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RCRA GROUNDWATER MONITORING REPORT; VOLUME 1 - ROUND 1 SAMPLING 1985-1986

06/30/86

DAMES & MOORE

[redacted]

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Department of Energy
Feed Materials Production Center

RCRA GROUNDWATER MONITORING REPORT
Volume I — Round I Sampling
1985 - 1986

Prepared By:

Dames & Moore

Pearl River, New York

For:

Westinghouse Materials Company of Ohio

June, 1986

Dames & Moore
1 Blue Hill Plaza
Fifth Floor
Pearl River, New York 10965
(914) 735-1200

March 18, 1986

Mr. David L. Jones
Health Safety and Environmental
Westinghouse Materials Co. of Ohio
7400 Willey Road
Fernald, Ohio 45030

Re: Draft Sample Results Round 1
RCRA Ground-Water Monitoring

Dear Mr. Jones:

Enclosed are two (2) copies of the above referenced draft report providing the available results from the Phase 1,2 and 3 (Round 1) ground-water monitoring at the FMPC. As we discussed, the radionuclide test results have not been provided to us and hence are not included in this report. Once this data is provided to us we will revise the draft report to include the new data. This revision will take two to three weeks because of large amount of data which must be reviewed.

The accompanying report includes a discussion of the ground-water flow system, sampling locations, and laboratory test data. Statistical evaluation of the data and estimates of the trend of sample values are not appropriate to this report since more than one set of data are required to make these evaluations. Subsequent ground-water monitoring reports, however, will include this information.

Sincerely,

DAMES & MOORE

Roger A. Pennifill

Roger A. Pennifill
Geotechnical Engineer

RAP/dc
Enclosures
cc: Timothy Poff, WMCO

Results of Round 1 Ground-Water Sampling
Feed Materials Production Center
Fernald, Ohio

May 6, 1986

Dames & Moore
ONE BLUE HILL PLAZA, SUITE 530, PEARL RIVER, NY 10965 (914) 735-1200

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Section 1.0

1.0 INTRODUCTION

This report is the last of a series of three reports describing the first round of RCRA groundwater monitoring being performed at the Feed Materials Production Center (FMPC) in Fernald Ohio (Figure 1-1). This first round of sampling occurred in three phases with different wells being sampled during each phase. Rounds 2 through 4 of the subsequent RCRA sampling will be performed on a quarterly basis with all wells being sampled during one sampling phase. The results of the first two phases of sampling have been included in this report even though the sampling events occurred over a period of about 4 months. Since changes in water quality occur over time, comparison of the results between wells sampled during different phases should be treated with some caution. However, inclusion of all the results in the one report will provide a basis for comparison when sampling Rounds 2 through 4 are complete and provide a summary of the data currently available on site ground-water quality.

Sampling for Phase 1 of Round 1 was performed on August 1, 1985. Four shallow wells were sampled as part of that work. A report dated December 19, 1985 (Reference 1) provided the sampling results and interpretation of the data. Phase 2 of Round 1 sampling was performed on August 27, 1985. Seven wells in the sand and gravel aquifer were sampled during this phase. These results were provided in a report dated December 20, 1985 (Reference 2).

The sampling for Phase 3 of Round 1 was performed on January 8 and 9, 1986. A total of 32 on and off-site wells were sampled during this phase. Two wells, MW-12 and SW-2 sampled during this phase, had previously been sampled during Phase 1 or 2. For these two wells the results of both sample analyses are provided in Appendix 4 of this report. The results of the sampling are discussed in the following sections.

Section 2.0

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 3) 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 (other than uranium) 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 a deeper sand and gravel aquifer. The shallow system is monitored by wells MW-12, MW-TP19, MW-TP20, MW-TP21, MW-TP22 and OS-1A. The remaining 35 wells are all 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 vertical movement of identified above background constituents.

2.1 Selection of Background Wells

Characterization of background water quality at RCRA related facilities is usually performed by sampling a well hydraulically upgradient of the waste disposal area. The well is usually 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 detailed description of the geology may be found in Reference 3.

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 alluvial 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. 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 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 0.25 miles 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 August 1, 1985, August 27, 1985 and January 8 and 9, 1986 using the sampling procedures outlined in the "RCRA Groundwater Monitoring 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 4). Tests were performed for 95 specific parameters including numerous ions, metals, organic compounds and radionuclides. A list of the parameters that were analyzed are included in Appendix 1, (Section III) "Parameters to be Analyzed." The compounds that were detected in the sampled wells are included in Table 3.1. A copy of the Laboratory Data Sheets is provided in Appendix 2. For ease of reading, the many volatile organic compounds not detected have not been included in Table 3.1. Appendix 3 contains a copy of the Chain of Custody form for the Phase 3 samples.

The analytical results for each parameter (except non-detected VOC's) and sampling location are provided in Table 3.1. Until the second round of sampling has been performed, trends and variability in the analytical results cannot be calculated. However, based on the results of this first round of sampling, several preliminary observations can be made.

Water level elevation's were measured at most well locations. At some well locations the depth to water could not be measured due to the well's construction. Only measurements from Phase 3 sampling (Table 2.1) are included in this report.

Section 3.0

3.0 WATER QUALITY

The ground-water sampling data from the FMPC has been reviewed with a consideration that there are two hydrogeologic systems identified at the site; the shallow till and the deeper sand and gravel aquifer. There are six wells completed (screened) in the till and 35 wells completed in the sand and gravel. The monitoring results from the shallow (till) and deeper (sand and gravel) wells are considered separately.

3.1 Shallow (Till) Ground-Water Quality

Four of the six shallow wells were sampled as part of the Phase 1 work (Reference 1). These wells included MW-12, MW-TP19, MW-TP21 and MW-TP22. During Phase 3, the remaining two shallow wells, MW-TP20 and OS-1A were sampled and MW-12 was re-sampled. The more significant results and conclusions of the Phase 1 sampling and analysis are reiterated in this report to provide a review of the Round 1 data.

Measurements of gross alpha and gross beta showed considerable variability between the wells completed in the glacial till. The two highest gross alpha and gross beta measurements were in MW-TP21 and MW-TP22. Gross alpha and gross beta in the sample from MW-TP21 were measured as 230 pCi/l and 250 pCi/l respectively. In MW-TP22 the same parameters were 1340 pCi/l and 1370 pCi/l. However, the laboratory concluded that because of particulates present in the sample these values were not truly indicative of gross alpha or gross beta concentrations in the water.

In MW-12, 78 pCi/l gross beta and 18 pCi/l gross alpha were measured. However, there are no known potential sources of radionuclides to this well and measurements of <5 pCi/l gross beta and <5 pCi/l gross alpha would have been the expected test results.

