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RCRA GROUNDWATER MONITORING REPORT; VOLUME 4 - ROUND 4 SAM;LING MAY 1987

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Feed Material Production Center

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RCRA GROUNDWATER MONITORING REPORT

Volume 4 - Round 4 Sampling

MAY 1987

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1.0 Introduction

As part of a continuing RCRA ground water monitoring compliance effort, the Fourth Round of quarterly ground water samples was collected from 41 monitoring and water supply wells at the Feed Materials Production Center (FMPC) in Fernald Ohio (Figure 1-1) on November 18 and 19, 1986. The FMPC is a uranium metal processing facility operated for the Department of Energy (DOE) by the Westinghouse Materials Company of Ohio (WMCO). The results of the Round 4 sampling are summarized in this report.

The First Round of quarterly ground water sampling was previously conducted in a series of three phases as described below:

- Phase 1 of Round 1 was performed on August 1, 1985. Four wells screened in the saturated portion of the glacial till were sampled as part of this work. Results of analytical testing were presented and interpreted in a Dames & Moore report dated December 19, 1985 (Reference 1).

- Phase 2 of Round 1 was completed three weeks later on August 27, 1985. Seven wells completed in the sand and gravel aquifer were sampled during this phase. Results were provided in a Dames & Moore report dated December 20, 1985 (Reference 2).

- Phase 3 of Round 1 took place in early January, 1986 and involved the sampling of 32 on-site and off-site monitoring wells. Results from this effort were presented and discussed in a Dames & Moore report dated May 6, 1986 (Reference 3).

Analytical results from all phases of Round 1 sampling are included in Appendix 4 of this report. Even though changes in water quality occur over time, a comparison between the results for the three phases of Round 1 and other Rounds can be made to estimate relative changes in overall ground water quality.

Round 2 RCRA sampling was completed in May, 1986. Results of Round 2 sampling are presented and discussed in a Dames & Moore report dated September, 1986 (Reference 4). Analytical results from Round 2 sampling also are included in Appendix 4 of this report.

Results of Round 3 sampling are presented and discussed in a Dames & Moore report dated August 1986 (Reference 5). Analytical results from Round 3 are included in Appendix 4 of this report.

Round 4 RCRA sampling was completed in November, 1986 and is the subject of this report. This is in conformance with USEPA Interim Status detection monitoring requirements (40 CFR Part 265).

2.0 Ground Water Monitoring

The ground water monitoring performed as part of this project was initiated to characterize ground water quality at the FMPC and to assist in identifying RCRA regulated hazardous and radionuclide constituents which may be present in the ground-water. A previous study by Dames & Moore (Reference 6) has indicated that uranium is present in portions of the sand and gravel aquifer at levels above background.

To assist in identifying if RCRA regulated constituents have entered the ground water, a total of forty-one (41) on and off-site wells were selected for sampling. The location of each well is shown on Figure 2-1. The wells monitor two distinct water bearing units; a shallow clayey till layer and an underlying sand and gravel aquifer. The shallow till system is monitored by wells MW-12, MW-19TP, MW-20TP, MW-21TP, MW-22TP and OS-1A. The remaining 35 wells all are completed in the sand and gravel aquifer. The sand and gravel aquifer wells are completed at various depths in order to provide information on the potential vertical movement of identified above background constituents.

2.1 Selection of Background Wells

Characterization of background water quality at RCRA related facilities usually is performed by sampling a well hydraulically upgradient of the waste disposal area. The well is typically completed in the same hydrogeologic unit as the downgradient wells. At the FMPC this procedure was followed in selecting a background well for monitoring the glacial till but not for the sand and gravel aquifer. This was because of the geology of the site.

In order to discuss the rationale for the selection of the background wells, a basic understanding of the regional geology is

required. A more detailed description of site geology may be found in Reference 6.

The sand and gravel aquifer beneath the FMPC is part of the New Haven Trough. This Trough is an east-west trending subsurface feature which has been filled with alluvially deposited sands and gravels which are covered with till. The northern boundary of the feature corresponds roughly with the northern boundary of the FMPC. North of the Trough, till is deposited directly on bedrock.

Well MW-12, used as a background well for monitoring the till, is screened in the glacial till and weathered bedrock. It is located hydraulically upgradient from the four other shallow wells and is about 500 feet north of the Plant Production Area. The water level elevations in this upgradient well are more than 20 feet higher than the on-site shallow (till) wells. Being upgradient should hydrologically isolate this well from on-site sources of waste.

The background well for the sand and gravel aquifer at the FMPC should have been placed upgradient (north) of the waste disposal area. However, the sand and gravel aquifer north of the FMPC abruptly grades into a thick sequence of glacial till overlying shale bedrock. The chemistry of ground water in this till may be quite different than that of ground water in the sand and gravel. Ground water in clays tends to have different natural concentrations of many constituents than water in sand and gravel. If a well completed in the clay was used as the background well for the sand and gravel aquifer, non-representative background concentrations may have been identified for some of the constituents being analyzed.

Since an upgradient well screened in the till might not be representative of background water quality, a nearby water supply well was selected to characterize background ground water quality. The Southwestern Ohio Water Company operates a well which is completed in

the sands and gravels of the New Haven Trough, approximately one mile east of the site. Although the well (SW-2) is believed to be in an adjacent ground water flow regime, the water from SW-2 will be more representative of the natural ground water conditions beneath the FMPC than a geographically closer well completed in the till. Hence, well SW-2 was selected for use as a background well for monitoring of the sand and gravel aquifer.

Samples of the ground water were taken on November 18 and 19, 1986 using the sampling procedures outlined in the "RCRA Sampling and Analysis Plan" (Appendix 1). The samples were then sent to Howard Labs Inc. in Dayton, Ohio for analysis according to USEPA approved protocols and procedures (Reference 7). Tests were performed for 95 specific parameters including numerous ions, metals, organic compounds and radionuclides. A list of the parameters that were analyzed is included in Appendix 1 (Table 4) (Section 5.0). Selected samples also were sent to TMA/Norcal labs in Richmond, CA for radionuclide analysis as a check on the Howard Lab Analysis. Additionally, WMCO analyzed all groundwater samples for natural uranium. The compounds that were detected in the sampled wells are included in Tables 3.1.-3.5. A copy of the Laboratory Data Sheets is provided in Appendix 2. For ease of reading, the volatile organic compounds not detected have not been included in Tables 3.1.-3.4. Appendix 3 contains a copy of the Chain of Custody form for the Round 4 samples.

Statistical comparison of the results (Student t-test) will be performed upon receipt of the 5th Round of analytical results. In anticipation of the statistical comparison, mean and variances of selected upgradient and downgradient wells have been calculated. Results are provided in Table 2-2.

Water level elevations were measured at most well locations. At some well locations the depth to water could not be measured due to

the well's construction. Measurements from Round 4 sampling (Table 2.1) are included in this report and a ground water contour map for the sand and gravel aquifer is shown on Figure 2-2.

3.0 Water Quality

The ground water quality data developed from this fourth round of RCRA sampling has been divided into the following categories.

- o Water quality data from the shallow (glacial till) ground water system.
- o Water quality data from wells completed in the sand and gravel aquifer inside the Plant Production Area.
- o Water quality data from the Plant Production wells.
- o Water quality data from wells completed in the sand and gravel aquifer outside the Plant Production Area.

These categories have been used as an aid in evaluating the large number (over 3,000 values) of laboratory analytical results. The categories are consistent with the ground water flow systems present at the FMPC and, where appropriate, comparisons between categories have been made.

3.1 Shallow (Glacial Till) Ground Water Quality

Six wells are completed in the glacial till water bearing zone at the FMPC and have been sampled as part of Round 4 work. These are MW-12, MW-19TP, MW-20TP, MW-21TP, MW-22TP and OS-1A. Analytical data from these wells are presented in Table 3.1. These data indicate that:

- o No pesticides/herbicides were detected in the Glacial Till water-bearing zone. Low concentrations (between 0.5 ppb and 8.2 ppb) of three VOC's (1,1 Dichloroethane, Trichloroethene

and Tetrachloroethene) were detected in well MW-19TP*. This is the third time low concentrations of VOC's have been detected in well MW-19TP. This may be an indication that MW-19TP is receiving ground water containing low concentrations of VOC's from Pit 4. These wells will continue to be monitored for these constituents.

- Elevated concentrations of uranium (up to 4.95 mg/l) have been detected in ground water from wells MW-19TP, MW-21TP and MW-22TP. These results are consistent with data gathered during previous sampling rounds. The presence of uranium is an indication that Pit 4 may be influencing the shallow ground water.

- Elevated coliform and nitrate levels were reported from well OS-1A. Given the location of this well (near a dog house and cow pasture) and the near-surface nature of this water-bearing zone, a high coliform/nitrate level is not unusual. High coliform and nitrate levels have consistently been detected in this well which is hydrologically isolated from shallow ground water underlying the FMPC.

- Elevated coliform levels also are reported in wells MW-20 TP and MW-21 TP. This is the first time such levels have been reported and the significance of these results cannot be evaluated at this time. Monitoring will continue at these wells.

- Iron, manganese and TDS concentrations were elevated in almost all the glacial till wells including the background well and off-site well. These concentrations probably are indicative of regional variations in water quality for this water-bearing zone and are not related to FMPC waste management activities. Similar values have been reported from these same wells in the prior three rounds of sampling.

- o Elevated COD/TOX concentrations were detected in wells MW-19TP, and MW-22TP. These probably relate to the VOC's which had been detected in these same wells.

- o Chloride and sulfate concentrations have been reported as elevated from wells MW-19TP, MW-21TP and MW-22TP. As with radionuclides, the presence of these constituents is an indication that Pit 4 may be influencing the shallow ground water.

- o The total chromium concentration from well MW-20TP which exceeded drinking water standards in Round 3, has returned to a level almost at the laboratory's detection limit. Monitoring of this well for this constituent will continue.

- o The concentrations of other metals (lead, barium, etc.) and water quality indicators (pH, conductivity, etc.) were below or within drinking water standards.

3.2 Sand and Gravel Water Quality - Inside of Plant Production Area

Within the Plant Production Area, the sand and gravel aquifer is monitored at varying depths by 14 wells. The majority of these wells are installed within the vicinity of the Waste Pit Storage Area. Analytical results of ground water samples from these wells are presented in Table 3.2. These data indicate that:

- o A low concentration (11.9 ppb) of one type of VOC's (Tetrachloroethene) was detected in one well (MW-21s).* However, one well (MW-19d) reported 15 VOC's with values ranging from 14.6 ppb to 58.1 ppb even though the TOC and TOX values were

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* Acetone and 2-Propanol detected in MW-13d and MW-19d are discussed in Section 3.5.

less than the respective detection level. This is the first time that these types of constituents have been detected in this well; therefore, the significance of these results cannot be determined at this time. Monitoring of this well for these compounds will continue. It should be noted that several wells (MW-1S, MW-3, MW-4 and MW-5) were not accessible to bailers and were not sampled for VOC's. VOC analyses would not be representative if pumped (i.e., aerated) water was used in the analysis.

- No pesticide/herbicides were detected in any of the wells. Low levels of the pesticide/herbicide 2,4-D and 2,4,5-TP silvex were found in well MW-18s during Round 2. These constituents were not detected in this well in Round 3 or Round 4 sample analysis.

- Radionuclides were detected in four of the fourteen tested wells. These wells were located around Pit 4 within the Waste Pit Storage Area. Gross beta activity exceeded standards in wells MW-19S, MW-21S and MW-22S. Elevated technetium 99 activity was present in wells MW-19S and MW-21S. As previously discussed, these are indications that Pit 4 may be influencing the sand and gravel aquifer. However, the final characterization of migration pathways and source identification based on these indications will be included as part of the ongoing RI/FS program at the FMPC.

- Coliform was detected at elevated levels in wells MW-1s, MW-1d, MW-3, MW-4, MW-10, and MW-21s. All of these wells are open to the atmosphere and coliform may be present as a result of bacteria growth in the well casing and/or associated pumps and piping. A well rehabilitation program is planned to install new well caps and disinfect these wells.

- Manganese and phenol concentrations exceeded recommended standards in eleven wells and one well respectively. Manganese also was reported as exceeding standards in the upgradient well (SW-2). The number of wells reporting elevated phenol concentrations has decreased (from 3 to 1) since the last round of sampling.

- Sulfate, nitrates and TDS exceeded standards in wells 10, and 19d; 10, 19s, 21s and 22s; and 10, 13s, 13d, 19s, 19d, 21s and 22s, respectively. These values are consistent with Rounds 2 and 3 sampling results. For those wells located near Pit 4 (19s, 19d, 21s and 22s) these are additional indications that Pit 4 is influencing the ground water. There are two explanations for the elevated levels of these constituents in well clusters 10 and 13. WMCO personnel have observed surface water flowing under the surface cement seal of MW-10's well casing. This surface water was sampled by WMCO and elevated levels of nitrates, sulfates and uranium were detected. The water originates as storm water runoff from the northwest portions of the Plant Production Area and may be migrating down the annular space of the well. The proposed well rehabilitation program will correct this condition. Another possible explanation for the presence of these elevated values in these wells is that well 10 and well cluster 13 are located to the east and are hydrologically downgradient of the Waste Pit Storage Area (Figure 2-2). Elevated levels of these constituents are possible preliminary indications of a wider dispersion of leachate from the Waste Pit Storage Area and may be attributed to various other waste management activities of past FMPC operations. This will be evaluated further as part of the ongoing RI/FS program.

- Iron exceeded drinking water standards in twelve wells. This parameter also was reported as elevated in one off-site well (OS-3) and in one upgradient well (MW-12). This is an indication that iron concentrations may be related to regional water quality conditions within the aquifer.

- Other metals and water quality indicators analyzed in ground water from wells within the Plant Production Area were below or within USEPA Primary and Secondary Drinking Water Standards.

3.3 Plant Production Wells

Three wells provide the FMPC with necessary potable and production water. These wells (P-1, P-2 and P-3) are screened in the deeper portion of the sand and gravel aquifer and are discussed separately because of their specialized use and importance to the FMPC. Results of laboratory analysis are show in Table 3.3. One supply well (P-3) was not accessible at the time of sampling because of pump repair work.

- No VOC's or pesticides/herbicides were detected in these wells.

- No radionuclides exceeded drinking water standards in ground water from these wells.

- Iron and manganese were above drinking water standards in both P-1 and P-2. These parameters also exceeded standards in both background wells (MW-12 and SW-2) and are probably indicative of variations in regional ground water quality.

- TDS from P-1 exceeded standards and TOX also reported an elevated concentration. This is the second time this has occurred and the significance of these values cannot be determined at this time. The TOX concentration is particularly inconsistent because no VOC's, pesticides/herbicides, or TOC have been detected in this well. This well will continue to be monitored for these parameters. It should be noted that water from this well is treated and filtered prior to being used as a water supply source at the FMPC. These levels have not been reported as present by WMCO personnel in their analysis of the treated water.

- Metals and other water quality indicators were below or within USEPA standards.

3.4 Sand and Gravel Aquifer Water Quality - Outside of Plant Production Area

Water quality within the sand and gravel outside the Plant Production Area is monitored at varying depths by 14 monitoring wells and 4 water supply wells. Sampling data from these wells is provided in Table 3.4 and shows that:

- Traces (<10 ppb) of three types of VOC's (1,1,1 Trichloroethane, Trichloroethylene and 1,1 Dichloroethene) were detected in three wells (14D, 15S and OS-1).* 1,1,1 Trichloroethane was detected in the last three rounds of sampling for well 15s and in the last two rounds of sampling for well OS-1. Tetrachloroethylene, trichloroethylene and 1,1 dichloroethene have been detected only once in two of the wells

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* The presence of propanol and related compounds detected in wells MW-9, MW-14d, Mw-15s, MW-17s, and MW-17d are discussed in Section 3.5.

(14d and 15s), but not successively in a particular well. It is difficult to interpret the significance of these findings, especially when such low concentrations are reported. However, the apparently consistent presence of these constituents in these three wells (even at the reported trace concentrations) may be an indication of a change in water quality. These wells will continue to be monitored in future sampling rounds.

- No pesticides/herbicides were detected in any of the wells outside the Plant Production Area.

- Elevated levels of coliform were detected in seven wells (MW-9, MW-14s, MW-15s, MW-16s, MW-18s, MW-20d, and OS-1. Two of these wells (OS-1 and MW-9) are open to the atmosphere and bacteria may be present as a result. Four wells (MW-14s, MW-15s, MW-18s, and MW-20d) had not previously reported elevated coliform levels. Well MW-16s showed elevated coliform values for the second time. It should be noted that wells 14s, 16s, 18s, and 20d all have highly elevated iron concentrations. Coliform concentrations present in these wells may be indicative of the presence of iron bacteria on the well casing and/or related pumps and piping. Additional sampling of these wells will take place (in RCRA Round 5) to further evaluate these results.

- Activities above drinking waste standards of gross alpha and gross beta were reported from wells MW-15s, MW-18d, OS-1 and OS-2 and MW-14s, MW-15s, OS-1 and OS-2 respectively. This is the first time such elevated activities were reported for wells MW-14s and MW-18d. This activity may be related to suspended matter in the sample (see Note 8, Table 3.5) as no individual radionuclides were detected in the gamma scan. This is the third time elevated activities have been reported in well MW-15s. This well is in the flow path for ground water known to contain (as a result of a previous Dames & Moore study (Reference 5) above-background levels of uranium.

- TDS exceeded the standard in three wells (MW-11, MW-14d and MW-17s). This is the third time TDS exceeded the standard in well 17S and the first time in wells 11 and 14d. Additional monitoring is required before meaningful conclusions can be developed about these levels.

- Manganese, phenols and iron concentrations exceeded DWS in eleven wells, two wells and nine wells, respectively. Manganese also was reported as elevated in the background well (SW-2) indicating regional variations in water quality may have influenced that result. Phenol and iron concentrations were reported as elevated in several wells inside the Plant Production Area. Additional monitoring is required to characterize the significance of these values, but it is suspected that these variations may be due to local differences in water quality within the aquifer.

- The total chromium concentration from well MW-14s exceeded the drinking water standard. This was the first time that this constituent has exceeded the standard and the significance of this value cannot be determined at this time. Monitoring of this well for the constituent will continue.

- Other metals and water quality indicators were within or below drinking water standards for the remaining wells.

3.5 Other Organic Constituents

Concentrations of acetone, 2-propanol, and bromoform have been detected in ten ground water samples and one cleaning blank sample from the FMPC. Table 3.6 lists the concentration of each detected constituent on a per well basis.

Acetone (also called 2-propanone) and bromoform are common laboratory reagents and are present in many alcohol based compounds (Reference 7). Acetone was detected in six of the eleven samples at concentrations ranging from 12 mg/l to 17,700 mg/l. Bromoform was detected in only four of the eleven samples at concentrations between 1.3 mg/l and 34.1 mg/l. 2-propanol is the main ingredient in isopropyl (rubbing) alcohol which was used in the cleaning of sampling equipment. It was detected in six of the eleven samples at concentrations of between 578.0 mg/l to 45,000 mg/l.

These compounds are present in these samples not because FMPC waste management operations have affected the ground water but rather as a result of field sampling and laboratory analytical procedures. Data supporting this conclusion are provided below.

There is no pattern to the occurrence of these constituents in these samples. They are present in wells inside the Plant Production Area (both in the glacial till water-bearing zone and the sand and gravel aquifer), outside the Plant Production Area and off the FMPC site. If related to FMPC waste disposal operations, they would occur in a way related either to ground or surface water flow patterns.

This is the second time these constituents have been detected in four rounds of RCRA ground water sampling. Yet there have been no major changes in waste management practices at WMCO nor have there been releases to the environment which could account for the presence of these constituents in the ground water.

These constituents are present in materials used in the cleaning of sampling equipment, specifically the bailers. As described in the RCRA Sampling and Analysis Plan (Appendix 1), each bailer is cleaned with a non-phosphate detergent and triple rinsed with distilled water. A cleaning blank (CB-1) then is composited from the last distilled water rinse. Bromoform was detected in CB-1 indicating that this

compound was either present in the distilled water, the sampling bottles or was inadvertently introduced during laboratory analysis.

After triple rinsing with distilled water, each bailer is rinsed with isopropyl alcohol (2-propanol). This is done to disinfect the bailer and insure representative coliform values. It is apparent from the very high 2-propanol values detected in some of these samples that residual amounts of this compound were present on the bailers during sampling. Cleaning procedures have been modified to prevent this from happening in future sampling activities. Similar compounds were detected in some Round 3 samples, but Round 3 laboratory results were not available before Round 4 sampling took place.

In reviewing these analytical data, there are three important findings which have been developed:

(1) These values are the results of sampling and/or laboratory analytical error. They are not indicative of widespread ground water degradation.

(2) The presence of these constituents will not influence the detection of other comparisons (Reference 8). As can be seen in Tables 3.1 - 3.4, trace concentrations of other types of VOC's have been detected in these same samples.

(3) Equipment cleaning and laboratory analytical procedures will be modified to prevent this from happening in future sampling rounds.

3.6 Results of Split Sampling and QA/QC Analysis

As part of WMCO's ongoing QA/QC program, split samples from selected wells were analyzed for radionuclides by both TMA/Norcal Laboratories of Richmond, CA and WMCO's in-house laboratory. The

results of these analysis are presented in Table 3.5. Additionally, known, spiked QA/QC samples (shipped with the ground water samples) were tested by Howard Lab as a check on the accuracy of chemical analysis and procedures. The results of these analyses are shown on Table 3.7.

Radionuclide Analysis

In comparing WMCO uranium analyses with those of TMA/Norcal, it can be seen from Table 3.5 that, in general, there is close agreement between the two labs. Only in three wells (1s, 1d, 22s) was there an order of magnitude difference in reported uranium values. Interpretations and evaluations made within the text of the Round 4 Report have utilized the most conservative values reported.

There is much less agreement between uranium values reported by Howard Labs and those of TMA/Norcal, WMCO. Only in two wells are the Howard Lab values consistent with those reported by TMA/Norcal, WMCO, the other remaining values differ by as much as 1 to 3 orders of magnitude.

Results of rad scan analysis performed by Howard Lab to those of TMA/Norcal are consistently different. They can not be compared due to differences in detection levels.

Chemical Analysis

Spiked water samples (containing known concentrations of various constituents) were sent to Howard Labs for testing as a check on chemical analysis procedures. Table 3.7 presents the results of the QA/QC chemical analysis of these samples.

Reported Values (as analyzed by Howard Labs) agree very closely with Actual Values (contained in the spiked samples). The average

difference in metals (QC #1 and QC #2) analysis was 0.0026 mg/l and 0.014 mg/l respectively. The average difference for mineral (QC#3) analysis was slightly larger at 0.62 mg/l. The average difference in indicators (QC #4) and purgeables (QC #5) was 1.0 mg/l and 7.38 ug/l, respectively. Reported QA/QC results were within the acceptable range for the actual values, as reported in the USEPA Environmental Monitoring and Support, Laboratory Water Pollution Quality Control Check Samples.

4.0 Conclusions

This report has presented the analytical results of Round 4 RCRA ground water sampling at the FMPC. From these results, the following conclusions can be made:

(1) Ground water quality has essentially remained the same since Rounds 2 and 3 RCRA sampling which took place in May, 1986 and September, 1986. Although statistical calculations necessary to confirm this won't be completed until Round 5 RCRA sampling results are available, empirical examination of the data indicate no significant changes in water quality.

(2) Conclusions presented in the Round 2 and Round 3 RCRA Sampling Report (References 4 and 5) are still valid. That is:

- o Widespread VOC, pesticide/herbicide and heavy metal contamination is not present in the ground water at the FMPC. Although isolated occurrences of low concentration compounds have been detected, they are not indicative of widespread ground water degradation.

- o The distribution of radiological and nonradiological constituents appears to be localized around Pit 4 but may be moving outward. The RI/FS currently in progress will help decide as to the most effective way to remediate this situation.

- o The Plant Production wells and off-site monitoring/supply wells have not been influenced by leaching from Pit 4. Reference 4 and 5 provides information on the occurrence

of above-background concentrations of uranium in three off-site wells. Sources for the above-background concentrations also are identified.

(3) Ground water sampling must be continued on a regular basis to support the above findings. Round 5 RCRA sampling is scheduled for May, 1987.

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LIST OF ABBREVIATIONS AND ACRONYMS

CFR	Code of Federal Regulations
D&M	Dames & Moore
DOE	U.S. Department of Energy
DWS	Drinking Water Standards
EPA	Environmental Protection Agency
FMPC	Feed Materials Production Center
MSL	Mean Sea Level
MW	Monitoring Well
NLO	National Lead of Ohio
OS	Off-site
pCi/l	Picocurie per liter
PDWS	Primary Drinking Water Standards
ppb	Parts per billion
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
SDWS	Secondary Drinking Water Standards
SW-2	Southwest Ohio - Collector Well No. 2
TDS	Total Dissolved Solids
TOC	Total Organic Carbon
TOX	Total Organic Halogens
TP	Test Pit
VOC	Volatile Organic Compounds
WMCO	Westinghouse Materials Company of Ohio

Table 2.1
Round 4 Water Level Elevation

Well #	Depth to Water(ft)	Casing Elev. (MSL)	Grade (MSL)	Water Table Elev. (MSL)
P-1	N A	578.66	576.66	N A
P-2	N A	579.16	577.16	N A
P-3	N A	579.36	577.36	N A
1S	60.00	585.55	583.47	525.55
1d	63.66	585.31	583.81	521.65
3	38.00	560.86	559.30	522.86
4	33.45	556.85	556.15	523.40
5	35.00	557.09	555.53	522.09
8s	54.71	576.60	574.90	520.19
8d	56.75	576.62	574.82	519.87
9	33.93	557.23	555.31	523.30
10	67.72	588.39	586.56	520.67
11	63.15	585.78	583.64	522.63
12	34.17	639.67	637.48	605.50
13s	70.96	590.37	588.71	519.41
13d	70.94	590.36	588.72	519.42
14s	14.97	535.79	533.76	520.87
14d	14.81	535.81	533.71	521.00
15s	59.64	579.65	577.80	520.01
15d	61.64	579.41	577.80	517.77
16s	20.70	542.28	540.47	521.58
16d	20.59	542.13	540.50	521.54
17s	15.17	536.19	534.43	520.92
17d	15.43	536.35	534.28	520.92
18s	51.00	573.36	571.31	522.36
18d	51.14	573.88	571.56	522.74
19s	63.40	585.38	583.26	521.98
19d	63.23	585.25	583.20	522.02
TP-19	8.62	584.96	582.98	576.34
20s	54.14	574.44	573.42	520.30
20d	55.50	574.71	573.31	519.20
TP-20	5.10	574.73	573.21	569.63
21s	63.90	586.02	594.42	522.12
TP-21	4.13	585.61	584.06	581.48
22s	68.17	587.95	587.93	519.78
TP-22	7.35	588.91	587.93	581.56
SW-2	32.67	N A	N A	N A
OS-1	61.64	581.83	581.35	520.19
OS-2	N A	N A	N A	N A
OS-3	N A	N A	N A	N A
OS-1A	14.23	581.83	581.83	567.60
*IT-1	59.79	579.93	577.93	520.14
*IT-2	76.33	595.58	593.22	519.25
*IT-5A	74.64	594.22	592.17	519.58
*IT-6	55.77	576.02	574.07	520.25

*Not Sampled
NA - Not Available
MSL - Mean Sea Level

Table 2.2

Mean and Variance

MW-12
(Background Well for Glacial Till Water-Bearing Zone)

	Mean	Variance
pH	7.68	.013
SC	1,001.5	5,072.75
TOC	1	0
TOX	1,672.3	10,957,057

Round 1 Phase 1

pH	7.42	7.47	7.49	7.52
SC	880	880	880	880
TOC	<1	<1	<1	<1
TOX	<10	<10	<10	<10

Round 1 Phase 3

pH	7.79	7.79	7.79	7.79
SC	990	1,000	1,000	1,000
TOC	<1	<1	<1	<1
TOX	65.0	63.0	64.0	64.0

Round 2

pH	7.74	7.75	7.75	7.75
SC	1,000	1,000	1,000	1,000
TOC	<1	<1	<1	<1
TOX	<10	<10	<10	<10

Round 3

pH	7.72	7.74	7.75	7.75
SC	1,100	1,100	1,100	1,100
TOC	1	1	1	1
TOX	9,220	7,560	8,470	7,820

Round 4

pH	7.65	7.65	7.66	7.66
SC	1,020	1,030	1,040	1,030
TOC	<1	<1	<1	<1
TOX	<10	<10	<10	<10

Table 2.2

Mean and Variance

MW-19 TP

	Mean	Variance
pH	6.66	.015
SC	2,812.5	422,968.8
TOC	4.38	.48
TOX	139.8	1,808.6

	Round 1 Phase 1				Round 2			
pH	6.49	6.49	6.52	6.52	6.73	6.72	6.72	6.72
SC	2,350	2,350	2,350	2,350	2,000	2,000	2,000	2,000
TOC	4	4	4	4	4	4	4	4
TOX	77	79	82	83				

	Round 3				Round 4			
pH	6.58	6.58	6.58	6.57	6.81	6.82	6.81	6.82
SC	3,400	3,400	3,400	3,400	3,500	3,500	3,500	3,500
TOC	5	6	6	5	4	4	4	4
TOX	178	176	180	169	163	165	165	161

Table 2.2

Mean and Variance

MW-21 TP

	Mean	Variance
pH	7.20	.020
SC	971.6	1,849.1
TOC	3	.5
TOX	10.33	.72

	Round 1 Phase 1				Round 2			
pH	6.98	7	7	6.99	7.35	7.25	7.25	7.26
SC	1,000	1,000	1,000	1,000	995	1,000	1,000	1,000
TOC	4	4	4	4	2	2	2	2
TOX	<10	<10	<10	<10	NA	NA	NA	NA

	Round 3				Round 4			
pH	7.17	7.15	7.15	7.17	7.37	7.37	7.37	7.37
SC	900	900	900	900	900	1,000	1,000	1,000
TOC	3	3	3	3	3	3	3	3
TOX	<10	<10	<10	<10	13	11	10	10

Table 2.2

Mean and Variance

MW-22 TP

	Mean	Variance
pH	6.91	.016
SC	2,357.5	59,718.8
TOC	5.81	.40
TOX	21.25	67.94

	Round 1				Round 2			
pH	6.75	6.74	6.75	6.76	7.06	7.07	7.07	7.07
SC	1,950	1,950	1,950	1,950	2,400	2,400	2,400	2,400
TOC	7	6	6	7	5	5	5	5
TOX	<10	<10	<10	<10	31	30	28	34

	Round 3				Round 4			
pH	6.81	6.82	6.82	6.85	7.01	7.01	7.01	7.01
SC	2,500	2,600	2,600	2,600	2,500	2,500	2,500	2,520
TOC	6	6	6	6	5	6	6	6
TOX	18	33	24	16	24	20	19	23

Table 2.2

Mean and Variance

MW SW-2

Background Well for Sand and Gravel Aquifer

	Mean	Variance
pH	7.34	.007
SC	659	294.6
TOC	1	0
TOX	1,631.7	8,085,130.5

	Round 1				Round 2			
pH	7.35	7.36	7.36	7.36	7.47	7.46	7.46	7.45
SC	650	660	620	660	630	640	623	640
TOC	<1	<1	<1	<1	<1	<1	<1	<1
TOX	61	61	61	63	<10	<10	<10	<10

	Round 3				Round 4			
pH	7.25	7.28	7.28	7.31	7.25	7.24	7.24	7.24
SC	670	680	680	680	660	670	665	666
TOC	<1	<1	<1	<1	<1	<1	<1	<1
TOX	5,340	7,560	5,150	7,730	<10	10	11	<10

Table 2.2

Mean and Variance

MW-19s

	Mean	Variance
pH	7.27	.019
SC	1,075	6,875
TOC	1.5	.75
TOX	298.3	161,146

	Round 1				Round 2			
pH	7.03	7.05	7.08	7.09	7.28	7.29	7.30	7.31
SC	1,000	1,000	1,000	1,000	1,200	1,200	1,200	1,200
TOC	3	3	3	3	<1	<1	<1	<1
TOX					19	19	19	17

	Round 3				Round 4			
pH	7.28	7.29	7.29	7.30	7.45	7.45	7.45	7.44
SC	1,100	1,100	1,100	1,100	1,000	1,000	1,000	1,000
TOC	<1	<1	<1	<1	<1	<1	<1	<1
TOX	838	803	832	980	18	12	13	10

Table 2.2

Mean and Variance

MW-19d

	Mean	Variance
pH	6.97	.009
SC	1,431	27,773
TOC	1	0
TOX	19.8	289

	Round 1				Round 2			
pH	6.81	6.84	6.83	6.84	6.96	6.96	6.96	6.96
SC	1,600	1,600	1,600	1,600	1,500	1,600	1,600	1,600
TOC	1	1	1	1	<1	<1	<1	<1
TOX	<10	<10	<10	<10	<10	<10	<10	<10

	Round 3				Round 4			
pH	7.03	6.98	7.03	7.02	7.10	7.08	7.08	7.09
SC	1,350	1,350	1,350	1,350	1,200	1,700	1,200	1,200
TOC	1	1	1	1	<1	<1	<1	<1
TOX	48	50	49	50	10	10	10	10

Table 2.2

Mean and Variance

MW-21s

	Mean	Variance
pH	7.30	.003
SC	1,175.6	24,087.1
TOC	1	0
TOX	15.88	36.11

	Round 1				Round 2			
pH	7.25	7.33	7.36	7.36	7.36	7.37	7.37	7.38
SC	900	910	910	910	1,240	1,260	1,260	1,260
TOC	1	1	1	1	<1	<1	<1	<1
TOX	<10	<10	<10	<10	24	23	23	19

	Round 3				Round 4			
pH	7.26	7.28	7.28	7.28	7.20	7.23	7.24	7.25
SC	1,280	1,280	1,280	1,280	1,260	1,260	1,250	1,270
TOC	1	1	1	1	<1	<1	<1	<1
TOX	<10	<10	<10	<10	23	22	21	19

Table 2.2

Mean and Variance

MW-22s

	Mean	Variance
pH	7.37	.013
SC	1,012.5	3,956.25
TOC	1.25	.1875
TOX	17.63	66.6

	Round 1				Round 2			
pH	7.30	7.30	7.30	7.30	7.45	7.45	7.46	7.46
SC	980	980	980	980	920	930	940	940
TOC	2	2	2	2	<1	<1	<1	<1
TOX	28	29	25	33	20	22	22	23

	Round 3				Round 4			
pH	7.49	7.49	7.49	7.51	7.23	7.22	7.21	7.21
SC	1,030	1,040	1,040	1,040	1,100	1,100	1,100	1,100
TOC	1	1	1	1	<1	<1	<1	<1
TOX	<10	<10	<10	<10	<10	<10	<10	<10

