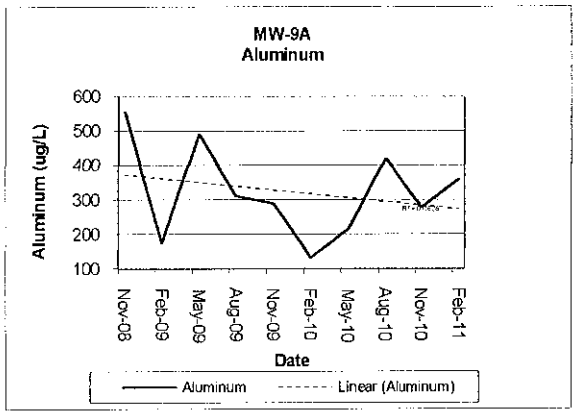


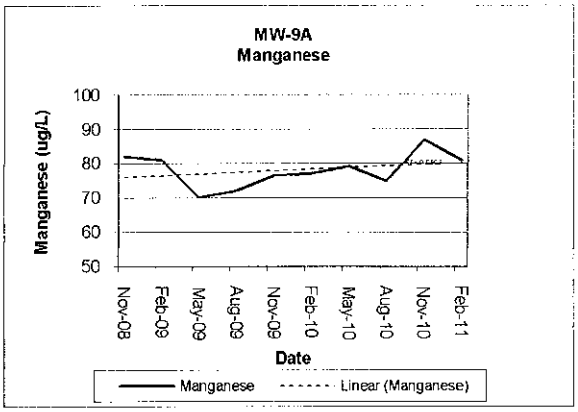
SUMMARY CHART: Well MW-8

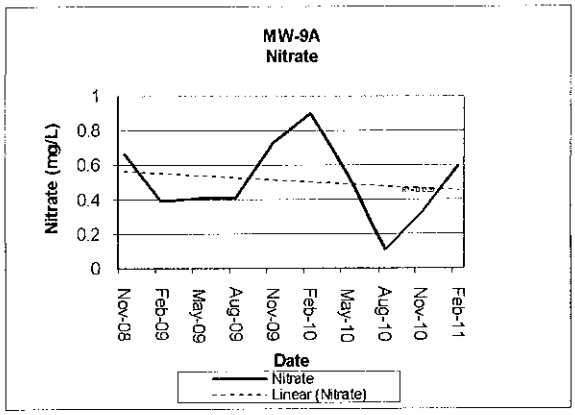
MW-9A

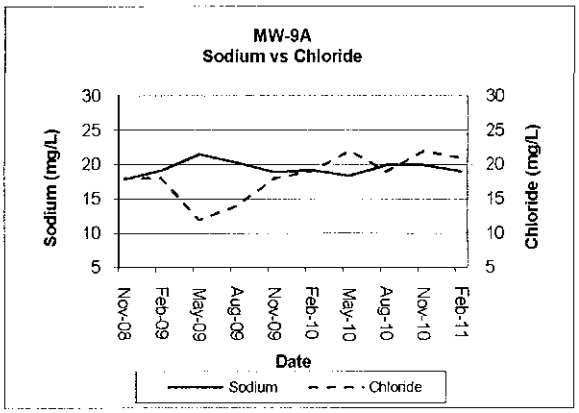


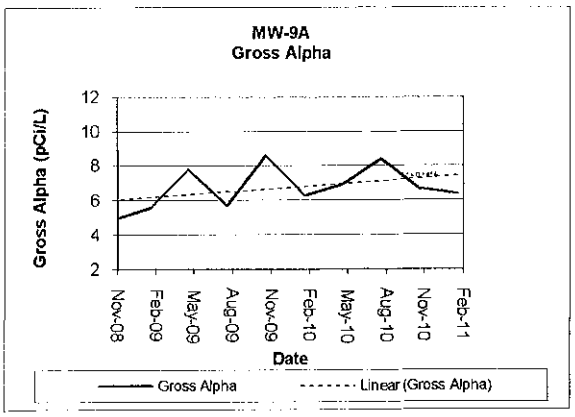


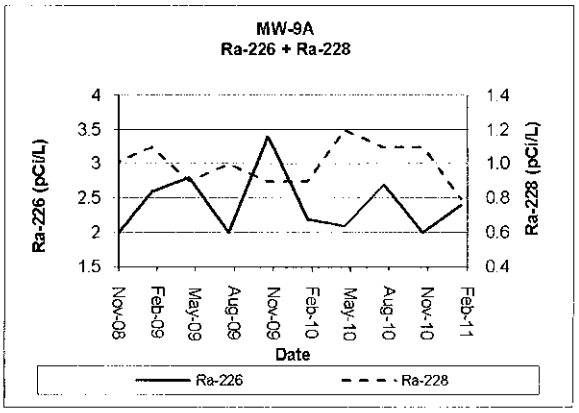






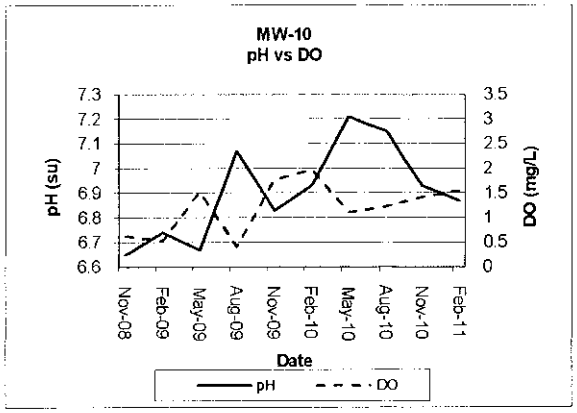


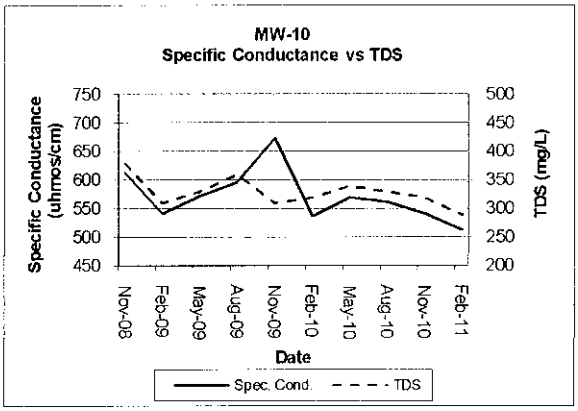


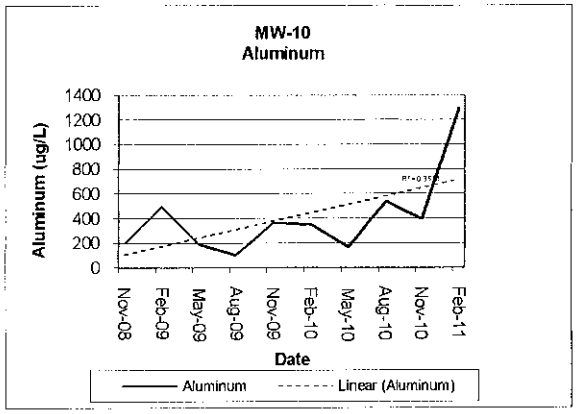


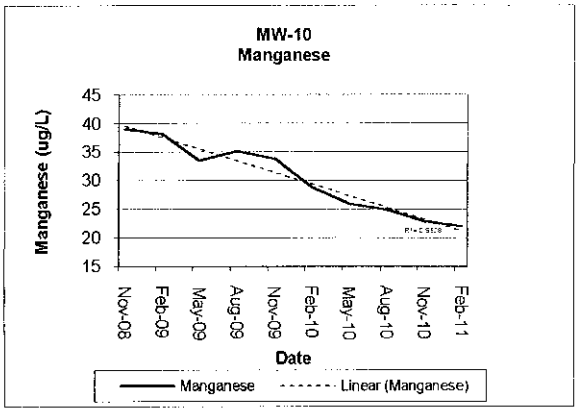
SUMMARY CHART: Well MW-9A

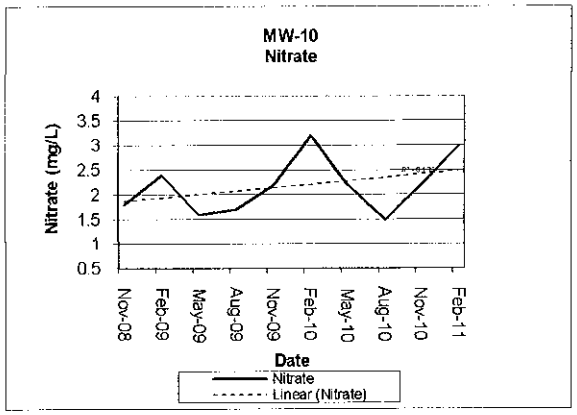
MW-10

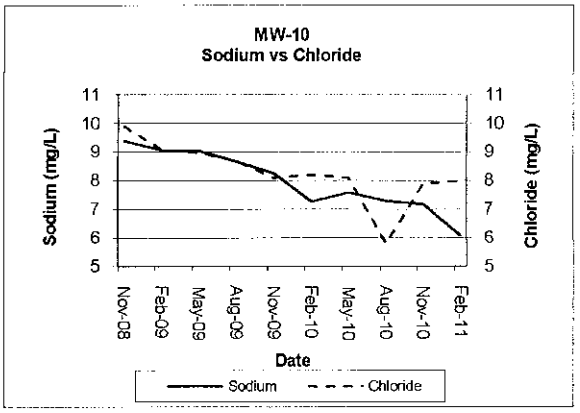


