Final Report:
Applied Materials Building 1:
Long-Term Monitoring Strategy

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1. INTRODUCTION

The Applied Materials Building 1 (AM1) Superfund site in Santa Clara, CA is the location of a former semi-conductor wafer manufacturing facility that began operations in 1974. The AM1 site is located in an industrial area that developed rapidly between the 1960s and the 1980s with multiple silicon chip and computer component manufacturing facilities. Currently, AM1 is one of many sites in an area known as the South Bay Site (SBS), where historical industrial activities have resulted in a broad area of solvent-contaminated groundwater. AM1 was converted to offices and educational facilities in 2003, eliminating solvent-requiring research and manufacturing activity on-site.

A five-year review documenting the progress of AM1 toward remedial goals was completed in 2010. The site has largely achieved remedial goals for groundwater; however, specific National Priorities List (NPL) close-out prospects for sites with rare or intermittent exceedances of groundwater cleanup goals over a limited spatial extent are not clear. Additionally, the presence of groundwater plumes on adjacent properties may complicate the close-out decision. The following memorandum reviews historical site data and how they might support the development of a long-term, close-out strategy for the AM1 site. Statistical analyses were performed using modules within the Monitoring and Remediation Optimization System software (MAROS) (AFCEE 2004) and ProUCL software (Singh 2007).

Several guidance documents related to closeout of sites with affected groundwater were reviewed in order to recommend data collection and evaluation methods to facilitate a monitoring strategy at sites very close to attainment of groundwater standards (USEPA 1992; USEPA 2000; USEPA 2005; ITRC 2006; AFCEE 2009). However, a clear definition of statistical attainment standards or methods to demonstrate attainment of cleanup goals was unavailable in the literature reviewed. A historic document, *Methods for Evaluating the Attainment of Cleanup Standards* (USEPA 1992), states that “a well attains the cleanup standard if, based on statistical tests, it is unlikely that the average concentration (or the percentile) is greater than the cleanup goal.” Several statistical methods for testing whether an average value is below a target level are available in the literature (Rogers 1992; Weber 1995). However, the policy for sites in the Superfund program prohibits the use of temporal or spatial averaging to demonstrate achievement of cleanup goals (personal communication). So, the value of choosing one of these statistical methods to make a case for closeout is currently limited.

In order to move toward a strategy for site closure, site data should be reviewed during the five-year review process with an eye toward future data requirements for demonstration of attainment of cleanup goals. As part of this effort, general site factors that may be critical to a determination of attainment of cleanup goals have been identified. In order to facilitate the close-out process at AM1, relevant factors from this list have been identified and reviewed below.

A central feature of the close-out process is a review of the conceptual site model (CSM). The AM1 CSM, as currently conceived (Weiss 2002; Weiss 2004; Weiss 2007; Weiss

2008), has been compared to site data to determine if any data gaps or inconsistencies exist. To this end, the following specific CSM areas have been reviewed: 1) hydrogeology; 2) source area contribution and potential mass flux downgradient; 3) constituents of concern (COCs) and attenuation mechanisms; and 4) delineation of the AM1 plume. As part of the review, site data have been evaluated statistically, and select results of summary statistics, trends, and data sufficiency have been presented.

2. SITE BACKGROUND

AM1 site characterization and initial remedial activities began in 1983, with final listing on the NPL in 1987. Underground storage tanks (USTs) used for acid waste neutralization on the west side of the AM1 building are thought to have provided a pathway for entrance of chlorinated solvents (specifically 1,1,1-trichloroethane (1,1,1-TCA)) to groundwater. Affected groundwater was found in the shallow A zone downgradient from the USTs, and interim remedial measures were implemented in early 1985. Records of Decision (RODs) for groundwater and soil were signed in 1990 and 1993, respectively. The 1993 ROD found that "no further action other than that already implemented" was required. At the time the ROD was signed, AM1 already had an extensive groundwater extraction and treatment system. Primary COCs for this site included 1,1,1-TCA and daughter products 1,1-dichlorethene (1,1-DCE) and 1,1-dichloroethane (1,1-DCA). Cleanup goals are 200 µg/L for 1,1,1-TCA and 5 and 6 µg/L for 1,1-DCA and 1,1-DCE, respectively. These primary constituents distinguish the AM1 site from contamination originating from other sources characterized by higher concentrations of trichloroethene (TCE) and its daughter products.

Several remedial actions have been completed to date, including excavation of the USTs and surrounding soil, as well as installation of extensive groundwater extraction and treatment systems. Groundwater extraction wells were installed on site (AM1-EP followed by AM1-1, AM1-5E and AM1-10) with groundwater initially treated by activated carbon and later by air stripping. Treatment systems were in place at the time of the 1993 ROD. Groundwater monitoring has been ongoing since 1983, and institutional controls (ICs) have been established to limit contact with affected groundwater. Remedial actions have successfully reduced contaminant concentrations to below cleanup levels in many areas of the plume.

The groundwater extraction remedy was phased-out starting in 1996 and terminated completely in 2002, due to low recovery of COCs. While groundwater concentrations have decreased dramatically, groundwater sampling results intermittently exceed the cleanup standards in a limited area downgradient from the original source. Recent data indicate occasional exceedances for the degradation products 1,1-DCE and 1,1-DCA at two downgradient monitoring locations. Concentrations of 1,1,1-TCA and TCE are well below cleanup levels across the site.

3. HYDROGEOLOGY

Subsurface hydrogeology has been investigated extensively at the SBS due to the large number of industrial facilities in the area. The SBS and the AM1 site in particular are underlain by heterogeneous marine and alluvial sediments with groundwater flow largely northward toward San Francisco Bay. The shallow groundwater (30 – 40 ft below ground surface [bgs]) is classified as a potential drinking water source, but most area municipal supply wells are screened much deeper (>200 ft bgs) in a lower groundwater zone separated from the upper zones by an aquitard. Because the shallow groundwater is classified as a potential drinking water supply, lower cleanup standards (federal and state Maximum Contaminant Levels [MCLs]) apply.

The shallow subsurface is divided into several zones whose depth and thickness vary across the SBS. The strata consist of a mixture of low and higher permeability clays, silts, and sands, and create a complex matrix for contaminant transport. The AM1 subsurface is divided, in descending order, into the shallow A zone, the A/A2 aquitard, the A2 zone, the A2/B aquitard, and the B zone. The A zone is defined from the ground surface to approximately 25 ft bgs. The A zone is composed of sandy clay and sand and is underlain by the low-permeability A/A2 aquitard. The A2 zone occurs at about 30 ft bgs with a thickness of approximately 6 to 12 feet at the AM1 site. The A2 zone at AM1 is interpreted as the B zone at the adjacent HP site to the northeast, while AM1's A/A2 aquitard is called the A/B aquitard at the HP site.

The A2 zone in the former UST area is characterized as semi-continuous silty sand and sands with variable permeability. Well AM1-10 is screened in the A2 zone in the source area, but the extent of hydrogeologic connection with downgradient locations (AV-1B) is unclear. The A2/B aquitard underlies the A2 zone and has variable thickness across the site. The AM1 B zone occurs below approximately 40 ft bgs. Wells AM1-2 and AM1-5B are screened in the B zone. No wells are screened at this depth in off-site locations to the northeast. ("B-zone" wells off-site correspond with the AM1 A2 zone). The variability in stratigraphic nomenclature across the South Bay area should be carefully considered when comparing affected groundwater between and across the SBS. A cross-section illustrating the complexity of the AM1 subsurface is provided in Figure 11 of the *Five-Year Status Report and Effectiveness Evaluation for Applied Materials Building 1* (Weiss 2004).

The groundwater extraction and treatment system was operated between 1985 and 1999 in the A zone and in the A2 zone (well AM1-10) between 1990 and 2002. Since 2002, groundwater monitoring has continued at the site on an annual basis at a limited number of locations resulting in an eight-year record of post-active remediation groundwater quality. This time frame is consistent with recommendations in the USEPA statistical attainment document (1992) recommending a sufficient sampling record since active remedy termination to assess groundwater at dynamic equilibrium with the surrounding environment. Groundwater data collected since the shutdown of active treatment are discussed below.

Since the shutdown of extraction wells in the vicinity of AM1, groundwater flow has returned to the original northeasterly direction. While shallow groundwater elevations can vary with seasonal recharge, groundwater flow direction does not diverge dramatically or change seasonally. Stability in flow direction is consistent with a reduced management and monitoring effort at the site.

4. SOURCE AREA

Identifying and assessing the strength of the source area is a key component of evaluating the CSM. The status of the source area is a good predictor of future plume behavior. A source that is still contributing mass to the plume indicates that the plume will remain stable or expand in size over the near-term. By contrast, demonstrating that a source area is depleted supports the conclusion that mass flux downgradient will not be an issue in the future. With a depleted source, the plume will eventually exhaust, with or without additional remedial activities.

In 1985, three underground acid-neutralization storage tanks and associated soil were excavated from the area west of AM1 upgradient from the affected groundwater. Based on site reports, the extent of soil excavation was limited due to the presence of the building and possible sidewall stability issues (Weiss 2004). The tank excavation was converted into a groundwater extraction pit in the A zone with installation of extraction well AM1-EP.

The source area was monitored between 1985 and 2003. Concentrations of major constituents in the A-zone source area (extraction well AM1-1) fell below regulatory standards in 2000 (see Figures 1 and 2), while concentrations in AM1-EP dropped below standards by 1994 (one minor exceedance for TCE was recorded in 1995, but was not repeated). By 2003, the last year for which data were collected, concentrations of all constituents in the A-zone source area were below cleanup goals. Wells AM1-EP and AM1-1 were plugged and abandoned in 2003 and the AM1-EP extraction pit was grouted in 2004.

Constituents have not exceeded standards in the B-zone source area (well AM1-2) since 1992 and have not been detected since 1994. Well AM1-2 was plugged and abandoned in 2003. The A2 zone is characterized by lower permeability and lower yield than the A and B zones. A2-zone extraction well AM1-10 showed concentrations below screening levels during its last sampling event in 2003, but showed results above cleanup levels through 2002. The low-permeability sediments in the A2 zone may have reduced the efficacy of the P&T remedy relative to the A and B zones and may release contaminants more slowly than the higher-permeability sediments. However, by 2003, groundwater in the A-2 source area had fallen below cleanup standards.

Groundwater data from the AM1 site indicate the primary source is largely exhausted and is unlikely to contribute mass to the downgradient plume in the future. Trend data (discussed in more detail below) indicate strongly decreasing trends for source wells from 1996 through 2003. Currently, sources of constituent mass to groundwater are most likely secondary, arising from residual contamination desorbing from the low-permeability zones. However, data from tail wells indicate desorption is limited, creating concentration variations near the cleanup levels in the plume body.

Very low source concentrations are consistent with reduced monitoring and management effort at the site. Concentrations in the source area indicate that additional remedial efforts may have limited beneficial results above the current natural attenuation mechanisms.

5. CONSTITUENTS OF CONCERN

1,1,1-TCA as a parent compound is unique in that both biodegradation and abiotic chemical degradation pathways determine its fate in groundwater. Anaerobic microbial degradation of 1,1,1-TCA generates 1,1-DCA (cleanup goal = 5 μg/L) while spontaneous abiotic degradation produces 1,1-DCE (cleanup goal = 6 μg/L) and acetic acid (no drinking water standard). The presence of 1,1-DCA is an indication of a history of active anaerobic degradation processes in the source area. The abiotic decomposition process is not influenced by geochemical conditions such as the presence or absence of oxygen (Vogel and McCarty 1987; Haag and Mill 1988; Jeffers, Ward et al. 1989); therefore, spontaneous abiotic degradation occurs in both aerobic and anaerobic environments at the same rate, with 1,1-DCE acting as a rough indicator of time since release of the parent compound.

