TECHNICAL MEMORANDUM No. 14

MONTGOMERY WATSON

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To: Diana Engeman, U.S. Environmental Protection Agency, Region VII

From: Randy Kroneman, P.G., Montgomery Watson, Des Moines, Iowa

Subject: Semiannual Groundwater Monitoring Report
Mason City, Iowa Former Manufactured Gas Plant Site
Docket No. 85-F-0032

cc: Bruce Greer, Alliant/Interstate Power Company
Johanshir Golchin, Iowa Department of Natural Resources (2 copies)
John Horn, Kansas City Power and Light Company
Ed Clement, Sverdrup Environmental, Inc.

INTRODUCTION

This technical memorandum presents results of the fourth semiannual groundwater monitoring event following the excavation and treatment of contaminated soil at the former manufactured gas plant (FMGP) in Mason City, Iowa. Also included is a summary of the results of the natural attenuation screening and an interpretation of those results.

The semiannual monitoring events were conducted in accordance with the July 20, 1995 Administrative Order on Consent for Removal Activities (Consent Order) and the May 1996 Removal Action Work Plan (RAWP) to document changes in groundwater contamination following the soil removal activities. Quality assurance/quality control (QA/QC) and health and safety protocol were conducted as outlined in the August 15, 1995 Implementation Work Plan (Technical Memorandum No. 9).

A baseline groundwater monitoring event was conducted in August 1995 to document the levels of groundwater contamination prior to excavation and treatment of contaminated soil. Following excavation and treatment of contaminated soil, semiannual monitoring events were conducted in December 1996, May 1997, November 1997, and May 1998. Results of the baseline and first, second, and third semiannual sampling events were reported in Technical Memorandum Nos. 10, 11, 12, and13, respectively, and are summarized in this technical memorandum as well.

The natural attenuation screening was conducted in accordance with the Sampling and Analysis Plan attached to the September 1, 1998 request for extension. Soil and groundwater samples for the natural attenuation screening were collected on September 14 and 15, 1998.

The locations of the existing monitoring wells associated with the Mason City FMGP site are shown in Figure 1. Wells with the letter R following the numerical designation are wells that

were removed during the soil remediation and later replaced. Wells included in the monitoring network are shown in Figure 2.

FOURTH SEMIANNUAL MONITORING EVENT

Groundwater Flow Directions

Prior to collecting the groundwater samples, water surface measurements were collected from all of the existing monitoring wells, and from Willow Creek upstream and downstream of the dam. The Willow Creek dam was in the down position at the time of the monitoring event.

Water surface elevations were determined to the nearest 0.01 foot using the depth-to-water measurements and top-of-well casing and top-of-retaining wall elevations. The water level measurements and resulting water surface elevations are presented in Table 1. This data was used to infer the potentiometric surface of the shallow aquifer shown in Figure 3. The groundwater surface contours shown in Figure 3 are generally consistent with those observed previously with the dam in the down position, and indicate groundwater flow is toward Willow Creek both north and south of the creek.

The inferred potentiometric surface of the first transmissive zone is shown in Figure 4. Flow in the first transmissive zone was toward the southwest, which is consistent with the previous measurements.

Groundwater Sample Collection

Montgomery Watson personnel were on site May 11 through 13 to collect groundwater samples from the monitoring wells identified in Figure 2. Prior to sampling, the depth-to-water measurements and total depths of the wells were used to determine the volume of water standing in each well. To ensure a representative sample was collected, each well was purged to remove stagnant water from the casing and allow fresh water from the aquifer to enter the well. Where possible, the wells were purged of at least three times the volume of water contained in the well and until the temperature, pH, specific conductance, oxidation-reduction potential (E_h), and visual clarity of the purge water stabilized. Wells MW-4, MW-17, MW-22, and MW-34 did not yield sufficient water to allow removal of three well volumes. These wells were purged dry and sampled after a sufficient volume of water was available.

Well purging and sample collection was performed using the dedicated inertial pumps previously installed in each well. Measurements of temperature, pH, specific conductance, and E_h were collected in the field using a YSI Model 3560 water quality meter and a flow-through cell. Readings for each of the stabilization parameters were periodically recorded on a Groundwater Sample Collection Record. Copies of the Groundwater Sample Collection Records are included in Attachment A.

All sample containers were obtained specifically for this investigation from National Environmental Testing, Inc. (NET) - Cedar Falls Division in Cedar Falls, Iowa. NET was responsible for cleaning and preparing the containers as well as adding the appropriate preservatives. Sample containers were labeled immediately before sample collection as outlined in the Quality Assurance Project Plan (QAPP) section of Technical Memorandum No. 9.

Two field duplicate samples were collected for QA/QC evaluation. The field duplicates were taken at MW-13 (DP01-GW-008) and MW-3R (DP02-GW-008).

Groundwater Sample Analytical Results

All water samples were submitted to NET for analysis of benzene, ethylbenzene, toluene, and total xylenes (BETX); polynuclear aromatic hydrocarbons (PAHs); and lead. Analytical laboratory reports were received by Montgomery Watson on June 15 and 19, 1998. Copies of the reports are included as Attachment B.

Shallow Aquifer. Analytical results for the monitoring wells screened in the shallow aquifer are shown in Table 2 along with results of the baseline and previous semiannual events. In the fourth semiannual monitoring event, BETX compounds were detected in the northwest corner of the site at MW-2R and MW-14R, and across Willow Creek at MW-17. In addition, benzene was detected at 1.0 µg/L at MW-4 in the northeastern corner of the site. None of the BTEX compounds were detected in any of the other shallow aquifer wells sampled. BETX concentrations for the fourth semiannual event and corresponding sampling locations are shown in Figure 5.

As indicated by the results summarized in Table 2, PAH compounds were detected in 9 of the 12 shallow monitoring wells sampled. In addition to the individual PAH concentrations, total PAH and benzo(a)pyrene equivalent concentrations are included in Table 2 to facilitate developing a conceptual image of the contaminant distribution and for evaluating trends. The potency factors used to generate the benzo(a)pyrene equivalent values are noted in Table 3. Total PAH concentrations and associated sampling locations are shown in Figure 6. At the wells with the highest levels of total PAHs (MW-2R, MW-14R, MW-17, and MW-23R), the short chain or lower molecular weight PAHs comprise the greatest percentage of the total concentration.

Lead concentrations for the fourth monitoring event of lead were all less than 1.0 mg/L and generally consistent with the earlier sampling events. Variability in the lead results between sampling events is likely due to differing levels of turbidity in the water during the sampling event.

Intermediate Aquifer. Results for the three monitoring wells screened in the intermediate aquifer (MW-8, MW-10, and MW-22) are summarized in Table 4. As with each of the preceding sampling events, the only volatile organic compound (VOC) detected in the intermediate aquifer was benzene in MW-8. Benzene was detected at 123 µg/L at MW-8 which is consistent with the previous sampling results.

The concentration of lead detected in MW-22 (0.0114 mg/L) was consistent with the last two sampling events, and no PAHs were detected at or above their respective detection limits in these samples.

Deep Aquifer. Table 5 presents results of the sampling performed at the four monitoring wells screened in the first transmissive zone: MW-25, MW-31, MW-34, and MW-35. Naphthalene was detected in MW-25 and MW-35 at 0.069 and 0.160 µg/L, respectively. No other VOCs were detected in the samples from these wells. Lead was detected only in MW-34 at 0.0048 µg/L. These results are generally consistent with all of the previous sampling events.

QA/QC and Data Validation

QA/QC and data validation activities were performed in accordance with Technical Memorandum No. 9. Two field duplicates were collected and submitted for analysis along with their primary samples. Results of the analysis are shown in Table 6. The relative percent difference (RPD) was calculated for each analyte detected both in the primary and duplicate samples. The RPDs calculated did not meet the QA/QC criteria outlined in the QAPP for several of the analytes. RPDs not meeting the QA/QC criteria are indicated in Table 6.

As noted in the NET Quality Control Reports, the matrix spike/matrix spike duplicate for lead analysis was outside the QA/QC control limits (low) for prep batch numbers 1746 and 1748 with run batch numbers 1062 and 1063. These runs included samples from MW-2R, MW-5, MW-6, MW-13, MW-14R, MW-24, MW-34, and DP-01. Detectable concentrations of lead were reported for each of these samples.

Naphthalene was detected at 0.544 µg/L in the blank from prep batch number 63 with run batch number 108. Only the sample collected from MW-25 is potentially affected by this apparent contamination. Naphthalene was reported at 0.069 µg/L for MW-25. No other detectable concentrations were reported for MW-25.

All samples were analyzed within the prescribed holding times. All of the data associated with this sampling event is considered usable.

Site Inspection And General Conditions

The site appeared to be in good condition. All of the monitoring wells were properly capped and appeared to be in good condition. Site fencing was secure and in good condition. No areas of significant settling or erosion were noted. Vegetation across the site appeared to be in good condition.

Summary

For the fourth semiannual sampling event the Willow Creek dam was in the down position. Groundwater flow conditions inferred from the water level data show shallow groundwater flow on site to be generally to the north-northeast with a northwesterly component at the upstream end

of the Willow Creek retaining wall. Shallow groundwater flow north of Willow Creek appears to be generally perpendicular and toward the creek.

Flow direction in the first transmissive zone north of Willow Creek appears to be to the south-southwest, sweeping to a more west-southwesterly course south of Willow Creek. The groundwater flow directions inferred for the shallow and first transmissive zones are consistent with previous gauging events with the dam in the down position.

As with the preceding sampling events, BTEX contamination was detected in samples collected primarily from the areas with residual soil contamination: the northwestern corner of the site and under the substation. Significant BTEX concentrations were also detected in MW-17 north of Willow Creek.

PAH compounds were detected in samples collected from across the site. The highest concentrations of PAHs were detected in samples collected from MW-2R and MW-14R in the northwest corner of the site, MW-23R near the substation, and MW-17 north of Willow Creek. Contaminant concentrations detected during the fourth monitoring event were consistent with those observed in the preceding sampling events.

The data was validated by Montgomery Watson. Relative percent difference (RPD) for several of the PAH compounds and lead in MW-13 and DP-01 slightly exceeded the quality assurance/quality control criteria outlined in Technical Memorandum No.9. None of the other QA/QC criteria were violated. All of the data generated is usable.

CONSTITUENT TRENDS AND CONCLUSIONS

As summarized in the previous technical memorandums, the groundwater quality at the Mason City FMGP has demonstrated steady or decreasing constituent concentrations. Discussion of the results of the semiannual monitoring events for each of the three monitored aquifers is presented in the following sections.

Shallow Aquifer

Following the soil remediation, decreases in overall BETX concentrations have been observed at MW-2R, MW-3R, MW-4, MW-17, and MW-23R. Wells peripheral to the area of the soil remediation (MW-5, MW-6, MW-13, MW-15, MW-19, and MW-24R) have remained consistent, with no BETX compounds detected. BTEX concentrations at MW-14 have shown the greatest variability and appear to be sensitive to groundwater flow directions as indicated by significantly lower concentrations detected during the second semiannual sampling event when the dam was in the up position. A review of the results with the dam in the down position indicates recent decreases in the BETX concentrations since the first semiannual event.

Overall PAH concentrations have remained relatively constant or demonstrated slightly decreasing trends in many of the wells. Variability in the total PAH concentrations have largely been due to acenaphthene, acenaphthylene, fluorene, naphthalene, and phenanthrene. These five compounds are the most soluble of the 16 PAH compounds considered and; therefore, have the

greatest potential for migration with changes in groundwater flow due to seasonal variations or changes in the position of the Willow Creek dam. Since none of these five compounds are considered to be carcinogenic, the benzo(a)pyrene equivalent values have remained consistently low for all of the shallow wells during the semiannual sampling events and, in most cases, are less than detected in the baseline monitoring prior to the soil remediation.

The post-remediation PAH data for MW-15 suggest a potential increasing trend in PAH concentrations at MW-15. During the baseline and first two semiannual monitoring events, no PAHs were detected in the samples collected from MW-15; however, PAHs were detected during the last two semiannual monitoring events, with apparently increasing concentrations. PAHs were also detected during three sampling events conducted during the remedial investigation. Results of the three samples collected during the remedial investigation phases each exhibited higher total PAH concentrations than indicated from the last semiannual monitoring. Also, as indicated in the Remedial Investigation Addendum, contamination north of Willow Creek may be the result of an off-site source rather than derived from the FMGP site.

Variations in the lead concentrations have been observed at all sampling locations throughout the monitoring program. Changes in lead concentrations would not be anticipated as a result of the soil remediation but would be affected by the level of turbidity in a sample. Therefore, the variability of lead concentrations may be due to the inherent variability between sample collection.

Intermediate Aquifer

Throughout the monitoring program, no significant changes have been observed in the intermediate aquifer. From the baseline monitoring event through the fourth semiannual event, benzene has been detected at relatively consistent concentrations at MW-8. None of the other BTEX compounds have been detected at MW-8 and no BTEX compounds have been detected at either of the other two intermediate aquifer wells sampled (MW-10, and MW-22).

Low level concentrations of individual PAH compounds have been detected occasionally in the intermediate wells but no consistent concentrations or trends can be discerned. Similarly, lead has been detected periodically at low concentrations in each of the intermediate aquifer wells but no trends can be established.

First Transmissive Zone

In samples collected from the first transmissive zone, no BTEX compounds have been detected since the baseline monitoring. At that time, benzene and ethylbenzene were detected at low levels in MW-25. No BTEX compounds have been detected in the first transmissive zone since completion of the soil remediation.

Low level concentrations of individual PAH compounds (primarily naphthalene) have been detected periodically in MW-25, MW-31, and MW-35 in the first transmissive zone. Based on these isolated detections, there are no observable trends; nor can it be determined whether they

are indicative of true groundwater contamination or are the result of outside influences. No PAH compounds have been detected in MW-34 throughout the monitoring program.

Conclusions

Based on the residual contaminant concentrations documented through the monitoring program outlined in the RAWP, the distribution and concentrations of BTEX and PAHs in groundwater is stable or decreasing following the soil remediation activities. Concentrations of BTEX and PAHs tend to remain the highest in the areas of residual soil contamination in the northwestern corner of the site and under the substation. BTEX and PAH concentrations in the wells located around the periphery of the area of excavation are demonstrating steady or slightly decreasing trends.

NATURAL ATTENUATION SCREENING

As a follow up to the semiannual groundwater monitoring program, soil and groundwater samples were collected from selected locations and analyzed for indicators of contaminant attenuation through natural microbiological activity. This additional investigation was undertaken by Alliant/IPW to determine if monitored natural attenuation could be considered a viable remedial strategy for the groundwater at the site. The activities to be conducted for the natural attenuation screening were outlined in the Sampling and Analysis Plan (SAP) submitted to EPA on September 1, 1998.

Soil Sample Collection

On September 15, 1998, soil samples were collected from the four locations identified as NAS-1 through NAS-4 on Figure 7. The soil samples were collected from depths that were likely to remain saturated regardless of the position of the Willow Creek dam. Sample depth intervals for the soil samples are as listed below:

Sample Designation	Sample Interval (feet below ground surface)
NAS-1	10-12
NAS-2	13-15
NAS-3	10-12
NAS-4	8-9.5

Samples NAS-1 and NAS-2 were collected from thermally treated soil that had been placed back on the site during the soil remediation. Samples NAS-3 and NAS-4 were collected from apparently native soils.

The soil samples were collected using direct push equipment and a stainless steel, 1-inch inside diameter discrete sampling tool fitted with an acetate liner. The sampling tool was driven to a predetermined depth, unlocked and driven further into the soil to collect a relatively undisturbed sample from the desired depth at each location. The sampler was retrieved from the ground and the liner containing the sample removed. Montgomery Watson personnel cut open each liner and

placed the soil samples directly in clean 4 oz. glass jars. Each jar was labeled with the site name, date, time, sample location, and samplers initials. Once filled, the jars were placed in an iced cooler to prevent or retard alterations in the sample integrity.

The thermally treated soil encountered was a black silty sand with some gravel and crushed rubble. The sample from NAS-1 contained oily material from the residual contamination in the northwestern corner of the site while the thermally treated soil at NAS-2 was densely compacted and difficult to drive the sampling equipment through. The soil encountered at NAS-3 consisted primarily of black to green clayey silt with some gravel. Sample NAS-4 was collected from the two foot interval immediately above the bedrock surface near MW-6 and consisted of brown clayey silt. These soil types typically contain significant populations of microbes and are rich in organic carbon and inorganic nutrients.

Prior to use in each hole, the sampling tube was decontaminated by washing in a solution of Alconox® and water and thoroughly rinsed. A new acetate liner was used for each sample collected. After sample collection, the bore holes were filled to the ground surface with granular bentonite. The soil sampling was conducted by Hydrologic, Inc. of Eudora, Kansas.

Soil Sample Analysis

The soil samples were delivered to Keystone Laboratories, Inc. (Keystone) in Newton, Iowa by Montgomery Watson personnel for analysis of the parameters listed in the SAP. The results of these analyses (summarized in Table 7) revealed well developed populations of each of the bacterial types cultured (total heterotrophs and specific contaminant degraders). As would be expected, populations of each type were lower in the thermally treated soil than in the native soils. Acridine Orange Direct Counts from the 4 samples were all within 1 order of magnitude and in sufficient numbers to suggest a large population of aerobic, anaerobic, and facultative anaerobic bacteria are present in the soil. Even though this method will count microbes that are not viable, the results indicate toxicity should not be an issue and that the environment in the sampling locations supports microbial activity. Total organic carbon (TOC) concentrations in the samples of thermally treated soil were approximately twice the concentration of TOC in the native soil. This is likely a result of the thermal desorption process which is not a combustion process as is incineration. Moisture content from the 4 samples ranged from 11 to 22.8% which is near the optimal range for bacterial growth (12-20%). Copies of the analytical report sheets are contained in Attachment C.

Groundwater Sample Collection

Groundwater samples were collected on September 14 and 15, 1998 by Montgomery Watson personnel. In accordance with the SAP, samples were collected from monitoring wells MW-2R, MW-4, MW-6, MW-8, MW-14R, MW-22, MW-23R, and MW-24R. Sample collection followed the same protocol as was used during the semiannual groundwater monitoring events. Prior to sampling, the depth to water was measured in each well and the volume of water standing in the well was determined. With the exceptions of MW-4 and MW-22, each well was purged of at least 3 times the volume of water standing in the well. MW-4 and MW-22 did not

yield sufficient water to produce 3 well volumes, were purged dry, and allowed to recharge prior to sampling.

Purging was performed using the dedicated inertial pump and tubing existing in each well. To minimize turbidity in the purge water and samples, purge rates were maintained at less than 1 liter per minute. While purging, the temperature, pH, conductivity, oxidation reduction potential (E_h), and dissolved oxygen were measured using a Hydrolab H_20 with a flow through cell. The measurements were monitored and periodically recorded on groundwater sample collection records. In addition, visual turbidity and color were recorded. Copies of the groundwater collection records are contained in Attachment D.

Containers for the groundwater samples were provided by Keystone. Keystone was responsible for cleaning the containers as well as adding the appropriate preservatives. Sample container size, type, preservative, and corresponding analytical parameters are noted on the groundwater sample collection records.

The sample containers were filled directly from the dedicated tubing; labeled with the site name, sample identification, date, time, and sampler's initials; and placed in an iced cooler. None of the samples were filtered. The filled containers were then delivered to Keystone for analysis of the parameters listed in the SAP.

Groundwater Sample Analysis

After the sample containers had been filled, additional water was collected for in-field colorimetric analysis for reduced iron (Fe^{+2}) and total manganese. In-field analysis was conducted by Montgomery Watson personnel using Hach test kit No. IR-18C for reduced iron and test kit No. MN-5 for total manganese. The in-field analysis was conducted in accordance with the instructions provided in each test kit. Detection ranges for the kits were 0 – 10 mg/l for reduced iron and 0 – 3 mg/l for manganese. The results of the in-field analysis are listed on the groundwater collection records and are summarized in Table 8. In general, the concentrations of reduced iron and manganese ranged from below detectable levels to less than 1 mg/l. The exceptions were MW-23R and MW-24R where concentrations of reduced iron were 4.2 and 4.0 mg/l, respectively. Along with the results of the reduced iron and manganese, final field readings of pH, E_h, and dissolved oxygen are also noted in Table 8.

Analytical results of the groundwater samples submitted to Keystone are also presented in Table 8. Of the analytical parameters, nitrogen compounds were detected in only a few of the samples, with total Kjeldahl nitrogen and orthophosphate not being detected in any of the samples. Each of the samples submitted exhibited detectable concentrations of alkalinity, chloride, and total organic carbon with methane detected in six of the samples and sulfate detected in 4 samples. Copies of the analytical report sheets are contained in Attachment E.

It should be noted that several of the method numbers were changed from those proposed in the SAP. Some of the changes are from EPA method numbers to equivalent Standard Method (SM) numbers, which resulted in no change to the analytical procedure. Other changes reflect

analytical methods which are more routinely used by Keystone for this type of project. The changes are noted in Table 9.

Discussion and Conclusions

This testing was conducted as a baseline screening of the conditions at the site and was intended provide an overview of the bacterial populations and the physical and chemical indicators that impact natural attenuation processes. Since the primary focus of natural attenuation is for the groundwater at the site, the field and analytical results for the groundwater will be more influential, and will be discussed in greater detail.

Bacterial Populations. Tube count results for the various types of bacteria indicate well developed populations. The lowest populations were noted at NAS-2 where the soil was extremely well compacted and may be the result of the lower moisture content.

Soil Matrix Conditions. The TOC concentrations and moisture content are conducive for microbial growth and do not suggest that the soil matrix is toxic or limiting for bacterial growth. TOC concentrations also suggest that natural attenuation processes will continue due to an ample supply of carbon.

Groundwater Conditions. At the time of the groundwater sampling, the Willow Creek dam was in the up position. The flow directions historically observed with the dam up indicate water from Willow Creek enters the groundwater system, flowing around the upstream end of the retaining wall. While this results in a flow reversal at MW-14R, the well is still within the groundwater contamination plume and will provide the data intended. The direction of flow at MW-2R would not likely change but the water may have originated in Willow Creek rather than from the west central portion of the site. The influx of water from the creek likely provides more oxygenated water to the area of contamination in the northwest corner of the site. The City of Mason City typically maintains the dam in the up position from April through October. The samples were collected without lowering the dam in order to maintain the steady state conditions that had developed over the summer.

With the exception of MW-2R and MW-22, the pH in the wells sampled fell within the optimal range for bacterial growth of 6.0-8.0. The pH at MW-2R was approximately 8.3 which is only slightly outside the optimal range and likely does not inhibit bacterial growth. At MW-22, the pH was 8.7 at the time the well was purged dry. A pH at this level may have an impact on bacterial growth but since this well is not directly upgradient of the areas of residual contamination, it would not affect the natural attenuation capacity of the site.

E_h is a significant indicator of microbial respiration and biotransformation conditions. Generally, E_h levels below +100 signal the utilization of electron receptors other than oxygen and levels less than approximately +200 often suggest anaerobic conditions. The E_h readings taken during the well purging were much higher than typically observed during the semiannual groundwater monitoring. However, with the exception of MW-6 and MW-14R, the E_h readings were all less than +200. MW-6 historically has registered higher E_h readings than the other wells and

MW-14R may have been influenced additionally by creek water. These conditions would likely support facultative anaerobic bacteria.

Dissolved oxygen (DO) concentrations less than 1 mg/l typify anaerobic conditions in groundwater. For the water table aquifer wells sampled, DO concentrations less than 1 mg/l were recorded in MW-14R, MW-23R, and MW-24R. Each of these wells are located in or downgradient of areas of residual contamination and may be the result of oxygen utilization within the plume. MW-2, also located within an area of residual contamination exhibited a slightly aerobic D.O. concentration of 1.05 mg/l. This sample may have been collected at a point in the plume where the oxygen has not yet been depleted. DO at the upgradient water table aquifer location (MW-6) was 1.94 mg/l. At the furthest downgradient point on the site (MW-4) the DO reading was 1.68 mg/l.

Electron Donors and Acceptors. Degradation of the BTEX and PAH compounds, along with natural organic carbon would provide an abundant supply of electron donors to provide carbon and energy to the microbial population at the site. Therefore, the decomposition of the contaminants may be limited by electron acceptors. Electron acceptors, in decreasing order of preference include dissolved oxygen, nitrate, iron, manganese, and sulfate. Each of the preferred electron acceptors were detected in sufficient quantities to support microbiological degradation. Concentrations of the electron acceptors at several of the well locations also suggest the preferential utilization of those acceptors is on-going.

As discussed above, DO is lacking in and immediately downgradient of the areas of residual contamination; suggesting that the DO has been preferentially utilized as the initial electron receptor in these areas. Nitrate was detected only in MW-6 and MW-14R. MW-6 is the upgradient well and should indicate background concentrations. MW-14R may be influenced by the influx of water from Willow Creek. Since nitrate was not detected in any of the other wells, it was likely utilized as the next electron acceptor in succession, once the DO was sufficiently depleted.

When reduced iron is detected, this is evidence that iron reduction has occurred. Significant concentrations of reduced iron were detected only in MW-23R and MW-24R. In consideration of the lack of nitrate and the low DO at these locations, iron may be acting as the next available electron acceptor in the hierarchy.

Sulfate was detected in all of the groundwater samples. In each well, other, higher preference electron acceptors are also present. Consequently, sulfate utilization does not appear to be occurring, but sulfate could act as the electron acceptor when at a later time, conditions become more reducing. The highest concentrations were detected in monitoring wells MW-6, MW-23R, and MW-24R. These wells are also the only wells with a pH less than 7.0.

Degradation By-Products. Alkalinity, chloride, and methane were included in the suite of analyses as by-product indicators of biological degradation. Under aerobic conditions, CO_2 generation can result in increased concentrations of alkalinity in the groundwater. However, the conditions at this site appear to be facultative to anaerobic and are likely not conducive to

impacting levels of alkalinity. This implication is apparently reflected in the distribution of alkalinity, in which the areas of residual contamination actually demonstrate slightly lower concentrations.

Chloride is routinely included in this type of investigation since it is may be generated as the end product of chlorinated solvent reduction under strongly anaerobic conditions. The chloride results from these samples do not indicate a trend of increasing concentration along the groundwater flow directions. This is as would be expected since the site conditions are generally facultative and chlorinated hydrocarbons have not been a factor on the site.

Methane may be generated in the biological degradation of organic carbon, including petroleum or pyrogenic hydrocarbons. Methane was detected in all samples except the upgradient and cross gradient locations (MW-6 and MW-22) with the highest methane concentration detected in the area of the greatest residual contamination (MW-2R). Methane typically is found under highly reducing conditions that do not appear to be present at this site. It is possible that small highly reduced pockets of activity exist within the subsurface and that methane has migrated from those areas.

Conclusions. The results of this baseline natural attenuation screening indicate the site maintains an adequate microbial population, in addition to a suitable physical and chemical environment to support natural attenuation as a remedial alternative. In further support, the data also indicates contaminant degradation is currently on-going using facultative anaerobes. Since BTEX and PAH compounds are more readily degraded under aerobic conditions, additional oxygen may increase the metabolic rates and further reduce the extent of residual contamination. However, as demonstrated with the semiannual monitoring events, the natural attenuation processes are controlling the extent of the residual groundwater contamination.

RECOMMENDATIONS

Considering the limited extent of groundwater contamination and potential for exposure, and apparent viability of natural attenuation, pursuing an active groundwater remediation strategy is not recommended at this time. Since natural attenuation processes appear to be sufficient to control or reduce groundwater contaminant concentrations, monitored natural attenuation is recommended as the remedial strategy for the groundwater component at the site.

If you have any questions or comments, please feel free to contact Bruce Greer of Alliant/IPW or me.