In the first phase of sampling, the radionuclide concentrations in well MW-TP22 were above the measured background value (as reported from MW-12) for potassium-40, radium-228, thorium-232, cesium-137, strontium-90, ruthenium-106, and neptunium-237. For natural uranium (UNAT), radium-226, and the plutonium isotopes, the detection limits were higher in MW-TP22 than for the background well. It cannot be determined if the actual concentrations were higher or lower than in the background well. The difference in the detection limits are caused by interferences from other materials in the sample which effect the detection limit in the test. The higher detection limit does not mean that more of the material being analyzed is present. This indicates a need to filter future samples before analysis.

The other two downgradient wells, MW-TP19 and MW-TP21 showed fewer radionuclides elevated above the background values; and those which were elevated, had lower concentrations than well MW-TP22. In phase 3, MW-TP20 and OS-1A had no measured elevated radionuclides. It should be noted that the methods used for measuring radionuclides was different in the two phases.

The six pesticides/herbicides included in the testing of all ground water samples are lindane, endrin, methoxchlor, toxaphene, 2,4-D, and 2,4,5-TP Silvex. None of these pesticides were found in detectable concentrations in any of the samples from the till aquifer. If this result is verified in the second round of sampling, we recommend that the FMPC seek permission from the Ohio EPA to stop sampling and testing for these six pesticides/herbicides in the shallow system.

A gas chromatograph/mass spectrometer scan was used to detect the presence of volatile organic compounds. The highest concentration of any VOC was in the first sample (Phase 1) taken from the background well (MW-12) where benzene and xylene were detected. Initially, two possible sources for these VOC's were considered; runoff from an adjacent parking area or contamination from a bailer spool. Since no

VOC's were detected in the second sample from MW-12 (Phase 2) it is likely that the VOC's were from the bailer spool which had been stored in the trunk of a car.

The only other VOC's detected in the shallow wells were in MW-TP19 where 3.4 ppb of 1,1-Dichloroethane and a trace of methylene chloride were found. No possible sampling related source of contamination for these concentration has been identified. If similar results are found in the Round 2 sampling, it will indicate that the VOC's in this well are related to site sources.

Some of the natural variability of water quality can be seen in the comparison of results between the two samples from MW-12 concentration of manganese, arsenic, and lead varied by a factor as high as 8 between the two tests. Variation of 50% between these two sets of test results are common. This variability is high, but until more data is available, the causes of the variability cannot be evaluated.

The measured concentration of iron and manganese exceeded EPA standards in all shallow wells including the background well. The lowest levels of both of these parameters were detected in well OS-1A, a down-gradient, off-site well. The highest levels were found in the sample from MW-TP19. Iron and manganese in ground water are elevated regionally (Reference 6). The variations detected may be due to natural variations.

Phenols were measured at concentration above standards (0.001 ppm) in each shallow well except MW-TP21 and MW-TP22. In these two wells the detection limit (<0.005) was greater than the standard. The highest measured concentration was 0.049 ppm in MW-TP19, a level about two times the values measured in the background well.

The concentration of chloride measured in MW-TP19 was 459 ppm, nearly a factor of two above the standard (250 ppm) and about a factor of four higher than in the background well. MW-TP19 also had a measured sulfate concentration (575 ppm) more than twice the standard (250 ppm). Sulfate was also measured at a high level in well MW-TP22 (850 ppm). The measured values in the other four shallow wells varied from 30 to 102 ppm.

The standard for total chromium concentration is 0.05 ppm. This value was exceeded by MW-TP21 (0.08 ppm) and both samples from MW-12 (0.055 and 0.058 ppm). The standard was nearly equaled in well MW-TP19 (0.049 ppm). The concentration in the remaining 3 wells was less than 0.005 ppm, the detection limit. The high concentration in MW-12 may indicate that the natural variation for this constituent is high in the area of the FMPC or that the water in the well is being effected by off-site sources.

The only other parameter which exceeded limits was the concentration of total dissolved solids (TDS). This limit (500 ppm) was exceeded by each well except MW-TP20 where the concentration was 324 ppm. In wells MW-TP19 and MW-TP22 the measured concentrations were 2540 ppm and 2240 ppm respectively more than a factor of five higher than in the background well. In MW-TP21 the measured concentration of 936 ppm also appears somewhat high with respect to the background well.

No silver, cadmium, cyanide, mercury or selenium was detected in any of the six shallow wells. Other parameters including sodium, arsenic, copper, fluoride, lead and zinc were less than a factor of two greater than the value in the background well. The concentration of lead measured in the first sample from MW-12 was a factor of 8 higher than in the second sample from the same well. This was the same sample where VOC's were detected and may be an additional indicator that the first sample was effected by the bailer spool. All of the above parameters were measured at less than allowable concentrations.

Other measured parameters were also less than allowable limits but showed greater variability relative to the background well. In several cases the variability may be due to natural differences, however, in other cases, the differences are probably due to man induced changes. For instance, nitrates were detected in OS-1A at a level more than 100 times greater than in any other shallow well. This may be the result of the use of fertilizer in the adjacent garden or the presence of the nearby fields and barn, where cows are kept. The manure from the cows is a potential source for the nitrates.

3.2 Sand and Gravel Aquifer

The well used to establish background or ambient conditions in the sand and gravel aquifer is SW-2. Two samples have been taken from this well, one during Phase 2 and one during Phase 3. The results from these two sampling events were very similar, although some differences were noted. The parameters with the largest relative difference between the two samples were phenols and coliform. Phenols increased from <0.005 ppm to 0.009 ppm and coliform decreased from 2 to <1 colony/100 ml.

Gross alpha and gross beta were measured in each well completed in the sand and gravel aquifer. As with the wells completed in the till, results from some wells may be effected by particulates in the samples since they were not filtered.

Gross alpha above detection limits (usually $\leq$5 pCi/l) was only found in a few wells, MW-14s, 18s, 19s, OS-2, 1d and 10. In MW-1d and MW-10 gross alpha at 12 and 10 pCi/l, respectively was found. This concentration is lower than the detection limits for the other samples. In the other four wells the gross alpha measurements varied from 20 to 47 pCi/l.

Gross beta was detected in 18 wells at concentrations varying from 9 to 1250 pCi/l. The detection limit was <5 pCi/l. In MW-1s, 3, 4, 5, 8s, 8d, 9, 1, 13s, and 20s, the concentration varied from 7 to 17 pCi/l. In the other 8 wells the values were higher. The measured values were 46 pCi/l in MW-14; 44 pCi/l in MW-18s; 1250 pCi/l in MW-19s; 400 pCi/l in MW-21s; 78 pCi/l in MW-22s, 28 pCi/l in OS-1, and 42 pCi/l in OS-2.

In the samples from Phase 3, no individual radionuclides were detected in any wells in spite of the measured gross alpha and beta concentrations as high as 400 gross beta in MW-21s. This indicates a possibility that either the gross alpha and beta measurements are erroneous, the tests for individual nuclides are erroneous or different sample preparation procedures are being used for gross alpha and beta versus individual radionuclides.