3.1 Shallow (Till) Groundwater
Sampling Results (FMPC)
(All results in ppm except as noted)

	MW-12	MW-19TP	MW-20TP	MW-21TP	MW-22TP	OS-1A
Chloride	91.0	744.0	<1.0	13.0	14.0	32.0
Iron	2.200	3.930	7.530	3.450	7.050	0.069
Manganese	0.044	1.970	1.670	2.010	1.250	<0.020
Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sodium	236.000	171.000	5.370	11.600	16.200	272.000
Sulfate	<1.0	375.0	42.0	435.0	1,320	100.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	0.007	0.006	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	0.277	<0.200	<0.200
Calcium	97.900	489.000	119.000	164.000	524.000	149.000
Cadmium	<0.002	<0.002	<0.002	0.003	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium						
-Total	<0.005	0.006	0.006	<0.005	0.012	<0.005
-Hexavalent	<0.005	<0.006	<0.006	<0.005	<0.010	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	0.025	<0.025
Fluoride	1.00	0.40	0.29	0.46	1.07	0.28
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	11.500	2.010	1.890	1.820	6.700	24.300
Magnesium	6.200	137.000	33.000	58.000	144.000	43.000
Nickel	<0.005	0.009	0.010	0.007	0.015	<0.005
Nitrates	0.02	0.13	0.04	0.07	0.24	8.80
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.02	0.09	0.13	0.13	0.38	0.04

3.1 Shallow (Till) Groundwater Sampling Results (FMPC)

(All results in ppm except as noted)

	MW-12	MW-19TP	MW-20TP	MW-21TP	MW-22TP	OS-1A
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	0.033	0.025	0.056	0.046
T.D.S.	716	2,830	320	761	2,560	668
C.O.D.	<10	20	<10	<10	25	<10
pH-lab (1) (2)	7.66	6.82	7.07	7.37	7.01	7.25
Conductivity-lab (1) (3)	1,030	3,500	675	988	2,510	921
T.O.C. (1)	<1	4	<1	3	5.75	<1
T.O.X. (1) (4)	<10.0	163.0	<10	<10	21.5	<10
Coliform (10)	3	13	130	260	13	2,600
Alachlor (LASSO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	--	ND	ND	--	--
1.1 Dichloroethane	--	1.0	--	--	--	--
Acetone	--	--	--	--	4,770.0	4,480.0
2-Propanol	--	--	--	--	8,500.0	1,420.0
Trichloroethene	--	0.5	--	--	--	--
Tetrachloroethene	--	8.2	--	--	--	--
Bromoform	--	7.0	--	--	--	--
Gross Alpha (5)	21	13	2	251	330	<1
Gross Beta (5)	7	50	3	251	625	33
Uranium (13)	0.0002	0.74	0.018	4.48	4.40	0.0011

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-1s	MW-1d	MW-3	MW-4	MW-5	MW-8s	MW-8d	MW-10	MW-13s	MW-13d
Chloride	17.0	18.0	21.0	24.0	17.0	18.0	12.0	86.0	27.0	63.0
Iron	1.150	5.160	1.060	0.565	2.200	1.230	2.610	0.393	2.630	7.260
Manganese	0.547	0.383	0.418	0.031	0.553	0.243	0.390	5.190	0.211	0.393
Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.066	<0.005	<0.005	<0.005
Sodium	10.200	11.700	15.100	15.900	5.900	9.300	9.000	188.000	255.000	54.200
Sulfate	80.0	8.0	100.0	58.0	72.0	73.0	14.0	680.0	105.0	240.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	103.000	96.000	96.300	86.800	119.000	91.200	84.700	421.000	130.000	207.000
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.002	<0.005	<0.005	<0.005
Chromium										
-Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.20	0.24	0.20	0.21	0.24	0.17	0.22	0.14	0.24	0.16
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.290	0.885	2.590	2.940	2.460	2.660	1.100	18.400	2.760	4.190
Magnesium	24.500	24.100	24.200	20.200	28.900	23.900	22.000	73.000	28.000	44.100
Nickel	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	<0.005	<0.005
Nitrates	0.04	0.04	<0.02	0.27	0.04	0.06	0.07	142.00	0.08	0.07
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005	<0.005
Phosphorus, total	<0.02	0.09	0.04	0.04	0.50	0.04	0.36	0.04	<0.02	<0.02

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-1s	MW-1d	MW-3	MW-4	MW-5	MW-8s	MW-8d	MW-10	MW-13s	MW-13d
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T.D.S.	423	363	404	332	473	350	377	2,320	503	972
C.O.D.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
pH-lab (1) (2)	7.38	7.56	7.53	7.41	7.37	7.54	7.40	7.08	7.20	6.93
Conductivity-lab (1) (3)	600	600	566	531	700	600	550	2,600	690	1,280
T.O.C. (1)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
T.O.X. (1) (4)	31.0	<10	67.8	7.3	24.0	<10	21.0	10	<10	<10
Coliform (10)	28	70	12	13	<2	3	<2	13	<2	6
Alachlor (LASSO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2, 4-D (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	NA	ND	NA	ND	NA	NA	NA	ND	ND	--
Acetone	--	--	--	--	--	--	--	--	--	1,030.0
Gross Alpha (5)	5	13	<1	<1	<1	5	10	5	<1	<1
Gross Beta (5)	5	7	2	4	3	18	18	11	3	4
Uranium (13)	0.083	0.0001	0.0022	0.0080	0.0034	NA	0.0003	0.016	0.0011	0.021

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-19s	MW-19d	MW-21s	MW-22s
Chloride	42.0	49.0	44.0	68.0
Iron	0.112	0.314	0.295	8.910
Manganese	0.031	3.190	0.038	0.391
Phenols	<0.005	<0.005	<0.005	<0.005
Sodium	28.100	68.700	44.700	35.700
Sulfate	90.0	330.0	90.0	<1.0
Silver	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	0.007
Barium	<0.200	<0.200	<0.200	<0.200
Calcium	153.000	204.000	149.000	218.000
Cadmium	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005
Chromium				
-Total	<0.005	<0.005	<0.005	0.035
-Hexavalent	<0.005	<0.005	<0.005	0.020
Copper	<0.025	<0.025	<0.025	0.025
Fluoride	0.29	49.0	0.24	0.63
Mercury	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	4.010	7.270	8.850	5.970
Magnesium	32.500	26.600	25.500	65.000
Nickel	<0.005	<0.005	<0.005	0.009
Nitrates	45.30	0.11	87.70	49.60
Lead	<0.005	<0.005	<0.005	0.006
Phosphorus, total	0.04	0.04	0.39	0.02

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-19s	MW-19d	MW-21s	MW-22s
Selenium	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	0.041
T.D.S.	652	962	1,046	1,090
C.O.D.	<10	<10	10	<10
pH-lab (1) (2)	7.45	7.09	7.23	7.22
Conductivity-lab (1) (3)	1,000	1,200	1,260	1,100
T.O.C. (1)	<1	<1	<1	<1
T.O.X. (1) (4)	13.0	<10	21.3	<10
Coliform (10)	<2	6	9	<2
Alachlor (LASSO)	<0.2	<0.2	<0.2	NA
Lindane (4)	<0.2	<0.2	<0.2	NA
Endrin (4)	<0.2	<0.2	<0.2	NA
Methoxychlor (4)	<0.2	<0.2	<0.2	NA
Toxaphene (4)	<0.5	<0.5	<0.5	NA
2, 4-D (4)	<0.2	<0.2	<0.2	NA
2,4,5 TP Silvex (4)	<0.2	<0.2	<0.2	NA
VOC's (4)	ND	(15)	--	ND
Tetrachloroethene	--	--	11.9	--
Gross Alpha (5)	4	2	15	<1
Gross Beta (5)	209	8	627	42
Uranium (13)	0.0041	0.027	0.0047	0.0032

Table 3.3

Groundwater Sampling Results Plant Production Wells (FMPC)
(All results in ppm except as noted)

	P-1	P-2	P-3*
Chloride	35.0	20.0	NA
Iron	5.850	2.940	NA
Manganese	0.455	0.379	NA
Phenols	<0.005	<0.005	NA
Sodium	39.100	15.600	NA
Sulfate	125.0	42.0	NA
Siver	<0.030	<0.030	NA
Arsenic	<0.005	<0.005	NA
Barium	<0.200	<0.200	NA
Calcium	138.000	96.400	NA
Cadmium	<0.002	<0.002	NA
Cyanide	<0.005	<0.005	NA
Chromium			
-Total	<0.005	<0.005	NA
-Hexavalent	<0.005	<0.005	NA
Copper	<0.025	<0.025	NA
Fluoride	0.20	0.25	NA
Mercury	<0.0002	<0.0002	NA
Potassium	3.720	1.340	NA
Magnesium	35.500	25.100	NA
Nickel	<0.005	<0.005	NA
Nitrate	0.03	0.02	NA
Lead	<0.005	<0.005	NA
Phosphorus, total	0.08	0.08	NA

* Well was not sampled due to pump repair work.

Table 3.3 (Cont'd)
Groundwater Sampling Results Plant Production Wells (FMPC)
(All results in ppm except as noted)

	P-1	P-2	P-3*
Selenium	<0.0025	<0.0025	NA
Zinc	<0.025	<0.025	NA
T.D.S.	582	404	NA
C.O.D	<10	<10	NA
pH-lab (1) (2)	7.48	7.35	NA
Conductivity-lab (1) (3)	893	598	NA
T.O.C. (1)	<1	<1	NA
T.O.X. (1) (4)	61.8	<10	NA
Coliform (10)	<2	<2	NA
Alachlor (LASSO)	<0.2	<0.2	NA
Lindane (4)	<0.2	<0.2	NA
Endrin (4)	<0.2	<0.2	NA
Methoxychlor (4)	<0.2	<0.2	NA
Toxaphene (4)	<0.5	<0.5	NA
2,4-D (4)	<0.2	<0.2	NA
2,4,5-TP, Silvex (4)	<0.2	<0.2	NA
VOC's (4)	NA	NA	NA
Gross Alpha (5)	<1	<1	NA
Gross Beta (5)	1	<1	NA
Uranium (13)	0.0002	0.0002	NA

* Well was not sampled due to pump repair work.

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-9	MW-11	MW-14s	MW-14d	MW-15s	MW-16s	MW-16d	MW-17s	MW-17d
Chloride	23.0	19.0	19.0	20.0	21.0	17.0	17.0	27.0	20.0
Iron	0.198	3.060	26.500	<0.050	0.289	0.690	<0.050	0.107	1.470
Manganese	0.074	0.187	0.342	<0.020	<0.020	0.025	<0.020	0.154	0.321
Phenols	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sodium	12.500	7.800	11.900	11.800	14.900	8.900	9.040	12.300	13.000
Sulfate	70.0	78.0	60.0	60.0	60.0	60.0	70.0	100.0	72.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	84.400	105.000	197.000	83.600	82.900	87.900	82.800	149.000	100.000
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium									
-Total	<0.005	<0.005	0.084	<0.005	0.009	0.011	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.01	<0.005	<0.009	<0.010	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	0.127	<0.025	0.027	<0.025	<0.025	<0.025	<0.025
Fluoride	0.18	0.23	0.38	0.19	0.40	0.24	0.20	0.23	0.18
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.130	1.060	4.480	2.130	2.650	2.390	2.120	2.060	2.180
Magnesium	21.700	26.100	37.100	19.300	20.600	21.300	19.900	30.200	19.300
Nickel	<0.005	<0.005	0.017	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate	2.60	0.04	1.53	1.68	2.96	2.03	2.43	0.03	0.03
Lead	<0.005	<0.005	0.048	<0.005	0.008	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.02	0.02	0.39	<0.02	0.09	<0.02	<0.02	0.04	0.04

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-9	MW-11	MW-14s	MW-14d	MW-15s	MW-16s	MW-16d	MW-17s	MW-17d
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	0.070	<0.025	0.026	<0.025	<0.025	<0.025	<0.025
T.D.S.	472	580	188	540	388	423	322	533	376
C.O.D.	<10	<10	21	<10	49	<10	<10	<10	<10
ph-lab (1) (2)	7.31	7.43	8.29	7.52	7.41	7.41	7.54	7.24	7.45
Conductivity-lab (1) (3)	570	625	504	551	521	521	481	908	550
T.O.C. (1)	<1	<1	1	<1	8.75	<1	<1	<1	<1
T.O.X. (1) (4)	10.5	122.0	199.0	<10	<10	<10	<10	25.5	19.5
Coliform (10)	67,000	<2	20	3	19	540	<2	<2	<2
Alachlor (LASSO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.2	<0.3	<0.2	<0.2	<0.2	<0.3	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	--	ND	ND	--	--	ND	ND	--	--
Bromoform	--	--	--	2.4	--	--	--	--	--
Acetone	12.0	--	--	--	120.0	--	--	17,700	--
2-Propanol	4,000.0	--	--	--	--	--	--	45,000-	578.0
1,1,1 Trichloroethane	--	--	--	--	7.0	--	--	--	--
Trichloroethene	--	--	--	1.0	--	--	--	--	--
1,1 Dichloroethane	--	--	--	--	1.1	--	--	--	--
Gross Alpha (5)	<1	<1	12	9	18	8	3	<1	<1
Gross Beta (5)	6	2	57	7	42	10	2	2	<1
Uranium (13)	0.0011	0.0002	0.028	0.025	0.18	0.018	0.0088	0.0026	0.0006

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted) (Cont'd)

	MW-18s	MW-18d	MW-20s	MW-20d	SW-2	OS-1	HK-15d	OS-2	OS-3
Chloride	16.0	3.0	22.0	19.0	32.0	23.0	23.0	23.0	24.0
Iron	10.500	0.725	0.086	1.410	<0.050	<0.050	3.080	<0.050	1.100
Manganese	0.379	0.078	0.032	0.230	0.144	<0.020	0.351	<0.020	0.395
Phenols	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sodium	6.160	4.650	10.400	8.500	270.000	10.500	7.970	251.000	10.700
Sulfate	68.0	68.0	78.0	100.0	70.0	60.0	85.0	60.0	75.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	0.200	<0.200
Calcium	155.000	91.600	88.600	97.700	104.000	90.900	117.000	99.500	94.500
Cadmium	<0.004	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium									
-Total	0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.008	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	0.051	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.40	0.35	0.24	0.20	0.20	0.35	0.17	0.21	0.23
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.740	0.582	2.540	1.900	2.660	2.570	1.480	3.120	2.390
Magnesium	40.700	33.700	19.500	27.900	28.100	20.100	24.800	22.800	21.300
Nickel	0.011	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate	0.80	0.05	4.08	0.08	2.39	3.04	0.03	3.04	0.02
Lead	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	0.22	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02

	Standards		
	Primary (6)	Secondary (7)	Recommended (14)
Chloride	---	250	---
Iron	---	0.3	---
Manganese	---	0.05	---
Phenols	---	---	0.001
Sodium	---	---	---
Sulfate	---	250	---
Silver	0.05	---	---
Arsenic	0.05	---	---
Barium	1.0	---	---
Calcium	---	---	---
Cadmium	0.010	---	---
Cyanide	---	---	0.05
Chromium			
- Total	0.05	---	---
- Hexavalent	---	---	---
Copper	---	1.0	---
Fluoride	1.4-2.4	---	---
Mercury	0.002	---	---
Potassium	---	---	---
Magnesium	---	---	---
Nickel	---	---	---
Nitrates	10.0	---	---
Lead	0.05	---	---
Phosphorus, total	---	---	---
Selenium	0.01	---	---
Zinc	---	5.0	---
T.D.S.	---	500	---
C.O.D.	---	---	---
pH-lab (1) (2)	---	6.5-8.5	---
Conductivity-lab (1) (3)	---	---	---
T.O.C.	---	---	---
T.O.X.	---	---	---
Coliform (10)	1	---	---
Lindane (4)	4	---	---
Endrin (4)	0.2	---	---
Methoxychlor (4)	100	---	---
Toxaphene (4)	5	---	---
2,4-D (4)	10	---	---
2,4,5-TP, Silvex (4)	10	---	---
VOC's (4)	---	---	---
Gross Alpha (5)	15	---	---
Gross Beta (5)	30 (11)	---	---
Radium, Total (5)	5 (9)	---	---
Radionuclide Scan (5) (12)	---	---	---

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted) (Cont'd)

	MW-18s	MW-18d	MW-20s	MW-20d	SW-2	OS-1	HK-15d	OS-2	OS-3
Selenium	0.003	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	0.055	<0.025	<0.025	<0.025	<0.025	0.202	0.200	0.078	<0.025
T.D.S.	410	440	372	411	426	369	456	403	408
C.O.D.	<10	<10	<10	<10	<10	<10	<10	40	<10
pH-lab (1) (2)	7.33	7.34	7.38	7.45	7.24	7.40	7.31	7.47	7.40
Conductivity-lab (1) (3)	568	565	551	560	666	541	629	568	589
T.O.C. (1)	<1	<1	<1	<1	<1	<1	<1	<1	<1
T.O.X. (1) (4)	<10	<10	<10	12.6	<10	<10	<10	15.3	<10
Coliform (10)	25	6	<2	65	<2	480	<2	<2	<2
Alachlor (LASSO)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND	ND	--	NA	NA	NA
1,1,1 Trichloroethane	--	--	--	--	--	8.7	--	--	--
Gross Alpha (5)	<1	22	<1	<1	<1	20	<1	16	8
Gross Beta (5)	<1	12	3	4	4	43	1	60	2
Uranium (13)	0.0014	0.0020	0.0005	0.0008	0.0006	0.20	0.0002	0.28	0.031

NOTES

ND Not Detected
NA Not Analyzed
(1) Average of four tests
(2) pH results in standard units
(3) Conductivity results in umhos/cm
(4) Concentrations reported in ppb
(5) Results in pCi/l
(6) Taken from 40 CFR Part 141 National Interim Primary Drinking Water Regulations - Subpart B - Maximum Contaminant Levels, July 1, 1984.
(7) Taken from 40 CFR Part 143 National Secondary Drinking Water Regulations - Section 143.3 - Secondary Maximum contaminant Levels.
(8) High counts did not yield any individual elements using a 4096 channel analyzer. These levels are due to solids only in the samples.
(9) Standard is for Radium -226 Plus Radium -228
(10) Reported in per 100 ml
(11) Maximum Permissible Activity taken from World Health Organization, 1970 European Standards. National Primary Drinking Water Regulation for gross beta is 4 mR/year.
(12) Radionuclide Scan includes analysis for K-40, Unat, Th-228, Th-230, Th-232, Tc-99 Cs-137, Sr-90, Ru-106, Np-237, Pu-238, Pu-239, Pu-240.
(13) WMCO Split Sample - Analyzed for Uranium at the FMPC; Results in mg/l.
(14) Taken from World Health Organization European Standards, 1970.
(15) VOC's detected in MW-19d.

COMPOUND	RESULT
Trichlorofluoromethane	15.7 ug/l
1,1-Dichloroethene	22.9 ug/l
2-Propanol	4000.0 ug/l
Trans-1,2-Dichloroethene	37.6 ug/l
Chloroform	41.6 ug/l
1,1,1-Trichloroethane	27.5 ug/l
1,2-Dichloroethane	29.3 ug/l
Carbon tetrachloride	10.5 ug/l
Benzene	18.5 ug/l
Trichloroethene	58.1 ug/l
Bromodichloromethane	22.0 ug/l
Toluene	28.5 ug/l
Dibromochloromethane	14.6 ug/l
Tetrachloroethene	36.3 ug/l
Bromoform	34.1 ug/l

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-1s

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<2.087 \times 10^{-1}$	----
Total Uranium (1,3)	$<1.5 \times 10^{-3}$	1.2×10^{-2}	8.3×10^{-3}
Radium 226	$<1 \times 10^{-3}$	$<4.336 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<6.077 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	6.25×10^{-3}	----
Thorium 228	$<1 \times 10^{-3}$	$<1.1 \times 10^{-4}$	----
Thorium 230	$<1 \times 10^{-3}$	$<1.3 \times 10^{-5}$	----
Thorium 232	$<1 \times 10^{-3}$	$<8 \times 10^{-5}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.696 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	$<6 \times 10^{-4}$	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.180 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	6.6×10^{-5}	----
Plutonium 238	$<1 \times 10^{-3}$	1.3×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<1.5 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-1d

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	22.061×10^{-1}	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	1.31×10^{-3}	1×10^{-4}
Radium 226	$<1 \times 10^{-3}$	$<4.030 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<6.641 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	$<1.4 \times 10^{-3}$	----
Thorium 228	$<1 \times 10^{-3}$	$<6 \times 10^{-4}$	----
Thorium 230	$<1 \times 10^{-3}$	$<2 \times 10^{-4}$	----
Thorium 232	$<1 \times 10^{-3}$	$<1.614 \times 10^{-2}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.9 \times 10^{-4}$	----
Strontium 90	$<1 \times 10^{-3}$	$<1.427 \times 10^{-1}$	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.1 \times 10^{-4}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<4 \times 10^{-5}$	----
Plutonium 238	$<1 \times 10^{-3}$	1.5×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<1 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

	MW-4		
Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.206 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	9.2×10^{-3}	8.0×10^{-3}
Radium 226	$<1 \times 10^{-3}$	$<4.192 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<8.600 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	$<3.0 \times 10^{-3}$	----
Thorium 228	$<1 \times 10^{-3}$	$<7.3 \times 10^{-5}$	----
Thorium 230	$<1 \times 10^{-3}$	4.6×10^{-5}	----
Thorium 232	$<1 \times 10^{-3}$	$<4.0 \times 10^{-5}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.960 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	2.7×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.563 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<1.1 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	1.7×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<1.4 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-10

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.869 \times 10^{-1}$	----
Total Uranium (1,3)	$<1.5 \times 10^{-3}$	4.6×10^{-2}	1.6×10^{-2}
Radium 226	$<1 \times 10^{-3}$	$<3.47 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<7.127 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	5.41×10^{-3}	----
Thorium 228	$<1 \times 10^{-3}$	3.9×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	2.3×10^{-4}	----
Thorium 232	$<1 \times 10^{-3}$	$<8.0 \times 10^{-5}$	----
Cesium 137	$<1 \times 10^{-3}$	$<2.009 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	1.08×10^{-3}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.212 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	7.06×10^{-3}	----
Plutonium 238	$<1 \times 10^{-3}$	$<2.0 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	1.9×10^{-5}	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-14d

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.837 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	2.9×10^{-2}	2.5×10^{-2}
Radium 226	$<1 \times 10^{-3}$	8.464×10^{-2}	----
Radium 228	$<1 \times 10^{-3}$	$<7.290 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	$<1.4 \times 10^{-3}$	----
Thorium 228	$<1 \times 10^{-3}$	2.7×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	1.4×10^{-4}	----
Thorium 232	$<1 \times 10^{-3}$	2.3×10^{-5}	----
Cesium 137	$<1 \times 10^{-3}$	$<1.554 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	1.25×10^{-3}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.328 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<1.7 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	2.9×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	2.4×10^{-5}	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-19s

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.901 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	7.5×10^{-3}	4.1×10^{-3}
Radium 226	$<1 \times 10^{-3}$	$<2.699 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<9.122 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	1.47 + 5	----
Thorium 228	$<1 \times 10^{-3}$	1.4×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	2.2×10^{-4}	----
Thorium 232	$<1 \times 10^{-3}$	$<7.0 \times 10^{-5}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.339 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	6.85×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.151 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<2.0 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	$<4.0 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<4.0 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-19d

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<2.491 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	3.5×10^{-2}	2.7×10^{-2}
Radium 226	$<1 \times 10^{-3}$	$<4.532 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<7.755 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	5.38×10^{-3}	----
Thorium 228	$<1 \times 10^{-3}$	1.2×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	$<1.3 \times 10^{-4}$	----
Thorium 232	$<1 \times 10^{-3}$	3.9×10^{-5}	----
Cesium 137	$<1 \times 10^{-3}$	$<1.307 \times 10^{-2}$	----
Strontium 90	NS	4.7×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<9.990 \times 10^{-2}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<1.7 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	$<3.0 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<3.0 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-19 TP

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.950 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	7.7×10^{-1}	7.4×10^{-1}
Radium 226	$<1 \times 10^{-3}$	$<2.339 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<5.677 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	2.07×10^{-2}	----
Thorium 228	$<1 \times 10^{-3}$	1.7×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	3.2×10^{-4}	----
Thorium 232	$<1 \times 10^{-3}$	$<4.0 \times 10^{-4}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.712 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	1.6×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.305 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	1.0×10^{-5}	----
Plutonium 238	$<1 \times 10^{-3}$	2.5×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	1.5×10^{-5}	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-21s

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<2.150 \times 10^{-1}$	----
Total Uranium (1, 3)	NS	5.1×10^{-3}	4.7×10^{-3}
Radium 226	$<1 \times 10^{-3}$	$<2.643 \times 10^{-2}$	----
Radium 228	4×10^{-3}	$<6.798 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	5.35 + 3	----
Thorium 228	$<1 \times 10^{-3}$	2.0×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	$<8.0 \times 10^{-5}$	----
Thorium 232	$<1 \times 10^{-3}$	$<1.1 \times 10^{-4}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.382 \times 10^{-2}$	----
Strontium 90	15.2×10^{-3}	2.03×10^{-2}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.303 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	7.9×10^{-5}	----
Plutonium 238	$<1 \times 10^{-3}$	$<3.0 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<2.0 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. "NS" denotes that analysis could not be performed due to short sample.

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-21 TP

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.571 \times 10^{-1}$	----
Total Uranium (1, 3)	1.80	4.06	4.48
Radium 226	$<1 \times 10^{-3}$	$<3.863 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<8.426 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	5.19×10^{-3}	----
Thorium 228	$<1 \times 10^{-3}$	$<3 \times 10^{-4}$	----
Thorium 230	$<1 \times 10^{-3}$	3.6×10^{-3}	----
Thorium 232	$<1 \times 10^{-3}$	2.4×10^{-3}	----
Cesium 137	$<1 \times 10^{-3}$	$<1.862 \times 10^{-2}$	----
Strontium 90	NS	$<4.5 \times 10^{-4}$	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.505 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	5.6×10^{-4}	----
Plutonium 238	$<1 \times 10^{-3}$	$<4.0 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<1.7\ 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-22s

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.886 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	1.0×10^{-2}	3.2×10^{-3}
Radium 226	$<1 \times 10^{-3}$	$<3.135 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<6.016 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	2.25×10^{-1}	----
Thorium 228	$<1 \times 10^{-3}$	1.1×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	$<9.0 \times 10^{-5}$	----
Thorium 232	$<1 \times 10^{-3}$	$<6.0 \times 10^{-5}$	----
Cesium 137	$<1 \times 10^{-3}$	$<1.939 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	7.72×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.727 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<1.1 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	$<1.3 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<1.3 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-22 TP

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.705 \times 10^{-1}$	----
Total Uranium (1, 3)	6.12	4.95	4.40
Radium 226	$<1 \times 10^{-3}$	$<3.544 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<7.270 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	1.22×10^{-2}	----
Thorium 228	$<1 \times 10^{-3}$	4.1×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	$<1.4 \times 10^{-3}$	----
Thorium 232	$<1 \times 10^{-3}$	2.1×10^{-4}	----
Cesium 137	$<1 \times 10^{-3}$	$<1.201 \times 10^{-2}$	----
Strontium 90	$<3.94 \times 10^{-3}$	3.64×10^{-3}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<1.523 \times 10^{-1}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<1.0 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	2.6×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	4.2×10^{-5}	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-OS 1

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.933 \times 10^{-1}$	----
Total Uranium (1, 3)	0.47	2.40×10^{-1}	0.200
Radium 226	$<1 \times 10^{-3}$	$<2.164 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<5.091 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	1.24×10^{-2}	----
Thorium 228	$<1 \times 10^{-3}$	1.1×10^{-4}	----
Thorium 230	$<1 \times 10^{-3}$	$<3.0 \times 10^{-4}$	----
Thorium 232	$<1 \times 10^{-3}$	8.8×10^{-5}	----
Cesium 137	$<1 \times 10^{-3}$	$<1.234 \times 10^{-2}$	----
Strontium 90	$<1 \times 10^{-3}$	5.00×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<9.186 \times 10^{-2}$	----
Neptunium 237	$<1 \times 10^{-3}$	$<1.8 \times 10^{-4}$	----
Plutonium 238	$<1 \times 10^{-3}$	4.6×10^{-5}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	3.9×10^{-5}	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-OS 2

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.283 \times 10^{-1}$	----
Total Uranium (1, 3)	NS	0.34	0.28
Radium 226	$<1 \times 10^{-3}$	$<2.980 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<5.991 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	4.8×10^{-3}	----
Thorium 228	$<1 \times 10^{-3}$	$<1.5 \times 10^{-4}$	----
Thorium 230	$<1 \times 10^{-3}$	2.1×10^{-4}	----
Thorium 232	$<1 \times 10^{-3}$	$<1.5 \times 10^{-4}$	----
Cesium 137	$<1 \times 10^{-3}$	1.544×10^{-2}	----
Strontium 90	$<1 \times 10^{-3}$	9.68×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	21.425×10^{-1}	----
Neptunium 237	$<1 \times 10^{-3}$	8.0×10^{-4}	----
Plutonium 238	$<1 \times 10^{-3}$	1.3×10^{-4}	----
Plutonium 239(2)	$<1 \times 10^{-3}$	5.9×10^{-5}	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes: 1. Total U for TMA/Norcal and WMCO results in mg/l

2. Total Pu 239, 240

3. "NS" denotes that analysis could not be performed due to short sample.

3.5 Radionuclide Scan Results (FMPC)
(All results in pCi/ml except as noted)

MW-OS 3

Parameters	Howard Lab	TMA/ Norcal Lab	WMCO Lab
Potassium 40	$<1 \times 10^{-3}$	$<1.066 \times 10^{-1}$	----
Total Uranium (1, 3)	$<1.5 \times 10^{-3}$	4.6×10^{-2}	3.1×10^{-2}
Radium 226	$<1 \times 10^{-3}$	$<1.525 \times 10^{-2}$	----
Radium 228	$<1 \times 10^{-3}$	$<3.410 \times 10^{-2}$	----
Technetium 99	$<1 \times 10^{-3}$	1.2×10^{-3}	----
Thorium 228	$<1 \times 10^{-3}$	$<1.0 \times 10^{-4}$	----
Thorium 230	$<1 \times 10^{-3}$	$<8.0 \times 10^{-5}$	----
Thorium 232	$<1 \times 10^{-3}$	$<2.0 \times 10^{-5}$	----
Cesium 137	$<1 \times 10^{-3}$	6.672×10^{-3}	----
Strontium 90	$<1 \times 10^{-3}$	4.55×10^{-4}	----
Ruthenium 106	$<1 \times 10^{-3}$	$<6.839 \times 10^{-2}$	----
Neptunium 237	$<1 \times 10^{-3}$	4.4×10^{-4}	----
Plutonium 238	$<1 \times 10^{-3}$	$<3.0 \times 10^{-5}$	----
Plutonium 239(2)	$<1 \times 10^{-3}$	$<1.7 \times 10^{-5}$	----
Plutonium 240(2)	$<1 \times 10^{-3}$	----	----

Notes:
1. Total U for TMA/Norcal and WMCO results in mg/l
2. Total Pu 239, 240
3. Total U for Howard Lab in mg/l
   Conversion from pCi/l to mg/l assumes total U calculated as natural U.
   Use 0.100 mg/l = 67 pCi/l for equilibrium total α activity of U-234 and U-238 (Wrenn, et. al., HP Vol. 48 No. 5 (May, 1985), pp. 601-633).