/rjk:vas
Enclosures

TABLE 1

WATER LEVEL MEASUREMENTS AND ELEVATIONS
MAY 11, 1998

Monitoring Well	TOC Elevation (ft NGVD)	Depth to Water (ft)	Water Surface Elevation (ft NGVD)
MW-2R	1,107.89	8.81	1,099.08
MW-3R	1,107.68	8.81	1,098.87
MW-4	1,106.98	9.54	1,097.44
MW-5	1,114.90	15.93	1,098.97
MW-6	1,112.87	12.48	1,100.39
MW-8	1,106.86	11.10	1,095.76
MW-9	1,106.86	9.68	1,097.18
MW-10	1,107.03	10.98	1,096.05
MW-13	1,110.48	11.57	1,098.91
MW-14R	1,110.18	11.15	1,099.03
MW-15	1,106.67	10.48	1,096.19
MW-16	1,107.05	Dry	<1,101.20
MW-17	1,107.46	15.91	1,091.55
MW-18	1,107.91	8.75	1,099.16
MW-19	1,101.34	5.80	1,095.54
MW-20	1,122.34	25.80	1,096.54
MW-21	1,116.00	14.49	1,101.51
MW-22	1,116.65	21.47	1,095.18
MW-23R	1,111.53	12.16	1,099.37
MW-24R	1,112.91	13.44	1,099.47
MW-25	1,106.86	7.68	1,099.18
MW-26	1,108.74	8.36	1,100.38
MW-27	1,112.95	14.01	1,098.94
MW-28	1,121.32	21.99	1,099.33
MW-29	1,127.47	19.17	1,108.30
MW-30	1,127.37	22.89	1,104.48
MW-31	1,127.66	22.98	1,104.68
MW-32	1,128.57	27.41	1,101.16
MW-33	1,101.19	Flowing	>1,101.19
MW-34	1,117.20	18.16	1,099.04
MW-35	1,108.66	11.23	1,097.43
WC-UP	1,108.78	9.65	1,099.13
WC-DN	1,107.78	11.05	1,096.73

WC-UP = Willow Creek water level upstream of the dam
WC-DN = Willow Creek water level immediately downstream of the dam.

TABLE 2

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW02-GW-004 August 1995 Dam Down	MW02R-GW-005 December 1996 Dam Down	MW02R-GW-006 May 1997 Dam Up	MW02R-GW-007 November 1997 Dam Down	MW02R-GW-008 May 1998 Dam Down
Lead	mg/L	0.1305	0.0050 U	0.0228	0.1584	0.0149
Benzene	µg/L	1,320	1,410	621	406	148
Ethylbenzene	µg/L	332	446	458	268	139
Toluene	µg/L	122	267	230	94.0	28.7
Xylenes	µg/L	459	862	842	480	232
Acenaphthene	µg/L	120	59.0	92.9	70.0	11.1
Acenaphthylene	µg/L	10 U	12.3	2.1 U	73.2	7.50
Anthracene	µg/L	38	6.21	9.47	12.5	1.82
Benzo(a)anthracene*	µg/L	4.7	0.60	0.86 U	2.57	1.08
Benzo(a)pyrene*	µg/L	3.2	0.38	2.2 U	0.714	0.056 U
Benzo(b)fluoranthene*	µg/L	1.3	0.15 U	0.39 U	0.725	0.056 U
Benzo(g,h,i)perylene	µg/L	1.2	0.23	1.6 U	1.48	0.056 U
Benzo(k)fluoranthene*	µg/L	0.63	0.12 U	0.63 U	0.054 U	0.30
Chrysene*	µg/L	4.3	0.34	0.57 U	5.43	0.553
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.52 U	0.054 U	0.056 U
Fluoranthene	µg/L	19	4.07	3.90	9.04	5.55
Fluorene	µg/L	100	34.6	36.4	54.7	7.80
Indeno(1,2,3-cd)pyrene*	µg/L	1.1	0.13	1.4 U	1.0	0.056 U
Naphthalene	µg/L	10 U	4.3	1,330	898	35.0
Phenanthrene	µg/L	130	3.13	42.4	52.7	6.11
Pyrene	µg/L	5.5	2.76	2.9 U	6.71	2.37
Benzo(a)pyrene equivalent	µg/L	3.92	0.45	ND	1.15	0.11
Total PAHs	µg/L	428.93	128.05	1,515.07	1,188.77	79.183

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW03-GW-004 August 1995 Dam Down	MW03R-GW-005 December 1996 Dam Down	MW03R-GW-006 May 1997 Dam Up	MW03R-GW-007 November 1997 Dam Down	MW03R-GW-008 May 1998 Dam Down
Lead	mg/L	0.0212	0.0164	0.1565	0.1293	0.511
Benzene	µg/L	7.3	0.90	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	14.2	3.2	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.2	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	8	3.4	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	24.0	0.48	0.535	0.239
Acenaphthylene	µg/L	10 U	21.3	0.082 U	0.14 U	0.14 U
Anthracene	µg/L	8	1.57	0.066	0.056 U	0.142
Benzo(a)anthracene*	µg/L	3.4	0.30	0.10	0.111	0.081
Benzo(a)pyrene*	µg/L	2.8	0.21	0.12	0.056 U	0.088
Benzo(b)fluoranthene*	µg/L	1.7	0.15 U	0.015 U	0.056 U	0.056 U
Benzo(g,h,i)perylene	µg/L	1.1	0.18 U	0.10	0.069	0.072
Benzo(k)fluoranthene*	µg/L	1.2	0.12 U	0.024 U	0.056 U	0.056 U
Chrysene*	µg/L	1.5 U	0.19	0.050	0.056 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.10	0.056 U	0.056 U
Fluoranthene	µg/L	9.6	1.0 U	0.050 U	0.064	0.166
Fluorene	µg/L	5.8	23.2	0.12 U	0.306	0.345
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.056 U	0.056 U
Naphthalene	µg/L	10 U	7.14	0.24	0.669	4.01
Phenanthrene	µg/L	6.4 U	8.44	0.26	0.193	0.498
Pyrene	µg/L	10	0.66	0.11 U	0.14 U	0.142
Benzo(a)pyrene equivalent	µg/L	3.22	0.24	0.23	0.01	0.10
Total PAHs	µg/L	43.6	87.01	1.516	1.947	5.783

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW04-GW-004 August 1995 Dam Down	MW04-GW-005 December 1996 Dam Down	MW04-GW-006 May 1997 Dam Up	MW04-GW-007 November 1997 Dam Down	MW04-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0053	0.0040 U
Benzene	µg/L	8.6	3.4	1.4	1.2	1.0
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	1.60	0.14 U	2.72
Acenaphthylene	µg/L	10 U	2.34	0.089 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.30 U	0.063 U	0.056 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.036 U	0.056 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.094 U	0.056 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.016 U	0.056 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.069 U	0.056 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.026 U	0.056 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.024 U	0.056 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.022 U	0.056 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.054 U	0.056 U	0.056 U
Fluorene	µg/L	2.1 U	0.75	0.13 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.057 U	0.056 U	0.056 U
Naphthalene	µg/L	10 U	0.38 U	0.22	0.056 U	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.061 U	0.056 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.12 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	3.09	1.82	ND	2.72

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW05-GW-004 August 1995 Dam Down	MW05-GW-005 December 1996 Dam Down	MW05-GW-006 May 1997 Dam Up	MW05-GW-007 November 1997 Dam Down	MW05-GW-008 May 1998 Dam Down
Lead	mg/L	0.0074	0.0051	0.0282	0.990	0.826
Benzene	µg/L	1.0 U	0.84	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.078 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.72	0.084 U	0.14 U	2.37
Anthracene	µg/L	6.6 U	0.60	0.36	0.749	1.38
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.034 U	0.055 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.088 U	0.055 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.055 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.064 U	0.055 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.055 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.055 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.055 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.31	0.051 U	0.055 U	0.723
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.053 U	0.055 U	0.056 U
Naphthalene	µg/L	10 U	0.38 U	0.038 U	0.055 U	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.77	0.055 U	0.885
Pyrene	µg/L	2.7 U	0.33	0.11 U	0.14 U	0.904
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	2.96	1.13	0.749	6.262

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW06-GW-004 August 1995 Dam Down	MW06-GW-005 December 1996 Dam Down	MW06-GW-006 May 1997 Dam Up	MW06-GW-007 November 1997 Dam Down	MW06-GW-008 May 1998 Dam Down
Lead	mg/L	0.0209	0.0050 U	0.0050 U	0.0509	0.0091
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.078 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.084 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.060 U	0.055 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.034 U	0.055 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.088 U	0.055 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.055 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.065 U	0.055 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.025 U	0.055 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.023 U	0.055 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.021 U	0.055 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.052 U	0.055 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.054 U	0.055 U	0.056 U
Naphthalene	µg/L	10 U	3.38	0.038 U	0.055 U	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.058 U	0.055 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	3.38	ND	ND	ND

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW13-GW-004 August 1995 Dam Down	MW13-GW-005 December 1996 Dam Down	MW13-GW-006 May 1997 Dam Up	MW13-GW-007 November 1997 Dam Down	MW13-GW-007 May 1998 Dam Down
Lead	mg/L	0.862	0.1370	0.0099	0.4900	0.0150
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.050 U	0.076 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.6 U	0.082 U	0.14 U	0.14 U
Anthracene	µg/L	6.6	0.030 U	0.058 U	0.058 U	0.102
Benzo(a)anthracene*	µg/L	0.21 U	0.26	0.033 U	0.112	0.155
Benzo(a)pyrene*	µg/L	0.23 U	0.25	0.086 U	0.083	0.165
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.058 U	0.062
Benzo(g,h,i)perylene	µg/L	0.76 U	0.23	0.063 U	0.105	0.139
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.058 U	0.091
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.092	0.104
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.18 U	0.020 U	0.058 U	0.058 U
Fluoranthene	µg/L	2.1 U	0.55	0.050 U	0.279	0.365
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.12 U	0.12 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.077	0.105
Naphthalene	µg/L	10 U	0.38 U	0.037 U	0.058 U	0.058 U
Phenanthrene	µg/L	6.4 U	0.19	0.056 U	0.125	0.265
Pyrene	µg/L	2.7 U	0.63	0.11 U	0.315	0.393
Benzo(a)pyrene equivalent	µg/L	ND	0.28	ND	0.10	0.20
Total PAHs	µg/L	6.6	2.11	ND	1.188	1.946

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW14-GW-004 August 1995 Dam Down	MW14R-GW-005 December 1996 Dam Down	MW14R-GW-006 May 1997 Dam Up	MW14R-GW-007 November 1997 Dam Down	MW14R-GW-008 May 1998 Dam Down
Lead	mg/L	1.1	0.9980	0.4520	17	0.904
Benzene	µg/L	2.8	19.6	1.5	2.1	10.0
Ethylbenzene	µg/L	1.6	68.6	2.5	46.5	40.6
Toluene	µg/L	1.0 U	10.4	1.0 U	2.5	1.6
Xylenes	µg/L	1.0 U	148	14.1	58.4	55.8
Acenaphthene	µg/L	18 U	75.3	21.4	74.5	111
Acenaphthylene	µg/L	10 U	257	34.0	231	138
Anthracene	µg/L	6.6 U	18.8	9.47	17.2	17.7
Benzo(a)anthracene*	µg/L	1.7	1.4 U	0.67	1.60	0.86
Benzo(a)pyrene*	µg/L	1.2	2.5 U	0.44 U	0.058 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.62	3.8 U	0.076 U	0.058 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	4.5 U	0.32 U	0.058 U	0.146
Benzo(k)fluoranthene*	µg/L	0.51	3.0 U	0.12 U	0.058 U	0.056 U
Chrysene*	µg/L	1.5 U	1.5 U	0.37	0.881	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	3.3U	0.10 U	0.058 U	0.056 U
Fluoranthene	µg/L	7.8	13.4	8.17	7.57	9.5
Fluorene	µg/L	2.1 U	176	0.61 U	154	108
Indeno(1,2,3-cd)pyrene*	µg/L	0.57	3.3 U	0.26 U	0.058 U	0.056 U
Naphthalene	µg/L	10 U	459	0.19 U	552	160
Phenanthrene	µg/L	6.4 U	90.0	27.4	76.3	77.7
Pyrene	µg/L	7.4	8.75	10.1	5.51	6.6
Benzo(a)pyrene equivalent	µg/L	1.49	ND	0.07	0.16	0.09
Total PAHs	µg/L	19.8	1,098.25	115.58	1,120.61	629.06

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW15-GW-004 August 1995 Dam Down	MW15-GW-005 December 1996 Dam Down	MW15-GW-006 May 1997 Dam Up	MW15-GW-007 November 1997 Dam Down	MW15-GW-008 May 1998 Dam Down
Lead	mg/L	0.0115	0.0050 U	0.0050 U	0.0302	0.0406
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.078 U	0.153	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.084 U	0.154	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.059 U	0.056 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.034 U	0.056 U	0.194
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.088 U	0.056	0.296
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.056 U	0.087
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.064 U	0.056 U	0.207
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.056 U	0.129
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.056 U	0.134
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.056 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.051 U	0.056 U	0.246
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.222	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.053 U	0.056 U	0.163
Naphthalene	µg/L	10 U	0.38 U	0.037 U	0.062	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.057 U	0.066	0.94
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.14 U	0.243
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	0.056	0.34
Total PAHs	µg/L	ND	ND	ND	0.713	2.639

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW17-GW-004 August 1995 Dam Down	MW17-GW-005 December 1996 Dam Down	MW17-GW-006 May 1997 Dam Up	MW17-GW-007 November 1997 Dam Down	MW17-GW-008 May 1998 Dam Down
Lead	mg/L	0.008	0.0050 U	0.0192	0.0059	0.0040 U
Benzene	µg/L	8,870	10,500	11,300	10,000	9,550
Ethylbenzene	µg/L	2,690	3,350	2,140	1,110	762
Toluene	µg/L	10,400	14,300	13,400	10,500	9,390
Xylenes	µg/L	12,000	4,410	3,080	2,300	1,740
Acenaphthene	µg/L	53	77.3	86.1	87.1	27.0
Acenaphthylene	µg/L	46	547	550	561	143
Anthracene	µg/L	9.5	7.41 U	5.8 U	0.055 U	0.28 U
Benzo(a)anthracene*	µg/L	0.13 U	0.55 U	3.3 U	0.055 U	0.28 U
Benzo(a)pyrene*	µg/L	0.23 U	1.0 U	8.6 U	0.055 U	0.28 U
Benzo(b)fluoranthene*	µg/L	0.18 U	1.5 U	1.5 U	0.055 U	0.28 U
Benzo(g,h,i)perylene	µg/L	0.76 U	1.8 U	6.3 U	0.055 U	0.28 U
Benzo(k)fluoranthene*	µg/L	0.17 U	1.2 U	2.4 U	0.055 U	0.28 U
Chrysene*	µg/L	1.5 U	0.60 U	2.2 U	0.055 U	0.28 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	1.3 U	2.0 U	0.055 U	0.28 U
Fluoranthene	µg/L	3	3.93	5.0 U	0.055 U	0.28 U
Fluorene	µg/L	65	88.6	12 U	0.110 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	1.3 U	5.2 U	0.055 U	0.28 U
Naphthalene	µg/L	7,200	10,800	8,930	10,000	3,200
Phenanthrene	µg/L	32	29.4	27.4	27.6	10.1
Pyrene	µg/L	3.7	29.6	11 U	0.137 U	0.70 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	7,412.2	11,583.24	9,593.5	10,675.8	3,380.8

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW19-GW-004 - Dam Down	MW19-GW-005 December 1996 Dam Down	MW19-GW-006 May 1997 Dam Up	MW19-GW-007 November 1997 Dam Down	MW19-GW-008 May 1998 Dam Down
Lead	mg/L	NS	0.0050 U	0.0050 U	0.0040 U	0.0040 U
Benzene	µg/L	NS	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	NS	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	NS	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	NS	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	NS	0.050 U	0.076 U	0.14 U	0.14 U
Acenaphthylene	µg/L	NS	1.60 U	0.082 U	0.14 U	0.14 U
Anthracene	µg/L	NS	0.030 U	0.058 U	0.056 U	0.056 U
Benzo(a)anthracene*	µg/L	NS	0.055U	0.033 U	0.056 U	0.056 U
Benzo(a)pyrene*	µg/L	NS	0.10 U	0.086 U	0.056 U	0.056 U
Benzo(b)fluoranthene*	µg/L	NS	0.15 U	0.015 U	0.056 U	0.056 U
Benzo(g,h,i)perylene	µg/L	NS	0.18 U	0.063 U	0.056 U	0.056 U
Benzo(k)fluoranthene*	µg/L	NS	0.12 U	0.024 U	0.056 U	0.056 U
Chrysene*	µg/L	NS	0.060 U	0.022 U	0.056 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	NS	0.13 U	0.020 U	0.056 U	0.056 U
Fluoranthene	µg/L	NS	0.10 U	0.050 U	0.056 U	0.056 U
Fluorene	µg/L	NS	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	NS	0.13 U	0.052 U	0.056 U	0.056 U
Naphthalene	µg/L	NS	0.38 U	0.037 U	0.056 U	0.056 U
Phenanthrene	µg/L	NS	0.060 U	0.056 U	0.056 U	0.056 U
Pyrene	µg/L	NS	0.084 U	0.11 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	NS	ND	ND	ND	ND
Total PAHs	µg/L	NS	ND	ND	ND	ND

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW23-GW-004 August 1995 Dam Down	MW23R-GW-005 December 1996 Dam Down	MW23R-GW-006 May 1997 Dam Up	MW23R-GW-007 November 1997 Dam Down	MW23R-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0156	0.0322	0.8420	0.316
Benzene	µg/L	6.7	6.9	17.5	1.4	0.5 U
Ethylbenzene	µg/L	18.2	1.0 U	8.2	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	19.6	3.0 U	10.4	3.0 U	3.0 U
Acenaphthene	µg/L	52	11.4	44.3	16.4	15.1
Acenaphthylene	µg/L	90	10.1	65.1	20.1	13.1
Anthracene	µg/L	23	1.35	4.80	2.71	2.10
Benzo(a)anthracene*	µg/L	0.13 U	0.17	0.16 U	0.328	0.590
Benzo(a)pyrene*	µg/L	0.23 U	0.12	0.43 U	0.055 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.075 U	0.055 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.32 U	0.055 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.12 U	0.055 U	0.056 U
Chrysene*	µg/L	1.5 U	0.12 U	0.11 U	0.244	0.356
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.10 U	0.055 U	0.056 U
Fluoranthene	µg/L	6.4	0.90	3.25	2.20	2.18
Fluorene	µg/L	47	5.58	39.7	0.11 U	5.50
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.26 U	0.055 U	0.056 U
Naphthalene	µg/L	210	1.88	24.2	0.738	0.056 U
Phenanthrene	µg/L	49	4.48	21.1	10.5	6.37
Pyrene	µg/L	4	0.73	0.55 U	1.44	2.83
Benzo(a)pyrene equivalent	µg/L	ND	0.14	ND	0.03	0.06
Total PAHs	µg/L	481.4	36.83	202.45	54.66	48.126

TABLE 2 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
Shallow Aquifer

Parameter	Units	MW24-GW-004 August 1995 Dam Down	MW24R-GW-005 December 1996 Dam Down	MW24R-GW-006 May 1997 Dam Up	MW24R-GW-007 November 1997 Dam Down	MW24R-GW-008 May 1998 Dam Down
Lead	mg/L	0.0164	0.2300	0.0410	0.331	0.0631
Benzene	µg/L	1.0 U	0.60	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.080 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.086 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.061 U	0.056 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.035 U	0.056 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.090 U	0.056 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.016 U	0.056 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.066 U	0.056 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.025 U	0.056 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.023 U	0.056 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.021 U	0.056 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.052 U	0.056 U	0.056U
Fluorene	µg/L	2.1 U	0.082 U	0.13 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.055 U	0.056 U	0.056 U
Naphthalene	µg/L	10 U	0.38 U	0.039 U	0.056 U	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.059 U	0.056 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.12 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	ND	ND	ND	ND

* - Carcinogenic PAH Compounds
U - Compound Not Detected
NS - Not Sampled
PAHs - Polynuclear Aromatic Hydrocarbons
ND - None Detected

TABLE 3

BENZO(A)PYRENE EQUIVALENT POTENCY FACTORS

Compound	Relative Potency Factor
Benzo(a)anthracene	0.1
Benzo(a)pyrene	1.0
Benzo(b)fluoranthene	0.1
Benzo(k)fluoranthene	0.01
Chrysene	0.001
Dibenzo(a,h)anthracene	1.0
Indeno(1,2,3-cd)pyrene	0.1

TABLE 4

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE AQUIFER

Parameter	Units	MW08-GW-004 August 1995 Dam Down	MW08-GW-005 December 1996 Dam Down	MW08-GW-006 May 1997 Dam Up	MW08-GW-007 November 1997 Dam Down	MW08-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0074	0.0040 U	0.0040 U
Benzene	µg/L	101	90.7	148	135	123
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.078 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.6 U	0.084 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.060 U	0.056 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.034 U	0.056 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.088 U	0.056 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.056 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.065 U	0.056 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.025 U	0.056 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.023 U	0.056 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.021 U	0.056 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.052 U	0.056 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.054 U	0.056 U	0.056 U
Naphthalene	µg/L	10 U	0.38 U	0.038 U	0.068	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.058 U	0.056 U	0.056 U
Pyrene	µg/L	2.7 U	0.18	0.11 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	0.18	ND	0.068	ND

TABLE 4 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE AQUIFER

Parameter	Units	MW10-GW-004 August 1995 Dam Down	MW10-GW-005 December 1996 Dam Down	MW10-GW-006 May 1997 Dam Up	MW10-GW-007 November 1997 Dam Down	MW10-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0052	0.0040 U
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.076 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.082 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.058 U	0.054 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.033 U	0.054 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.086 U	0.054 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.054 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.063 U	0.054 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.054 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.054 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.054 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.050 U	0.054 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.054 U	0.056 U
Naphthalene	µg/L	10 U	0.38 U	0.037 U	0.054 U	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.056 U	0.054 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	ND	ND	ND	ND

TABLE 4 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
INTERMEDIATE AQUIFER

Parameter	Units	MW22-GW-004 August 1995 Dam Down	MW22-GW-005 December 1996 Dam Down	MW22-GW-006 May 1997 Dam Up	MW22-GW-007 November 1997 Dam Down	MW22-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0098	0.0117	0.0114
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.076U	0.13 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.082 U	0.13 U	0.14 U
Anthracene	µg/L	6.6 U	0.26	0.058 U	0.054 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.033 U	0.054 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.086 U	0.054 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.054 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.063 U	0.054 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.054 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.054 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.30 U	0.020 U	0.054 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.050 U	0.054 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.054 U	0.056 U
Naphthalene	µg/L	10 U	0.54	0.037 U	0.082	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.056 U	0.054 U	0.056 U
Pyrene	µg/L	2.7 U	0.15 U	0.11 U	0.13 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	0.8	ND	0.082	ND

* - Carcinogenic PAH Compounds
U - Compound Not Detected
PAHs - Polynuclear Aromatic Hydrocarbons
ND - None Detected

TABLE 5

GROUNDWATER ANALYTICAL RESULTS
FIRST TRANSMISSIVE ZONE

Parameter	Units	MW25-GW-004 August 1995 Dam Down	MW25-GW-005 December 1996 Dam Down	MW25-GW-006 May 1997 Dam Up	MW25-GW-007 November 1997 Dam Down	MW25-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0040 U	0.0040 U
Benzene	µg/L	1.1	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.3	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.076 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.082 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.058 U	0.054 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.033 U	0.054 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.086 U	0.054 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.054 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.063 U	0.054 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.054 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.054 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.054 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.050 U	0.054 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.054 U	0.056 U
Naphthalene	µg/L	10 U	0.38U	0.037 U	0.490	0.069
Phenanthrene	µg/L	6.4 U	0.060 U	0.056 U	0.054 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	ND	ND	0.490	0.069

TABLE 5 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
FIRST TRANSMISSIVE ZONE

Parameter	Units	MW31-GW-004 August 1995 Dam Down	MW31-GW-005 December 1996 Dam Down	MW31-GW-006 May 1997 Dam Up	MW31-GW-007 November 1997 Dam Down	MW31-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0040 U	0.0040 U
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.076 U	0.13 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.082 U	0.13 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.058 U	0.054 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.033 U	0.054 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.086 U	0.054 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.054 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.063 U	0.054 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.054 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.054 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.054 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.050 U	0.054 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.054 U	0.056 U
Naphthalene	µg/L	10 U	0.38U	0.037 U	0.061	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.056 U	0.054 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.13 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	ND	ND	0.061	ND

TABLE 5 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
FIRST TRANSMISSIVE ZONE

Parameter	Units	MW34-GW-004 August 1995 Dam Down	MW34-GW-005 December 1996 Dam Down	MW34-GW-006 May 1997 Dam Up	MW34-GW-007 November 1997 Dam Down	MW34-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0384	0.0048
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.078 U	0.15 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.084 U	0.15 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.059 U	0.058 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.034 U	0.058 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.088 U	0.058 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.058 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.064 U	0.058 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.058 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.058 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.058 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.051 U	0.058 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.12 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.053 U	0.058 U	0.056 U
Naphthalene	µg/L	10 U	0.38U	0.038 U	0.058 U	0.056 U
Phenanthrene	µg/L	6.4 U	0.060 U	0.057U	0.058 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.15 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	ND	ND	ND	ND

TABLE 5 (CONTINUED)

GROUNDWATER ANALYTICAL RESULTS
FIRST TRANSMISSIVE ZONE

Parameter	Units	MW35-GW-004 August 1995 Dam Down	MW35-GW-005 December 1996 Dam Down	MW35-GW-006 May 1997 Dam Up	MW35-GW-007 November 1997 Dam Down	MW35-GW-008 May 1998 Dam Down
Lead	mg/L	0.0050 U	0.0050 U	0.0050 U	0.0040 U	0.0040 U
Benzene	µg/L	1.0 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethylbenzene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	1.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Acenaphthene	µg/L	18 U	0.50 U	0.076 U	0.14 U	0.14 U
Acenaphthylene	µg/L	10 U	1.60 U	0.082 U	0.14 U	0.14 U
Anthracene	µg/L	6.6 U	0.030 U	0.058 U	0.054 U	0.056 U
Benzo(a)anthracene*	µg/L	0.13 U	0.055 U	0.033 U	0.054 U	0.056 U
Benzo(a)pyrene*	µg/L	0.23 U	0.10 U	0.086 U	0.054 U	0.056 U
Benzo(b)fluoranthene*	µg/L	0.18 U	0.15 U	0.015 U	0.054 U	0.056 U
Benzo(g,h,i)perylene	µg/L	0.76 U	0.18 U	0.063 U	0.054 U	0.056 U
Benzo(k)fluoranthene*	µg/L	0.17 U	0.12 U	0.024 U	0.054 U	0.056 U
Chrysene*	µg/L	1.5 U	0.060 U	0.022 U	0.054 U	0.056 U
Dibenzo(a,h)anthracene*	µg/L	0.3 U	0.13 U	0.020 U	0.054 U	0.056 U
Fluoranthene	µg/L	2.1 U	0.10 U	0.050 U	0.054 U	0.056 U
Fluorene	µg/L	2.1 U	0.082 U	0.12 U	0.11 U	0.11 U
Indeno(1,2,3-cd)pyrene*	µg/L	0.43 U	0.13 U	0.052 U	0.054 U	0.056 U
Naphthalene	µg/L	10 U	0.38U	1.52	0.054 U	0.160
Phenanthrene	µg/L	6.4 U	0.060 U	0.19	0.054 U	0.056 U
Pyrene	µg/L	2.7 U	0.084 U	0.11 U	0.14 U	0.14 U
Benzo(a)pyrene equivalent	µg/L	ND	ND	ND	ND	ND
Total PAHs	µg/L	ND	ND	1.71	ND	0.160

* - Carcinogenic PAH Compounds
U - Compound Not Detected
PAHs - Polynuclear Aromatic Hydrocarbons
ND - None Detected

TABLE 6

DUPLICATE SAMPLE RESULTS
May 1998

Parameter	Units	Duplicates MW13-GW-008	DP01-GW-008	RPD	Duplicates MW03R-GW-008	DP02-GW-008	RPD
Lead, total	mg/L	0.0150	0.682	191.4*	0.511	0.672	27.2
Benzene	µg/L	0.5 U	0.5 U	-	0.5 U	0.5 U	-
Ethylbenzene	µg/L	1.0 U	1.0 U	-	1.0 U	1.0 U	-
Toluene	µg/L	1.0 U	1.0 U	-	1.0 U	1.0 U	-
Xylenes, total	µg/L	3.0 U	3.0 U	-	3.0 U	3.0 U	-
Acenaphthene	µg/L	0.14 U	0.14 U	-	0.239	0.181	27.6
Acenaphthylene	µg/L	0.14 U	0.14 U	-	0.14 U	0.14 U	-
Anthracene	µg/L	0.102	0.193	61.7	0.142	0.056 U	-
Benzo(a)anthracene	µg/L	0.155	0.524	108.7*	0.081	0.056 U	-
Benzo(a)pyrene	µg/L	0.165	0.509	102.1*	0.088	0.056 U	-
Benzo(b)fluoranthene	µg/L	0.062	0.219	111.7*	0.056 U	0.056 U	-
Benzo(g,h,i)perylene	µg/L	0.139	0.304	74.5	0.072	0.056 U	-
Benzo(k)fluoranthene	µg/L	0.091	0.276	100.8*	0.056 U	0.056 U	-
Chrysene	µg/L	0.104	0.344	107.1*	0.056 U	0.056 U	-
Dibenzo(a,h)anthracene	µg/L	0.058 U	0.056 U	-	0.056 U	0.056 U	-
Fluoranthene	µg/L	0.365	1.02	94.6*	0.166	0.056 U	-
Fluorene	µg/L	0.12 U	0.143	-	0.345	0.158	74.4
Indeno(1,2,3-cd)pyrene	µg/L	0.105	0.296	95.3	0.056 U	0.056 U	-
Naphthalene	µg/L	0.058 U	0.098	-	4.01	0.532	153.1*
Phenanthrene	µg/L	0.265	0.611	79.0	0.498	0.088	139.9*
Pyrene	µg/L	0.393	0.874	75.9	0.142	0.14 U	-

* - RPD exceeds QA/QC criteria
RPD - Relative Percent Difference
U - Compound Not Detected

TABLE 7

MONITORED NATURAL ATTENUATION BASELINE SCREENING RESULTS
SOIL SAMPLES

Parameter	Units	NAS-1	NAS-2	NAS-3	NAS-4
Naphthalene Degrader Tube Count	MPN/g	8,120	5,365	12,470	16,145
Benzene Degrader Tube Count	MPN/g	11,265	5,770	13,915	10,390
Bio-Heterotrophic Tube Count	MPN/g	9,920	3,370	79,700	66,750
Acridine Orange Direct Count	CFU/g	5.8 E+11	1.4 E+11	5.9 E+11	5.2 E+10
Total Organic Carbon	mg/kg	49,300	58,400	17,100	27,000
Moisture Content	%	15.4	11	21.6	22.8
Total Solids	%	84.6	89	78.4	77.2

MPN/g = Most probable number of bacteria per gram of soil.
CFU/g = Colony forming units per gram of soil.