By assessing the relative strength of each of these pathways at various points in the plume, the structure and persistence of the plume can be evaluated. In order to visualize the relative contributions of the anaerobic and spontaneous degradation pathways to 1,1,1-TCA degradation, trilateral diagrams have been constructed using site analytical data (Figures 3 - 5, see Appendix A for an explanation of how to read trilateral diagrams). The diagrams compare the molar ratios of 1,1,1-TCA and its daughter products at various locations and times. The characteristic pattern produced in a trilateral diagram can indicate how the parent compound (1,1,1-TCA) is being converted by either the abiotic reaction (1,1-DCE) or the reductive dechlorination reaction (1,1-DCA) and can indicate hydraulic connection of locations with similar ratios. By looking at the ratios of constituents in different locations in the plume, the plot can indicate if groundwater in different areas is impacted by preferential flow paths or different attenuation mechanisms.

Trilateral diagrams are constructed by calculating the percent (%) molar concentration of each constituent in the groundwater sample relative to the total molar concentration of the three compounds together. The relative % molar concentrations are plotted on a three-sided graph, indicating the relative contribution of each constituent to the whole. Samples with relatively more 1,1,1-TCA are indicated near the top of the triangle, whereas samples where abiotic degradation processes dominate or have dominated (generating 1,1-DCE) are located to the lower right. Locations where biodegradation is active (generating 1,1-DCA) appear to the lower left. The trilateral diagram *does not* indicate the total concentration of contaminant at the site (i.e., low-concentration wells and high-concentration wells are plotted the same way).

The trilateral diagram in Figure 3 indicates compound ratios for extraction wells in the source area. Data from 1996 to 2003 are shown for AM1-EP and AM1-1 in the A zone and AM1-10 in the A2 zone (data 1996 – 2000 are annual averages). AM1-EP was placed within the UST excavation. Sample results for AM1-EP are dominated by 1,1,1-TCA with lower levels of the anaerobic degradation product and little to no 1,1-DCE. The dominance of the parent compound is consistent with AM1-EP representing the initial release area, with the extraction well removing original product from the excavation area. Data for well AM1-1, somewhat downgradient from the source, show increasing percentages of the degradation products over both time and distance from the release. By January 2003, data show almost equal ratios of 1,1,1-TCA, 1,1-DCE and 1,1-DCA in the A zone.

Extraction well AM1-10, screened in the A2 zone, shows a pattern similar to AM1-1, with increasing concentrations of 1,1-DCA over time, but with lower amounts of 1,1-DCE. This pattern indicates that anaerobic biodegradation was a stronger process in the A2-zone source area. The ratio of parent to daughter products fell over both time and distance from the source in both the A and A2 zones. The data support a conclusion that the source area was becoming depleted of parent compound by the time sampling ended in 2003.

Even though sample results from downgradient A-zone wells AM1-5E, AM1-7, and AM1-6 show low concentrations of site COCs, ratios of the major constituents can still be calculated. Sampling data for wells AM1-6 and AM1-7 indicate occasional exceedances for 1,1-DCA and 1,1-DCE, but it is not obvious from the concentration data alone if different fate mechanisms influence groundwater in these areas. The trilateral plot illustrated on Figure 4 indicates that AM1-5E, AM1-7 and AM1-6 have similar constituent ratios, with AM1-6 showing a greater proportion of 1,1-DCE. AM1-5E, which is located closer to the center of the plume, has a higher percentage of 1,1-DCA. Moving down and cross-gradient from the source, groundwater becomes depleted in 1,1,1-TCA and 1,1-DCA through attenuation mechanisms, leaving the less labile 1,1-DCE to dominate the profile at AM1-6. The compound ratios support the conclusion that mass attenuation processes are still active after shut-down of the extraction remedy (1996 – 2002). Decreasing concentration trends from 1996 - 2011 for most constituents (see Trends below) indicate a reduction in primary source strength and concentration variability arising from secondary desorption from low-porosity lenses. The similarity of profiles for downgradient wells indicates the flow regime is fairly consistent across the site and no major data gaps are evident in the CSM for hydrogeology.

In order to assess the potential hydraulic connection between A2-zone wells AM1-10 and AV-1B, constituent ratios were calculated and compared in Figure 5. Well AV-1B (data from 1996 – 2006) had very low concentrations of the constituents, but, based on their ratios, they resemble data from the 2000 - 2003 (dates shown) profile of well AM1-10. AV-1B shows much lower ratios of 1,1-DCE than A-zone wells AM1-6 and AM1-7, indicating a more likely hydraulic connection between AM1-10 than the overlying A zone. Groundwater at AV-1B and AM1-10 appear to be hydraulically connected. Because both monitoring locations show concentrations below the cleanup levels, a case can be made that the A2 groundwater zone has attained the cleanup goals.

The ROD identified cleanup goals for 1,1-DCE as the state and federal drinking water standards at the time. Standards for 1,1,1-TCA have not changed since 1993, but toxicity evaluations of both 1,1-DCA and 1,1-DCE have changed in the intervening years. The current USEPA MCL for 1,1-DCE is 7 µg/L. In 2002, the toxicity factors for 1,1-DCE changed (USEPA 2002) and the Region 9 PRG was increased to 340 µg/L. However, the USEPA MCL for 1,1-DCE was not changed, so the likelihood of renegotiated cleanup goals for this compound is uncertain. 1,1-DCA has never had a federal MCL. The Region 9 PRG for 1,1-DCA fell from 810 µg/L prior to 2004 to 2.4 µg/L in 2009. It is unclear how changes in toxicity evaluations for AM1 site COCs may affect future cleanup goals for these compounds.

6. DELINIATION

A key component of the CSM is defining the vertical and horizontal extent of affected media. As discussed previously, the vertical extent of affected groundwater has been delineated in the source area by well AM1-2. Site COCs were found in the B zone for a short time; however, concentrations have dropped below screening levels and subsequently below detection limits since 1994. Downgradient B-zone well AM1-5B has had limited detections of site COCs, with all values below cleanup levels since 1985. These data demonstrate that groundwater is not affected in the B zone, and that vertical delineation has been achieved at AM1.

The horizontal extent of groundwater impacted by the AM1 source is defined by the presence of 1,1,1-TCA daughter products 1,1-DCE and 1,1-DCA at downgradient locations. Sampling results at AV-1A and AV-1B define the historical downgradient extent of impacts. Results at AV-1A and B were below cleanup standards at the time of their last sampling in 2004 and 2006, respectively. As stated earlier, AM1-6 and AM1-7 show intermittent exceedances of cleanup levels, indicating the current horizontal extent of the AM1 plume. Groundwater to the north (AM1-12) and northeast (HP site wells) of the site is impacted from other plumes as indicated by higher concentrations of TCE and vinyl chloride. Off-site wells do not appear to be impacted by the specific AM1 COCs. Monitoring data indicate the plume has been fully delineated in the horizontal as well as vertical direction.

7. TREND ANALYSIS

Trend data can be used to support site management decisions by demonstrating that groundwater has a stable or decreasing trend after active remediation efforts are completed. The USEPA statistical guidance (USEPA 1992) recommends collecting samples after the termination of active remediation to demonstrate that transient remediation-related effects have equilibrated. Trend analysis using the MAROS software was performed to identify both stable and statistically decreasing trends. Decreasing trends after termination of the active remedy can indicate that attenuation mechanisms are still active.

Non-parametric Mann-Kendall concentration trends were evaluated for several wells for 1,1-DCA and 1,1-DCE between 1996 (the time of the initial Pumping Modification Program) and the final sampling event for each well (see Table 1 and Appendix B). 1,1,1-TCA was not evaluated, as results have been below cleanup goals since the early 1990s. For the wells reviewed, most showed strongly decreasing (AM1-5B, AM1-5E, AM1-11, AM1-10, and AM1-1) or stable (AM1-6) trends during this time period. “No trend” results for AV-1B, AV-7A, and AM1-EP reflect higher data variance arising from very low concentrations interspersed with non-detect results. Several locations (AM1-9 and AM1-2) show all non-detect results. No increasing trends were found for this time frame.

Trend results for the downgradient wells AM1-6, AM1-5E, and AM1-7 showed strongly decreasing trends for 1,1-DCE, and for AM1-5E for 1,1-DCA and stable trends for AM1-6 and a No Trend result for AM1-7 for 1,1-DCA through 2011. These results indicate the plume is stable to shrinking, with many areas below cleanup levels, since termination of the active remedy. Decreasing trends through 2003 along with concentrations below cleanup levels in source area wells support the conclusion that the original source is exhausted. Decreasing to stable trends in the downgradient areas indicate that, even in the absence of active remediation, residual concentrations are still diminishing. Overall, trend data support the conclusion of a reduction in management effort.

Concentration results from 2011 showed a slight increase over recent results for all wells sampled. The reason for the increased concentrations across the site is not clear, but all results fall within a range of variability expected for the site (about 1 standard deviation). The overall trend of AM1 site contaminants is decreasing, but variability between groundwater samples is characteristic of most long-term groundwater data. Summary statistics for concentration results for the last five years (2007 – 2011) are shown in Table 2.

Table 2 also includes the results of a sampling frequency evaluation for wells remaining in the monitoring program (AM1-5E, AM1-11, AM1-6 and AM1-7). The software-recommended sampling frequency for each location is annual, based on the rate of change of concentration for both 1,1-DCE and 1,1-DCA. The sampling frequency module considers the trend and the rate of change of concentrations relative to the screening level when determining the recommended sampling frequency. Other factors to consider in developing a final sampling frequency include the regulatory reporting frequency and whether additional data collection would achieve statistical significance for a particular analysis. In the case of AM1, the low rate of concentration change and the weight of evidence that supports reduced management effort may provide justification for biennial sampling, contingent upon stakeholder consensus.

8. DATA SUFFICIENCY

The question of "How clean is clean?" has been at the heart of environmental remediation efforts for 30 years. Typically, site management decisions are made based on a very small amount of sampling data relative to the extent of potentially affected areas. Groundwater data often show a high level of variability and rarely conform to a specific statistical distribution. These issues lead to a certain amount of ambiguity in interpreting the "attainment" of cleanup goals. Very little guidance is available on statistical determination of standard attainment for datasets where concentrations vary between the cleanup standard and detection limits.

Determining when a groundwater location has statistically achieved a cleanup goal may depend on several metrics, including quantity of data, variance in the dataset, and detection limits, as well as the qualitative confidence in the CSM. The question of what percentage of samples or how many continuous samples are necessary to decisively demonstrate concentrations are below cleanup levels is unclear. One method of assessing if a dataset is reliably below a standard is a Sequential t-Test based on yearly concentration averages (Rogers 1992; USEPA 1992). The test compares annual concentration averages to the screening standard over a period of years, and performs a hypothesis test that is sensitive to the statistical power of the dataset.

The MAROS software Data Sufficiency module was used to identify locations that have sufficient data to statistically attain the cleanup goal using the Sequential t-Test. As illustrated by the results of the test in Table 2, only AM1-6 for 1,1-DCA is statistically below the screening level considering sampling results from 2007-2011. Table 1 indicates the status of wells considering the larger dataset 1996 – 2011. Historic wells AM1-5B, AM1-2, AM1-9, AM1-EP and AV-7A have all attained cleanup using the Sequential t-Test method for both 1,1-DCE and 1,1-DCA. Data for AM1-9 define an area of clean groundwater to the north of the original source zone. Well AV-7A delineates the historical downgradient extent of the AM1 plume, and AM1-2 delimits the vertical extent of affected groundwater. Attainment status at these locations confirms that the plume has been successfully delineated. Statistical results for AM1-EP indicate that the source area has attained cleanup goals.

AM1-6 is statistically below the cleanup goal for 1,1-DCA but not 1,1-DCE, although individual sample results for 2008 and 2009 are below the goal. By 2006, well AV1-B had attained cleanup status for 1,1-DCE, but not for 1,1-DCA. Although the absolute concentrations fell below standards during the most recent sampling event, insufficient data had been collected to demonstrate that constituents at well AM1-10 are statistically below the screening levels.