Table 3.6

OTHER ORGANIC CONSTITUENTS
DETECTED IN FMPC SAMPLES
(Results in mg/l)

	Parameters		
Well #	Acetone	2-Propanol	Bromoform
MW-22 TP	4,770.0	8,500.0	--
MW-OS-1A	4,480.0	1,420.0	--
MW-13d	1,030.0	--	--
MW-19d*	--	4,000.0	34.1
MW-19 TP	--	--	7.0
MW-9	12.0	4.000.0	--
MW-14d	--	--	2.4
MW-15s	120.0	--	--
MW-17s	17,700.0	45,000.0	--
MW-17d	--	578.0	--
CB-1	--	--	1.3

Table 3.7

Results of QA/QC Analysis

Metals QC #1 mg/l	Reported Value	Actual Value	Difference (Reported-Actual)
Silver	<0.030	0.026	0.004
Lead	0.017	0.026	-0.009
Arsenic	0.022	0.025	-0.003
Selenium	0.005	0.0060	-0.001
Barium	<0.200	0.165	0.035
Cadmium	<0.002	0.0027	-0.0007
Chromium	0.009	0.013	-0.004
Mercury	0.0010	0.0016	-0.0006

Average Difference = 0.0026

Metals QC #2 mg/l	Reported Value	Actual Value	Difference (Reported-Actual)
Silver	<0.030	0.046	-0.016
Lead	0.055	0.063	-0.008
Arsenic	0.053	0.062	-0.009
Selenium	0.008	0.0093	-0.0013
Barium	0.397	0.462	-0.065
Cadmium	0.006	0.0074	-0.0014
Chromium	0.052	0.067	-0.015
Mercury	0.0050	0.0080	-0.003

Average Difference = -0.014

Minerals QC #3 mg/l	Reported Value	Actual Value	Difference (Reported-Actual)
Calcium	18.900	20.0	-1.1
Sodium	20.700	20.0	0.7
Chloride	49.0	51.7	-2.7
Sulfate	21.0	20.0	1.0
Conductivity (um hos/cm)	300	276	24
TDS	132	158	-26
Fluoride	0.91	1.0	-0.09
Potassium	4.810	5.0	-0.019
Magnesium	4.400	5.0	-0.6

Average Difference = -0.62

Table 3.7 (continued)

Results of QA/QC Analysis

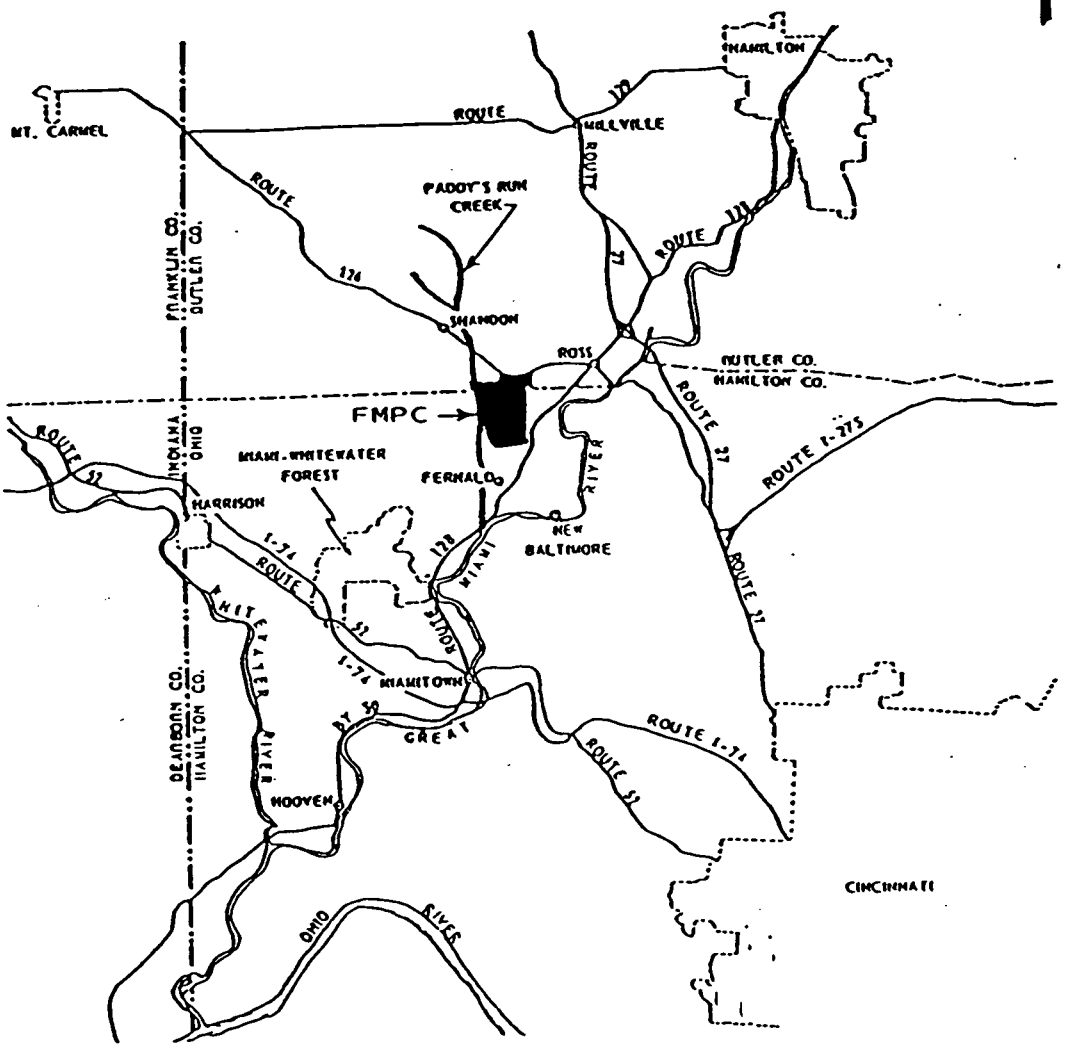
Indicators QC #14 mg/l	Reported Value	Actual Value	Difference (Reported-Actual)
COD	14	14.9	-0.9
TOC	5	6.12	-1.1

Average Difference = -1.0

Purgeables QC #5 ug/l	Reported Value	Actual Value	Difference (Reported-Actual)
M-Dichlorobenzene	87.7	100	-12.30
P-Dichlorobenzene	97.9	100	-2.10
O-Dichlorobenzene	92.2	100	-7.80
Hexachlorobutadiene	10.0	10	0
2-Chloronaphthalene	85.3	100	-14.70

Average Difference = 7.38

NA - Not available



SITE LOCATION MAP

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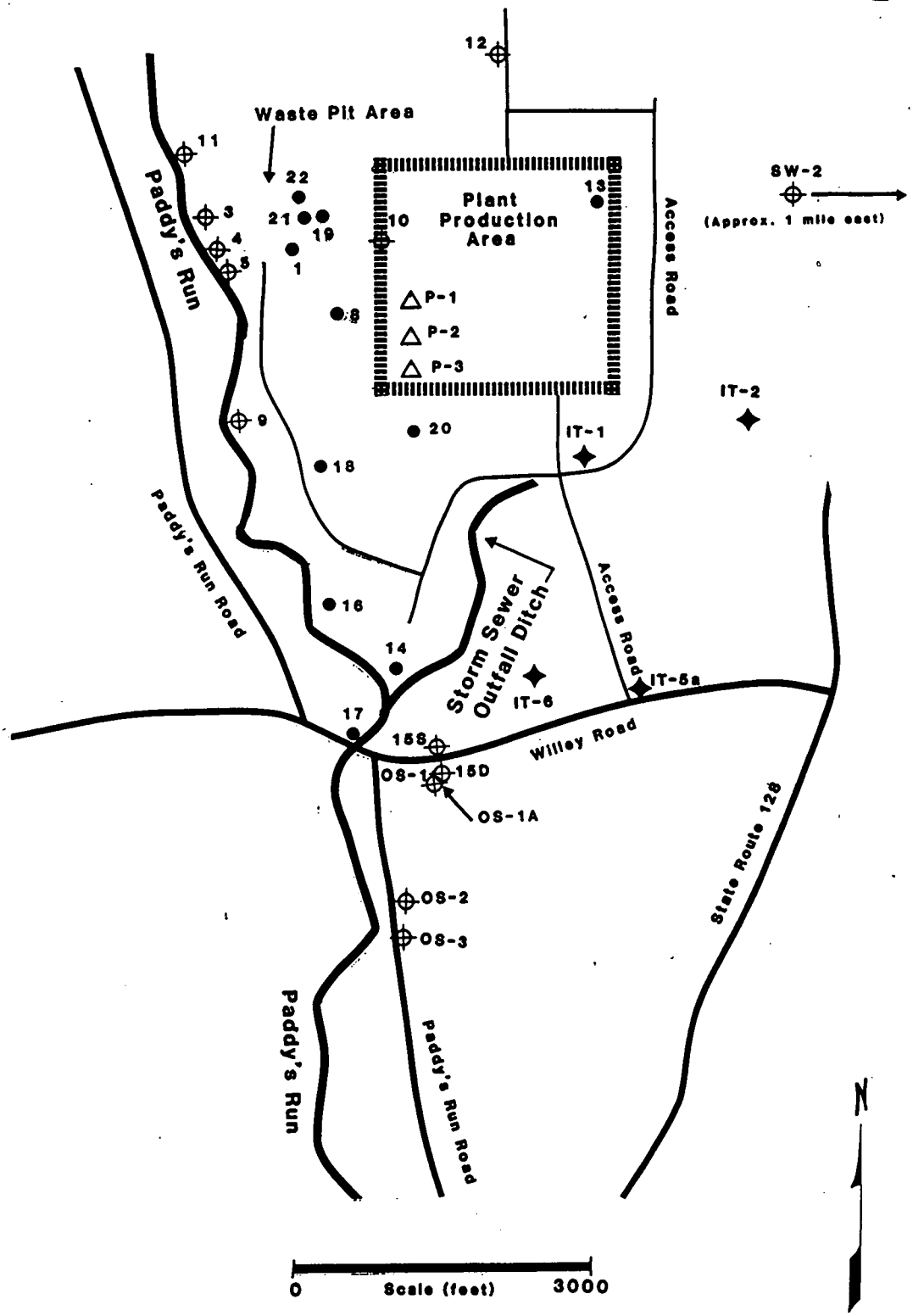
FIGURE 1-1

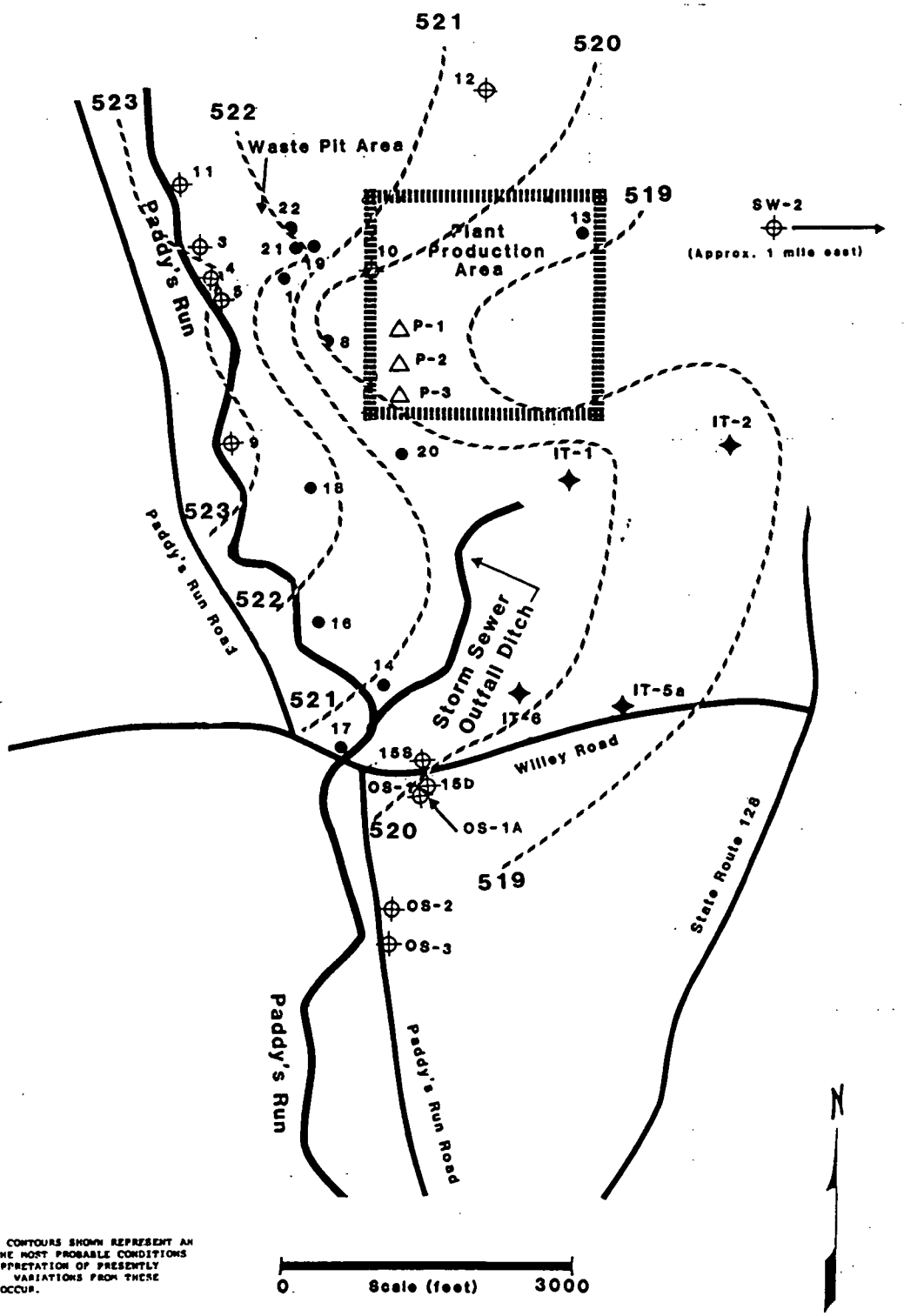


Explanation:

- Single Well Location
- Cluster Well Location
- Production Well Location
- IT Well Location

WELL LOCATIONS

Figure 2-1



THE WATER LEVEL CONTOURS SHOWN REPRESENT AN EVALUATION OF THE MOST PROBABLE CONDITIONS BASED UPON INTERPRETATION OF PRESENTLY AVAILABLE DATA. VARIATIONS FROM THESE CONDITIONS MAY OCCUR.

Explanation:

- Single Well Location
- Cluster Well Location
- Production Well Location
- IT Well Location
- WATER TABLE CONTOURS

RCRA ROUND IV
WATER TABLE CONTOURS
NOVEMBER 18, 1986
Figure 2-2

APPENDIX

RCRA SAMPLING AND ANALYSIS PLAN

FOR

WASTE PIT #4

LOCATED AT THE

FEED MATERIALS PRODUCTION CENTER

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FIGURES

1 Field Sampling Record

2 Chain of Custody Record

1.0 Introduction

Waste Pit #4 at the Feed Materials Production Center in Fernald, Ohio is subject to regulations of the Resource Conservation and Recovery Act (RCRA). Interim status regulations (as described in Task B.5 of the Federal Facilities Compliance Agreement (FFCA)) are addressed by this Response which presents a Sampling and Analysis Plan (SAP) prepared in conformance with 40 CFR 265.92.

The SAP presents information on:

- Groundwater sample collection from both monitoring and water supply wells.
- Sample preservation and shipment procedures.
- Analytical procedures and chain of custody controls.

The groundwater sampling program at the FMPC is a dynamic one. As such, field procedures described herein, may from time to time be modified based on weather and other conditions at the well. However, all sampling procedures utilized are designed to be consistent with USEPA/OEPA objectives and guidelines.

2.0 Scope of Plan

This document presents the Sampling and Analysis Plan required by Subpart F, Section 265.92 of the Resource Conservation and Recovery Act (RCRA).

This plan has been developed in accordance with specific regulations and guidelines. The following references have been used in its preparation:

(1) Procedures Manual for Ground Water Monitoring at Solid Wastes Disposal Facilities, 1979, U.S. EPA-530/SW-611 (reprinted 1980).

(2) Manual of Ground Water Sampling Procedures, 1981, Marion R. Scalf, et. al., NWWA/EPA Series.

(3) Standard Methods for Analysis of Water and Wastewater, 1985, 20th Edition, APHA-AWWA-WPCF.

(4) RCRA Ground - Water Monitoring Technical Enforcement Guidance Document, 1986, U.S. EPA, OSWER-9950.1. R

As required by the referenced regulation, this plan for groundwater monitoring contains procedures for sample collection, sample preservation and shipment, analytical procedures and chain of custody controls.

3.0 SAMPLE COLLECTION

This section of the sampling and analysis plan presents procedures use to evacuate, sample and preserve groundwater samples collected from the FMPC monitoring well networks.

3.1 Sampling Order

In order to minimize the possibility for cross contamination, samples will be collected beginning at the well least likely to contain elevated levels of hazardous wastes or their constituents (upgradient well) and ending at the well most likely to contain elevated levels of hazardous wastes or their constituents. The sampling order for monitor well locations is indicated in Table 1. During field sampling activites, wells are grouped into on-site and off-site locations. Each sampling team then samples its series of wells in the prescribed order.

3.2 Sampling Technique

The sampling technique can be divided into three separate stages:

- Pre-sampling measurements
- Well evacuation
- Sample acquisition

Figure 1 is an example of a Field Sampling Record, used during the well sampling activities. This form follows the three stages mentioned above and is completed for each well sampled.

Prior to pre-sampling measurements, the following information is recorded in permanent ink on the Field Sampling Record.

TABLE 1

Monitoring Well Sampling Order

Sampling Order	Well Number	Location
1	12	Off North access road
2	SW-2	Southwest collector
3	P-1	West side production area
4	P-2	West side production area
5	P-3	Water treatment Plant
6	OS-1 deep	Farm house on Willey Road
7	OS-1 dug	Farm house on Willey Road
8	15s	Pasture on Willey Road
9	16d	Guard training area
10	16s	Shooting range
11	17d	Willey Road Bridge
12	17s	Willey Road Bridge
13	18d	South of production area
14	18s	South of production area
15	20d	Southwest of production area
16	20s	Southwest of production area
17	20TP	Southwest of production area
18	14d	Confluence of SSOD with Paddy's Run
19	14s	Confluence of SSOD with Paddy's Run
20	9	Paddy's Run-East bank
21	11	North of production area
22	13d	East of scrap metal site
23	13s	East of scrap metal site
24	8d	South of waste pit storage area
25	8s	South of waste pit storage area
27	3	East of pit 3 area
28	4	South of pit 3
29	5	South of pit 3
30	1d	North of K-65 tanks
31	1s	North of K-65 tanks
32	19d	East of pit 4
33	19s	East of pit 4
34	19TP	East of pit 4
35	21s	South of pit 4
36	21TP	South of pit 4
37	22s	West of pit 4
38	22TP	West of pit 4
39	OS-1	Exterior tap in yard of farm house off Willey Road
40	OS-2	East side of Paddy's Run Road
41	OS-3	East side of Paddy's Run Road

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FIELD SAMPLING RECORD

Job _____ Date _____
Job # _____

Well # _____ Well Diameter _____
Location _____

I Water Level Measurements (From Top of Casing) in Feet.
Total Well Depth:
Depth to Water:
Height of Water Column:
Volume Conversion Factor:
Gallons in Well:

Conversion Factor
0.16 = 2" ID
0.65 = 4" ID
1.47 = 6" ID

II Well Evacuation
Pumping: Submersible
Nitrogen
Centrifugal

Bailing: Kemmerer
Bucket Bailer
: Other (Describe)

Pump On:
Pump Off:
Pumping Time:
Pumping Rate:
Gallons Removed:

Bailing Started:
Bailing Stopped:
Gallons Removed:

III Sampling
Withdrawal: Pumped (describe)
Bailed (describe)

Time: Date:
Sample I.D. #:
Trip Blank #:
No. of containers filled (primary lab):
No. of containers filled (replicate samples):
Physical appearance and odor:

Refrigerated: Date:
Time:

Field Tests (Before After Evacuation)
Temperature (°C/°F):
pH:
Spec Cond (umhos/cm):
Dissolved oxygen (mg/l):

Weather:

Comments:

FIGURE 1

- o Facility Name
- o Name of sampling personnel, affiliation, date and time of sampling
- o Well number, location and well diameter
- o Short description of weather conditions

3.2.1 Pre-sampling measurements

Pre-sampling measurements consist of recording total depth of the well, depth to water, well diameter and other well characteristics as indicated on the Field Sampling Record.

Measurement of total well depth is made with a weighted tape, divided into feet, inches and tenths of an inch. The accuracy of the measurement is to the 0.01 ft.

The water level measurement is made with a water level indicator model 51453 made by Slope Indicator Co. (or equivalent). The accuracy of this measurement is also to the nearest 0.01 ft.

Both measurements are made from the same chisel mark on the top of the outer protective (metal) well casing.

Subtracting the depth to the water table from the total well depth, the height of the water column in the well can be calculated. Multiplying this by the well conversion factor (based on well diameter) the number of gallons of water in the well can be estimated.

In addition, field measurements such as pH, conductivity, and temperature are made initially and are observed continuously throughout the well evacuation process prior to sampling in order to determine if the chemistry of the produced water has stabilized (see Section 3.2.2). R*

3.2.2 Well Evacuation

The composition of the water within the well casing and in close proximity to the well (e.g. the gravel pack) is usually not representative of the overall ground water quality at the sampling site. This is because important geochemical conditions such as the oxidation-reduction potential may differ drastically near the well from those in the surrounding water bearing materials. For this reason it is essential that a well be pumped or bailed until the well is thoroughly flushed of standing water and contains fresh water from the aquifer. Conductivity, temperature, and pH measurements are continuously observed during the well evacuation process in order to adequately determine when the chemistry of the produced water has stabilized. R*

The recommended amount of water required to be pumped or bailed from the well before sampling is dependent on many factors including the characteristics of the well, the hydrogeological nature of the aquifer, the type of evacuation equipment being used, and the parameters being sampled. The time required may range from the time needed to pump or bail one casing volume to the time needed to pump several casing volumes. At the FMPC, between 3 and 5 casing volumes of water are normally removed prior to sampling the well. A minimum of one casing volume is removed from low yielding wells and at least three casing volumes are evacuated from wells with higher yields. Well water will be evacuated either by purge pumping or bailing. R*

Pumping

The majority of monitoring wells currently in place at the FMPC have dedicated 3.75" submersible pumps and discharge tubing installed in them. These pumps are used to purge the wells. As each of these pumps are dedicated to a single R

well, no special cleaning at the pump or discharge tubing prior to or after sampling is required.

Purge water withdrawn from the wells within the plant production area is collected in a tank truck and eventually fed into the FMPC's wastewater treatment system. Purge water withdrawn from outside the plant production area is discharged onto the ground surface and directed away from the casing.

For those wells that do not have a dedicated pump, a 3.5" portable submersible pump is used to purge the wells. The pump and associated tubing is cleaned after each use by pumping water with a non-phosphate detergent, tap water and then distilled water through the pump and tubing prior to its use in another well (see Section 3.2.5). R*

The pumping start time is marked on the field sampling record and the pumping rate is monitored with a flow meter or by the time needed to fill a vessel (bucket) of known volume. Based on the pumping rate, pumping time is established to typically remove 3 to 5 volumes of water from the well. R*

Bailing

There are several shallow wells in the surficial till layer which have recoveries too slow to allow for continuous pumping. In this case, wells are evacuated using a 2 foot long, 1.75 inch i.d. stainless steel bailer with a teflon check valve. If the well is bailed dry prior to removing the required volumes it is allowed to reach 80% of recovery and then immediately sampled.

New nylon weave rope is used in the manipulation of the bailer and separate lengths are dedicated to each well. The rope is bagged and disposed after use on the site.

A biodegradable, non-phosphate cleaning solution (e.g., ALCONOX) is used to clean the bailers upon completion of well evacuation. The bailer is triple rinsed with tap water, distilled water, and acetone prior to rinsing with pesticide quality hexane and wrapping with aluminum foil before reuse (see Section 3.2.5). Bailed water from wells within the plant production area is collected in a tanker and disposed in the FMPC's wastewater treatment system. Bailed water from wells outside the plant production area, as well as wash and rinse water is discharged to the nearby ground surface. R*

3.2.3 Sample Collection

After removal of the required volumes from the well, the sample bottles are clearly labelled in permanent ink.

For collection of samples from pumps, the pump discharge tubing is placed near the bottom of the sample bottle and gradually withdrawn as the container fills. All sample bottles are filled to the top without overflowing, and the caps are firmly hand tightened to prevent leakage. Because of the relatively low turbidity of the ground water at this site, no field filtering of samples is performed. Only samples for non-volatile, inorganic constituents are collected using the dedicated pumping equipment. R*

In the case of sampling with a bailer, the water sample from the bailer is minimally handled and transferred immediately to the sample bottle. Bailing is used to collect samples for volatile organic constituents and total coliform. Bailing takes place subsequent to inorganic sampling; however, sufficient time is allowed to let the water stabilize prior to bailing. R*

As each full set of samples is collected from each monitoring point, they are stored in sampling kits comprised of an insulated container containing ice and appropriate shipping and handling instructions.

3.2.4 Field Blanks

As part of the ongoing QA program, samples are accompanied to the lab by field blanks. Field blanks are divided into cleaning blanks and trip blanks.

Cleaning blanks are made prior to each round of sampling, at least one each day of sampling. They consist of distilled, deionized water which is collected from the bailers after cleaning. They are analyzed and values are used to interpret the effectiveness of the cleaning procedures and bottle handling procedures.

In addition to the cleaning blanks, two types of trip blanks accompany the samples. These consist of sample bottes filled with distilled, deionized water and capped in the laboratory. One trip blank remains capped and accompanies the sample at all times until returning to the laboratory where it is opened and tested along with the other samples. The other trip blank is set aside during the sampling of the wells and left open to the atmosphere. The purpose of these trip blanks is to ensure that proper sample bottle preparation and handling techniques have been employed, and to evaluate the potential for atmospheric influences on sampling equipment.

3.2.5 Decontamination Procedures

Sampling equipment such as bailers, metering probes, and non-dedicated pumps and associated tubing used for RCRA groundwater monitoring at the FMPC are thoroughly cleaned and dried prior to reuse. Since organics are of concern with the FMPC detection monitoring efforts, the following procedure is practiced: clean with a non-phosphate detergent (e.g. ALCONOX); and rinse with tap water, distilled water, acetone, and pesticide quality hexane. If organics are of prime concern, then the following procedure would be followed: clean with a non-phosphate detergent; and rinse with 0.1N hydrochloric or nitric acid, tap water, and distilled water. R*

4.0 Sample Preservation and Shipment

In order that laboratory results be representative of the actual sample condition at the time of collection, it is important that proper methods be used for the preservation and transport of the samples prior to their delivery to the lab. These procedures are summarized below and are consistent with USEPA requirements as described in References 1 and 2.

4.1 Sample Containers

Proper types and materials must be utilized for the sample containers (bottles) in order to ensure that the samples, and in particular the parameters to be analyzed from that particular bottle, do not react with the container material and alter the concentration or values of the parameter. Sample bottles are supplied by the subcontracted laboratory and have been carefully selected to meet these performance objectives. A variety of materials, such as amber glass, clear glass, and polyethylene are employed as required. Where necessary, specialized sample bottles are utilized, such as for VOC measurements. Table 2 provides a more detailed description of the types of sample bottles used during RCRA groundwater monitoring at the FMPC. R*

4.2 Sample Preservation

In addition to selection of proper container materials, other methods are often required in order to reduce the possibility of chemical reactions and/or precipitations occuring within the container which could alter analytical results. Those sample bottles which require chemical perservatives (e.g. acid) have the preservatives added by the laboratory prior to shipment of the bottles to the site. In addition, all sample bottles are placed in iced thermal coolers and kept as close to 4°C as possible during the period of time

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TABLE 2

CONTAINERS AND PRESERVATIVES USED FOR RCRA GROUNDWATER SAMPLING

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
		Indicators of Groundwater Contamination		
*pH	Plastic	Field determined	None	25 ml
*Specific conductance	Plastic	Field determined	None	100 ml
*TOC	Amber glass (teflon-lined cap)	Cool, 4°C	28 days	4 x 15 ml
*TOX	Amber glass (teflon-lined cap)	Cool, 4°C	7 days	4 x 15 ml
		Groundwater Quality Characteristics		
*Chloride	Plastic	Cool, 4°C	28 days	50 ml
*Iron Manganese Sodium	Plastic	Field acidified to pH <2 with HNO_3	6 months	200 ml

TABLE 2 (CONTINUED)

CONTAINERS AND PRESERVATIVES USED FOR RCRA GROUNDWATER SAMPLING

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
°Phenols	Glass	4°C plus field acidified to pH <2 with HNO_3	28 days	500 ml
°Sulfate	Plastic	Cool, 4°C	28 days	50 ml
		EPA Interim Drinking Water Characteristics		
°Arsenic Barium Cadmium Chromium Lead Mercury Selenium Silver	Plastic	Field Acidified to pH <2 with HNO_3	6 months	1000 ml
°Fluoride	Plastic	Cool, 4°C	28 days	300 ml
°Nitrate/ nitrite	Plastic	4°C plus field acidified with with H_2SO_4	14 days	1000 ml
°Endrin Lindane Methoxychlor Toxaphene 2, 4 D	Glass	Cool, 4°C	7 days	2000 ml

TABLE 2 (CONTINUED)

CONTAINERS AND PRESERVATIVES USED FOR RCRA GROUNDWATER SAMPLING

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
2, 4, 5 TP Silvex				
°Uranium, total Gross alpha Gross beta Radium 226, 228 Potassium 40 Technetium 99 Thorium 228,230, 232 Cesium 137 Strontium 90 Ruthenium 106 Neptunium 237 Plutonium 238, 239, 240	Plastic	Cool, 4°C plus lab acidified with HNO_3 or HCl	6 months	4 liters
°Coliform bacteria	Polypropylene	Cool, 4°C	6 hours	200 ml
Other Groundwater Characteristics of Interest				
°Cyanide	Plastic	Cool, 4°C plus Na OH to pH >12	14 days	500 ml

TABLE 2 (CONTINUED)

CONTAINERS AND PRESERVATIVES USED FOR RCRA GROUNDWATER SAMPLING

Parameter	Recommended Container	Preservative	Maximum Holding Time	Minimum Volume Required for Analysis
°Semivolatile, nonvolatile organics	Glass	Cool, 4°C	7 days	1000 ml
°Volatiles	Glass (teflon-lined cap)	Cool, 4°C	14 days	1000 ml

between collection and delivery to the lab. This refrigeration aids in the suppression of bacterial growth in the samples. Tables 2 and 3 list various preservatives and their applications. R*

TABLE 3

Preservation of Groundwater Samples Prior to Laboratory Analysis

Preservative	Action	Applicable to:
$HgCl_2$	Material Inhibitor	Nitrogen forms, Phosphorous forms
Acid (HNO_3)	Metals solvent, prevents precipitation	Metals
Acid (H_2SO_4)	Bacterial Inhibitor	Organic samples (COD, oil & grease, organic carbon)
	Salt formation with organic bases	Ammonia, amines
Alkali (NaOH)	Salt formation with volatile compounds	Cyanides, organic acids
Refrigeration	Bacterial Inhibitor	Acidity-alkalinity, organic materials, BOD, color, odor, organic Phosphorous, organic Nitrogen, carbon, etc. biological organisms (coliform, etc.)

4.3 Sample Shipment

In order to minimize the potential for loss, destruction, or tampering, all samples are delivered personally to the lab by a member of the sampling team. Sample bottles in their coolers are loaded onto a truck. The truck is kept locked with only the sampling team possessing a key. The bottles are then delivered directly to the lab and turned over to lab personnel. Chain-of-custody control is exercised throughout the sampling and sample shipment process as described in Section 6.0.

5.0 Analytical Procedures

All analyses of ground water samples in connection with RCRA groundwater sampling is conducted by Howard Labs, Inc. of Dayton, Ohio. Howard Labs is certified by both USEPA and OEPA to conduct such analyses. Analyses are conducted according to USEPA protocols and procedures as outlined below.

5.1 Constituents Being Monitored

A list of constituents that should be tested for in the FMPC groundwater was developed prior to the initiation of expanded monitoring in August, 1985 to meet RCRA requirements. This list addresses five (5) types of parameters:

- o Parameters used to evaluate general water quality. These include chloride, iron, manganese, phenols, sodium and sulfate.
- o Indicators of groundwater contamination. These include pH, specific conductance, total organic carbon and total organic halogen. These parameters are tested in quadruplicate as required by 40 CFR Part 264.90.

- o Constituents evaluating drinking water suitability. These include 11 metals, 3 radionculides, 6 pesticides/herbicides and coliform bacteria.

- o Parameters related specifically to past or current FMPC operations. This list includes 8 metals, 31 synthetic organic compounds, total dissolved solids and chemical oxygen demand (COD).

- o Radionuclides related to past or current FMPC operations. Fifteen are analyzed, including isotopes of uranium, radium, thorium and plutonium.

A complete list of all parameters being tested for in the FMPC groundwater is provided in Table 4. Appendix IX of 40 CFR 264 parameters are to be analyzed for selected RCRA wells as part of the Weston Characterization Investigation Study (CIS) for the Waste Pit Storage Area in support of the Environmental Impact Statement (EIS) at the FMPC. This sampling, along with additional monitoring well installation, will be conducted as expeditiously as possible. R*

5.2 Analytical Methods

Chemical analysis of the samples is conducted according to methods specified in EPA-600/4-79-020, "Methods for Chemical Analysis of Water and Wastes". Radiological analyses are performed in accordance with procedures specified in EPA-600/4-80-032, Prescribed Procedures for Measurement of Radioactivity in Drinking Water." Where no EPA-approved method exists, analyses are conducted according to generally accepted standards and practices of the analytical profession under direct supervision of a chemistry Ph.D. The parameters analyzed, detection limits and the methods utilized are summarized in Tables 4, 5, 6 and 7.

TABLE 4

PARAMETERS TO BE ANALYZED

A. For General Water Quality [1]

1. Chloride
2. Iron
3. Manganese
4. Phenols
5. Sodium
6. Sulfate

B. For Indicators of Contamination (Quadruplicate Analysis) [1]

1. pH
2. Specific Conductance
3. Total Organic Carbon (TOC)
4. Total Organ Halogen (TOX)

C. For Drinking Water Suitability [1]

1. Arsenic
2. Barium
3. Cadmium
4. Chromium - Hexavalent
   - Total
5. Fluoride
6. Lead
7. Mercury
8. Nitrate
9. Selenium
10. Silver
11. Gross Alpha
12. Gross Beta
13. Radium

TABLE 4 (Con't.)

14. Endrin
15. Lindane
16. Methoxychlor
17. Toxaphene
18. 2,4-D
19. 2,4,5-TP
20. Coliform Bacteria

D. Site Specific Parameters [2]

1. Nickel
2. Cyanide
3. Copper
4. Zinc
5. Magnesium
6. Calcium
7. Phosphorus
8. Chlorobenzene
9. Chlorodibromomethane
10. Chloroethane
11. 2-chloroethylvinyl
12. Chloroform
13. Dichlorobromomethane
14. Dichlorodifluoromethane
15. Total Dissolved Solids (TDS)
16. Total Potassium
17. Chemical Oxygen Demand (COD)
18. per Chloroethylene
19. cis 1,2 Dichloroethylene
20. Tributylphosphate
21. Acrolein
22. Acrylonotrille
23. Benzene
24. bis (chloromethyl) Ether
25. Bromoform
26. Bromodichloromethane
27. Bromomethane
28. Carbon tetrachloride
29. Chloromethane
30. 1,2 Dichlorobenzene
31. 1,3 Dichlorobenzene
32. 1,4 Dichlorobenzene

Table 4 (Con't.)

33. 1,1 Dichloroethane
34. 1,2 Dichloroethane
35. 1,1 Dichloroethylene
36. 1,2 Dichloropropane
37. 1,2 Dichloropropylene
38. Ethylbenzene
39. Methylbromide
40. Methylchloride
41. trans-1,2 Dichloroethylene
42. 1,3 Dichloropropene
43. 1,1,2,2 Tetrachloroethane
44. Tetrachloroethylene
45. Toulene
46. 1,1,1 Trichloroethane
47. 1,1,2 Trichloroethane
48. Trichloroethylene
49. Trichlorofluoromethane
50. Vinyl Chloride

E. Radionuclide [2]

1. Potassium 40
2. Total Uranium
3. Radium 226
4. Radium 228
5. Technetium 99
6. Thorium 228
7. Thorium 230
8. Thorium 232
9. Cesium 137
10. Strontium 90
11. Ruthenium 106
12. Neptunium 237
13. Plutonium 238
14. Plutonium 239
15. Plutonium 240

F. Schedule - Quarterly for one (1) year, semiannual thereafter (or as necessary according to regulations).

[1]Required for RCRA and analyzed for each sample.

[2]Not required for RCRA, but also analyzed for each sample.

Analytical Methods and Detection Limits for Groundwater Samples
Water Quality Indicators

Parameter	Detection Limit	Analytical Method**
Chloride	1 ppm	325.3
Iron	50 ppb	236.2
Manganese	20 ppb	243.2
Phenols (total)	5 ppb	420.3
Sodium	50 ppb	273.2
Sulfate	1.0 ppb	375.2
pH	0.1 std./units	150.1
Specific Conductance	1 umho/cm	120.1
Total Organic Carbon (TOC)	1 ppb	415.1
Total Organic Halogen (TOX)	10 ppb	*
Arsenic	5 ppb	206.2
Barium	200 ppb	208.2
Cadmium	2 ppb	213.2
Chromium-Hexavalent	5 ppb	218.4
Chromium-Total	5 ppb	218.2
Fluoride	10 ppb	340.2
Lead	5 ppb	239.2
Mercury	2 ppb	245.2
Nitrate (as N)	20 ppb	352.1
Selenium	2.5 ppb	270.2
Silver	30 ppb	272.2
Gross alpha	15 pCi/l	900.0
Gross beta	5 pCi/l	900.0
Radium	5 pCi/l	900.1
Endrin	0.2 ppb	608
Lindane	0.2 ppb	608
Methoxychlor	0.2 ppb	608
Toxaphene	0.5 ppb	608
2,4-D	0.2 ppb	608
2,4,5-TP Silvex	0.2 ppb	608
Coliform Bacteria	2/100 ml	*
Nickel	5 ppb	249.2
Cyanide	5 ppb	335.3
Copper	25 ppb	220.2
Zinc	25 ppb	289.2
Magnesium	10 ppb	242.1
Calcium	50 ppb	215.1
Phosphorus	20 ppb	365.4
Total Dissolved Solids (TDS)	10 ppb	*
Total Potassium	50 ppb	258.1

* Approved analytical method not available. Analysis performed according to generally accepted analytical procedures.