TABLE 8

MONITORED NATURAL ATTENUATION BASELINE SCREENING RESULTS
GROUNDWATER SAMPLES

Parameter	Units	MW02R-GW-NAS	MW04-GW-NAS	MW06-GW-NAS	MW08-GW-NAS
Field Measurements*					
pH	Standard	8.27	7.34	6.54	7.05
Eh	mV	169	99	237	103
Dissolved Oxygen	mg/L	1.05	1.68	1.94	0.11
Iron, as Fe^{+2}	mg/L	NR	0.6	0.4	0.8
Manganese	mg/L	0.1	0.4	0.2	0.1
Laboratory Measurements					
Alkalinity, as $CaCo_3$	mg/L	161	351	428	285
Chloride	mg/L	93	45.7	169	33.7
Methane	mg/L	0.58	0.05	0.02 U	0.18
Nitrogen, Ammonia	mg/L	1.35	1.29	1 U	1 U
Nitrogen, Kjeldahl	mg/L	10 U	10 U	10 U	10 U
Nitrogen, Nitrate	mg/L	0.1 U	0.1 U	0.7	0.1 U
Nitrogen, Nitrite	mg/L	0.1 U	0.1 U	0.1 U	0.1 U
Orthophosphate	mg/L	0.1 U	0.1 U	0.1 U	0.1 U
Sulfide, Total	mg/L	0.1 U	0.13	0.1 U	0.14
Sulfate	mg/L	359	105	661	43.6
Total Organic Carbon	mg/L	5.6	14.7	1.5	0.8

TABLE 8 (Continued)

MONITORED NATURAL ATTENUATION BASELINE SCREENING RESULTS
GROUNDWATER SAMPLES

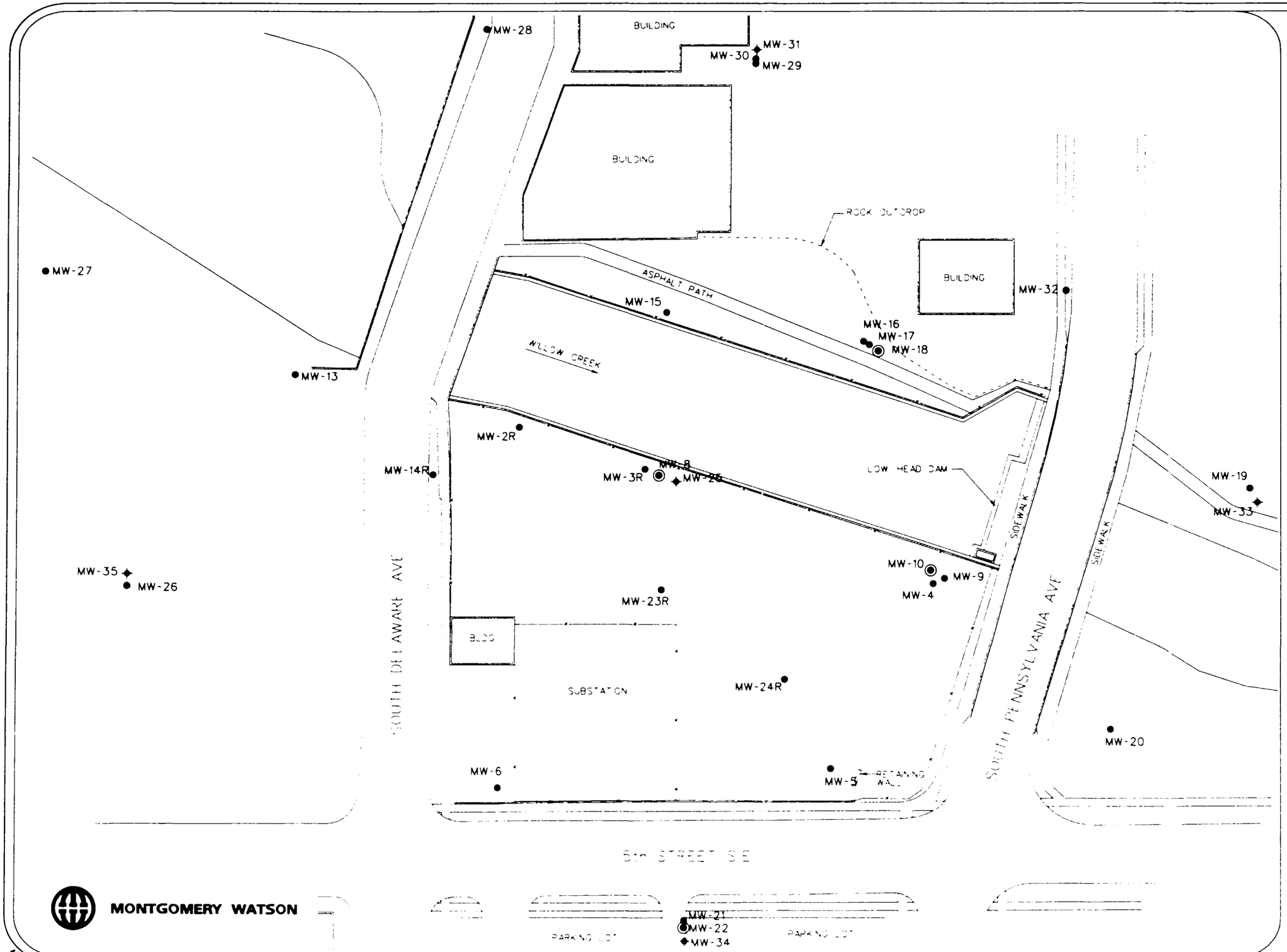
Parameter	Units	MW14R-GW-NAS	MW22-GW-NAS	MW23R-GW-NAS	MW24R-GW-NAS
Field Measurements*					
pH	-	7.19	8.67	6.77	6.73
Eh	mV	226	-51	125	98
Dissolved Oxygen	mg/L	0.27	0.13	0.72	0.22
Iron, as Fe^{+2}	mg/L	NR	0.6	4.2	4.0
Manganese	mg/L	NR	NR	1.2	0.9
Laboratory Measurements					
Alkalinity, as $CaCo_3$	mg/L	256	426	236	331
Chloride	mg/L	33.9	6.3	110	159
Methane	mg/L	0.04	0.02 U	0.08	0.04
Nitrogen, Ammonia	mg/L	1 U	1 U	1 U	2.02
Nitrogen, Kjeldahl	mg/L	10 U	10 U	10 U	10 U
Nitrogen, Nitrate	mg/L	1.3	0.1 U	0.1 U	0.1 U
Nitrogen, Nitrite	mg/L	0.3	0.1 U	0.1 U	0.1 U
Orthophosphate	mg/L	0.1 U	0.1 U	0.1 U	0.1 U
Sulfide, Total	mg/L	0.1 U	0.73	0.1 U	1.56
Sulfate	mg/L	82	30.8	1,050	1,140
Total Organic Carbon	mg/L	2.9	1.4	3.6	5.8

* - Measured at the Time of Sample Collection
U - Compound Not Detected
NR - No Response in Field Test Kit

TABLE 9

ANALYTICAL METHOD CHANGES

Analyte	Method Proposed	Method Used	Change
Groundwater Samples			
Alkalinity	EPA 310.1	SM 2320 B	Standard Method equivalent to EPA method.
Nitrogen, Ammonia	EPA 350.2	SM 4500-NH_3 F	Standard Method analysis completed direct by probe rather than distillation.
Nitrogen, Nitrite	EPA 353.3	SM 4500-NO_2 B	Standard Method equivalent to EPA method.
Orthophosphate	EPA 365.2	SM 4500-P E	Standard Method equivalent to EPA method.
Sulfate	EPA 375.4	EPA 9056	Analysis by ion chromatograph rather than turbidimetric.
Sulfide	EPA 376.4	EPA 376.2	Methylene blue/colorimetric rather than titration.
Total Organic Carbon	EPA 415.2	EPA 9060	Groundwater method rather than wastewater.
Soil Samples			
Total Heterotrophic Bacteria	SM 9215 C	SM 9221 B	Tube count rather than spread plate.



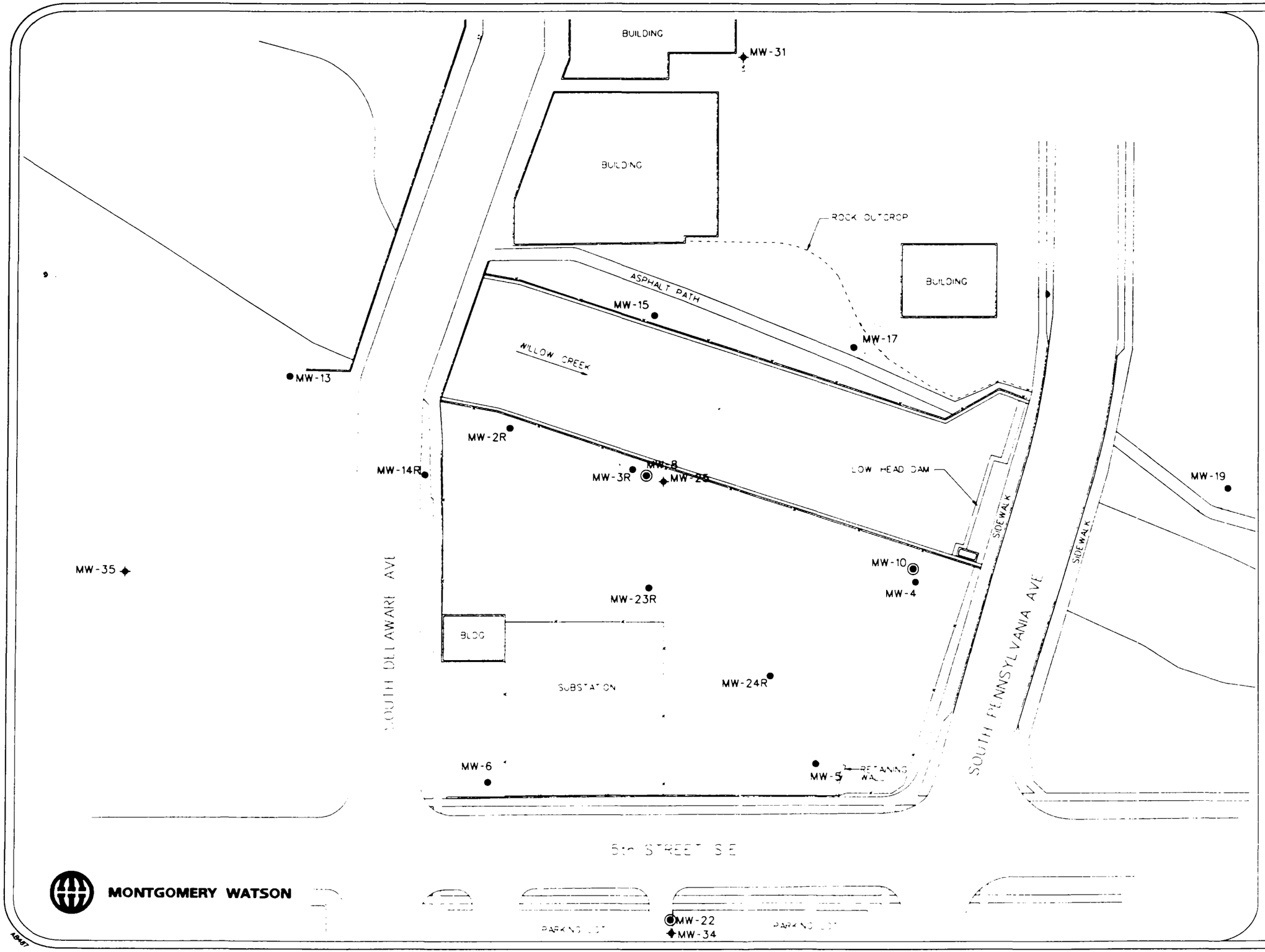
MONTGOMERY WATSON

ALLIANT / IPW
MASON CITY, IA FMGP SITE

EXISTING MONITORING WELL LOCATIONS

FIGURE 1

AB486



MONTGOMERY WATSON

0 60

SCALE IN FEET

LEGEND:

- ● SHALLOW AQUIFER MONITORING WELL
- ◉ INTERMEDIATE ZONE MONITORING WELL
- ✦ FIRST TRANSMISSIVE ZONE MONITORING WELL

NOTES:

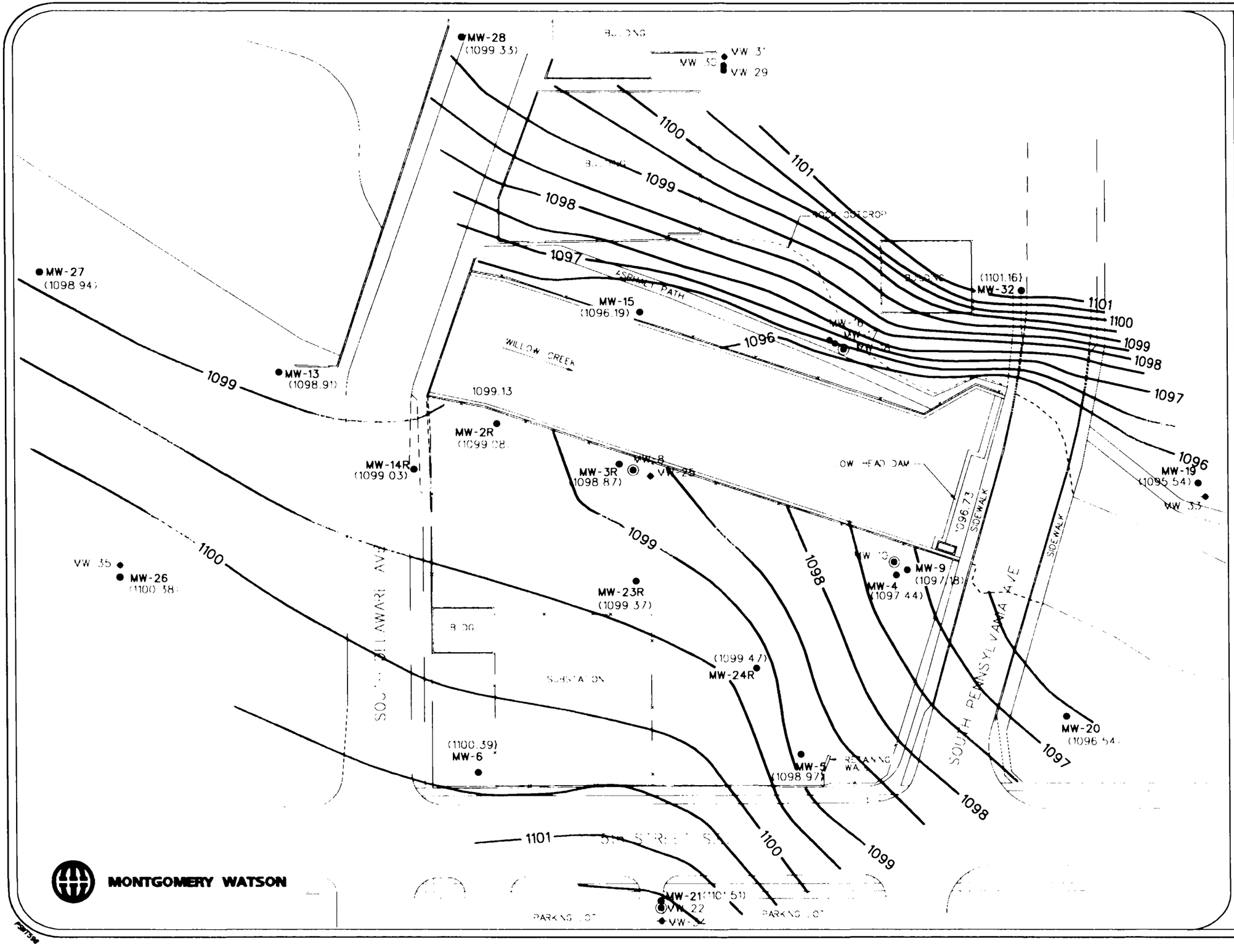
1. SAMPLING LOCATIONS SHOWN IN BOLD.
2. MONITORING WELLS MW-1, MW-2, MW-3, MW-7, MW-14, MW-23 AND MW-24 WERE PLUGGED AND ABANDONED DURING THE REMOVAL ACTION.
3. REPLACEMENT MONITORING WELLS MW-2R, MW-3R, MW-14R, MW-23R, AND MW-24R WERE INSTALLED DURING NOVEMBER 1996.

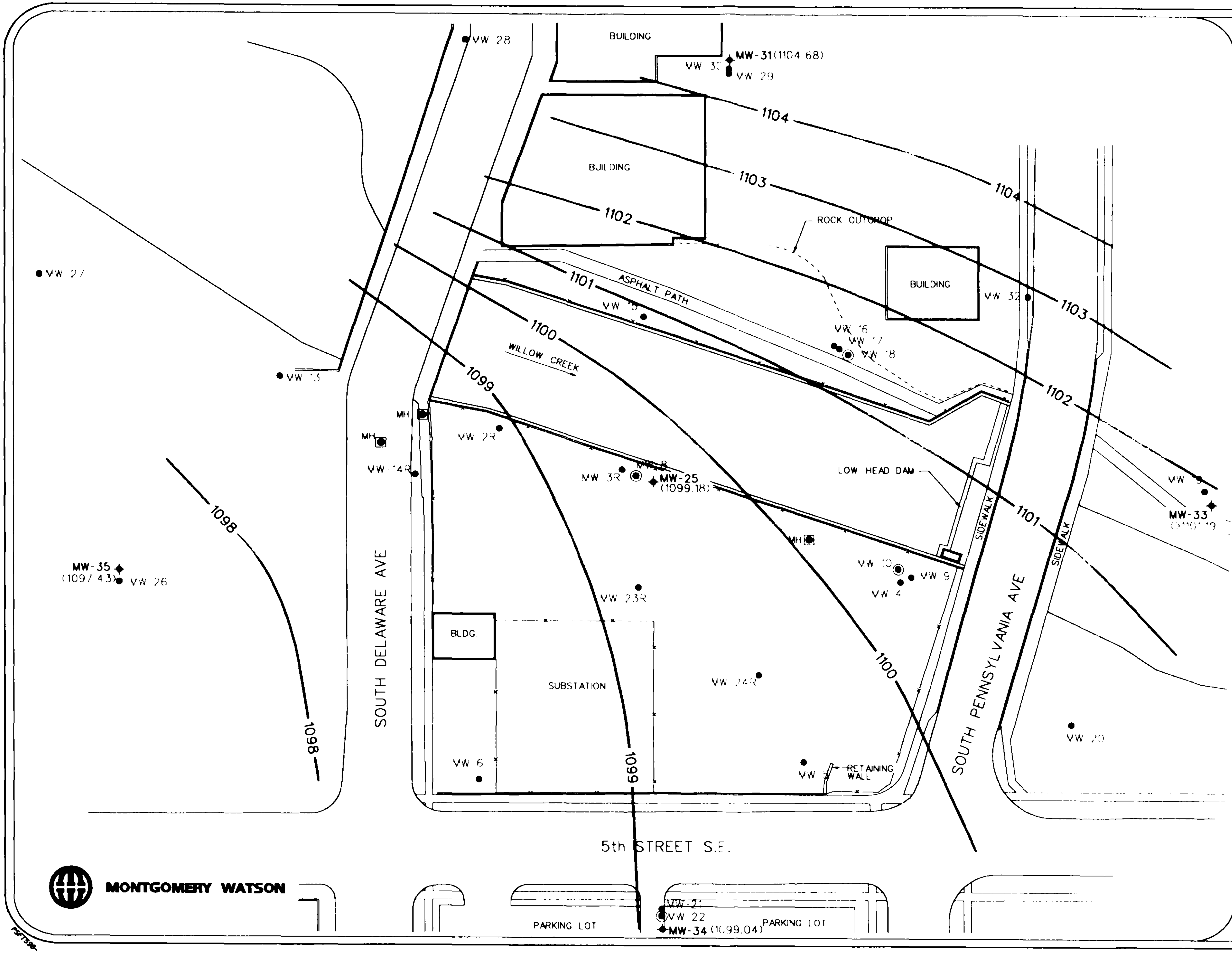
ALLIANT / IPW
MASON CITY, IA FMGP SITE

MONITORING NETWORK WELL LOCATIONS

FIGURE 2

ABM87


MW-28
(1099.33)
VW 31
VW 30
VW 29
1100
1101
1099
1098
1097
ASPHALT PATH
MW-27
(1098.94)
MW-15
(1096.19)
(1101.16)
MW-32
1101
1100
1099
1098
1097
1096
MW-16
MW-17
MW-18
WILLOW CREEK
MW-13
(1098.91)
1099.13
MW-2R
(1099.08)
MW-14R
(1099.03)
MW-3R
(1098.87)
MW-8
VW-28
DAM
1096.73
SIDEWALK
SIDEWALK
MW-19
(1095.54)
VW 33
VW 35
MW-26
(1100.38)
MW-23R
(1099.37)
MW-10
MW-9
(1097.18)
MW-4
(1097.44)
SOUTH PENNSYLVANIA AVE
(1099.47)
MW-24R
SUBSTATION
MW-20
(1096.54)
(1100.39)
MW-6
MW-5
(1098.97)
1101
1100
1099
1098
1097
MW-21
(1100.51)
VW-22
PARKING LOT
PARKING LOT
N
0
60
SCALE IN FEET
LEGEND:
SHALLOW AQUIFER MONITORING WELL
INTERMEDIATE ZONE MONITORING WELL
FIRST TRANSMISSIVE ZONE MONITORING WELL
NOTES:
1. DAM IN DOWN POSITION.
2. WATER ELEVATIONS (FEET NGVD) POSTED NEXT TO WELL ID.
3. CONTOUR INTERVAL = 0.5 FT.
ALLIANT / IPW
MASON CITY, IA FMGP SITE
POTENTIOMETRIC SURFACE WATER TABLE AQUIFER MAY 11, 1998
FIGURE 3
MONTGOMERY WATSON



0 60
SCALE IN FEET

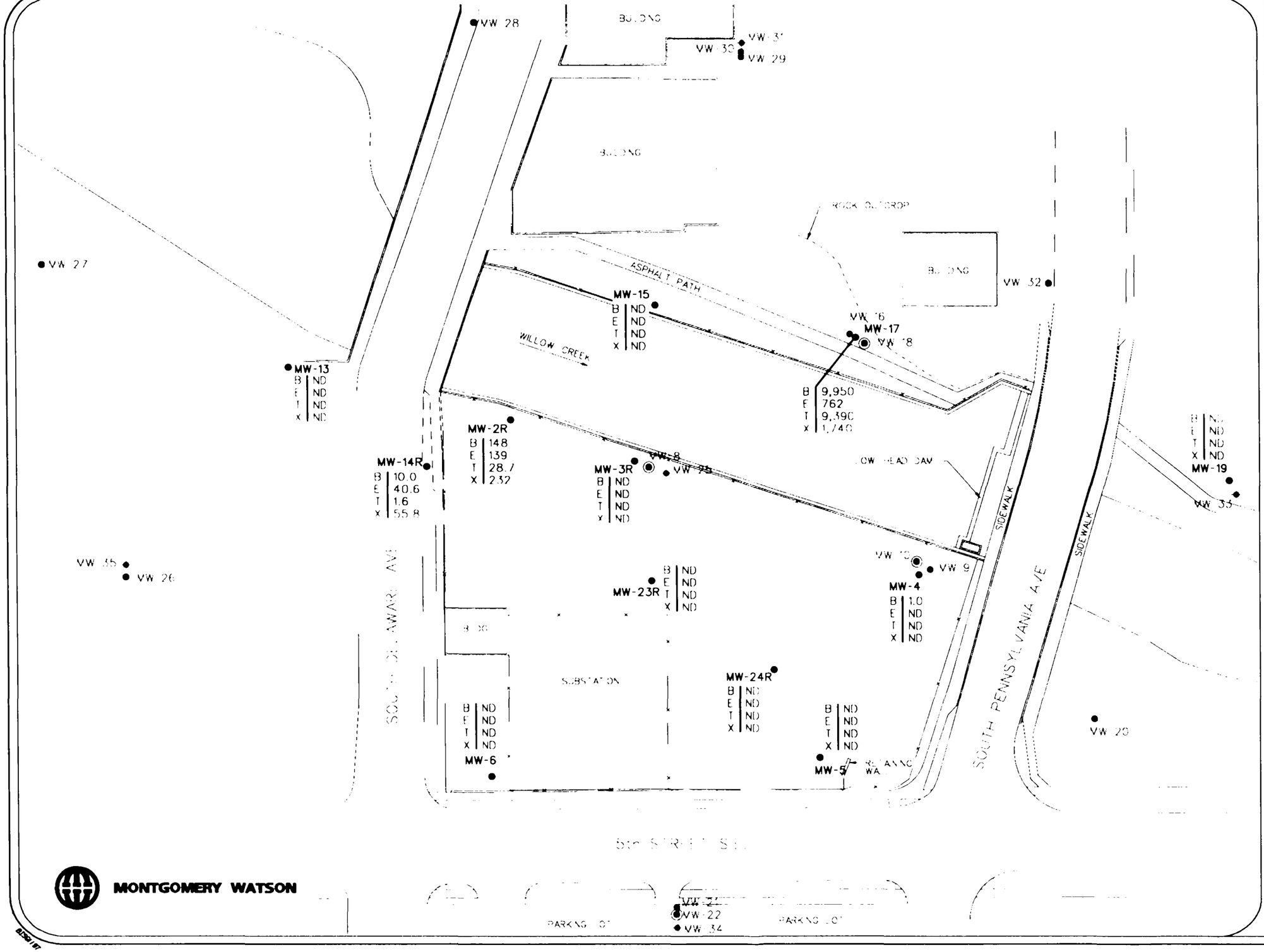
LEGEND:
- ● SHALLOW AQUIFER MONITORING WELL
- ◉ INTERMEDIATE ZONE MONITORING WELL
- ◆ FIRST TRANSMISSIVE ZONE MONITORING WELL

NOTES:
1. DAM IN DOWN POSITION.
2. WATER ELEVATIONS (FEET NGVD) POSTED NEXT TO WELL ID.
3. CONTOUR INTERVAL - 1.0 FT.