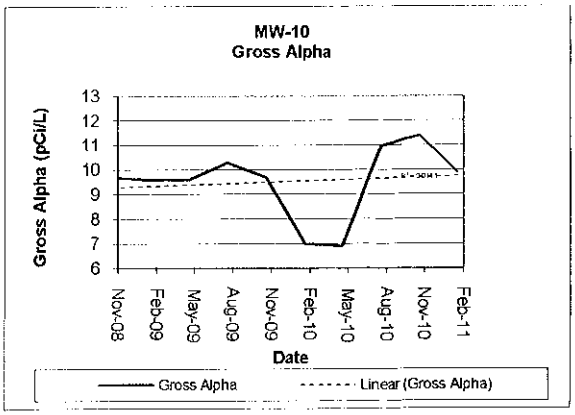


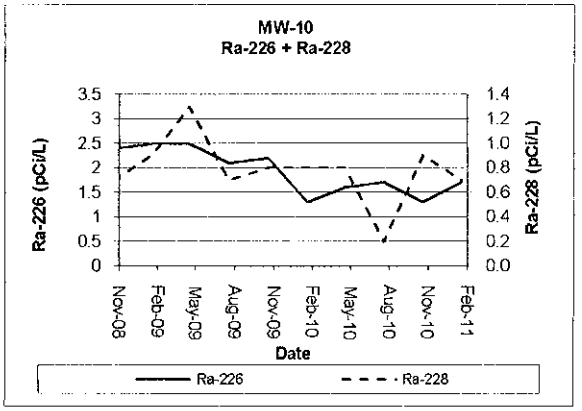






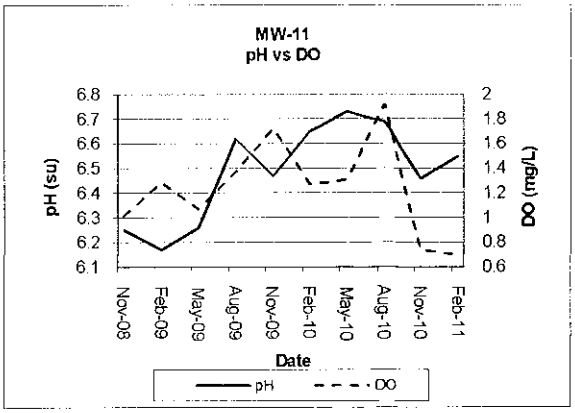


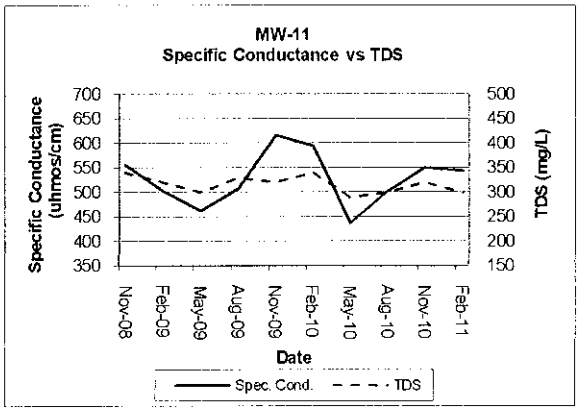


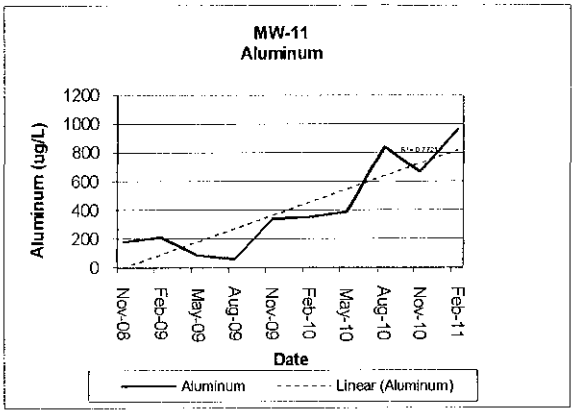


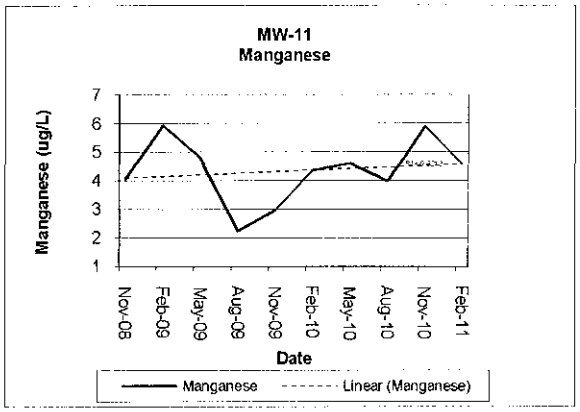
SUMMARY CHART: Well MW-10

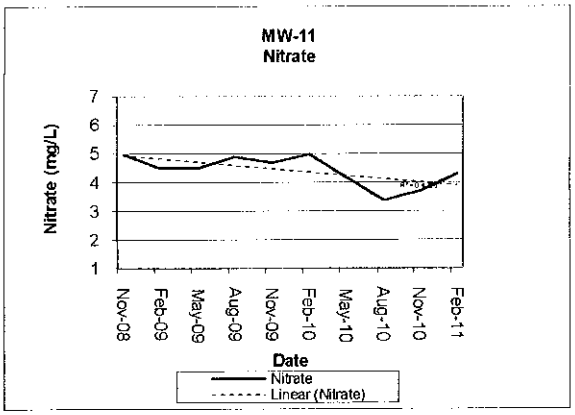
MW-11

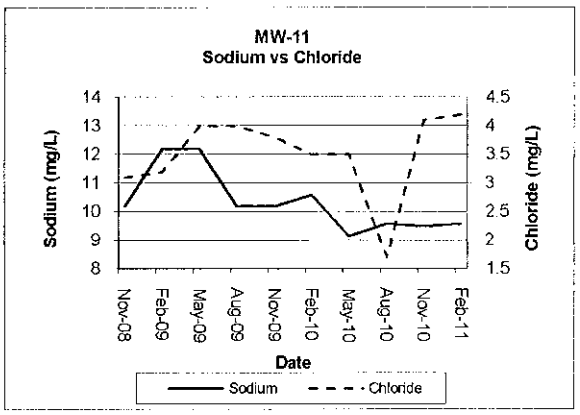


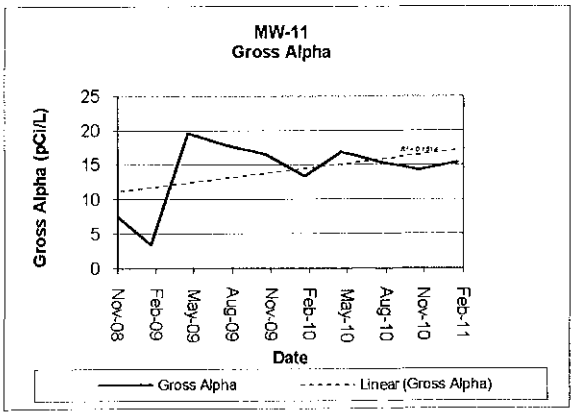


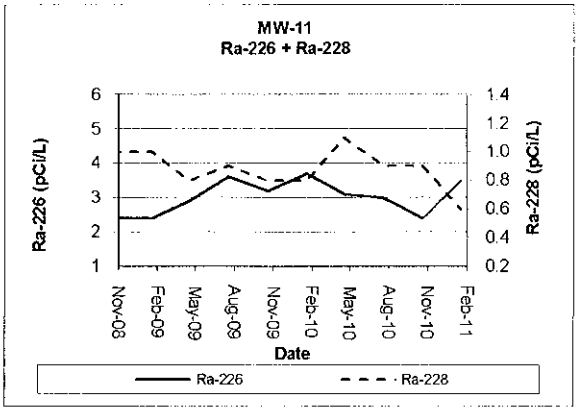










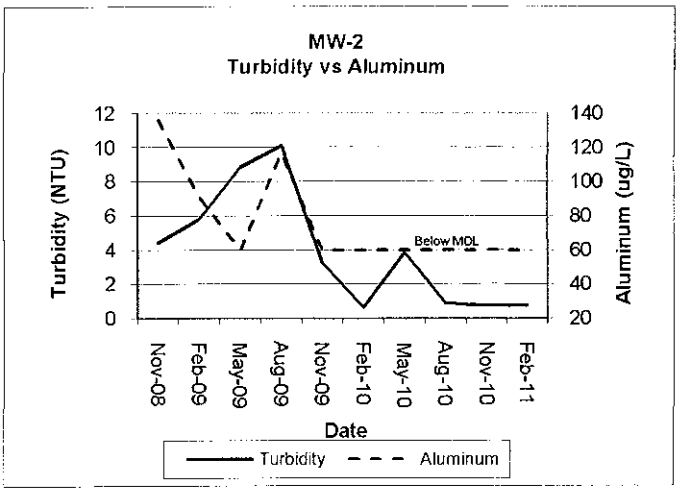


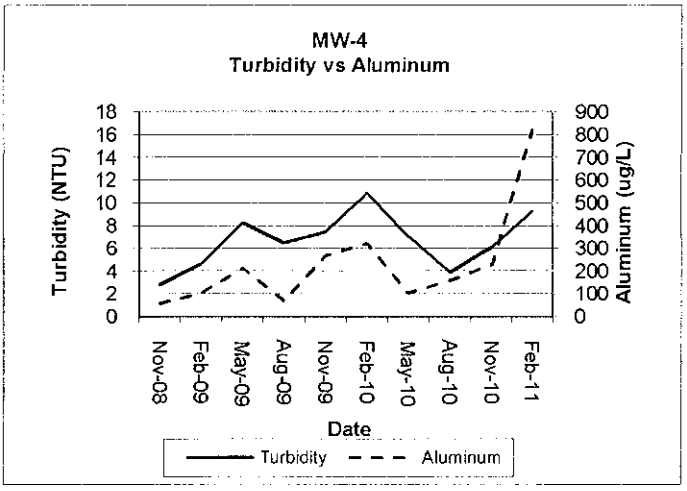
SUMMARY CHART: Well MW-11

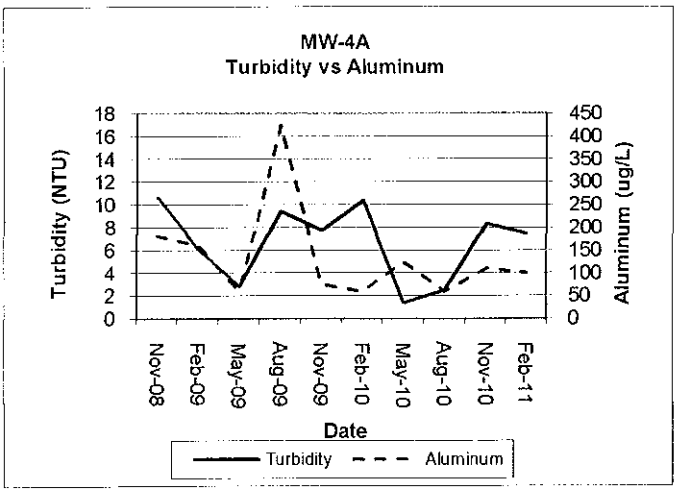