** As described in References 3, 4 and 5.

Analytical Methods and Detection Limits for Groundwater Samples - Volatiles

	Detection Limit	Analytical Method
Chlorobenzene	2.0 ppb	1624
Chlorodibromomethane	2.0 ppb	1624
Chloroethane	2.0 ppb	1624
2-Chloroethlvinyl Ether	2.0 ppb	1624
Chloroform	2.0 ppb	1624
Dichlorobromomethane	2.0 ppb	1624
Dichlorodifluoromethane	2.0 ppb	1624
Chemical Oxygen Demand (COD)	10 ppb	405.1
per Chloroethlyene	2.0 ppb	*
cis 1,2 Dichloroethylene	2.0 ppb	1624
Tributylphosphate	2.0 ppb	*
Acrolein	2.0 ppb	*
Acrylonitrille	2.0 ppb	*
Benzene	2.0 ppb	1624
bis (Chloromethyl)Ether	2.0 ppb	*
Bromoform	2.0 ppb	1624
Bromodichloromethane	2.0 ppb	1624
Bromomethane	2.0 ppb	1624
Carbon tetrachloride	2.0 ppb	1624
Chloromethane	2.0 ppb	1624
1,2 Dichlorobenzene	2.0 ppb	1625
1,3 Dichlorobenzene	2.0 ppb	1625
1,4 Dichlorobenzene	2.0 ppb	1625
1,1 Dichloroehtane	2.0 ppb	1624
1,2 Dichloroethane	2.0 ppb	1624
1,1 Dichloroethylene	2.0 ppb	1624
1,2 Dichloropropane	2.0 ppb	1624
1,2 Dichloropropylene	2.0 ppb	*
Ethylbenzene	2.0 ppb	1624
Methylbromide	2.0 ppb	1624
Methylchloride	2.0 ppb	1624
Trans 1,2 Dichloroethylene	2.0 ppb	1624
1,3 Dichloropropene	2.0 ppb	*
1,1,2,2 Tetrachloroethane	2.0 ppb	1624
Tetrachloroethylene	2.0 ppb	1624
1,1,1 Trichloroethane	2.0 ppb	1624
1,1,2 Trichloroethane	2.0 ppb	1624
Trichloroethylene	2.0 ppb	1624
Trichlorofluoromethane	2.0 ppb	1624
Vinyl Chloride	2.0 ppb	1624

* Approved analytical method not available. Analysis performed according to generally accepted analytical procedures.

TABLE 7

Analytical Methods and Detection Limits for Groundwater Samples - Radionuclides

Parameter	Detection Limit	Analytical Method
Cesium 137	5 pCi/l	901.0
Strontium 90	5 pCi/l	905.0
Ruthenium 106	5 pCi/l	*
Neptunium 237	5 pCi/l	*
Plutonium 239	5 pCi/l	*
Plutonium 240	5 pCi/l	*
Potassium 40	5 pCi/l	*
Radium 226	5 pCi/l	903.1
Radium 228	5 pCi/l	904.0
Technetium 99	5 pCi/l	*
Thorium 228	5 pCi/l	*
Thorium 230	5 pCi/l	*
Thorium 232	5 pCi/l	*
Uranium 233/234	5 pCi/l	*
Uranium 235	5 pCi/l	*
Uranium 238	5 pCi/l	*

* Approved analytical method not available. Analysis performed according to generally accepted analytical procedures.

6.0 Chain of Custody Control

A chain-of-custody control program is employed in order to provide for tracing of possession and handling of individual samples from the field collection through laboratory analysis. The various components of that program are summarized below.

6.1 Sample Labels

In order to avoid misidentification of the sample containers, each container has an adhesive label attached which indicates the sample identification number (well number), date and time of collection, and identification of the facility from which the sample was taken.

6.2 Sample Seals

As each thermal cooler is filled with sample bottles it is sealed by placing an adhesive band entirely around the cooler. This seal is then signed by the member of the collection team emplacing it. The seal is placed and signed such that opening of the cooler will result in obvious disruption of the seal.

6.3 Chain-of-Custody Records

In order to establish the documentation necessary to trace sample possession from time of collection, chain of custody information is recorded for each sample on a standard Chain-of-Custody form.

These data includes:

- Sample I.D. number
- Reason for sampling
- Witnesses

- o Collection Procedure
- o Method of Preservation
- o Name, Signature, and Affiliation of each person taking possession of sample
- o Date and time of each transfer
- o Purpose of each transfer
- o Other pertinent remarks

An example of the Chain-of-Custody record presently in use is provided in Figure 2.

6.4 Field Sampling Records

In addition to the Chain-of-Custody forms, additional dates regarding the R circumstances of sample collection are recorded in the Field Sampling Records. These were discussed in Section 3.2.

References

1. Manual of Ground Water Sampling Procedures, 1981, Marion R. Scalf, James F. McNabb, William J. Dunlap, Roger L. Cosby, John Fryberger, NWWA/EPA Series.

2. Procedures Manual for Ground Water Monitoring at Solid Waste Disposal Facilites, USEPA, 1980 #SW-611.

3. USEPA, 1983, Methods For Chemical Analysis Of Water and Wastes, Publication Number 600/4-79-020.

4. USEPA, 1980, Prescribed Procedures for Measurement of Radioactivity in Drinking Water, Publication Number 600/4-80-032.

5. Howard Laboratories, Inc. 1986, Quality Assurance/Quality Control Program, Publication Number HLI-QC.EF.

6. USEPA, 1986, RCRA Groundwater Monitoring Technical Enforcement Guidance Document (TEGD), OSWER-9950.1. R

ATTACHMENT 1

HOWARD LABS QA/QC PROGRAM

HOWARD LABORATORIES. INC.
Quality Assurance/Quality Control Program

INTRODUCTION: The Quality Assurance/Quality Control Program (QA/QC) utilized by Howard Laboratories, Inc., is a comprehensive program which utilizes the same concept in each of the different departments within the lab. Each department, however, differs in their QC portion due to the different parameters analyzed in each of the different departments.

Basically, the QA program insures that the chemicals utilized for different standards are consistent and correct within strict limitations. All standards are prepared or purchased such that at least two different sources of standards are utilized to insure the precision of the standard(s) utilized in all analyses. Due to the vast number of parameters which are determined by HLI, not all standards are directly tracable to NBS standards or US EPA standards. All standards which are available from regulatory agencies are utilized within the QA program to insure precision in preparation and control of internally prepared or externally purchased standards. All standards are stored per regulatory recommendations, or where no such recommendations exist, storage has been limited to insure reliability. Further, instruments utilized in the analysis at HLI are calibrated continuously, not just on a day-to-day basis, but throughout the day and throughout the analytical run. These instruments are all state-of-the-art and are automated to reduce human error. Most instruments are controlled by computers. Calibration of these instruments includes the recommendations by the manufacturer and/or regulatory agencies.

The QC program consists of utilizing the standards described above, calibration of instruments on a multi-level calibration curve within a linear range of the instrument being utilized and comparing this response to previous calibration curves and standards. Due to the different departmental requirements, all samples and/or standards are analyzed in at least duplicate. Many are run in triplicate.

For example, the AA Department for metals determines all metals in triplicate. The MS department determines all samples in duplicate and some in quadruplicate, as required by the parameter. Each department has determined the specific acceptance criteria for each parameter. These acceptance criteria have been determined to be those recommended by regulatory agencies where applicable. Where regulatory agencies do not recommend an acceptance criteria, HLI has determined its own acceptance criteria based upon three levels of QC. These include percent recovery of spiked samples, reproducibility of replicate analyses and recovery of known standards. The following are specific QC/QA criteria:

WET CHEMISTRY -

pH	Instrument standardized three to four times daily with commercially purchased buffer standards plus HLI Stds.
Residue	Precision and accuracy data are not applicable to these tests. However, periodic replicates of samples are run for evaluation purposes.
Color	No precision or accuracy data are applicable to this test. Color standards are prepared according to Standard Methods, 15'th edition, method 204.A.
Fecal Coliform	3 dilutions per sample set are employed. Quarterly count comparisons are performed. Records are kept for incubator temperature, pH, autoclave use, and water suitability.
Bromide	One quality control sample per five samples analyzed. Acceptable limits are +/- 10% of true value.
Chloride	One quality control sample per five samples analyzed. Acceptable limits:

Conc. Range	% True Value
1 - 10 mg/L	+/- 15

10 - 50	+/- 10
50 - 125	+/- 5

Cyanides

One quality control sample per five samples analyzed. Acceptable limits:

Conc. Range	% True Value
0.005 - 0.050 mg/L	+/- 20
0.050 - 0.300	+/- 10

Fluorides

One quality control sample per five samples analyzed. Acceptable limits:

Conc. Range	% True Value
0.02 - 0.05 mg/L	+/- 20
0.05 - 2.00	+/- 10

Ammonia

One quality control sample per five samples analyzed. Acceptable limits:

Conc. Range	% True Value
0.050 - 0.250 mg/L	+/- 20
0.250 -25.000	+/- 10

TKN

One quality control sample per five samplea analyzed. Acceptable limits:

Conc. Range	% True Value
0.10 - 0.25 mg/L	+/- 20
0.25 - 25.00	+/- 10

Nitrate/ Nitrite

One quality control sample per five samples analyzed. Acceptable limits:

Conc. Range	% True Value
0.050 - 0.250 mg/L	+/- 20
0.250 -25.000	+/- 10

Phosphorus

One quality control sample per five samples analyzed. Acceptable limits:

Conc. Range	% True Value
0.050 - 0.500 mg/L	+/- 20
0.500 - 2.000	+/- 10

Sulfate

One quality control sample per five samples analyzed. Acceptable limits not established by US. EPA.

COD	One quality control sample per five samples analyzed. Acceptable limits: Low level +/- 20% High level +/- 10%
BOD	Controls, blanks and standards run with each lot. Acceptable limits: +/- 10% of True Value
PHENOLS	One quality control sample per five samples analyzed. Acceptable limits: Conc. Range % True Value 0.005 - 0.050 mg/L +/- 20% 0.050 - 0.250 +/- 10%

METALS

Three levels of quality control samples are employed over the linear working range of the parameter. One entire series is run with each lot analysis. Acceptable limits:

Furnace range	+/- 20%
Flame range	+/- 10%

One calibration check sample is performed every sixth analysis to verify calibration curve. Acceptable range:

Furnace	+/- 20%
Flame	+/- 10%

Out of limit condition requires re-standardization of instrument.

Exceptions -

Mercury - One quality control check every nine samples. Acceptable limits +/- 20% of true value. Analysis of all samples run in triplicate.

Arsenic & Selenium - Three levels of quality control are run twice per lot analysis. Acceptable results are +/- 20%. All analysis are run with spike. Acceptable limits of recovery +/- 20%

In addition to the above procedures, samples analyzed for

EP Toxicity are run by the method of additions, which entails running each sample at three levels of spike addition. The results of expected versus observed values are calculated in a linear regression analysis, and the slope of the line expressed as a percent. Acceptable limits are between the values of 80 to 120 % for all EP Toxic metals.

ORGANIC ANALYSIS

Standards are maintained in groups for purgibles, acid extractable, base/neutral, and pesticide/PCB's. These groups are subdivided into lower groups to facilitate identification and reduce costs in standard preparation.

The quality control procedures listed in the December 3, 1979 Federal register are utilized to maintain instrument specifications. These procedures utilize deuterated anthracene and purgibles not on the priority pollutant list. In addition Howard Laboratories utilizes the following procedures to further improve upon detection limits and quality control:

1. Each sample is duplicated where required
2. A standard of known value is analyzed at least every ten samples along with a blank
3. In the case of PCB's, quantitation is duplicated on a second column.
4. Acceptable limits of recovery must meet the following:

   a. Recovery of known standards:

      80% at a level 5 times the detection limit
      50% at a level 2 times the detection limit

   b. Recovery of spike values:

      80% at a level 5 times the detection limit
      50% at a level 2 times the detection limit

   NOTE: PCB analysis have more stringent requirements.

PCB ANALYSIS

a. Recovery of known standards:

1. Aqueous standards -

0.01 - 0.05	+/- 0.005
0.05 - 0.50	+/- 0.01
0.50 - 5.00	+/- 0.05
Above 5.00	+/- 0.50

2. Oil standards -

Below 1.00	as appropriate
1.0 - 10.0	+/- 0.2 to +/- 2.0
10.0 - 50.0	+/- 2.0 to +/- 5.0
50.0 -500.0	+/- 5.0 to +/- 50.0
Above 500.0	as appropriate

b. Recovery of Spike values:

1. Aqueous -

0.01 - 0.05	>50%
0.05 - 0.50	>80%
0.50 - 5.00	>80%
Below 1.0	as appropriate
1.0 - 10.0	20%
10.0 - 50.0	10 to 20%
50.0 -500.0	10%
Above 500.0	10%

Duplication of samples

Duplicate samples must be reproducible at the same dilution by the following factors:

1. Aqueous -

0.01 - 0.05	+/- 0.005 - 0.01
0.05 - 0.50	+/- 0.01 - 0.05
0.50 - 5.00	+/- 0.05 - 0.10
Above 5.00	+/- 0.10

2. Oils -

Below 1.0	as appropriate
1.0 - 10.0	+/- 0.2 to 1.0
10.0 - 50.0	+/- 1.0 to 5.0
50.0 -500.0	+/- 5.0 to 50.0
Above 500.0	+/- 50.0 for each 500.0

GCSCAN ANALYSES:

GCSCAN is a code for multiple analyses utilizing gas chromatography along with a specified methodology. That methodology may be ASTM, EPA, NIOSH, AOAC or other method widely recognized in the analytical field. The specific method is specified with the results when applicable. The same QA/QC is provided as for PCBs and when peaks cannot be identified, GC/MS is utilized. Quantitation is by GC using multiple level calibration.

GCMS ANALYSES:

GCMS is a code for multiple methods of analyses utilizing a gas chromatograph equipped with mass spectrometer detector. This method identifies compounds and quantitates the same with external or internal standards, as appropriate. Specific methods will be specified when such methods are recognized by the scientific community or regulatory agencies. Since not all procedures are specified, the use of GCMS for organic analyses will be performed by an academically trained analyst with experience in the application of GC and ability to interpret data which may not be found on NBS or other recognized spectral libraries. The operation of GCMS will be under the direct supervision of a Ph.D.

PRIORITY POLLUTANT ANALYSES:

Priority pollutants, TTO's or fractions of these compounds will be by the method described in the December 3, 1979 Federal Register. Exact specifications for all parameters will be by protocol. QA includes recovery of spiked samples, reproducibility of the same sample, duplicate standards and at least one other source of comparison standards derived from the US EPA, NBS, or other recognized source.

Base Neutral Fraction: Method 1625 (capillary column use of Method 625) will be utilized. Internal standards will include D-10 Anthracene or D-10 Phenanthrene, with other recognized internal standards to determine retention times,

insure proper spectral retrival and maintain quality control on the internal standards themselves. Quantitation will be based upon each individual parameter and not grouped or quantitated based upon area of a known amount of internal standard. The charge/mass ratio of the internal standards is not the same for the internal standards as it is for the compounds in question; therefore internal standards will be utilized to determine recovery while quantitation will be based upon known standards when recoveries have been met satisfactorily.

Acid Fraction: Method 1625 will be utilized and the same information as that utilized for Base Neutrals will be followed.

Volatile Fraction: Method 1624, utilizing cryogenic purge and trap will be utilized for the volatile parameters. The entire system is automated to reduce human error, and each sample group will be spiked to determine recovery and acceptability of the data. We have found that Method 624, which utilizes a packed column will not satisfactorily quantitate the very volatile purgibles, and for that reason, have chosen to use liquid nitrogen trap to collect the sample. This method also allows the detection of more compounds than that listed in the volatile fraction.

Pesticide/PCB Fraction: GC/ECD will be utilized to screen the Pesticide/PCB (PESTPP) fraction, utilizing US EPA Method 608. This method is more than 10 times as sensitive as the GC/MS method. If compounds are detected, GC/MS analyses are utilized to identify such compounds. Quantitation will be by GC.

Special Parameters: Although the above methods are recognized for all priority pollutant parameters, the detection limits for certain of these parameters is quite high (e.g. 2,3,7,8-Dioxin). The recommended US EPA procedure of utilizing GC for screening of this parameter will be utilized.

8000 SERIES METHODS:

SW 846 Manual covers the analyses of hazardous wastes. The methods cited in SW 846 for organic analyses have not been approved by US EPA but are only recommended at this time. This firm has spent many weeks performing such analyses and in determining recoveries of each of the parameters under the 8000 series recommended procedures. We have been unsuccessful in finding 13 of the compounds for standards. All others are available. We have further modified (added to) the methods of analyses in SW 846 to better determine certain parameters. These methods are being prepared to submit to US EPA for their information. Certain methods of preparation have been reversed in addition to normal extraction procedures. For example, base neutral/acid fraction normally requires the base fraction be extracted first, then the acid fraction. In addition to this normal method, we include the acid extraction first followed by base neutral. This allows confirmation of certain organic salts by GCMS which are not normally capable of being analyzed by GC or GC/MS.

SUMMARY:

This firm maintains all of the equipment listed for US EPA methods. This includes GC/MS, GC, HPLC and all of the special detectors required for these analyses. Further, we maintain automatic equipment which operates on a 24 hour basis, 7 days per week. Such automation and continued operation have proven to provide better data (free of human error) and better operation of equipment. We have found that startup and shutdown of equipment promotes poor operation of the equipment and causes greater problems in stability of that equipment.

Organic analyses are conducted by protocol where recommended protocol exists. Otherwise, scientifically recognized procedures are utilized for such analyses. All organic analyses are performed under the direction of a Ph.D., with many years of experience, and well over 100,000 analyses.

Data is provided on formats utilizing the largest laboratory data management system available. Such data

is stored on 9 track mag tapes and archived per US EPA requirements.

Specific questions concerning these methods and data should be directed to the Laboratory Director.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

03/17/87 12:30:34

LAB # 86-11-850

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/19/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	HK-Dug
01	HK-Dug Bact. #74310
02	#15s
02	#15s Bact. #74311
03	#MW-13s
03	#MW-13s Bact. #74312
04	#MW-13d
04	#MW-13d Bact. #74313

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID HK-Dug SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	33 pCi/L	CA	149.000 mg/L
CD	<0.002 mg/L	CLI	32.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.28 mg/L	FE	0.069 mg/L	HG	<0.0002 mg/L	K	24.300 mg/L	MG	43.000 mg/L
MN	<0.020 mg/L	NA	272.000 mg/L	NI	<0.005 mg/L	NO3I	8.80 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	100.0 mg/L	TDSI	668 mg/L
ZN	0.046 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID HK-Dug FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/19/86 Category

DATE EXTRACTED 01/23/87 DATE INJECTED 01/28/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID HK-Dup FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-850

Results by Sample

SAMPLE ID HK-Dug

FRACTION 01I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

VERIFIED BY DLH

DATA FILE 23145

DATE INJECTED 11/20/86

ANALYST SB

COMPOUND	RESULT	UNITS
Acetone	4480.0	ug/L
2-Propanol	1420.0	ug/L
(Results confirmed on 2nd GCMS system)		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	112.0 %	S1V
toluene-d6	99.2 %	S2V
bromofluorobenzene	94.0 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID HK-Dug FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.24	7.25	7.25	7.26	7.25	0.01
CONDUCTIVITY	920	920	920	925	921	2.50
TOTAL ORGANIC CARBON	1	<1	<1	<1	<1	0.5

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID HK-Dug Bact.#74310 SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/19/86 Category

TOCOL 2,600 /100ml

SAMPLE ID #15s SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	18 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	42 pCi/L	CA	82.900 mg/L
CD	<0.002 mg/L	CLI	21.0 mg/L	CN	<0.005 mg/L	CODI	49 mg/L	CR	0.009 mg/L	CR6	<0.009 mg/L
CU	0.027 mg/L	F	0.40 mg/L	FE	0.289 mg/L	HG	<0.0002 mg/L	K	2.650 mg/L	MG	20.600 mg/L
MN	<0.020 mg/L	NA	14.900 mg/L	NI	<0.005 mg/L	NO3I	2.96 mg/L	PB	0.008 mg/L	PHNLI	<0.005 mg/L
PTI	0.09 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	60.0 mg/L	TDSI	388 mg/L
ZN	0.026 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-850

Results by Sample

SAMPLE ID #15s

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/19/86 Category

DATE EXTRACTED 01/21/87

CONCENTRATION FACTOR 100

DATE INJECTED 02/03/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #15s FRACTION O2G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-850

Results by Sample

SAMPLE ID #15s

FRACTION 02I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

VERIFIED BY DLH

DATA FILE 23146

DATE INJECTED 11/20/86

ANALYST SB

COMPOUND	RESULT	UNITS
Acetone	120.0	ug/L
1,1-Dichloroethene	1.1	ug/L
1,1,1-Trichloroethane	7.0	ug/L
No other compounds detected		
but results were confirmed on		
second GCMS File #38137.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	134.0 %	S1V
toluene-d6	101.0 %	S2V
bromofluorobenzene	99.5 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-850

SAMPLE ID #15s

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.41	7.41	7.41	7.40	7.41	0.01
CONDUCTIVITY	520	520	520	525	521	2.50
TOTAL ORGANIC CARBON	7	8	10	10	8.75	1.5

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

.. pH reported in S.U.

Conductivity reported in umhos/cm

Total Organic Carbon reported in mg/L

NA = Not Analyzed

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #15s Bact.#74311 SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/19/86 Category

TOCOL 19 /100ml

SAMPLE ID #MW-13s SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	3 pCi/L	CA	130.000 mg/L
CD	<0.002 mg/L	CLI	27.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.24 mg/L	FE	2.630 mg/L	HG	<0.0002 mg/L	K	2.760 mg/L	MG	28.000 mg/L
MN	0.211 mg/L	NA	255.000 mg/L	NI	<0.005 mg/L	NO3I	0.08 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	105.0 mg/L	TDSI	503 mg/L
ZN	<0.025 mg/L										

RECEIVED 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-850

Results by Sample

SAMPLE ID #MW-13s

FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/19/86 Category

DATE EXTRACTED 01/23/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/28/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-13s FRACTION Q3G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED 11/19/86

Results by Sample

SAMPLE ID #MW-13s FRACTION Q3I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

DATA FILE 23147

DATE INJECTED 11/20/86 ANALYST SB

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Confirmed by 2nd GCMS on file		
#38138.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	117.0 %	S1V
toluene-d6	93.1 %	S2V
bromofluorobenzene	83.3 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-850

SAMPLE ID #MW-13s

FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.20	7.20	7.19	7.19	7.20	0.01
CONDUCTIVITY	690	690	680	700	690	8.16
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-850

SAMPLE ID #MW-13s Bact.#74312 SAMPLE # 03 FRACTIONS: J
Date & Time Collected 11/19/86 Category

TOCOL <2 /100ml

SAMPLE ID #MW-13d SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I
Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	4 pCi/L	CA	207.000 mg/L		
CD	<0.002 mg/L	CLI	63.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L		
CU	<0.025 mg/L	F	0.16 mg/L	FE	7.260 mg/L	HG	<0.0002 mg/L	K	4.190 mg/L	MG	44.100 mg/L		
MN	0.393 mg/L	NA	54.200 mg/L	NI	<0.005 mg/L	NO3I	0.07 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L		
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	240.0 mg/L	TDSI	972 mg/L		
ZN	<0.025 mg/L												

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-850

Results by Sample

SAMPLE ID #MW-13d

FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/19/86 Category

DATE EXTRACTED 01/23/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/28/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-13d FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-850

Results by Sample

SAMPLE ID #MW-13d

FRACTION Q4I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

VERIFIED BY WMC

DATA FILE 38139

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
Acetone	1030.0	ug/L
No other compounds detected above 0.5 ug/L for halogens and 1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	112.0 %	S1V
toluene-d6	95.2 %	S2V
bromofluorobenzene	90.8 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-850

SAMPLE ID #MW-13d

FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	6.92	6.93	6.93	6.93	6.93	0.01
CONDUCTIVITY	1,280	1,260	1,280	1,280	1,280	10.0
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-850

SAMPLE ID #MW-13d Bact.#74313

SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/19/86

Category

TOCOL 6 /100ml

HOWARD LABS INC REPORT LAB # 86-11-850

RECEIVED: 11/19/86 03/17/87 12:30:34

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	NS	<1.0	<1.0
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	12.8	<1.0	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

NOTE: "NS" denotes that analysis could not be done due to short sample.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

03/17/87 12:40:14

LAB # 86-11-851

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

WORK ID RCRA Groundwater Sampling
TAKEN 11/18 & 11/19/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#CB-1
01	#CB-1 Bact. #74314
02	#MW-9
02	#MW-9 Bact. #74315
03	#MW-14d
03	#MW-14d Bact. #74316
04	#MW-14s
04	#MW-14s Bact. #74317

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-851

Results by Sample

SAMPLE ID #CB-1

SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<1 pCi/L	CA	<0.050 mg/L
CD	<0.002 mg/L	CLI	3.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	0.072 mg/L	F	0.10 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	<0.100 mg/L	MG	<0.010 mg/L
MN	<0.020 mg/L	NA	<0.050 mg/L	NI	0.009 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	0.155 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	105.0 mg/L	TDSI	212 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #CB-1 FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/23/87 DATE INJECTED 01/27/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #CB-1

FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-851

Results by Sample

SAMPLE ID #CB-1

FRACTION 01I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86

Category

VERIFIED BY DLH

DATA FILE 23149

DATE INJECTED 11/20/86

ANALYST SB

COMPOUND	RESULT	UNITS
Bromoform	1.3	ug/L
No other compounds detected.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	123.0 %	S1V
toluene-d6	126.0 %	S2V
bromofluorobenzene	97.1 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #CB-1 FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	6.10	6.19	6.03	5.95	6.07	0.10
CONDUCTIVITY	2.40	2.25	2.10	2.25	2.25	0.12
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #CB-1 Bact.#74314

SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #MW-9

SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	6 pCi/L	CA	84.400 mg/L
CD	<0.002 mg/L	CLI	23.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.18 mg/L	FE	0.198 mg/L	HG	<0.0002 mg/L	K	2.130 mg/L	MG	21.700 mg/L
MN	0.074 mg/L	NA	12.500 mg/L	NI	<0.005 mg/L	NO3I	2.60 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	70.0 mg/L	TDSI	472 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-9

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/23/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/28/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-9 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	15.0	10.0	11.0	<10	10.5	3.70

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-9

FRACTION 02I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 38133

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
Acetone	12.0	ug/L
2-Propanol	4000.0	ug/L

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	109.0 %	S1V
toluene-d6	101.0 %	S2V
bromofluorobenzene	104.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-9

FRACTION Q2B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.25	7.30	7.33	7.34	7.31	0.04
CONDUCTIVITY	570	570	570	570	570	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-9 Bact.#74315

SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 67,000 /100ml

SAMPLE ID #MW-14d

SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	9 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	7 pCi/L	CA	83.600 mg/L
CD	0.002 mg/L	CLI	20.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.19 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	2.130 mg/L	MG	19.300 mg/L
MN	<0.020 mg/L	NA	11.800 mg/L	NI	<0.005 mg/L	NO3I	1.68 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	60.0 mg/L	TDSI	540 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-851

Results by Sample

SAMPLE ID #MW-14d

FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/23/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/28/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-14d FRACTION Q3G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-851

Results by Sample

SAMPLE ID #MW-14d

FRACTION 03I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 38122

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
Trichloroethene	1.0	ug/L
Bromoform	2.4	ug/L
No other compounds detected.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	106.0 %	S1V
toluene-d6	107.0 %	S2V
bromofluorobenzene	104.0 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-14d FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.51	7.51	7.52	7.52	7.52	0.01
CONDUCTIVITY	550	550	550	555	551	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-14d Bact.#74316 SAMPLE # 03 FRACTIONS: J
Date & Time Collected 11/18/86 Category

TOCOL 3 /100ml

SAMPLE ID #MW-14s SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I
Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	12 pCi/L	AS	0.008 mg/L	BA	<0.200 mg/L	BETA	57 pCi/L	CA	197.000 mg/L
CD	<0.002 mg/L	CLI	19.0 mg/L	CN	<0.005 mg/L	CODI	21 mg/L	CR	0.084 mg/L	CR6	<0.01 mg/L
CU	0.127 mg/L	F	0.38 mg/L	FE	26.500 mg/L	HG	<0.0002 mg/L	K	4.480 mg/L	MG	37.100 mg/L
MN	0.342 mg/L	NA	11.900 mg/L	NI	0.017 mg/L	NO3I	1.53 mg/L	PB	0.048 mg/L	PHNLI	<0.005 mg/L
PTI	0.39 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	60.0 mg/L	TDSI	188 mg/L
ZN	0.070 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-14s FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/19/86 Category

DATE EXTRACTED 01/23/87 DATE INJECTED 01/28/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-14s FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	196.0	196.0	195.0	209.0	199.0	6.54

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-14s

FRACTION Q4I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

VERIFIED BY WMC

DATA FILE 38123

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected with detection limits of <0.5 ug/L for halogens and <1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	94.3 %	S1V
toluene-d6	110.0 %	S2V
bromofluorobenzene	84.7 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-851

SAMPLE ID #MW-14s

FRACTION 04B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	8.28	8.28	8.29	8.30	8.29	0.01
CONDUCTIVITY	505	505	505	500	504	2.50
TOTAL ORGANIC CARBON	1	1	1	1	1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-14s Bact.#74317 SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/19/86 Category

TOCOL 20
/100ml

HOWARD LABS INC REPORT LAB # 86-11-851

RECEIVED: 11/19/86 03/17/87 12:40:14

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	<1.0	<1.0	<1.0
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	<1.0	<1.0	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

HOWARD LABS INC REPORT LAB # 86-11-852

RECEIVED: 11/19/86 03/17/87 12:49:27

CLIENT WEST M O SAMPLES 7
COMPANY Westinghouse Materials Co.
FACILITY

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/19/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-22s
01	#MW-22s Bact. #74318
02	Blanks
03	QC Sample #1
04	QC Sample #2
05	QC Sample #3
06	QC Sample #4
07	QC Sample #5

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver	NA	Sodium
ALPHA	Gross Alpha	NI	Nickel
AS	Arsenic	NO3I	Nitrates
BA	Barium	PB	Lead
BETA	Gross Beta	PHNLI	Phenols
CA	Calcium	PSDWA	SDWA Pesticides
CD	Cadmium	PTI	Phosphorus, Total
CLI	Chloride	RADIUM	Radium, Total
CN	Cyanide	RAD SC	Radionuclides Scan
CODI	Chemical Oxygen Demand	SE	Selenium
COND	Conductivity	SO4I	Sulfate
CR	Chromium	TDSI	Total Dissolved Solids
CR6	Hexavalent Chromium	TOC	Total Organic Carbon
CU	Copper	TOCOL	Total Coliform, Non Potable
F	Fluoride	TOXDQ	TOX-Quad Runs-Method 450.1
FE	Iron	VOAMSC	GC/MS SCAN TOTAL VOLATILES
GCSCAN	GC Scan	WCQ	RCRA TOC/COND/PH IN QUAD.
HG	Mercury	ZN	Zinc
K	Potassium		
MG	Magnesium		
MN	Manganese		

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-852

Results by Sample

SAMPLE ID #MW-22s

SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	0.007 mg/L	BA	<0.200 mg/L	BETA	42 pCi/L	CA	218.000 mg/L		
CD	<0.002 mg/L	CLI	68.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	0.035 mg/L	CR6	0.020 mg/L		
CU	0.025 mg/L	F	0.63 mg/L	FE	8.910 mg/L	HG	<0.0002 mg/L	K	5.970 mg/L	MG	65.000 mg/L		
MN	0.391 mg/L	NA	35.700 mg/L	NI	0.009 mg/L	NO3I	49.60 mg/L	PB	0.006 mg/L	PHNLI	<0.005 mg/L		
PTI	0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	<1 mg/L	TDSI	1,090 mg/L		
ZN	0.041 mg/L												

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-852

SAMPLE ID #MW-22s

FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-852

Results by Sample

SAMPLE ID #MW-22s

FRACTION Q1I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

VERIFIED BY WMC

DATA FILE 38124

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected with detection limits of <0.5 ug/L for halogens and <1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	107.0 %	S1V
toluene-d6	115.0 %	S2V
bromofluorobenzene	95.3 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-852

SAMPLE ID #MW-22s

FRACTION Q1B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.23	7.22	7.21	7.21	7.22	0.01
CONDUCTIVITY	1,100	1,100	1,100	1,100	1,100	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-852

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-22s Bact.#74318

SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/19/86

Category

TOCOL <2 /100ml

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-852

Results by Sample

SAMPLE ID Blanks

FRACTION Q2A TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected not specified Category

VERIFIED BY WMC

DATA FILE 38125

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
Methylene Chloride	6.1	ug/L
No other compounds detected		
with detection limits of <0.5.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	117.0 %	S1V
toluene-d6	95.4 %	S2V
bromofluorobenzene	79.8 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-852

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID QC Sample #1 SAMPLE # 03 FRACTIONS: A,B,C

Date & Time Collected not specified Category

AG	<0.030 mg/L	AS	0.022 mg/L	BA	<0.200 mg/L	CD	<0.002 mg/L	CR	0.009 mg/L	HG	0.0010 mg/L
PB	0.017 mg/L	SE	0.005 mg/L								

SAMPLE ID QC Sample #2 SAMPLE # 04 FRACTIONS: A,B,C

Date & Time Collected not specified Category

AG	<0.030 mg/L	AS	0.053 mg/L	BA	0.397 mg/L	CD	0.006 mg/L	CR	0.052 mg/L	HG	0.0050 mg/L
PB	0.055 mg/L	SE	0.008 mg/L								

SAMPLE ID QC Sample #3 SAMPLE # 05 FRACTIONS: A,B

Date & Time Collected not specified Category

CA	18.900 mg/L	CLI	49.0 mg/L	COND	300 umhos/cm	F	0.91 mg/L	K	4.810 mg/L	MG	4.400 mg/L
NA	20.700 mg/L	SO4I	21.0 mg/L	TDSI	132 mg/L						

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-852

SAMPLE ID QC Sample #4

SAMPLE # 06 FRACTIONS: A

Date & Time Collected not specified Category

CODI 14 mg/L TOC 5 mg/L

HOWARD LABS INC REPORT LAB # 86-11-852

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID QC Sample #5 FRACTION Q7A TEST CODE GCSCAN NAME GC Scan

Date & Time Collected not specified Category

DATE EXTRACTED 02/12/87
DATE INJECTED 03/11/87

VERIFIED BY DLH
ANALYST WMC

COMPOUND	RESULT	UNITS
m-Dichlorobenzene	87.7	ug/L
p-Dichlorobenzene	97.9	ug/L
o-Dichlorobenzene	92.2	ug/L
Hexachlorobutadiene	10.0	ug/L
2-Chloronaphthalene	85.3	ug/L

RECEIVED: 11/19/86 03/17/87 12:49:27

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01
Potassium 40	<1.0
Total Uranium	<1.0
Radium 226	<1.0
Radium 228	<1.0
Technetium 99	<1.0
Thorium 228	<1.0
Thorium 230	<1.0
Thorium 232	<1.0
Cesium 137	<1.0
Strontium 90	<1.0
Ruthenium 106	<1.0
Neptunium 237	<1.0
Plutonium 238	<1.0
Plutonium 239	<1.0
Plutonium 240	<1.0

HOWARD LABS INC REPORT LAB # 86-11-848

RECEIVED: 11/19/86 03/17/87 12:13:19

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

REPORT Westinghouse Materials
TO Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-20s
01	#MW-20s Bact. #74302
02	#MW-20d
02	#MW-20d Bact. #74303
03	#MW-12
03	#MW-12 Bact. #74304
04	#AWS
04	#AWS Bact. #74305

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-20s

SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	3 pCi/L	CA	88.600 mg/L
CD	<0.002 mg/L	CLI	22.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.24 mg/L	FE	0.086 mg/L	HG	<0.0002 mg/L	K	2.540 mg/L	MG	19.500 mg/L
MN	0.032 mg/L	NA	10.400 mg/L	NI	<0.005 mg/L	NO3I	4.08 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	78.0 mg/L	TDSI	372 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-20s

FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/27/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-848

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-20s

FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-848

Results by Sample

SAMPLE ID #MW-20s

FRACTION 01I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 75652

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected above 0.5 ug/L for halogens and above 1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	104.0 %	S1V
toluene-d6	82.3 %	S2V
bromofluorobenzene	105.0 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-848