Several locations within the historical AM1 plume appear to have attained cleanup goals using the Sequential t-Test. Other locations show concentrations that occasionally exceed goals for one or both remaining COCs. However, because there is little policy guidance on the number of samples necessary to show attainment, acceptable levels of variance in the data or the timeframe over which attainment data must be collected, it is difficult to recommend a sampling program that would provide sufficient data to make these demonstrations in the short-term.

A summary of all of the sampling locations in the Weiss database (Weiss, 2011) is provided in Table 3. Each well with sampling results is listed with the earliest and the most recent sampling date from the database. Wells that are indicated as sealed and abandoned on site maps (Weiss, 2010) are indicated. Data were reviewed for each well, and wells where the concentrations of 1,1-DCA, 1,1-DCE, 1,1,1-TCA, and TCE were below the cleanup level on the most recent sampling date are indicated. While this information is not as rigorous as the statistical tests described above, the data do show that the majority of locations were below the cleanup standards at the time they were decommissioned.

9. CONCLUSIONS

Extensive remediation efforts over the past 30 years have achieved groundwater concentrations very close to cleanup goals at the AM1 site. A review of the CSM and historical data reveal that:

- the hydrogeology is well understood and consistent with site data;
- the primary source area appears exhausted and is not actively exporting mass to the tail;
- COC attenuation processes have been active, and concentrations are still decreasing despite the cessation of active treatment, and
- site contamination is well delineated.

An evaluation of concentration trends supports the CSM and the position that active remediation is not necessary for control or eventual destruction of the plume. Data sufficiency analysis indicates that many areas of the plume have achieved remediation goals, using a fairly conservative statistical test for attainment. The sampling frequency algorithm in MAROS recommends an annual sampling frequency for the wells remaining in the program. Lines of evidence developed from site data indicate that a reduced level of monitoring effort is appropriate for this site. However, as the policy and data standards for delisting sites with affected groundwater are not clear, a specific recommendation for data collection accelerating closeout of the site cannot be made at this time.

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APPLIED MATERIALS BUILDING 1
Long-Term Monitoring Strategy

Santa Clara, California

TABLES

TABLE 1
SUMMARY RESULTS FOR APPLIED MATERIALS SELECT WELLS
1996 - 2011

Applied Materials Building 1, Santa Clara, California

WellName	Number of Samples	Number of Detects	Percent Detection	Mann-Kendall Trend	Statistically Below Standard*?	Date of Most Recent Sampling Event
1,1-Dichloroethane						
AM1- 1	13	11	85%	D	NO	1/9/2003
AM1- 5B	14	5	36%	D	YES	1/8/2003
AM1-10	13	13	100%	D	NO	7/11/2003
AM1-11	23	22	96%	D	NO	1/18/2011
AM1-2	8	0	ND	ND	YES	1/8/2003
AM1-5E	35	34	97%	D	NO	1/18/2011
AM1-6	37	36	97%	S	YES	1/18/2011
AM1-7	36	36	100%	NT	NO	1/18/2011
AM1-9	7	0	ND	ND	YES	1/8/2003
AM1-EP	11	10	91%	NT	YES	1/8/2003
AV- 1B	25	24	96%	D	NO	7/20/2006
AV- 7A	10	4	40%	D	YES	7/20/2006
1,1-Dichloroethene						
AM1- 1	13	11	85%	D	NO	1/9/2003
AM1- 5B	14	0	ND	ND	YES	1/8/2003
AM1-10	13	11	85%	D	NO	7/11/2003
AM1-11	23	22	96%	D	NO	1/18/2011
AM1-2	8	0	ND	ND	YES	1/8/2003
AM1-5E	35	34	97%	D	NO	1/18/2011
AM1-6	37	36	97%	D	NO	1/18/2011
AM1-7	36	36	100%	D	NO	1/18/2011
AM1-9	8	0	ND	ND	YES	1/8/2003
AM1-EP	11	0	ND	ND	YES	1/8/2003
AV- 1B	24	21	88%	NT	YES	7/20/2006
AV- 7A	11	1	9%	NT	YES	7/20/2006

Notes:
1. Data from Weiss Assoc. database through 2011.
2. Trends are Mann-Kendall results from the 1996 to 2011 dataset.
3. D = Decreasing; S = Stable; NT = No Trend; ND = well has all non-detect results for COC.
4. Locations statistically below the cleanup standard by Sequential T-Test (USEPA, 1992).

TABLE 2
SUMMARY STATISTICS FOR APPLIED MATERIALS SELECT WELLS
2007 - 2011

Applied Materials Building 1, Santa Clara, California

WellName	Number of Samples	Number of Detects	Detected Concentrations 2007 - 2011 [ug/L] Minimum	Maximum	Mean	Median	Standard Deviation	Mean + SD	Mean - SD	MAROS Recommended Sampling Frequency
1,1-Dichloroethane [MCL = 5 ug/L]										
AM1-11	6	6	1.8	4.4	2.8	2.2	1.17	3.97	1.63	Annual
AM1-5E	5	5	5.7	8.2	6.54	5.8	1.11	7.65	5.43	Annual
AM1-6	5	5	2	4.3	2.8	2.5	0.88	3.68	1.92	Annual
AM1-7	6	6	0.76	8.5	5.24	6.05	3.19	8.43	2.05	Annual
1,1-Dichloroethene [MCL=6 ug/L]										
AM1-11	6	6	2.2	9	4.85	3.15	3.16	8.01	1.69	Annual
AM1-5E	5	5	3.9	9.6	5.76	5.3	2.24	8.00	3.52	Annual
AM1-6	5	5	2	6.1	4.24	5	1.75	5.99	2.49	Annual
AM1-7*	6	5	1.1	8.3	6	8	3.16	9.16	2.84	Annual

Notes:

1. Data from Weiss Assoc. databases through 2011.
2. Summary statistics calculated using ProUCL 4.0 Software (2007).
   * = AM1-7 had one ND result, subsequent sampling did not confirm this result. Statistics shown are for detected concentrations.
3. LCL = Lower Confidence Limit, UCL = Upper Confidence Limit on mean calculated using method from USEPA Statistical Analysis Unified Guidance (2009).
4. Confidence limits calculated around the mean based on an assumption of normal data distribution. Distributions shown on Table 1.
5. Spatial average for each COC includes 4 wells in program between 2006 - 2010.
6. 95% UCL on mean calculated using method recommended in ProUCL for distribution of the data.

a = 95% Kaplan Meier (t) UCL
b. = Student's T-UCL
c. = Gamma UCL

TABLE 2
SUMMARY STATISTICS FOR APPLIED MATERIALS SELECT WELLS
2007 - 2011

Applied Materials Building 1, Santa Clara, California

WellName	90% (α = 0.1)		95% (α = 0.05)		99% (α = 0.01)		Below Goal by Sequential T-Test	Data Distribution	95% UCL on Mean	95% UCL Method
	LCL	UCL	LCL	UCL	LCL	UCL				
1,1-Dichloroethane [MCL = 5 ug/L]										
AM1-11	2.09	3.51	1.84	3.76	1.19	4.41	No	Lognormal	3.765	b
AM1-5E	5.77	7.31	5.47	7.61	4.67	8.41	No	Normal	7.605	b
AM1-6	2.20	3.40	1.96	3.64	1.33	4.27	Yes	Normal	3.637	b
AM1-7	3.32	7.16	2.62	7.87	0.86	9.62	No	Normal	7.866	b
1,1-Dichloroethene [MCL=6 ug/L]										
AM1-11	2.95	6.75	2.25	7.45	0.79	8.91	No	Lognormal	8.88	c
AM1-5E	4.22	7.30	3.62	7.90	2.01	9.51	No	Normal	7.896	b
AM1-6	3.04	5.44	2.57	5.91	1.61	6.87	No	Normal	5.909	b
AM1-7*	4.10	7.90	3.40	8.60	1.66	10.34	No	Normal	8.07	b

Notes:

1. Data from Weiss Assoc. databases through 2011.
2. Summary statistics calculated using ProUCL 4.0 Software (2007).
   = AM1-7 had one ND result, subsequent sampling did not confirm this result. Statistics shown are for detected concentrations.
*3. LCL = Lower Confidence Limit, UCL = Upper Confidence Limit on mean calculated using method from USEPA Statistical Analysis Unified Guidance (2009).
4. Confidence limits calculated around the mean based on an assumption of normal data distribution. Distributions shown on Table 1.
5. Spatial average for each COC includes 4 wells in program between 2006 - 2010.
6. 95% UCL on mean calculated using method recommended in ProUCL for distribution of the data.

95% Kaplan Meier (t) UCL
a = = Student's T-UCL
b. = Gamma UCL
c.

TABLE 3
GROUNDWATER MONITORING LOCATIONS
AM1 AREA

Applied Materials Building 1, Santa Clara, California

Well Name	Minimum Sample Date	Maximum Sample Date	Below MCLs on Most Recent Sample Date	Sealed and Abandoned
AM1- 1	11/27/1983	1/9/2003	Yes	X
AM1- 2	6/11/1984	1/8/2003	Yes	X
AM1- 3	6/11/1984	1/8/2003	Yes	
AM1- 4	6/11/1984	5/3/1990	Yes	X
AM1- 5	6/11/1984	5/12/1999	No	X
AM1- 5B	1/30/1985	1/8/2003	Yes	X
AM1- 5E	**9/12/1985**	**1/18/2011**	No	
AM1- 6	**5/28/1985**	**1/18/2011**	Yes	
AM1- 7	**5/29/1985**	**1/18/2011**	No	
AM1- 8	5/29/1985	5/3/1990	No	X
AM1- 9	5/28/1985	1/8/2003	No (TCE)	X
AM1-10	6/5/1989	7/11/2003	Yes	X
AM1-11	**5/2/1991**	**1/18/2011**	No (11DCE)	
AM1-12	5/2/1991	1/4/2001	Yes	X
AM1-14	10/3/1991	1/8/2003	Yes	X
AM1-EP	2/6/1985	1/8/2003	Yes	X
AV- 1A	5/23/1985	1/14/2004	Yes	X
AV- 1B	6/13/1996	7/20/2006	Yes	X
AV- 7A	5/28/1985	1/14/2004	Yes	X
HP- 1	9/7/1983	7/3/1990	Yes	X
HP- 2	11/15/1983	1/13/2005	No (TCE)	X
HP- 3	11/15/1983	7/20/1988	Yes	X
HP- 4	11/15/1983	7/21/1988	Yes	X
HP- 5	9/15/1983	1/12/2005	No (TCE)	X
HP- 6	9/15/1983	1/13/2005	Yes	X
HP- 7	11/15/1983	5/22/1985	Yes	X
HP- 8	10/28/1988	1/12/2005	No (TCE)	X
HP- 9B	10/28/1988	4/6/1990	Yes	X
MW-1	1/12/2005	1/16/2007	Yes	
MW-2	1/12/2005	1/16/2007	No	

Notes
1. Sample dates and well status are from Weiss Assoc. database 2011.
2. Wells in the current program are highlighed in **Bold**.
3. HP wells are located north of AM1 and AV wells are located to the north/northwest.
4. Recent sampling results for 1,1-DCE, 1,1-DCA, 1,1,1-TCA and TCE compared against site cleanup goals. Values below MCLs indicated. Wells that exceed for only TCE indicated.
5. MCLs: 1,1-DCA = 5 ug/L; 1,1,-DCE = 6 ug/L; TCE = 5 ug/L.