APPENDIX III

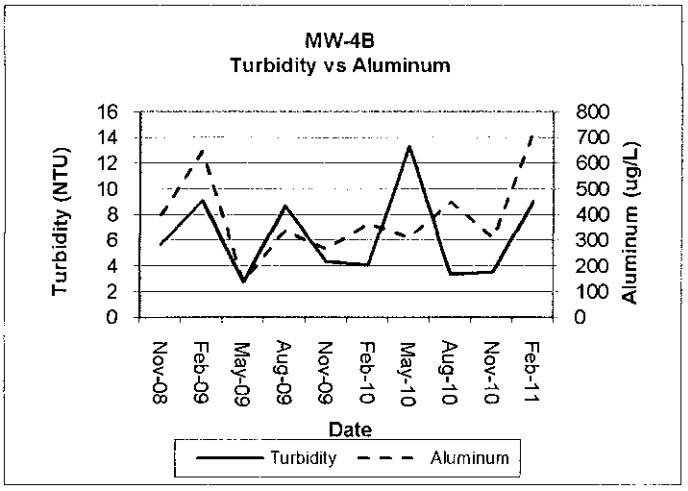
COMPARISON CHARTS

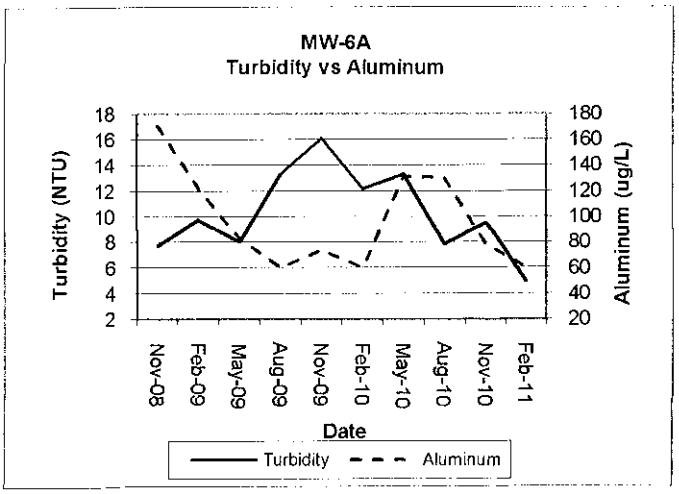
Turbidity vs Aluminum

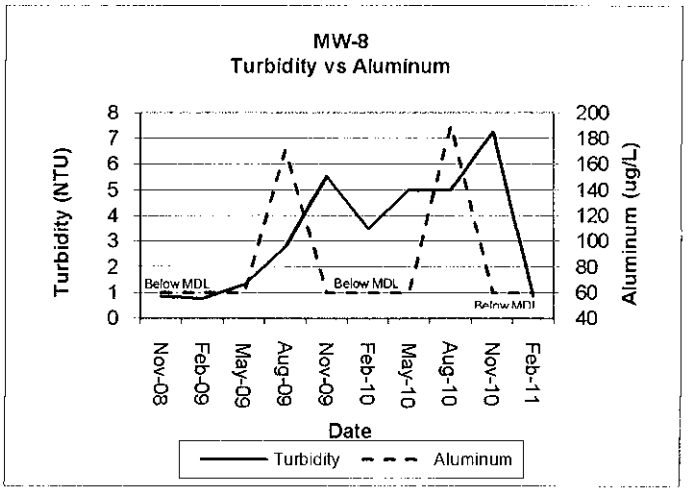






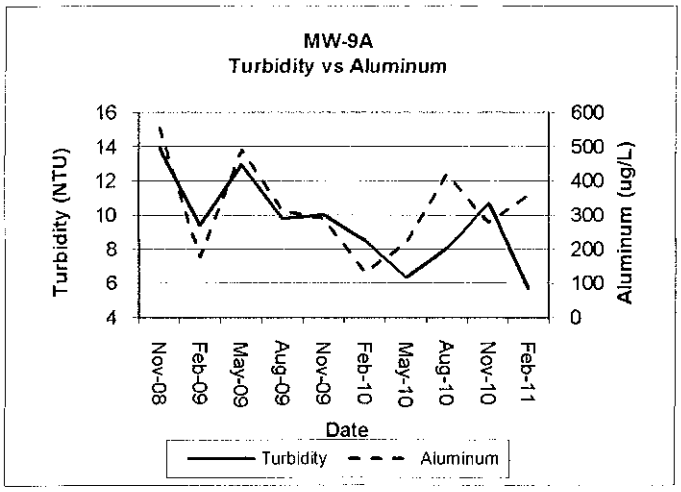


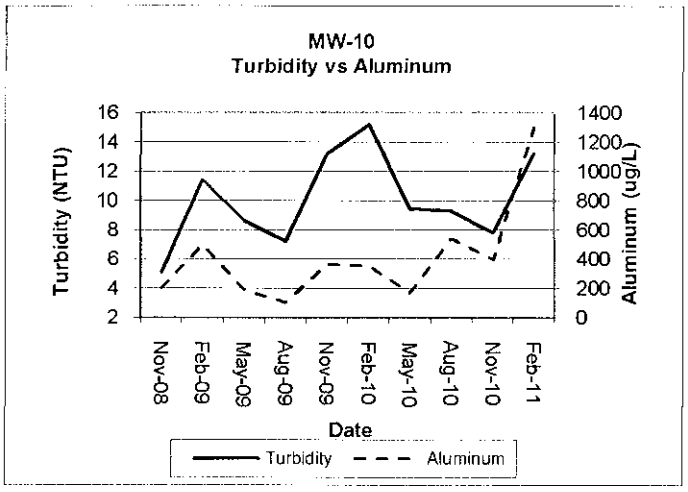


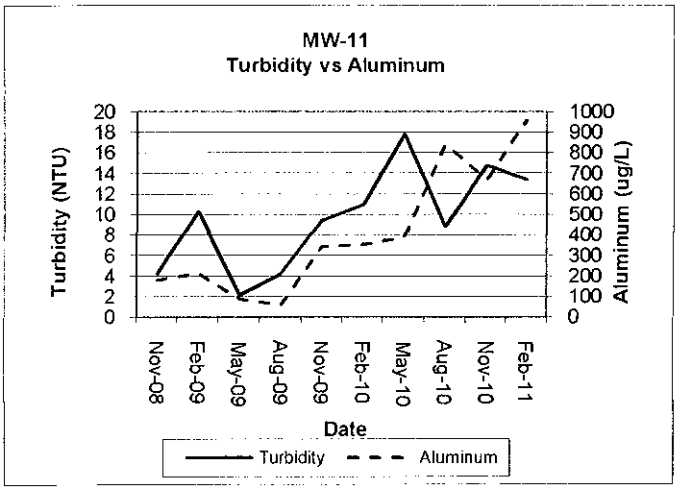


COMPARISON CHARTS: Turbidity vs Aluminum

Turbidity vs Aluminum

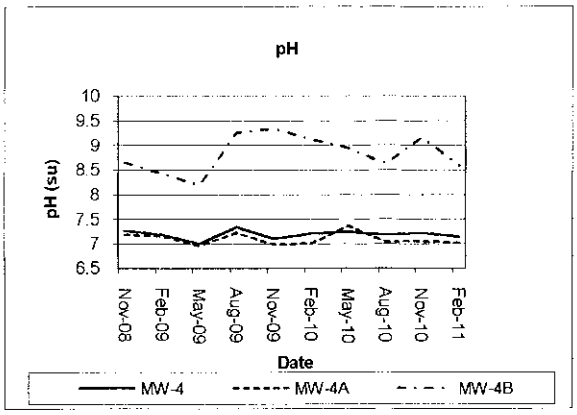


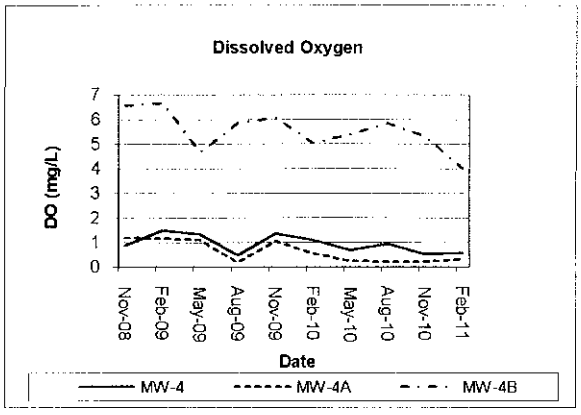


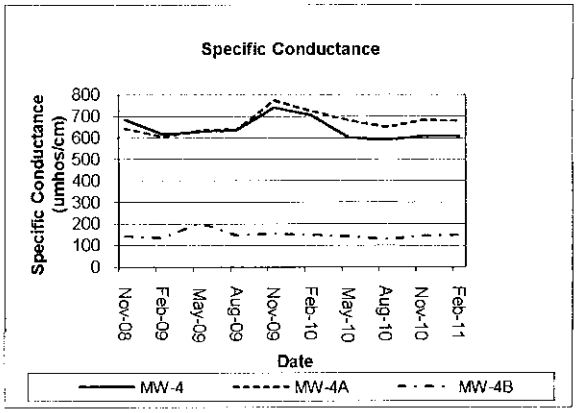


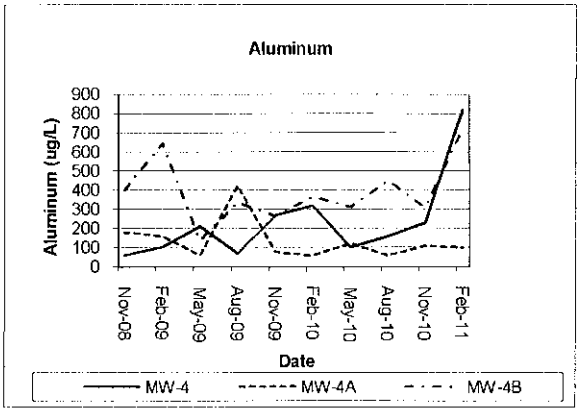
COMPARISON CHARTS: Turbidity vs Aluminum