In the Phase 2 testing, some individual radionuclides were detected in MW-19s although there is again an inequality between the gross beta measurement in MW-19s and the total pCi/l of individual beta emitters measured. MW-19s shows the highest radionuclide concentrations and elevated values of gross alpha and beta, potassium-10, radium-228, cesium-137, strontium-90, ruthenium-106 and plutonium. From these results, and the location of the well, it is clear that some leachate from the Waste Pit Storage Area is reaching the sand and gravel aquifer.

Sampling and testing procedures and acceptable levels of detection need to be reviewed by WMCO, Dames & Moore and Howard Laboratories before the next round of sampling to ensure results compatible with project needs.

All ground-water samples in Phase 3 were tested for a group of 6 pesticides and herbicides including lindane, endrin, methoxychlor, toxaphene, 2,4-D, and 2,4,5-TP, Silvex. None of these constituents

were present in detectable quantities in any sample. If this result is confirmed in the 2nd Round of sampling, Dames & Moore recommends that the FMPC seek permission from the Ohio EPA to stop sampling and testing for pesticides and herbicides.

No VOC's were detected in samples tested for these parameters except in well 19s where 8.6 ppb of 1,1,1 trichloroethane was detected. However, samples were not tested from wells if they could only be obtained through a pump. Results from those samples would have been questionable since use of pumps to sample for VOC's may result in the detection of non-representative VOC concentrations.

Five metals, (silver, arsenic, barium, selenium, and mercury) were not detected in any sample from the sand and gravel aquifer. Five other metals, (cadmium, copper, nickel, lead, and cyanide) were not detected in most wells but were elevated in one or more of a group of six wells, (MW-1d, 10, 14s, 14d, 18s, and 19s). Each of these five metals were detected in MW-19s, and all but cyanide were detected in MW-14s. Four of the metals were detected in MW-1d, three in MW-10 and two in MW-14d. All these concentrations were below EPA standards except the concentration of lead in MW-14S (0.1 ppm) which was above the standard of 0.05 ppm by a factor of two. Table 3.2 shows metals detected in seven or fewer wells of the sand and gravel wells.

Chromium (total) was detected in samples from six wells: MW-1d, 10, 14s, 18s, 19s, 20s. Five of these wells (all except MW-20s) are in the group discussed above. The concentration of chromium in MW-1d, 10 and 20s ranged from 0.014 to 0.019 ppm and are below the standard of 0.05 ppm. The levels in MW-14s, 18s, and 19s ranged from 0.133 to 0.159 ppm, approximately a factor three above the standard. The highest value, (0.159 ppm) was in well MW-14s which is the furthest downgradient of these three wells.

Zinc was detected in samples from seven wells. Five of these, MW-1d, 10, 14s, 18s, and 19s are the five included in both of the above groups. In addition, wells OS-1 and OS-2 had detectable levels of zinc. The lowest detectable concentration was in well OS-2 which contained 0.037 ppm of zinc. The highest value was 0.281 ppm in MW-19s. All values were below the EPA standard of 5.0 ppm.

The detection limit for phosphorus was 0.04 ppm. Phosphorus was detected above this level in samples from 11 wells, nearly a third of wells completed in the sand and gravel aquifer. Of these eleven samples, eight had measured phosphorus concentrations ranging from 0.13 ppm to 0.05 ppm. The remaining three samples were from wells MW-1d, 14s, and 18s which had the highest measured concentrations, 0.45, 1.04 and 0.44 ppm respectively. There is no applicable EPA standard for the concentration of potassium in ground water.

There is no applicable EPA standard for the concentration of potassium in ground water. In the wells sampled, most potassium concentrations varied from 0.556 ppm to 3.95 ppm. The concentrations in the background well, SW-2 was measured as 2.4 and 2.35 ppm in the Phase 2 and Phase 3 samples from the well. Values outside this range were measured in four wells. The wells and concentrations were MW-10, 20.2 ppm; MW-13d, 5.11 ppm; MW-19d, 8.73 ppm; and MW-21s, 9.35 ppm.

There is no applicable EPA standard for magnesium in groundwater. Most concentrations varied between 18 and 36 ppm at the site. In SW-2, the concentrations were 27.2 and 28.9 ppm. Concentrations, above 36 ppm, were found in MW-10, 13d, and 22s. They were 90, 44 and 40.3 ppm respectively.

Other measured parameters were also reviewed to evaluate if trends appeared to be present. For each parameter, the measured values were reviewed and values that appeared to be higher than the normal range were noted. This process is not exact and may lead to the inclusion of a normal value in the list of possible elevated values. To minimize this liklihood Table 3.3 was derived and includes only wells which had three or more measurements which were suspected of being elevated. This list includes four of the six wells (MW-1d, 10, 14s, and 19s) observed to have high values for metals. In addition, MW-13d and 19d had several apparently elevated constituents.

TOX was not included in the comparisons since this parameter was not analyzed in Phase 2 samples. After the next round of sampling TOX can be added. Coliform was also excluded from the comparison. In the Phase 2 sampling, several high values were measured and were discussed in the Phase 2 report (Reference 2). In Phase 3 several high coliform values were measured in wells which are not capped. Since these coliform values are probably not attributable to ground water conditions, they were not included in the comparison.

4.0 CONCLUSIONS

There are apparently elevated levels of several metals, anions and cations in several on-site wells. Measurements from MW-10, 14s, 18s, and 19s indicate that it is probable that various constituents are entering the ground water within the FMPC, although usually at levels below EPA standards. It is likely that more than one source and transport mechanism is responsible for these values. This is supported by the fact that some constituents are only found locally (i.e. cyanide and 1,1,1 trichoroethane in MW-19s), some are highest in upgradient wells with concentrations decreasing downgradient (i.e. zinc) and others are highest in on-site, downgradient areas (i.e. chromium).

MW-1d also contained apparently elevated levels of several constituents. Since the well is completed in a deep portion of the aquifer this was an unexpected finding. Based on the available data, it appears that the well casing has deteriorated and is allowing water to enter the well at a shallow depth. If this is the case, the shallow water would effect water quality in the well.

Several metals were detected in MW-13d at apparently elevated concentrations. In MW-13s, a similar pattern was not found. MW-13s is completed in a silty sand layer while MW-13d is completed in a coarse gravel layer. The coarse gravel may be acting as a preferential pathway for movement accounting for the higher levels in the deep compared to the shallow well.

Other wells completed in the sand and gravel did not show possible trends as clearly as in the wells discussed above. As additional data is obtained in subsequent rounds of sampling, other trends may be noticed or data obtained to show that the trends noted above are the result of natural variations.