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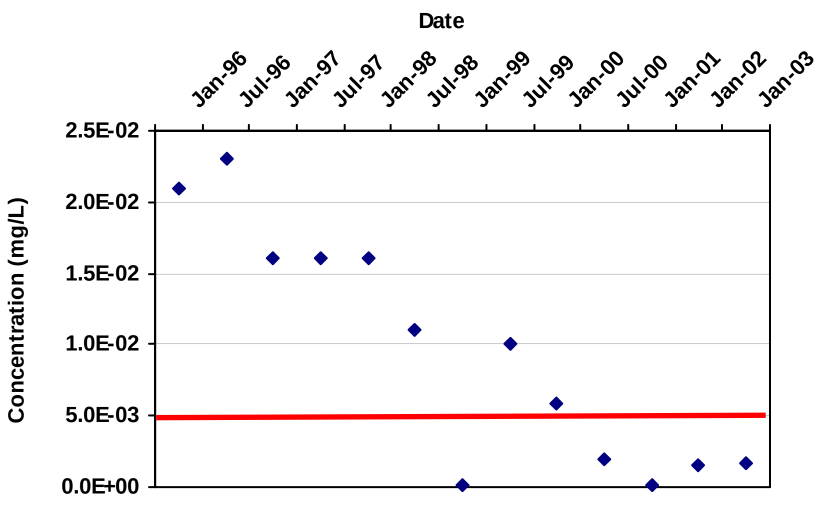
FIGURES

Figure 1: A-Zone Source well AM1-1
1,1-DCA Trend 1996 - 2003

MAROS Mann-Kendall Statistics Summary

Well: AM1- 1
Well Type: T
COC: 1,1-DICHLOROETHANE

Time Period: 1/1/1996 **to** 1/20/2009
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: Specified Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -56

Confidence in Trend: 100.0%

Coefficient of Variation: 0.86

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1- 1	T	1/4/1996	1,1-DICHLOROETHANE	2.1E-02		1	1
AM1- 1	T	7/18/1996	1,1-DICHLOROETHANE	2.3E-02		1	1
AM1- 1	T	1/7/1997	1,1-DICHLOROETHANE	1.6E-02		1	1
AM1- 1	T	7/3/1997	1,1-DICHLOROETHANE	1.6E-02		1	1
AM1- 1	T	1/8/1998	1,1-DICHLOROETHANE	1.6E-02		1	1
AM1- 1	T	7/2/1998	1,1-DICHLOROETHANE	1.1E-02		1	1
AM1- 1	T	1/14/1999	1,1-DICHLOROETHANE	1.0E-04	ND	1	0
AM1- 1	T	7/1/1999	1,1-DICHLOROETHANE	1.0E-02		1	1
AM1- 1	T	1/17/2000	1,1-DICHLOROETHANE	5.8E-03		1	1
AM1- 1	T	7/6/2000	1,1-DICHLOROETHANE	2.0E-03		1	1
AM1- 1	T	1/5/2001	1,1-DICHLOROETHANE	1.0E-04	ND	1	0
AM1- 1	T	1/16/2002	1,1-DICHLOROETHANE	1.6E-03		1	1
AM1- 1	T	1/9/2003	1,1-DICHLOROETHANE	1.7E-03		1	1

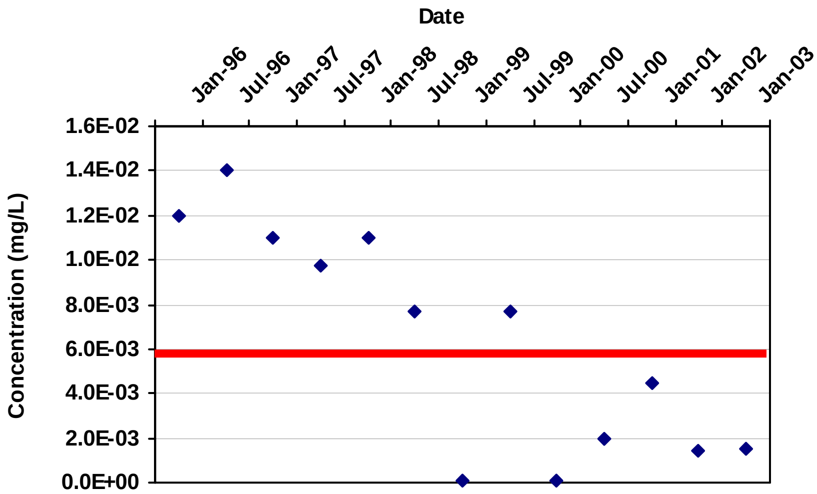
Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

Figure 2: A Zone Source Area well AM1-1
1,1-DCE Trend 1996 - 2003.

MAROS Mann-Kendall Statistics Summary

Well: AM1- 1
Well Type: T
COC: 1,1-DICHLOROETHENE

Time Period: 1/1/1996 **to** 1/20/2009
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: Specified Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -49

Confidence in Trend: 99.9%

Coefficient of Variation: 0.78

Mann Kendall Concentration Trend: (See Note) D

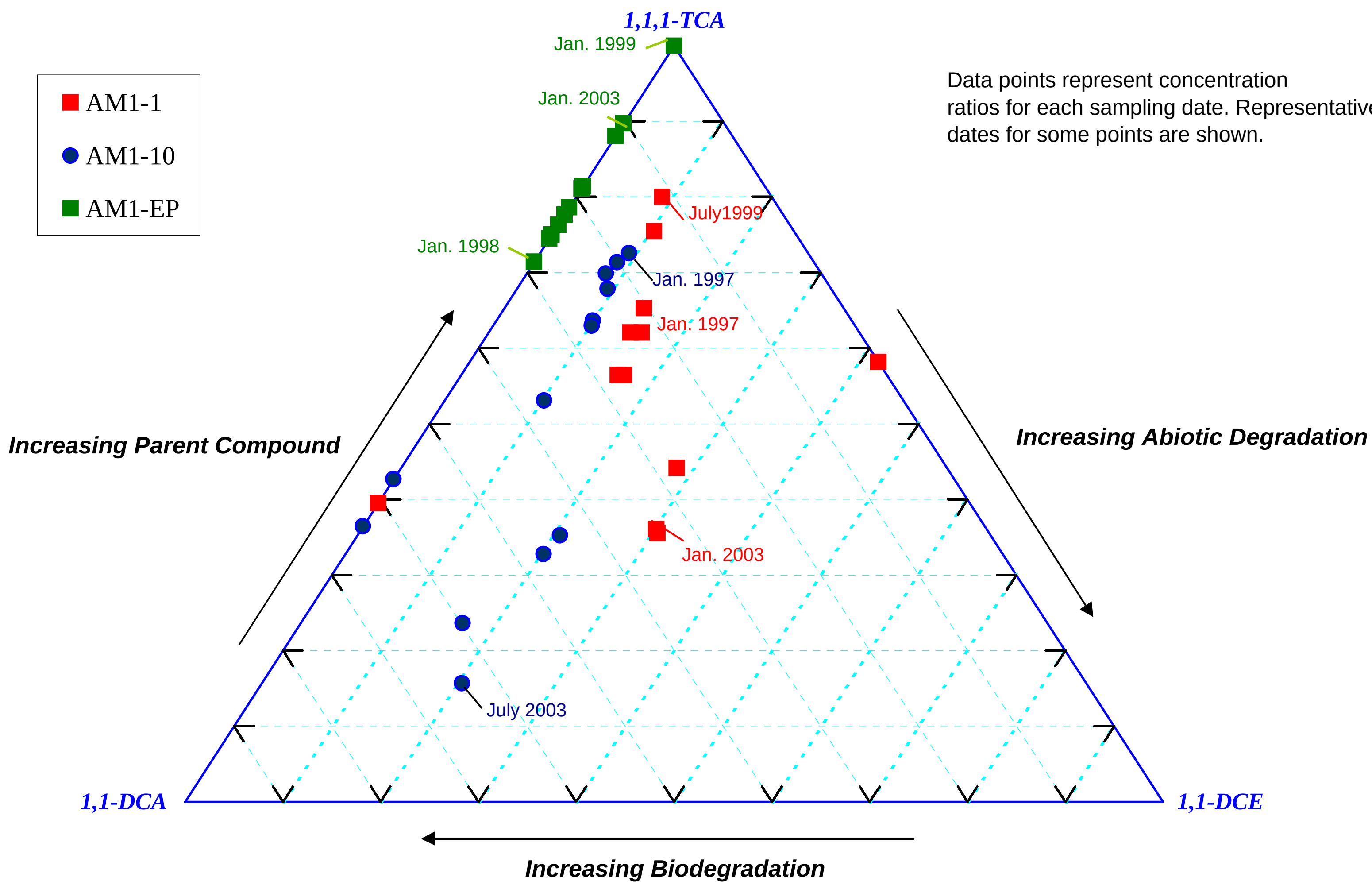
Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1- 1	T	1/4/1996	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1- 1	T	7/18/1996	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1- 1	T	1/7/1997	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1- 1	T	7/3/1997	1,1-DICHLOROETHENE	9.7E-03		1	1
AM1- 1	T	1/8/1998	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1- 1	T	7/2/1998	1,1-DICHLOROETHENE	7.7E-03		1	1
AM1- 1	T	1/14/1999	1,1-DICHLOROETHENE	1.0E-04	ND	1	0
AM1- 1	T	7/1/1999	1,1-DICHLOROETHENE	7.7E-03		1	1
AM1- 1	T	1/17/2000	1,1-DICHLOROETHENE	1.0E-04	ND	1	0
AM1- 1	T	7/6/2000	1,1-DICHLOROETHENE	2.0E-03		1	1
AM1- 1	T	1/5/2001	1,1-DICHLOROETHENE	4.5E-03		1	1
AM1- 1	T	1/16/2002	1,1-DICHLOROETHENE	1.4E-03		1	1
AM1- 1	T	1/9/2003	1,1-DICHLOROETHENE	1.5E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

Figure 3. AM1 Source Area Wells

1996 - 2003



Data points represent concentration ratios for each sampling date. Representative dates for some points are shown.

Figure 4. AM1 A-Zone Downgradient Wells

1996 - 2009

Data points are results for individual sampling events 2001 - 2009. For years 1996 - 2000, sampling results are annual averages from multiple sampling events.