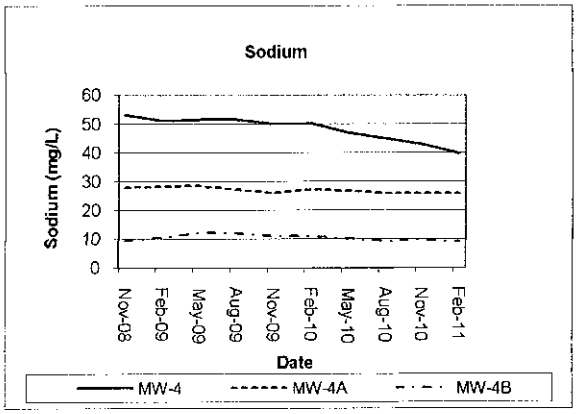
MW-4/MW-4A/MW-4B

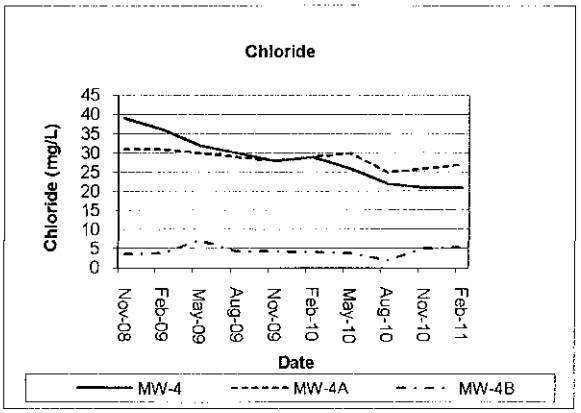


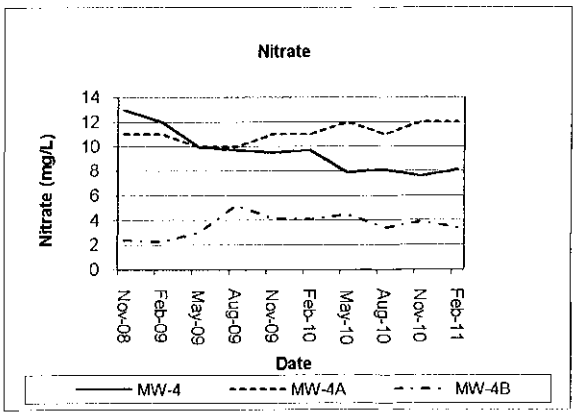


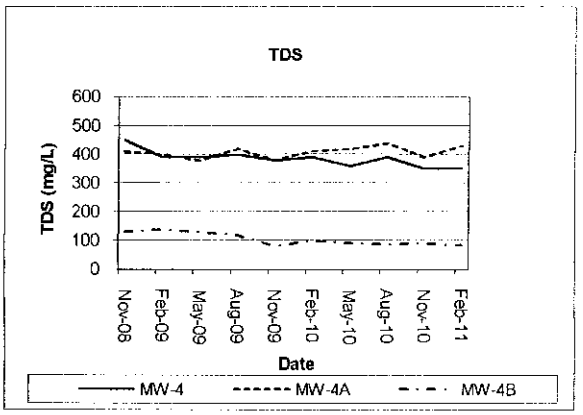








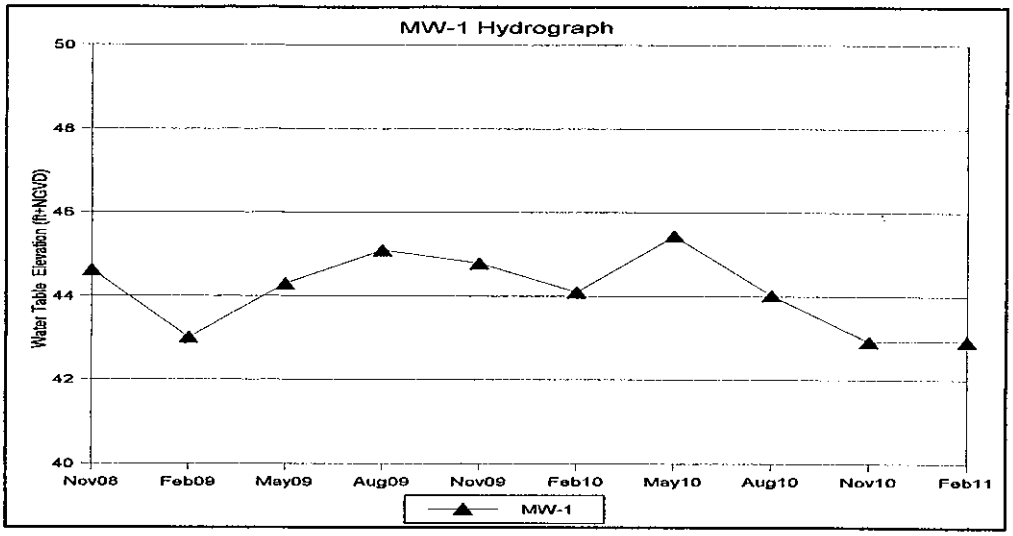


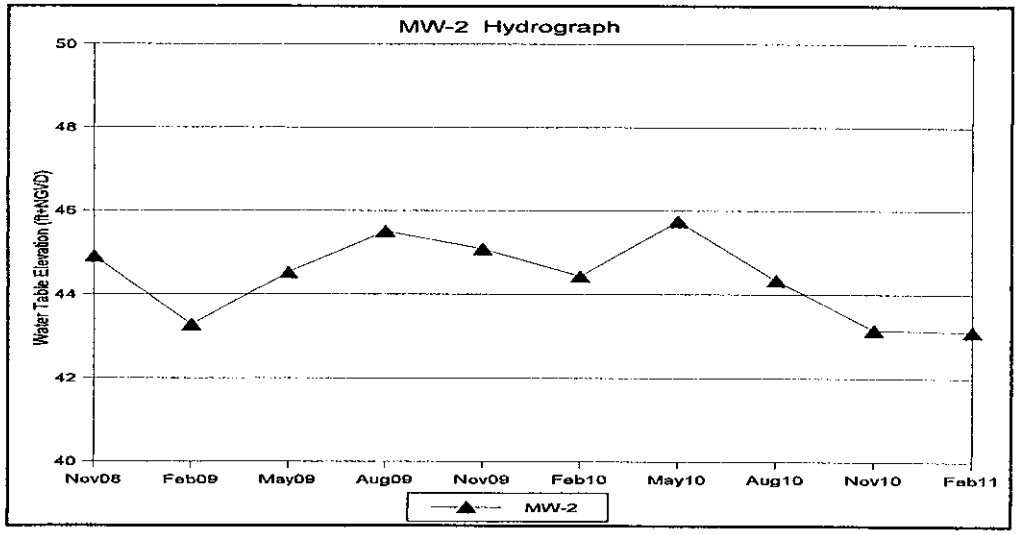


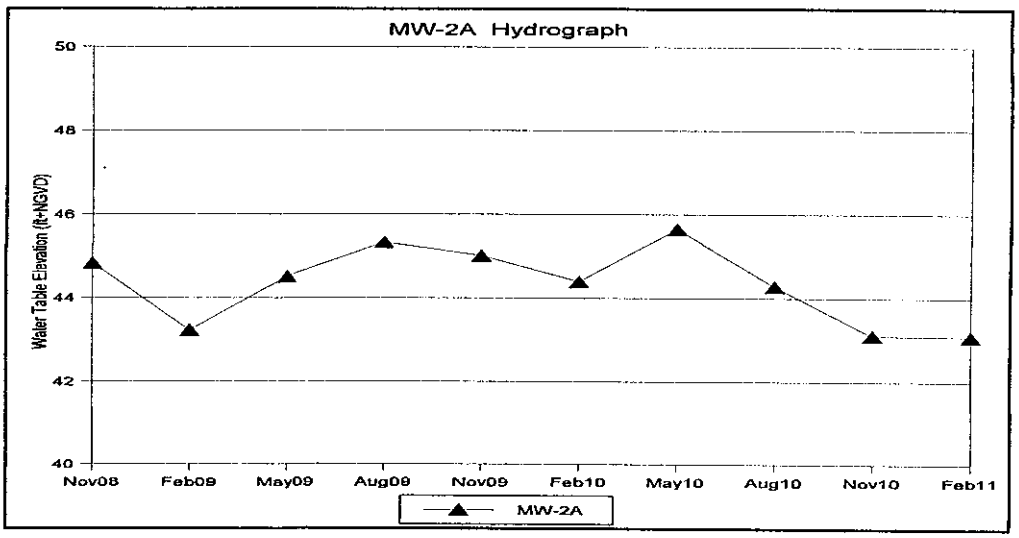
COMPARISON CHARTS: MW-4, MW-4A and MW-4B

APPENDIX IV

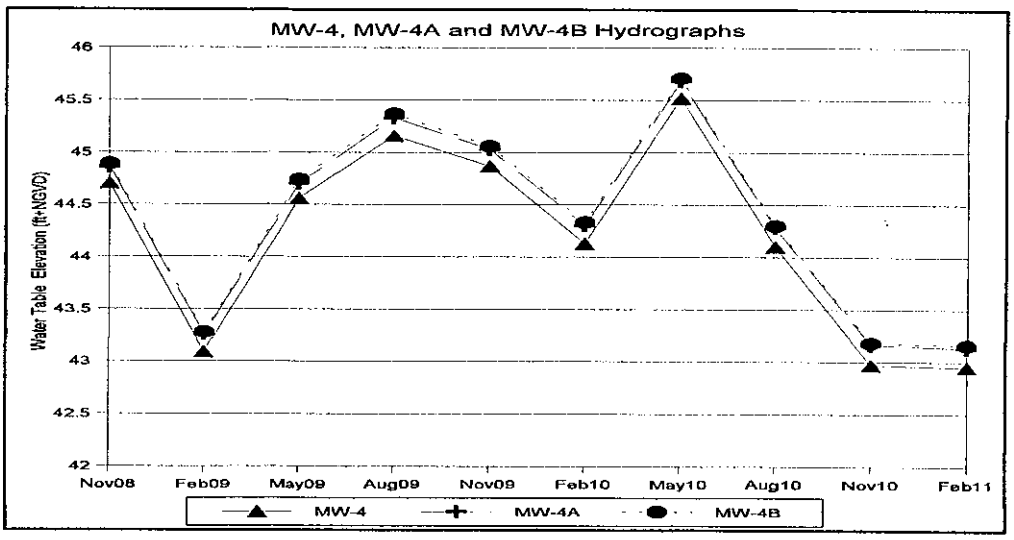
MONITORING WELL / PIEZOMETER HYDROGRAPHS