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-20s FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.35	7.38	7.38	7.39	7.38	0.02
CONDUCTIVITY	550	550	550	555	551	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-20s Bact.#74302 SAMPLE # 01 FRACTIONS: J
Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #MW-20d SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I
Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	4 pCi/L	CA	97.700 mg/L		
CD	<0.002 mg/L	CLI	19.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L		
CU	<0.025 mg/L	F	0.20 mg/L	FE	1.410 mg/L	HG	<0.0002 mg/L	K	1.900 mg/L	MG	22.900 mg/L		
MN	0.230 mg/L	NA	8.500 mg/L	NI	<0.005 mg/L	NO3I	0.08 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L		
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	100.0 mg/L	TDSI	411 mg/L		
ZN	<0.025 mg/L												

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-20d

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/27/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-848

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-20d FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	10.0	14.0	10.0	17.0	12.6	3.14

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-20d

FRACTION 02I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 75653

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected above 0.5 ug/L for halogens and above 1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	77.1 %	S1V
toluene-d6	97.8 %	S2V
bromofluorobenzene	105.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-20d

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.45	7.45	7.44	7.44	7.45	0.01
CONDUCTIVITY	560	560	560	560	560	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-848

Results by Sample

SAMPLE ID #MW-20d Bact.#74303 SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 65 /100ml

SAMPLE ID #MW-12 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	7 pCi/L	CA	97.900 mg/L
CD	<0.002 mg/L	CLI	91.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	1.00 mg/L	FE	2.200 mg/L	HG	<0.0002 mg/L	K	11.500 mg/L	MG	6.200 mg/L
MN	0.044 mg/L	NA	236.000 mg/L	NI	<0.005 mg/L	NO3I	0.02 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	<1 mg/L	TDSI	716 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-848

Results by Sample

SAMPLE ID #MW-12

FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/27/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-12

FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-848

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-12

FRACTION 03I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 75655

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with detection limits of <0.5		
ug/L for halogens and <1.0		
ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	92.2 %	S1V
toluene-d6	90.5 %	S2V
bromofluorobenzene	85.6 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-12

FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.65	7.65	7.66	7.66	7.66	0.01
CONDUCTIVITY	1,020	1,030	1,040	1,030	1,030	8.16
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #MW-12 Bact. #74304 SAMPLE # 03 FRACTIONS: J
Date & Time Collected 11/18/86 Category

TOCOL 3 /100ml

SAMPLE ID #AWS SAMPLE # 04 FRACTIONS: A, B, C, D, E, F, G, H
Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	8 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	2 pCi/L	CA	94.500 mg/L
CD	<0.002 mg/L	CLI	24.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.23 mg/L	FE	1.100 mg/L	HG	<0.0002 mg/L	K	2.390 mg/L	MG	21.300 mg/L
MN	0.395 mg/L	NA	10.700 mg/L	NI	<0.005 mg/L	NO3I	0.02 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	75.0 mg/L	TDSI	408 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-848

Results by Sample

SAMPLE ID #AWS

FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/27/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-848

Results by Sample

SAMPLE ID #AWS

FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S.D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-848

SAMPLE ID #AWS

FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.39	7.40	7.40	7.40	7.40	0.01
CONDUCTIVITY	585	590	590	590	589	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-848

Results by Sample

SAMPLE ID #AWS Bact.#74305

SAMPLE # 04 FRACTIONS: I

Date & Time Collected 11/18/86

Category

TOCOL <2 /100ml

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

03/17/87 12:22:07

LAB # 86-11-849

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#HKD
01	#HKD Bact. #74306
02	#HKS
02	#HKS Bact. #74307
03	#DS
03	#DS Bact. #74308
04	#SW2
04	#SW2 Bact. #74309

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-849

Results by Sample

SAMPLE ID #HKD SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	1 pCi/L	CA	117.000 mg/L
CD	<0.002 mg/L	CLI	23.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.17 mg/L	FE	3.080 mg/L	HG	<0.0002 mg/L	K	1.480 mg/L	MG	24.800 mg/L
MN	0.351 mg/L	NA	7.970 mg/L	NI	<0.005 mg/L	NO3I	0.03 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	85.0 mg/L	TDSI	456 mg/L
ZN	0.200 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-849

Results by Sample

SAMPLE ID #HKD

FRACTION Q1G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/27/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #HKD

FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #HKD FRACTION Q1B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.31	7.31	7.31	7.31	7.31	0.00
CONDUCTIVITY	630	625	630	630	629	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-849

SAMPLE ID #HKD Bact.#74306

SAMPLE # 01 FRACTIONS: I

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #HKS

SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	20 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	43 pCi/L	CA	90.900 mg/L
CD	<0.002 mg/L	CLI	23.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.35 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	2.570 mg/L	MG	20.100 mg/L
MN	<0.020 mg/L	NA	10.500 mg/L	NI	<0.005 mg/L	NO3I	3.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	60.0 mg/L	TDSI	369 mg/L
ZN	0.202 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #HKS FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/23/87 DATE INJECTED 01/28/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #HKS FRACTION Q2G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #HKS FRACTION 02I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 23143

DATE INJECTED 11/20/86 ANALYST SB

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
1,1,1-Trichloroethane	8.7	ug/L
(Duplicate analyses on second		
GCMS system yielded 8.4 ug/L)		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	115.0 %	S1V
toluene-d6	92.3 %	S2V
bromofluorobenzene	81.3 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-849

Results by Sample

SAMPLE ID #HKS

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.39	7.40	7.40	7.41	7.40	0.01
CONDUCTIVITY	538	550	535	540	541	6.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #HKS Bact.#74307 SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 480 /100ml

SAMPLE ID #DS SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	16 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	60 pCi/L	CA	99.500 mg/L
CD	<0.002 mg/L	CLI	23.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.21 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	3.120 mg/L	MG	22.800 mg/L
MN	<0.020 mg/L	NA	251.000 mg/L	NI	<0.005 mg/L	NO3I	3.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	60.0 mg/L	TDSI	403 mg/L
ZN	0.078 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #DS FRACTION Q3G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/23/87 DATE INJECTED 01/28/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #DS FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	15.0	15.0	18.0	13.0	15.3	2.06

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #DS

FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.47	7.47	7.47	7.47	7.47	0.00
CONDUCTIVITY	560	570	570	570	568	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #DS Bact.#74308 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 11/18/86 Category

TOCOL	<2 /100ml

SAMPLE ID #SW2 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I
Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	4 pCi/L	CA	104.000 mg/L
CD	<0.002 mg/L	CLI	32.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.20 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	2.660 mg/L	MG	28.100 mg/L
MN	0.144 mg/L	NA	270.000 mg/L	NI	<0.005 mg/L	NO3I	2.39 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	70.0 mg/L	TDSI	426 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #SW2 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/23/87 DATE INJECTED 01/28/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #SW2 FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY EVM

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	10.0	11.0	<10	<10	1.71

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #SW2 FRACTION Q4I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 23144

DATE INJECTED 11/20/86 ANALYST SB

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	117.0 %	S1V
toluene-d6	104.0 %	S2V
bromofluorobenzene	105.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-849

SAMPLE ID #SW2

FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.25	7.24	7.24	7.24	7.24	0.01
CONDUCTIVITY	660	670	665	670	666	4.79
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-849

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #SW2 Bact. #74309

SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/18/86

Category

TOCOL <2 /100ml

RECEIVED: 11/19/86 03/17/87 12:22:07

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	313	NS	<1.0
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	<1.0	<1.0	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

NOTE: "NS" denotes that analysis could not be done due to short sample.

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86 03/17/87 11:55:42

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie D. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-1s	
01	#MW-1s	Bact. #74294
02	#MW-5	
02	#MW-5	Bact. #74295
03	#MW-11	
03	#MW-11	Bact. #74296
04	#TP-20	
04	#TP-20	Bact. #74297

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver	NO3I	Nitrates
ALPHA	Gross Alpha	PB	Lead
AS	Arsenic	PHNLI	Phenols
BA	Barium	PSDWA	SDWA Pesticides
BETA	Gross Beta	PTI	Phosphorus, Total
CA	Calcium	RADIUM	Radium, Total
CD	Cadmium	RAD SC	Radionuclides Scan
CLI	Chloride	SE	Selenium
CN	Cyanide	SO4I	Sulfate
CODI	Chemical Oxygen Demand	TDSI	Total Dissolved Solids
CR	Chromium	TOCOL	Total Coliform, Non Potable
CR6	Hexavalent Chromium	TOXDQ	TOX-Quad Runs-Method 450.1
CU	Copper	VOAMSC	GC/MS SCAN TOTAL VOLATILES
F	Fluoride	WCQ	RCRA TOC/COND/PH IN QUAD.
FE	Iron	ZN	Zinc
HG	Mercury		
K	Potassium		
MG	Magnesium		
MN	Manganese		
NA	Sodium		
NI	Nickel		

212

731

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-846

SAMPLE ID #MW-1s

SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	5 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	5 pCi/L	CA	103.000 mg/L
CD	<0.002 mg/L	CLI	17.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.20 mg/L	FE	1.150 mg/L	HG	<0.0002 mg/L	K	2.290 mg/L	MG	24.500 mg/L
MN	0.547 mg/L	NA	10.200 mg/L	NI	<0.005 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	80.0 mg/L	TDSI	423 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-1s FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/23/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-1s

FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	33.0	32.0	28.0	32.0	31.0	2.42

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-846

SAMPLE ID #MW-1s

FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.37	7.38	7.38	7.38	7.38	.005
CONDUCTIVITY	600	600	600	600	600	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-1s Bact.#74294

SAMPLE # 01 FRACTIONS: I

Date & Time Collected 11/18/86 Category

TOCOL 28 /100ml

SAMPLE ID #MW-5

SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	3 pCi/L	CA	119.000 mg/L
CD	<0.002 mg/L	CLI	17.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.24 mg/L	FE	2.200 mg/L	HG	<0.0002 mg/L	K	2.460 mg/L	MG	28.900 mg/L
MN	0.553 mg/L	NA	5.900 mg/L	NI	<0.005 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.50 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	72.0 mg/L	TDSI	473 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-846

Results by Sample

SAMPLE ID #MW-5

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/26/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-5 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	25.0	22.0	24.0	23.0	24.0	1.4

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-5 FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.37	7.37	7.37	7.37	7.37	0.00
CONDUCTIVITY	700	700	700	700	700	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-5 Bact.#74295

SAMPLE # 02 FRACTIONS: I

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #MW-11

SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	2 pCi/L	CA	105.000 mg/L
CD	<0.002 mg/L	CLI	19.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.23 mg/L	FE	3.060 mg/L	HG	<0.0002 mg/L	K	1.060 mg/L	MG	26.100 mg/L
MN	0.187 mg/L	NA	7.800 mg/L	NI	<0.005 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	0.009 mg/L
PTI	0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	78.0 mg/L	TDSI	580 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-846

Results by Sample

SAMPLE ID #MW-11

FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/26/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.3	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-11 FRACTION Q3G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	125.0	120.0	123.0	121.0	122.0	2.18

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-11 FRACTION 03I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 75646

DATE INJECTED 11/20/86 ANALYST DLH

VERIFIED BY WMC

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with detection limits of <0.5		
ug/L for halogens and <1.0		
ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	105.0 %	S1V
toluene-d6	98.8 %	S2V
bromofluorobenzene	101.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-846

SAMPLE ID #MW-11

FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.42	7.43	7.42	7.43	7.43	.006
CONDUCTIVITY	600	600	650	650	625	28.9
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-846

SAMPLE ID #MW-11 Bact.#74296

SAMPLE # 03 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #TP-20

SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	2 pCi/L	AS	0.007 mg/L	BA	<0.200 mg/L	BETA	3 pCi/L	CA	119.000 mg/L
CD	<0.002 mg/L	CLI	<1 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	0.006 mg/L	CR6	<0.006 mg/L
CU	<0.025 mg/L	F	0.29 mg/L	FE	7.530 mg/L	HG	<0.0002 mg/L	K	1.890 mg/L	MG	33.000 mg/L
MN	1.670 mg/L	NA	5.370 mg/L	NI	0.010 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.13 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	42.0 mg/L	TDSI	320 mg/L
ZN	0.033 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #TP-20 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/21/87 DATE INJECTED 01/26/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #TP-20 FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	12.0	11.0	<10	<10	<10	2.22

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-846

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #TP-20

FRACTION Q4I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 75647

DATE INJECTED 11/20/86

ANALYST DLH

VERIFIED BY WMC

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with detection limits of <0.5		
ug/L for halogens and <1.0		
ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	83.7 %	S1V
toluene-d6	97.7 %	S2V
bromofluorobenzene	85.1 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-846

SAMPLE ID #TP-20

FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.08	7.07	7.06	7.07	7.07	.008
CONDUCTIVITY	700	700	650	650	675	28.9
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-846

Results by Sample

SAMPLE ID #TP-20 Bact.#74297

SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/18/86

Category

TOCOL 130 /100ml

RECEIVED: 11/19/86 03/17/87 11:55:42

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	<1.0	<1.0	<1.0
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	<1.0	<1.0	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86 03/17/87 12:04:17

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-16s	
01	#MW-16s	Bact. #74298
02	#MW-16d	
02	#MW-16d	Bact. #74299
03	#MW-18s	
03	#MW-18s	Bact. #74300
04	#MW-18d	
04	#MW-18d	Bact. #74301

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-847

SAMPLE ID #MW-16s

SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	8 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	10 pCi/L	CA	87.900 mg/L
CD	<0.002 mg/L	CLI	17.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	0.011 mg/L	CR6	<0.010 mg/L
CU	<0.025 mg/L	F	0.24 mg/L	FE	0.690 mg/L	HG	<0.0002 mg/L	K	2.390 mg/L	MG	21.300 mg/L
MN	0.025 mg/L	NA	8.900 mg/L	NI	<0.005 mg/L	NO3I	2.03 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	60.0 mg/L	TDSI	423 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16s FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87 DATE INJECTED 01/27/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.3	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16s FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16s FRACTION 01I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 75648

DATE INJECTED 11/20/86 ANALYST DLH

VERIFIED BY WMC

COMPOUND	RESULT	UNITS
No volatile compounds detected with detection limit of <0.5 ug/L for halogens and <1.0 ug/L for non-halogens. The detection limit is based upon the use of 25 ml of sample for analysis.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	105.0 %	S1V
toluene-d6	80.7 %	S2V
bromofluorobenzene	105.0 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16s FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.37	7.40	7.42	7.43	7.41	0.03
CONDUCTIVITY	520	520	525	520	521	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	<1

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16s Bact.#74298 SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 540 /100ml

SAMPLE ID #MW-16d SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	3 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	2 pCi/L	CA	82.800 mg/L
CD	<0.002 mg/L	CLI	17.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.20 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	2.120 mg/L	MG	19.900 mg/L
MN	<0.020 mg/L	NA	9.040 mg/L	NI	<0.005 mg/L	NO3I	2.43 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.02 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	70.0 mg/L	TDSI	322 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-847

SAMPLE ID #MW-16d

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/27/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16d FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16d FRACTION Q2I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 75649 VERIFIED BY WMC

DATE INJECTED 11/20/86 ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with limititations described		
above when utilizing 25 ml		
sample volume.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	95.8 %	S1V
toluene-d6	89.9 %	S2V
bromofluorobenzene	101.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-847

SAMPLE ID #MW-16d

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.53	7.54	7.54	7.56	7.54	0.01
CONDUCTIVITY	480	480	480	485	481	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-16d Bact. #74299 SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #MW-18s SAMPLE # 03 FRACTIONS: A, B, C, D, E, F, G, H, I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	0.010 mg/L	BA	<0.200 mg/L	BETA	<1 pCi/L	CA	155.000 mg/L
CD	<0.004 mg/L	CLI	16.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	0.008 mg/L	CR6	<0.008 mg/L
CU	0.051 mg/L	F	0.40 mg/L	FE	10.500 mg/L	HG	<0.0002 mg/L	K	2.740 mg/L	MG	40.700 mg/L
MN	0.379 mg/L	NA	6.160 mg/L	NI	0.011 mg/L	NO3I	0.80 mg/L	PB	0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.22 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	0.003 mg/L	SO4I	68.0 mg/L	TDSI	410 mg/L
ZN	0.055 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18s FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87 DATE INJECTED 01/27/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18s FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18s

FRACTION 03I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 75650

DATE INJECTED 11/20/86

ANALYST DLH

VERIFIED BY WMC

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with detection limits of <0.5		
ug/L for halogens and <1.0		
ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	94.2 %	S1V
toluene-d6	86.7 %	S2V
bromofluorobenzene	103.0 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18s FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.33	7.33	7.33	7.33	7.33	0.00
CONDUCTIVITY	560	570	570	570	568	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18s Bact.#74300 SAMPLE # 03 FRACTIONS: J
Date & Time Collected 11/18/86 Category

TOCOL 25 /100ml

SAMPLE ID #MW-18d SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I
Date & Time Collected 11/18/86 Category

AG <0.030 mg/L	ALPHA 22 pCi/L	AS <0.005 mg/L	BA <0.200 mg/L	BETA 12 pCi/L	CA 91.600 mg/L
CD <0.002 mg/L	CLI 3.0 mg/L	CN <0.005 mg/L	CODI <10 mg/L	CR <0.005 mg/L	CR6 <0.005 mg/L
CU <0.025 mg/L	F 0.35 mg/L	FE 0.725 mg/L	HG <0.0002 mg/L	K 0.582 mg/L	MG 33.700 mg/L
MN 0.078 mg/L	NA 4.650 mg/L	NI <0.005 mg/L	NO3I 0.05 mg/L	PB <0.005 mg/L	PHNLI 0.009 mg/L
PTI <0.02 mg/L as P	RADIUM SEE TEXT pCi/L	RAD_SC SEE TEXT pCi/L	SE <0.0025 mg/L	SO4I 68.0 mg/L	TDSI 440 mg/L
ZN <0.025 mg/L					

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18d FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/22/87 DATE INJECTED 01/27/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18d FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10.0	<10.0	<10.0	<10.0	<10.0	0.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-847

SAMPLE ID #MW-18d

FRACTION 04I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 75651

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected with limits of detection <0.5 for halogens and <1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	85.0 %	S1V
toluene-d6	91.3 %	S2V
bromofluorobenzene	80.2 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18d FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.33	7.34	7.34	7.34	7.34	0.01
CONDUCTIVITY	560	560	570	570	565	5.77
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-847

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-18d Bact. #74301 SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 6
/100ml

RECEIVED: 11/19/86 03/17/87 12:04:17

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	<1.0	<1.0	1.95
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	<1.0	<1.0	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

03/17/87 11:47:01

LAB # 86-11-845

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-19s
01	#MW-19s Bact. #74290
02	#MW-19TP
02	#MW-19TP Bact. #74291
03	#MW-8s
03	#MW-8s Bact. #74292
04	#MW-8d
04	#MW-8d Bact. #74293

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19s SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	4 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	209 pCi/L	CA	153.000 mg/L
CD	<0.002 mg/L	CLI	42.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.29 mg/L	FE	0.112 mg/L	HG	<0.0002 mg/L	K	4.010 mg/L	MG	32.500 mg/L
MN	0.031 mg/L	NA	28.100 mg/L	NI	<0.005 mg/L	NO3I	45.20 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	90.0 mg/L	TDSI	652 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19s FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/23/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19s FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	18.0	12.0	13.0	<10	13.0	4.58

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-845

SAMPLE ID #MW-19s

FRACTION 01I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 38140

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected with detection limits at <0.5 ug/L for halogens and <1.0 ug/L for non-halogens.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	92.1 %	S1V
toluene-d6	81.4 %	S2V
bromofluorobenzene	89.6 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19s FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.45	7.45	7.45	7.44	7.45	.005
CONDUCTIVITY	1,000	1,000	1,000	1,000	1,000	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-845

SAMPLE ID #MW-19s Bact.#74290

SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #MW-19TP

SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	13 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	50 pCi/L	CA	489.000 mg/L
CD	<0.002 mg/L	CLI	744.0 mg/L	CN	<0.005 mg/L	CODI	20 mg/L	CR	0.006 mg/L	CR6	<0.006 mg/L
CU	<0.025 mg/L	F	0.40 mg/L	FE	3.930 mg/L	HG	<0.0002 mg/L	K	2.010 mg/L	MG	137.000 mg/L
MN	1.970 mg/L	NA	171.000 mg/L	NI	0.009 mg/L	NO3I	0.13 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.09 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	375.0 mg/L	TDSI	2,830 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-845

SAMPLE ID #MW-19TP

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/23/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19TP FRACTION O2G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	163.0	165.0	165.0	161.0	163.0	2.12

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19TP FRACTION Q2I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 75645

DATE INJECTED 11/20/86 ANALYST DLH

VERIFIED BY WMC

COMPOUND	RESULT	UNITS
1,1-Dichloroethane	1.0	ug/L
Trichloroethene	0.5	ug/L
Tetrachloroethene	8.2	ug/L
Bromoform	7.0	ug/L
No other compounds detected.		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	89.4 %	S1V
toluene-d6	101.0 %	S2V
bromofluorobenzene	82.2 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-845

SAMPLE ID #MW-19TP

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	6.81	6.82	6.81	6.82	6.82	.006
CONDUCTIVITY	3,500	3,500	3,500	3,500	3,500	0.00
TOTAL ORGANIC CARBON	4	4	4	4	4	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-845

SAMPLE ID #MW-19TP Bact.#74291

SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 13 /100ml

SAMPLE ID #MW-8s

SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	5 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	18 pCi/L	CA	91.200 mg/L
CD	<0.002 mg/L	CLI	18.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.17 mg/L	FE	1.230 mg/L	HG	<0.0002 mg/L	K	2.660 mg/L	MG	23.900 mg/L
MN	0.243 mg/L	NA	9.300 mg/L	NI	<0.005 mg/L	NO3I	0.06 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	73.0 mg/L	TDSI	350 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-8s FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/23/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-8s FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S.D.
TOX	<10	<10	11.0	<10	<10	2.06

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-8s FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.54	7.54	7.53	7.53	7.54	.006
CONDUCTIVITY	600	600	600	600	600	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-845

SAMPLE ID #MW-8s Bact.#74292 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 11/18/86 Category

TOCOL 3 /100ml

SAMPLE ID #MW-8d SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	10 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	18 pCi/L	CA	84.700 mg/L
CD	<0.002 mg/L	CLI	12.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.22 mg/L	FE	2.610 mg/L	HG	<0.0002 mg/L	K	1.100 mg/L	MG	22.000 mg/L
MN	0.390 mg/L	NA	9.000 mg/L	NI	<0.005 mg/L	NO3I	0.07 mg/L	PB	0.014 mg/L	PHNLI	0.066 mg/L
PTI	0.36 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	14.0 mg/L	TDSI	377 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-8d FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/23/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-8d FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	19.0	24.0	19.0	20.0	21.0	2.38

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-845

Results by Sample

SAMPLE ID #MW-8d

FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.38	7.40	7.40	7.40	7.40	0.01
CONDUCTIVITY	550	550	550	550	550	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-845

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-8d Bact.#74293

SAMPLE # 04 FRACTIONS: I

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-845
03/17/87 11:47:01

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	<1.0	<1.0	<1.0
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	<1.0	<1.0	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

03/17/87 15:47:42

LAB # 86-11-844

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-19d
01	#MW-19d Bact.#74286
02	#MW-21TP
02	#MW-21TP Bact.#74287
03	#MW-1d
03	#MW-1d Bact.#74288
04	#MW-10
04	#MW-10 Bact.#74289

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus,Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform,Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19d SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	2 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	8 pCi/L	CA	204.000 mg/L
CD	<0.002 mg/L	CLI	49.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.14 mg/L	FE	0.314 mg/L	HG	<0.0002 mg/L	K	7.270 mg/L	MG	26.600 mg/L
MN	3.190 mg/L	NA	68.700 mg/L	NI	<0.005 mg/L	NO3I	0.11 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	330.0 mg/L	TDSI	962 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19d FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/21/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.3	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-19d

FRACTION Q1G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	10.0	<10	<10	4.3

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19d FRACTION 01I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 23098 VERIFIED BY DLH

DATE INJECTED 11/23/86 ANALYST SB

COMPOUND	RESULT	UNITS
Trichlorofluoromethane	15.7	ug/L
1,1-Dichloroethene	22.9	ug/L
2-Propanol	4000.0	ug/L
Trans-1,2-Dichloroethene	37.6	ug/L
Chloroform	41.6	ug/L
1,1,1-Trichloroethane	27.5	ug/L
1,2-Dichloroethane	29.3	ug/L
Carbon tetrachloride	10.5	ug/L
Benzene	18.5	ug/L
Trichloroethene	58.1	ug/L
Bromodichloromethane	22.0	ug/L
Toluene	28.5	ug/L
Dibromochloromethane	14.6	ug/L
SEE TEXT FOR ADDITIONAL DATA		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	87.0 %	S1V
toluene-d6	82.9 %	S2V
bromofluorobenzene	88.6 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-844

SAMPLE ID #MW-19d

FRACTION Q1B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.10	7.08	7.08	7.09	7.09	.0096
CONDUCTIVITY	1,200	1,200	1,200	1,200	1,200	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-19d Bact.#74286 SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 6 /100ml

SAMPLE ID #MW-21TP SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	251 pCi/L	AS	0.006 mg/L	BA	0.277 mg/L	BETA	251 pCi/L	CA	164.000 mg/L
CD	0.003 mg/L	CLI	13.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.46 mg/L	FE	3.450 mg/L	HG	<0.0002 mg/L	K	1.820 mg/L	MG	58.000 mg/L
MN	2.010 mg/L	NA	11.600 mg/L	NI	0.007 mg/L	NO3I	0.07 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.13 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	435.0 mg/L	TDSI	716 mg/L
ZN	0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-21TP FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/21/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-21TP FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	13.0	11.0	<10	<10	<10	3.3

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-21TP FRACTION 02I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 23084

DATE INJECTED 11/23/86 ANALYST SB

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	85.3 %	S1V
toluene-d6	96.2 %	S2V
bromofluorobenzene	108.0 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-21TP FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.37	7.37	7.37	7.37	7.37	0.00
CONDUCTIVITY	950	1,000	1,000	1,000	988	25.00
TOTAL ORGANIC CARBON	3	3	3	3	3	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-21TP Bact. #74287 SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 260 /100ml

SAMPLE ID #MW-1d SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	13 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	7 pCi/L	CA	96.000 mg/L
CD	<0.002 mg/L	CLI	18.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.24 mg/L	FE	5.160 mg/L	HG	<0.0002 mg/L	K	0.885 mg/L	MG	24.100 mg/L
MN	0.383 mg/L	NA	11.700 mg/L	NI	<0.005 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.09 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	8.0 mg/L	TDSI	363 mg/L
ZN	<0.025 mg/L										

RECEIVED 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-1d FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/23/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-1d FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

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HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED 11/19/86

Results by Sample

SAMPLE ID #MW-1d

FRACTION 03I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 23085

DATE INJECTED 11/23/86

ANALYST SB

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	77.8 %	S1V
toluene-d6	75.0 %	S2V
bromofluorobenzene	68.0 %	S3V

CODE SV - Surrogate compound for QC check.

PAGE 1c

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-1d FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.55	7.55	7.56	7.56	7.56	.006
CONDUCTIVITY	600	600	600	600	600	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

·· pH reported in S.U.

Conductivity reported in umhos/cm

Total Organic Carbon reported in mg/L

NA = Not Analyzed

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED 11/19/86

Results by Sample

SAMPLE ID #MW-1d Bact.#74288 SAMPLE # 03 FRACTIONS: J

Date & Time Collected 11/18/86 Category

COLI 70 /100ml

SAMPLE ID #MW-10 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	5 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	11 pCi/L	CA	421.000 mg/L
CD	<0.002 mg/L	CLI	86.0 mg/L	CN	<0.005 mg/L	CODI	10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.14 mg/L	FE	0.393 mg/L	HG	<0.0002 mg/L	K	18.400 mg/L	MG	73.000 mg/L
MN	5.190 mg/L	NA	188.000 mg/L	NI	0.005 mg/L	NO3I	142.00 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	680.0 mg/L	TDSI	2,320 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-10

FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87

CONCENTRATION FACTOR 100

DATE INJECTED 01/23/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-10

FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	10.0	10.0	11.0	<10	10.0	0.82

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-10

FRACTION Q4I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY DLH

DATA FILE 23086

DATE INJECTED 11/23/86

ANALYST SB

COMPOUND	RESULT	UNITS
No volatile compounds detected		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	67.6 %	S1V
toluene-d6	112.0 %	S2V
bromofluorobenzene	90.2 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-844

Results by Sample

SAMPLE ID #MW-10 FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S.D.
pH	7.07	7.08	7.08	7.08	7.08	.005
CONDUCTIVITY	2,600	2,600	2,600	2,600	2,600	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-844

RECEIVED 11/19/86

Results by Sample

SAMPLE ID #MW-10 Bact. #74289 SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOTAL 13
/100ml

Westinghouse Materials Co.

NOTE: Duplicated pesticide analyses for sample fraction 02 were performed and the results are shown above.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	1,200	<1.0	<1.0
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	<1.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	NS	NS	<1.0	<1.0
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

NOTE: "NS" denotes that analysis could not be done due to short sample.

ADDITIONAL VOLATILE COMPOUNDS DETECTED

Fraction 01:	Tetrachloroethene	36.3 ug/L
	Bromoform	34.1 ug/L

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

03/17/87 11:38:22

LAB # 86-11-843

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P.O. #
INVOICE under separate cover

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#MW-3
01	#MW-3 Bact. #74282
02	#MW-4
02	#MW-4 Bact. #74283
03	#MW-21S
03	#MW-21S Bact. #74284
04	#MW-22TP
04	#MW-22TP Bact. #74285

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver	NO3I	Nitrates
ALPHA	Gross Alpha	PB	Lead
AS	Arsenic	PHNLI	Phenols
BA	Barium	PSDWA	SDWA Pesticides
BETA	Gross Beta	PTI	Phosphorus, Total
CA	Calcium	RADIUM	Radium, Total
CD	Cadmium	RAD SC	Radionuclides Scan
CLI	Chloride	SE	Selenium
CN	Cyanide	SO4I	Sulfate
CODI	Chemical Oxygen Demand	TDSI	Total Dissolved Solids
CR	Chromium	TOCOL	Total Coliform, Non Potable
CR6	Hexavalent Chromium	TOXDQ	TOX-Quad Runs-Method 450.1
CU	Copper	VOAMSC	GC/MS SCAN TOTAL VOLATILES
F	Fluoride	WCQ	RCRA TOC/COND/PH IN QUAD.
FE	Iron	ZN	Zinc
HG	Mercury		
K	Potassium		
MG	Magnesium		
MN	Manganese		
NA	Sodium		
NI	Nickel		

300

731

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-3 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	2 pCi/L	CA	96.300 mg/L
CD	<0.002 mg/L	CLI	21.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.20 mg/L	FE	1.060 mg/L	HG	<0.0002 mg/L	K	2.590 mg/L	MG	24.200 mg/L
MN	0.418 mg/L	NA	15.100 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	100.0 mg/L	TDSI	404 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-3 FRACTION Q1G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/20/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-3 FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	69.0	75.0	60.0	67.0	67.8	6.18

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-3 FRACTION Q1B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.52	7.53	7.53	7.53	7.53	0.01
CONDUCTIVITY	560	570	565	570	566	4.79
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

.. pH reported in S.U.

Conductivity reported in umhos/cm

Total Organic Carbon reported in mg/L

NA = Not Analyzed

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-3 Bact.#74282 SAMPLE # 01 FRACTIONS: I

Date & Time Collected 11/18/86 Category

TOCOL 12 /100ml

SAMPLE ID #MW-4 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/19/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	4 pCi/L	CA	86.800 mg/L
CD	<0.002 mg/L	CLI	24.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.21 mg/L	FE	0.565 mg/L	HG	<0.0002 mg/L	K	2.940 mg/L	MG	20.200 mg/L
MN	0.031 mg/L	NA	15.900 mg/L	NI	<0.005 mg/L	NO3I	0.27 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	58.0 mg/L	TDSI	332 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-4 FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/19/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/20/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-4 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/19/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	65.0	70.0	70.0	89.0	73.5	10.6

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-843

Results by Sample

SAMPLE ID #MW-4

FRACTION Q2I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/19/86 Category

VERIFIED BY DLH

DATA FILE 23087

DATE INJECTED 11/23/86

ANALYST SB

COMPOUND	RESULT	UNITS
No volatile compounds detected		

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	119.0 %	S1V
toluene-d6	98.4 %	S2V
bromofluorobenzene	109.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-843

SAMPLE ID #MW-4

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/19/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.41	7.40	7.41	7.41	7.41	0.01
CONDUCTIVITY	530	530	535	530	531	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-4 Bact.#74283 SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/19/86 Category

TOCOL 13 /100ml

SAMPLE ID #MW-21S SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	15 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	627 pCi/L	CA	194.000 mg/L
CD	<0.002 mg/L	CLI	44.0 mg/L	CN	<0.005 mg/L	CODI	10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.24 mg/L	FE	0.295 mg/L	HG	<0.0002 mg/L	K	8.850 mg/L	MG	25.500 mg/L
MN	0.038 mg/L	NA	44.700 mg/L	NI	<0.005 mg/L	NO3I	87.70 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.39 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	90.0 mg/L	TDSI	1,046 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-21S FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/20/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-21S FRACTION Q3G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	23.0	22.0	21.0	19.0	21.3	1.71

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-843

Results by Sample

SAMPLE ID #MW-21S

FRACTION 03I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 75510

DATE INJECTED 12/17/86

ANALYST JSH

COMPOUND	RESULT	UNITS
Tetrachloroethene	11.9	ug/L

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	140.0 %	S1V
toluene-d6	97.2 %	S2V
bromofluorobenzene	110.0 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

LAB # 86-11-843

Results by Sample

SAMPLE ID #MW-21S

FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.20	7.23	7.24	7.25	7.23	0.02
CONDUCTIVITY	1,260	1,260	1,250	1,270	1,260	8.16
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-843

SAMPLE ID #MW-21S Bact.#74284 SAMPLE # 03 FRACTIONS: J
Date & Time Collected 11/18/86 Category

TOCOL 9 /100ml

SAMPLE ID #MW-22TP SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H,I
Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	330 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	625 pCi/L	CA	524.000 mg/L
CD	<0.002 mg/L	CLI	14.0 mg/L	CN	<0.005 mg/L	CODI	25 mg/L	CR	0.012 mg/L	CR6	<0.010 mg/L
CU	0.025 mg/L	F	1.07 mg/L	FE	7.050 mg/L	HG	<0.0002 mg/L	K	6.700 mg/L	MG	144.000 mg/L
MN	1.250 mg/L	NA	16.200 mg/L	NI	0.015 mg/L	NO3I	0.24 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.38 mg/L as P	RADIUM	SEE TEXT pCi/L	RAD_SC	SEE TEXT pCi/L	SE	<0.0025 mg/L	SO4I	1,320 mg/L	TDSI	2,560 mg/L
ZN	0.056 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED. 11/19/86

Results by Sample

SAMPLE ID #MW-22TP FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/20/87 VERIFIED BY DLH

CONCENTRATION FACTOR 100 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-22TP FRACTION Q4G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	24.0	20.0	19.0	23.0	21.5	2.38

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-22TP

FRACTION Q4I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

DATA FILE 38549

DATE INJECTED 11/28/86

ANALYST DLH

VERIFIED BY JH

COMPOUND	RESULT	UNITS
Acetone	4770.0	ug/L
2-Propanol	8500.0	ug/L

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	124.0 %	S1V
toluene-d6	84.2 %	S2V
bromofluorobenzene	95.8 %	S3V

CODE SV - Surrogate compound for QC check.