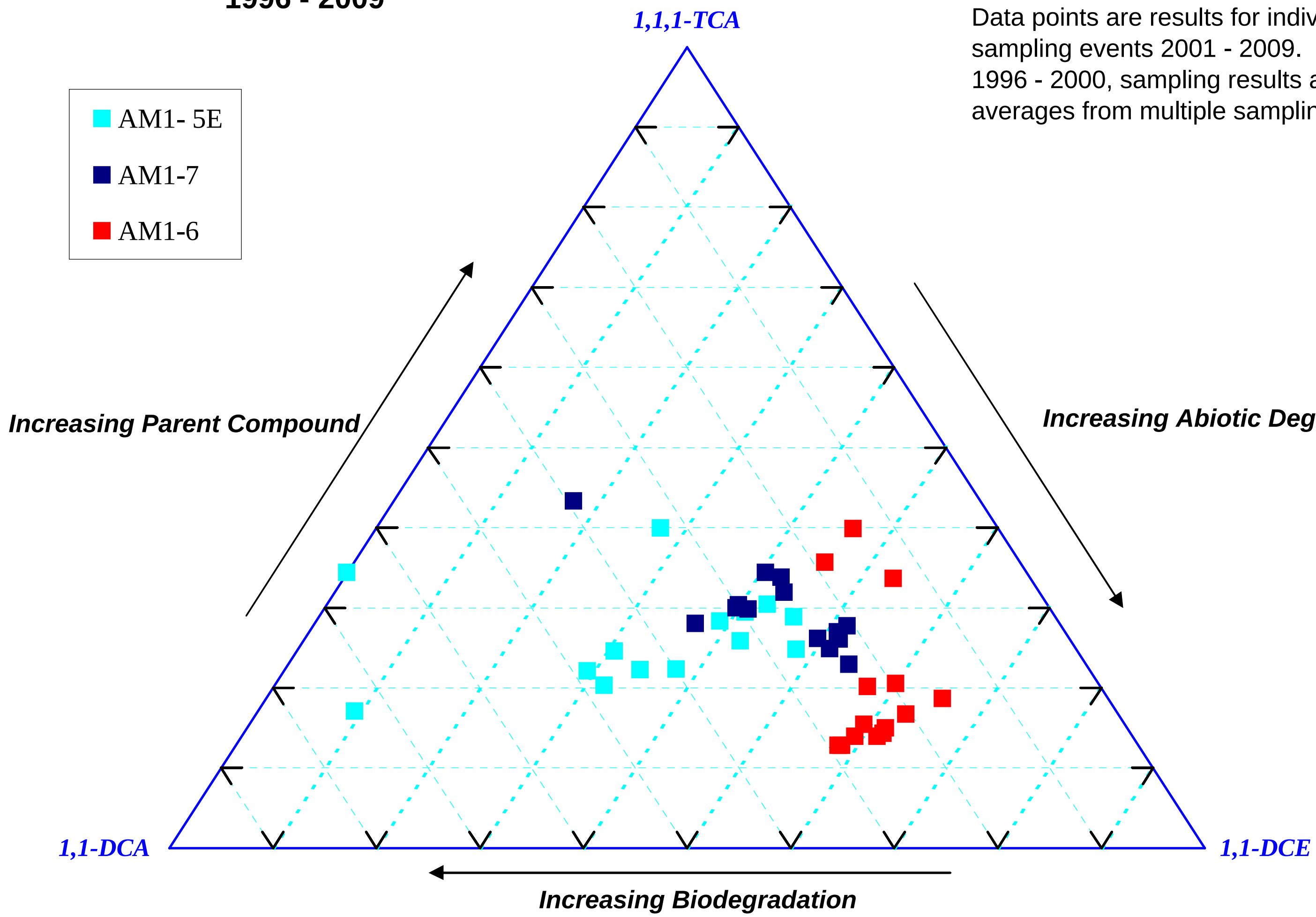
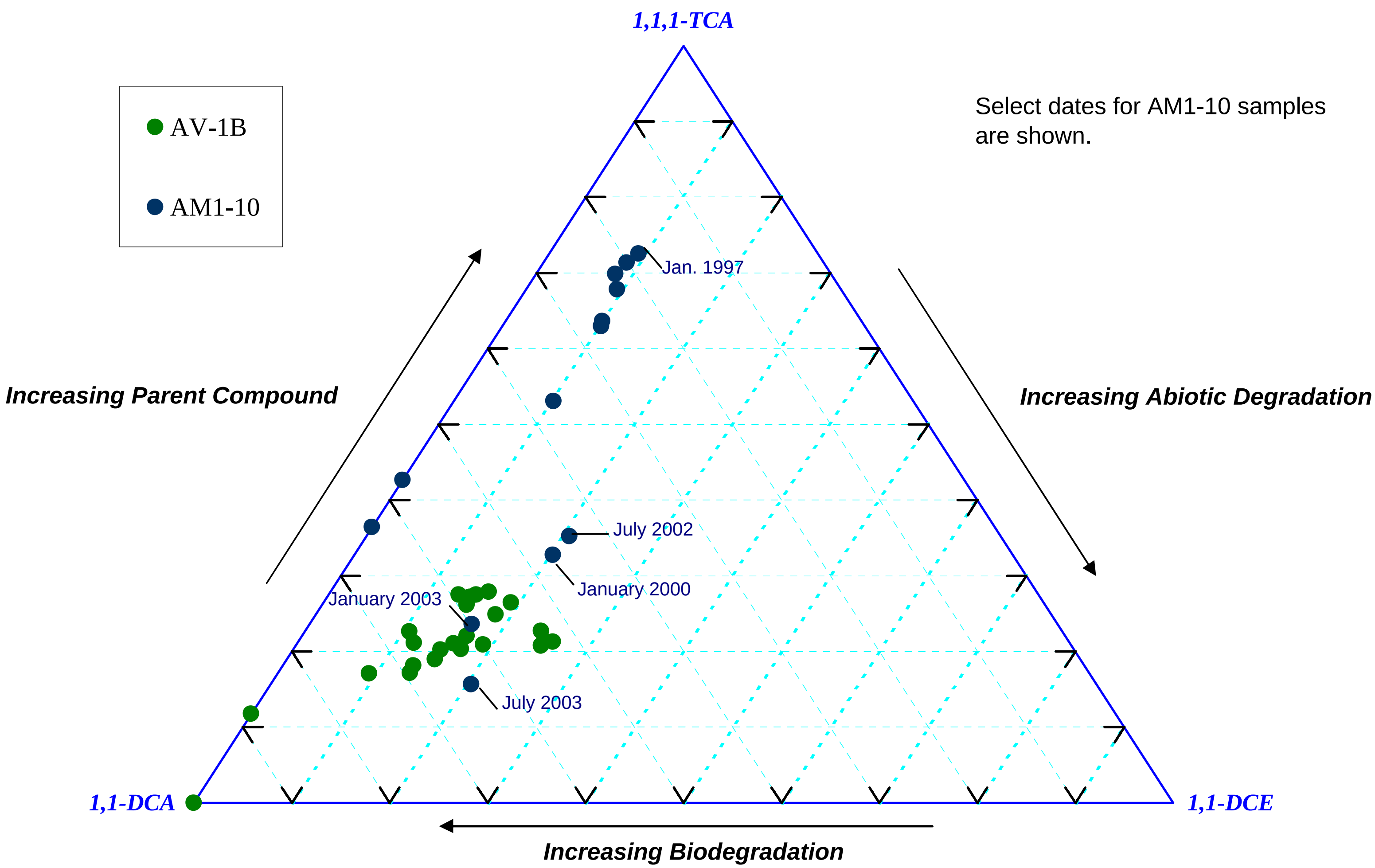


Figure 5. AM1 A2-Zone Wells

1996 - 2006



APPLIED MATERIALS BUILDING 1
Long-Term Monitoring Strategy

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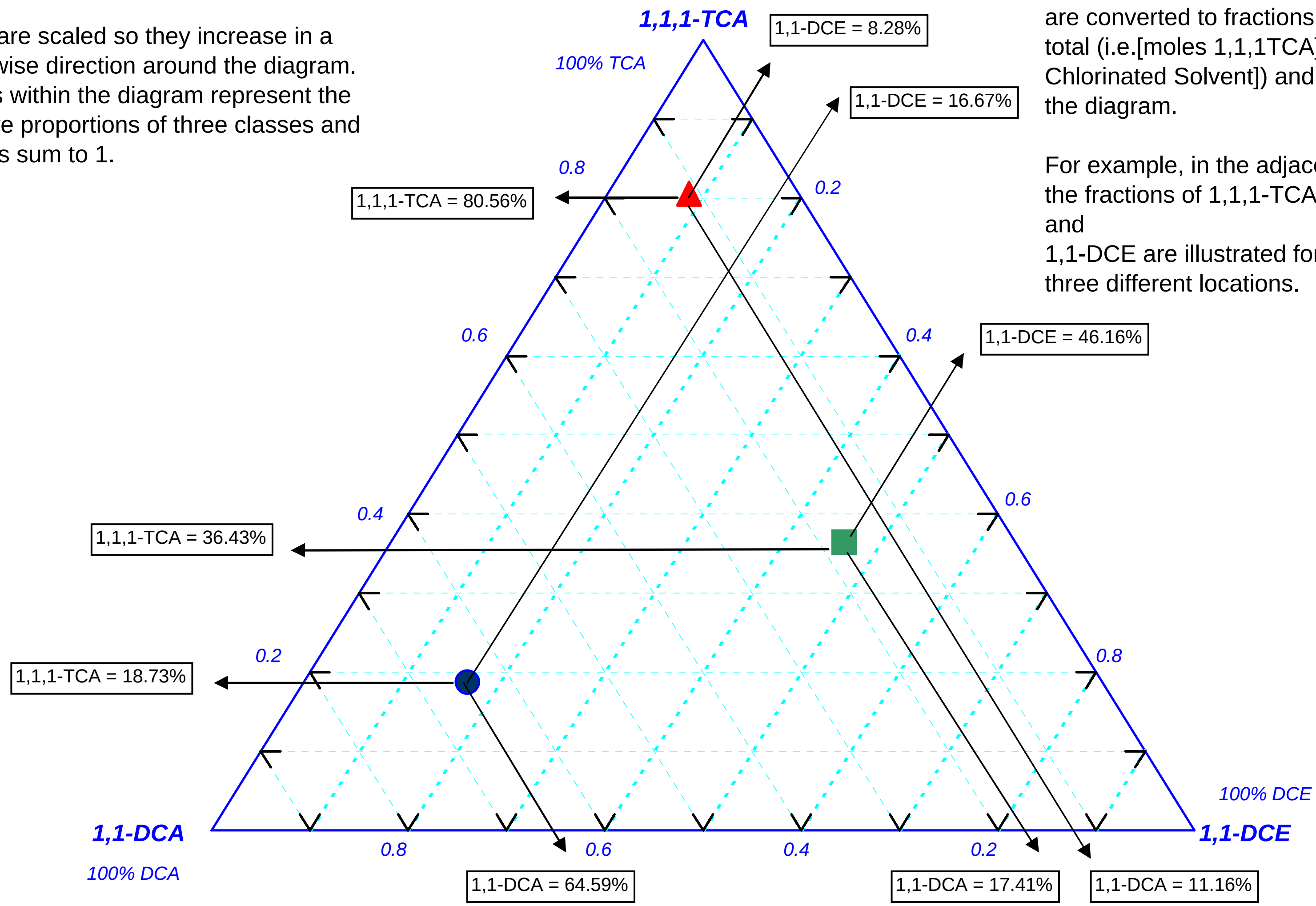
APPENDIX A:

How to Read a Trilateral Diagram

How to Read a Trilateral Diagram

Ternary diagrams are designed to graphically represent proportions of three related components in a system.

Axes are scaled so they increase in a clockwise direction around the diagram. Points within the diagram represent the relative proportions of three classes and always sum to 1.



Data from well sampling in ug/L is converted to molar concentrations (moles/L).

Concentrations for each component are converted to fractions (%) of the total (i.e.[moles 1,1,1TCA]/[moles Total Chlorinated Solvent]) and plotted on the diagram.

For example, in the adjacent diagram, the fractions of 1,1,1-TCA, 1,1-DCA, and
1,1-DCE are illustrated for data from three different locations.