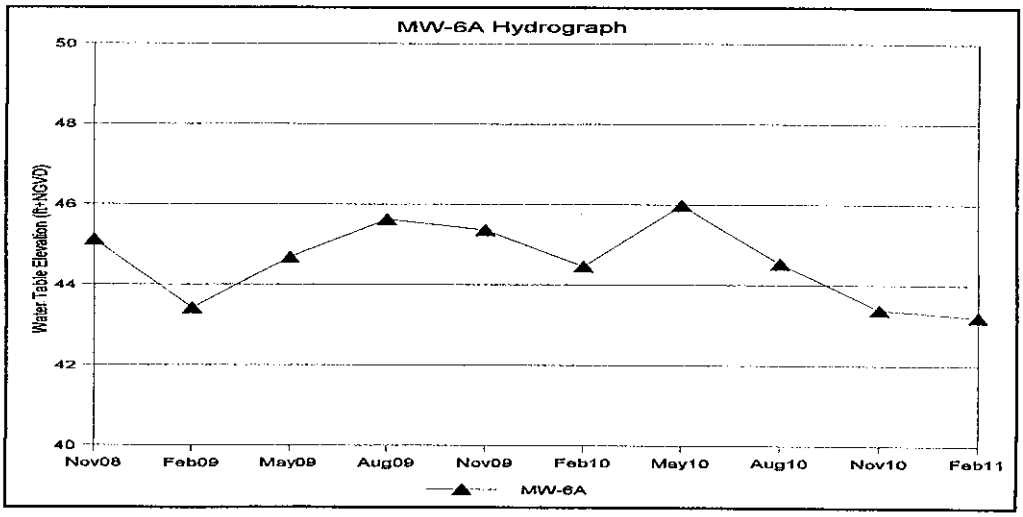


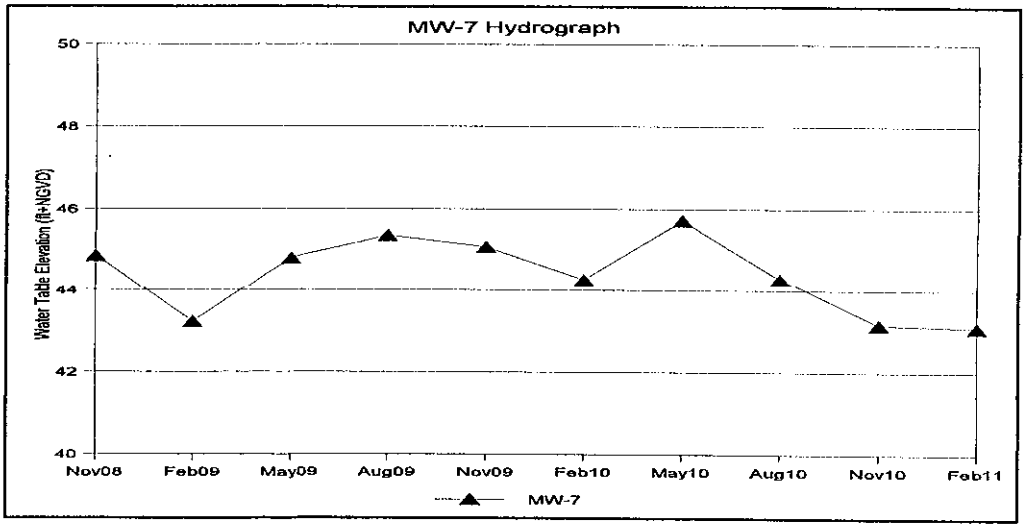




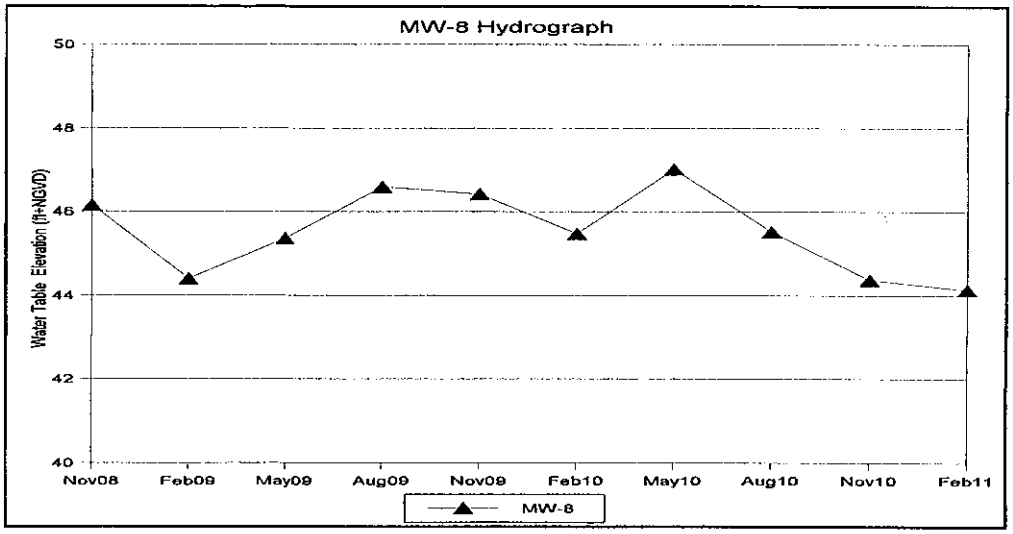
MW-1 Through MW-2A Hydrographs

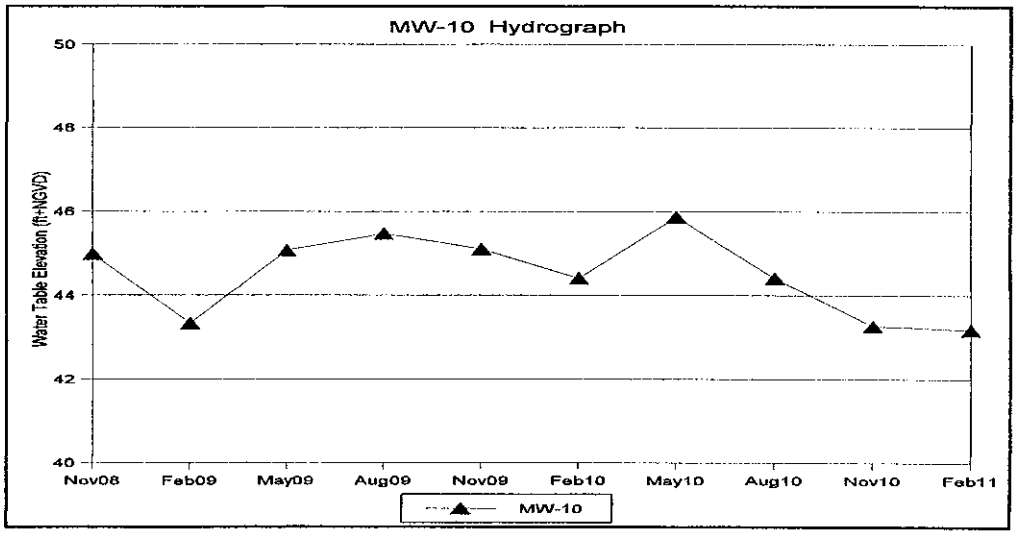


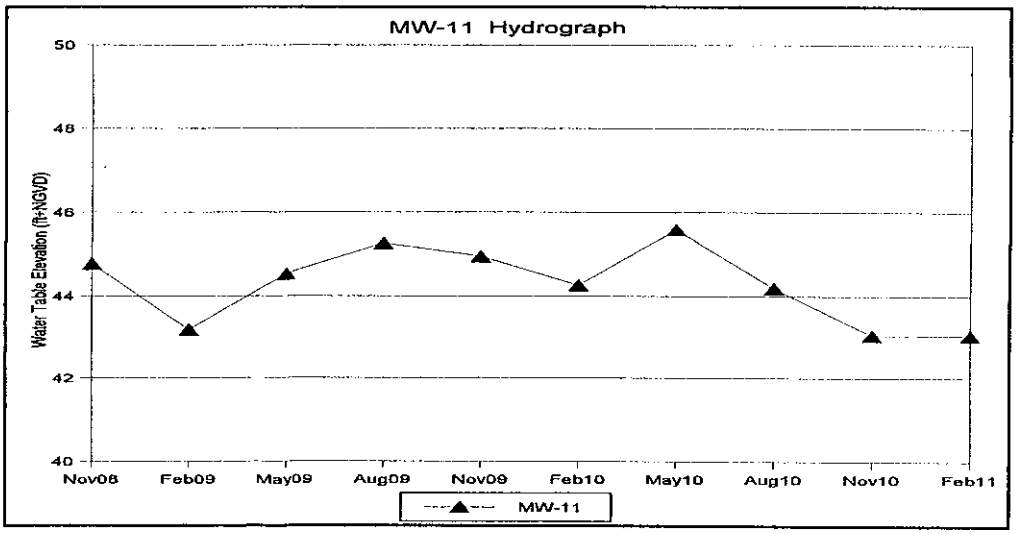




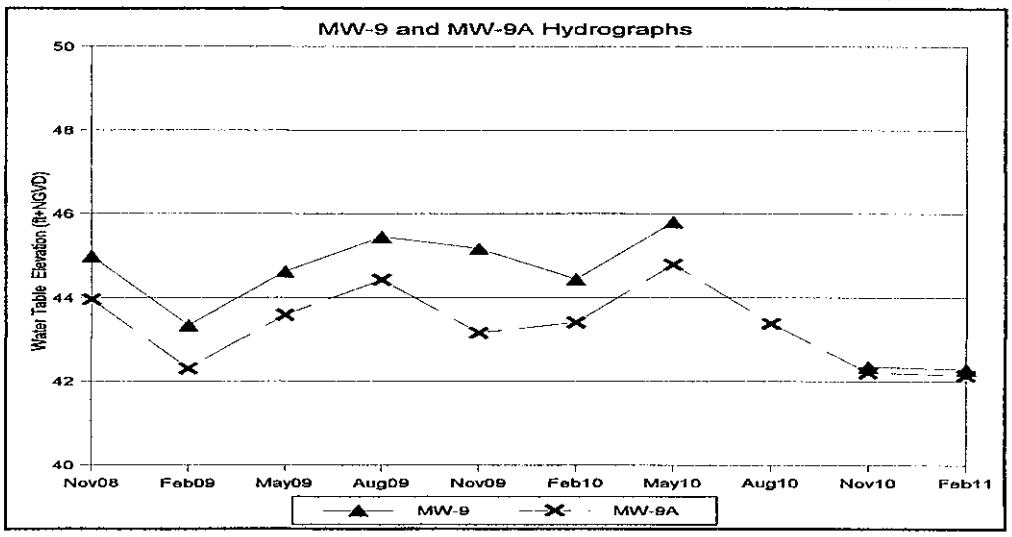
MW-4 Through MW-7 Hydrographs







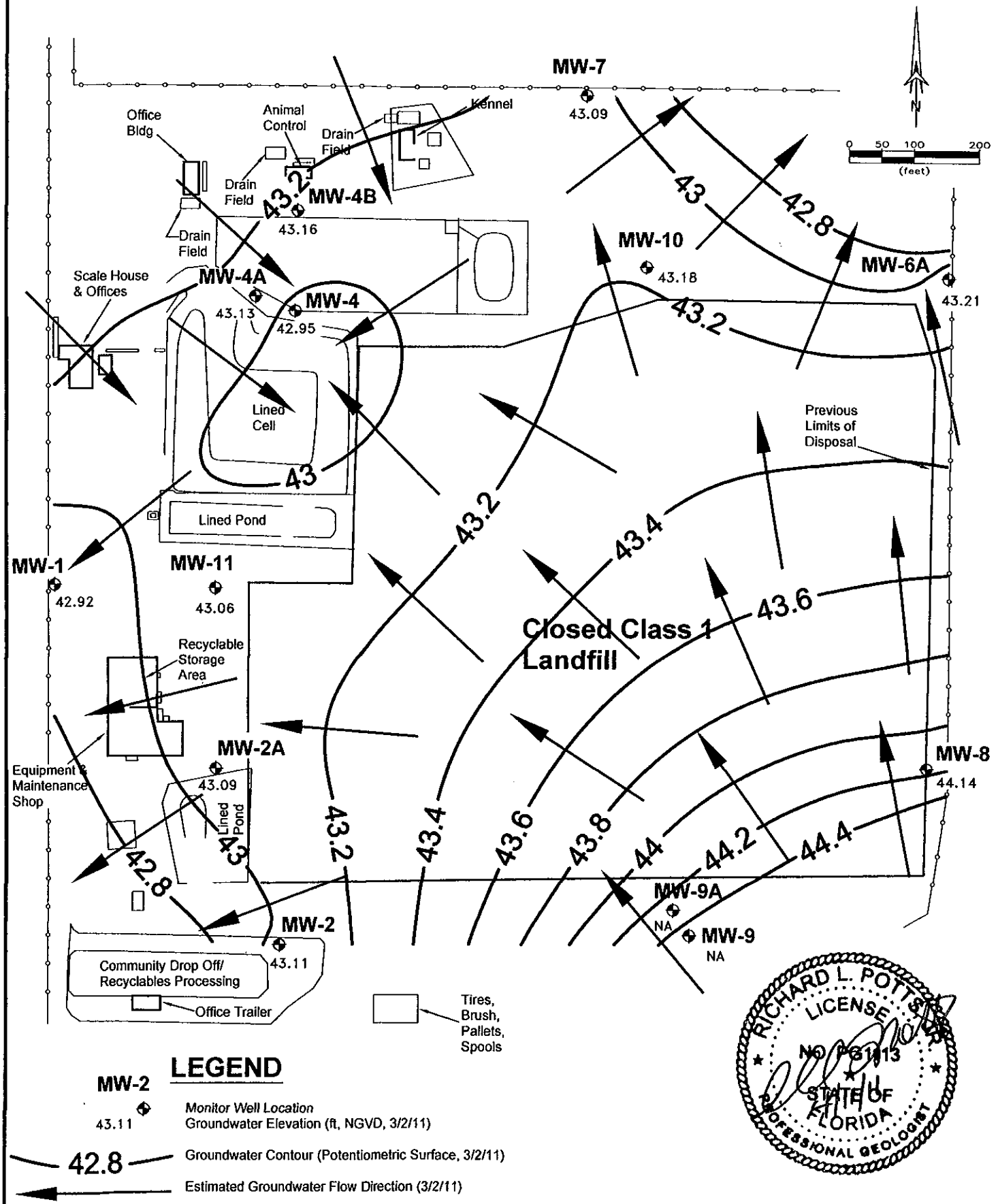
MW-8, MW-10 and MW-11 Hydrographs



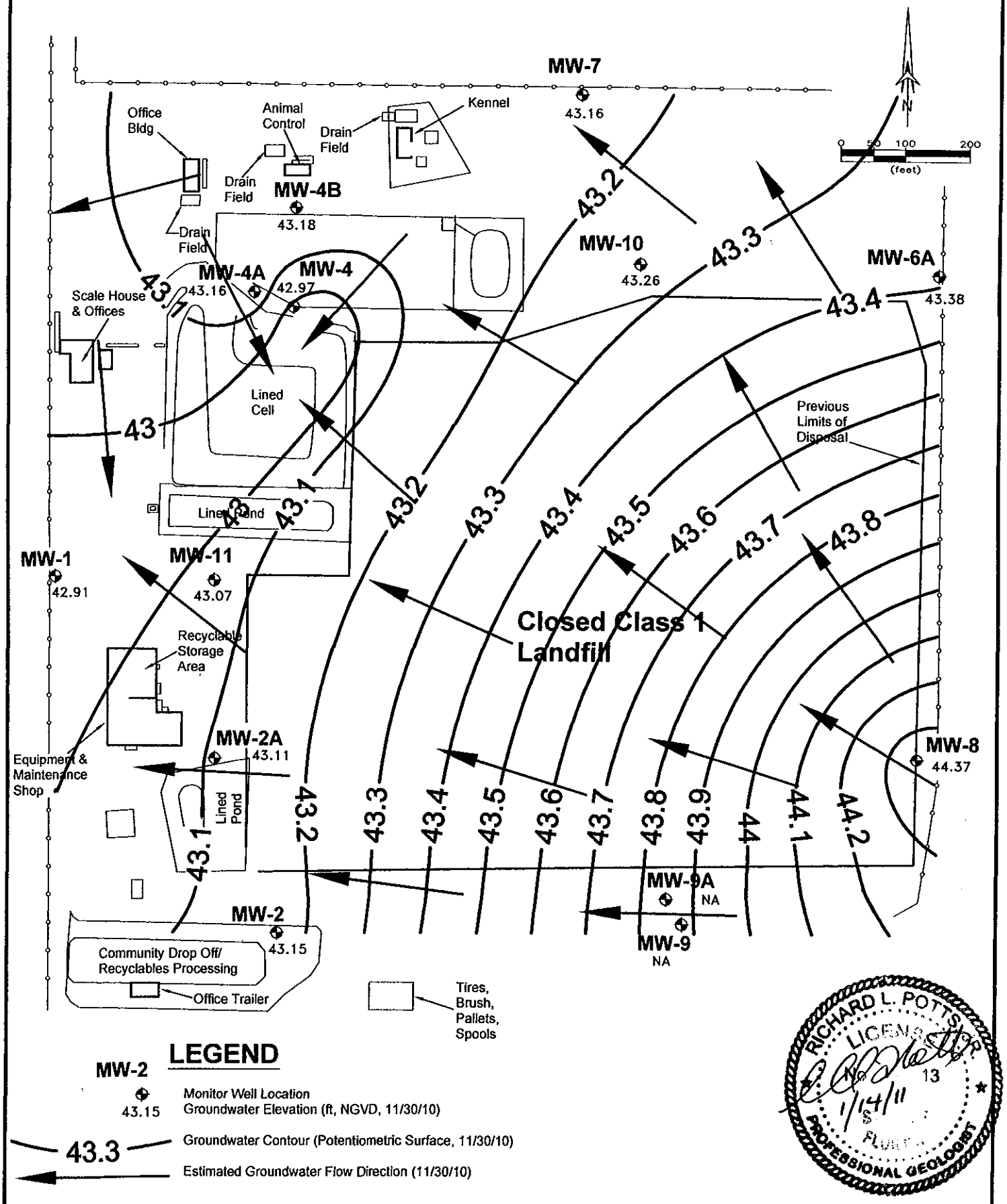
MW-9 and MW-9A Hydrographs

APPENDIX V

GROUNDWATER CONTOUR MAPS



The Colinas Group, Inc. 377 Maitland Avenue Suite 2012 Altamonte Springs, Florida 32701	PROJ. NO.: P-431 DATE: MARCH 2011 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER 1 (MARCH) 2011 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