MW-TP19, TP21, and TP22, completed in the till, all appear to contain elevated levels of several constituents. As discussed in an earlier Dames & Moore report (Reference 1), these levels are probably attributable to Pit #4. MW-TP20 and OS-1A (two other shallow wells) do not show similiar trends.

The last shallow well, MW-12 had several measured constituents including lead, sodium and chloride which appear relatively high. This may indicate that runoff from the nearby road is effecting water quality in the well. The high sodium and chloride values may be the result of salts placed on the road during winter periods.

The possibility that MW-12 may contain concentrations of various constituents effected by man made, off-site, sources indicates that comparisons of water quality in the other shallow wells to MW-12 should be used cautiously until more data is available on this shallow aquifer system.

Quality assurance (QA) blanks were used to varify sample test procedures and results. Most QA results were within 15% of the known concentrations. However, one measured mercury concentration was nearly 50% higher than the actual concentrations. These values (except the one mercury measurement) are within the range of acceptable results.

5.0 RECOMMENDATIONS

Well MW-1d is completed in sand and gravel aquifer below the "blue clay" layer and should be free of elevated levels of constituents such as metals or radionuclides. However, the sample from the well apparently had elevated levels of several metals including chromium, copper, lead, nickel and zinc. This well also had a high iron value in the sample from the well and the water was observed to be rust colored. It is likely that the well casing is deteriorating and possible that holes have formed in the casing. This would allow water to enter the well at a shallow depth and account for relatively high observed concentrations.

We recommend that this well be tested using packers to determine if the well casing is leaking or alternatively the well can be decommissioned without testing. A packer is a tool which can be lowered into the well casing and expanded to temporarily seal a section of the casing. By moving the packer to various locations within the casing, areas where water is entering the casing can be identified. If the well is tested and found to be leaky it will still need to be decommissioned but the testing should provide the data necessary to identify the source of the elevated constituents.

If no pesticide or herbicides are detected in the Round 2 sampling, WMCO should seek permission from the Ohio EPA to stop sampling and testing for these constituents.

Radionuclide sampling and testing procedures should be reviewed before the next round of sampling. It is possible that filtering of samples or allowing time for suspended solids to settle in the sample containers will minimize some of the questionable results. In addition, since it is known that elevated uranium values are present in some wells it may be desireable to lower the laboratory's detection limits so that the known variations are detected.

REFERENCES

(1) Dames & Moore, 1985, Pit #4 RCRA Ground-Water Monitoring: Report to Waste Management Services Group, NLO, Inc., dated December 19, 1985

(2) Dames & Moore, 1985, Sample Results: Sand and Gravel Aquifer, RCRA Ground-Water Monitoring; Report to Health Safety and Environmental, NLO, Inc., dated December 20, 1985.

(3) Dames & Moore, 1985, Groundwater Study-Task C Report, Report to the Department of Energy, Feed Materials Production Center, dated July, 1985.

(4) USEPA, 1983, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020.

(5) Doull, John, Klaassen, Curtis D. and Andur, Mary O., 1980, Toxicology, MacMillian Publishing Co., Inc., NY.

(6) Plummer, Paul M., 1982, Groundwater Quality in the Hamilton-New Baltimore Area, Ohio, An Assessment through 1981, a report to the Water Conservation Subdistrict of the Miami Conservancy District.

Table

Table 2.1
Phase 3 Water Level Elevations
(Feet)

Well #	Casing Elevation	Grade	Water Table Elevation
1d	585.31	583.81	NA
1s	585.55	583.47	NA
3	560.86	559.30	523.26
4	556.85	556.15	524.05
5	557.09	555.53	517.09
8s	576.60	574.90	522.69
8d	576.62	574.82	522.10
9	557.23	555.31	525.02
10	580.00	577.91	NA
11	585.78	583.46	523.33
12	639.67	NA	608.86
13s	590.37	588.71	521.37
13d	590.36	588.72	521.36
14s	535.79	533.76	NA
14d	535.81	533.71	NA
15s	579.65	577.80	521.92
15d	579.41	577.80	NA
16s	542.28	540.47	523.28
16d	542.13	540.50	523.23
17s	536.19	534.43	522.59
17d	536.35	534.28	522.54
18s	573.36	571.31	NA
18d	573.88	571.56	531.34
19TP	584.96	582.98	NA
19s	585.38	583.26	NA
19d	585.25	583.20	522.45
20TP	574.73	573.21	570.06
20s	574.44	573.42	521.71
20d	574.71	573.31	522.67
21TP	585.61	584.06	NA
21s	586.02	584.42	520.85
22TP	588.91	587.93	NA
22s	587.95	587.93	522.95
P-1	578.66	NA	NA
P-2	579.16	NA	NA
P-3	579.36	NA	NA
OS-1	581.83	581.35	523.83
OS-1A	581.83	NA	571.00
OS-2	555	NA	529.44
OS-3	530	NA	NA

NA: Not Available

Table 3.1

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)
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	---	---	---

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	---	---	---

Ta[illegible]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

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

T[illegible] 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

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
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

Table 3. (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

Table 3.1 (Cont'd)

GROUND-WATER SAMPLING RESULTS - FMPC
(All results in ppm except as noted)

	OS-1	15-0	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.

Table 3.2

METALS DETECTED IN 7 OR FEWER
SAND AND GRAVEL WELLS

	Well Number								
	1D	10	14s	14d	18s	19s	20s	OS-1	OS-2
Cadmium		x	x		x	x			
Chromium (total)	x	x	x		x	x	x		
Copper	x		x		x	x			
Cyanide						x			
Lead	x		x	x	x	x			
Nickel	x	x	x	x	x	x			
Zinc	x	x	x		x	x		x	x

1. All measured concentrations are below EPA limits except the value of lead in well MW-14s and chromium in wells MW-14s, 18s and 19s.