APPLIED MATERIALS BUILDING 1
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APPENDIX B:

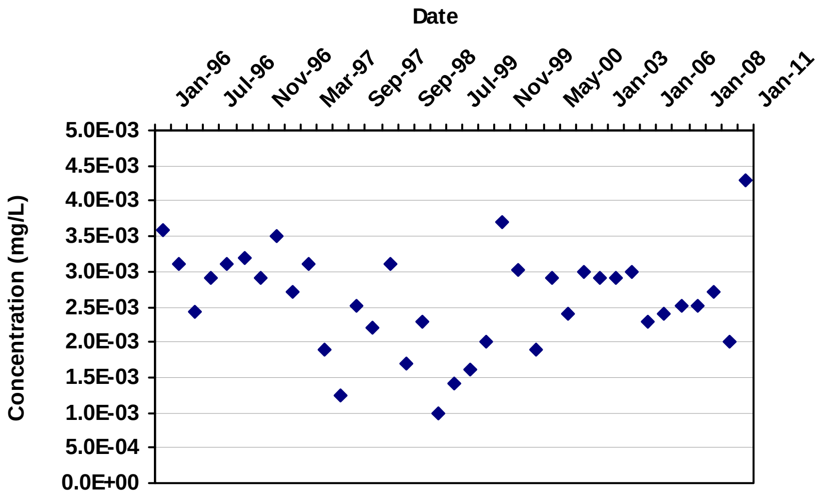
MAROS Reports

Mann-Kendall Trend Summary Reports: 1996 – 2011

MAROS Mann-Kendall Statistics Summary

Well: AM1-6
Well Type: T
COC: 1,1-DICHLOROETHANE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -75

Confidence in Trend: 83.2%

Coefficient of Variation: 0.27

Mann Kendall Concentration Trend: (See Note) S

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-6	T	1/4/1996	1,1-DICHLOROETHANE	3.6E-03		1	1
AM1-6	T	4/18/1996	1,1-DICHLOROETHANE	3.1E-03		1	1
AM1-6	T	5/29/1996	1,1-DICHLOROETHANE	2.4E-03		3	3
AM1-6	T	7/18/1996	1,1-DICHLOROETHANE	2.9E-03		1	1
AM1-6	T	9/11/1996	1,1-DICHLOROETHANE	3.1E-03		1	1
AM1-6	T	10/17/1996	1,1-DICHLOROETHANE	3.2E-03		1	1
AM1-6	T	11/7/1996	1,1-DICHLOROETHANE	2.9E-03		1	1
AM1-6	T	12/5/1996	1,1-DICHLOROETHANE	3.5E-03		1	1
AM1-6	T	1/7/1997	1,1-DICHLOROETHANE	2.7E-03		1	1
AM1-6	T	3/18/1997	1,1-DICHLOROETHANE	3.1E-03		1	1
AM1-6	T	5/5/1997	1,1-DICHLOROETHANE	1.9E-03		1	1
AM1-6	T	7/3/1997	1,1-DICHLOROETHANE	1.3E-03	ND	1	0
AM1-6	T	9/4/1997	1,1-DICHLOROETHANE	2.5E-03		1	1
AM1-6	T	1/8/1998	1,1-DICHLOROETHANE	2.2E-03		1	1
AM1-6	T	5/29/1998	1,1-DICHLOROETHANE	3.1E-03		1	1
AM1-6	T	9/3/1998	1,1-DICHLOROETHANE	1.7E-03		1	1
AM1-6	T	1/14/1999	1,1-DICHLOROETHANE	2.3E-03		1	1
AM1-6	T	5/12/1999	1,1-DICHLOROETHANE	1.0E-03		1	1
AM1-6	T	7/1/1999	1,1-DICHLOROETHANE	1.4E-03		1	1
AM1-6	T	8/5/1999	1,1-DICHLOROETHANE	1.6E-03		1	1
AM1-6	T	9/9/1999	1,1-DICHLOROETHANE	2.0E-03		1	1
AM1-6	T	11/11/1999	1,1-DICHLOROETHANE	3.7E-03		1	1

MAROS Mann-Kendall Statistics Summary

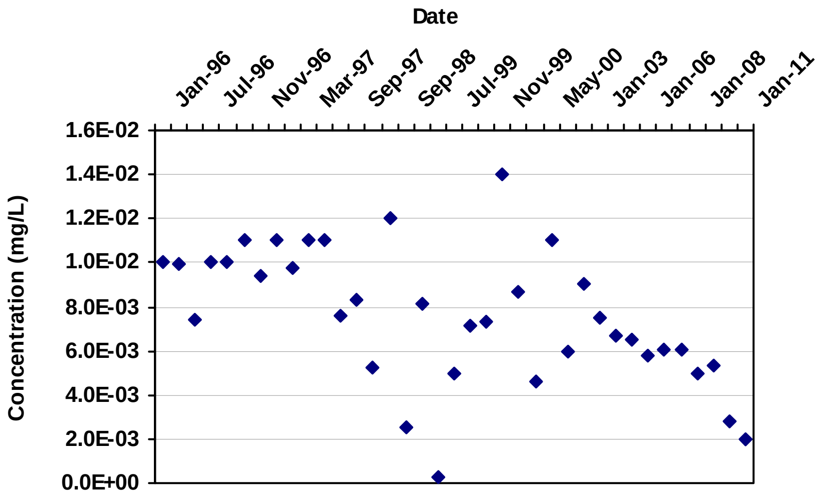
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-6	T	1/17/2000	1,1-DICHLOROETHANE	3.0E-03		1	1
AM1-6	T	3/15/2000	1,1-DICHLOROETHANE	1.9E-03		1	1
AM1-6	T	5/2/2000	1,1-DICHLOROETHANE	2.9E-03		1	1
AM1-6	T	1/5/2001	1,1-DICHLOROETHANE	2.4E-03		1	1
AM1-6	T	1/16/2002	1,1-DICHLOROETHANE	3.0E-03		1	1
AM1-6	T	1/9/2003	1,1-DICHLOROETHANE	2.9E-03		1	1
AM1-6	T	1/14/2004	1,1-DICHLOROETHANE	2.9E-03		1	1
AM1-6	T	1/13/2005	1,1-DICHLOROETHANE	3.0E-03		1	1
AM1-6	T	1/12/2006	1,1-DICHLOROETHANE	2.3E-03		1	1
AM1-6	T	7/20/2006	1,1-DICHLOROETHANE	2.4E-03		1	1
AM1-6	T	1/16/2007	1,1-DICHLOROETHANE	2.5E-03		1	1
AM1-6	T	1/28/2008	1,1-DICHLOROETHANE	2.5E-03		1	1
AM1-6	T	1/20/2009	1,1-DICHLOROETHANE	2.7E-03		1	1
AM1-6	T	1/20/2010	1,1-DICHLOROETHANE	2.0E-03		1	1
AM1-6	T	1/18/2011	1,1-DICHLOROETHANE	4.3E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-6
Well Type: T
COC: 1,1-DICHLOROETHENE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -281

Confidence in Trend: 100.0%

Coefficient of Variation: 0.40

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-6	T	1/4/1996	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-6	T	4/18/1996	1,1-DICHLOROETHENE	9.9E-03		1	1
AM1-6	T	5/29/1996	1,1-DICHLOROETHENE	7.4E-03		3	3
AM1-6	T	7/18/1996	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-6	T	9/11/1996	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-6	T	10/17/1996	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-6	T	11/7/1996	1,1-DICHLOROETHENE	9.4E-03		1	1
AM1-6	T	12/5/1996	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-6	T	1/7/1997	1,1-DICHLOROETHENE	9.8E-03		1	1
AM1-6	T	3/18/1997	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-6	T	5/5/1997	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-6	T	7/3/1997	1,1-DICHLOROETHENE	7.6E-03		1	1
AM1-6	T	9/4/1997	1,1-DICHLOROETHENE	8.3E-03		1	1
AM1-6	T	1/8/1998	1,1-DICHLOROETHENE	5.2E-03		1	1
AM1-6	T	5/29/1998	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-6	T	9/3/1998	1,1-DICHLOROETHENE	2.5E-03		1	1
AM1-6	T	1/14/1999	1,1-DICHLOROETHENE	8.1E-03		1	1
AM1-6	T	5/12/1999	1,1-DICHLOROETHENE	2.5E-04	ND	1	0
AM1-6	T	7/1/1999	1,1-DICHLOROETHENE	5.0E-03		1	1
AM1-6	T	8/5/1999	1,1-DICHLOROETHENE	7.1E-03		1	1
AM1-6	T	9/9/1999	1,1-DICHLOROETHENE	7.3E-03		1	1
AM1-6	T	11/11/1999	1,1-DICHLOROETHENE	1.4E-02		1	1

MAROS Mann-Kendall Statistics Summary

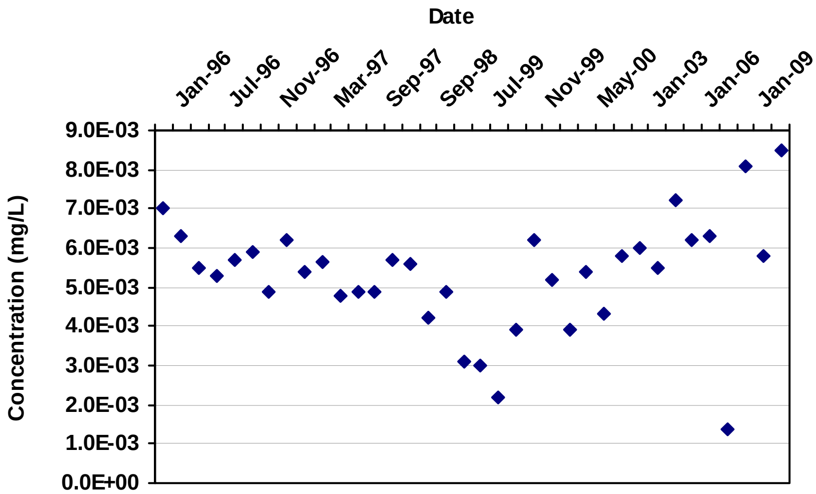
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-6	T	1/17/2000	1,1-DICHLOROETHENE	8.7E-03		1	1
AM1-6	T	3/15/2000	1,1-DICHLOROETHENE	4.6E-03		1	1
AM1-6	T	5/2/2000	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-6	T	1/5/2001	1,1-DICHLOROETHENE	6.0E-03		1	1
AM1-6	T	1/16/2002	1,1-DICHLOROETHENE	9.0E-03		1	1
AM1-6	T	1/9/2003	1,1-DICHLOROETHENE	7.5E-03		1	1
AM1-6	T	1/14/2004	1,1-DICHLOROETHENE	6.7E-03		1	1
AM1-6	T	1/13/2005	1,1-DICHLOROETHENE	6.5E-03		1	1
AM1-6	T	1/12/2006	1,1-DICHLOROETHENE	5.8E-03		1	1
AM1-6	T	7/20/2006	1,1-DICHLOROETHENE	6.1E-03		1	1
AM1-6	T	1/16/2007	1,1-DICHLOROETHENE	6.1E-03		1	1
AM1-6	T	1/28/2008	1,1-DICHLOROETHENE	5.0E-03		1	1
AM1-6	T	1/20/2009	1,1-DICHLOROETHENE	5.3E-03		1	1
AM1-6	T	1/20/2010	1,1-DICHLOROETHENE	2.8E-03		1	1
AM1-6	T	1/18/2011	1,1-DICHLOROETHENE	2.0E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-7
Well Type: T
COC: 1,1-DICHLOROETHANE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: 28

Confidence in Trend: 64.2%

Coefficient of Variation: 0.27

Mann Kendall Concentration Trend: (See Note) NT

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-7	T	1/4/1996	1,1-DICHLOROETHANE	7.0E-03		1	1
AM1-7	T	4/18/1996	1,1-DICHLOROETHANE	6.3E-03		1	1
AM1-7	T	5/29/1996	1,1-DICHLOROETHANE	5.5E-03		3	3
AM1-7	T	7/18/1996	1,1-DICHLOROETHANE	5.3E-03		1	1
AM1-7	T	9/11/1996	1,1-DICHLOROETHANE	5.7E-03		1	1
AM1-7	T	10/17/1996	1,1-DICHLOROETHANE	5.9E-03		1	1
AM1-7	T	11/7/1996	1,1-DICHLOROETHANE	4.9E-03		1	1
AM1-7	T	12/5/1996	1,1-DICHLOROETHANE	6.2E-03		1	1
AM1-7	T	1/7/1997	1,1-DICHLOROETHANE	5.4E-03		1	1
AM1-7	T	3/18/1997	1,1-DICHLOROETHANE	5.7E-03		2	2
AM1-7	T	5/5/1997	1,1-DICHLOROETHANE	4.8E-03		1	1
AM1-7	T	7/3/1997	1,1-DICHLOROETHANE	4.9E-03		1	1
AM1-7	T	9/4/1997	1,1-DICHLOROETHANE	4.9E-03		1	1
AM1-7	T	1/8/1998	1,1-DICHLOROETHANE	5.7E-03		1	1
AM1-7	T	5/29/1998	1,1-DICHLOROETHANE	5.6E-03		1	1
AM1-7	T	9/3/1998	1,1-DICHLOROETHANE	4.2E-03		1	1
AM1-7	T	1/14/1999	1,1-DICHLOROETHANE	4.9E-03		1	1
AM1-7	T	5/12/1999	1,1-DICHLOROETHANE	3.1E-03		1	1
AM1-7	T	7/1/1999	1,1-DICHLOROETHANE	3.0E-03		1	1
AM1-7	T	8/5/1999	1,1-DICHLOROETHANE	2.2E-03		1	1
AM1-7	T	9/9/1999	1,1-DICHLOROETHANE	3.9E-03		1	1
AM1-7	T	11/11/1999	1,1-DICHLOROETHANE	6.2E-03		1	1