MW-2 — Monitor Well Location

43.15 — Groundwater Elevation (ft, NGVD, 11/30/10)

43.3 — Groundwater Contour (Potentiometric Surface, 11/30/10)

Estimated Groundwater Flow Direction (11/30/10)

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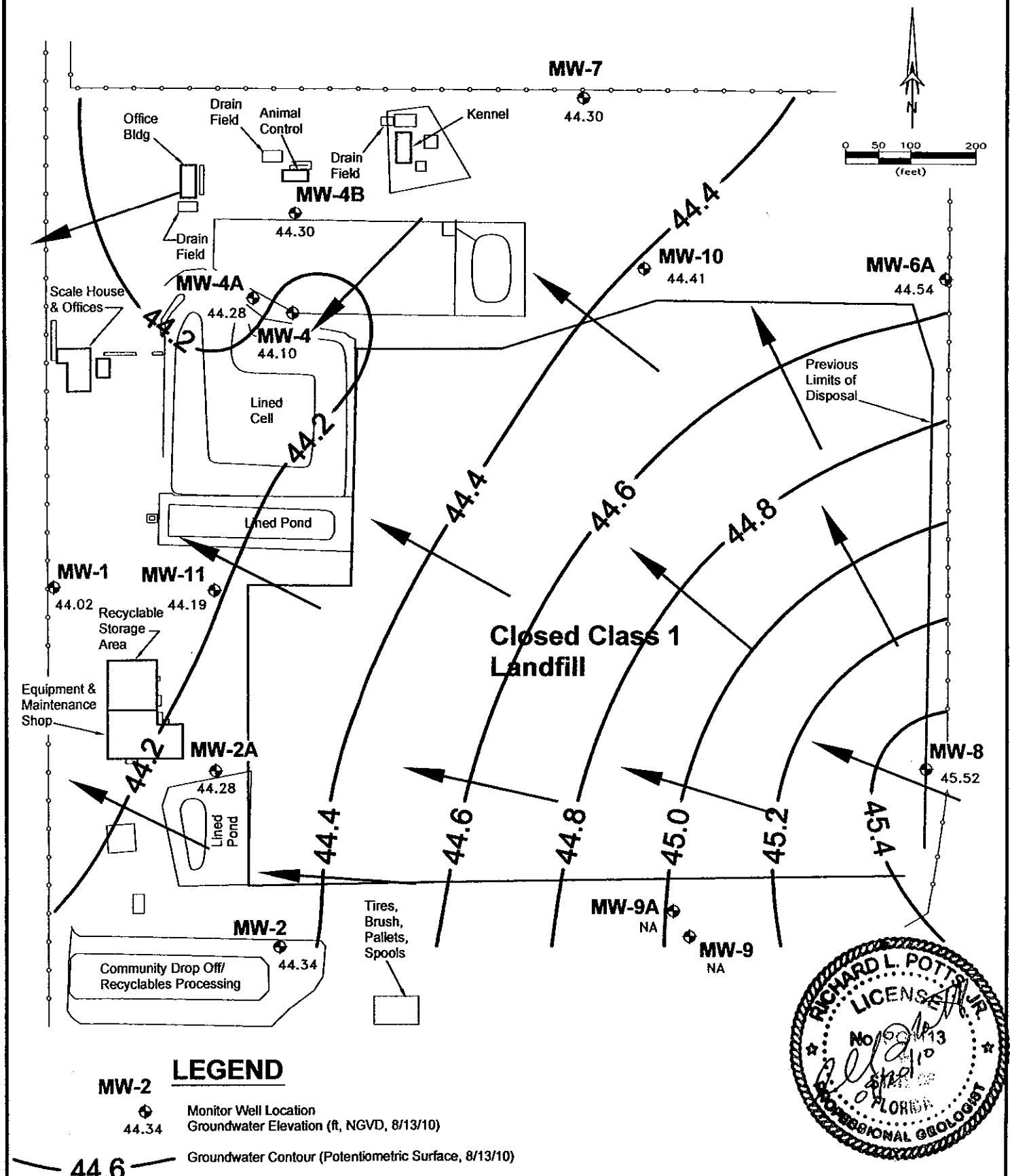
The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-431 DATE: DECEMBER 2010 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER 4 (NOVEMBER) 2010 SUMTER COUNTY LANDFILL	FIGURE 1



RICHARD L. POTTS, JR. LICENSE No. 2113 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

LEGEND

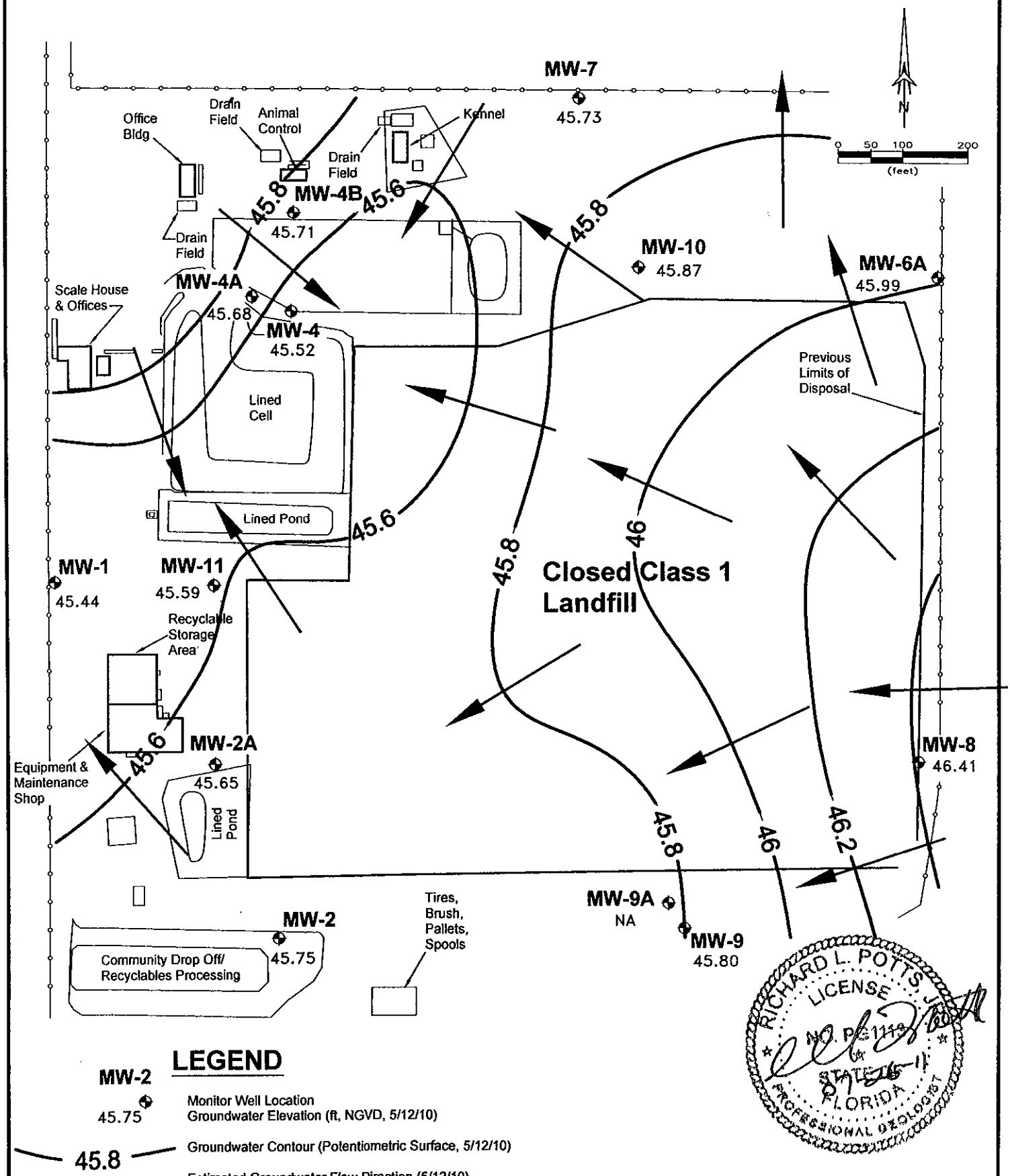
MW-2 — Monitor Well Location

44.34 — Groundwater Elevation (ft, NGVD, 8/13/10)