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-22TP FRACTION 04B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.01	7.01	7.01	7.01	7.01	0.00
CONDUCTIVITY	2,500	2,500	2,500	2,520	2,510	10.0
TOTAL ORGANIC CARBON	5	6	6	6	5.75	0.5

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-11-843

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #MW-22TP Bact. #74285

SAMPLE # 04 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TOCOL 13 /100ml

HOWARD LABS INC REPORT LAB # 86-11-843

RECEIVED: 11/19/86 03/17/87 11:38:22

Westinghouse Materials Co.

RESULTS OF RADIONUCLIDE ANALYSES (pCi/L)

RADIONUCLIDE	FRACTION 01	FRACTION 02	FRACTION 03	FRACTION 04
Potassium 40	<1.0	<1.0	<1.0	<1.0
Total Uranium	<1.0	<1.0	NS	4,080
Radium 226	<1.0	<1.0	<1.0	<1.0
Radium 228	<1.0	<1.0	4.0	<1.0
Technetium 99	<1.0	<1.0	<1.0	<1.0
Thorium 228	<1.0	<1.0	<1.0	<1.0
Thorium 230	<1.0	<1.0	<1.0	<1.0
Thorium 232	<1.0	<1.0	<1.0	<1.0
Cesium 137	<1.0	<1.0	<1.0	<1.0
Strontium 90	<1.0	<1.0	15.2	3.94
Ruthenium 106	<1.0	<1.0	<1.0	<1.0
Neptunium 237	<1.0	<1.0	<1.0	<1.0
Plutonium 238	<1.0	<1.0	<1.0	<1.0
Plutonium 239	<1.0	<1.0	<1.0	<1.0
Plutonium 240	<1.0	<1.0	<1.0	<1.0

NOTE: "NS" denotes that analysis could not be performed due to short sample.

RECEIVED 11/19/86

HOWARD LABS INC REPORT

03/17/87 15:28:05

LAB # 86-11-842

CLIENT WEST M O SAMPLES 4
COMPANY Westinghouse Materials Co.
FACILITY

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 398704
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 11/18/86
TRANS Delivered by Dames & Moore
TYPE Aqueous
P O #
INVOICE under separate cover

PREPARED BY HOWARD LABORATORIES, INC.
3601 South Dixie Drive
P.O. Box 369
Dayton, OH 45449
PHONE 513-294-6856

Jackie G. Webster
CERTIFIED BY

CONTACT D HOWARD

Enclosed are the results of specified samples submitted for analyses. If you have any questions, please advise. Use the "LAB #" for faster identification.
OHIO EPA CERTIFICATION: CHEMICAL 4074 BACTERIOLOGICAL 857

cc: Mr. Wayne Fuller
Dames & Moore
1 Blue Hill Plaza 5'th Floor
Pearl River, New York 10965

SAMPLE IDENTIFICATION

01	#17D	
01	#17D	Bact. #74278
02	#17S	
02	#17S	Bact. #74279
03	#F-1	
03	#F-1	Bact. #74280
04	#F-2	
04	#F-2	Bact. #74281

HOWARD LABS INC TEST CODES and NAMES used on this report

AG	Silver
ALPHA	Gross Alpha
AS	Arsenic
BA	Barium
BETA	Gross Beta
CA	Calcium
CD	Cadmium
CLI	Chloride
CN	Cyanide
CODI	Chemical Oxygen Demand
CR	Chromium
CR6	Hexavalent Chromium
CU	Copper
F	Fluoride
FE	Iron
HG	Mercury
K	Potassium
MG	Magnesium
MN	Manganese
NA	Sodium
NI	Nickel
NO3I	Nitrates
PB	Lead
PHNLI	Phenols
PSDWA	SDWA Pesticides
PTI	Phosphorus, Total
RADIUM	Radium, Total
RAD SC	Radionuclides Scan
SE	Selenium
SO4I	Sulfate
TDSI	Total Dissolved Solids
TOCOL	Total Coliform, Non Potable
TOXDQ	TOX-Quad Runs-Method 450.1
VOAMSC	GC/MS SCAN TOTAL VOLATILES
WCQ	RCRA TOC/COND/PH IN QUAD.
ZN	Zinc

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #17D SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<1 pCi/L	CA	100.000 mg/L
CD	<0.002 mg/L	CLI	20.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.18 mg/L	FE	1.470 mg/L	HG	<0.0002 mg/L	K	2.180 mg/L	MG	19.300 mg/L
MN	0.321 mg/L	NA	13.000 mg/L	NI	<0.005 mg/L	NO3I	0.03 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	72.0 mg/L	TDSI	376 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-11-842

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #17D FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/20/87 VERIFIED BY DLH

CONCENTRATION FACTOR 90 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

HOWARD LABS INC REPORT LAB # 86-11-842

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #17D FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	16.0	15.0	24.0	23.0	19.5	4.65

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #17D

FRACTION Q1I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY WMC

DATA FILE 75508

DATE INJECTED 11/20/86

ANALYST DLH

COMPOUND	RESULT	UNITS
2-Propanol	578.0	ug/L

NOTE: Surrogate recoveries for this sample could not be quantitated accurately due to matrix interferences.

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	NA %	S1V
toluene-d6	NA %	S2V
bromofluorobenzene	NA %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #17D

FRACTION Q1B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.42	7.43	7.45	7.42	7.43	0.01
CONDUCTIVITY	550	550	550	550	550	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

..pH reported in S.U.

Conductivity reported in umhos/cm

Total Organic Carbon reported in mg/L

NA = Not Analyzed

S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #17D Bact.#74278

SAMPLE # 01 FRACTIONS: J

Date & Time Collected 11/18/86 Category

TCCOL <2 /100ml

SAMPLE ID #17S

SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H,I

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	2 pCi/L	CA	149.000 mg/L
CD	<0.002 mg/L	CLI	27.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.23 mg/L	FE	0.107 mg/L	HG	<0.00020 mg/L	K	2.060 mg/L	MG	30.200 mg/L
MN	0.154 mg/L	NA	12.300 mg/L	NI	<0.005 mg/L	NO3I	0.03 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.04 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	100.0 mg/L	TDSI	533 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #17S

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87

CONCENTRATION FACTOR 90

DATE INJECTED 01/20/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #17S

FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	26.0	27.0	26.0	23.0	25.5	1.73

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #17S

FRACTION 02I TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 11/18/86 Category

VERIFIED BY JH

DATA FILE 38548

DATE INJECTED 11/28/86

ANALYST DLH

COMPOUND	RESULT	UNITS
Acetone	17,700	ug/L
2-Propanol**	45,000	ug/L

**NOTE: Only these two compounds were detected and due to the high concentrations of the propanol, these values are calculated based upon an internal standard.

The following are inter-laboratory QA/QC resuls for EPA Method 624/1624.

COMPOUND	RESULT	CODE
1,2-dichloroethane-d4	121.0 %	S1V
toluene-d6	93.0 %	S2V
bromofluorobenzene	93.9 %	S3V

CODE SV - Surrogate compound for QC check.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #17S

FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.26	7.28	7.17	7.24	7.24	0.05
CONDUCTIVITY	910	910	905	905	908	2.89
TOTAL ORGANIC CARBON	1	1	<1	<1	<1	0.28

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #17S Bact.#74279

SAMPLE # 02 FRACTIONS: J

Date & Time Collected 11/18/86 Category

10COL <2 /100ml

SAMPLE ID #P-1

SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	1 pCi/L	CA	138.000 mg/L
CD	<0.002 mg/L	CLI	35.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.20 mg/L	FE	5.850 mg/L	HG	<0.0002 mg/L	K	3.720 mg/L	MG	35.500 mg/L
MN	0.455 mg/L	NA	39.100 mg/L	NI	<0.005 mg/L	NO3I	0.03 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	0.08 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	125.0 mg/L	TDSI	582 mg/L
ZN	<0.025 mg/L										

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #P-1

FRACTION Q3G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87

CONCENTRATION FACTOR 90

DATE INJECTED 01/20/87

ANALYST WMC

VERIFIED BY DLH

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #P-1

FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	57.0	62.0	70.0	58.0	61.8	5.9

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #P-1

FRACTION Q3B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.46	7.47	7.50	7.50	7.48	0.02
CONDUCTIVITY	880	895	900	895	893	8.66
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

.. pH reported in S.U.

Conductivity reported in umhos/cm

Total Organic Carbon reported in mg/L

NA = Not Analyzed

S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #P-1 Bact.#74280

SAMPLE # 03 FRACTIONS: I

Date & Time Collected 11/18/86 Category

TOCOL <2 /100ml

SAMPLE ID #P-2

SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 11/18/86 Category

AG	<0.030 mg/L	ALPHA	<1 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<1 pCi/L	CA	96.400 mg/L		
CD	<0.002 mg/L	CLI	20.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L		
CU	<0.025 mg/L	F	0.25 mg/L	FE	2.940 mg/L	HG	<0.0002 mg/L	K	1.340 mg/L	MG	25.100 mg/L		
MN	0.379 mg/L	NA	15.600 mg/L	NI	<0.005 mg/L	NO3I	0.02 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L		
PTI	0.08 mg/L as P	RADIUM	NA pCi/L	RAD_SC	NA pCi/L	SE	<0.0025 mg/L	SO4I	42.0 mg/L	TDSI	404 mg/L		
ZN	<0.025 mg/L												

HOWARD LABS INC REPORT LAB # 86-11-842

RECEIVED: 11/19/86

Results by Sample

SAMPLE ID #P-2 FRACTION Q4G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 11/18/86 Category

DATE EXTRACTED 01/16/87 DATE INJECTED 01/20/87 VERIFIED BY DLH

CONCENTRATION FACTOR 90 ANALYST WMC

COMPOUND	RESULT	UNITS *
Alachlor (LASSO)	< 0.2	
Lindane	< 0.2	
Endrin	< 0.2	
Methoxychlor	< 0.2	
Toxaphene	< 0.5	
2,4-D	< 0.2	
2,4,5-TP Silvex	< 0.2	

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

* All results reported in micrograms/liter unless otherwise specified.

RECEIVED: 11/19/86

HOWARD LABS INC REPORT LAB # 86-11-842

Results by Sample

SAMPLE ID #P-2

FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 11/18/86 Category

VERIFIED BY PLD

RCRA GROUND WATER INDICATOR PARAMETER

TOTAL ORGANIC HALOGEN BY DOHRMANN DX-20 ANALYZER

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
TOX	<10	<10	<10	<10	<10	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #P-2

FRACTION Q4B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 11/18/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.34	7.35	7.34	7.35	7.35	0.01
CONDUCTIVITY	595	600	595	600	598	2.89
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.0

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than
pH reported in S.U.
Conductivity reported in umhos/cm
Total Organic Carbon reported in mg/L
NA = Not Analyzed
S.D. = Standard Deviation

RECEIVED: 11/19/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-11-842

SAMPLE ID #P-2 Bact. #74281

SAMPLE # 04 FRACTIONS: I

Date & Time Collected 11/18/86

Category

TOCOL <2 /100ml

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-22S

DAY, MONTH, YEAR 11-11/86 731

Chain of Custody Record

REASON FOR SAMPLING: RCRA Sampling

WITNESSES: Joseph W. Gordon JWG; Robert P. Blauvelt RPB

COLLECTION PROCEDURE: Pumping for 6 bottles
Bailing for 3 VOC's + Coliform

METHOD OF PRESERVATION: None - cold weather

REMARKS:
1 gal Amber - 1
1 liter - No Pres - 2
1 liter HNO_3 - 1
½ liter NaOH - 1
Amber H_2SO_4 - 1
VOC vials - 3
Coliform - 1

10 total

Cooler # 22

COLLECTED BY		
PRINTED NAME: Joseph W. Gordon	UNIT	PURPOSE OF TRANSFER: Sample Analysis
SIGNATURE: X Joseph W. Gordon	TIME AND DATE: 11/19/86	
CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames + Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/19/86	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	
RECEIVED IN LABORATORY BY		
PRINTED NAME: JOYCE ROSE	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	
LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 342
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 155

DAY, MONTH, YEAR 19 11 86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Groundwater Monitoring

WITNESSES
D. Jones A. Ivanciu
S. Clement L. Levine

COLLECTION PROCEDURE
Pump: 1, 3
Bail: 2, 4, 5, 6, 7, 8

METHOD OF PRESERVATION
None

REMARKS: Cooler Team 3-2
1. PSDWA, TOXDQ, No preserv.
2. α, CondQ, F, SO_4, TDS, Cl6, pHQ no pres
3. α, β, radium rad scan, no pres.
4. COD, NO_3, phenol, P, TOCQ, pres w/ H_2SO_4
5. Metals, pres. w/ nitric Acid
6. CN pres w/ NaOH
7. VOC (3 vials)
8. coliform

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Lisa Levine / Andrei Ivanciu / Sally Clement / Dave Jones	Team #3	Collection Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/19/86 1020	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	HOWARD LABS	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		343
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. HK-Dug
DAY, MONTH, YEAR 19-11-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA Groundwater Monitoring

WITNESSES: D. Jones, S. Clement, A. Ivanciu

COLLECTION PROCEDURE: Pumping 1, 2, 3, 4, 5, 6
Bailing 7, 8

METHOD OF PRESERVATION: None

REMARKS:
Cooler # Team #3-2
(1) PSDWA, TOXDQ, no preserv.
(2) Cl, condQ, F, SO4 TDS, Orth, pHQ, no preserv.
(3) COD, NO3, phenol, P, TOCQ, pres w/ H2SO4
(4) Metals pres. w/ Nitric Acid
(5) α, β, Radium, rad-scans/no pres.
(6) CN pres. w/ NaOH
(7) VOCs, 3 vials
(8) coliform

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Lisa Irvine / Dave Jones / Sally Clement / Andrei Ivanciu	Team #3	Collection/Storage
SIGNATURE: X Lisa Irvine	TIME AND DATE: 11/19/86 0915	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames + Moore	Shipping to lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/17/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	HOWARD LABS	Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		344
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-13s, MW-13d

DAY, MONTH, YEAR 19-11/86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Quarterly Sampling

WITNESSES Joseph W. Gordon JWG
Robert P. Blauvelt RPB

COLLECTION PROCEDURE Pumping for 6 bottles
Bailing for 3 voc's, 1 coliform

METHOD OF PRESERVATION Cold Weather

REMARKS:
1 gal Amber - 2
1 liter HNO_3 - 2
1 liter No pres - 4
½ liter NaOH - 2
Amber H_2SO_4 - 2
VOC vials - 6
Coliform - 2

20 Total

Cooler #13

COLLECTED BY		
PRINTED NAME Joseph W. Gordon	UNIT	PURPOSE OF TRANSFER
SIGNATURE X Joseph W. Gordon	TIME AND DATE	
CUSTODY TRANSFERRED TO		
PRINTED NAME Wayne Fuller	UNIT Dames & Moore	PURPOSE OF TRANSFER Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	
RECEIVED IN LABORATORY BY		
PRINTED NAME JOYCE ROSE	UNIT Howard Labs	PURPOSE OF TRANSFER Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	
LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 345
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-11, TP-20

DAY, MONTH, YEAR 18-11-86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Quarterly Sampling

WITNESSES
Joseph W. Gordon JWG
Andrew D. Jones ADJ

COLLECTION PROCEDURE
Pumping for 6 bottles
Bailing for Coliform + 3 VOC's } for each well

METHOD OF PRESERVATION
~~ice~~

REMARKS:
Cooler # 11

VOC vials - 6
1 gal. Amber - 2
1 liter - NaPles - 4
1 liter - HNO_3 - 2
Amber H_2SO_4 - 2
½ liter NaOH - 2
Plastic Coliform - 2

20 total

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joseph W. Gordon		Sample Analysis
SIGNATURE X Joseph W. Gordon	TIME AND DATE 11/18/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne A. Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X Wayne A. Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	Hanland Labs	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		346
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-16 S, MW-16 D

DAY, MONTH, YEAR 18-11/86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA Quarterly Samples

WITNESSES: Joseph W. Gordon JWG
Andrew Lanerie AL

COLLECTION PROCEDURE: Pumping for 6 bottles
Bailing for Coliform + VOC's } for each well

METHOD OF PRESERVATION: ~~Iced~~

REMARKS:

Cooler # 16

1 gal. Amber - 2
1 liter - No Pres - 4
1 liter HNO_3 - 2
Amber H_2SO_4 - 2
½ liter NaOH - 2
VOC vials - 6
Plastic Coliform - 2

20 total

COLLECTED BY		
PRINTED NAME: Joseph W. Gordon	UNIT	PURPOSE OF TRANSFER: Sample Analysis
SIGNATURE: X Joseph W. Gordon	TIME AND DATE: 11/18/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/19/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME: JOYCE ROSE	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 1430 11/19/86	

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 347
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-18s, MW-18d
DAY, MONTH, YEAR 18 - 11/86

Chain of Custody Record

REASON FOR SAMPLING
RCRA Quarterly Samples

731

WITNESSES Joseph W. Gordon DWG
Andrei J. Marcin AJM

COLLECTION PROCEDURE Pumping for 6 bottles
Bailing for Coliform + VOC's } for each well

METHOD OF PRESERVATION ~~iced~~

REMARKS: Cooler #18

1 gal Amber - 2
1 liter - No Res - 4
1 liter - HNO_3 - 2
Amber H_2SO_4 - 2
½ liter NaOH - 2
VOC Viles - 6
Plastic Coliform - 2

20 total

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joseph W. Gordon		Sample analysis
SIGNATURE X Joseph W. Gordon	TIME AND DATE 11/18/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 11/19/86 13:00	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	Howard Labs	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 11:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		348
SIGNATURE X	TIME AND DATE	

91-1-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-20S, MW-20D

DAY, MONTH, YEAR 18 - 11 - 86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA Quarterly Sampling

WITNESSES: Joseph W. Gordon JWG
Andrew D. Fraim ADF

COLLECTION PROCEDURE: Pumping for 6 bottles
Bailing for 3 VOC's + 1 coliform } for each well

METHOD OF PRESERVATION: ~~Ice~~

REMARKS:

Cooler #20

1 gal. Amber - 2
1 liter - NoPres - 4
1 liter - HNO_3 - 2
Amber H_2SO_4 - 2
½ liter NaOH - 2
VOC vials - 6
Plastic Coliform - 2

20 total

COLLECTED BY PRINTED NAME: Joseph W. Gordon SIGNATURE: X Joseph W. Gordon	UNIT: TIME AND DATE: 11/18/86	PURPOSE OF TRANSFER: Sample Analysis
CUSTODY TRANSFERRED TO PRINTED NAME: Wayne Fuller SIGNATURE: X Wayne Fuller	UNIT: Dames + Moore TIME AND DATE: 13:00 11/19/86	PURPOSE OF TRANSFER: Shipping to Lab
CUSTODY TRANSFERRED TO PRINTED NAME: SIGNATURE: X	UNIT: TIME AND DATE:	PURPOSE OF TRANSFER:
CUSTODY TRANSFERRED TO PRINTED NAME: SIGNATURE: X	UNIT: TIME AND DATE:	PURPOSE OF TRANSFER:
RECEIVED IN LABORATORY BY PRINTED NAME: JOYCE ROSE SIGNATURE: X Joyce Rose	UNIT: Howard Labs TIME AND DATE: 16:30 11/19/86	PURPOSE OF TRANSFER: Analyze
LOGGED IN BY PRINTED NAME: SIGNATURE: X	UNIT: TIME AND DATE:	ACCESSION NO. 349

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. P-1 AND P-2

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA G.W MONITORING

WITNESSES: WAYNE FULLER

COLLECTION PROCEDURE: SAMPLED FROM TAP IN WATER TRTMT BLDG.

METHOD OF PRESERVATION: PLACED IN COOLER (HOWARD # 1)

REMARKS: NO VOC's

COLLECTED BY		
PRINTED NAME: ROBERT P BLANVELT	UNIT: 14 BOTTLES	PURPOSE OF TRANSFER: SHIPMENT TO LAB
SIGNATURE: X Robert P Blanvelt	TIME AND DATE: 11-18-86 5:40 PM	
CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/19/86	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	
RECEIVED IN LABORATORY BY		
PRINTED NAME: JOYCE ROSE	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	
LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 350
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-3 - MW-4

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA GW SAMPLING

WITNESSES: Wayne Fuller, D.M

COLLECTION PROCEDURE: FROM PUMP DISCHARGE
NO VOC's COLLECTED

METHOD OF PRESERVATION: PLACED IN COOLER (HOWARD # 2)

REMARKS:

COLLECTED BY		
PRINTED NAME: Robert P. Blauvelt	UNIT: 14 Bottles	PURPOSE OF TRANSFER: Shipment to LAB
SIGNATURE: X Robert Blauvelt	TIME AND DATE: 11-18-86 5:45 PM	

CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames + Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/19/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME: Joyce Rose	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 351
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-21S-22TP

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA GW SAMPLING

WITNESSES: WAYNE FULLER, D-M

COLLECTION PROCEDURE: MW-22TP - BAILED ALL SAMPLES
MW-21S - COLLECTED FROM PUMP DISCHARGE (EXCEPT VOC'S AND COLIFORM)

METHOD OF PRESERVATION: PLACED IN COOLER - HOWARD #6

REMARKS:

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
ROBERT P BLANCHET	20 BOTTLES	Shipment to LAB
SIGNATURE X [signature]	TIME AND DATE 11-18-86 5:45 PM	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X [signature]	TIME AND DATE 1300 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	Howard Labs	Analyze
SIGNATURE X [signature]	TIME AND DATE 14:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		352
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-19d & 21P

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA GW MONITORING

WITNESSES
Wayne Fuller, D-M

COLLECTION PROCEDURE
COLLECTED FROM PUMP DISCHARGE (except VOC's AND COLIFORM - BAILED)

METHOD OF PRESERVATION
PLACED IN COOLER (Howard # 3)

REMARKS:

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
ROBERT P BLANCHET	20 BOTTLES	Shipment to LAB
SIGNATURE X Robert P Blanchet	TIME AND DATE 11-18-86 5:45 PM	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	Howard LABS	Analysis
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		353
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-1d And 10

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA G.W Sampling

WITNESSES: Wayne Fuller

COLLECTION PROCEDURE: Collected from Pump Discharge (VOCs & Coliform Bailed)

METHOD OF PRESERVATION: Placed in Cooler. O-M # 1)

REMARKS:

COLLECTED BY		
PRINTED NAME: Robert P Blauvelt	UNIT: 20 Bottles	PURPOSE OF TRANSFER: Shipment to Lab
SIGNATURE: X Robert Blauvelt	TIME AND DATE: 11-18-86 5:45	

CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/19/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME: Joyce Rose	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 354
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-19s AND 19P

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA GW MONITORING

WITNESSES: WAYNE FULLER, D-M

COLLECTION PROCEDURE: FROM PUMP DISCHARGE VOCs AND COLIFORM BAILED

METHOD OF PRESERVATION: PLACED IN COOLER - HOWARD #3

REMARKS:

COLLECTED BY		
PRINTED NAME: ROBERT P BLANVELT	UNIT: 20 BOTTLES	PURPOSE OF TRANSFER: SHIPMENT TO LAB
SIGNATURE: X Robert P Blanvelt	TIME AND DATE: 11-18-86 5:45 PM	

CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/19/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME: JOYCE ROSE	UNIT: HOWARD LABS	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 355
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-8s & 8d

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA G.W. SAMPLING

WITNESSES: Wayne Fuller, D-M

COLLECTION PROCEDURE: FROM PUMP DISCHARGE (NO VOC'S COLLECTED)

METHOD OF PRESERVATION: PLACED IN COOLED - HOWARD #36

REMARKS:

COLLECTED BY		
PRINTED NAME: ROBERT P BLANVELT	UNIT: 14 BOTTLES	PURPOSE OF TRANSFER: Shipment to LAB
SIGNATURE: X Robert Blanvelt	TIME AND DATE: 11-19-86 8:45	

CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/17/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME: Joyce Rose	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 356
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-16 & MW-5

DAY, MONTH, YEAR 11-18-86

Chain of Custody Record

731

REASON FOR SAMPLING: RCRA G.W. SAMPLING

WITNESSES: WAYNE FULLER

COLLECTION PROCEDURE: FROM PUMP DISCHARGE
NO VOC'S COLLECTED

METHOD OF PRESERVATION: PLACED IN COOLER (HOWARD #26)

REMARKS:

COLLECTED BY PRINTED NAME: ROBERT P BLANCHETT SIGNATURE: X Robert P Blanchett	UNIT: ~~20~~ 14 BOTTLES TIME AND DATE: 11-18-86 5:45 PM	PURPOSE OF TRANSFER: SHIPMENT TO LAB
CUSTODY TRANSFERRED TO PRINTED NAME: Wayne Fuller SIGNATURE: X Wayne Fuller	UNIT: Dames & Moore TIME AND DATE: 13:00 11/19/86	PURPOSE OF TRANSFER: Shipping to Lab
CUSTODY TRANSFERRED TO PRINTED NAME: SIGNATURE: X	UNIT: TIME AND DATE:	PURPOSE OF TRANSFER:
CUSTODY TRANSFERRED TO PRINTED NAME: SIGNATURE: X	UNIT: TIME AND DATE:	PURPOSE OF TRANSFER:
RECEIVED IN LABORATORY BY PRINTED NAME: JOYCE ROSE SIGNATURE: X Joyce Rose	UNIT: Howard Labs TIME AND DATE: 16:30 11/19/86	PURPOSE OF TRANSFER: Analysis
LOGGED IN BY PRINTED NAME: SIGNATURE: X	UNIT: TIME AND DATE:	ACCESSION NO. 357

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 9

DAY, MONTH, YEAR 18 11 86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Ground Water Sampling

WITNESSES
D. Jones.
S Clement

COLLECTION PROCEDURE
Pumping 3,4,5,6,7,8
Bailing : 1,2

METHOD OF PRESERVATION
None

REMARKS:
COOLER #24
(1) Coliform
(2) VOC, 3 vials
(3) PSDWA, TOXDQ, NO preserv.
(4) COD, NO3, PHENOL, P, TOC G, pres. w/ H_2SO_4
(5) Cl, Cond G, F, SO4, TDS, Ca6, pH4, no preserv
(6) Metals, pres. w/ Nitric Acid
(7) α, β, radium, rad-scan no pres.
(8) CN, pres. w/ NaOH

COLLECTED BY Sally Clement

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Lisa Levine / Dave Jones	Team #3	Collection
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 ~~1515~~ 1715	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joyce Rose	Howard LADS	
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	Analysis

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		358
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. CB-1

DAY, MONTH, YEAR 18-11-86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA groundwater Sampling

WITNESSES
D. Jones
S. clement

COLLECTION PROCEDURE
Distilled H_2O bailed into collection bottles

METHOD OF PRESERVATION
None

REMARKS:
Cooler #24

(1) VOC, 3 bottles
(2) Coliform
(3) BDWA, TOXDQ, No preserv.
(4) Cl, condQ, F, SO4, TDS, CRB, pHQ No preserv.
(5) Metals pres. w/nitric acid
(6) CN, pres. w/NaOH
(7) COD, NO3, Phenol, P, TOCQ, pres. w/ H_2SO_4
(8) α, β, radium rad scan, no pres
(+)(9) VOC bottle - Team #2 - Blank

COLLECTED BY		
PRINTED NAME: Dave Jones / Sally Clement Lisa Levine	UNIT: Team #3	PURPOSE OF TRANSFER: Collection
SIGNATURE: X Lisa Levine	TIME AND DATE: 11/18/86 1530	
CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Fuller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X Wayne Fuller	TIME AND DATE: 13:00 11/17/86	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	
CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	
RECEIVED IN LABORATORY BY		
PRINTED NAME: JOYCE ROSE	UNIT: Howard Labs	PURPOSE OF TRANSFER: Analyze
SIGNATURE: X Joyce Rose	TIME AND DATE: 16:30 11/19/86	
LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 359
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. MW-14 D

DAY, MONTH, YEAR 18-11-86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Quarterly Sampling

WITNESSES
Joseph W. Gordon JEG
Andrew D. Hamm ADH

COLLECTION PROCEDURE
Pumping for 6 bottles
Bailing for 3 voc's + 1 coliform

METHOD OF PRESERVATION
~~ICE~~

REMARKS:
Cooler # 14
1 gal Amber - 1
1 liter No Pres. - 2
1 liter HNO_3 - 1
1 Amber H_2SO_4 - 1
½ liter NaOH - 1
VOC viles - 3
plastic coliform - 1
10 total

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joseph W. Gordon		Sample Analysis
SIGNATURE X Joseph W. Gordon	TIME AND DATE 11/18/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames + Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joyce Rose	Howard Labs	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		360
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 14S

DAY MONTH YEAR 19 11 86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Groundwater Monitoring

WITNESSES
Dave Jones
Sally Clement
Lisa Levine

COLLECTION PROCEDURE
Bailing: All

METHOD OF PRESERVATION None

REMARKS:
Cooler #361
(1) Coliform
(2) PS DWA TOX DQ, no pres.
(3) α, β, radium rad scan, no pres.
(4) COD NO3 phenol P, TOCQ pres w/ H_2SO_4
(5) VOCs ~~4 or~~ 3 vials
(6) Metals, pres. w/ nitric acid
(7) CN pres w. NAOH
(8) Cl, cond O, F, SO4, TDS, Cr6 pH, no preserv.

COLLECTED BY		
PRINTED NAME: Andrei Ivanciu	UNIT: Team #3	PURPOSE OF TRANSFER: Collection/Storage
SIGNATURE: X [signature]	TIME AND DATE: 11/19/86 1130	

CUSTODY TRANSFERRED TO		
PRINTED NAME: Wayne Feller	UNIT: Dames & Moore	PURPOSE OF TRANSFER: Shipping to Lab
SIGNATURE: X [signature]	TIME AND DATE: 13:00 11/19/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE: X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME: JOYCE ROSE	UNIT: Howard LABS	PURPOSE OF TRANSFER
SIGNATURE: X [signature]	TIME AND DATE: 16:30 11/19/86	Analyze

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 361
SIGNATURE: X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 175

DAY, MONTH, YEAR 18 11 86

Chain of Custody Record

731

REASON FOR SAMPLING

RCRA Groundwater sampling

WITNESSES

D. Jones
S. Clement

COLLECTION PROCEDURE

Pumping 1-5, 8
Bailing 6, 7

METHOD OF PRESERVATION

None

REMARKS:

Cooler ~~#1~~ Team 3-1

(1) CN pres w/NaOH
(2) Cl, cond Q, F, SO4, TDS, Cr6, PH Q, No preser.
(3) COD, NO3, Phenol, P, TOC Q preser. w/Sulfuric acid
(4) Metals, pres. w/Nitric acid
(5) α, β, radium, rad-scan, no pres.
(6) VOC, 3 vials
(7) coliform
(8) PSDWA, TOXD Q No preser.

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Dave Jones/Lisa Levine/Sally Clement	Team # 3	Collection/Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 1630 to 1615	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames + Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joyce Rose	Howard Labs	
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	Analyze

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		362
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 17D

DAY, MONTH, YEAR 18 11 86

Chain of Custody Record

731

REASON FOR SAMPLING

RCRA g-H2O Monitoring

WITNESSES

D. Jones
S. Clement

COLLECTION PROCEDURE

Pumping for 1-5, 8
Bailing for 6 + 7

METHOD OF PRESERVATION

None

REMARKS: Cooler Team 3-1

(1) CN pres w/NaOH
(2) Cl, cond Q, F, SO4, TDS, Cr6, PHQ, no preser.
(3) COD, NO3, phenol P, TOCQ, pres. w/ H2SO4
(4) Metals, pres w/Nitric Acid
(5) α, β, radium, rad-scan, no pres.
(6) VOC, 3 vials
(7) coliform
(8) PS DW A, TOXDQ, No preserv.

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Dave Jones/Lisa Levine/Sally Clement	Team #3	Collection/Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 @ 1615	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames + Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joyce Rose	Howard Labs	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		363
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. AWS

DAY, MONTH, YEAR 11/18/86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA groundwater Sampling
Codlec #41

WITNESSES
D. Jones
S. Clement

COLLECTION PROCEDURE
Pumping : All

METHOD OF PRESERVATION
~~Ha~~ None

REMARKS:
(1) PSDWA, TOXDQ, NO preserv.
(2) Q, Cond Q. F, SO_4, TDS, Cr6, pHQ, no preserv.
(3) α β, radium radscan, no preserv.
(4) COD, NO3, phenol, P, TOCQ, pres w/ H_2SO_4
(5) Metals, pres. w/Nitric Acid
(6) Coliform
(7) CN, pres. w/NaOH

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SALLY CLEMENT LISA LEVINE / DAVE JONES	Team #3	Collection
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 1150	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Feller	Dames + Moore	Shipping to Lab
SIGNATURE X Wayne Feller	TIME AND DATE Bi00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	Howard Labs	
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	Analysis

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		364
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 14K5

DAY, MONTH, YEAR 11/18/86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Groundwater Monitoring
COOLER # 38

WITNESSES
D. Jones
L. Levine

COLLECTION PROCEDURE
Pumping : 1, 2, 3, 4, 5, 8
Bailing : 6, 7

METHOD OF PRESERVATION
None

REMARKS: Cooler #38
(1) PSDWA, TOXDQ, No pres.
(2) COD, NO3, phenol, P, TOCQ, pres. w/ H_2SO_4
(3) Metals, pres. w/ Nitric Acid
(4) Cl, CondQ, F, SO_4, TDS, Cr6, pHQ, No pres.
(5) α, β, radium, rad-scan, no pres.
(6) coliform
(7) VOC, 3 Bottles
(8) CN, pres NaOH

COLLECTED BY		
PRINTED NAME LISA LEVINE/DAVE JONES SALLY CLEMENT	UNIT #3	PURPOSE OF TRANSFER Collection/Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 0945	

CUSTODY TRANSFERRED TO		
PRINTED NAME Wayne Fuller	UNIT Dames & Moore	PURPOSE OF TRANSFER Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13100 11/19/86	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO		
PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY		
PRINTED NAME JOYCE ROSE	UNIT Howard LABS	PURPOSE OF TRANSFER Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY		
PRINTED NAME	UNIT	ACCESSION NO. 365
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. HKD

DAY, MONTH, YEAR 11/18/86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Groundwater Monitoring
COOLER #38

WITNESSES
D. Jones
L. Levine

COLLECTION PROCEDURE
Pumping: 1, 2, 3, 4, 5, 6, 7

METHOD OF PRESERVATION
None

REMARKS:
Bottles Filled

(1) PS DWA, TOXD Q, No pres.
(2) Metals pres w/Nitric Acid
(3) COD, NO3, phenol, P, TOCQ, pres w H2SO4
(4) CN pres. w/NaOH
(5) α, β, Radium Rad-Scan / No pres.
(6) Coliform
(7) Cl, Cond Q, F, SO4 TDS, Cr6 pHQ No pres.