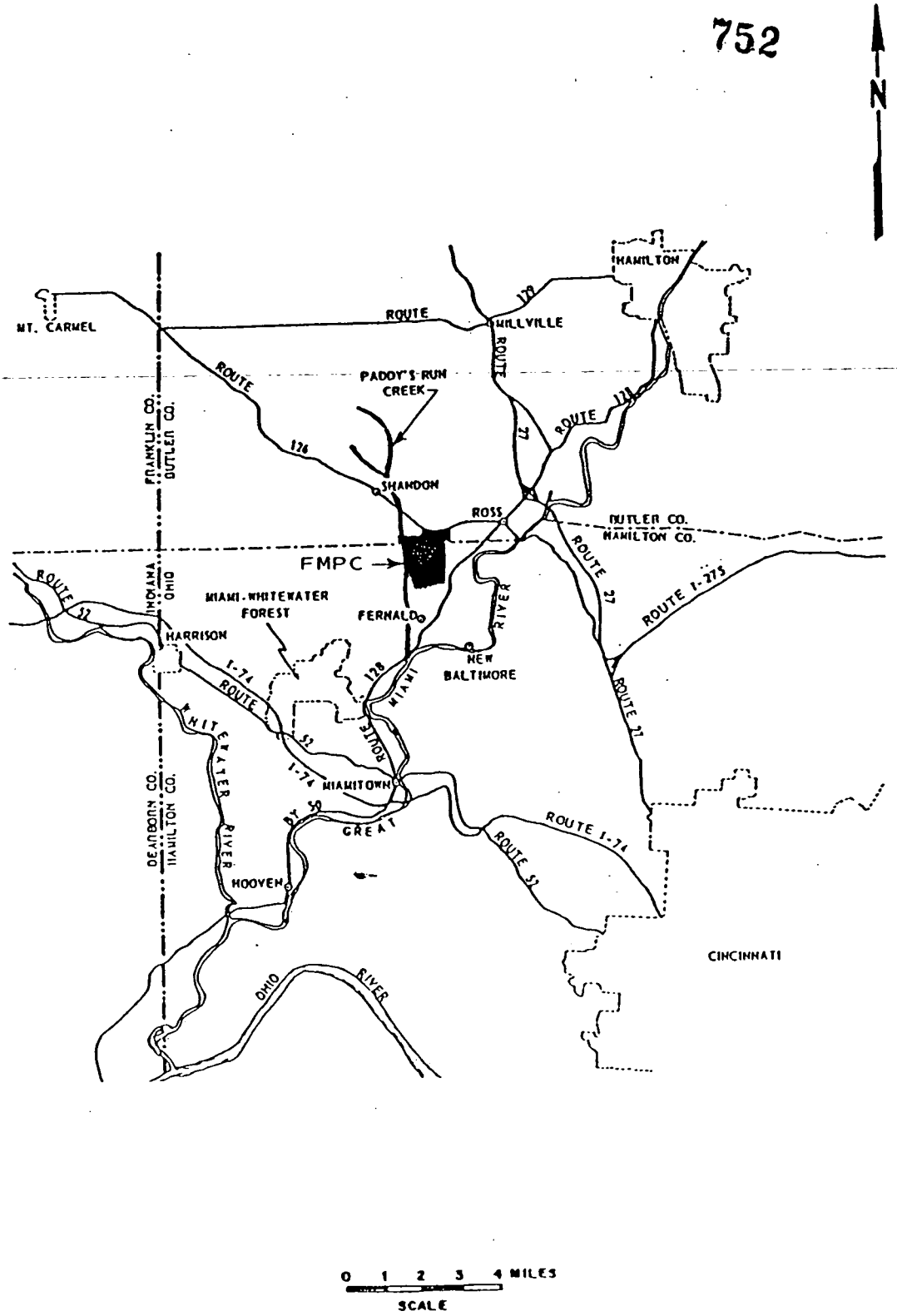
Table 3.3

POSSIBLY ELEVATED CONSTITUENTS IN
SAND AND GRAVEL WELLS
(All results in ppm except as noted)

	1D	10	13D	14S	19D	19S
Chloride	---	---	---	---	---	---
Iron	61.8	---	---	---	---	---
Manganese	---	5.5	---	---	3.73	---
Phenols	---	---	---	0.015	---	---
Sodium	---	162	---	---	---	180
Sulfate	---	470	300	---	440	---
Calcium	---	1,232	---	---	---	---
Fluoride	---	---	---	1.1	---	1.06
Nitrates	---	155.6	---	---	---	25.04
T.D.S.	---	2,540	---	---	---	---
C.O.D.	84	20	---	32	---	---
pH-lab (1) (2)	---	---	6.97	---	6.83	---
Conductivity-lab (1) (3)	---	2,400	1,250	---	1,600	1,000
T.O.C. (1)	5	4	---	4	---	---

(1) Average of four measurements
(2) Standard pH units
(3) Units in UMHOS/CM

Figures

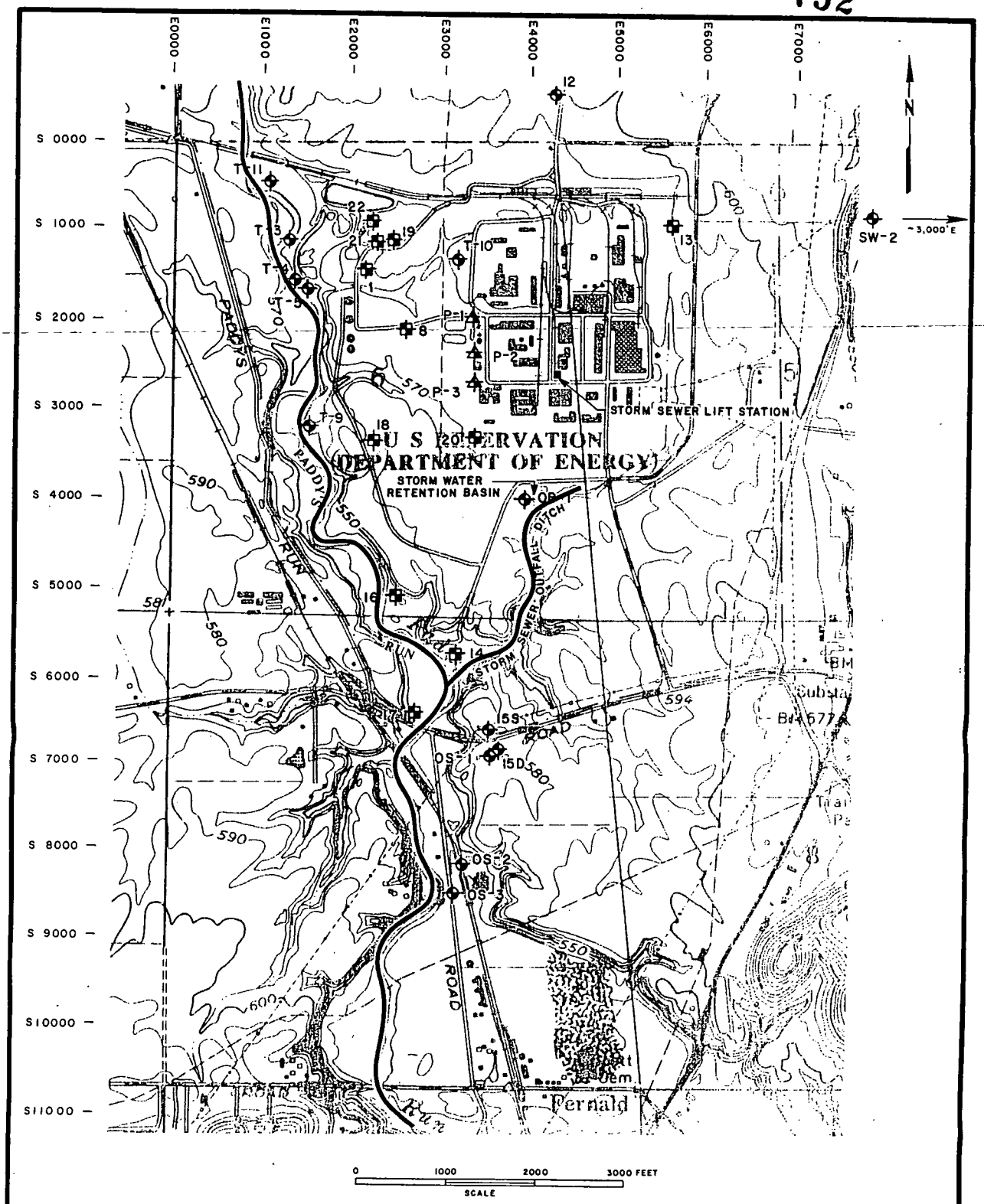


SITE LOCATION MAP

34

DAMES & MOORE

FIGURE 1-1



EXPLANATION:

- SINGLE WELL LOCATION
- CLUSTER WELL LOCATION
- PRODUCTION WELL LOCATION
- S2000- PLANT COORDINATE SYSTEM

REFERENCE: BASE MAP TAKEN FROM U.S.G.S. 7.5' TOPOGRAPHIC MAP, SHANDON, OHIO (1981) QUADRANGLE

Figure 2-2
WELL LOCATIONS

DAMES & MOORE

Appendix 1

OUTLINE

RCRA Groundwater Monitoring Plan
Pit # 4 - FMPC
Fernald, Ohio

(I) Wells to be Sampled

A. Upgradient Well: MW-12.
B. Downgradient: MW-TP19, MW-TP21, MW-TP22.

(II) Basis for Selection of Wells

A. Upgradient Well: MW-12
- Screened in glacial till (same as Mw-TP19, MW-TP21, and MW-TP22).
- Hydraulically upgradient.
- Isolated from all know sources of waste.

B. Downgradient Wells: MW-TP19, MW-TP21, MW-TP22.
- Adjacent to Pit # 4 (at limit of area).
- Screened in shallow saturated zone (first aquifer).
- Will intercept groundwater migrating from Pit # 4 to the west towards Paddy's Run (MW-TP22); and to the south (MW-TP19, MW-TP21). These are the principal directions of groundwater flow for this aquifer.

C. All Wells Constructed in Accordance with EPA Specifications.
- Fully cased
- Screened
- Gravel Packed
- Bentonite Pellet Seal
- Cement Collar
- Protective Steel Casing with vented, locking cap

(III) Parameters to be Analyzed

A. For General Water Quality
1. Chloride
2. Iron
3. Manganese
4. Phenols (total)
5. Sodium
6. Sulfate

B. For Indicators of Contamination (Quadruplicate Analysis)
1. pH
2. Specific Conductance
3. Total Organic Carbon (TOC)
4. Total Organic Halogen (TOX)

C. For Drinking Water Suitability
1. Arsenic
2. Barium
3. Cadmium
4. Chromium-Hexavalent
- Total
5. Fluoride
6. Lead
7. Mercury
8. Nitrate (as N)
9. Selenium
10. Silver
11. Gross alpha
12. Gross beta
13. Radium
14. Endrin
15. Lindane
16. Methoxychlor
17. Toxaphene
18. 2,4-D
19. 2,4,5-TP Silvex
20. Coliform Bacteria

D. Other Metals, Organics, and Site Specific Parameters [illegible]

1. Nickel
2. Cyanide
3. Copper
4. Zinc
5. Magnesium
6. Calcium
7. Phosphorus
8. Chlorobenzene
9. Chlorodibromomethane
10. Chloroethane
11. 2-chloroethlvinyl Ether
12. Chloroform
13. Dichlorobromomethane
14. Dichlorodifluromethane

15. Total Dissolved Solids (TDS)
16. Total Potassium
17. Biochemical Oxygen Demand (COD)
18. per Chloroethylene
19. cis 1,2 Dichloroethylene
20. Tributylphosphate
21. Acrolein
22. Acrylonot:ille
23. Benzene
24. bis(chloromethyl) Ether
25. Bromoform
26. Bromodichloromethane
27. Bromomethane
28. Carbontetrachloride
29. Chloromethane
30. 1.2 Dichlorobenzene
31. 1,3 Dichlorobenzene
32. 1,4 Dichlorobenzene
33. 1,1 Dichloroehtane
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. Radionuclides

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. Cessium 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.

(IV) Sampling Procedures

A. Pre-sampling Data

1. Name of person sampling, affiliation, date
2. Well number and location
3. Equipment used to evacuate well
4. Equipment used to sample well
5. Weather conditions
6. Well condition (if abnormal - i.e. broken casing, uncovered, etc)
7. Depth to static water
8. Depth of well (total)
9. Height of water column in w well
10. Volume of water in well
11. Volume of water to be pumped before sampling

B. Well Evacuation/Sampling

1. 3-5 volumes (removed by pumping)
2. If yield is low, pump dry, let recover 80%, then sample
3. Sample with stainless steel bailer with screw-on Teflon check valve
4. New Rope for each well, no equipment allowed to come into direct contact with ground
5. Clean all equipment between wells
   - wash in biodegradable, non-phosphate cleaning solution
   - rinse in clean tap water
   - triple rinse in distilled water
   - rinse in hexanne
   - let air dry

C. Field Data

1. Measure pH, specific conductance, temperature
2. Label sample bottle with ink
   - client
   - well number
   - location
   - date, time
3. Fill dample bottle to top, leaving no air space, secure lid

D. Preservation

1. Preservative added to bottles in lab.
2. Samples immediately placed in cooler (39 F).
3. Samples kept out of direct sunlight.

OUTLINE

RCRA Groundwater Monitoring Plan
Sand & Gravel Aquifer
Feed Materials Production Center
Fernald, Ohio

(I) Wells to be Sampled

A. Upgradient Well: Southwest Ohio Ranney Collector # 2

B. Downgradient Wells: Mw-1d, Mw-10, Mw-14s, Mw-14d, Mw-18s, Mw-19s

(II) Basis for Selection of Wells

A. Upgradient Well: Southwest Ohio Ranney Collector # 2

- Screened in the sand and gravel aquifer (same as other wells to be sampled).
- Isolated from all known sources of waste.
- Water quality well known from historic data.