44.6 — Groundwater Contour (Potentiometric Surface, 8/13/10)

Estimated Groundwater Flow Direction (8/13/10)

The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-431 DATE: SEPTEMBER 2010 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER 3 (AUGUST) 2010 SUMTER COUNTY LANDFILL	FIGURE 1



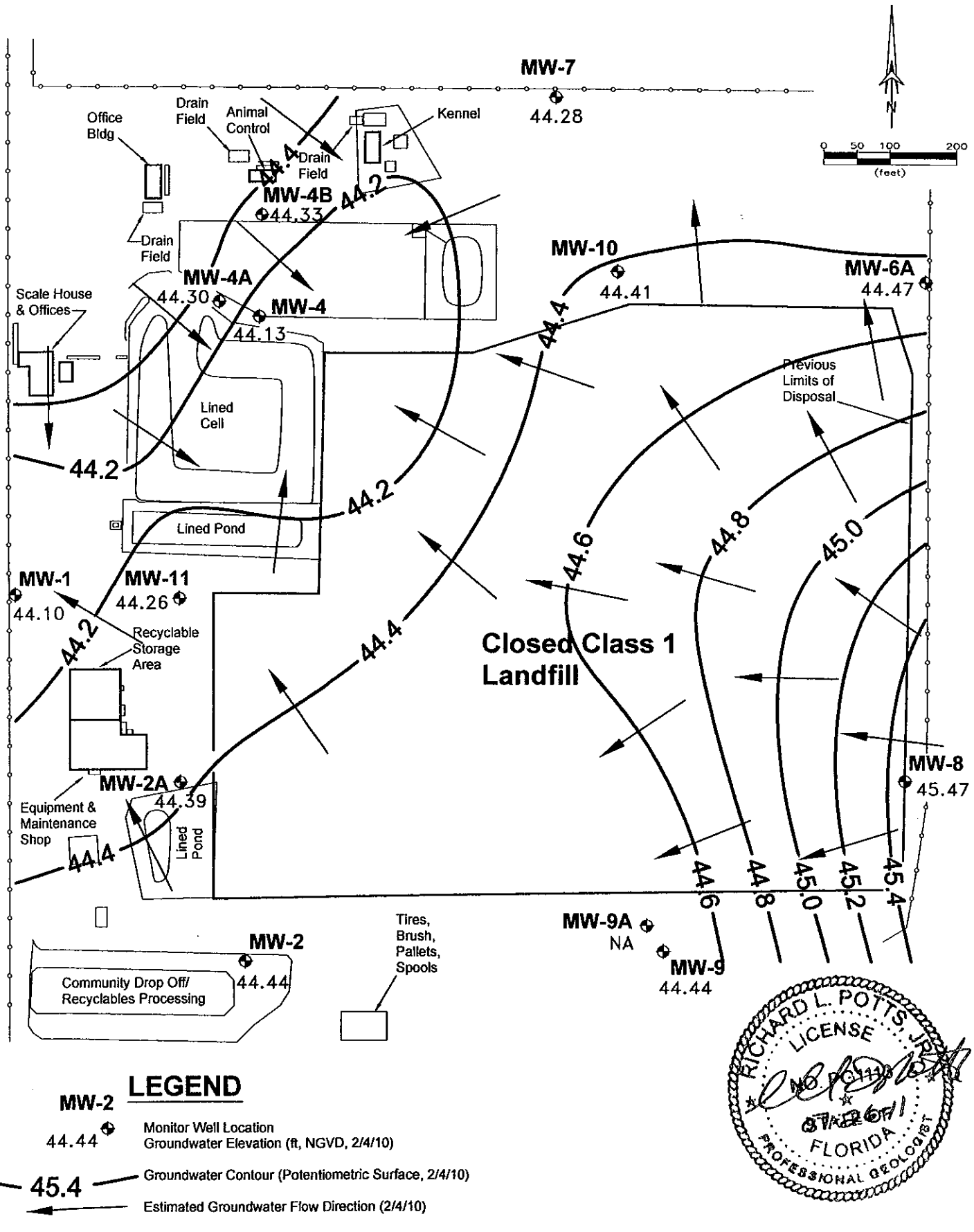
LEGEND

MW-2
45.75 — Monitor Well Location, Groundwater Elevation (ft, NGVD, 5/12/10)

45.8 — Groundwater Contour (Potentiometric Surface, 5/12/10)

Estimated Groundwater Flow Direction (5/12/10)

The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-421 DATE: MAY 2010 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER 2 (MAY) 2010 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

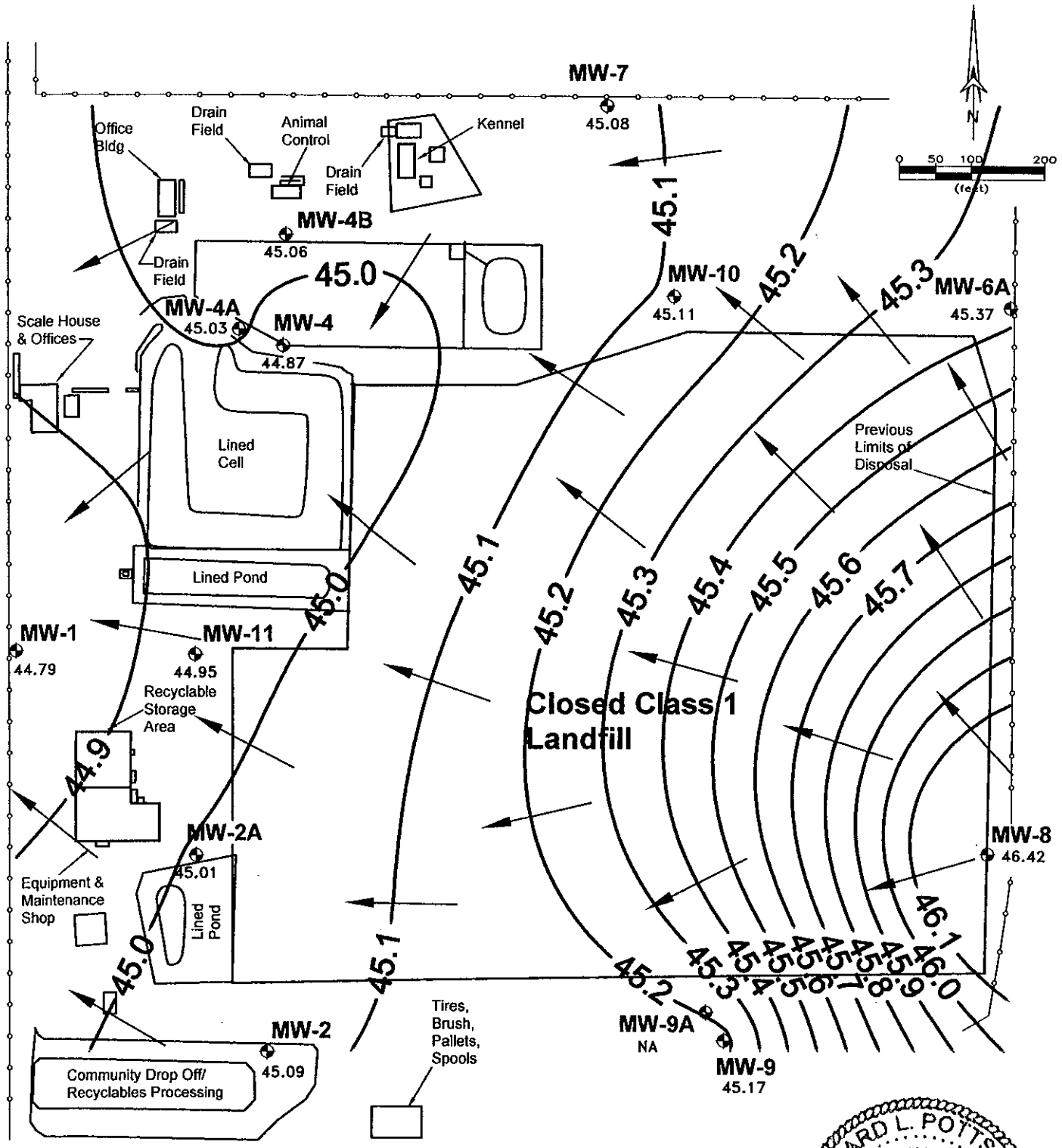
MW-2
44.44 — Monitor Well Location
Groundwater Elevation (ft, NGVD, 2/4/10)

45.4 — Groundwater Contour (Potentiometric Surface, 2/4/10)

Estimated Groundwater Flow Direction (2/4/10)

RICHARD L. POTTS, JR. LICENSE NO. PG1118 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-410 DATE: MARCH 2010 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER I (February) 2010 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

MW-2 Monitor Well Location

45.33 Groundwater Elevation (ft, NGVD, 11/17/09)

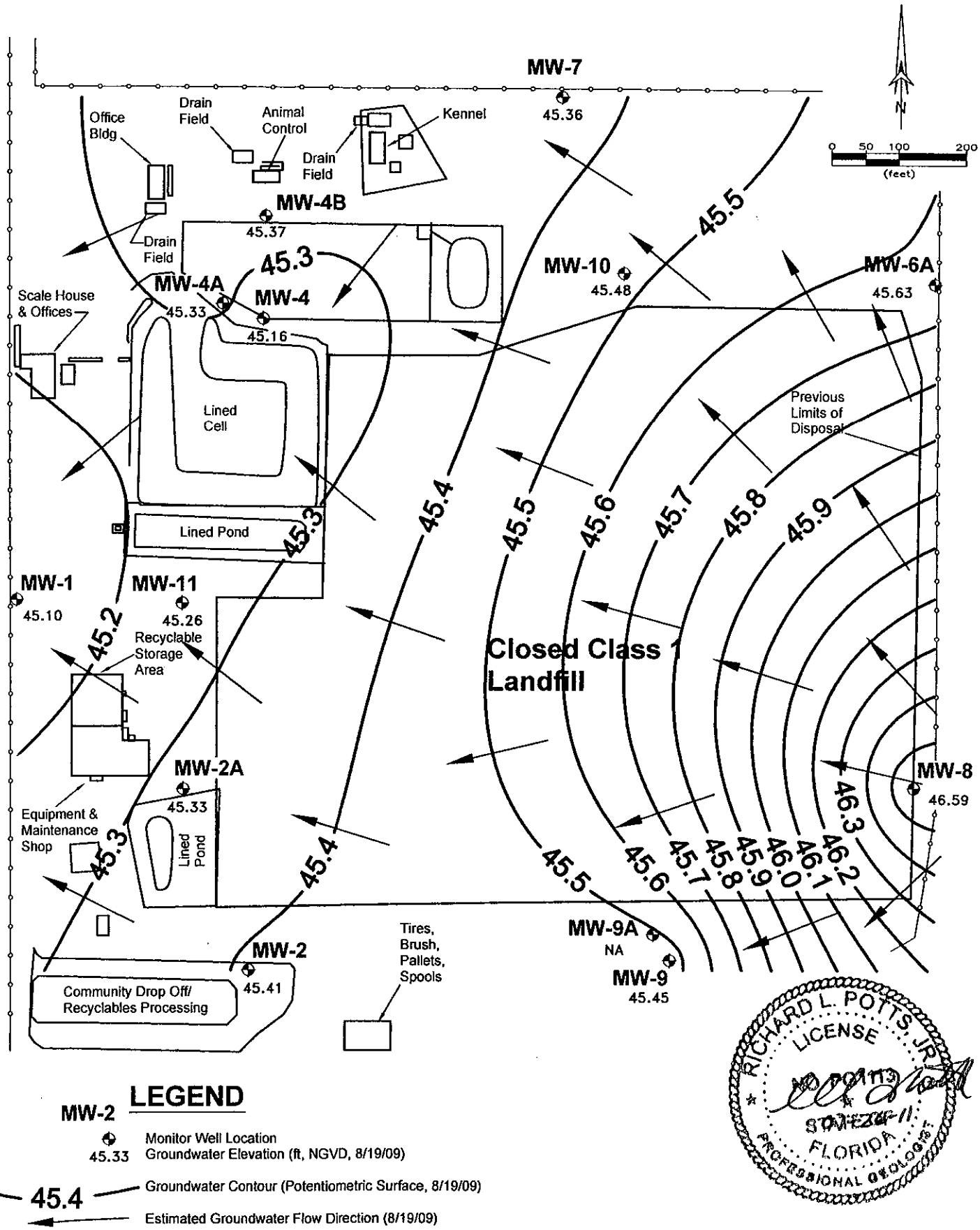
45.4 Groundwater Contour (Potentiometric Surface, 11/17/09)