MAROS Mann-Kendall Statistics Summary

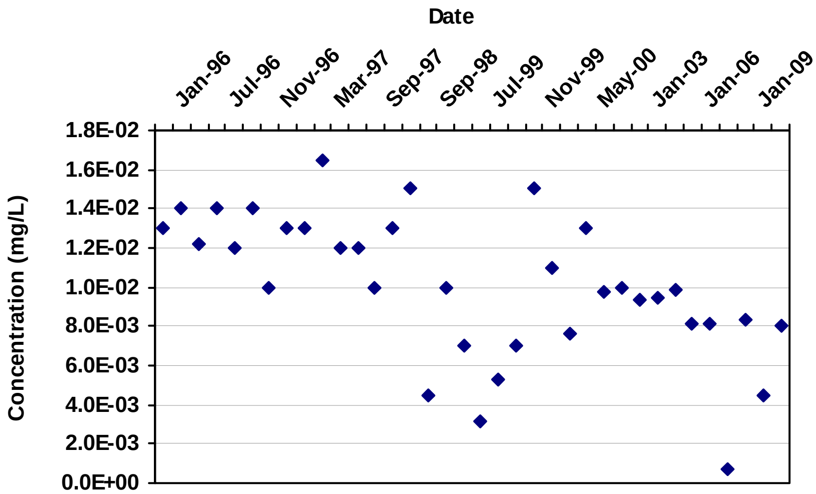
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-7	T	1/17/2000	1,1-DICHLOROETHANE	5.2E-03		1	1
AM1-7	T	3/15/2000	1,1-DICHLOROETHANE	3.9E-03		1	1
AM1-7	T	5/2/2000	1,1-DICHLOROETHANE	5.4E-03		1	1
AM1-7	T	1/5/2001	1,1-DICHLOROETHANE	4.3E-03		1	1
AM1-7	T	1/16/2002	1,1-DICHLOROETHANE	5.8E-03		1	1
AM1-7	T	1/9/2003	1,1-DICHLOROETHANE	6.0E-03		1	1
AM1-7	T	1/14/2004	1,1-DICHLOROETHANE	5.5E-03		1	1
AM1-7	T	1/13/2005	1,1-DICHLOROETHANE	7.2E-03		1	1
AM1-7	T	1/12/2006	1,1-DICHLOROETHANE	6.2E-03		1	1
AM1-7	T	1/16/2007	1,1-DICHLOROETHANE	6.3E-03		1	1
AM1-7	T	1/28/2008	1,1-DICHLOROETHANE	1.4E-03		2	2
AM1-7	T	1/20/2009	1,1-DICHLOROETHANE	8.1E-03		1	1
AM1-7	T	1/20/2010	1,1-DICHLOROETHANE	5.8E-03		1	1
AM1-7	T	1/18/2011	1,1-DICHLOROETHANE	8.5E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-7
Well Type: T
COC: 1,1-DICHLOROETHENE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -282

Confidence in Trend: 100.0%

Coefficient of Variation: 0.36

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-7	T	1/4/1996	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-7	T	4/18/1996	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-7	T	5/29/1996	1,1-DICHLOROETHENE	1.2E-02		3	3
AM1-7	T	7/18/1996	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-7	T	9/11/1996	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-7	T	10/17/1996	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-7	T	11/7/1996	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-7	T	12/5/1996	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-7	T	1/7/1997	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-7	T	3/18/1997	1,1-DICHLOROETHENE	1.7E-02		2	2
AM1-7	T	5/5/1997	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-7	T	7/3/1997	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-7	T	9/4/1997	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-7	T	1/8/1998	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-7	T	5/29/1998	1,1-DICHLOROETHENE	1.5E-02		1	1
AM1-7	T	9/3/1998	1,1-DICHLOROETHENE	4.5E-03		1	1
AM1-7	T	1/14/1999	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-7	T	5/12/1999	1,1-DICHLOROETHENE	7.0E-03		1	1
AM1-7	T	7/1/1999	1,1-DICHLOROETHENE	3.2E-03		1	1
AM1-7	T	8/5/1999	1,1-DICHLOROETHENE	5.3E-03		1	1
AM1-7	T	9/9/1999	1,1-DICHLOROETHENE	7.0E-03		1	1
AM1-7	T	11/11/1999	1,1-DICHLOROETHENE	1.5E-02		1	1

MAROS Mann-Kendall Statistics Summary

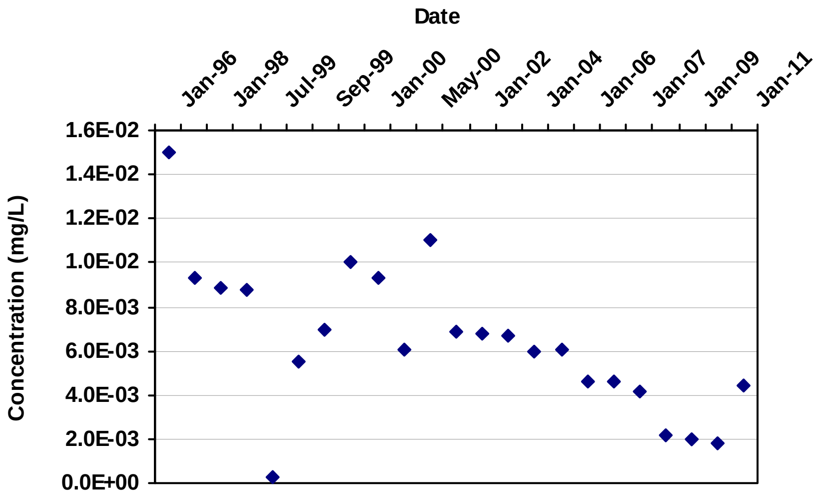
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-7	T	1/17/2000	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-7	T	3/15/2000	1,1-DICHLOROETHENE	7.6E-03		1	1
AM1-7	T	5/2/2000	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-7	T	1/5/2001	1,1-DICHLOROETHENE	9.8E-03		1	1
AM1-7	T	1/16/2002	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-7	T	1/9/2003	1,1-DICHLOROETHENE	9.4E-03		1	1
AM1-7	T	1/14/2004	1,1-DICHLOROETHENE	9.5E-03		1	1
AM1-7	T	1/13/2005	1,1-DICHLOROETHENE	9.9E-03		1	1
AM1-7	T	1/12/2006	1,1-DICHLOROETHENE	8.1E-03		1	1
AM1-7	T	1/16/2007	1,1-DICHLOROETHENE	8.1E-03		1	1
AM1-7	T	1/28/2008	1,1-DICHLOROETHENE	6.8E-04		2	1
AM1-7	T	1/20/2009	1,1-DICHLOROETHENE	8.3E-03		1	1
AM1-7	T	1/20/2010	1,1-DICHLOROETHENE	4.5E-03		1	1
AM1-7	T	1/18/2011	1,1-DICHLOROETHENE	8.0E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-11
Well Type: T
COC: 1,1-DICHLOROETHANE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -150

Confidence in Trend: 100.0%

Coefficient of Variation: 0.53

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-11	T	1/4/1996	1,1-DICHLOROETHANE	1.5E-02		1	1
AM1-11	T	1/7/1997	1,1-DICHLOROETHANE	9.3E-03		1	1
AM1-11	T	1/8/1998	1,1-DICHLOROETHANE	8.9E-03		1	1
AM1-11	T	1/14/1999	1,1-DICHLOROETHANE	8.8E-03		1	1
AM1-11	T	7/1/1999	1,1-DICHLOROETHANE	2.5E-04	ND	1	0
AM1-11	T	8/5/1999	1,1-DICHLOROETHANE	5.5E-03		1	1
AM1-11	T	9/9/1999	1,1-DICHLOROETHANE	7.0E-03		1	1
AM1-11	T	11/11/1999	1,1-DICHLOROETHANE	1.0E-02		1	1
AM1-11	T	1/17/2000	1,1-DICHLOROETHANE	9.3E-03		1	1
AM1-11	T	3/15/2000	1,1-DICHLOROETHANE	6.1E-03		1	1
AM1-11	T	5/2/2000	1,1-DICHLOROETHANE	1.1E-02		1	1
AM1-11	T	1/5/2001	1,1-DICHLOROETHANE	6.9E-03		1	1
AM1-11	T	1/16/2002	1,1-DICHLOROETHANE	6.8E-03		1	1
AM1-11	T	1/9/2003	1,1-DICHLOROETHANE	6.7E-03		1	1
AM1-11	T	1/14/2004	1,1-DICHLOROETHANE	6.0E-03		1	1
AM1-11	T	1/13/2005	1,1-DICHLOROETHANE	6.1E-03		1	1
AM1-11	T	1/12/2006	1,1-DICHLOROETHANE	4.6E-03		1	1
AM1-11	T	7/20/2006	1,1-DICHLOROETHANE	4.6E-03		1	1
AM1-11	T	1/16/2007	1,1-DICHLOROETHANE	4.2E-03		1	1
AM1-11	T	1/28/2008	1,1-DICHLOROETHANE	2.2E-03		2	2
AM1-11	T	1/20/2009	1,1-DICHLOROETHANE	2.0E-03		1	1
AM1-11	T	1/20/2010	1,1-DICHLOROETHANE	1.8E-03		1	1

MAROS Mann-Kendall Statistics Summary

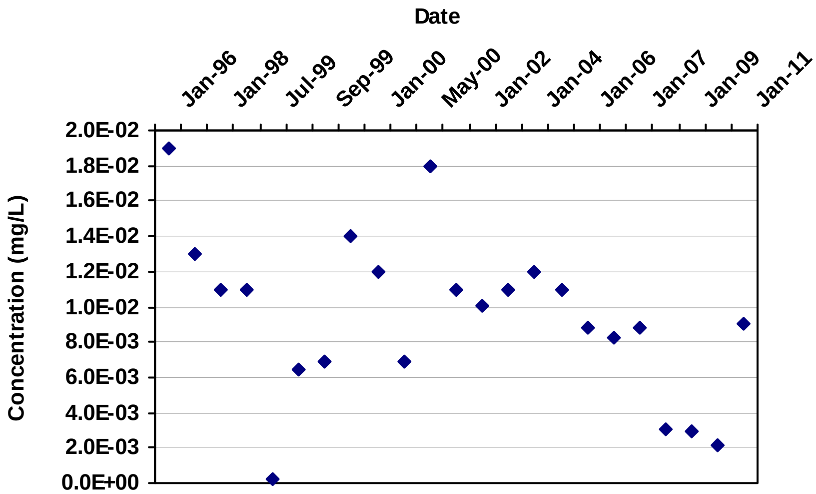
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-11	T	1/18/2011	1,1-DICHLOROETHANE	4.4E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-11
Well Type: T
COC: 1,1-DICHLOROETHENE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -84