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
DAVID JONES LISA LEVINE/SALLY CLEMENT	#3	Collection/storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 0945	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames + Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	HOWARD LABS	
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	Analysis

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		366
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. SW2

DAY, MONTH, YEAR 11/18/86

Chain of Custody Record

REASON FOR SAMPLING RCRA groundwater Monitoring
Cooler #28

731

WITNESSES
D. Jones
S. Clement

COLLECTION PROCEDURE
Pumping: 1, 2, 3, 4, 6, 7
Bailing: 5, 8

METHOD OF PRESERVATION
None

REMARKS:
(1) Cl, Cond Q, F, SO4, TDS, Cr6, pH Q, no pres.
(2) COD, NO3, phenol, P, TOC Q pres w/ H2SO4
(3) CN pres w/ NaOH
(4) PSDWA, TOX DQ, no preser.
(5) VOC, 3 bottles
(6) Metals, pres w/ Nitric Acid
(7) α, β, Radium Rad-Scan/no pres
(8) coliform

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
LISA LEVINE / DAVE JONES / SALLY CLEMENT	Team #3	collection / Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 1040	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Feller	Dames + Moore	Shipper to Lab
SIGNATURE X Wayne Feller	TIME AND DATE 13:00 11/18/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	Howard Labs	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		367
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. DS

DAY, MONTH, YEAR 11/18/86

Chain of Custody Record

731

REASON FOR SAMPLING
RCRA Groundwater Sampling
Cooler # 28

WITNESSES
D. Jones
S. Clement

COLLECTION PROCEDURE
Pumping : All

METHOD OF PRESERVATION
None

REMARKS:
(1) PS DW, TOXD Q, No presen.
(2) Metals, pres. w/ Nitric Acid
(3) COD, NO3, Phenol, P, TOC Q, pres. w/ H_2SO_4
(4) Cl, Cond Q, F, SO_4, TDS, CrO, pH Q, No pres.
(5) α, β, Radium, Rad-Scan / No pres.
(6) CN pres. w/ NaOH
(7) coliform

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SALLY CLEMENT / LISA LEVINE / DAVE JONES	#3	Collection/Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 11:00	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames & Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
JOYCE ROSE	HOWARD LABS	Analyze
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		368
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Dames & Moore

1 Blue Hill Plaza
Pearl River, New York 10965
(914) 735-1200

SAMPLE I.D. NO. 12

DAY MONTH YEAR 18 11 86

Chain of Custody Record

REASON FOR SAMPLING
RCRA groundwater Monitoring

731

WITNESSES
D. Jones
S. Clement

COLLECTION PROCEDURE
Pumping : 1, 2, 3, 4, 5, 6
Bailing : 7, 8

METHOD OF PRESERVATION
None

REMARKS:
Cooler #41
(1) PSDWA, TOXDQ, no preserv.
(2) CN pres. w/ NaOH
(3) α, β, radium rad scan, no pres.
(4) Cl, cond Q, F, SO4, TDS, Orb pH Q, no preserv.
(5) Metals pres. w/ Nitric Acid
(6) COD, NO3, phenol P, TOC Q pres. w/ H2SO4
(7) Coliform
(8) VOC (3 bottles)

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Lisa Levine/Dave Jones/Sally Clement	#3	Collection/Storage
SIGNATURE X Lisa Levine	TIME AND DATE 11/18/86 1420	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne Fuller	Dames + Moore	Shipping to Lab
SIGNATURE X Wayne Fuller	TIME AND DATE 13:00 11/19/86	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
SIGNATURE X	TIME AND DATE	

RECEIVED IN LABORATORY BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Joyce Rose	Howard Labs	
SIGNATURE X Joyce Rose	TIME AND DATE 16:30 11/19/86	Analyze

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
		369
SIGNATURE X	TIME AND DATE	

91-14-12 (1/78)

Results of Phase 1-Round 1 Sampling

Table 3-1

GROUND-WATER SAMPLING RESULTS - FMPC - Pit #4
(All results in ppm except as noted)

	MW-12	MW-TP19	MW-TP21	MW-TP22	Standards Primary(6)	Secondary (7)	Recommended (12)
Chloride	109	459	58	118	--	250	--
Iron	18.1	4.57	58.4	2.26	--	0.3	--
Manganese	0.216	2.75	3.77	2.01	--	0.05	--
Phenols	0.019	0.049	<0.005	<0.005	--	--	0.001
Sodium	268.0	34.6	40.5	19.3	--	--	--
Sulfate	72	575	30	850	--	250	--
Silver	<0.030	<0.030	<0.030	<0.030	0.05	--	--
Arsenic	<0.0025	0.008	0.03	0.006	0.05	--	--
Barium	<0.200	0.308	0.863	0.363	1.0	--	--
Calcium	53	372	415	154	--	--	--
Cadmium	<0.002	<0.002	<0.002	<0.002	0.010	--	--
Cyanide	<0.005	<0.005	<0.005	<0.005	--	--	0.05
Chromium							
- Total	0.055	0.049	0.08	<0.005	0.05	--	--
- Hexavalent	<0.01	<0.01	<0.01	<0.01	--	--	--
Copper	<0.025	<0.025	0.074	<0.025	--	1.0	--
Fluoride	2.00	0.33	0.52	1.80	1.4-2.4	--	--
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	0.002	--	--
Potassium	NA	NA	NA	NA	--	--	--
Magnesium	12.3	12.8	18.3	7.8	--	--	--
Nickel	0.06	0.026	0.137	0.015	--	--	--
Nitrates	<0.02	<0.02	<0.02	0.06	10.0	--	--
Lead	0.320	<0.005	0.012	<0.005	0.05	--	--
Phosphorus, total	0.26	0.14	0.21	1.15	--	--	--
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	0.01	--	--
Zinc	0.081	0.029	0.240	<0.025	--	5.0	--
T.D.S.	660	2540	936	2240	--	500	--
C.O.D.	17.0	12.0	14.	44.	--	--	--
pH-lab (1)(2)	7.48	6.63	5.99	6.75	--	6.5-8.5	--
Conductivity-lab (1)(3)	880	2350	1000	1950	--	--	--
T.O.C.(1)	<1.00	4.00	4.00	6.5	--	--	--
T.O.X.(1)(4)	<10.00	80.25	<10.00	<10.00	--	--	--

Results of Phase 1-Round 1 Sampling

Table 3-1 (Cont'd)

	MW-12	MW-TP19	MW-TP21	MW-TP22	Standards Primary (6)	Restricted (9)	Unrestricted (9)
Gross Beta (5)	30	94	250 (8)	1340 (8)	30	--	--
Gross Alpha (5)	<10	43	230 (8)	1370 (8)	15	--	--
Potassium 40 (5)	<10	<10	15	75	--	90,000	3000
Uranium Natural(5)	<10	<10	<10	<50	--	20,000	600
Radium-226 (5)	<10	<10	<10	<50	5 (10)	400	30
Radium-228 (5)	<5	<5	12	75	5 (10)	800	30
Technicium-99 (5)	<5	<5	<5	<5	--	10,000,000	300,000
Thorium-228 (5)	<5	<5	<5	<5	--	200,000	7000
Thorium-230 (5)	<5	<5	<5	<5	--	50,000	2000
Thorium-232 (5)	<5	<5	<5	88	--	50,000	2000
Cesium-137 (5)	<5	22	49	115	--	400,000	20000
Strontium-90 (5)	<5	<5	14	28	8	10,000	300
Ruthenium-106 (5)	<10	<10	15	80	--	400,000	10000
Neptunium-237 (5)	<10	<10	14	50	--	90,000	3000
Plutonium-238 (5)	<10	<10	<40	<100	--	100,000	5000
Plutonium-239 (5)	<10	<10	<40	<100	--	100,000	5000
Plutonium-240 (5)	<10	<10	<40	<100	--	100,000	5000
Coliform, Total (11)	<20	<20	<20	<20	1	--	--
Lindane (4)	<0.2	<0.2	<0.2	<0.2	4	--	--
Endrin (4)	<0.2	<0.2	<0.2	<0.2	0.2	--	--
Methoxychlor(4)	<0.2	<0.2	<0.2	<0.2	100	--	--
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	5	--	--
2,4-D (4)	<0.4	<0.4	<0.4	<0.4	10	--	--
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	10	--	--
Benzene (4)	14.8	ND	ND	ND	--	--	--
Xylenes (4)	11.8	ND	ND	ND	--	--	--
1,1 Dichloro-ethane (4)	ND	3.4	ND	ND	--	--	--
Methylene chloride (4)	ND	Trace	ND	ND	--	--	--

NOTES

ND Not detected

NA Not Analyzed due to laboratory error

(1) Average of four tests

(2) pH results in standard units

(3) Conductivity results in umhos/cm

(4) Concentrations reported in ppb

(5) Results in pCi/l

(6) Taken from 40 CFR Part 141 National Interim Primary Drinking Water Regulations -Subpart B - Maximum Contaminant Levels, July 1, 1984.

(7) Taken from 40 CFR Part 143 National Secondary Drinking Water Regulations -Section 143.3 - Secondary Maximum Contaminant Levels.

(8) High counts did not yield any individual elements using a 4096 channel analyzer. These levels are due to solids only in the samples

(9) Taken from DOE Order 5480.1A: Limit for Release to Restricted and Unrestricted Areas.

(10) Standard is for Radium -226 Plus Radium -228.

(11) Reported in per 100 ml.

(12) Taken from World Health Organization, European Standards, 1970.

Results of Phase 2-Round 1 Sampling

Table 3-1

GROUND-WATER SAMPLING RESULTS - FMPC - Sand and Gravel Aquifer
(All results in ppm except as noted)

	SW-1	MW-1a	MW-10	Standards: Primary (6)	Standards: Secondary (7)	Standards: Recommended (8)
Chloride	30	25	76	---	250	---
Iron	<0.05	51.8	18.9	---	0.3	---
Manganese	0.125	0.649	5.5	---	0.05	---
Phenols	<0.005	0.015	<0.005	---	---	0.001
Sodium	15	29.7	162	---	---	---
Sulfate	50	40	470	---	250	---
Silver	<0.03	<0.03	<0.03	0.05	---	---
Arsenic	<0.005	<0.005	<0.005	0.05	---	---
Barium	<0.2	<0.2	<0.2	1.0	---	---
Calcium	94.4	80.7	1,232	---	---	---
Cadmium	<0.002	<0.002	0.003	0.010	---	---
Cyanide	<0.005	<0.005	0.005	---	---	0.05
Chromium						
- Total	<0.005	0.019	0.014	0.05	---	---
- Hexavalent	<0.005	0.01	0.01	---	---	---
Copper	<0.025	0.146	<0.025	---	1.0	---
Fluoride	0.15	0.12	0.05	1.4-2.4	---	---
Mercury	<0.0002	<0.0002	<0.0002	0.002	---	---
Potassium	2.4	1.5	20.2	---	---	---
Magnesium	27.2	24.2	90	---	---	---
Nickel	<0.005	0.012	0.039	---	---	---
Nitrates	2.05	<0.02	155.6	10.0	---	---
Lead	<0.005	0.028	<0.005	0.05	---	---
Phosphorus, total	<0.02	0.45	0.05	---	---	---

Results of Phase 2-Round 1 Sampling
Table 3-1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC - Sand and Gravel Aquifer
(All results in ppm except as noted)

	SW-1	MW-1d	MW-10	Standards: Primary (6)	Standards: Secondary (7)	Standards: Recommended (8)
Selenium	<0.0025	<0.0025	<0.0025	0.01	---	---
Zinc	0.025	0.141	0.056	---	5.0	---
T.D.S.	504	444	2,540	---	500	---
C.O.D.	<10	84	20	---	---	---
pH-lab (1)(2)	7.78	7.26	7.1	---	6.5-8.5	---
Conductivity-lab (1)(3)	520	400	2,400	---	---	---
T.O.C.(1)	2.	5	4	---	---	---
T.O.X.(1)(4)	NA	NA	NA	---	---	---

Results of Phase 2-Round 1 Sampling

Table 3-1 (Cont'd)

	SW-1	MW-1d	MW-10	Standards: Primary (6)	Standards: Restricted (9)	Standards: Unrestricted (9)
Gross Beta (5)	<5	<10	<10	30 (12)	---	---
Gross Alpha (5)	<10	12	10	15	---	---
Potassium 40 (5)	<10	<10	<10	---	90,000	3000
Uranium Natural (5)	<10	<10	<10	---	20,000	600
Radium-226 (5)	<10	<10	<10	5 (10)	400	30
Radium-228 (5)	<5	<5	<5	5 (10)	800	30
Technicium-99 (5)	<5	<5	<5	---	10,000,000	300,000
Thorium-228 (5)	<5	<5	<5	---	200,000	7000
Thorium-230 (5)	<5	<5	<5	---	50,000	2000
Thorium-232 (5)	<5	<5	<5	---	50,000	2000
Cesium-137 (5)	<5	<5	12	---	400,000	20,000
Strontium-90 (5)	<5	<5	<5	8	10,000	300
Ruthenium-106 (5)	<10	<10	<10	---	400,000	10,000
Neptunium-237 (5)	<10	<10	<10	---	90,000	3000
Plutonium-238 (5)	<10	<10	<10	---	100,000	5000
Plutonium-239 (5)	<10	<10	<10	---	100,000	5000
Plutonium-240 (5)	<10	<10	<10	---	100,000	5000
Coliform, Total (10)	18	190,000	140,000	1	---	---
Lindane (4)	NA	NA	NA	4	---	---
Endrin (4)	NA	NA	NA	0.2	---	---
Methoxychlor (4)	NA	NA	NA	100	---	---
Toxaphene (4	NA	NA	NA	5	---	---
2,4-D (4)	NA	NA	NA	10	---	---
2,4,5-TP, Silvex (4)	NA	NA	NA	10	---	---

Results of Phase 2-Round 1 Sampling

Table 3-1 (Cont'd)

	MW-14d	MW-14s	MW-18s	MW-19s	Standards Primary (6)	Secondary (7)	Recommended (8)
Chloride	15	19	7	49	---	250	---
Iron	0.123	37.2	18.3	5.33	---	0.3	---
Manganese	<0.02	0.451	0.818	0.318	---	0.05	---
Phenols	<0.005	0.015	<0.005	0.005	---	---	0.001
Sodium	12.7	10.4	8.6	180	---	---	---
Sulfate	70	70	50	130	---	250	---
Silver	<0.03	<0.03	<0.03	<0.03	0.05	---	---
Arsenic	<0.005	<0.025	<0.01	<0.005	0.05	---	---
Barium	<0.2	<0.2	<0.2	<0.2	1.0	---	---
Calcium	89	241	155	361	---	---	---
Cadmium	<0.002	0.005	0.003	0.002	0.010	---	---
Cyanide	<0.005	<0.005	<0.005	0.013	---	---	0.05
Chromium							
- Total	<0.005	0.159	0.147	0.133	0.05	---	---
- Hexavalent	<0.005	0.03	0.01	<0.01	---	---	---
Copper	<0.025	0.289	0.179	0.109	---	1.0	---
Fluoride	0.13	1.1	0.7	1.06	1.4-2.4	---	---
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	0.002	---	---
Potassium	1.9	5.[illegible]	5.22	5.7	---	---	---
Magnesium	19	44.3	50	93	---	---	---
Nickel	0.01	0.027	0.022	0.008	---	---	---
Nitrates	1.2	0.89	0.72	25.04	10.0	---	---
Lead	0.011	0.1	0.047	0.072	0.05	---	---
Phosphorus, total	0.06	1.04	0.44	0.13	---	---	---
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	0.01	---	---
Zinc	<0.025	0.166	0.109	0.281	---	5.0	---
T.D.S.	352	436	396	888	---	500	---
C.O.D.	10	32	52	18	---	---	---

Results of Phase 2 -Round 1 Sampling

Table 3-1 (Cont'd)

	MW-14d	MW-14s	MW-18s	MW-19s	Standards Primary (6)	Secondary (7)	Recommended (8)
pH-lab (1)(2)	6.97	8.1	7.1	7.06	---	6.5-8.5	---
Conductivity-lab (1)(3)	400	420	430	1,000	---	---	---
T.O.C. (1)	4.5	4	3.25	3	---	---	---
T.O.X. (1)(4)	NA	NA	NA	NA	---	---	---

Results of Phase 2 -Round 1 Sampling

Table 3-1 (Cont'd)

	MW-14d	MW-14s	MW-18s	MW-19s	Standards Primary (6)	Restricted (9)	Unrestricted (9)
Gross Beta (5)	<5	46	44	1,250	30 (12)	---	---
Gross Alpha (5)	<10	47	21	36	15	---	---
Potassium 40 (5)	<10	<10	<10	40	---	90,000	3000
Uranium Natural (5)	<10	<10	<10	<10	---	20,000	600
Radium-226 (5)	<10	<10	<10	<10	5 (10)	400	30
Radium-228 (5)	<5	<5	<5	70	5 (10)	800	30
Technicium-99 (5)	<5	<5	<5	<5	---	10,000,000	300,000
Thorium-228 (5)	<5	<5	<5	<5	---	200,000	7000
Thorium-230 (5)	<5	<5	<5	<5	---	50,000	2000
Thorium-232 (5)	<5	<5	<5	80	---	50,000	2000
Cesium-137 (5)	<5	12	12	110	---	400,000	20,000
Strontium-90 (5)	<5	<5	<5	24	8	10,000	300
Ruthenium-106 (5)	<10	<10	<10	75	---	400,000	10,000
Neptunium-237 (5)	<10	<10	<10	<10	---	90,000	3000
Plutonium-238 (5)	<10	<10	<10	<100	---	100,000	5000
Plutonium-239 (5)	<10	<10	<10	<100	---	100,000	5000
Plutonium-240 (5)	<10	<10	<10	<100	---	100,000	5000
Coliform, Total (10)	110	2,200	3,500	197	1	---	---
Lindane (4)	NA	NA	NA	NA	4	---	---
Endrin (4)	NA	NA	NA	NA	0.2	---	---
Methoxychlor (4)	NA	NA	NA	NA	100	---	---
Toxaphene (4)	NA	NA	NA	NA	5	---	---
2,4-D (4)	NA	NA	NA	NA	10	---	---
2,4,5-TP, Silvex (4)	NA	NA	NA	NA	10	---	---
1,1,1 Trichloro-ethane	ND	ND	ND	8.6	---	---	---

NOTES

ND Not Detected
NA Not Analyzed (See page 3-4 for explanation)
(1) Average of four tests
(2) pH results in standard units
(3) Conductivity results in umhos<cm
(4) Concentrations reported in ppb
(5) Results in pCi/l
(6) Taken from 40 CFR Part 141 National Interim Primary Drinking Water Regulations - Support R - Maximum Contaminant Levels, July 1, 1984.
(7) Taken from 40 CFR Part 143 National Secondary Drinking Water Regulations - Section 143.3 - Secondary Maximum Contaminant Levels.
(8) High counts did not yield any individual elements using a 4096 channel analyzer. These levels are due to solids only in the samples.
(9) Taken from DOE Order 5480.1A: Limit for Release to Restricted and Unrestricted Areas
(10) Standard is for Radium -226 Plus Radium -228.
(11) Reported in per 100 ml
(12) Maximum Permissible Activity taken from World Health Organization, 1970 European Standards. National Primary Drinking Water Regulation for gross beta is 4 mR/year.

RESULTS OF PHASE 3 ROUND 1
Table 3.1

GROUND WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	1S	3	4	5	8S	Standards: Primary (6)	Secondary (7)	Recommended (8)
Chloride	18	22	32	17	19	---	250	---
Iron	0.628	0.638	0.218	1.82	1.6	---	0.3	---
Manganese	0.511	0.426	<0.02	0.532	0.257	---	0.05	---
Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	---	---	0.001
Sodium	10	9.5	12.6	12.8	9.5	---	---	---
Sulfate	74	88	54.0	82	78	---	250	---
Silver	<0.03	<0.03	<0.03	<0.03	<0.03	0.05	---	---
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	---	---
Barium	<0.2	<0.2	<0.2	<0.2	<0.2	1.0	---	---
Calcium	108	102	101	115	104	---	---	---
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	0.010	---	---
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	---	---	0.05
Chromium								
- Total	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	---	---
- Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	---	---	---
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	---	1.0	---
Fluoride	0.41	0.25	0.29	0.24	0.14	1.4-2.4	---	---
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.002	---	---
Potassium	2.26	2.40	2.79	2.21	2.34	---	---	---
Magnesium	23.9	23.3	22.2	25.5	22.5	---	---	---
Nickel	<0.005	<0.005	<0.005	<0.005	<0.005	---	---	---
Nitrates	0.04	<0.02	1.43	0.09	<0.02	10.0	---	---
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	0.05	---	---
Phosphorus, total	<0.04	<0.04	<0.04	<0.04	<0.04	---	---	---

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	1S	3	4	5	8S	Standards: Primary (6)	Standards: Secondary (7)	Standards: Recommended (8)
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	0.01	---	---
Zinc	<0.025	<0.025	<0.025	<0.025	<0.025	---	5.0	---
T.D.S.	415	369	369	396	381	---	500	---
C.O.D.	<10	<10	<10	<10	<10	---	---	---
pH-lab (1) (2)	7.20	7.32	7.36	7.36	7.34	---	6.5-8.5	---
Conductivity-lab (1) (3)	600	590	580	620	588	---	---	---
T.O.C. (1)	1	1	1	<1	<1	---	---	---
T.O.X. (1) (4)	28.5	11.8	<10	<10	<10	---	---	---
Coliform (10)	<2	<2	380	17	36	1	---	---
Lindane (4)	<0.1	<0.1	<0.1	<0.1	<0.1	4	---	---
Endrin (4)	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	---	---
Methoxychlor (4)	<0.1	<0.1	<0.1	<0.1	<0.1	100	---	---
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	5	---	---
2,4-D (4)	<0.4	<0.4	<0.4	<0.4	<0.4	10	---	---
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	10	---	---
VOC's (4)	NA	NA	ND	NA	ND	---	---	---
Gross Alpha (5)	<15.0	<15.0	<15.0	<15.0	<15.0	15	---	---
Gross Beta (5)	15	17	17	12	7	30 (11)	---	---
Radium, Total (5)	<5.0	<5.0	<5.0	<5.0	<5.0	5 (9)	---	---
Radionuclide Scan (5) (12)	<5.0	<5.0	<5.0	<5.0	<5.0	---	---	---

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	8D	9	10	11	12 (8/1/85)	12 (1/8/86)	13S	13D	15S	16S	16D
Chloride	13	22	76	21	109	105	25	61	23	19	20
Iron	2.62	0.072	18.9	2.93	18.1	30.8	2.71	6.93	0.078	<0.05	0.123
Manganese	0.365	0.071	5.5	0.193	0.216	0.592	0.205	0.349	<0.020	0.025	<0.02
Phenols	<0.005	0.007	<0.005	<0.007	0.019	0.021	<0.005	0.012	0.007	0.009	0.009
Sodium	11.9	11.0	162	12.9	268.0	224	14.7	49	11.9	15.6	11.1
Sulfate	10	76	470	88	72	64	92	300	49	50	60
Silver	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.0025	0.006	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	94.7	96.6	1,232	123	53	72.1	137	163	71.9	88.5	81.8
Cadmium	<0.002	<0.002	0.003	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium											
- Total	<0.005	<0.005	0.014	<0.005	0.055	0.058	<0.005	<0.005	<0.005	<0.005	<0.005
- Hexavalent	<0.005	<0.005	0.01	<0.005	<0.01	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	0.055	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.24	0.21	0.05	0.21	2.00	1.21	0.23	0.31	0.43	0.22	0.16
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	1.04	2.02	20.2	0.984	NA	12.8	2.05	5.11	2.37	2.17	1.85
Magnesium	21.1	22.1	90	28.3	12.3	18.3	28.6	44	19.5	23.4	20.7
Nickel	<0.005	<0.005	0.039	<0.005	0.06	0.048	<0.005	<0.0005	<0.0005	<0.0005	<0.0005
Nitrates	<0.02	3.52	155.6	<0.01	<0.02	<0.02	<0.02	<0.02	3.3	2.52	2.36
Lead	<0.005	<0.005	<0.005	<0.005	0.320	0.04	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.04	<0.04	0.05	<0.04	0.26	0.14	<0.04	<0.04	0.12	<0.04	<0.04

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	8D	9	10	11	12 (8/1/85)	12 (1/8/86)	13S	13D	15S	16S	16D
Selenium	<0.005	<0.005	<0.0025	<0.005	<0.0025	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.025	<0.025	0.056	<0.025	0.081	0.135	<0.025	<0.025	<0.025	<0.025	<0.025
T.D.S.	288	377	2,540	423	660	580	300	956	376	364	356
C.O.D.	<10	<10	20	<10	17.0	<10	<10	13	17	11	21
pH-lab (1) (2)	7.40	7.46	7.1	7.42	7.48	7.79	7.15	6.97	7.54	7.50	7.54
Conductivity-lab (1) (3)	530	540	2,400	650	880	998	695	1,250	498	560	520
T.O.C. (1)	<1	<1	4	1	<1.00	<1	<1	1	<1	1	<1
T.O.X. (1) (4)	<10	<10	NA	<10	<10.00	64	44.7	79	21.8	16.9	28.5
Coliform (10)	<4	24	140,000	<4	<20	<4	<4	<2	<2	<2	<2
Lindane (4)	<0.1	<0.1	NA	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin (4)	<0.1	<0.1	NA	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor (4)	<0.1	<0.1	NA	<0.1	<0.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxaphene (4)	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.4	<0.4	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
2,4,5-TP, Silvex (4)	<0.2	<0.2	NA	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND	---	ND	ND	ND	ND	ND	ND
Benzene (4)	ND	ND	ND	ND	14.8	ND	ND	ND	ND	ND	ND
Xylene (4)	ND	ND	ND	ND	11.8	ND	ND	ND	ND	ND	ND
Gross Alpha (5)	<15.0	<15.0	<15.0	<15.0	---	18	<15.0	<15.0	<15.0	<15.0	<15.0
Gross Beta (5)	12	11	---	9	---	78	15	<5.0	<5.0	<5.0	<5.0
Radium, Total (5)	<5.0	<5.0	---	<5.0	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Radionuclide Scan (5) (12)	<5.0	<5.0	---	<5.0	---	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	17S	17D	18D	19D	20S	20D	TP-20	21S	22S	OS-1A
Chloride	24	19	4	57	21	20	3	37	62	34
Iron	0.101	1.29	8.94	<0.05	0.102	1.12	5.43	0.262	0.379	0.338
Manganese	0.234	0.36	0.104	3.73	0.043	0.235	1.04	0.052	0.061	0.054
Phenols	0.006	0.011	0.006	0.011	0.006	<0.005	0.007	0.015	0.006	0.012
Sodium	8.75	10.2	4.59	86.8	11.6	14.1	4.1	28.3	31.8	33.1
Sulfate	150	72	62	440	78	80	48	84	98	102
Silver	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	<0.005
Barium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Calcium	148	106	102	240	96.6	99	108	148	137	143
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium										
- Total	<0.005	<0.005	<0.005	<0.005	0.017	<0.005	<0.005	<0.005	<0.005	<0.005
- Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.01	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.3	0.12	0.44	0.08	0.15	0.11	0.47	0.21	0.71	0.24
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	1.94	1.9	0.556	8.73	2.46	1.69	1.22	9.35	3.95	32.4
Magnesium	32.1	19.5	35.3	35.5	21.1	23.1	31.7	18	40.3	47
Nickel	<0.005	<0.005	<0.005	<0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrates	0.15	<0.02	<0.02	0.46	5.67	<0.02	<0.02	39.3	42	7.99
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.04	<0.04	0.11	<0.04	<0.04	<0.04	0.44	<0.04	<0.04	0.38

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	17S	17D	18D	19D	20S	20D	TP-20	21S	22S	US-1A
Selenium	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Zinc	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.07
T.D.S.	612	612	388	424	436	420	324	712	712	600
C.O.D.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
pH-lab (1) (2)	7.13	7.31	7.30	6.83	7.50	7.41	7.05	7.33	7.30	7.15
Conductivity-lab (1) (3)	810	553	575	1,600	545	560	570	908	980	1,010
T.O.C. (1)	<1	<1	<1	1	<1	<1	3	1	2	2.5
T.O.X. (1) (4)	<10	<10	<10	<10	36.5	18.9	25.5	<10	29	23.3
Coliform (10)	<2	<2	<4	<4	<2	<2	10	<2	<2	2
Lindane (4)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Endrin (4)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Methoxychlor (4)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1 Trichloroethane (4)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Gross Alpha (5)	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0	<15.0
Gross Beta (5)	<5.0	<5.0	<5.0	<15.0	9	<5.0	77	400	78	<5.0
Radium, Total (5)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Radionuclide Scan (5) (12)	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	OS1	15D	OS3	OS2	SW2 (8/27/85)	SW2 (1/8/86)	P1	P2	P3	TP19	TP21	TP22
Chloride	19	28	26	29	30	35	36	20	12	459	58	118
Iron	0.05	2.61	1.25	<0.05	<0.05	<0.05	5.31	2.78	2.51	4.57	58.4	2.26
Manganese	<0.02	0.349	0.373	<0.02	0.125	0.154	0.425	0.358	0.418	2.75	3.77	2.01
Phenols	0.008	0.014	0.02	0.011	<0.005	0.009	0.008	0.012	0.018	0.049	<0.005	<0.005
Sodium	11.2	6.8	10.5	11	15	17.4	26.6	11.5	11.0	34.6	40.5	19.3
Sulfate	54	86	58	18	60	96	16	50	42	575	30	850
Silver	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	0.03	0.006
Barium	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.308	0.863	0.363
Calcium	67.8	106	85.7	90.6	94.4	93.2	116	84.5	85.3	372	415	154
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium												
- Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.049	0.08	<0.005
- Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	0.074	<0.025
Fluoride	0.46	0.13	0.24	0.22	0.15	0.2	0.18	0.19	0.14	0.33	0.52	1.80
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.36	1.75	2.2	2.88	2.4	2.35	3.4	1.22	1.62	NA	NA	NA
Magnesium	18.9	27.2	22	24.3	27.2	28.9	33.9	23.6	22.2	12.8	18.3	7.8
Nickel	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.026	0.137	0.015
Nitrates	2.55	<0.02	<0.02	3.64	2.06	2.89	<0.02	<0.02	<0.02	<0.02	<0.02	0.06
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.012	<0.005
Phosphorus, total	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.12	0.12	0.06	0.14	0.21	1.15

RESULTS OF PHASE 3 ROUND 1
Table 3.1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	OS-1	15-D	OS-2	OS-3	SW-2 (8/27/85)	SW-2 (1/8/86)	P-1	P-2	P-3	TP19	TP-21	TP-22
Selenium	<0.005	<0.005	<0.005	<0.005	<0.0025	<0.005	<0.005	<0.005	<0.005	<0.0025	<0.0025	<0.0025
Zinc	0.109	<0.071	<0.025	0.037	0.025	<0.025	<0.025	<0.025	<0.025	0.029	0.240	<0.025
T.D.S.	304	408	308	376	504	468	420	240	240	2540	936	2240
C.O.D.	<10	<10	<10	<10	<10	<10	<10	<10	10	12.0	14	44
pH-lab (1) (2)	7.48	7.35	7.62	7.39	7.78	7.36	7.45	7.50	7.36	6.63	6.99	6.75
Conductivity-lab (1) (3)	491	638	575	610	520	660	835	555	533	2350	1000	1950
T.O.C. (1)	<1	<1	<1	<1	2	<1	<1	<1	<1	4.00	4.00	6.5
T.O.X. (1) (4)	32	40.8	43.3	49.3	NA	61.5	12.8	10	12.4	80.25	<10.00	<10.00
Coliform	<2	<2	<2	40	18	<2	<2	<2	<2	<20	<20	<20
Lindane (4)	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2
Endrin (4)	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2
Methoxychlor	<0.1	<0.1	<0.1	<0.1	NA	<0.1	<0.1	<0.1	<0.1	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	NA	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4) (9)	<0.4	<0.4	<0.4	<0.4	NA	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
2,4,5-TP, Silvex (4) (9)	<0.2	<0.2	<0.2	<0.2	NA	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1 Dichlorethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.4	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	Trace	ND	ND
Gross Alpha	<15.0	<15.0	20	<15.0	---	<15.0	<15.0	<15.0	<15.0	---	---	---
Gross Beta	28	<5.0	42	<5.0	---	<5.0	<5.0	<5.0	<5.0	---	---	---
Radium, Total	<5.0	<5.0	<5.0	<5.0	---	<5.0	<5.0	<5.0	<5.0	---	---	---
Radionuclide Scan (5) (12)	<5.0	<5.0	<5.0	<5.0	---	<5.0	<5.0	<5.0	<5.0	---	---	---

NOTES

ND Not Detected

NA Not Analyzed

(1) Average of four tests

(2) pH results in standard units

(3) Conductivity results in umhos/cm

(4) Concentrations reported in ppb

(5) Results in pCi/l

(6) Taken from 40 CFR Part 141 National Interim Primary Drinking Water Regulations - Subpart B - Maximum Contaminant Levels, July 1, 1984.

(7) Taken from 40 CFR Part 143 National Secondary Drinking Water Regulations - Section 143.3 - Secondary Maximum contaminant Levels.

(8) High counts did not yield any individual elements using a 4096 channel analyzer. These levels are due to solids only in the samples.

(9) Standard is for Radium -226 Plus Radium -228

(10) Reported in per 100 ml

(11) Maximum Permissible Activity taken from World Health Organization, 1970 European Standards. National Primary Drinking Water Regulation for gross beta is 4 mR/year.

(12) Radionuclide Scan includes analysis for K-40, Umat, Th-228, Th-230, Th-232, Tc-99, Cs-137, Sr-90, Ru-106, Np-237, Pu-238, Pu-239, Pu-240.