ALLIANT / IPW
MASON CITY, IA FMGP SITE

POTENTIOMETRIC SURFACE FIRST TRANSMISSIVE ZONE
MAY 11, 1998

FIGURE 4



MONTGOMERY WATSON

N

0 60

SCALE IN FEET

LEGEND:

- ● SHALLOW AQUIFER MONITORING WELL
- ◉ INTERMEDIATE ZONE MONITORING WELL
- • FIRST TRANSMISSIVE ZONE MONITORING WELL
- B BENZENE
- E ETHYLBENZENE
- T TOLUENE
- X TOTAL XYLENES
- ND NOT DETECTED

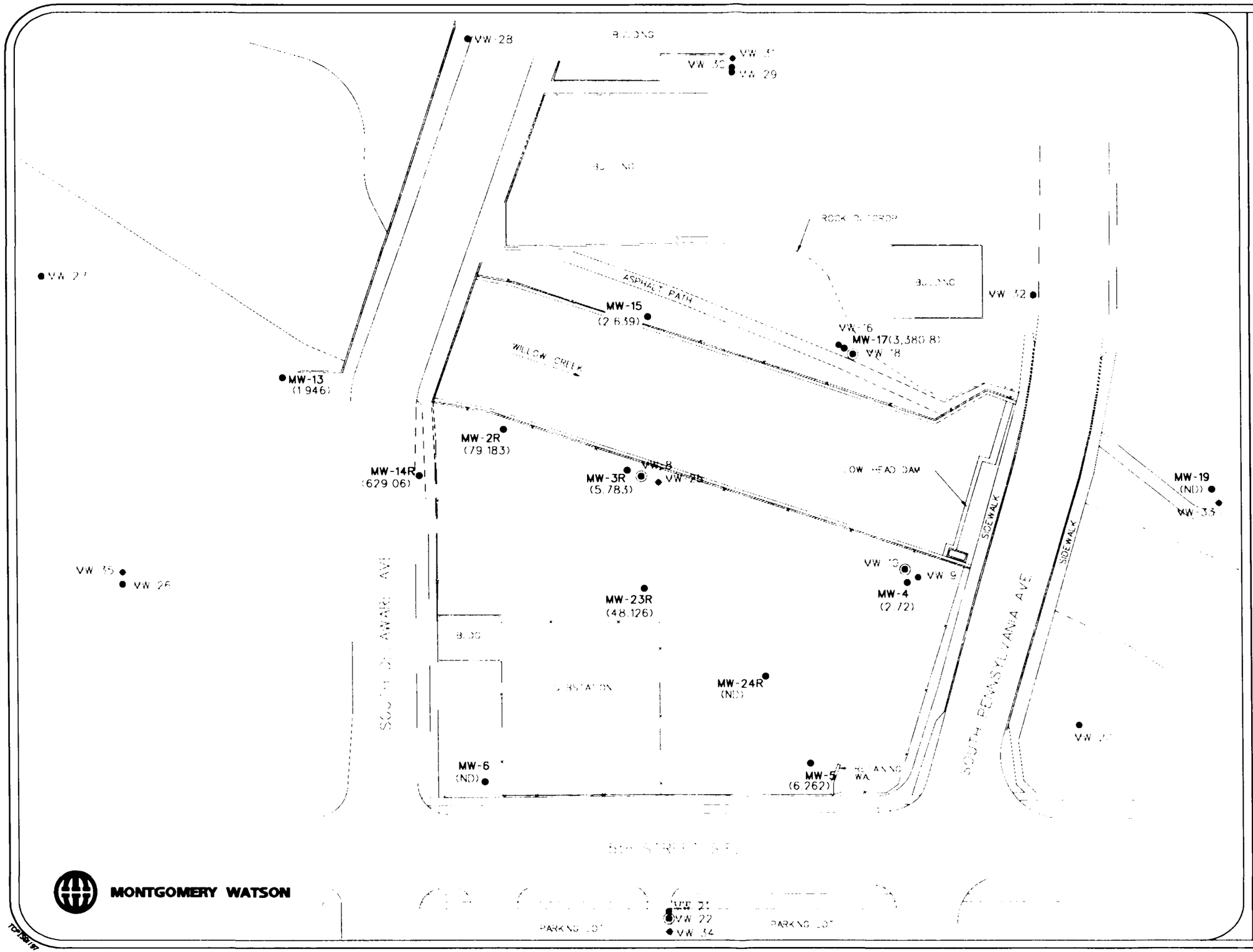
NOTES:

1. WELLS SAMPLED IN MAY 1998
2. CONCENTRATIONS IN (ug/L).

ALLIANT / IPW
MASON CITY, IA FMGP SITE

BTEX IN SHALLOW GROUNDWATER

FIGURE 5



N

0 60

SCALE IN FEET

LEGEND:

- ● SHALLOW AQUIFER MONITORING WELL
- ◉ INTERMEDIATE ZONE MONITORING WELL
- ● FIRST TRANSMISSIVE ZONE MONITORING WELL
- (2,772) CONCENTRATIONS OF TOTAL PAHs (µg/L)
- ND NOT DETECTED

NOTE:

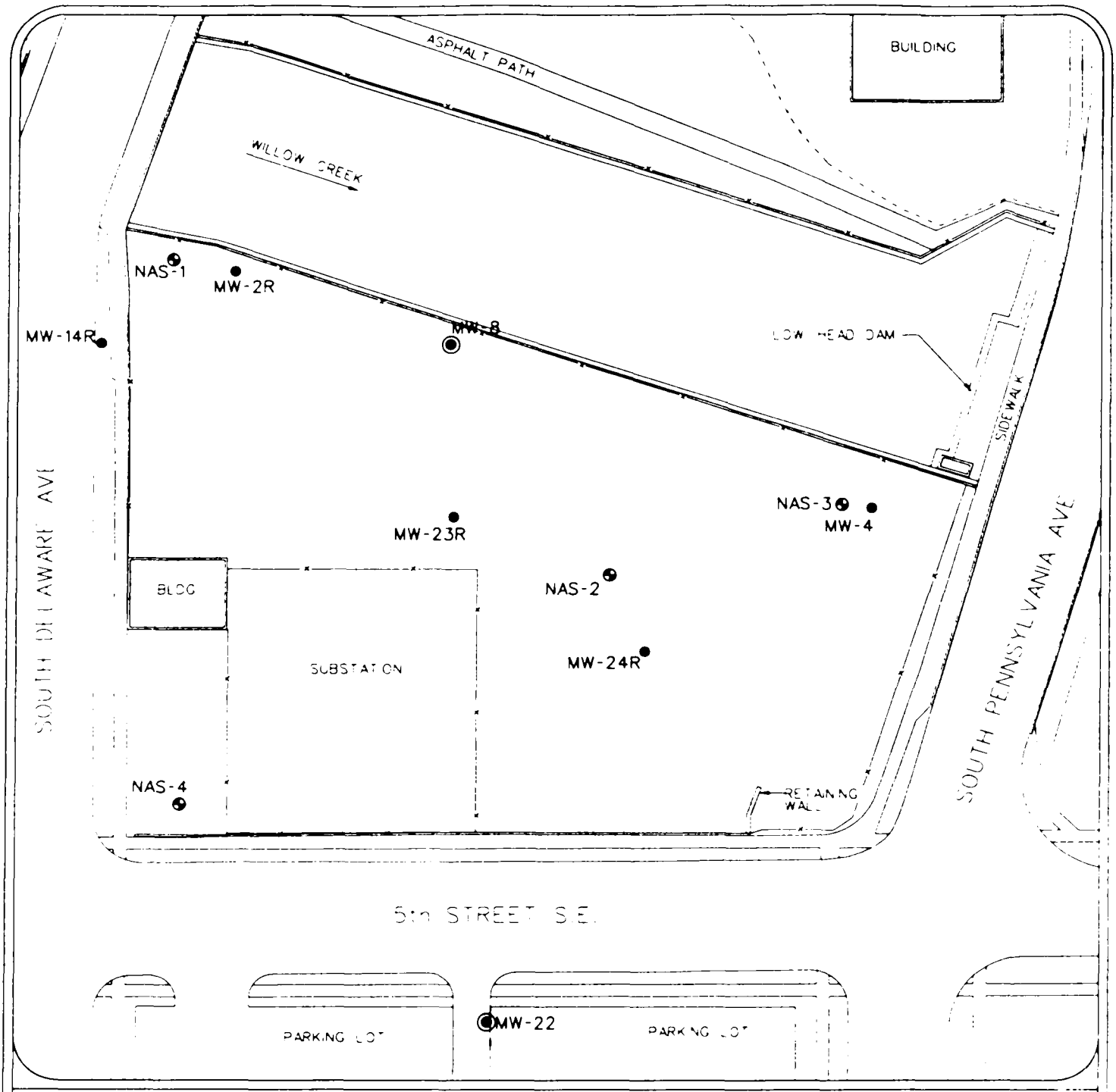
1. WELLS SAMPLED IN MAY 1998

MONTGOMERY WATSON

ALLIANT / IPW
MASON CITY, IA FMGP SITE

TOTAL PAHs IN SHALLOW GROUNDWATER

FIGURE 6



NOTE:
1. WELLS SAMPLED ARE SHOWN IN BOLD.

LEGEND:
- SOIL SAMPLE LOCATION
- SHALLOW AQUIFER MONITORING WELL
- INTERMEDIATE ZONE MONITORING WELL
- FIRST TRANSMISSIVE ZONE MONITORING WELL

N

0 60

SCALE IN FEET

MONTGOMERY WATSON

ALLIANT / IPW
MASON CITY, IA FMGP SITE

NATURAL ATTENUATION SCREENING SAMPLING LOCATIONS

FIGURE 7

WASSL

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-2R

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Partly cloudy, breezy, ~ 70°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 13.90 (~~Known~~, Meas.)

b. Depth to Water 8.81 Well Diameter 2-Inch I.D.

c. Length of Water Column 5.09

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 2.5 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
17:07	Cell Full	10.7	7.75	1.78	Low	Clear	-138
17:11	.5 Gallon	10.0	7.80	1.78	Low	Clear	-126
17:15	1.0 Gallon	10.0	7.83	1.78	Low	Clear	-126
17:20	1.5 Gallon	10.1	7.84	1.79	Low	Clear	-133
17:25	2.0 Gallon	10.0	7.86	1.78	Low	Clear	-136
17:30	2.5 Gallon	9.9	7.89	1.80	Low	Clear	-139

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW02R - GW-008 Time Sampled: 17:35

4. COMMENTS:

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-3R

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Cloudy, breezy, ~ 70°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 12.50 (~~Known~~, Meas.)

b. Depth to Water 8.81 Well Diameter 2-Inch I.D.

c. Length of Water Column 3.69

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 1.8 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
15:40	0.25 Gallon	11.1	9.54	1.63	Moderate	Grey-Black	-411
15:43	0.5 Gallon	8.8	10.18	1.62	Moderate	Grey	-414
15:45	1.0 Gallon	8.5	10.24	1.63	Moderate	Grey	-424
15:47	1.5 Gallon	8.5	10.25	1.63	Moderate	Grey	-410
15:50	2.0 Gallon	8.7	10.24	1.65	Moderate	Grey	-271

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW03R-GW-008/DP02-GW-008 Time Sampled: 15:55

4. COMMENTS:

Kevin Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-4

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Partly cloudy, 75°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 14.40 (~~Known~~, Meas.)

b. Depth to Water 7.54 Well Diameter 2-Inch I.D.

c. Length of Water Column 4.86

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 2.5 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
14:50	Cell Full	12.7	9.47	1.00	Moderate	Grey	066
14:53	0.5 Gallon	12.6	9.75	1.01	Moderate	Grey	081
	Pumped Dry Just Under 1 gallon.						

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID # MW04 - GW-008 Time Sampled: 16:35

4. COMMENTS:

Sampler (Signature)

Randy Kroneman

(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-5

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Partly cloudy, breezy, ~70° F.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 22.48 (~~Known~~, Meas.)

b. Depth to Water 15.93 Well Diameter 2-Inch I.D.

c. Length of Water Column 6.55

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 3.2 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
17:55	0.25 Gallon	13.2	7.17	1.45	High	Red-Rust	010
17:59	1.0 Gallon	11.0	6.90	1.39	Moderate	Red	-008
18:03	2.0 Gallon	10.7	6.88	1.41	Moderate	Red	-013
18:05	2.5 Gallon	10.6	6.87	1.41	Low	Red	-008
18:07	3.0 Gallon	10.8	6.85	1.42	Low	Red	-004
18:09	3.3 Gallon	10.9	6.85	1.41	Low	Red	-001

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW05 - GW-008 Time Sampled: 18:15

4. COMMENTS: Iron bacteria in initial purge.

Kevin Armstrong

Sampler (Signature)

Kevin Armstrong

(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-6

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Partly cloudy, breezy, ~70°F.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 20.33 (~~Known~~, Meas.)

b. Depth to Water 12.48 Well Diameter 2-Inch I.D.

c. Length of Water Column 7.85

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 3.8 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
14:35	Cell Full	13.0	6.55	1.90	High	Rusty-Orange	074
14:38	0.5 Gallon	11.2	6.66	1.82	High	Rusty-Orange	000
14:42	1.0 Gallon	11.2	6.68	1.77	High	Rusty-Orange	-034
14:46	1.5 Gallon	10.8	6.71	1.73	Moderate	Light-Orange	-040
14:50	2.0 Gallon	10.8	6.72	1.77	Moderate	Light-Orange	-036
14:53	2.5 Gallon	10.7	6.72	1.79	Moderate	Light-Orange	-029
14:56	3.0 Gallon	10.7	6.72	1.80	Moderate	Light-Orange	-020
15:00	3.5 Gallon	10.8	6.72	1.82	Low	Light-Orange	-012
15:03	4.0 Gallon	10.8	6.72	1.81	Low	Light-Orange	-002

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW06 - GW-008 Time Sampled: 15:06

4. COMMENTS:

Sampler (Signature)

Randy Kroneman
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-8

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-13-98

Weather Conditions: Clear, 65°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 35.32 (~~Known~~, Meas.)

b. Depth to Water 11.10 Well Diameter 2-Inch I.D.

c. Length of Water Column 24.22

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 11.9 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
08:49	0.25 Gallon	10.9	7.56	0.30	High	Black	-149
08:54	1.0 Gallon	10.1	9.01	0.28	Moderate	Grey	-166
09:04	3.0 Gallon	10.2	7.73	0.41	Low	Grey	-149
09:18	6.0 Gallon	10.4	7.34	0.44	Low	Grey	-141
09:33	9.0 Gallon	10.5	7.29	0.47	Low	Clear	-150
09:37	10.0 Gallon	10.6	7.28	0.43	Low	Clear	-152
09:42	11.0 Gallon	10.6	7.28	0.44	Low	Clear	-154
09:46	12.0 Gallon	10.6	7.28	0.43	Low	Clear	-156

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW08 - GW-008 Time Sampled: 09:50

4. COMMENTS:

Kevin Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-10

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Cloudy, ~65°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 35.65 (~~Known~~, Meas.)

b. Depth to Water 10.98 Well Diameter 2-Inch I.D.

c. Length of Water Column 24.67

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 12.1 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
12:55	Cell Full	13.9	7.30	0.53	Moderate	Dark Grey	-032
13:14	2.0 Gallon	13.8	10.52	0.50	Moderate	Grey	-020
13:32	4.0 Gallon	13.3	9.97	0.50	Low	Clear	-018
13:47	6.0 Gallon	13.8	9.74	0.40	Low	Clear	028
14:02	8.0 Gallon	13.8	9.61	0.47	Very Low	Clear	000
14:17	10.0 Gallon	13.4	9.50	0.46	Very Low	Clear	022
14:33	12.0 Gallon	13.8	9.51	0.48	Very Low	Clear	022

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW10 - GW-008 Time Sampled: 14:35

4. COMMENTS:

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-13

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Partly cloudy, 70°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 18.28 (~~Known~~, Meas.)

b. Depth to Water 11.57 Well Diameter 2-Inch I.D.

c. Length of Water Column 6.71

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 3.3 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
16:36	0.25 Gallon	13.3	8.23	1.12	Moderate	Brown	-092
16:40	1.0 Gallon	11.3	8.34	1.04	Moderate	Brown	-104
16:43	2.0 Gallon	11.0	8.24	1.07	Moderate	Grey-Brown	-089
16:46	2.5 Gallon	11.2	8.21	1.13	Moderate	Grey-Brown	-082
16:49	3.0 Gallon	11.2	8.26	1.13	Moderate	Grey-Brown	-098
16:51	3.4 Gallon	11.2	8.25	1.13	Moderate	Grey-Brown	-093

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW13 - GW-008/DP01 - GW-008 Time Sampled: 17:10

4. COMMENTS:

Kevin Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-14R

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Partly cloudy, breezy, ~70°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 17.20 (~~Known~~, Meas.)

b. Depth to Water 11.15 Well Diameter 2-Inch I.D.

c. Length of Water Column 6.05

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 3.0 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
15:46	Cell Full	12.2	7.34	0.98	Very High	Tan	-088
15:53	.5 Gallon	12.1	7.23	0.93	Very High	Tan	-055
15:59	1.0 Gallon	11.9	7.22	0.91	Very High	Tan	-044
16:06	1.5 Gallon	11.9	7.22	0.93	Very High	Tan	-038
16:12	2.0 Gallon	11.4	7.22	0.94	Very High	Tan	-037
16:18	2.5 Gallon	11.3	7.22	0.93	Very High	Tan	-037
16:25	3.0 Gallon	11.4	7.22	0.94	Very High	Tan	-037

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW14R - GW-008 Time Sampled: 16:27

4. COMMENTS:

Randy Kroneman

Sampler (Signature)

Randy Kroneman

(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-15

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Partly cloudy, ~65°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 15.80 (~~Known~~, Meas.)

b. Depth to Water 10.48 Well Diameter 2-Inch I.D.

c. Length of Water Column 5.32

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 2.6 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
9:53	Cell Full	11.1	7.81	0.43	High	Grey	-027
9:57	0.5 Gallon	11.0	7.90	0.44	High	Grey	-013
10:00	1.0 Gallon	11.0	7.87	0.44	Moderate	Light Grey	-020
10:04	1.5 Gallon	11.1	7.74	0.45	Moderate	Light Grey	-012
10:09	2.0 Gallon	11.4	7.62	0.46	Low	Light Grey	-014
10:14	2.5 Gallon	11.2	7.48	0.46	Low	Light Grey	-020

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW15 - GW-008 Time Sampled: 10:20

4. COMMENTS:

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-17

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Sunny, ~60°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 24.10 (~~Known~~, Meas.)

b. Depth to Water 15.91 Well Diameter 2-Inch I.D.

c. Length of Water Column 8.19

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 4.0 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
9:09	Cell Full	11.8	8.35	0.68	Moderate	Grey	014
9:14	0.5 Gallon	11.6	9.19	0.67	Low	Light Grey	014
9:20	1.0 Gallon	11.5	9.37	0.67	Low	Light Grey	007
9:24	1.5 Gallon	11.4	9.37	0.67	Low	Light Grey	003
9:28	2.0 Gallon	11.4	8.99	0.67	Low	Light Grey	004
	Pumped Dry at 2 Gallons						

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW17 - GW-008 Time Sampled: 10:45, 05-13-98

4. COMMENTS: Odor

Sampler (Signature)

Randy Kroneman
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-19

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Sunny, ~70°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 14.20 (~~Known~~, Meas.)

b. Depth to Water 5.80 Well Diameter 2-Inch I.D.

c. Length of Water Column 8.40

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 4.1 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
10:55	Cell Full	11.2	8.23	0.92	High	Reddish-Tan	-008
10:58	0.5 Gallon	10.5	9.17	0.82	Moderate	Reddish-Tan	007
11:00	1.0 Gallon	10.5	9.08	0.82	Moderate	Reddish-Tan	012
11:02	1.5 Gallon	10.5	8.84	0.85	Moderate	Reddish-Tan	011
11:05	2.0 Gallon	10.5	8.63	0.85	Moderate	Reddish-Tan	027
11:08	2.5 Gallon	10.5	8.45	0.87	Low	Reddish-Tan	036
11:11	3.0 Gallon	10.8	8.34	0.87	Low	Reddish-Tan	032
11:14	3.5 Gallon	10.7	8.21	0.88	Low	Reddish-Tan	036
11:17	4.0 Gallon	10.7	8.15	0.88	Low	Reddish-Tan	047

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW19 - GW-008 Time Sampled: 11:25

4. COMMENTS:

Sampler (Signature)

Randy Kroneman
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-22

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Sunny, mid-70°s.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 54.40 (~~Known~~, Meas.)

b. Depth to Water 21.47 Well Diameter 2-Inch I.D.

c. Length of Water Column 32.93

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 16.1 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
14:18	0.5 Gallon	13.4	7.83	0.30	Low	Grey	-158
14:22	1.0 Gallon	13.0	8.70	0.27	Low	Grey	-190
14:30	3.0 Gallon	13.7	8.81	0.21	Low	Grey	-211
14:41	4.5 Gallon	15.4	8.76	0.30	Low	Grey	-184
Dry at 5.5 Gallons							

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW22 - GW-008 Time Sampled: 17:10

4. COMMENTS:

Kevin Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-23R

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Partly cloudy, ~75°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 16.95 (~~Known~~, Meas.)

b. Depth to Water 12.16 Well Diameter 2-Inch I.D.

c. Length of Water Column 4.79

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 2.3 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
15:43	Cell Full	12.2	8.27	1.60	High	Tan	070
15:46	0.5 Gallon	11.4	8.22	1.61	High	Tan	103
15:49	1.0 Gallon	11.3	8.22	1.60	High	Tan	049
15:52	1.5 Gallon	11.3	8.22	1.60	High	Tan	099
15:55	2.0 Gallon	11.4	8.22	1.61	High	Tan	082
15:59	2.5 Gallon	11.3	8.22	1.60	High	Tan	083

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW23R - GW-008 Time Sampled: 16:00

4. COMMENTS: 16:00

Randy Kroneman

Sampler (Signature)

Randy Kroneman

(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-24R

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Sunny, 70°F.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 16.95 (~~Known~~, Meas.)

b. Depth to Water 13.44 Well Diameter 2-Inch I.D.

c. Length of Water Column 3.51

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 1.7 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
17:55	Cell Full	12.8	6.82	3.33	High	Black	-282
17:58	0.5 Gallon	11.4	6.81	3.45	Moderate	Grey	-348
18:03	1.0 Gallon	11.3	6.93	3.30	Moderate	Grey	-366
18:07	1.5 Gallon	11.3	6.98	3.20	Moderate	Grey	-370
18:11	2.0 Gallon	11.3	7.03	3.08	Low	Clear	-372

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW-24R - GW-008 Time Sampled: 18:15

4. COMMENTS: Sulfur Odor

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-25

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-13-98

Weather Conditions: Sunny, 65°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 70.45 (~~Known~~, Meas.)

b. Depth to Water 7.68 Well Diameter 2-Inch I.D.

c. Length of Water Column 62.77

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 30.7 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
8:49	Cell Full	11.7	6.94	0.60	Low	Clear	-021
9:02	4.0 Gallon	11.5	7.10	0.66	Low	Clear	-094
9:20	8.0 Gallon	11.8	7.13	0.67	Low	Clear	-094
9:37	12.0 Gallon	11.9	7.19	0.66	Low	Clear	-092
9:57	16.0 Gallon	12.1	7.20	0.67	Low	Clear	-098
10:17	20.0 Gallon	12.1	7.22	0.67	Low	Clear	-101
10:34	24.0 Gallon	12.2	7.21	0.67	Low	Clear	-103
10:49	28.0 Gallon	12.3	7.21	0.68	Low	Clear	-103
11:03	31.0 Gallon	12.3	7.22	0.68	Low	Clear	-104

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW25 - GW-008 Time Sampled: 11:10

4. COMMENTS:

Sampler (Signature)

Randy Kroneman

(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-31

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Partly cloudy, ~ 65°.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 90.40 (~~Known~~, Meas.)

b. Depth to Water 22.98 Well Diameter 2-Inch I.D.

c. Length of Water Column 67.42

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 33.0 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
9:20	0.25 Gallon	12.6	6.86	0.70	Low	Clear	-066
9:42	6.0 Gallon	11.0	7.18	0.79	Low	Clear	-121
10:05	12.0 Gallon	11.3	7.13	0.79	Low	Clear	-112
10:25	18.0 Gallon	11.4	7.12	0.81	Low	Clear	-110
10:45	24.0 Gallon	11.5	7.11	0.81	Low	Clear	-108
10:55	27.0 Gallon	11.6	7.11	0.81	Low	Clear	-110
11:05	30.0 Gallon	11.6	7.12	0.81	Low	Clear	-108
11:15	33.0 Gallon	11.5	7.11	0.81	Low	Clear	-108

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW31 - GW-008 Time Sampled: 11:15

4. COMMENTS: Body shop was painting at time of purging ⇒ vents to atmosphere on east side of building. odor strong at well.