Confidence in Trend: 98.6%

Coefficient of Variation: 0.49

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-11	T	1/4/1996	1,1-DICHLOROETHENE	1.9E-02		1	1
AM1-11	T	1/7/1997	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-11	T	1/8/1998	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-11	T	1/14/1999	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-11	T	7/1/1999	1,1-DICHLOROETHENE	2.5E-04	ND	1	0
AM1-11	T	8/5/1999	1,1-DICHLOROETHENE	6.4E-03		1	1
AM1-11	T	9/9/1999	1,1-DICHLOROETHENE	6.9E-03		1	1
AM1-11	T	11/11/1999	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-11	T	1/17/2000	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-11	T	3/15/2000	1,1-DICHLOROETHENE	6.9E-03		1	1
AM1-11	T	5/2/2000	1,1-DICHLOROETHENE	1.8E-02		1	1
AM1-11	T	1/5/2001	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-11	T	1/16/2002	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-11	T	1/9/2003	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-11	T	1/14/2004	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-11	T	1/13/2005	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-11	T	1/12/2006	1,1-DICHLOROETHENE	8.8E-03		1	1
AM1-11	T	7/20/2006	1,1-DICHLOROETHENE	8.3E-03		1	1
AM1-11	T	1/16/2007	1,1-DICHLOROETHENE	8.8E-03		1	1
AM1-11	T	1/28/2008	1,1-DICHLOROETHENE	3.1E-03		2	2
AM1-11	T	1/20/2009	1,1-DICHLOROETHENE	2.9E-03		1	1
AM1-11	T	1/20/2010	1,1-DICHLOROETHENE	2.2E-03		1	1

MAROS Mann-Kendall Statistics Summary

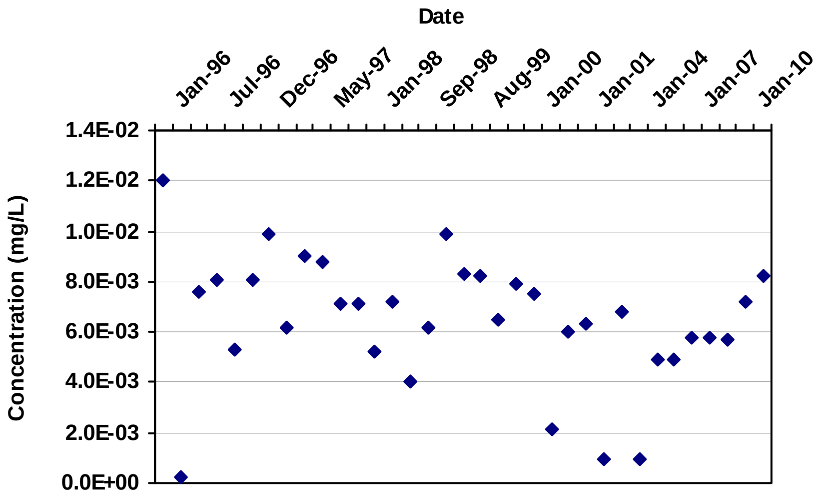
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-11	T	1/18/2011	1,1-DICHLOROETHENE	9.0E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-5E
Well Type: T
COC: 1,1-DICHLOROETHANE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -145

Confidence in Trend: 98.0%

Coefficient of Variation: 0.40

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-5E	T	1/4/1996	1,1-DICHLOROETHANE	1.2E-02		1	1
AM1-5E	T	4/18/1996	1,1-DICHLOROETHANE	2.5E-04	ND	1	0
AM1-5E	T	5/29/1996	1,1-DICHLOROETHANE	7.6E-03		3	3
AM1-5E	T	7/18/1996	1,1-DICHLOROETHANE	8.1E-03		1	1
AM1-5E	T	10/17/1996	1,1-DICHLOROETHANE	5.3E-03		1	1
AM1-5E	T	11/7/1996	1,1-DICHLOROETHANE	8.1E-03		1	1
AM1-5E	T	12/5/1996	1,1-DICHLOROETHANE	9.9E-03		1	1
AM1-5E	T	1/7/1997	1,1-DICHLOROETHANE	6.2E-03		1	1
AM1-5E	T	3/18/1997	1,1-DICHLOROETHANE	9.0E-03		1	1
AM1-5E	T	5/5/1997	1,1-DICHLOROETHANE	8.8E-03		1	1
AM1-5E	T	7/3/1997	1,1-DICHLOROETHANE	7.1E-03		1	1
AM1-5E	T	9/4/1997	1,1-DICHLOROETHANE	7.1E-03		1	1
AM1-5E	T	1/8/1998	1,1-DICHLOROETHANE	5.2E-03		1	1
AM1-5E	T	5/29/1998	1,1-DICHLOROETHANE	7.2E-03		1	1
AM1-5E	T	7/2/1998	1,1-DICHLOROETHANE	4.0E-03		1	1
AM1-5E	T	9/3/1998	1,1-DICHLOROETHANE	6.2E-03		1	1
AM1-5E	T	1/14/1999	1,1-DICHLOROETHANE	9.9E-03		1	1
AM1-5E	T	7/1/1999	1,1-DICHLOROETHANE	8.3E-03		1	1
AM1-5E	T	8/5/1999	1,1-DICHLOROETHANE	8.2E-03		1	1
AM1-5E	T	9/9/1999	1,1-DICHLOROETHANE	6.5E-03		1	1
AM1-5E	T	11/11/1999	1,1-DICHLOROETHANE	7.9E-03		1	1
AM1-5E	T	1/17/2000	1,1-DICHLOROETHANE	7.5E-03		1	1

MAROS Mann-Kendall Statistics Summary

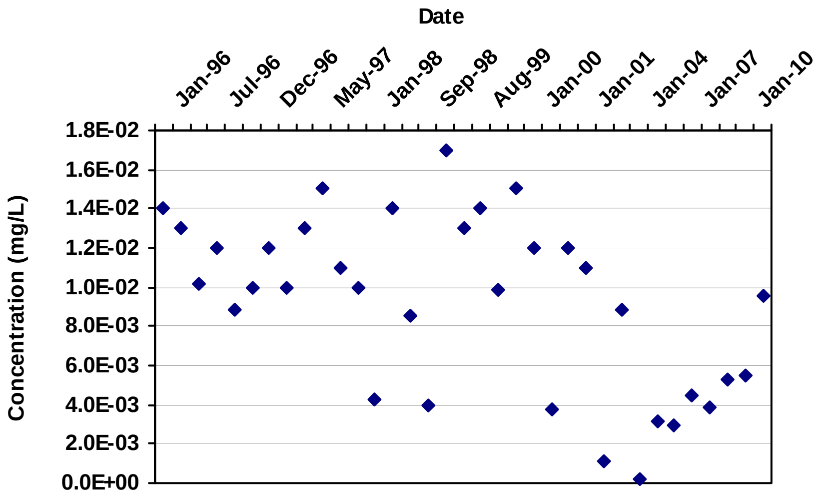
Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-5E	T	3/15/2000	1,1-DICHLOROETHANE	2.1E-03		1	1
AM1-5E	T	5/2/2000	1,1-DICHLOROETHANE	6.0E-03		1	1
AM1-5E	T	1/5/2001	1,1-DICHLOROETHANE	6.3E-03		1	1
AM1-5E	T	1/16/2002	1,1-DICHLOROETHANE	9.4E-04		1	1
AM1-5E	T	1/9/2003	1,1-DICHLOROETHANE	6.8E-03		1	1
AM1-5E	T	1/14/2004	1,1-DICHLOROETHANE	9.5E-04		1	1
AM1-5E	T	1/13/2005	1,1-DICHLOROETHANE	4.9E-03		1	1
AM1-5E	T	1/12/2006	1,1-DICHLOROETHANE	4.9E-03		1	1
AM1-5E	T	1/16/2007	1,1-DICHLOROETHANE	5.8E-03		1	1
AM1-5E	T	1/28/2008	1,1-DICHLOROETHANE	5.8E-03		1	1
AM1-5E	T	1/20/2009	1,1-DICHLOROETHANE	5.7E-03		1	1
AM1-5E	T	1/20/2010	1,1-DICHLOROETHANE	7.2E-03		1	1
AM1-5E	T	1/18/2011	1,1-DICHLOROETHANE	8.2E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect

MAROS Mann-Kendall Statistics Summary

Well: AM1-5E
Well Type: T
COC: 1,1-DICHLOROETHENE

Time Period: 1/1/1996 **to** 1/18/2011
Consolidation Period: No Time Consolidation
Consolidation Type: Median
Duplicate Consolidation: Average
ND Values: 1/2 Detection Limit
J Flag Values : Actual Value



Mann Kendall S Statistic: -205

Confidence in Trend: 99.8%

Coefficient of Variation: 0.48

Mann Kendall Concentration Trend: (See Note) D

Data Table:

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-5E	T	1/4/1996	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-5E	T	4/18/1996	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-5E	T	5/29/1996	1,1-DICHLOROETHENE	1.0E-02		3	3
AM1-5E	T	7/18/1996	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-5E	T	10/17/1996	1,1-DICHLOROETHENE	8.8E-03		1	1
AM1-5E	T	11/7/1996	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-5E	T	12/5/1996	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-5E	T	1/7/1997	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-5E	T	3/18/1997	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-5E	T	5/5/1997	1,1-DICHLOROETHENE	1.5E-02		1	1
AM1-5E	T	7/3/1997	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-5E	T	9/4/1997	1,1-DICHLOROETHENE	1.0E-02		1	1
AM1-5E	T	1/8/1998	1,1-DICHLOROETHENE	4.3E-03		1	1
AM1-5E	T	5/29/1998	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-5E	T	7/2/1998	1,1-DICHLOROETHENE	8.5E-03		1	1
AM1-5E	T	9/3/1998	1,1-DICHLOROETHENE	4.0E-03		1	1
AM1-5E	T	1/14/1999	1,1-DICHLOROETHENE	1.7E-02		1	1
AM1-5E	T	7/1/1999	1,1-DICHLOROETHENE	1.3E-02		1	1
AM1-5E	T	8/5/1999	1,1-DICHLOROETHENE	1.4E-02		1	1
AM1-5E	T	9/9/1999	1,1-DICHLOROETHENE	9.9E-03		1	1
AM1-5E	T	11/11/1999	1,1-DICHLOROETHENE	1.5E-02		1	1
AM1-5E	T	1/17/2000	1,1-DICHLOROETHENE	1.2E-02		1	1

MAROS Mann-Kendall Statistics Summary

Well	Well Type	Effective Date	Constituent	Result (mg/L)	Flag	Number of Samples	Number of Detects
AM1-5E	T	3/15/2000	1,1-DICHLOROETHENE	3.8E-03		1	1
AM1-5E	T	5/2/2000	1,1-DICHLOROETHENE	1.2E-02		1	1
AM1-5E	T	1/5/2001	1,1-DICHLOROETHENE	1.1E-02		1	1
AM1-5E	T	1/16/2002	1,1-DICHLOROETHENE	1.1E-03		1	1
AM1-5E	T	1/9/2003	1,1-DICHLOROETHENE	8.8E-03		1	1
AM1-5E	T	1/14/2004	1,1-DICHLOROETHENE	2.5E-04	ND	1	0
AM1-5E	T	1/13/2005	1,1-DICHLOROETHENE	3.2E-03		1	1
AM1-5E	T	1/12/2006	1,1-DICHLOROETHENE	2.9E-03		1	1
AM1-5E	T	1/16/2007	1,1-DICHLOROETHENE	4.5E-03		1	1
AM1-5E	T	1/28/2008	1,1-DICHLOROETHENE	3.9E-03		1	1
AM1-5E	T	1/20/2009	1,1-DICHLOROETHENE	5.3E-03		1	1
AM1-5E	T	1/20/2010	1,1-DICHLOROETHENE	5.5E-03		1	1
AM1-5E	T	1/18/2011	1,1-DICHLOROETHENE	9.6E-03		1	1

Note: Increasing (I); Probably Increasing (PI); Stable (S); Probably Decreasing (PD); Decreasing (D); No Trend (NT); Not Applicable (N/A) - Due to insufficient Data (< 4 sampling events); ND = Non-detect