RESULTS OF ROUND 2 SAMPLING

3.1 Shallow (Till) Groundwater Sampling Results (FMPC)

(All results in ppm except as noted)

	MW-12	MW-19TP	MW-20TP	MW-21TP	MW-22TP	OS-1A
Chloride	105.0	265.0	5.0	19.0	34.0	35.0
Iron	3.410	2.100	0.360	1.690	15.800	0.083
Manganese	0.050	1.380	1.020	1.920	1.280	<0.020
Phenols	<0.005	<0.005	<0.005	0.006	0.007	0.008
Sodium	210.000	56.100	3.680	11.300	174.000	32.700
Sulfate	8.0	660.0	48.0	260.0	1,100	130.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.007	<0.005	0.008	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	22.300	310.00	120.000	146.000	458.00	141.000
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	0.008	0.010
Chromium						
-Total	<0.005	<0.005	<0.005	<0.005	0.028	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.010	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.052	<0.025
Fluride	1.09	0.38	0.22	0.52	0.97	0.17
Mercury	0.0009	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	10.600	1.140	1.010	1.390	8.090	34.100
Mangesium	9.200	-107.000	29.000	74.000	176.000	62.000
Nickel	<0.005	<0.005	<0.005	<0.005	0.023	<0.005
Nitrates	<0.02	0.07	<0.02	0.19	10.50	8.96
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	0.06	0.11	0.07	0.08	0.35	0.07

RESULTS OF ROUND 2 SAMPLING

3.1 Shallow (Till) Groundwater Sampling Results (FMPC)

(All results in ppm except as noted)

	MW-12	MW-19TP	MW-20TP	MW-21TP	MW-22TP	US-1A
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025	0.48	0.051
T.D.S.	660	1,820	376	780	2,550	840
C.O.D.	<10	21	17	12	38	16
pH-lab (1) (2)	7.75	6.72	7.13	7.28	7.07	6.99
Conductivity-lab (1) (3)	1,000	2,000	598	999	2,400	1,100
T.O.C. (1)	<1	4	2	2	5	2
T.O.X. (1) (4)	<10	NA	15.5	NA	30.8	19.5
Coliform (10)	6	<2	29	6	2,600	4,200
Lindane (4)	<0.2	NA	<0.2	NA	<0.2	<0.2
Endrin (4)	<0.2	NA	<0.2	NA	<0.2	<0.2
Methoxychlor (4)	<0.2	NA	<0.2	NA	<0.2	<0.2
Toxaphene (4)	<0.5	NA	<0.5	NA	<0.5	<0.5
2,4-D (4)	<0.2	NA	<0.2	NA	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	NA	<0.2	NA	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND	ND	ND
Gross Alpha (5)	<15	<15	<15	125	37	<15
Gross Beta (5)	5	76.77	<5	335	143	26
Radium, Total (5)	<5	5.84	<5	21.1	<5	<5
Radionuclide Scan (5) (12)	<5	<5	<5	<5	<5	<5
Uranium (13)	0.0001	0.90	0.012	3.20	5.06	0.0013

RESULTS OF ROUND 2 SAMPLING

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Producation Area (FMPC)
(All results in ppm except as noted)

	MW-1s	MW-1d	MW-3	MW-4	MW-5	MW-8s	MW-8d	MW-10	MW-13s	MW-13d
Chloride	18.0	27.0	24.0	21.0	16.0	21.0	13.0	82.0	27.0	69.0
Iron	1.050	6.240	0.750	0.170	2.310	1.190	3.010	0.250	3.180	7.840
Manganese	0.487	0.416	0.396	<0.005	0.546	0.217	0.362	4.160	0.183	0.338
Phenols	0.006	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	0.006	<0.005
Sodium	10.400	23.500	7.800	8.500	8.290	9.500	9.700	131.000	12.000	48.800
Sulfate	74.0	60.0	94.0	66.0	72.0	72.0	12.0	720.0	94.0	230.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	76.800	98.400	83.100	84.100	110.000	83.000	96.900	377.00	121.000	205.000
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium										
-Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.13	0.13	0.24	0.24	0.24	0.14	0.22	0.13	0.17	0.15
Mercury	<0.0002	<0.0002	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.470	1.010	2.640	2.880	2.660	2.860	1.010	21.900	2.310	4.300
Magnesium	23.500	27.100	23.300	20.300	26.500	22.900	21.000	73.000	26.300	59.000
Nickel	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005
Nitrates	<0.02	0.08	<0.02	2.20	<0.02	<0.02	<0.02	160.00	0.06	<0.02
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.02	0.12	0.04	<0.02	<0.02	<0.02	0.07	0.06	<0.02	<0.02

RESULTS OF ROUND 2 SAMPLING

3.2 Sand and Gravel Aquifer

Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-1s	MW-1d	MW-3	MW-4	MW-5	MW-8s	MW-8d	MW-10	MW-13s	MW-[illegible]
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.0025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T.D.S.	456	476	416	348	560	448	332	2730	468	955
C.O.D.	<10	12	<10	<10	<10	<10	11	<10	11	[illegible]
pH-lab (1) (2)	7.32	7.36	7.40	7.47	7.30	7.40	7.47	6.88	7.24	[illegible]
Conductivity-lab (1) (3)	599	725	603	546	656	600	519	2,713	686	1,255
T.O.C. (1)	<1	<1	<1	<1	<1	<1	<1	<1	<1	<[illegible]
T.O.X. (1) (4)	47.0	12.0	<10	11.0	<10	19	<10	23.3	<10	[illegible]
Coliform (10)	<2	18	<2	2,100	<2	9	<2	<2	3	<2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2, 4-D (4)	<0.2	<0.2	<0.2	<0.2	<0.2	4.06	<0.2	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	0.694	<0.2	<0.2	<0.2	<0.2
VOC's (4)	NA	ND	NA	----	NA	ND	ND	ND	ND	[illegible]
Gross Alpha (5)	<15	<15	<15	<15	<15	<15	<15	<15	<15	<[illegible]
Gross Beta (5)	<5	<5	<5	<5	<5	<5	<5	12.9	<5	[illegible]
Radium, Total (5)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Radionuclide Scan (5) (12)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Uranium (13)	0.0093	0.0001	0.0023	0.0058	0.0037	0.0006	0.0003	0.015	0.0021	[illegible]
Trichloroethene	----	----	----	0.0044	----	----	----	----	----	----

RESULTS OF ROUND 2 SAMPLING

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-19s	MW-19d	MW-21s	MW-22s
Chloride	39.0	51.0	69.0	38.0
Iron	0.085	0.060	1.130	0.064
Manganese	0.027	2.360	<0.020	<0.020
Phenols	0.008	0.009	0.014	0.007
Sodium	43.600	75.400	52.900	27.800
Sulfate	98.0	410.0	92.0	100.0
Silver	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200
Calcium	143.000	248.000	175.000	122.000
Cadmium	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005
Chromium				
-Total	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025
Fluoride	0.14	0.09	0.19	0.68
Mercury	0.0003	<0.0002	<0.0002	<0.0002
Potassium	4.710	7.960	10.340	3.540
Magnesium	41.100	26.400	21.200	34.600
Nickel	<0.005	0.007	<0.005	0.005
Nitrates	72.00	3.70	63.90	28.70
Lead	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	0.04	0.05	0.09	<0.02

RESULTS OF ROUND 2 SAMPLING

3.2 Sand and Gravel Aquifer

Groundwater Sampling Results Inside Producation Area (FMPC)
(All results in ppm except as noted)

	MW-19s	MW-19d	MW-21s	MW-22s
Selenium	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025
T.D.S.	948	1,120	1,100	664
C.O.D.	11	<10	<10	<10
pH-lab (1) (2)	7.30	6.96	7.37	7.46
Conductivity-lab (1) (3)	1,200	1,575	1,255	933
T.O.C. (1)	<1	<1	<1	<1
T.O.X. (1) (4)	18.5	<10	22.3	21.8
Coliform (10)	<2	<2	<2	<2
Lindane (4)	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5
2, 4-D (4)	<0.2	<0.2	<0.2	<0.2
2,4,5 TP Silvex (4)	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND
Gross Alpha (5)	15.3	<15	33	<15
Gross Beta (5)	794	12.2	930	73
Radium, Total (5)	130	<5	29	<5
Radionuclide Scan (5) (12)	<5	<5	<5	<5
Uranium (13)	0.0011	0.032	0.0018	0.0035

RESULTS OF ROUND 2 SAMPLING

Table 3.3

Groundwater Sampling Results Plant Production Wells (FMPC)
(All results in ppm except as noted)

	P-1	P-2	P-3
Chloride	15.0	22.0	34.0
Iron	3.030	3.960	5.560
Manganese	0.415	0.352	0.403
Phenols	<0.005	<0.005	<0.005
Sodium	7.650	11.200	26.500
Sulfate	50.0	8.0	110.0
Siver	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200
Calcium	86.300	87.900	14.900
Cadmium	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005
Chromium			
-Total	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025
Fluoride	0.15	0.20	0.02
Mercury	<0.0002	<0.0002	<0.0002
Potassium	1.610	1.190	3.730
Magnesium	21.100	22.600	32.500
Nickel	<0.005	<0.005	<0.005
Nitrate	<0.02	0.02	<0.02
Lead	<0.005	<0.005	<0.005
Phosphorus, total	0.03	0.13	0.10

RESULTS OF ROUND 2 SAMPLING

Table 3.3 (Cont'd)
Groundwater Sampling Results Plant Production Wells (FMPC)
(All results in ppm except as noted)

	P-1	P-2	P-3
Selenium	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025
T.D.S.	368	368	656
C.O.D	<10	<10	<10
pH-lab (1) (2)	7.43	7.60	7.57
Conductivity-lab (1) (3)	540	575	885
T.O.C. (1)	<1	<1	<1
T.O.X. (1) (4)	NA	<10	26.0
Coliform (10)	9	<2	<2
Lindane (4)	NA	<0.2	<0.2
Endrin (4)	NA	<0.2	<0.2
Methoxychlor (4)	NA	<0.2	<0.2
Toxaphene (4)	NA	<0.5	<0.5
2,4-D (4)	NA	<0.2	<0.2
2,4,5-TP, Silvex (4)	NA	<0.2	<0.2
VOC's (4)	NA	NA	NA
Gross Alpha (5)	<15	<15	<15
Gross Beta (5)	5.76	<5	<5
Radium, Total (5)	<5	<5	<5
Radionuclide Scan (5) (12)	<5	<5	<5
Uranium (13)	0.0004	0.0002	0.0002

RESULTS OF ROUND 2 SAMPLING

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-9	MW-11	MW-14s	MW-14d	MW-15s	MW-16s	MW-16d	MW-17s	MW-17d
Chloride	22.0	21.0	20.0	18.0	19.0	20.0	19.0	22.0	21.0
Iron	0.210	8.540	5.700	0.150	0.031	1.020	1.300	0.180	1.330
Manganese	0.061	0.169	0.143	<0.020	<0.020	0.042	0.051	0.121	0.295
Phenols	0.007	0.007	0.008	0.007	<0.005	0.005	0.009	0.009	0.008
Sodium	10.300	9.600	9.400	8.200	11.000	10.500	10.400	7.240	7.600
Sulfate	70.0	78.0	68.0	58.0	52.0	56.0	58.0	96.0	80.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	79.900	99.800	89.000	78.700	69.400	92.600	91.700	139.000	92.700
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium									
-Total	<0.005	<0.005	0.014	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.010	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	0.099	<0.025	<0.025	0.027	<0.025	<0.025	<0.025
Fluoride	0.18	0.22	0.29	0.18	0.42	0.21	0.16	0.17	0.11
Mercury	<0.0002	<0.0002	<0.0002	0.0007	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.170	0.950	3.410	2.050	2.780	3.070	2.430	1.850	2.130
Magnesium	21.600	25.500	22.100	19.500	19.100	21.000	21.600	30.500	18.300
Nickel	<0.005	<0.005	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate	2.96	<0.02	0.10	2.80	2.60	2.28	2.92	0.13	<0.02
Lead	<0.005	<0.005	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	0.04	0.09	0.12	<0.02	0.05	<0.02	<0.02	<0.02	<0.02

RESULTS OF ROUND 2 SAMPLING

3.4 Sand and Gravel Aquifer

Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-9	MW-11	MW-14s	MW-14d	MW-15s	MW-16s	MW-16d	MW-17s	MW-17d
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T.D.S.	408	476	344	316	344	408	372	620	412
C.O.D.	13	15	26	12	<10	<10	<10	<10	12
ph-lab (1) (2)	7.50	7.37	7.67	7.69	7.53	7.60	7.57	7.20	7.42
Conductivity-lab (1) (3)	540	643	518	515	534	522	529	790	546
T.O.C. (1)	<1	<1	1	1.25	<1	<1	<1	<1	<1
T.O.X. (1) (4)	11.3	22.8	25.8	26.3	30.0	<10	14.8	30.8	12.0
Coliform (10)	3,400	31	9	<2	<2	<2	6	<2	3
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND	----	ND	ND	ND	ND
Gross Alpha (5)	<15	<15	<15	<15	24.9	<15	<15	<15	<15
Gross Beta (5)	<5	8.28	<5	7.74	25.16	9.67	5.26	<5	<5
Radium, Total (5)	<5	<5	<5	<5	7.14	<5	<5	<5	<5
Radionuclide Scan (5) (12)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Uranium (13)	0.0011	0.0001	0.020	0.021	0.154	0.012	0.0075	0.0034	0.0008
1,1,1-Trichloroethane	---	----	----	----	0.0051	----	----	----	----

RESULTS OF ROUND 2 SAMPLING

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted) (Cont'd)

	MW-18s	MW-18d	MW-20s	MW-20d	SW-2	OS-1	HK-15d	OS-2	OS-3
Chloride	6.0	2.0	21.0	22.0	30.0	19.0	25.0	36.0	29.0
Iron	32.700	2.500	0.710	1.300	0.104	0.081	3.100	0.005	1.930
Manganese	1.250	0.120	0.070	0.205	0.131	<0.020	0.309	<0.020	0.365
Phenols	0.009	0.006	<0.005	<0.005	0.007	0.006	<0.005	0.012	0.011
Sodium	4.440	4.600	11.400	9.100	13.600	13.600	7.630	13.800	11.100
Sulfate	50.0	56.0	76.0	86.0	68.0	58.0	94.0	62.0	70.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	0.035	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	146.000	98.200	115.000	104.000	97.700	73.300	109.000	108.000	94.300
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.200	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium									
-Total	0.025	<0.005	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	<0.005
-Hexavalent	0.010	<0.005	<0.005	<0.005	<0.005	<0.006	<0.005	<0.005	<0.005
Copper	0.034	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.63	0.40	0.20	0.11	0.29	0.58	0.10	0.18	0.20
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	3.160	0.525	2.660	1.920	2.610	2.840	2.000	3.120	2.480
Magnesium	38.800	33.500	20.900	22.000	26.700	18.700	24.600	22.600	22.600
Nickel	0.021	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate	0.67	<0.02	5.48	0.06	3.40	2.60	0.09	5.04	0.10
Lead	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	0.26	<0.02	<0.002	<0.002	<0.02	<0.02	<0.02	0.004	0.04

RESULTS OF ROUND 2 SAMPLING

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted) (Cont'd)

	MW-18s	MW-16d	MW-20s	MW-20d	SW-2	US-1	HK-15d	US-2	US-3
Selenium	0.003	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	0.068	<0.025	<0.025	<0.025	<0.025	0.092	0.031	0.064	<0.025
T.D.S.	408	384	376	316	448	NA	452	444	340
C.O.D.	30	<10	<10	27	23	16	12	12	11
pH-lab (1) (2)	7.51	7.52	7.47	7.41	7.46	7.68	7.51	7.47	7.35
Conductivity-lab (1) (3)	550	566	568	578	637	499	612	636	618
T.O.C. (1)	4	1	<1	1	<1	<1	<1	<1	<1
T.O.X. (1) (4)	51.5	<10	28.0	15.5	<10	<10	<10	18.0	24.0
Coliform (10)	<2	<2	<2	3	100	9	<2	<2	<2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
2,4,5-TP, Silvex (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
VOC's (4)	ND	ND	ND	ND	ND	NA	NA	NA	NA
Gross Alpha (5)	<15	<15	<15	<15	<15	35	<15	51	<15
Gross Beta (5)	14	<5	5.7	<5	12.37	37	<5	31	<5
Radium, Total (5)	<5	<5	8	5.9	7.74	36	<5	6.57	<5
Radionuclide Scan (5) (12)	<5	<5	<5	<5	<5	<5	<5	<5	<5
Uranium (13)	0.0027	0.0017	0.0005	0.0009	0.0008	0.205	0.0001	0.282	0.035

NOTES

ND Not Detected

NA Not Analyzed

(1) Average of four tests

(2) pH results in standard units

(3) Conductivity results in umhos/cm

(4) Concentrations reported in ppb

(5) Results in pCi/l

(6) Taken from 40 CFR Part 141 National Interim Primary Drinking Water Regulations - Subpart B - Maximum Contaminant Levels, July 1, 1984.

(7) Taken from 40 CFR Part 143 National Secondary Drinking Water Regulations - Section 143.3 - Secondary Maximum contaminant Levels.

(8) High counts did not yield any individual elements using a 4096 channel analyzer. These levels are due to solids only in the samples.

(9) Standard is for Radium -226 Plus Radium -228

(10) Reported in per 100 ml

(11) Maximum Permissible Activity taken from World Health Organization, 1970 European Standards. National Primary Drinking Water Regulation for gross beta is 4 mR/year.

(12) Radionuclide Scan includes analysis for K-40, Unat, Th-228, Th-230, Th-232, Tc-99 Cs-137, Sr-90, Ru-106, Np-237, Pu-238, Pu-239, Pu-240.

(13) WMCO Split Sample - Analyzed for Uranium at the FMPC; Results in mg/l.

Results of Round 3 Sampling

3.1 Shallow (Till) Groundwater Sampling Results (FMPC)

(All results in ppm except as noted)

	MW-12	MW-19TP	MW-20TP	MW-21TP	MW-22TP	OS-1A
Chloride	100.0	1,030	3.0	19.0	56.0	32.0
Iron	0.618	2.240	69.800	1.740	22.700	0.463
Manganese	<0.020	2.260	2.490	1.920	2.680	<0.020
Phenols	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Sodium	191.000	144.000	4.970	11.600	21.700	32.700
Sulfate	8.0	400.0	48.0	240.0	1,300	150.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.002
Arsenic	<0.005	<0.005	0.025	0.006	0.011	<0.005
Barium	<0.200	<0.200	0.746	0.292	<0.200	<0.200
Calcium	21.900	539.000	250.000	153.000	426.000	141.000
Cadmium	<0.002	<0.002	0.003	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	0.006	<0.005	<0.005	0.011
Chromium						
-Total	<0.005	<0.005	0.101	<0.005	0.040	<0.005
-Hexavalent	<0.005	<0.005	<0.010	<0.005	<0.010	<0.005
Copper	<0.025	<0.025	0.105	<0.025	0.037	<0.025
Fluoride	1.05	0.25	0.30	0.55	1.34	0.25
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	11.100	1.230	17.500	1.620	10.700	28.100
Magnesium	7.300	154.000	106.000	70.000	194.000	55.000
Nickel	<0.005	0.012	0.105	<0.005	0.037	<0.005
Nitrates	0.03	0.02	0.04	0.02	<0.02	11.20
Lead	<0.005	<0.005	0.021	<0.005	<0.005	<0.005
Phosphorus, total	0.03	0.34	0.41	0.08	<0.02	0.02

Results of Round 3 Sampling

3.1 Shallow (Till) Groundwater Sampling Results (FMPC)

(All results in ppm except as noted)

	MW-12	MW-19TP	MW-20TP	MW-21TP	MW-22TP	OS-1A
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	0.400	<0.025	0.255	0.099
T.D.S.	672	3,570	428	544	2,430	694
C.O.D.	<10	36	50	<10	25	<10
pH-lab (1) (2)	7.74	6.58	7.00	7.17	6.83	6.92
Conductivity-lab (1) (3)	1,100	3,400	665	900	2,580	1,050
T.O.C. (1)	1	5.5	3	3	6	3
T.O.X. (1) (4)	8,270	176	61.5	<10	22.8	<10
Coliform (10)	<5	9	<10	50	<5	10,000
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-TP, Silvex (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VOC's (4)	ND	--	--	ND	--	--
1.1 Dichloroethane	--	17.1	--	--	--	--
Cis-1,2-Dichloroethene	--	5.1	--	--	--	--
1,1,1 Trichloroethane	--	--	16.1	--	--	--
Acetone	--	--	--	--	73.0	88.0
2-Propanol	--	--	--	--	21.5	--
Gross Alpha (5)	3.46	2	<1	16.3	288	<1
Gross Beta (5)	10.9	45.4	3.72	386	423	27.4
Uranium (13)	<0.0001	0.36	0.031	2.76	4.28	0.0022

Results of Round 3 Sampling

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-1s	MW-1d	MW-3	MW-4	MW-5	MW-8s	MW-8d	MW-10	MW-13s	MW-13d
Chloride	17.0	19.0	21.0	21.0	14.0	21.0	11.0	80.0	25.0	64.0
Iron	0.906	5.800	0.752	0.539	2.080	4.750	2.840	0.264	3.140	7.350
Manganese	0.468	0.332	0.374	0.069	0.457	0.369	0.434	4.220	0.161	0.327
Phenols	<0.005	<0.005	0.011	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Sodium	9.300	15.400	8.600	9.500	8.610	9.200	8.100	132.000	10.800	39.400
Sulfate	72.0	11.0	82.0	62.0	68.0	32.0	10.0	640.0	110.0	260.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	98.500	89.000	78.300	82.900	108.000	56.000	82.400	418.000	118.000	212.000
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium										
-Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	0.040	<0.025	<0.025	<0.025	<0.025
Fluoride	0.22	0.17	0.24	0.25	0.40	0.12	0.21	0.11	0.19	0.14
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.250	0.980	2.580	2.550	2.560	2.650	1.130	18.700	2.140	4.400
Magnesium	24.800	22.800	22.600	21.800	27.500	24.200	21.500	69.000	26.800	51.000
Nickel	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005
Nitrates	0.003	0.02	<0.02	1.40	0.05	0.03	0.02	153.00	<0.02	0.06
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.02	0.13	<0.02	<0.02	<0.02	<0.02	0.10	<0.02	<0.02	<0.02

Results of Round 3 Sampling

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-1s	MW-1d	MW-3	MW-4	MW-5	MW-8s	MW-8d	MW-10	MW-13s	MW-13d
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025	0.025	0.052	<0.025	<0.025	<0.025	<0.025
T.D.S.	388	392	416	392	508	228	332	2,550	448	1,020
C.O.D.	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
pH-lab (1) (2)	7.23	7.39	7.38	7.55	7.36	7.41	7.41	6.89	7.14	6.97
Conductivity-lab (1) (3)	620	600	600	573	680	380	540	2,750	720	1,300
T.O.C. (1)	1	1	1	1	<1	1	<1	1.75	2.25	1
T.O.X. (1) (4)	39.2	<10	65.5	18.0	120.0	<10	<10	<10	<10	1,400
Coliform (10)	6	3	<2	350	17	3,700	550	9	3	<2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2, 4-D (4)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-TP, Silvex (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VOC's (4)	NA	--	NA	NA	NA	--	--	--	--	ND
1,1,1 Trichloroethane	--	2.0	--	--	--	6.0	--	--	--	--
Carbon Disulfide	--	--	--	--	--	--	32.3	--	--	--
Butanol	--	--	--	--	--	--	180.0	--	--	--
Trichloroethene	--	--	--	--	--	--	--	1.7	--	--
Acetone	--	--	--	--	--	--	--	--	735.0	--
2-Propanol	--	--	--	--	--	--	--	--	29,600.0	--
Gross Alpha (5)	<1	<1	<1	1.29	<1	<1	<1	<1	2.89	<1
Gross Beta (5)	4.8	<1	25.5	<1	3.2	1.66	<1	1.88	1.31	3.23
Uranium (13)	0.011	0.0002	0.0022	0.0087	0.0041	0.0032	0.0010	0.019	0.0011	0.018

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-19s	MW-19d	MW-21s	MW-22s
Chloride	41.0	52.0	45.0	61.0
Iron	0.070	<0.050	0.438	<0.050
Manganese	<0.020	2.440	0.028	<0.020
Phenols	<0.005	<0.005	0.007	<0.005
Sodium	34.700	69.400	34.600	26.200
Sulfate	96.0	385.0	74.0	98.0
Silver	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200
Calcium	135.000	231.000	159.000	133.000
Cadmium	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005
Chromium				
-Total	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025
Fluoride	0.28	0.12	0.39	0.55
Mercury	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	5.030	7.420	10.600	4.160
Magnesium	34.400	26.800	23.200	38.700
Nickel	<0.005	<0.005	<0.005	<0.005
Nitrates	49.20	0.09	80.80	40.80
Lead	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.02	<0.02	<0.02	<0.02

3.2 Sand and Gravel Aquifer
Groundwater Sampling Results Inside Production Area (FMPC)
(All results in ppm except as noted)

	MW-19s	MW-19d	MW-21s	MW-22s
Selenium	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025
T.D.S.	704	1,040	916	800
C.O.D.	<10	<10	<10	<10
pH-lab (1) (2)	7.29	7.01	7.28	7.50
Conductivity-lab (1) (3)	1,100	1,350	1,280	1,040
T.O.C. (1)	<1	1	1	1
T.O.X. (1) (4)	863.0	49.3	<10	<10
Coliform (10)	<2	<5	<2	3
Lindane (4)	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5
2, 4-D (4)	<1.0	<1.0	<1.0	<1.0
2,4,5 TP Silvex (4)	<0.5	<0.5	<0.5	<0.5
VOC's (4)	ND	--	--	ND
Acetone	--	490.0	--	--
2-Propanol	--	830.0	--	--
1,1,1 Trichloroethane	--	--	10.5	--
Gross Alpha (5)	3.47	1.7	11.4	3.81
Gross Beta (5)	430	<1	867	50.1
Uranium (13)	.010	.019	.0046	.0043

Results of Round 3 Sampling

Table 3.3

Groundwater Sampling Results Plant Production Wells (FMPC)
(All results in ppm except as noted)

	P-1	P-2	P-3*
Chloride	33.0	20.0	
Iron	7.660	3.430	
Manganese	0.388	0.320	
Phenols	<0.005	<0.005	
Sodium	24.800	11.400	
Sulfate	94.0	27.0	
Siver	<0.030	<0.030	
Arsenic	<0.005	<0.005	
Barium	<0.200	<0.200	
Calcium	127.000	91.100	
Cadmium	<0.002	<0.002	
Cyanide	<0.005	<0.005	
Chromium			
-Total	<0.005	<0.005	
-Hexavalent	<0.005	<0.005	
Copper	<0.025	<0.025	
Fluoride	0.22	0.23	
Mercury	<0.0002	<0.0002	
Potassium	3.350	1.337	
Magnesium	33.500	24.300	
Nickel	0.012	0.022	
Nitrate	0.02	0.02	
Lead	<0.005	<0.005	
Phosphorus, total	0.24	0.15	

* Well was not sampled due to pump repair work.

Table 3.3 (Cont'd)
Groundwater Sampling Results Plant Production Wells (FMPC)
(All results in ppm except as noted)

	P-1	P-2	P-3*
Selenium	<0.0025	<0.0025	
Zinc	<0.025	<0.025	
T.D.S.	576	456	
C.O.D	<10	10	
pH-lab (1) (2)	7.60	7.64	
Conductivity-lab (1) (3)	820	598	
T.O.C. (1)	<1	<1	
T.O.X. (1) (4)	57.5	<10	
Coliform (10)	29	<2	
Lindane (4)	<0.2	<0.2	
Endrin (4)	<0.2	<0.2	
Methoxychlor (4)	<0.2	<0.2	
Toxaphene (4)	<0.5	<0.5	
2,4-D (4)	<1.0	<1.0	
2,4,5-TP, Silvex (4)	<0.5	<0.5	
VOC's (4)	NA	NA	
Gross Alpha (5)	3.47	<1	
Gross Beta (5)	24.3	5.25	
Uranium (13)	0.0001	0.0001	

* Well was not sampled due to pump repair work.

Results of Round 3 Sampling

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-9	MW-11	MW-14s	MW-14d	MW-15s	MW-16s	MW-16d	MW-17s	MW-17d
Chloride	21.0	45.0	19.0	18.0	21.0	22.0	19.0	28.0	18.0
Iron	0.434	2.820	1.440	0.130	0.294	0.557	<0.050	<0.050	1.540
Manganese	0.063	0.160	0.083	<0.020	<0.020	0.031	<0.020	0.096	0.290
Phenols	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.006
Sodium	9.500	8.200	10.500	9.800	11.400	9.200	8.500	7.490	8.840
Sulfate	80.0	78.0	50.0	58.0	52.0	52.0	50.0	100.0	74.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	79.300	94.000	88.400	845.000	73.900	78.900	71.900	142.000	92.700
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium									
-Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	0.115	<0.025	<0.025	0.030	<0.025	<0.025	<0.025
Fluoride	0.21	0.26	0.34	0.22	0.48	0.22	0.20	0.18	0.17
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	2.290	1.150	3.670	2.010	2.770	2.480	2.090	1.930	2.090
Magnesium	22.500	26.700	20.100	20.400	20.400	21.500	19.400	30.800	18.700
Nickel	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Nitrate	3.10	<0.02	2.06	0.48	2.24	2.24	2.64	0.07	0.03
Lead	<0.005	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	<0.025	0.07	0.19	0.05	0.05	0.07	0.02	<0.02	<0.02

Results of Round 3 Sampling

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted)

	MW-9	MW-11	MW-14s	MW-14d	MW-15s	MW-16s	MW-16d	MW-17s	MW-17d
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	0.048	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
T.D.S.	404	404	468	424	400	372	292	580	456
C.O.D.	<10	<10	<10	<10	<10	<10	<10	<10	<10
ph-lab (1) (2)	7.45	7.36	7.63	7.87	7.36	7.01	7.75	7.03	7.20
Conductivity-lab (1) (3)	595	668	535	540	560	535	510	830	590
T.O.C. (1)	1	1	1.5	1	2	<1	<1	1	1
T.O.X. (1) (4)	<10	39.3	30.8	<10	58.3	19.0	26.5	<10	25.3
Coliform (10)	3,600	6	86	<2	<2	860	<2	310	<2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
2,4,5-TP, Silvex (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VOC's (4)	--	--	ND	--	--	ND	ND	ND	--
Acetone	8,670	--	--	--	--	--	--	--	58.5
2-Propanol	26,400.0	--	--	--	--	--	--	--	130.0
Carbon Disulfide	--	6.3	--	--	--	--	--	--	--
Butanol	--	195.0	--	--	--	--	--	--	--
Tetracloroethene	--	--	--	1.1	--	--	--	--	--
1,1,1 Trichloroethane	--	--	--	--	2.9	--	--	--	--
Trichloroethene	--	--	--	--	3.7	--	--	--	--
Gross Alpha (5)	<1	<1	<1	6.9	70	1.4	1.21	2.13	<1
Gross Beta (5)	5.91	6.1	<1	7.08	21.5	<1	<1	2.77	6.03
Uranium (13)	0.0015	0.0002	0.025	0.027	0.163	0.017	0.0094	0.0044	0.0009

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted) (Cont'd)

	MW-18s	MW-18d	MW-20s	MW-20d	SW-2	OS-1	HK-15d	OS-2	OS-3
Chloride	5.0	2.0	22.0	22.0	28.0	34.0	24.0	38.0	24.0
Iron	2.740	2.540	0.172	1.240	<0.050	<0.050	2.630	<0.050	1.410
Manganese	0.141	0.204	0.034	0.184	0.130	<0.020	0.282	<0.020	0.347
Phenols	<0.005	<0.005	<0.005	0.006	<0.005	<0.005	0.012	0.013	0.022
Sodium	4.550	3.990	8.500	8.500	11.200	118.000	6.260	11.000	9.600
Sulfate	49.0	58.0	67.0	82.0	78.0	53.0	108.0	62.0	66.0
Silver	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030
Arsenic	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200	<0.200
Calcium	117.000	91.500	87.700	91.300	101.000	82.600	107.000	82.000	85.800
Cadmium	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Cyanide	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chromium									
-Total	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
-Hexavalent	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Copper	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025	<0.025
Fluoride	0.27	0.34	0.20	0.16	0.26	0.50	0.19	0.22	0.25
Mercury	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Potassium	1.780	0.768	2.640	2.010	2.390	2.730	1.470	3.200	2.580
Magnesium	29.600	33.500	20.600	22.800	27.700	19.900	25.200	22.900	22.000
Nickel	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005
Nitrate	0.78	<0.02	4.52	0.05	2.76	2.66	0.05	4.24	0.07
Lead	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Phosphorus, total	0.17	<0.02	<0.02	<0.02	<0.02	0.16	<0.02	<0.02	<0.02

Results of Round 3 Sampling

3.4 Sand and Gravel Aquifer
Groundwater Sampling Results Outside Production Area (FMPC)
(All results are in ppm except as noted) (Cont'd)

	MW-18s	MW-18d	MW-20s	MW-20d	SW-2	OS-1	HK-15d	OS-2	OS-3
Selenium	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025	<0.0025
Zinc	<0.025	<0.025	<0.025	<0.025	<0.025	0.089	0.057	0.055	<0.025
T.D.S.	362	380	446	606	456	318	354	384	444
C.O.D.	<10	<10	<10	<10	<10	<10	<10	<10	<10
pH-lab (1) (2)	7.26	7.19	7.40	7.35	7.28	7.40	7.35	7.39	7.31
Conductivity-lab (1) (3)	595	600	580	600	678	420	543	650	620
T.O.C. (1)	1	<1	<1	<1	<1	<1	<1	1	1
T.O.X. (1) (4)	<10	73.8	18.3	36.3	6,440	<10	<10	<10	<10
Coliform (10)	6	<5	<2	<2	<2	2,400	<2	25	<2
Lindane (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Endrin (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Methoxychlor (4)	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Toxaphene (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2,4-D (4)	<1.0	<1.0	<1.0	<1.0	<1.0	<3.0	<1.0	<1.0	<1.0
2,4,5-TP, Silvex (4)	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
VOC's (4)	ND	ND	ND	--	ND	--	NA	NA	NA
Acetone	--	--	--	3,600.0	--	--	--	--	--
2-Propanol	--	--	--	8,390.0	--	--	--	--	--
1,1,1 Trichloroethane	--	--	--	--	--	2.0	--	--	--
Gross Alpha (5)	<1	<1	<1	1.21	<1	42.3	<1	48.5	<1
Gross Beta (5)	1.37	13.8	6.07	4.77	9.40	38.5	3	19.0	8.47
Uranium (13)	.0023	.0013	.0005	.0007	.0006	.233	.0002	.260	.048

NOTES

ND Not Detected

NA Not Analyzed

(1) Average of four tests

(2) pH results in standard units

(3) Conductivity results in umhos/cm

(4) Concentrations reported in ppb

(5) Results in pCi/l

(6) Taken from 40 CFR Part 141 National Interim Primary Drinking Water Regulations - Subpart B - Maximum Contaminant Levels, July 1, 1984.

(7) Taken from 40 CFR Part 143 National Secondary Drinking Water Regulations - Section 143.3 - Secondary Maximum contaminant Levels.

(8) High counts did not yield any individual elements using a 4096 channel analyzer. These levels are due to solids only in the samples.

(9) Standard is for Radium -226 Plus Radium -228

(10) Reported in per 100 ml

(11) Maximum Permissible Activity taken from World Health Organization, 1970 European Standards. National Primary Drinking Water Regulation for gross beta is 4 mR/year.

(12) Radionuclide Scan includes analysis for K-40, Unat, Th-228, Th-230, Th-232, Tc-99 Cs-137, Sr-90, Ru-106, Np-237, Pu-238, Pu-239, Pu-240.

(13) WMCO Split Sample - Analyzed for Uranium at the FMPC; Results in mg/l.

(14) Taken from World Health Organization European Standards, 1970.

	Standards		
	Primary (6)	Secondary (7)	Recommended (14)
Chloride	---	250	---
Iron	---	0.3	---
Manganese	---	0.05	---
Phenols	---	---	0.001
Sodium	---	---	---
Sulfate	---	250	---
Silver	0.05	---	---
Arsenic	0.05	---	---
Barium	1.0	---	---
Calcium	---	---	---
Cadmium	0.010	---	---
Cyanide	---	---	0.05
Chromium			
- Total	0.05	---	---
- Hexavalent	---	---	---
Copper	---	1.0	---
Fluoride	1.4-2.4	---	---
Mercury	0.002	---	---
Potassium	---	---	---
Magnesium	---	---	---
Nickel	---	---	---
Nitrates	10.0	---	---
Lead	0.05	---	---
Phosphorus, total	---	---	---
Selenium	0.01	---	---
Zinc	---	5.0	---
T.D.S.	---	500	---
C.O.D.	---	---	---
pH-lab (1) (2)	---	6.5-8.5	---
Conductivity-lab (1) (3)	---	---	---
T.O.C.	---	---	---
T.O.X.	---	---	---
Coliform (10)	1	---	---
Lindane (4)	4	---	---
Endrin (4)	0.2	---	---
Methoxychlor (4)	100	---	---
Toxaphene (4)	5	---	---
2,4-D (4)	10	---	---
2,4,5-TP, Silvex (4)	10	---	---
VOC's (4)	---	---	---
Gross Alpha (5)	15	---	---
Gross Beta (5)	30 (11)	---	---
Radium, Total (5)	5 (9)	---	---
Radionuclide Scan (5) (12)	---	---	---