Kevin G Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-34

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-11-98

Weather Conditions: Sunny, mid-70°s.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 78.30 (~~Known~~, Meas.)

b. Depth to Water 18.16 Well Diameter 2-Inch I.D.

c. Length of Water Column 60.14

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 29.5 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
14:14	0.5 Gallon	14.2	6.81	0.38	Low	Grey	027
14:45	6.0 Gallon	15.3	7.99	0.35	Low	Grey	-135
15:00	8.0 Gallon	14.0	7.68	0.34	Low	Grey	-150
15:08	10.0 Gallon	13.4	7.88	0.36	Low	Grey	-181
15:16	12.0 Gallon	13.4	8.43	0.34	Low	Grey	-236
15:31	15.0 Gallon	13.7	8.24	0.35	Low	Grey	-209
15:43	18.0 Gallon	13.2	8.04	0.28	Low	Grey	-194
16:00	23.0 Gallon	13.4	7.69	0.33	Low	Grey	-332

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW34 - GW-008 Time Sampled: 7:20

4. COMMENTS: Dry at 23 gallons, samples at 7:20 on May 12, 1998.

Kevin Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-35

Job No.: 1217139.01090350 **Client:** Interstate Power Company

Location: Mason City FMGP **Date:** 05-12-98

Weather Conditions: Cloudy, humid, ~75°, breezy.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 78.90 (~~Known~~, Meas.)

b. Depth to Water 11.23 Well Diameter 2-Inch I.D.

c. Length of Water Column 67.67

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 33.1 gallons

c. Field Testing Equipment Used YSI 3800

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (NTU)	Color	Eh
13:07	1.0 Gallon	10.5	7.49	0.83	Moderate	Black	-148
13:19	6.0 Gallon	10.6	7.38	0.81	Low	Dark Grey	-143
13:37	12.0 Gallon	10.9	7.28	0.82	Low	Grey	-155
13:57	18.0 Gallon	11.2	7.26	0.82	Low	Clear	-158
14:16	24.0 Gallon	10.9	7.26	0.80	Low	Clear	-160
14:35	30.0 Gallon	11.0	7.25	0.80	Low	Clear	-163
14:38	31.0 Gallon	10.9	7.25	0.81	Low	Clear	-161
14:41	32.0 Gallon	10.9	7.25	0.81	Low	Clear	-161
14:45	33.0 Gallon	10.8	7.25	0.81	Low	Clear	-164

3. SAMPLE COLLECTION: Method Waterra

Container Type:	Three 40-ml vials	Preservation:	HCl	Analysis Req.:	8260 - BTEX
Container Type:	Two 1-quart Amber	Preservation:	None	Analysis Req.:	8310 - PAHs
Container Type:	One 1-pint poly	Preservation:	HNO_3	Analysis Req.:	239.2 - Total Lead
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	
Container Type:		Preservation:		Analysis Req.:	

Sample ID #: MW35 - GW-008 Time Sampled: 14:45

4. COMMENTS:

Kevin Armstrong
Sampler (Signature)

Kevin Armstrong
(Print Name)

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL AND QUALITY CONTROL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

RECEIVED
JUN 15 1998
MW/IOWA

06/12/1998

NET Job Number: 98.05501

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Cedar Falls Division of NET, Inc. for analysis.

Sample Number	Sample Description		Date Taken	Date Received
451047	NW15-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451048	MW31-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451049	MW19-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451050	MW10-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451051	MW35-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451052	MW03R-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451053	MW23R-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451054	MW04-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451055	MW22-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451056	DP02-GW-008	IPW/Alliant	05/12/1998	05/13/1998
451057	MW15-GW-008-901	IPW/Alliant	05/12/1998	05/13/1998

NOTE: 8310 analysis performed using <1000 mL of sample. Results reflect this volume which make them lower than standard reporting limits listed.

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 451047	SAMPLE DESCRIPTION NW15-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 10:20
Lead, GFAA	0.0406		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/18/1998	mmk		659	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Toluene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/18/1998	mmk		659	S-8260B
Dibromofluoromethane Surr	100		%		05/18/1998	mmk		659	S-8260B
Toluene-d8 Surr	94.9		%		05/18/1998	mmk		659	S-8260B
4-Bromofluorobenzene Surr	97.3		%		05/18/1998	mmk		659	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	0.134		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	0.296		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	0.087		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	0.207		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	0.129		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	0.134		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	0.246		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3 cd pyrene	0.163		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1 Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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Cedar Falls Division
704 Enterprise Drive
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ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 451047	**SAMPLE DESCRIPTION NW15-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 10:20**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	0.94		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	0.243		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl (Surr)	32.3		%		06/09/1998	mmk	62	106	S-8310
SAMPLE NO. 451048	**SAMPLE DESCRIPTION MW31-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 11:15**
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/18/1998	mmk		659	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Toluene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/18/1998	mmk		659	S-8260B
Dibromofluoromethane (Surr)	99.7		%		05/18/1998	mmk		659	S-8260B
Toluene-d8 (Surr)	96.9		%		05/18/1998	mmk		659	S-8260B
4-Bromofluorobenzene (Surr)	97.8		%		05/18/1998	mmk		659	S-8260B
Prep - PNA Aqueous	Complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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704 Enterprise Drive
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Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 451048	SAMPLE DESCRIPTION MW31-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 11:15
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl Surr.)	41.8		%		06/09/1998	mmk	62	106	S-8310

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Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 451049	SAMPLE DESCRIPTION MW19-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 11:25
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/18/1998	mmk		659	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Toluene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/18/1998	mmk		659	S-8260B
Dibromofluoromethane (Surr)	102		%		05/18/1998	mmk		659	S-8260B
Toluene-d8 (Surr)	91.4		%		05/18/1998	mmk		659	S-8260B
4-Bromofluorobenzene (Surr)	98.3		%		05/18/1998	mmk		659	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 451049	**SAMPLE DESCRIPTION MW19-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 11:25**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl (Surr.)	44.4		%		06/09/1998	mmk	62	106	S-8310
SAMPLE NO. 451050	**SAMPLE DESCRIPTION MW10-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 14:35**
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/18/1998	mmk		659	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Toluene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/18/1998	mmk		659	S-8260B
Dibromofluoromethane (Surr.)	102		%		05/18/1998	mmk		659	S-8260B
Toluene-d8 (Surr.)	102		%		05/18/1998	mmk		659	S-8260B
4-Bromofluorobenzene (Surr.)	102		%		05/18/1998	mmk		659	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 451050	SAMPLE DESCRIPTION MW10-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 14:35
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl (Surr)	55.6		%		06/09/1998	mmk	62	106	S-8310

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704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 451051	SAMPLE DESCRIPTION MW35-GW-008 IPW/Alliant							DATE-TIME TAKEN 05/12/1998 14:45	
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/18/1998	mmk		659	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Toluene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/18/1998	mmk		659	S-8260B
Dibromofluoromethane Surr	104		%		05/18/1998	mmk		659	S-8260B
Toluene-d8 Surr	97.0		%		05/18/1998	mmk		659	S-8260B
4-Bromofluorobenzene Surr	99.1		%		05/18/1998	mmk		659	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 451051	**SAMPLE DESCRIPTION MW35-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 14:45**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	0.160		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl Surr.	64.1		%		06/09/1998	mmk	62	106	S-8310
SAMPLE NO. 451052	**SAMPLE DESCRIPTION MW03R-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 15:55**
Lead, GFAA	0.511		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D	pH>2			05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		661	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		661	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		661	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		661	S-8260B
Dibromofluoromethane (Surr.)	99.6		%		05/19/1998	mmk		661	S-8260B
Toluene-d8 Surr.	98.7		%		05/19/1998	mmk		661	S-8260B
4-Bromofluorobenzene Surr.	98.5		%		05/19/1998	mmk		661	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	0.239		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

pH>2 - Sample received at pH>2. Acidified and held 16 hrs before analysis.

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 451052	SAMPLE DESCRIPTION MW03R-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 15:55
Anthracene	0.142		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	0.081		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	0.088		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	0.072		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	0.166		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	0.345		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	0.626		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Methylnaphthalene	0.222		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	4.01		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	0.498		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	0.142		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl (Surr.)	42.6		%		06/09/1998	mmk	62	106	S-8310

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SAMPLE NO. 451053	SAMPLE DESCRIPTION MW23R-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 16:00
Lead - SPAA	0.316		mg/L	0.0040	05/21/1998	lmc	1749	1063	E 239.2
SPAA Total Metals Digestion	D	pH>2			05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		661	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		661	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		661	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		661	S-8260B
Dibromofluoromethane (Surr)	100		%		05/19/1998	mmk		661	S-8260B
Toluene-d8 (Surr)	93.9		%		05/19/1998	mmk		661	S-8260B
4-Bromofluorobenzene (Surr)	100		%		05/19/1998	mmk		661	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	15.1		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
Acenaphthylene	13.1		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Anthracene	2.10		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo(a)anthracene	0.590		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(a)pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(b)fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(ghi)perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(k)fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	0.356		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo(a,h)anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	2.18		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	5.50		ug/L	0.20	06/11/1998	mmk	62	107	S-8310
Indeno(1,2,3-cd)pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	9.44		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

pH>2 - Sample received at pH>2. Acidified and held 16 hrs before analysis.

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SAMPLE NO. 451053	**SAMPLE DESCRIPTION MW23R-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 16:00**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	6.37		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Pyrene	2.83		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
2-Fluorobiphenyl (Surr.)	88.4		%		06/09/1998	mmk	62	106	S-8310
SAMPLE NO. 451054	**SAMPLE DESCRIPTION MW04-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 16:35**
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	1.0		ug/L	0.5	05/19/1998	mmk		661	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		661	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		661	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		661	S-8260B
Dibromofluoromethane (Surr.)	101		%		05/19/1998	mmk		661	S-8260B
Toluene-d8 (Surr	96.2		%		05/19/1998	mmk		661	S-8260B
4-Bromofluorobenzene (Surr	98.4		%		05/19/1998	mmk		661	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	2.72		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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SAMPLE NO. 451054	SAMPLE DESCRIPTION MW04-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 16:35
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl Surr.*	63.4		%		06/09/1998	mmk	62	106	S-8310

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 451055	SAMPLE DESCRIPTION MW22-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998 17:10
Lead, GFAA	0.0114		mg/L	0.0040	05/21/1998	lmc	1749	1063	E 239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		660	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		660	S-8260B
Dibromofluoromethane (Surr)	98.7		%		05/19/1998	mmk		660	S-8260B
Toluene-d8 (Surr)	101		%		05/19/1998	mmk		660	S-8260B
4-Bromofluorobenzene (Surr)	99.2		%		05/19/1998	mmk		660	S-8260B
Prep PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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SAMPLE NO. 451055	**SAMPLE DESCRIPTION MW22-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 17:10**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl (Surr	68.2		%		06/09/1998	mmk	62	106	S-8310
SAMPLE NO. 451056	**SAMPLE DESCRIPTION DP02-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998**
Lead, GFAA	0.672		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		660	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		660	S-8260B
Dibromofluoromethane (Surr)	101		%		05/19/1998	mmk		660	S-8260B
Toluene-d8 (Surr	100		%		05/19/1998	mmk		660	S-8260B
4-Bromofluorobenzene (Surr)	100		%		05/19/1998	mmk		660	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	0.181		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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SAMPLE NO. 451056	SAMPLE DESCRIPTION DP02-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/12/1998
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	0.158		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	0.400		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	0.532		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	0.088		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl Surr	52.4		%		06/09/1998	mmk	62	106	S-8310

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
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Tel: (319) 277-2401
Fax (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Client Project ID: IPW/Alliant Mason City

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 451057	SAMPLE DESCRIPTION MW15-GW-008-901 IPW/Alliant							DATE-TIME TAKEN 05/12/1998	
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		660	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		660	S-8260B
Dibromofluoromethane (Surr	100		%		05/19/1998	mmk		660	S-8260B
Toluene-d8 (Surr	98.6		%		05/19/1998	mmk		660	S-8260B
4-Bromofluorobenzene (Surr	98.4		%		05/19/1998	mmk		660	S-8260B

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QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No	Run Batch No	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
Lead, GFAA		1063	0.0250	mg/L	0.0242	97		05/21/1998
Lead, GFAA		1063	0.0250	mg/L	0.0253	101		05/21/1998
VOLATILE COMPOUNDS - 8260								
Benzene		659	50	ug/L	48.5	97		05/18/1998
Ethylbenzene		659	50	ug/L	53.7	107		05/18/1998
Toluene		659	50	ug/L	50.2	100		05/18/1998
Xylenes, Total		659	150	ug/L	159	106		05/18/1998
Dibromofluoromethane (Surr)		659	100	%	100	100		05/18/1998
Toluene-d8 (Surr)		659	100	%	100	100		05/18/1998
4-Bromofluorobenzene (Surr		659	100	%	104	104		05/18/1998
VOLATILE COMPOUNDS - 8260								
Benzene		660	50	ug/L	47.0	94		05/19/1998
Ethylbenzene		660	50	ug/L	51.0	102		05/19/1998
Toluene		660	50	ug/L	49.3	99		05/19/1998
Xylenes, Total		660	150	ug/L	153	102		05/19/1998
Dibromofluoromethane (Surr)		660	100	%	98.6	99		05/19/1998
Toluene-d8 (Surr)		660	100	%	101	101		05/19/1998
4-Bromofluorobenzene (Surr		660	100	%	102	102		05/19/1998
VOLATILE COMPOUNDS - 8260								
Benzene		661	50	ug/L	46.8	94		05/19/1998
Ethylbenzene		661	50	ug/L	52.1	104		05/19/1998
Toluene		661	50	ug/L	50.0	100		05/19/1998
Xylenes, Total		661	150	ug/L	154	103		05/19/1998
Dibromofluoromethane (Surr)		661	100	%	103	103		05/19/1998
Toluene-d8 (Surr		661	100	%	102	102		05/19/1998
4-Bromofluorobenzene (Surr		661	100	%	107	107		05/19/1998
PNAs - EPA 625 AQUEOUS								
Acenaphthene		106	2000	ug/L	2090	105		06/09/1998
Acenaphthylene		106	4000	ug/L	4180	105		06/09/1998
Anthracene		106	200	ug/L	210	105		06/09/1998
Benzo(a)anthracene		106	200	ug/L	204	102		06/09/1998
Benzo(a)pyrene		106	200	ug/L	218	109		06/09/1998

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QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No.	Run Batch No.	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
Benzo(b)fluoranthene		106	400	ug/L	410	103		06/09/1998
Benzo(ghi)perylene		106	400	ug/L	447	112		06/09/1998
Benzo(k)fluoranthene		106	200	ug/L	202	101		06/09/1998
Chrysene		106	200	ug/L	203	102		06/09/1998
Dibenzo(a,h)anthracene		106	400	ug/L	402	101		06/09/1998
Fluoranthene		106	400	ug/L	395	99		06/09/1998
Fluorene		106	400	ug/L	420	105		06/09/1998
Indeno(1,2,3-cd)pyrene		106	200	ug/L	208	104		06/09/1998
1-Methylnaphthalene		106	2000	ug/L	2060	103		06/09/1998
2-Methylnaphthalene		106	2000	ug/L	2080	104		06/09/1998
Naphthalene		106	2000	ug/L	2080	104		06/09/1998
Phenanthrene		106	200	ug/L	206	103		06/09/1998
Pyrene		106	200	ug/L	197	99		06/09/1998
2-Fluorobiphenyl - Surr		106	100	%	106	106		06/09/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		107	2000	ug/L	1960	98		06/10/1998
Anthracene		107	200	ug/L	196	98		06/10/1998
Fluorene		107	400	ug/L	406	102		06/10/1998
Phenanthrene		107	200	ug/L	199	100		06/10/1998
Pyrene		107	200	ug/L	194	97		06/10/1998

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QUALITY CONTROL REPORT
BLANKS

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No	Run Batch No	Blank Value	Flag	Units	Reporting Limit	Date Analyzed
Lead, GFAA	1749	1063	<0.0040		mg/L	0.0040	05/21/1998
VOLATILE COMPOUNDS - 8260							
Benzene		659	<0.5		ug/L	0.5	05/18/1998
Ethylbenzene		659	<1.0		ug/L	1.0	05/18/1998
Toluene		659	<1.0		ug/L	1.0	05/18/1998
Xylenes, Total		659	<3.0		ug/L	3.0	05/18/1998
Dibromofluoromethane (Surr.)		659	100		%		05/18/1998
Toluene-d8 (Surr.)		659	101		%		05/18/1998
4-Bromofluorobenzene (Surr.)		659	99.0		%		05/18/1998
VOLATILE COMPOUNDS - 8260							
Benzene		660	<0.5		ug/L	0.5	05/19/1998
Ethylbenzene		660	<1.0		ug/L	1.0	05/19/1998
Toluene		660	<1.0		ug/L	1.0	05/19/1998
Xylenes, Total		660	<3.0		ug/L	3.0	05/19/1998
Dibromofluoromethane (Surr.)		660	101		%		05/19/1998
Toluene-d8 (Surr.)		660	101		%		05/19/1998
4-Bromofluorobenzene (Surr.)		660	99.9		%		05/19/1998
VOLATILE COMPOUNDS - 8260							
Benzene		661	<0.5		ug/L	0.5	05/19/1998
Ethylbenzene		661	<1.0		ug/L	1.0	05/19/1998
Toluene		661	<1.0		ug/L	1.0	05/19/1998
Xylenes, Total		661	<3.0		ug/L	3.0	05/19/1998
Dibromofluoromethane (Surr.)		661	101		%		05/19/1998
Toluene-d8 (Surr.)		661	101		%		05/19/1998
4-Bromofluorobenzene (Surr.)		661	101		%		05/19/1998
PNAs - EPA 8310 AQUEOUS							
Acenaphthene	62	105	<0.14		ug/L	0.25	06/08/1998
Acenaphthylene	62	105	<0.14		ug/L	0.25	06/08/1998
Anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo a anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo a pyrene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo b fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo ghi perylene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo k fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998

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704 Enterprise Drive
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QUALITY CONTROL REPORT
BLANKS

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No.	Run Batch No.	Blank Value	Flag	Units	Reporting Limit	Date Analyzed
Chrysene	62	105	<0.056		ug/L	0.10	06/08/1998
Dibenzo'a,h'anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Fluorene	62	105	<0.11		ug/L	0.20	06/08/1998
Indeno 1,2,3-cd pyrene	62	105	<0.056		ug/L	0.10	06/08/1998
1-Methylnaphthalene	62	105	<0.14		ug/L	0.25	06/08/1998
2-Methylnaphthalene	62	105	<0.14		ug/L	0.25	06/08/1998
Napnthalene	62	105	<0.056		ug/L	0.10	06/08/1998
Phenanthrene	62	105	<0.056		ug/L	0.10	06/08/1998
Pyrene	62	105	<0.14		ug/L	0.25	06/08/1998
2-Fluorobiphenyl - Surr	62	105	69.7		%		06/08/1998

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Cedar Falls Division
704 Enterprise Drive
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Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec.	Flag	Date Analyzed
Lead, GFAA	1749	1063	0.0400	mg/L	0.0420	105		05/21/1998
VOLATILE COMPOUNDS - 8260								
Benzene		659	20	ug/L	19.1	96		05/18/1998
Ethylbenzene		659	20	ug/L	21.4	107		05/18/1998
Toluene		659	20	ug/L	19.6	98		05/18/1998
Xylenes, Total		659	60	ug/L	63.1	105		05/18/1998
Dibromofluoromethane (Surr.)		659	100	%	102	102		05/18/1998
Toluene-d8 (Surr.)		659	100	%	100	100		05/18/1998
4-Bromofluorobenzene (Surr.)		659	100	%	102	102		05/18/1998
VOLATILE COMPOUNDS - 8260								
Benzene		659	20	ug/L	18.1	91		05/18/1998
Ethylbenzene		659	20	ug/L	20.8	104		05/18/1998
Toluene		659	20	ug/L	19.3	97		05/18/1998
Xylenes, Total		659	60	ug/L	60.8	101		05/18/1998
Dibromofluoromethane (Surr.)		659	100	%	100	100		05/18/1998
Toluene-d8 (Surr.)		659	100	%	102	102		05/18/1998
4-Bromofluorobenzene (Surr.)		659	100	%	102	102		05/18/1998
VOLATILE COMPOUNDS - 8260								
Benzene		660	20	ug/L	18.3	92		05/19/1998
Ethylbenzene		660	20	ug/L	20.3	102		05/19/1998
Toluene		660	20	ug/L	18.9	95		05/19/1998
Xylenes, Total		660	60	ug/L	59.8	100		05/19/1998
Dibromofluoromethane (Surr.)		660	100	%	101	101		05/19/1998
Toluene-d8 (Surr.)		660	100	%	102	102		05/19/1998
4-Bromofluorobenzene (Surr.)		660	100	%	103	103		05/19/1998
VOLATILE COMPOUNDS - 8260								
Benzene		660	20	ug/L	17.8	89		05/19/1998
Ethylbenzene		660	20	ug/L	19.9	100		05/19/1998
Toluene		660	20	ug/L	18.5	93		05/19/1998
Xylenes, Total		660	60	ug/L	58.3	97		05/19/1998
Dibromofluoromethane (Surr.)		660	100	%	97.8	98		05/19/1998
Toluene-d8 (Surr.)		660	100	%	101	101		05/19/1998
4-Bromofluorobenzene (Surr.)		660	100	%	103	103		05/19/1998

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QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec.	Flag	Date Analyzed
VOLATILE COMPOUNDS - 8260								
Benzene		661	20	ug/L	19.4	97		05/19/1998
Ethylbenzene		661	20	ug/L	21.2	106		05/19/1998
Toluene		661	20	ug/L	19.9	100		05/19/1998
Xylenes, Total		661	60	ug/L	62.6	104		05/19/1998
Dibromofluoromethane (Surr.)		661	100	%	100	100		05/19/1998
Toluene-d8 (Surr.)		661	100	%	100	100		05/19/1998
4-Bromofluorobenzene (Surr.)		661	100	%	103	103		05/19/1998
VOLATILE COMPOUNDS - 8260								
Benzene		661	20	ug/L	18.8	94		05/19/1998
Ethylbenzene		661	20	ug/L	20.6	103		05/19/1998
Toluene		661	20	ug/L	18.8	94		05/19/1998
Xylenes, Total		661	60	ug/L	59.8	100		05/19/1998
Dibromofluoromethane (Surr		661	100	%	99.6	100		05/19/1998
Toluene-d8 (Surr.)		661	100	%	101	101		05/19/1998
4-Bromofluorobenzene (Surr		661	100	%	103	103		05/19/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene	62	105	5.56	ug/L	3.21	58		06/08/1998
Acenaphthylene	62	105	11.1	ug/L	6.43	58		06/08/1998
Anthracene	62	105	0.56	ug/L	0.422	75		06/08/1998
Benzo(a)anthracene	62	105	0.56	ug/L	0.535	96		06/08/1998
Benzo(a)pyrene	62	105	0.56	ug/L	0.537	96		06/08/1998
Benzo(b)fluoranthene	62	105	1.11	ug/L	1.09	98		06/08/1998
Benzo(ghi)perylene	62	105	1.11	ug/L	1.07	96		06/08/1998
Benzo(k)fluoranthene	62	105	0.56	ug/L	0.537	96		06/08/1998
Chrysene	62	105	0.56	ug/L	0.540	96		06/08/1998
Dibenzo(a,h)anthracene	62	105	1.11	ug/L	1.04	94		06/08/1998
Fluoranthene	62	105	1.11	ug/L	1.07	96		06/08/1998
Fluorene	62	105	1.11	ug/L	0.700	63		06/08/1998
Indeno(1,2,3-cd)pyrene	62	105	0.56	ug/L	0.535	96		06/08/1998
1-Methylnaphthalene	62	105	5.56	ug/L	3.07	55		06/08/1998
2-Methylnaphthalene	62	105	5.56	ug/L	3.16	57		06/08/1998
Naphthalene	62	105	5.56	ug/L	3.10	56		06/08/1998

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Fax: (319) 277-2425

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No.	Run Batch No	LCS True Conc	Units	LCS Conc Found	LCS % Rec	Flag	Date Analyzed
Phenanthrene	62	105	0.56	ug/L	0.452	81		06/08/1998
Pyrene	62	105	0.56	ug/L	0.531	95		06/08/1998
2-Fluorobiphenyl (Surr.)	62	105	100	%	54.1	54		06/08/1998

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Fax: (319) 277-2425

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/12/1998

NET Job Number: 98.05501

Analyte	Prep Batch No.	Run Batch No.	Conc. Spike Added	Units	Sample Result	Conc. MS Result	MS % Rec.	Conc. MSD Result	MSD % Rec.	RPD	Flag	Date Analyzed
Lead, GFAA	1749	1063	0.0400	mg/L	<0.0040	0.0335	84	0.0356	89	6		05/21/1998

ME	OF	IENT			REMARKS:	DATE/TIME	RECEIVED FOR NET BY
GUS			5/13	8:30		5/13/98 13:30	Susan / Kyle

PT 1 ORIGINAL WHITE PT 2 NET PROJECT MANAGER YELLOW PT 3 CUSTOMER COPY PINK

N

COOLER TEMPERATURES

CLIENT: Montgomery Watson

CITY: Des Moines PROJECT: IRP/Hillcrest-Mason City

DATE TAKEN: 5-13-98 TAKEN BY: HH

Cooler #1: _____ ° C / ON ICE Cooler #3: _____ ° C / ON ICE

Cooler #2: _____ ° C / ON ICE Cooler #4: _____ ° C / ON ICE

Increased emphasis has been put on sample preservation by the various regulators. Any sample being sent to NET must be properly preserved, this includes sending samples in a properly cooled shipping container. The majority of tests performed for regulatory compliance must be preserved at 4° C ± 2° C during storage and shipment as directed by 40 CFR Part 136. Results from samples which are not properly preserved at 4 °C ± 2 ° C may be rejected by regulators. Rejection or acceptance is solely at the discretion of the regulators.

NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Montgomery Watson
ADDRESS 11107 Aurora Ave Des Moines
PHONE 515-253-0830 FAX 515-253-9592
PROJECT NAME/LOCATION IPW/Alliant - Mason City
PROJECT NUMBER 12178.0190350
PROJECT MANAGER Randy Kroneman

REPORT TO R. Kroneman
INVOICE TO R. Kroneman
P.O. NO
NET QUOTE NO

SAMPLED BY
Randy Kroneman (PRINT NAME)
Kevin Armstrong (PRINT NAME)

Randy Kroneman (SIGNATURE)
Kevin Armstrong (SIGNATURE)

DATE	TIME	SAMPLE IDENTIFICATION	Grab	Composite	# and Type of Containers			ANALYSES: BTEX (8260)	PAHs (8310)	Total Lead	COMMENTS
5/12	10:20	MW15-GW-008	G	X	3	1	2	X	X	X	
5/12	11:15	MW31-GW-008	"	X	3	1	2	X	X	X	
5/12	11:25	MW19-GW-008	"	X	3	1	2	X	X	X	
5/12	11:35	MW10-GW-008	"	X	3	1	2	X	X	X	
5/12	14:45	MW35-GW-008	"	X	3	1	2	X	X	X	
5/12	15:55	MW03R-GW-008	"	X	3	1	2	X	X	X	
5/12	16:00	MW23R-GW-008	"	X	3	1	2	X	X	X	
5/12	16:35	MW04-GW-008	"	X	3	1	2	X	X	X	
5/12	17:10	MW22-GW-008	"	X	3	1	2	X	X	X	
5/12	-	DP02-GW-008	"	X	3	1	2	X	X	X	
5/12	-	MW15-GW-008-901	"		5			X			

RLK 5-13-98

CONDITION OF SAMPLE
BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT
Bottles supplied by NET? YES / NO

NOTE; THERE MAY BE A CHARGE FOR NET DISPOSAL OF SAMPLE REMAINDERS.

SAMPLE REMAINDER DISPOSAL
RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS

RELINQUISHED BY	DATE/TIME	RECEIVED BY	RELINQUISHED BY	DATE/TIME	RECEIVED FOR NET BY
Randy Kroneman	5/13 8:30			5/13/98 13:00	Shawn Hayes

METHOD OF SHIPMENT
DVS

REMARKS:

PT 1 ORIGINAL WHITE PT 2 NET PROJECT MANAGER YELLOW PT 3 [illegible]

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL AND QUALITY CONTROL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Cedar Falls Division of NET, Inc. for analysis.