Estimated Groundwater Flow Direction (11/17/09)

RICHARD L. POTTS, JR. LICENSE NO. PG 1113 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

DATE 6/11

The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-410 DATE: DECEMBER 2009 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER IV (November) 2009 SUMTER COUNTY LANDFILL	FIGURE 1



LEGEND

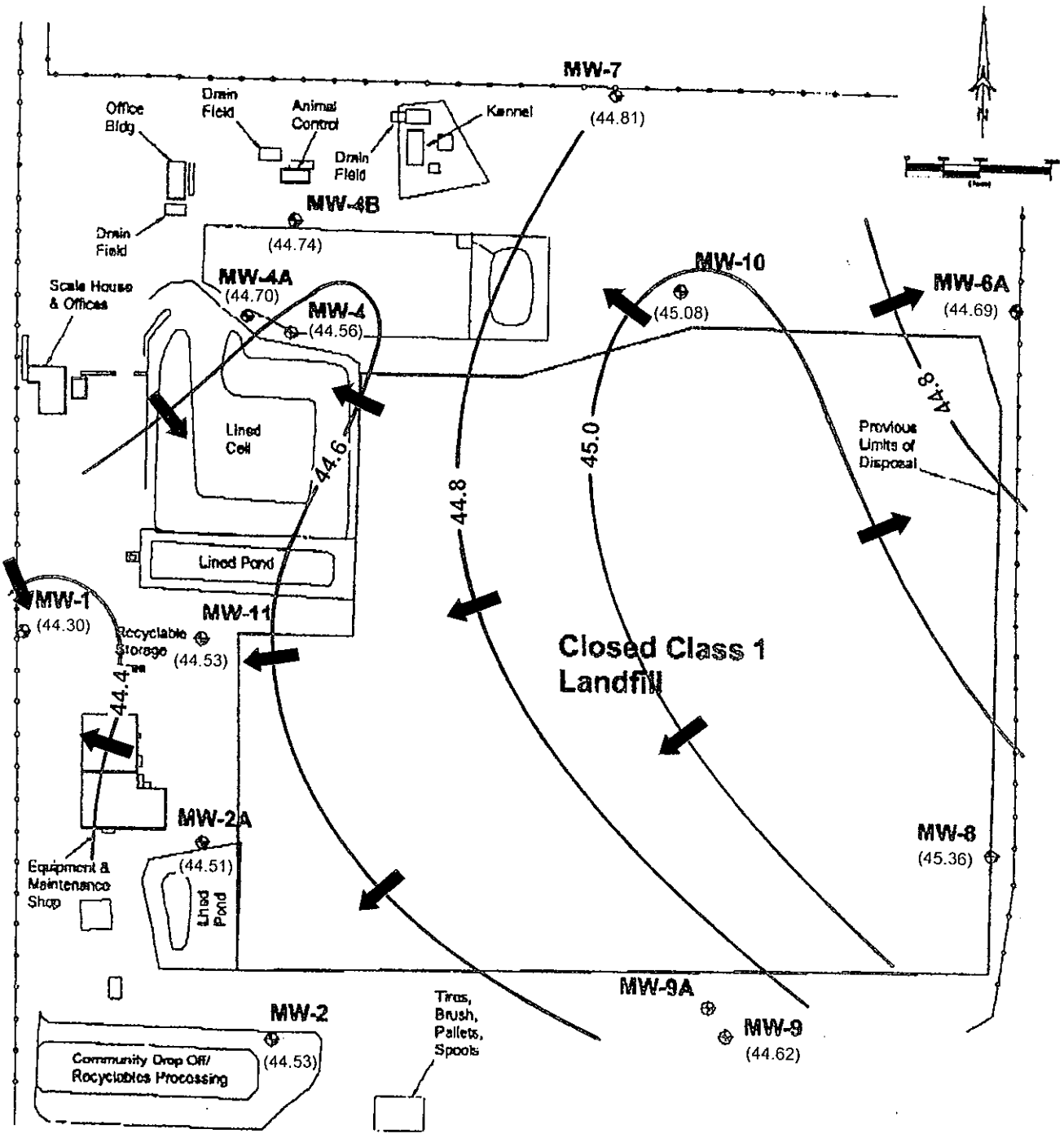
MW-2 — Monitor Well Location

45.33 — Groundwater Elevation (ft, NGVD, 8/19/09)

45.4 — Groundwater Contour (Potentiometric Surface, 8/19/09)

Estimated Groundwater Flow Direction (8/19/09)

The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-410 DATE: September 2009 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER III (August) 2009 SUMTER COUNTY LANDFILL	FIGURE 1

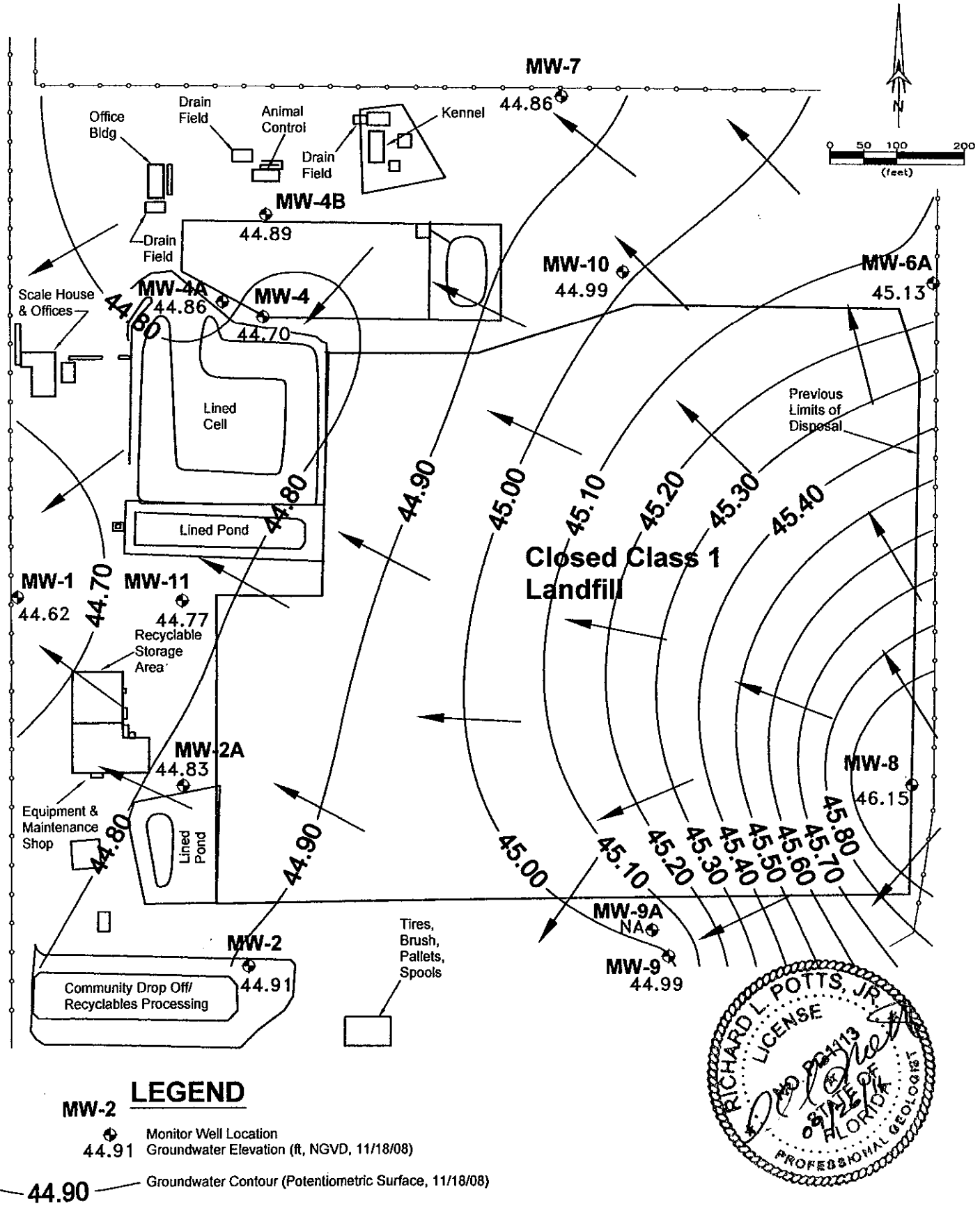


LEGEND

MW-2 ⊕ Monitor Well Location

7/10/09

PROJ. NO. P-390 DATE: July 6, 2009 SCALE: 1" = 200' (approx.) **THE COLINAS GROUP** 509 N. Virginia Ave., Winter Park, Fl 32789	**GROUNDWATER CONTOUR MAP** **QUARTER II (MAY) 2009** **SUMTER COUNTY (CLOSED) LANDFILL** **SUMTER COUNTY, FLORIDA** **FIGURE 1**



LEGEND

MW-2 ◆ Monitor Well Location

44.91 Groundwater Elevation (ft, NGVD, 11/18/08)

44.90 Groundwater Contour (Potentiometric Surface, 11/18/08)

Estimated Groundwater Flow Direction (11/18/08)

RICHARD L. POTTS, JR. LICENSE NO. PG1113 STATE OF FLORIDA PROFESSIONAL GEOLOGIST

The Colinas Group, Inc. 509 N. Virginia Avenue Winter Park, Florida 32789	PROJ. NO.: P-390 DATE: December 2008 SCALE: 1" = 200'	GROUNDWATER CONTOUR MAP QUARTER IV (NOVEMBER) 2008 SUMTER COUNTY LANDFILL	FIGURE 1