Sample Number	Sample Description	Date Taken	Date Received
450917	MW06-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450918	MW14R-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450919	MW13-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450920	MW02R-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450921	MW05-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450922	MW24R-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450923	DP01-GW-008 IPW/Alliant	05/11/1998	05/12/1998
450924	MW34-GW-008 IPW/Alliant	05/12/1998	05/12/1998
450925	MW06-GW-008-901 IPW/Alliant	05/11/1998	05/12/1998

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Client Project ID: Mason City FMGP 5-11,12

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 450917	SAMPLE DESCRIPTION MW06-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/11/1998 15:06
Lead, GFAA	0.0091		mg/L	0.0040	05/18/1998	lmc	1746	1062	E 239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane, Surr	97.8		%		05/15/1998	mmk		657	S-8260B
Toluene-d8, Surr	96.5		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene, Surr	99.7		%		05/15/1998	mmk		657	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenapnthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Dibenz a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	105	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310

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06/16/1998

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Client Project ID: Mason City FMGP 5-11,12

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 450917	**SAMPLE DESCRIPTION MW06-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 15:06**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
2-Fluorobiphenyl Surr	65.8		%		06/09/1998	mmk	62	105	S-8310
SAMPLE NO. 450918	**SAMPLE DESCRIPTION MW14R-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 16:27**
Lead, GFAA	0.904		mg/L	0.0040	05/18/1998	lmc	1748	1062	E-239.2
GFAA Total Metals Digestion	D	pH>2			05/15/1998	maw	1748		
VOLATILE COMPOUNDS - 8260									
Benzene	10.0		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	40.6		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	1.6		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	55.8		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane Surr	99.5		%		05/15/1998	mmk		657	S-8260B
Toluene-d8 Surr	99.3		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene Surr	101		%		05/15/1998	mmk		657	S-8260B
Prep PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	111		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Acenaphthylene	138		ug/L	0.25	06/10/1998	mmk	62	107	S-8310

pH>2 - Sample received at pH>2. Acidified and held 16 hrs before analysis.

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06/16/1998

NET Job Number: 98.05448

Client Project ID: Mason City FMGP 5-11,12

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 450918	SAMPLE DESCRIPTION MW14R-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/11/1998 16:27
Anthracene	17.7		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo a anthracene	0.86		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo ghi perylene	0.146		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluoranthene	9.5		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Fluorene	108		ug/L	0.20	06/10/1998	mmk	62	107	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
1-Methylnaphthalene	172		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
2-Methylnaphthalene	87.3		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Naphthalene	160		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Phenanthrene	77.7		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Pyrene	6.6		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
2-Fluorobiphenyl (Surr)	DO	mtx	%		06/09/1998	mmk	62	105	S-8310

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 450919	**SAMPLE DESCRIPTION MW13-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 17:10**
Lead, GFAA	0.0150		mg/L	0.0040	05/18/1998	lmc	1746	1062	E-239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane - Surr	99.9		%		05/15/1998	mmk		657	S-8260B
Toluene-d8 - Surr	97.6		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene - Surr	97.1		%		05/15/1998	mmk		657	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Anthracene	0.102		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo a anthracene	0.155		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo a pyrene	0.165		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo b fluoranthene	0.262		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo ghi perylene	0.139		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo k fluoranthene	0.091		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Chrysene	0.134		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Dibenzo a,h anthracene	<0.058		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Fluoranthene	0.365		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Fluorene	<0.12		ug/L	0.20	06/10/1998	mmk	62	107	S-8310
Indeno 1,2,3-cd pyrene	0.105		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
1-Methylnapthalene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 450919	**SAMPLE DESCRIPTION MW13-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 17:10**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Naphthalene	<0.058		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Phenanthrene	0.265		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Pyrene	0.393		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
2-Fluorobiphenyl (Surr.)	62.2		%		06/10/1998	mmk	62	107	S-8310
SAMPLE NO. 450920	**SAMPLE DESCRIPTION MW02R-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 17:35**
Lead, GFAA	0.0149		mg/L	0.0040	05/18/1998	lmc	1746	1362	S-239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	148		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	139		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	28.7		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	232		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane (Surr.)	100		%		05/15/1998	mmk		657	S-8260B
Toluene-d8 (Surr.)	99.2		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene (Surr.)	98.6		%		05/15/1998	mmk		657	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	11.1		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
Acenaphthylene	7.50		ug/L	0.25	06/11/1998	mmk	62	107	S-8310

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 450920	SAMPLE DESCRIPTION MW02R-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/11/1998 17:35
Anthracene	1.82		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo(a)anthracene	1.08		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo k fluoranthene	0.30		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Chrysene	0.553		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluoranthene	5.55		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Fluorene	7.80		ug/L	0.20	06/11/1998	mmk	62	107	S-8310
Indeno 1,2,3-cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
1-Methylnaphthalene	29.3		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
2-Methylnaphthalene	13.4		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
Naphthalene	35.0		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Phenanthrene	6.11		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Pyrene	2.37		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
2-Fluorobiphenyl (Surr)	DO	mtx	%		06/09/1998	mmk	62	105	S-8310

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 450921	**SAMPLE DESCRIPTION MW05-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 18:15**
Lead, GFAA	0.826		mg/L	0.0040	05/18/1998	lmc	1746	1062	E-239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane Surr	99.3		%		05/15/1998	mmk		657	S-8260B
Toluene d8 Surr	99.7		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene Surr	99.3		%		05/15/1998	mmk		657	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Acenaphthylene	2.37		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Anthracene	1.38		ug/L	0.10	06/12/1998	mmk	62	110	S-8310
Benzo(a)anthracene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo(a)pyrene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo(b)fluoranthene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo(ghi)perylene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Benzo(k)fluoranthene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Chrysene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Dibenzo(a,h)anthracene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Fluoranthene	0.723		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Fluorene	<0.11		ug/L	0.20	06/10/1998	mmk	62	107	S-8310
Indeno(1,2,3-cd)pyrene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310

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SAMPLE NO. 450921	**SAMPLE DESCRIPTION MW05-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 18:15**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
Naphthalene	<0.056		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Phenanthrene	0.885		ug/L	0.10	06/10/1998	mmk	62	107	S-8310
Pyrene	0.904		ug/L	0.25	06/10/1998	mmk	62	107	S-8310
2-Fluorobiphenyl (Surr)	63.4		%		06/10/1998	mmk	62	107	S-8310
SAMPLE NO. 450922	**SAMPLE DESCRIPTION MW24R-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/11/1998 18:15**
Lead, GFAA	0.0631		mg/L	0.0040	05/18/1998	lmc	1746	1062	E-239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane (Surr)	101		%		05/15/1998	mmk		657	S-8260B
Toluene-d8 (Surr)	96.7		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene (Surr)	98.7		%		05/15/1998	mmk		657	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Client Project ID: Mason City FMGP 5-11,12

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 450922	SAMPLE DESCRIPTION MW24R-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/11/1998 18:15
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(a)anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(a)pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(b)fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(ghi)perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(k)fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Dibenzo(a,h)anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	105	S-8310
Indeno(1,2,3-cd)pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
2-Fluorobiphenyl Surr	57.8		%		06/09/1998	mmk	62	105	S-8310

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MONTGOMERY WATSON
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Des Moines, IA 50322

06/16/1998

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Client Project ID: Mason City FMGP 5-11,12

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 450923	SAMPLE DESCRIPTION DP01-GW-008 IPW/Alliant							DATE-TIME TAKEN 05/11/1998	
Lead, GFAA	0.682		mg/L	0.0040	05/18/1998	lmc	1746	1062	E-239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/18/1998	mmk		659	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Toluene	<1.0		ug/L	1.0	05/18/1998	mmk		659	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/18/1998	mmk		659	S-8260B
Dibromofluoromethane (Surr)	102		%		05/18/1998	mmk		659	S-8260B
Toluene-d8 (Surr)	101		%		05/18/1998	mmk		659	S-8260B
4-Bromofluorobenzene (Surr	98.4		%		05/18/1998	mmk		659	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Anthracene	0.193		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(a)anthracene	0.524		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(a)pyrene	0.509		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(b)fluoranthene	0.219		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(ghi)perylene	0.304		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Benzo(k)fluoranthene	0.276		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Chrysene	0.344		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Dibenzo(a,h)anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluoranthene	1.02		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Fluorene	0.143		ug/L	0.20	06/09/1998	mmk	62	105	S-8310
Indeno(1,2,3-cd)pyrene	0.296		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310

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Des Moines, IA 50322

06/16/1998

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 450923 SAMPLE DESCRIPTION DP01-GW-008 IPW/Alliant DATE-TIME TAKEN 05/11/1998									
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
Naphthalene	0.098		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Phenanthrene	0.611		ug/L	0.10	06/09/1998	mmk	62	105	S-8310
Pyrene	0.874		ug/L	0.25	06/09/1998	mmk	62	105	S-8310
2-Fluorobiphenyl (Surr.)	61.5		%		06/09/1998	mmk	62	105	S-8310
SAMPLE NO. 450924 SAMPLE DESCRIPTION MW34-GW-008 IPW/Alliant DATE-TIME TAKEN 05/12/1998 07:20									
Lead, GFAA	0.0048		mg/L	0.0040	05/18/1998	lmc	1746	1062	E-239.2
GFAA Total Metals Digestion	D				05/13/1998	jcp	1746		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane (Surr.)	100		%		05/15/1998	mmk		657	S-8260B
Toluene-d8 (Surr.)	92.9		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene (Surr.)	98.5		%		05/15/1998	mmk		657	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

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Cedar Falls, IA 50613
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Fax: (319) 277-2425

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MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No	Method Reference
SAMPLE NO. 450924	**SAMPLE DESCRIPTION MW34-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/12/1998 07:20**
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3 cd pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl Surr	62.0		%		06/09/1998	mmk	62	106	S-8310

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Cedar Falls, IA 50613
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Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

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Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 450925	SAMPLE DESCRIPTION MW06-GW-008-901 IPW/Alliant							DATE-TIME TAKEN 05/11/1998	
VOLATILE COMPOUNDS - 8260									
Benzene	<1.5		ug/L	0.5	05/15/1998	mmk		657	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Toluene	<1.0		ug/L	1.0	05/15/1998	mmk		657	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/15/1998	mmk		657	S-8260B
Dibromofluoromethane Surr	99.5		%		05/15/1998	mmk		657	S-8260B
Toluene-d8 Surr	97.3		%		05/15/1998	mmk		657	S-8260B
4-Bromofluorobenzene Surr	95.6		%		05/15/1998	mmk		657	S-8260B

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No.	Run Batch No.	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
Lead, GFAA		1062	0.0250	mg/L	0.0260	104		05/18/1998
Lead, GFAA		1062	0.0250	mg/L	0.0249	100		05/18/1998
VOLATILE COMPOUNDS - 8260								
Benzene		657	50	ug/L	48.1	96		05/15/1998
Ethylbenzene		657	50	ug/L	52.8	106		05/15/1998
Toluene		657	50	ug/L	49.5	99		05/15/1998
Xylenes, Total		657	150	ug/L	158	105		05/15/1998
Dibromofluoromethane (Surr)		657	100	%	102	102		05/15/1998
Toluene-d8 (Surr)		657	100	%	101	101		05/15/1998
4-Bromofluorobenzene (Surr)		657	100	%	105	105		05/15/1998
VOLATILE COMPOUNDS - 8260								
Benzene		659	50	ug/L	48.5	97		05/18/1998
Ethylbenzene		659	50	ug/L	53.7	107		05/18/1998
Toluene		659	50	ug/L	50.2	100		05/18/1998
Xylenes, Total		659	150	ug/L	159	106		05/18/1998
Dibromofluoromethane (Surr		659	100	%	100	100		05/18/1998
Toluene-d8 (Surr		659	100	%	100	100		05/18/1998
4-Bromofluorobenzene (Surr		659	100	%	104	104		05/18/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		105	2000	ug/L	2060	103		06/08/1998
Acenaphthylene		105	4000	ug/L	4110	103		06/08/1998
Anthracene		105	200	ug/L	202	101		06/08/1998
Benzo a anthracene		105	200	ug/L	200	100		06/08/1998
Benzo a pyrene		105	200	ug/L	218	109		06/08/1998
Benzo(b)fluoranthene		105	400	ug/L	398	100		06/08/1998
Benzo(ghi perylene		105	400	ug/L	394	99		06/08/1998
Benzo k fluoranthene		105	200	ug/L	187	94		06/08/1998
Chrysene		105	200	ug/L	198	99		06/08/1998
Dibenzo a,h anthracene		105	400	ug/L	402	101		06/08/1998
Fluoranthene		105	400	ug/L	392	98		06/08/1998
Fluorene		105	400	ug/L	405	101		06/08/1998
Indeno 1,2,3-cd pyrene		105	200	ug/L	186	93		06/08/1998

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Cedar Falls Division
704 Enterprise Drive
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Fax: (319) 277-2425

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CONTINUING CALIBRATION VERIFICATION

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11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No.	Run Batch No.	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
1-Methylnaphthalene		105	2000	ug/L	2020	101		06/08/1998
2-Methylnaphthalene		105	2000	ug/L	2030	102		06/08/1998
Naphthalene		105	2000	ug/L	2040	102		06/08/1998
Phenanthrene		105	200	ug/L	201	101		06/08/1998
Pyrene		105	200	ug/L	212	106		06/08/1998
2-Fluorobiphenyl (Surr)		105	100	%	103	103		06/08/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		106	2000	ug/L	2090	105		06/09/1998
Acenaphthylene		106	4000	ug/L	4180	105		06/09/1998
Anthracene		106	200	ug/L	210	105		06/09/1998
Benzo(a)anthracene		106	200	ug/L	204	102		06/09/1998
Benzo(a)pyrene		106	200	ug/L	218	109		06/09/1998
Benzo(b)fluoranthene		106	400	ug/L	413	103		06/09/1998
Benzo(ghi)perylene		106	400	ug/L	447	112		06/09/1998
Benzo(k)fluoranthene		106	200	ug/L	202	101		06/09/1998
Chrysene		106	200	ug/L	203	102		06/09/1998
Dibenzo(a,h)anthracene		106	400	ug/L	402	101		06/09/1998
Fluoranthene		106	400	ug/L	395	99		06/09/1998
Fluorene		106	400	ug/L	420	105		06/09/1998
Indeno(1,2,3-cd)pyrene		106	200	ug/L	208	104		06/09/1998
1-Methylnaphthalene		106	2000	ug/L	2060	103		06/09/1998
2-Methylnaphthalene		106	2000	ug/L	2080	104		06/09/1998
Naphthalene		106	2000	ug/L	2080	104		06/09/1998
Phenanthrene		106	200	ug/L	206	103		06/09/1998
Pyrene		106	200	ug/L	197	99		06/09/1998
2-Fluorobiphenyl (Surr)		106	100	%	106	106		06/09/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		107	2000	ug/L	1960	98		06/10/1998
Acenaphthylene		107	4000	ug/L	3950	99		06/10/1998
Anthracene		107	200	ug/L	196	98		06/10/1998
Benzo(a)anthracene		107	200	ug/L	196	98		06/10/1998
Benzo(a)pyrene		107	200	ug/L	228	114		06/10/1998

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

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Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No.	Run Batch No.	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
Benzo(b)fluoranthene		107	400	ug/L	388	97		06/16/1998
Benzo(ghi)perylene		107	400	ug/L	408	102		06/16/1998
Benzo(k)fluoranthene		107	200	ug/L	191	96		06/16/1998
Chrysene		107	200	ug/L	193	97		06/16/1998
Dibenzo(a,h)anthracene		107	400	ug/L	381	95		06/16/1998
Fluoranthene		107	400	ug/L	381	95		06/16/1998
Fluorene		107	400	ug/L	436	109		06/16/1998
Indeno(1,2,3-cd)pyrene		107	200	ug/L	184	92		06/16/1998
1-Methylnaphthalene		107	2000	ug/L	1940	97		06/16/1998
2-Methylnaphthalene		107	2000	ug/L	1960	98		06/16/1998
Naphthalene		107	2000	ug/L	1960	98		06/16/1998
Phenanthrene		107	200	ug/L	199	100		06/16/1998
Pyrene		107	200	ug/L	194	97		06/16/1998
2-Fluorobiphenyl (Surr)		107	100	%	99.8	100		06/16/1998
PNAs - EPA 8310 AQUEOUS								
Anthracene		110	200	ug/L	197	99		06/12/1998

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QUALITY CONTROL REPORT
BLANKS

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No.	Run Batch No	Blank Value	Flag	Units	Reporting Limit	Date Analyzed
Lead, GFAA	1746	1062	<0.0040		mg/L	0.0040	05/18/1998
Lead, GFAA	1748	1063	<0.0040		mg/L	0.0040	05/21/1998
VOLATILE COMPOUNDS - 8260							
Benzene		657	<0.5		ug/L	0.5	05/15/1998
Ethylbenzene		657	<1.0		ug/L	1.0	05/15/1998
Toluene		657	<1.0		ug/L	1.0	05/15/1998
Xylenes, Total		657	<3.0		ug/L	3.0	05/15/1998
Dibromofluoromethane (Surr		657	98.9		%		05/15/1998
Toluene-d8 (Surr)		657	97.0		%		05/15/1998
4-Bromofluorobenzene (Surr		657	99.7		%		05/15/1998
VOLATILE COMPOUNDS - 8260							
Benzene		659	<0.5		ug/L	0.5	05/18/1998
Ethylbenzene		659	<1.0		ug/L	1.0	05/18/1998
Toluene		659	<1.0		ug/L	1.0	05/18/1998
Xylenes, Total		659	<3.0		ug/L	3.0	05/18/1998
Dibromofluoromethane (Surr		659	100		%		05/18/1998
Toluene-d8 (Surr		659	101		%		05/18/1998
4-Bromofluorobenzene (Surr)		659	99.0		%		05/18/1998
PNAs - EPA 8310 AQUEOUS							
Acenaphthene	62	105	<0.14		ug/L	0.25	06/08/1998
Acenaphthylene	62	105	<0.14		ug/L	0.25	06/08/1998
Anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo a anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo a pyrene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo b fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo ghi perylene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo k fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Chrysene	62	105	<0.056		ug/L	0.10	06/08/1998
Dibenzo a,h anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Fluorene	62	105	<0.11		ug/L	0.20	06/08/1998
Indeno 1,2,3-cd pyrene	62	105	<0.056		ug/L	0.10	06/08/1998
1-Methylnaphthalene	62	105	<0.14		ug/L	0.25	06/08/1998
2-Methylnaphthalene	62	105	<0.14		ug/L	0.25	06/08/1998

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
BLANKS

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No	Run Batch No	Blank Value	Flag	Units	Reporting Limit	Date Analyzed
Naphthalene	62	105	<0.056		ug/L	0.10	06/08/1998
Phenanthrene	62	105	<0.056		ug/L	0.10	06/08/1998
Pyrene	62	105	<0.14		ug/L	0.25	06/08/1998
2-Fluorobiphenyl (Surr.	62	105	69.7		%		06/08/1998

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec	Flag	Date Analyzed
Lead, GFAA	1746	1062	0.0400	mg/L	0.0363	91		05/18/1998
Lead, GFAA	1748	1063	0.0400	mg/L	0.0399	100		05/21/1998
VOLATILE COMPOUNDS - 8260								
Benzene		657	20	ug/L	18.7	94		05/15/1998
Ethylbenzene		657	20	ug/L	20.5	103		05/15/1998
Toluene		657	20	ug/L	19.3	97		05/15/1998
Xylenes, Total		657	60	ug/L	60.3	101		05/15/1998
Dibromofluoromethane (Surr)		657	100	%	99.7	100		05/15/1998
Toluene-d8 (Surr)		657	100	%	101	101		05/15/1998
4-Bromofluorobenzene (Surr)		657	100	%	104	104		05/15/1998
VOLATILE COMPOUNDS - 8260								
Benzene		657	20	ug/L	18.3	92		05/15/1998
Ethylbenzene		657	20	ug/L	20.3	102		05/15/1998
Toluene		657	20	ug/L	18.9	95		05/15/1998
Xylenes, Total		657	60	ug/L	58.4	97		05/15/1998
Dibromofluoromethane (Surr)		657	100	%	101	101		05/15/1998
Toluene-d8 (Surr)		657	100	%	100	100		05/15/1998
4-Bromofluorobenzene (Surr)		657	100	%	104	104		05/15/1998
VOLATILE COMPOUNDS - 8260								
Benzene		659	20	ug/L	19.1	96		05/18/1998
Ethylbenzene		659	20	ug/L	21.4	107		05/18/1998
Toluene		659	20	ug/L	19.6	98		05/18/1998
Xylenes, Total		659	60	ug/L	63.1	105		05/18/1998
Dibromofluoromethane (Surr)		659	100	%	102	102		05/18/1998
Toluene-d8 (Surr)		659	100	%	100	100		05/18/1998
4-Bromofluorobenzene (Surr)		659	100	%	102	102		05/18/1998
VOLATILE COMPOUNDS - 8260								
Benzene		659	20	ug/L	18.1	91		05/18/1998
Ethylbenzene		659	20	ug/L	20.8	104		05/18/1998
Toluene		659	20	ug/L	19.3	97		05/18/1998
Xylenes, Total		659	60	ug/L	60.8	101		05/18/1998
Dibromofluoromethane (Surr)		659	100	%	100	100		05/18/1998
Toluene-d8 (Surr)		659	100	%	102	102		05/18/1998

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Cedar Falls Division
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Cedar Falls, IA 50613
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Fax: (319) 277-2425

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No	Run Batch No	LCS True Conc	Units	LCS Conc Found	LCS % Rec	Flag	Date Analyzed
4-Bromofluorobenzene (Surr)		659	100	%	102	102		06/18/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene	62	105	5.56	ug/L	3.21	58		06/08/1998
Acenaphthylene	62	105	11.1	ug/L	6.43	58		06/08/1998
Anthracene	62	105	0.56	ug/L	0.422	75		06/08/1998
Benzo(a)anthracene	62	105	0.56	ug/L	0.535	96		06/08/1998
Benzo a pyrene	62	105	0.56	ug/L	0.537	96		06/08/1998
Benzo b fluoranthene	62	105	1.11	ug/L	1.09	98		06/08/1998
Benzo ghi perylene	62	105	1.11	ug/L	1.07	96		06/08/1998
Benzo k fluoranthene	62	105	0.56	ug/L	0.537	96		06/08/1998
Chrysene	62	105	0.56	ug/L	0.540	96		06/08/1998
Dibenzo a,h anthracene	62	105	1.11	ug/L	1.04	94		06/08/1998
Fluoranthene	62	105	1.11	ug/L	1.07	96		06/08/1998
Fluorene	62	105	1.11	ug/L	0.700	63		06/08/1998
Indeno 1,2,3-cd pyrene	62	105	0.56	ug/L	0.535	96		06/08/1998
1-Methylnaphthalene	62	105	5.56	ug/L	3.07	55		06/08/1998
2-Methylnapthalene	62	105	5.56	ug/L	3.16	57		06/08/1998
Naphthalene	62	105	5.56	ug/L	3.10	56		06/08/1998
Phenanthrene	62	105	0.56	ug/L	0.452	81		06/08/1998
Pyrene	62	105	0.56	ug/L	0.531	95		06/08/1998
2-Fluorobiphenyl (Surr)	62	105	100	%	54.1	54		06/08/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		105	5.56	ug/L	2.52	45		06/08/1998
Acenaphthylene		105	11.1	ug/L	5.15	46		06/08/1998
Anthracene		105	0.56	ug/L	0.456	81		06/08/1998
Benzo a anthracene		105	0.56	ug/L	0.497	89		06/08/1998
Benzo a pyrene		105	0.56	ug/L	0.507	91		06/08/1998
Benzo b fluoranthene		105	1.11	ug/L	1.05	95		06/08/1998
Benzo(ghi perylene		105	1.11	ug/L	1.01	91		06/08/1998
Benzo(k)fluoranthene		105	0.56	ug/L	0.520	93		06/08/1998
Chrysene		105	0.56	ug/L	0.515	92		06/08/1998
Dibenzo a,h anthracene		105	1.11	ug/L	0.985	89		06/08/1998
Fluoranthene		105	1.11	ug/L	1.02	92		06/08/1998

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Cedar Falls Division
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Fax: (319) 277-2425

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec	Flag	Date Analyzed
Fluorene		105	1.11	ug/L	0.750	68		06/08/1998
Indeno 1 2,3-cd pyrene		105	0.56	ug/L	0.494	88		06/08/1998
1-Methylnapnthalene		105	5.56	ug/L	1.71	31		06/08/1998
2-Methylnapnthalene		105	5.56	ug/L	1.73	31		06/08/1998
Naphthalene		105	5.56	ug/L	1.70	31		06/08/1998
Phenanthrene		105	0.56	ug/L	0.490	88		06/08/1998
Pyrene		105	0.50	ug/L	0.514	103		06/08/1998
4 Fluorophenyl Surr		105	100	%	36.2	36		06/08/1998

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05448

Analyte	Prep Batch No	Run Batch No	Conc. Spike Added	Units	Sample Result	Conc. MS Result	MS % Rec	Conc. MSD Result	MSD % Rec	RPD	Flag	Date Analyzed
Lead, GFAA	1746	1062	0.0400	mg/L	<0.0040	0.0113	28	0.0117	29	3.5	MSO	05/18/1998
Lead, GFAA	1748	1063	0.0400	mg/L	<0.0040	0.0182	46	0.0179	45	1.6	MSO	05/21/1998

MSO - MS and/or MSD are out of control for this analyte

METHOD OF SHIPMENT
,30,

REMARKS

PT 1 ORIGINAL WHITE PT 2 NET PROJECT MANAGER YELLOW PT 3 CUSTOMER COPY PINK

10

COOLER TEMPERATURES

CLIENT: Montgomery Watson

CITY: Des Moines PROJECT: CPW/Hillcrest Mobile Home Park EMGP

DATE TAKEN: 5-12-98 TAKEN BY: HH

Cooler #1: _____ ° C / ON ICE

Cooler #3: _____ ° C / ON ICE

Cooler #2: _____ ° C / ON ICE

Cooler #4: _____ ° C / ON ICE

Increased emphasis has been put on sample preservation by the various regulators. Any sample being sent to NET must be properly preserved, this includes sending samples in a properly cooled shipping container. The majority of tests performed for regulatory compliance must be preserved at 4° C ± 2° C during storage and shipment as directed by 40 CFR Part 136. Results from samples which are not properly preserved at 4 °C ± 2 ° C may be rejected by regulators. Rejection or acceptance is solely at the discretion of the regulators.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY: Montgomery Watson
ADDRESS: 11107 Aurora Ave Des Moines, IA
PHONE: 515-253-0830 FAX: 515-253-9592
PROJECT NAME LOCATION: JPW/ALLIANT - MASON CITY FMGP
PROJECT NUMBER: 12174131.011601
PROJECT MANAGER: Randy Kroneman

REPORT TO: Randy Kroneman
INVOICE TO: Randy Kroneman
PO NO:
NET QUOTE NO:

SAMPLED BY
Randy Kroneman (PRINT NAME)
Kevin Armstrong (PRINT NAME)
Randy Kroneman (SIGNATURE)
Kevin Armstrong (SIGNATURE)

								ANALYSES			COMMENTS
								BTEX (8260)	PAHs (8310)	Total LEAD	
5/11	15:06	MW06-GW-008	40	X	3	1	2	X	X	X	
5/11	16:27	MW14R-GW-008	"	X	3	1	2	X	X	X	
5/11	17:10	MW13-GW-008	"	X	3	1	2	X	X	X	
5/11	17:35	MW02R-GW-008	"	X	3	1	2	X	X	X	
5/11	18:15	MW05-GW-008	"	X	3	1	2	X	X	X	
5/11	18:15	MW24R-GW-008	"	X	3	1	2	X	X	X	
5/11	-	DP01-GW-008	"	X	3	1	2	X	X	X	
5/11	-	MW06-GW-008-Dup	"		3			X			
5/12	7:20	MW13Y-GW-008	"	X	3	1	2	X	X	X	

CONDITION OF SAMPLE
BOTTLES INTACT? YES NO
FIELD FILTERED? YES NO
COC SEALS PRESENT AND INTACT? YES NO
VOLATILES FREE OF HEADSPACE? YES NO
TEMPERATURE UPON RECEIPT
Bottles supplied by NET? YES NO

SAMPLE REMAINDER DISPOSAL
RETURN SAMPLE REMAINDER TO CLIENT VIA
REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS
NOTE: THERE MAY BE A CHARGE FOR DISPOSAL OF SAMPLE REMAINDERS
DATE

RELINQUISHED BY	DATE TIME	RECEIVED BY	RELINQUISHED BY	DATE TIME	RECEIVED FOR NET BY
Randy Kroneman	5/12 8:30			5/12/98 10:00	Shawn Hayes

METHOD OF SHIPMENT: BUS
REMARKS:

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL AND QUALITY CONTROL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Cedar Falls Division of NET, Inc. for analysis.

Sample Number	Sample Description	Date Taken	Date Received
451203	MW08-GW-008 IPW/Alliant	05/13/1998	05/14/1998
451204	MW17-GW-008 IPW/Alliant	05/13/1998	05/14/1998
451205	MW25-GW-008 IPW/Alliant	05/13/1998	05/14/1998
451206	MW08-GW-008-901 IPW/Alliant	05/13/1998	05/14/1998

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Reproduction of this analytical report is permitted only in its entirety.

Project Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Client Project ID: Mason City FMGP 5-13-98

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 451203	**SAMPLE DESCRIPTION MW08-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/13/1998 09:50**
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	123		ug/L	0.5	05/20/1998	mmk		663	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/20/1998	mmk		663	S-8260B
Toluene	<1.0		ug/L	1.0	05/20/1998	mmk		663	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/20/1998	mmk		663	S-8260B
Dibromofluoromethane (Surr)	104		%		05/20/1998	mmk		663	S-8260B
Toluene-d8 (Surr)	101		%		05/20/1998	mmk		663	S-8260B
4-Bromofluorobenzene (Surr)	99.7		%		05/20/1998	mmk		663	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(a)anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(a)pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(b)fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(ghi)perylene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Benzo(k)fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Chrysene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Dibenzo(a,h)anthracene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno(1,2,3-cd)pyrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Client Project ID: Mason City FMGP 5-13-98

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 451203	**SAMPLE DESCRIPTION MW08-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/13/1998 09:50**
2-Methylnaphthalene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
Naphthalene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/09/1998	mmk	62	106	S-8310
Pyrene	<0.14		ug/L	0.25	06/09/1998	mmk	62	106	S-8310
2-Fluorobiphenyl (Surr)	80.2		%		06/09/1998	mmk	62	106	S-8310
SAMPLE NO. 451204	**SAMPLE DESCRIPTION MW17-GW-008 IPW/Alliant**								**DATE-TIME TAKEN 05/13/1998 10:45**
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	9,550		ug/L	0.5	05/22/1998	mmk		664	S-8260B
Ethylbenzene	762		ug/L	1.0	05/20/1998	mmk		663	S-8260B
Toluene	3,330		ug/L	1.0	05/22/1998	mmk		664	S-8260B
Xylenes, Total	1,740		ug/L	3.0	05/20/1998	mmk		663	S-8260B
Dibromofluoromethane (Surr)	105		%		05/20/1998	mmk		663	S-8260B
Toluene-d8 (Surr)	95.4		%		05/20/1998	mmk		663	S-8260B
4-Bromofluorobenzene (Surr)	101		%		05/20/1998	mmk		663	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	62		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	27.0		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
Acenaphthylene	143		ug/L	0.25	06/11/1998	mmk	62	107	S-8310

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Cedar Falls Division
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Tel: (319) 277-2401
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ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Client Project ID: Mason City FMGP 5-13-98

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No	Method Reference
SAMPLE NO. 451204	SAMPLE DESCRIPTION MW17-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/13/1998 10:45
Anthracene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo a anthracene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo a pyrene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo b fluoranthene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo ghi perylene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Benzo k fluoranthene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Chrysene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Dibenzo a,h anthracene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Fluoranthene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Fluorene	<0.11		ug/L	0.20	06/09/1998	mmk	62	106	S-8310
Indeno 1,2,3-cd pyrene	<0.28		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
1-Methylnaphthalene	114		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
2-Methylnaphthalene	161		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
Naphthalene	3,200		ug/L	0.10	06/12/1998	mmk	62	110	S-8310
Phenanthrene	10.1		ug/L	0.10	06/11/1998	mmk	62	107	S-8310
Pyrene	<0.70		ug/L	0.25	06/11/1998	mmk	62	107	S-8310
2-Fluorobiphenyl (Surr)	mtx		%		06/11/1998	mmk	62	107	S-8310

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Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

ANALYTICAL REPORT

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Client Project ID: Mason City FMGP 5-13-98

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No	Run Batch No.	Method Reference
SAMPLE NO. 451205	SAMPLE DESCRIPTION MW25-GW-008 IPW/Alliant								DATE-TIME TAKEN 05/13/1998 11:10
Lead, GFAA	<0.0040		mg/L	0.0040	05/21/1998	lmc	1749	1063	E-239.2
GFAA Total Metals Digestion	D				05/15/1998	maw	1749		
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		660	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		660	S-8260B
Dibromofluoromethane (Surr)	99.9		%		05/19/1998	mmk		660	S-8260B
Toluene-d8 (Surr)	97.4		%		05/19/1998	mmk		660	S-8260B
4-Bromofluorobenzene (Surr)	98.5		%		05/19/1998	mmk		660	S-8260B
Prep - PNA Aqueous	complete				05/15/1998	sdv	63		S-3510
PNAs - EPA 8310 AQUEOUS									
Acenaphthene	<0.14		ug/L	0.25	06/11/1998	mmk	63	108	S-8310
Acenaphthylene	<0.14		ug/L	0.25	06/11/1998	mmk	63	108	S-8310
Anthracene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Benzo(a)anthracene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Benzo a pyrene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Benzo b fluoranthene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Benzo ghi perylene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Benzo k fluoranthene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Chrysene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Dibenzo a,h anthracene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Fluoranthene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Fluorene	<0.11		ug/L	0.20	06/11/1998	mmk	63	108	S-8310
Indeno(1,2,3-cd)pyrene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
1-Methylnaphthalene	<0.14		ug/L	0.25	06/11/1998	mmk	63	108	S-8310

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06/16/1998

NET Job Number: 98.05550

Client Project ID: Mason City FMGP 5-13-98

Analyte	Result	Flag	Units	Reporting Limit	Date Analyzed	Analyst Initials	Prep Batch No.	Run Batch No.	Method Reference
SAMPLE NO. 451205 SAMPLE DESCRIPTION MW25-GW-008 IPW/Alliant DATE-TIME TAKEN 05/13/1998 11:10									
2-Methylnaphthalene	<0.14		ug/L	0.25	06/11/1998	mmk	63	108	S-8310
Naphthalene	0.069		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Phenanthrene	<0.056		ug/L	0.10	06/11/1998	mmk	63	108	S-8310
Pyrene	<0.14		ug/L	0.25	06/11/1998	mmk	63	108	S-8310
2-Fluorobiphenyl Surr	70.0		%		06/11/1998	mmk	63	108	S-8310
SAMPLE NO. 451206 SAMPLE DESCRIPTION MW08-GW-008-901 IPW/Alliant DATE-TIME TAKEN 05/13/1998									
VOLATILE COMPOUNDS - 8260									
Benzene	<0.5		ug/L	0.5	05/19/1998	mmk		660	S-8260B
Ethylbenzene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Toluene	<1.0		ug/L	1.0	05/19/1998	mmk		660	S-8260B
Xylenes, Total	<3.0		ug/L	3.0	05/19/1998	mmk		660	S-8260B
Dibromofluoromethane Surr	99.3		%		05/19/1998	mmk		660	S-8260B
Toluene-d8 Surr	99.2		%		05/19/1998	mmk		660	S-8260B
4-Bromofluorobenzene Surr	100		%		05/19/1998	mmk		660	S-8260B

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QUALITY CONTROL REPORT
CONTINUING CALIBRATION VERIFICATION

Randy Kroneman
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11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No.	Run Batch No.	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
Lead, GFAA		1063	0.0250	mg/L	0.0242	97		05/21/1998
Lead, GFAA		1063	0.0250	mg/L	0.0253	101		05/21/1998
VOLATILE COMPOUNDS - 8260								
Benzene		660	50	ug/L	47.2	94		05/19/1998
Ethylbenzene		660	50	ug/L	51.0	102		05/19/1998
Toluene		660	50	ug/L	49.3	99		05/19/1998
Xylenes, Total		660	150	ug/L	153	102		05/19/1998
Dibromofluoromethane (Surr.)		660	100	%	98.6	99		05/19/1998
Toluene-d8 (Surr.)		660	100	%	101	101		05/19/1998
4-Bromofluorobenzene (Surr.)		660	100	%	102	102		05/19/1998
VOLATILE COMPOUNDS - 8260								
Benzene		663	50	ug/L	46.8	94		05/20/1998
Ethylbenzene		663	50	ug/L	50.2	100		05/20/1998
Toluene		663	50	ug/L	47.9	96		05/20/1998
Xylenes, Total		663	150	ug/L	152	101		05/20/1998
Dibromofluoromethane (Surr.)		663	100	%	103	103		05/20/1998
Toluene-d8 (Surr.)		663	100	%	101	101		05/20/1998
4-Bromofluorobenzene (Surr.)		663	100	%	106	106		05/20/1998
VOLATILE COMPOUNDS - 8260								
Benzene		664	50	ug/L	45.8	92		05/22/1998
Toluene		664	50	ug/L	48.0	96		05/22/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		106	2000	ug/L	2090	105		06/09/1998
Acenaphthylene		106	4000	ug/L	4180	105		06/09/1998
Anthracene		106	200	ug/L	210	105		06/09/1998
Benzo(a)anthracene		106	200	ug/L	204	102		06/09/1998
Benzo(a)pyrene		106	200	ug/L	218	109		06/09/1998
Benzo(b)fluoranthene		106	400	ug/L	410	103		06/09/1998
Benzo(ghi)perylene		106	400	ug/L	447	112		06/09/1998
Benzo(k)fluoranthene		106	200	ug/L	202	101		06/09/1998
Chrysene		106	200	ug/L	203	102		06/09/1998
Dibenzo(a,h)anthracene		106	400	ug/L	402	101		06/09/1998

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CONTINUING CALIBRATION VERIFICATION

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06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No.	Run Batch No.	CCV True Value	Units	CCV Conc Found	CCV % Rec	Flag	Date Analyzed
Fluoranthene		106	400	ug/L	395	99		06/09/1998
Fluorene		106	400	ug/L	420	105		06/09/1998
Indeno(1,2,3-cd)pyrene		106	200	ug/L	208	104		06/09/1998
1-Methylnaphthalene		106	2000	ug/L	2060	103		06/09/1998
2-Methylnaphthalene		106	2000	ug/L	2080	104		06/09/1998
Naphthalene		106	2000	ug/L	2080	104		06/09/1998
Phenanthrene		106	200	ug/L	206	103		06/09/1998
Pyrene		106	200	ug/L	197	99		06/09/1998
2-Fluorobiphenyl (Surr.)		106	100	%	106	106		06/09/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene		108	2000	ug/L	1950	98		06/11/1998
Acenaphthylene		108	4000	ug/L	3950	99		06/11/1998
Anthracene		108	200	ug/L	196	98		06/11/1998
Benzo a anthracene		108	200	ug/L	199	100		06/11/1998
Benzo a pyrene		108	200	ug/L	199	100		06/11/1998
Benzo b fluoranthene		108	400	ug/L	418	105		06/11/1998
Benzo ghi perylene		108	400	ug/L	415	104		06/11/1998
Benzo k fluoranthene		108	200	ug/L	204	102		06/11/1998
Chrysene		108	200	ug/L	201	101		06/11/1998
Dibenzo(a,h)anthracene		108	400	ug/L	395	99		06/11/1998
Fluoranthene		108	400	ug/L	400	100		06/11/1998
Fluorene		108	400	ug/L	402	101		06/11/1998
Indeno(1,2,3-cd)pyrene		108	200	ug/L	202	101		06/11/1998
1-Methylnaphthalene		108	2000	ug/L	1960	98		06/11/1998
2-Methylnaphthalene		108	2000	ug/L	1980	99		06/11/1998
Naphthalene		108	2000	ug/L	2000	100		06/11/1998
Phenanthrene		108	200	ug/L	204	102		06/11/1998
Pyrene		108	200	ug/L	192	96		06/11/1998
2-Fluorobiphenyl (Surr.)		108	100	%	98.5	99		06/11/1998

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704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
BLANKS

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No	Run Batch No	Blank Value	Flag	Units	Reporting Limit	Date Analyzed
Lead, GFAA	1749	1063	<0.0040		mg/L	0.0040	05/21/1998
VOLATILE COMPOUNDS - 8260							
Benzene		660	<0.5		ug/L	0.5	05/19/1998
Ethylbenzene		660	<1.0		ug/L	1.0	05/19/1998
Toluene		660	<1.0		ug/L	1.0	05/19/1998
Xylenes, Total		660	<3.0		ug/L	3.0	05/19/1998
Dibromofluoromethane (Surr.)		660	101		%		05/19/1998
Toluene-d8 (Surr.)		660	101		%		05/19/1998
4-Bromofluorobenzene (Surr.)		660	99.9		%		05/19/1998
VOLATILE COMPOUNDS - 8260							
Benzene		663	<0.5		ug/L	0.5	05/20/1998
Ethylbenzene		663	<1.0		ug/L	1.0	05/20/1998
Toluene		663	<1.0		ug/L	1.0	05/20/1998
Xylenes, Total		663	<3.0		ug/L	3.0	05/20/1998
Dibromofluoromethane (Surr.)		663	106		%		05/20/1998
Toluene-d8 (Surr.)		663	101		%		05/20/1998
4-Bromofluorobenzene (Surr.)		663	98.9		%		05/20/1998
VOLATILE COMPOUNDS - 8260							
Benzene		664	<0.5		ug/L	0.5	05/22/1998
Toluene		664	<1.0		ug/L	1.0	05/22/1998
PNAs - EPA 8310 AQUEOUS							
Acenaphthene	62	105	<0.14		ug/L	0.25	06/08/1998
Acenaphthylene	62	105	<0.14		ug/L	0.25	06/08/1998
Anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo(a)anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo(a)pyrene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo(b)fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo(ghi)perylene	62	105	<0.056		ug/L	0.10	06/08/1998
Benzo(k)fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Chrysene	62	105	<0.056		ug/L	0.10	06/08/1998
Dibenzo(a,h)anthracene	62	105	<0.056		ug/L	0.10	06/08/1998
Fluoranthene	62	105	<0.056		ug/L	0.10	06/08/1998
Fluorene	62	105	<0.11		ug/L	0.20	06/08/1998
Indeno(1,2,3-cd)pyrene	62	105	<0.056		ug/L	0.10	06/08/1998

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QUALITY CONTROL REPORT
BLANKS

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06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No	Run Batch No	Blank Value	Flag	Units	Reporting Limit	Date Analyzed
1-Methylnaphthalene	62	105	<0.14		ug/L	0.25	06/08/1998
2-Methylnaphthalene	62	105	<0.14		ug/L	0.25	06/08/1998
Naphthalene	62	105	<0.056		ug/L	0.10	06/08/1998
Phenanthrene	62	105	<0.056		ug/L	0.10	06/08/1998
Pyrene	62	105	<0.14		ug/L	0.25	06/08/1998
2-Fluorobiphenyl (Surr)	62	105	69.7		%		06/08/1998
PNAs - EPA 8310 AQUEOUS							
Acenaphthene	63	108	<0.14		ug/L	0.25	06/11/1998
Acenaphthylene	63	108	<0.14		ug/L	0.25	06/11/1998
Anthracene	63	108	<0.056		ug/L	0.10	06/11/1998
Benzo(a)anthracene	63	108	<0.056		ug/L	0.10	06/11/1998
Benzo(a)pyrene	63	108	<0.056		ug/L	0.10	06/11/1998
Benzo(b)fluoranthene	63	108	<0.056		ug/L	0.10	06/11/1998
Benzo(ghi)perylene	63	108	<0.056		ug/L	0.10	06/11/1998
Benzo(k)fluoranthene	63	108	<0.056		ug/L	0.10	06/11/1998
Chrysene	63	108	<0.056		ug/L	0.10	06/11/1998
Dibenzo(a,h)anthracene	63	108	<0.056		ug/L	0.10	06/11/1998
Fluoranthene	63	108	<0.056		ug/L	0.10	06/11/1998
Fluorene	63	108	<0.11		ug/L	0.20	06/11/1998
Indeno(1,2,3-cd)pyrene	63	108	<0.056		ug/L	0.10	06/11/1998
1-Methylnaphthalene	63	108	<0.14		ug/L	0.25	06/11/1998
2-Methylnaphthalene	63	108	<0.14		ug/L	0.25	06/11/1998
Naphthalene	63	108	0.544		ug/L	0.10	06/11/1998
Phenanthrene	63	108	<0.056		ug/L	0.10	06/11/1998
Pyrene	63	108	<0.14		ug/L	0.25	06/11/1998
2-Fluorobiphenyl (Surr	63	108	39.3		%		06/11/1998

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QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec.	Flag	Date Analyzed
Lead, GFAA	1749	1063	0.0400	mg/L	0.0420	105		05/21/1998
VOLATILE COMPOUNDS - 8260								
Benzene		660	20	ug/L	18.3	92		05/19/1998
Ethylbenzene		660	20	ug/L	20.3	102		05/19/1998
Toluene		660	20	ug/L	18.9	95		05/19/1998
Xylenes, Total		660	60	ug/L	59.8	100		05/19/1998
Dibromofluoromethane (Surr)		660	100	%	101	101		05/19/1998
Toluene-d8 (Surr)		660	100	%	102	102		05/19/1998
4-Bromofluorobenzene (Surr)		660	100	%	103	103		05/19/1998
VOLATILE COMPOUNDS - 8260								
Benzene		660	20	ug/L	17.8	89		05/19/1998
Ethylbenzene		660	20	ug/L	19.9	100		05/19/1998
Toluene		660	20	ug/L	18.5	93		05/19/1998
Xylenes, Total		660	60	ug/L	58.3	97		05/19/1998
Dibromofluoromethane (Surr)		660	100	%	97.8	98		05/19/1998
Toluene-d8 (Surr)		660	100	%	101	101		05/19/1998
4-Bromofluorobenzene (Surr)		660	100	%	103	103		05/19/1998
VOLATILE COMPOUNDS - 8260								
Benzene		663	20	ug/L	19.0	95		05/20/1998
Ethylbenzene		663	20	ug/L	20.6	103		05/20/1998
Toluene		663	20	ug/L	19.0	95		05/20/1998
Xylenes, Total		663	60	ug/L	59.2	99		05/20/1998
Dibromofluoromethane (Surr)		663	100	%	103	103		05/20/1998
Toluene-d8 (Surr)		663	100	%	99.1	99		05/20/1998
4-Bromofluorobenzene (Surr)		663	100	%	101	101		05/20/1998
VOLATILE COMPOUNDS - 8260								
Benzene		663	20	ug/L	17.9	90		05/20/1998
Ethylbenzene		663	20	ug/L	20.2	101		05/20/1998
Toluene		663	20	ug/L	18.5	93		05/20/1998
Xylenes, Total		663	60	ug/L	59.2	99		05/20/1998
Dibromofluoromethane (Surr)		663	100	%	104	104		05/20/1998
Toluene-d8 (Surr)		663	100	%	102	102		05/20/1998
4-Bromofluorobenzene (Surr)		663	100	%	104	104		05/20/1998

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QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
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06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec.	Flag	Date Analyzed
VOLATILE COMPOUNDS - 8260								
Benzene		664	20	ug/L	17.3	87		05/22/1998
Toluene		664	20	ug/L	17.8	89		05/22/1998
VOLATILE COMPOUNDS - 8260								
Benzene		664	20	ug/L	16.9	85		05/22/1998
Toluene		664	20	ug/L	17.2	86		05/22/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene	62	105	5.56	ug/L	3.21	58		06/08/1998
Acenaphthylene	62	105	11.1	ug/L	6.43	58		06/08/1998
Anthracene	62	105	0.56	ug/L	0.422	75		06/08/1998
Benzo(a)anthracene	62	105	0.56	ug/L	0.535	96		06/08/1998
Benzo(a)pyrene	62	105	0.56	ug/L	0.537	96		06/08/1998
Benzo(b)fluoranthene	62	105	1.11	ug/L	1.09	98		06/08/1998
Benzo(ghi)perylene	62	105	1.11	ug/L	1.07	96		06/08/1998
Benzo(k)fluoranthene	62	105	0.56	ug/L	0.537	96		06/08/1998
Chrysene	62	105	0.56	ug/L	0.540	96		06/08/1998
Dibenzo(a,h)anthracene	62	105	1.11	ug/L	1.04	94		06/08/1998
Fluoranthene	62	105	1.11	ug/L	1.07	96		06/08/1998
Fluorene	62	105	1.11	ug/L	0.700	63		06/08/1998
Indeno(1,2,3-cd)pyrene	62	105	0.56	ug/L	0.535	96		06/08/1998
1-Methylnaphthalene	62	105	5.56	ug/L	3.07	55		06/08/1998
2-Methylnaphthalene	62	105	5.56	ug/L	3.16	57		06/08/1998
Naphthalene	62	105	5.56	ug/L	3.10	56		06/08/1998
Phenanthrene	62	105	0.56	ug/L	0.452	81		06/08/1998
Pyrene	62	105	0.56	ug/L	0.531	95		06/08/1998
2-Fluorobiphenyl Surr	62	105	100	%	54.1	54		06/08/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene	63	108	5.56	ug/L	2.28	41		06/11/1998
Acenaphthylene	63	108	11.1	ug/L	4.65	42		06/11/1998
Anthracene	63	108	0.56	ug/L	0.415	74		06/11/1998
Benzo(a)anthracene	63	108	0.56	ug/L	0.429	77		06/11/1998
Benzo(a)pyrene	63	108	0.56	ug/L	0.388	69		06/11/1998
Benzo(b)fluoranthene	63	108	1.11	ug/L	0.828	75		06/11/1998

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Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
LABORATORY CONTROL STANDARD

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No.	Run Batch No.	LCS True Conc	Units	LCS Conc Found	LCS % Rec.	Flag	Date Analyzed
Benzo(ghi)perylene	63	108	1.11	ug/L	0.726	65		06/11/1998
Benzo(k)fluoranthene	63	108	0.56	ug/L	0.408	73		06/11/1998
Chrysene	63	108	0.56	ug/L	0.434	78		06/11/1998
Dibenzo(a,h)anthracene	63	108	1.11	ug/L	0.662	60		06/11/1998
Fluoranthene	63	108	1.11	ug/L	0.936	84		06/11/1998
Fluorene	63	108	1.11	ug/L	0.749	68		06/11/1998
Indeno(1,2,3-cd)pyrene	63	108	0.56	ug/L	0.666	119		06/11/1998
1-Methylnaphthalene	63	108	5.56	ug/L	1.98	36		06/11/1998
2-Methylnaphthalene	63	108	5.56	ug/L	2.02	36		06/11/1998
Naphthalene	63	108	5.56	ug/L	2.04	37		06/11/1998
Phenanthrene	63	108	0.56	ug/L	0.428	76		06/11/1998
Pyrene	63	108	0.56	ug/L	0.452	81		06/11/1998
2-Fluorobiphenyl (Surr	63	108	100	%	37.9	38		06/11/1998
PNAs - EPA 8310 AQUEOUS								
Acenaphthene	63	108	5.56	ug/L	2.72	49		06/11/1998
Acenaphthylene	63	108	11.1	ug/L	5.51	50		06/11/1998
Anthracene	63	108	0.56	ug/L	0.443	79		06/11/1998
Benzo(a)anthracene	63	108	0.56	ug/L	0.496	89		06/11/1998
Benzo(a)pyrene	63	108	0.56	ug/L	0.461	82		06/11/1998
Benzo(b)fluoranthene	63	108	1.11	ug/L	0.981	88		06/11/1998
Benzo(ghi)perylene	63	108	1.11	ug/L	0.961	87		06/11/1998
Benzo(k)fluoranthene	63	108	0.56	ug/L	0.482	86		06/11/1998
Chrysene	63	108	0.56	ug/L	0.491	88		06/11/1998
Dibenzo(a,h)anthracene	63	108	1.11	ug/L	0.905	82		06/11/1998
Fluoranthene	63	108	1.11	ug/L	1.02	92		06/11/1998
Fluorene	63	108	1.11	ug/L	0.788	71		06/11/1998
Indeno(1,2,3-cd)pyrene	63	108	0.56	ug/L	0.478	85		06/11/1998
1-Methylnaphthalene	63	108	5.56	ug/L	2.38	43		06/11/1998
2-Methylnaphthalene	63	108	5.56	ug/L	2.42	44		06/11/1998
Naphthalene	63	108	5.56	ug/L	2.43	44		06/11/1998
Phenanthrene	63	108	0.56	ug/L	0.461	82		06/11/1998
Pyrene	63	108	0.56	ug/L	0.496	89		06/11/1998
2-Fluorobiphenyl (Surr)	63	108	100	%	42.3	42		06/11/1998

NATIONAL ENVIRONMENTAL TESTING, INC.

Cedar Falls Division
704 Enterprise Drive
Cedar Falls, IA 50613
Tel: (319) 277-2401
Fax: (319) 277-2425

QUALITY CONTROL REPORT
MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Randy Kroneman
MONTGOMERY WATSON
11107 Aurora Avenue
Des Moines, IA 50322

06/16/1998

NET Job Number: 98.05550

Analyte	Prep Batch No	Run Batch No.	Conc. Spike Added	Units	Sample Result	Conc. MS Result	MS % Rec	Conc. MSD Result	MSD % Rec	RPD	Flag	Date Analyzed
Lead, GFAA	1749	1063	0.0400	mg/L	<0.0040	0.0335	84	0.0356	89	6		05/21/1998

METHOD OF SHIPMENT
FED EX

REMARKS

PT 1 ORIGINAL WHITE PT 2 NET PROJECT MANAGER YELLOW PT 3 CUSTOMER COPY PINK

COOLER TEMPERATURES

CLIENT: Montgomery Watson

CITY: Los Alamos PROJECT:

DATE TAKEN: 5-14-98 TAKEN BY: cnf

Cooler #1: _____ ° C / ON ICE

Cooler #2: _____ ° C / ON ICE

Cooler #3: _____ ° C / ON ICE

Cooler #4: _____ ° C / ON ICE

Increased emphasis has been put on sample preservation by the various regulators. Any sample being sent to NET must be properly preserved, this includes sending samples in a properly cooled shipping container. The majority of tests performed for regulatory compliance must be preserved at 4° C ± 2° C during storage and shipment as directed by 40 CFR Part 136. Results from samples which are not properly preserved at 4 °C ± 2 ° C may be rejected by regulators. Rejection or acceptance is solely at the discretion of the regulators.

NET NATIONAL ENVIRONMENTAL TESTING, INC.

CHAIN OF CUSTODY RECORD

COMPANY Montgomery Watson
ADDRESS 11107 Aurora Ave Des Moines
PHONE 515-253-0830 FAX 515-253-9592
PROJECT NAME/LOCATION IPW/Alliant - Mason City
PROJECT NUMBER 1247139.01090350
PROJECT MANAGER Randy Kroneman

REPORT TO R. Kroneman
INVOICE TO R. Kroneman
P.O NO
NET QUOTE NO

SAMPLED BY
Randy Kroneman (PRINT NAME)
Randy Kroneman (SIGNATURE)
Kevin Armstrong (PRINT NAME)
Kevin Armstrong (SIGNATURE)

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	Grab	Comp	# and Type of Containers			ANALYSES: BTEX (8260)	PAHs (8310)	total lead	COMMENTS
5/13	9:50	MW08-GW-008	H_2O	X		3	1	2	X	X	X	
5/13	10:15	MW17-GW-008	"	X		3	1	2	X	X	X	
5/13	11:10	MW25-GW-008	"	X		3	1	2	X	X	X	
5/13	-	MW08-GW-008-901	"			3			X			

5-13-98

CONDITION OF SAMPLE
BOTTLES INTACT? YES / NO
FIELD FILTERED? YES / NO
COC SEALS PRESENT AND INTACT? YES / NO
VOLATILES FREE OF HEADSPACE? YES / NO
TEMPERATURE UPON RECEIPT
Bottles supplied by NET? YES / NO

SAMPLE REMAINDER DISPOSAL
RETURN SAMPLE REMAINDER TO CLIENT VIA
I REQUEST NET TO DISPOSE OF ALL SAMPLE REMAINDERS

NOTE; THERE MAY BE A CHARGE FOR NET DISPOSAL OF SAMPLE REMAINDERS.

RELINQUISHED BY	DATE TIME	RECEIVED BY	RELINQUISHED BY	DATE TIME	RECEIVED FOR NET BY
Randy K	5/13 1:30			5/14/98 930	Melissa Saccani

METHOD OF SHIPMENT
FED EX

REMARKS:

Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Randy Kroneman
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

RECEIVED
SEP 25 1998
MW/IOWA

Sample Information

Work Order: 1809.0461
Date Received: 09/16/98 09:30 AM
Collector: Randy Kroneman
Collector Phone: 515-253-0830
Report Date: 09/24/98

Site Information

Alliant/IPW-Mason City
Mason City, IA

Comments

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1822458 NAS-1 : 9/15/98 8:55:00 AM : soil						
Solids, total	84.6	%	10.	EPA 160.3	LMG	09/18/98
Total Organic Carbon	49,300.	mg/kg	100.	EPA 9060	EPP	09/23/98
Moisture Content	15.4	%		EPA	LMG	09/18/98
Naphthalene Degrader Tube Count	8,120.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Benzene Degrader Tube Count	11,265.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Bio-Heterotrophic Tube Count	9,920.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Acridine Orange Direct Count	5.8E+11	CFU/g	1.	SM 9216 B	JHE	09/21/98
1822459 NAS-2 : 9/15/98 10:10:00 AM : soil						
Solids, total	89.	%	10.	EPA 160.3	LMG	09/18/98
Total Organic Carbon	58,400.	mg/kg	100.	EPA 9060	EPP	09/23/98
Moisture Content	11.	%		EPA	LMG	09/18/98
Naphthalene Degrader Tube Count	5,365.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Benzene Degrader Tube Count	5,770.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Bio-Heterotrophic Tube Count	3,370.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Acridine Orange Direct Count	1.4E+11	CFU/g	1.	SM 9216 B	JHE	09/21/98
1822460 NAS-3 : 9/15/98 11:40:00 AM : soil						
Solids, total	78.4	%	10.	EPA 160.3	LMG	09/18/98
Total Organic Carbon	17,100.	mg/kg	100.	EPA 9060	EPP	09/23/98
Moisture Content	21.6	%		EPA	LMG	09/18/98
Naphthalene Degrader Tube Count	12,470.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Benzene Degrader Tube Count	13,915.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Bio-Heterotrophic Tube Count	79,700.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Acridine Orange Direct Count	5.9E+11	CFU/g	1.	SM 9216 B	JHE	09/21/98
1822461 NAS-4 : 9/15/98 12:15:00 PM : soil						
Solids, total	77.2	%	10.	EPA 160.3	LMG	09/18/98
Total Organic Carbon	27,000.	mg/kg	100.	EPA 9060	EPP	09/23/98
Moisture Content	22.8	%		EPA	LMG	09/18/98
Naphthalene Degrader Tube Count	16,145.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Benzene Degrader Tube Count	10,390.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Bio-Heterotrophic Tube Count	66,750.	MPN/g	1.	SM 9221 B (M	JHE	09/17/98
Acridine Orange Direct Count	5.2E+10	CFU/g	1.	SM 9216 B	JHE	09/22/98

Jeffrey King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Keystone
LABORATORIES, INC.
600 East 17th Street South
Newton, IA 50208

Work Order: 1809.0461

Total Heterotrophs

Processing:

Serial dilutions of 10^{-1} through 10^{-6} were aseptically made for each sample in duplicate. For each dilution, five nutrient broth tubes were aseptically inoculated with 0.1 ml of the respective dilution. This produced a duplicate series of 10^{-3} through 10^{-7} in nutrient broth tubes. These were then incubated for one week at room temperature. Each tube was examined for a positive reaction, turbidity, and recorded. Using the number of positive tubes for each dilution that was set, the Most Probable Number of total heterotrophs was calculated.

Controls:

Positive and negative controls were set. All controls were acceptable.

Total Benzene Degrading Bacteria

Processing:

Serial dilutions of 10^{-1} through 10^{-6} were aseptically made for each sample in duplicate. For each dilution, five BIMB tubes, a media that contains no carbon source, were aseptically inoculated with 0.1 ml of the respective dilution. This produced a duplicate series of 10^{-3} through 10^{-7} in BIMB tubes. Each tube was then inoculated aseptically with benzene, the benzene was in solution in methanol. These were then incubated for one week at room temperature. Each tube was examined for a positive reaction, a color change from blue to pink or lavender, and recorded. Using the number of positive tubes for each dilution that was set, the Most Probable Number of total benzene degrading bacteria was calculated.

Controls:

Positive, negative, methanol negative and benzene negative controls were set. All controls were acceptable.

Total Napthalene Degrading Bacteria

Processing:

Serial dilutions of 10^{-1} through 10^{-6} were aseptically made for each sample in duplicate. For each dilution, five BIMB tubes, a media that contains no carbon source, were aseptically inoculated with 0.1 ml of the respective dilution. This produced a duplicate series of 10^{-3} through 10^{-7} in BIMB tubes. Each tube was then inoculated aseptically with napthalene, the napthalene was in solution in methanol. These were then incubated for one week at room temperature. Each tube was examined for a positive reaction, a color change from blue to pink or lavender, and recorded. Using the number of positive tubes for each dilution that was set, the Most Probable Number of total napthalene degrading bacteria was calculated.

Controls:

Positive, negative, methanol negative and napthalene negative controls were set. All controls were acceptable

Approved by

James Eggers
Lab Technician, Microbiology
Keystone Laboratories, Inc

Keystone
LABORATORIES, INC.
600 East 17th Street South
Newton, IA 50208

Work Order: 1809.0461

Acridine Orange Direct Count

Processing of Soils:

One ml of acridine orange stain solution was added to a dilution of soil sample and allowed to sit for one minute. This mixture was aseptically filtered through a 0.2 µm pore black polycarbonate filter. The filter was then rinsed with 3 ml of sterile phosphate buffer, air dried, and mounted on a slide. The filter was viewed at 1000x magnification using epifluorescence microscopy. Optimally 10 to 50 bacteria were counted per 100 squares. If counts were less than optimal, more than 100 squares were counted. If counts were more than optimal, 20 squares were counted. The number of bacteria per square was used to calculate the number of bacteria per ml.

Controls:

A blank and a duplicate were analyzed with each batch. The blanks were statisically zero and the duplicates were all within acceptable established laboratory limits.

Approved by

James Eggers
Lab Technician, Microbiology
Keystone Laboratories, Inc

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S.
Newton, IA 50208
Phone: 515-792-8451
Fax: 515-792-7989

☐ 3012 Ansborough Ave.
Waterloo, IA 50701
Phone: 319-235-4440
Fax: 319-235-2480

☐ 1515 Walnut St
Kansas City, MO 64108
Phone: 816-471-1515
Fax: 816-471-7915

PRINT OR TYPE INFORMATION BELOW
SAMPLER: Randy Kroneman
SITE NAME: Alliant/IPW - Mason City
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Randy Kroneman
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO: (Same as "Report to")
NAME
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:

Keystone Quote No.: 98N061 (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED: TOC	TOTAL SOLIDS	MOISTURE CONTENT	AEROBIC TOTAL HETEROTROPHIC BACTERIA	AEROBIC BENZENE DEGRADING BACTERIA	AEROBIC NAPHTHALENE DEGRADING BACTERIA	ACRIDINE ORANGE DIRECT COUNTS		LABORATORY SAMPLE NUMBER
NAS-1	9/15	8:55	-	3	soil	C	X	X	X	X	X	X	X		182258
NAS-2	9/15	10:10	-	3	"	C	X	X	X	X	X	X	X		22459
NAS-3	9/15	11:40	-	3	"	C	X	X	X	X	X	X	X		22460
NAS-4	9/15	12:15	-	3	"	C	X	X	X	X	X	X	X		22461

LAB USE ONLY
LABORATORY WORK ORDER NO.: 1809 04161
SAMPLE TEMPERATURE UPON RECEIPT: 10.9 °C
SAMPLE CONDITION/COMMENTS:

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time	Turn-Around:
Randy Kroneman	9-16-98 / 9:30			☐ Standard ☒ Rush — Contact Lab Prior to Submission
Relinquished by: (Signature)	Date / Time	Received for Lab by: (Signature)	Date 9-16-98 / Time 9:30	Remarks:

Original - Return with Report • Yellow - Lab Copy • Pink - Sampler Copy

Jo Ann Turner 1 CC

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-2R

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-14-98

Weather Conditions: 75°, cloudy.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 13.90 (~~Known~~, Meas.)

b. Depth to Water 6.10 Well Diameter 2-Inch I.D.

c. Length of Water Column 7.80

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 3.8 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
16:45	1.0 qt	22.69	7.65	1.52	Low	Grey	105	1.92
16:50	0.5 gal	21.80	8.23	0.804	Low	Grey	130	1.90
16:55	1.0 gal	21.62	8.28	0.795	Low	Grey	143	1.79
16:59	1.5 gal	21.37	8.28	0.798	Low	Grey	153	1.60
17:05	2.0 gal	21.27	8.27	0.808	Low	Grey	161	1.47
17:12	2.5 gal	21.18	8.27	0.813	Low	Grey	165	1.34
17:16	3.0 gal	21.11	8.27	0.818	Low	Grey	167	1.22
17:23	3.5 gal	21.53	8.27	0.830	Low	Grey	169	1.05

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW2R-GW-NAS Time Sampled: 17:30

4. COMMENTS: Field Test Results: Fe: No response Mn: 0.1 mg/L

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-4

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-15-98

Weather Conditions: 85°, sunny.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 14.40 (~~Known~~, Meas.)

b. Depth to Water 9.29 Well Diameter 2-Inch I.D.

c. Length of Water Column 5.11

2. WELL PURGING DATA:

a. Purge Method Waterra - Hand Pumped

b. Required Purge Volume (@ 3 Well Volumes) 2.5 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
15:45	0.25 gal	21.93	7.34	0.983	Mod. Cloudy	Lt. Grey	84	1.68
15:48	0.75 gal	20.21	7.39	0.900	Mod. Cloudy	Lt. Grey	99	5.59
15:55	Dry at 1.0 gal							

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW04-GW-NAS Time Sampled: 17:20

4. COMMENTS: Field Test Results: Fe: 0.6 mg/L Mn: 0.4 mg/L

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-6

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-14-98

Weather Conditions: 75°, cloudy, humid.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 20.33 (~~Known~~, Meas.)

b. Depth to Water 11.96 Well Diameter 2-Inch I.D.

c. Length of Water Column 8.37

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 4.1 gal

c. Field Testing Equipment Used Hydrolab H_20

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
13:44	1.0 qt	22.64	6.60	1.87	Moderate	Rust/Orange	223	3.35
13:49	0.5 gal	20.13	6.55	1.57	Low	Rust/Orange	187	3.13
13:55	1.0 gal	19.07	6.52	1.56	Low	Rust/Orange	195	2.89
14:00	1.5 gal	18.78	6.53	1.56	Low	Rust/Orange	203	2.80
14:06	2.0 gal	18.82	6.53	1.57	Low	Rust/Orange	212	2.61
14:13	2.5 gal	18.52	6.54	1.59	Low	Rust/Orange	222	2.34
14:18	3.0 gal	18.32	6.54	1.60	Low	Rust/Orange	228	2.18
14:22	3.5 gal	18.15	6.54	1.60	Low	Rust/Orange	233	2.04
14:26	4.0 gal	18.11	6.54	1.61	Low	Rust/Orange	237	1.94

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW06-GW-NAS Time Sampled: 14:30

4. COMMENTS: Field Test Results: Fe: 0.4 mg/L Mn: 0.2 mg/L

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-8

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-15-98

Weather Conditions: 80°, sunny

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 35.32 (~~Known~~, Meas.)

b. Depth to Water 12.35 Well Diameter 2-Inch I.D.

c. Length of Water Column 22.97

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 11.2 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
13:26	0.5 gal	18.86	8.54	0.403	Low	Clear	33	1.65
13:29	1.0 gal	17.85	8.66	0.402	Low	Clear	42	1.39
13:37	2.0 gal	17.93	7.70	0.519	Low	Clear	58	1.08
13:44	3.0 gal	17.65	7.30	0.589	Low	Clear	86	0.83
13:50	4.0 gal	17.56	7.20	0.609	Low	Clear	92	0.63
13:56	5.0 gal	17.30	7.13	0.631	Low	Clear	98	0.43
14:03	3.0 gal	17.43	7.12	0.635	Low	Clear	99	0.38
14:10	7.0 gal	17.61	7.09	0.631	Low	Clear	102	0.31
14:16	8.0 gal	17.77	7.06	0.611	Low	Clear	103	0.27
14:22	9.0 gal	19.16	7.05	0.604	Low	Clear	103	0.20
14:29	10.0 gal	20.25	7.05	0.589	Low	Clear	103	0.17
14:36	11.0 gal	25.29	7.05	0.535	Low	Clear	103	0.11

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW08-GW-NAS Time Sampled: 14:40

4. COMMENTS: Field Test Results: Fe: 0.8 mg/L Mn: 0.1 mg/L

Sampled at 14:40

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-14R

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-14-98

Weather Conditions: ~75°, cloudy.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 17.20 (~~Known~~, Meas.)

b. Depth to Water 8.59 Well Diameter 2-Inch I.D.

c. Length of Water Column 8.61

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 4.2 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
15:15	1.0 qt	22.08	7.12	0.781	High	Orange-Brown	122	0.73
15:23	0.5 gal	21.36	7.18	0.699	High	Orange-Brown	164	0.66
15:30	1.0 gal	21.75	7.19	0.710	High	Orange-Brown	186	0.59
15:38	1.5 gal	20.53	7.19	0.714	Moderate	Orange-Brown	198	0.46
15:43	2.0 gal	20.46	7.19	0.708	Moderate	Orange-Brown	203	0.38
15:47	2.5 gal	20.83	7.18	0.708	Moderate	Orange-Brown	210	0.34
15:53	3.0 gal	20.83	7.19	0.708	Moderate	Orange-Brown	220	0.32
15:56	3.5 gal	20.57	7.20	0.707	Low	Orange-Brown	222	0.29
16:01	4.0 gal	20.74	7.19	0.705	Low	Orange-Brown	226	0.27

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW14R-GW-NAS Time Sampled: 16:10

4. COMMENTS:

Field Test Results: Fe: No Response Mn: No Response

Randy Kroneman

Sampler (Signature) (Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-22

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-14-98

Weather Conditions: 70°, cloudy, light mist.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 54.40 (~~Known~~, Meas.)

b. Depth to Water 21.80 Well Diameter 2-Inch I.D.

c. Length of Water Column 32.6

2. WELL PURGING DATA:

a. Purge Method Waterra – Hand Pumped

b. Required Purge Volume (@ 3 Well Volumes) 16.0 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
12:12	1.0 qt	18.76	7.94	0.426	Moderate	Grey	25	0.39
12:18	1.0 gal	19.62	8.68	0.360	Moderate	Grey	-48	0.20
12:23	2.0 gal	19.00	8.64	0.350	Moderate	Grey	-47	0.15
12:28	3.0 gal	18.69	8.67	0.350	Moderate	Grey	-54	0.14
12:33	4.0 gal	18.71	8.68	0.346	Moderate	Grey	-57	0.12
12:38	5.0 gal	18.68	8.67	0.340	Moderate	Grey	-51	0.13
12:40	Dry at 5.25 gal							

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW22-GW-NAS Time Sampled: 15:20 on 09-15-98

4. COMMENTS: Field Test Results: Fe: 0.4 mg/L at end of purge Mn: No response at end of purge

0.6 mg/L at sampling No response at sampling

Sampler (Signature)

Randy Kroneman

(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-23R

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-15-98

Weather Conditions: 85°, sunny.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 16.95 (~~Known~~, Meas.)

b. Depth to Water 10.89 Well Diameter 2-Inch I.D.

c. Length of Water Column 6.06

2. WELL PURGING DATA:

a. Purge Method Waterra

b. Required Purge Volume (@ 3 Well Volumes) 3.0 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
17:48	1.0 qt	22.44	6.39	1.82	Moderate	Tan	144	0.99
17:50	0.5 gal	20.48	6.63	1.83	Moderate	Tan	124	0.72
17:52	1.0 gal	20.11	6.70	1.85	Moderate	Tan	122	1.03
17:55	1.5 gal	20.29	6.73	1.87	Moderate	Tan	122	0.97
18:00	2.0 gal	20.11	6.75	1.88	Low	Clear	124	0.86
18:05	2.5 gal	19.89	6.76	1.89	Low	Clear	125	0.78
18:08	3.0 gal	19.80	6.77	1.90	Low	Clear	125	0.72

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW23R-GW-NAS Time Sampled: 18:15

4. COMMENTS: Field Test Results: Fe: 4.2 mg/L Mn: 1.2 mg/L

Sampler (Signature)

Randy Kroneman
(Print Name)

MONTGOMERY WATSON

GROUNDWATER SAMPLE COLLECTION RECORD

Well No. MW-24R

Job No.: 1217139.01090350 **Client:** Alliant/Interstate Power Company

Location: Mason City FMGP Site **Date:** 09-15-98

Weather Conditions: 85°, sunny.

1. WATER LEVEL DATA: (from TOC)

a. Total Well Length 16.95 (~~Known~~, Meas.)

b. Depth to Water 12.64 Well Diameter 2-Inch I.D.

c. Length of Water Column 4.31

2. WELL PURGING DATA:

a. Purge Method Waterra – Hand Pumped

b. Required Purge Volume (@ 3 Well Volumes) 2.1 gal

c. Field Testing Equipment Used Hydrolab H_2O

Time	Volume Removed	Temp. (°C)	pH	Spec.Cond. (mΩ/cm)	Turbidity (Visual)	Color	Eh	DO
16:13	0.25 gal	17.23	6.75	2.30	Very Turbid	Black	101	0.25
16:15	0.5 gal	17.23	6.72	2.30	Very Turbid	Black	101	0.20
16:17	1.0 gal	17.38	6.71	2.30	Very Turbid	Black	99	0.20
16:20	1.25 gal	17.15	6.72	2.30	Very Turbid	Black	99	0.20
16:22	1.5 gal	17.13	6.72	2.30	Very Turbid	Dark Grey	98	0.21
16:24	1.75 gal	17.32	6.73	2.31	Very Turbid	Dark Grey	98	0.21
16:26	2.1 gal	16.76	6.73	2.31	Very Turbid	Dark Grey	98	0.22

3. SAMPLE COLLECTION: Method Waterra

Container Type:	2-240-ml amber glass	Preservation:	None	Analysis Req.:	Methane
Container Type:	100-ml poly	Preservation:	None	Analysis Req.:	Nitrate/Nitrite
Container Type:	250-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TOC
Container Type:	500-ml poly	Preservation:	None	Analysis Req.:	Alkalinity, Chloride, Sulfate, Orthophosphate
Container Type:	500-ml poly	Preservation:	H_2SO_4	Analysis Req.:	TKN, Ammonia
Container Type:	250-ml poly	Preservation:	NaOH ZnAc	Analysis Req.:	Sulfide

Sample ID #: MW24R-GW-NAS Time Sampled: 16:45

4. COMMENTS: Field Test Results: Fe: 4.0 mg/L Mn: 0.9 mg/L

Randy Kroneman

Sampler (Signature) (Print Name)

Keystone LABORATORIES, INC.

MEMBER ACIL

ANALYTICAL REPORT

Report To

Randy Kroneman
Montgomery-Watson
11107 Aurora Avenue

Des Moines, IA 50322

RECEIVED
SEP 25 1998
MW/IOWA

Sample Information

Work Order: 1809.0462
Date Received: 09/16/98 09:30 AM
Collector: Randy Kroneman
Collector Phone: 515-253-0830
Report Date: 09/22/98

Site Information

Alliant/IPW-Mason City
Mason City, IA

Comments

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
1822462 MW06-GW-NAS : 9/14/98 2:30:00 PM : water						
Methane	< 0.02	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	428.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	< 1.	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	< 0.1	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	1.5	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	169.	mg/L	100.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	0.7	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	661.	mg/L	100.	EPA 9056	CLM	09/17/98
1822463 MW14R-GW-NAS : 9/14/98 4:10:00 PM : water						
Methane	0.04	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	256.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	< 1.	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	< 0.1	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	2.9	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	33.9	mg/L	1.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	0.3	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	1.3	mg/L	0.1	EPA 9056	CLM	09/16/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	82.	mg/L	1.	EPA 9056	CLM	09/17/98
1822464 MW02R-GW-NAS : 9/14/98 5:30:00 PM : water						
Methane	0.58	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	161.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	1.35	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	< 0.1	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	5.6	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	93.	mg/L	50.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	359.	mg/L	50.	EPA 9056	CLM	09/17/98
1822465 MW08R-GW-NAS : 9/15/98 2:40:00 PM : water						
Methane	0.18	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	285.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	< 1.	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	0.14	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	0.8	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	33.7	mg/L	1.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	43.6	mg/L	1.	EPA 9056	CLM	09/17/98
1822466 MW22-GW-NAS : 9/15/98 3:20:00 PM : water						
Methane	< 0.02	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	426.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	< 1.	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	0.73	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	1.4	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	6.3	mg/L	1.	EPA 9056	CLM	09/17/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Sample No : Description : Date Collected : Matrix Analyte	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	30.8	mg/L	1.	EPA 9056	CLM	09/17/98
1822467 MW24R-GW-NAS : 9/15/98 4:45:00 PM : water						
Methane	0.04	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	331.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	2.02	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	LKM	09/18/98
Sulfide, total	1.56	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	5.8	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	159.	mg/L	100.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	1,140.	mg/L	100.	EPA 9056	CLM	09/17/98
1822468 MW04-GW-NAS : 9/15/98 5:20:00 PM : water						
Methane	0.05	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	351.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	1.29	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	0.13	mg/L	0.1	EPA 376.2	LKM	09/16/98
Total Organic Carbon	14.7	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	45.7	mg/L	1.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	105.	mg/L	1.	EPA 9056	CLM	09/17/98
1822469 MW23R-GW-NAS : 9/15/98 6:15:00 PM : water						
Methane	0.08	mg/L	0.02	ASTM D1945	JMS	09/17/98
Alkalinity, as CaCo3	236.	mg/L	10.	SM 2320 B	LAR	09/16/98
Nitrogen, Ammonia	< 1.	mg/L	1.	SM 4500-NH3	MMM	09/22/98
Nitrogen, Total Kjeldahl	< 10.	mg/L	10.	EPA 351.3	MMM	09/16/98
Sulfide, total	< 0.1	mg/L	0.1	EPA 376.2	LKM	09/16/98

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

Work Order: 1809.0462
Report Date: 9/22/98

Sample No. : Description : Date Collected : Matrix Analytes	Analysis Result		Detection Limit	Method	Analyst	Date Analyzed
Total Organic Carbon	3.6	mg/L	0.1	EPA 9060	EPP	09/16/98
Chloride	110.	mg/L	100.	EPA 9056	CLM	09/17/98
Nitrogen, Nitrite	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Nitrate	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Phosphate, ortho	< 0.1	mg/L	0.1	EPA 9056	CLM	09/16/98
Sulfate	1,050.	mg/L	100.	EPA 9056	CLM	09/17/98

Jeff King
Keystone Laboratories, Inc.

< = less than; ug/L = ppb; mg/L = ppm; mg/kg = ppm

CHAIN OF CUSTODY RECORD

Keystone LABORATORIES, INC.

☒ 600 E. 17th St. S., Newton, IA 50208, Phone: 515-792-8451, Fax: 515-792-7989
☐ 3012 Ansborough Ave., Waterloo, IA 50701, Phone: 319-235-4440, Fax: 319-235-2480
☐ 1515 Walnut St., Kansas City, MO 64108, Phone: 816-471-1515, Fax: 816-471-7915

PRINT OR TYPE INFORMATION BELOW
SAMPLER: Randy Kroneman
SITE NAME: Alliant/IPW - Mason City
ADDRESS:
CITY/ST/ZIP:
PHONE:

REPORT TO:
NAME: Randy Kroneman
COMPANY NAME: Montgomery Watson
ADDRESS: 11107 Aurora Ave
CITY/ST/ZIP: Des Moines IA 50322
PHONE: 515-253-0830
FAX: 515-253-9592

BILL TO: (Same as "Report To")
NAME:
COMPANY NAME:
ADDRESS:
CITY/ST/ZIP:
PHONE:
Keystone Quote No.: 98N061 (If Applicable)

LAB USE ONLY
LABORATORY WORK ORDER NO.: 1809.0462
SAMPLE TEMPERATURE UPON RECEIPT: 10.6 °C
SAMPLE CONDITION/COMMENTS:

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	METHANE	NITRATE-NITRITE	TOC	ALKALINITY, SULFATE, CHLORIDE, ORTHOPHOS	TKN AMMONIA	SULFIDE			LABORATORY SAMPLE NUMBER
MW06-GW-NAS	9/14	14:30	–	7	H_2O	G	x	x	x	x	x	x			1822462
MW14R-GW-NAS	9/14	16:10	–	7	"	"	x	x	x	x	x	x			22463
MW02R-GW-NAS	9/14	17:30	–	7	"	"	x	x	x	x	x	x			22464
MW08-GW-NAS	9/15	14:40	–	7	"	"	x	x	x	x	x	x			22465
MW22-GW-NAS	9/15	15:20	–	7	"	"	x	x	x	x	x	x			22466
MW24R-GW-NAS	9/15	16:45	–	7	"	"	x	x	x	x	x	x			22467
MW04-GW-NAS	9/15	17:20	–	7	"	"	x	x	x	x	x	x			22468
MW23R-GW-NAS	9/15	18:15	–	7	"	"	x	x	x	x	x	x			22469

Relinquished by: (Signature) Randy [signature] — Date 9-16-98 — Time 9:30
Received by: (Signature) — Date — Time
Relinquished by: (Signature) — Date — Time
Received for Lab by: (Signature) [signature] — Date 9-16-98 — Time 9:30

Turn-Around: ☐ Standard ☒ Rush — Contact Lab Prior to Submission

Remarks:

Original Return [illegible] Report [illegible] Lab [illegible] Sa[illegible] Copy [illegible]