B. Downgradient Wells

- Mw-1d: Inside Waste Pit Storage Area and screened in deeper portion of sand and gravel aquifer (below 'blue clay'). Results will be used to identify potential contamination of deeper aquifer.
- Mw-10: Inside Waste Pit Storage Area and screened in upper portion of sand and gravel aquifer (above 'blue clay'). Past results indicate above background uranium concentrations and high specific conductivities. Results will be used to indicate potential contamination of upper portion of sand and gravel aquifer.
- Mw-14s and Mw-14d: Screened at varying depths in sand and gravel aquifer outside of Waste Pit Storage Area. Wells are in center of above-background uranium plume detected in Task C Report. Results will be used to evaluate viability of uranium transport mechanism for other constituents. Different well depths will be used to evaluate fractionation potential of other constituents which may be present in offsite ground water.
- Mw-18s: Screened in sand and gravel aquifer above 'blue clay' outside of Waste Pit Storage Area. Well is in center of major groundwater flow path for this aquifer. Results will be used to indicate migration of constituents southward from the pit area.
- Mw-19s: Screened is sand and gravel aquifer above 'blue clay' within the Waste Pit Storage Area. Well is adjacent to Pit #4 where shallow groundwater in glacial till has recently been sampled. Results will be used to indicate migration of leachate from Pit # 4 to underlying sand and gravel aquifer.

C. Wells Constructed in Accordance with EPA Specifications

- Fully Cased
- Screened
- Gravel Packed
- Cement Collar
- Protective Steel Casing

(III) Parameters to be Analyzed

A. For General Water Quality
1. Chloride
2. Iron
3. Manganese
4. Phenols (total)
5. Sodium
6. Sulfate

B. For Indicators of Contamination (Quadruplicate Analysis)
1. pH
2. Specific Conductance
3. Total Organic Carbon (TOC)
4. Total Organic Halogen (TOX)

C. For Drinking Water Suitability
1. Arsenic
2. Barium
3. Cadmium
4. Chromium-Hexavalent
- Total
5. Fluoride
6. Lead
7. Mercury
8. Nitrate (as N)
9. Selenium
10. Silver
11. Gross alpha
12. Gross beta
13. Radium
14. Endrin
15. Lindane
16. Methoxychlor
17. Toxaphene
18. 2,4-D
19. 2,4,5-TP Silvex
20. Coliform Bacteria

D. Other Metals, Organics, and Site Specific Parameters

1. Nickel
2. Cyanide
3. Copper
4. Zinc
5. Magnesium
6. Calcium
7. Phosphorus
8. Chlorobenzene
9. Chlorodibromomethane
10. Chloroethane
11. 2-chloroethlvinyl Ether
12. Chloroform
13. Dichlorobromomethane
14. Dichlorodifluromethane

15. Total Dissolved Solids (TDS)
16. Total Potassium
17. Biochemical 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. Carbontetrachloride
29. Chloromethane
30. 1.2 Dichlorobenzene
31. 1,3 Dichlorobenzene
32. 1,4 Dichlorobenzene
33. 1,1 Dichloroehtane
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. Radionuclides

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. Cessium 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.

(IV) Sampling Procedures

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4. Equipment used to sample well
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6. Well condition (if abnormal - i.e. broken casing, uncovered, etc)
7. Depth to static water
8. Depth of well (total)
9. Height of water column in w well
10. Volume of water in well
11. Volume of water to be pumped before sampling

B. Well Evacuation/Sampling

1. 3-5 volumes (removed by pumping)
2. If yield is low, pump dry, let recover 80%, then sample
3. Sample with stainless steel bailer with screw-on Teflon check valve
4. New Rope for each well, no equipment allowed to come into direct contact with ground
5. Clean all equipment between wells
   - wash in biodegradable, non-phosphate cleaning solution
   - rinse in clean tap water
   - triple rinse in distilled water
   - rinse in hexanne
   - let air dry

C. Field Data

1. Measure pH, specific conductance, temperature
2. Label sample bottle with ink
   - client
   - well number
   - location
   - date, time
3. Fill dample bottle to top, leaving no air space, secure lid

D. Preservation

1. Preservative added to bottles in lab.
2. Samples immediately placed in cooler (39 F).
3. Samples kept out of direct sunlight.

4. Prepare field, trip and cleaning blanks to show no cross-contamination.
5. Samples shipped to laboratory within 8 hours of collection
6. Lab EPA/OEPA approved.
7. All analysis conducted to EPA Method 624 or equivalent.

E. Chain of Custody
1. Samples in locked area or possession of sampling personnel until delivered to laboratory.
2. Chain of Custody Record filled out for each sample, and accompanies sample. Returned with analytical results. Copies to client, laboratory, and Dames & Moore.

(V) Schedule

A. Sampling takes place in two (2) days.
B. Lab analysis takes place within 3-5 weeks.
C. Report preparation and data analysis takes place 2-3 weeks after aquisition of lab results.

(VI) Report

A. Maps
- plot plan
- well locations
- water level data (flow directions, contours)

B. Lab Test Data
- NLO data
- Other lab data
- Field test data
- Chain of Custody Forms

C. Well specifications and Logs

D. Statistical Evaluation (where previous data available)

E. General Evaluation of Data
- comparision to standards/guidelines
- estimate of trend

HOWARD LABS INC.

REPORT

FMPC JANUARY, 1986 SAMPLING

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

03/27/86 17:38:51

LAB # 86-01-384

CLIENT WEST M O SAMPLES 5
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

CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01	Well #1S	1/9/86	
01	Well #1S	1/9/86	B.#72405
02	Well #3	1/8/86	
02	Well #3	1/8/86	B.#72406
03	Well #4	1/8/86	
03	Well #4	1/8/86	B.#72407
04	Well #5	1/8/86	
04	Well #5	1/8/86	B.#72408
05	Well #8S	1/8/86	
05	Well #8S	1/8/86	B.#72409

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #1S 1/9/86

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

Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	15 pCi/L	CA	108.000 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	0.41 mg/L	FE	0.628 mg/L	HG	<0.0002 mg/L	K	2.260 mg/L	MG	23.900 mg/L
MN	0.511 mg/L	NA	10.000 mg/L	NI	<0.005 mg/L	NO3I	0.04 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	74.0 mg/L	TDSI	415.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #1S 1/9/86

FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/12/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/23/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-384

Results by Sample

SAMPLE ID Well #1S 1/9/86

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

Date & Time Collected 01/09/86 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	32.0	27.0	26.0	28.0	28.5	2.63

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-384

Results by Sample

SAMPLE ID Well #1S 1/9/86

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

Date & Time Collected 01/09/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.18	7.20	7.21	7.21	7.20	0.014
CONDUCTIVITY	600	600	600	600	600	0.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #1S 1/9/86 B.#72405 SAMPLE # 01 FRACTIONS: H
Date & Time Collected 01/09/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #3 1/8/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	17 pCi/L	CA	102.000 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	0.25 mg/L	FE	0.638 mg/L	HG	<0.0002 mg/L	K	2.400 mg/L	MG	23.300 mg/L
MN	0.426 mg/L	NA	9.500 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	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	88.0 mg/L	TDSI	369.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-384

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #3 1/8/86 FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86 DATE INJECTED 01/23/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #3 1/8/86

FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	12.0	13.0	11.0	11.0	11.8	0.96

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #3 1/8/86

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

Date & Time Collected 01/08/86 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	7.33	7.33	7.32	0.012
CONDUCTIVITY	590	590	590	590	590	0.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #3 1/8/86 B.#72406 SAMPLE # 02 FRACTIONS: H
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #4 1/8/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	17 pCi/L	CA	101.000 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	0.29 mg/L	FE	0.218 mg/L	HG	<0.0002 mg/L	K	2.790 mg/L	MG	22.200 mg/L
MN	<0.020 mg/L	NA	12.600 mg/L	NI	<0.005 mg/L	NO3I	1.43 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	54.0 mg/L	TDSI	369.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #4 1/8/86

FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/23/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-384

Results by Sample

SAMPLE ID Well #4 1/8/86

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

Date & Time Collected 01/08/86 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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-384

Results by Sample

SAMPLE ID Well #4 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY DLH

DATA FILE 18902

DATE INJECTED 01/14/86

ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Typical detection limits are:		
Halogenated compounds	< 1.0	ug/L
non-Halogenated compounds	< 2.0	ug/L

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #4 1/8/86

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

Date & Time Collected 01/08/86 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	7.30	7.33	7.34	7.36	0.019
CONDUCTIVITY	580	580	580	580	580	0.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #4 1/8/86 B.#72407 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL 380 /100ml

SAMPLE ID Well #5 1/8/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	12 pCi/L	CA	115.000 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	1.820 mg/L	HG	<0.0002 mg/L	K	2.210 mg/L	MG	25.500 mg/L
MN	0.532 mg/L	NA	12.800 mg/L	NI	<0.005 mg/L	NO3I	0.09 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	82.0 mg/L	TDSI	396.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT LAB # 86-01-384

Results by Sample

SAMPLE ID Well #5 1/8/86 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86 DATE INJECTED 01/23/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-384

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #5 1/8/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-384

Results by Sample

SAMPLE ID Well #5 1/8/86

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

Date & Time Collected 01/08/86 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	7.35	7.36	7.36	7.36	0.006
CONDUCTIVITY	620	620	620	620	620	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #5 1/8/86 B.#72408 SAMPLE # 04 FRACTIONS: H
Date & Time Collected 01/08/86 Category

TOCOL 17 /100ml

SAMPLE ID Well #8S 1/8/86 SAMPLE # 05 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	7 pCi/L	CA	104.000 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	0.14 mg/L	FE	1.600 mg/L	HG	<0.0002 mg/L	K	2.340 mg/L	MG	22.500 mg/L		
MN	0.257 mg/L	NA	9.500 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	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	78.0 mg/L	TDSI	381.00 mg/L		
ZN	<0.025 mg/L												

HOWARD LABS INC REPORT LAB # 86-01-384

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #8S 1/8/86 FRACTION 05G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86 DATE INJECTED 01/23/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-384

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #8S 1/8/86 FRACTION 05G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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 # 86-01-384

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #8S 1/8/86

FRACTION 05H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/08/86 Category

DATA FILE 18903

DATE INJECTED 01/14/86

ANALYST JGW

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #8S 1/8/86

FRACTION 05B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 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	7.34	7.34	7.34	0.006
CONDUCTIVITY	580	590	590	590	588	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-384

SAMPLE ID Well #8S 1/8/86 B.#72409 SAMPLE # 05 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL 36 /100ml

Westinghouse Materials Co.

COMMENTS ON ANALYSES OF RADIOACTIVITY IN
ALL SAMPLES

Analyses were conducted utilizing a Canberra 2404F low level alpha/beta/gamma counter with multiple counting port and sample exchanger. System connected to IBM computer utilizing software from Canberra and NBS libraries for sample identification when utilizing the 4096 channel analyzer. Standards utilized for quantitation and standardization of instrument were all tracable to NBS. Amerscham nuclides are utilized to determine window and plateaus for maximum counting efficiencies. These nuclides are also tracable to NBS.

Counts for alpha which are less than the Drinking Water Standards are listed as <15 pCi/Liter. Counts for beta are listed as <5.0pCi/Liter, yet should actually be listed in mRem/year. Since there is no method of determining body exposure of the water to an individual, the value of <4mRem/year is not suitable. The EPA recognized value of 50 pCi/L ANNUAL AVERAGE should be utilized, or a value of <50 pCi/L per year for reporting purposes to EPA.

HOWARD LABS INC REPORT LAB # 86-01-385

RECEIVED: 01/10/86 03/27/86 17:54:31

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

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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

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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01	Well #8D 1/8/86	
01	Well #8D 1/8/86	B.#72410
02	Well #9 1/8/86	
02	Well #9 1/8/86	B.#72411
03	Well #11 1/9/86	
03	Well #11 1/9/86	B.#72412
04	Well #13S 1/8/86	
04	Well #13S 1/8/86	B.#72413

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		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT LAB # 86-01-385

Results by Sample

SAMPLE ID Well #8D 1/8/86 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	12 pCi/L	CA	94.700 mg/L
CD	<0.002 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	0.24 mg/L	FE	2.620 mg/L	HG	<0.0002 mg/L	K	1.040 mg/L	MG	21.100 mg/L
MN	0.365 mg/L	NA	11.900 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	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	10.0 mg/L	TDSI	288.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT LAB # 86-01-385

Results by Sample

SAMPLE ID Well #8D 1/8/86 FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86 DATE INJECTED 01/23/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #8D 1/8/86 FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #8D 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY DLH

DATA FILE 18904

DATE INJECTED 01/14/86

ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Typical detection limits are:		
Halogenated compounds	< 1.0	ug/L
non-Halogenated compounds	< 2.0	ug/L

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-385

Results by Sample

SAMPLE ID Well #8D 1/8/86

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

Date & Time Collected 01/08/86 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	0.005
CONDUCTIVITY	530	530	530	530	530	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #8D 1/8/86 B.#72410 SAMPLE # 01 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <4 /100ml

SAMPLE ID Well #9 1/8/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	11 pCi/L	CA	96.600 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	0.21 mg/L	FE	0.072 mg/L	HG	<0.0002 mg/L	K	2.020 mg/L	MG	22.100 mg/L		
MN	0.071 mg/L	NA	11.000 mg/L	NI	<0.005 mg/L	NO3I	3.52 mg/L	PB	<0.005 mg/L	PHNLI	0.007 mg/L		
PTI	<0.04 mg/L as P	RADIUM	<5 pCi/L	RAD_SC	<5 pCi/L	SE	<0.005 mg/L	SO4I	76.0 mg/L	TDSI	377.00 mg/L		
ZN	<0.025 mg/L												

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #9 1/8/86

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/23/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-385

Results by Sample

SAMPLE ID Well #9 1/8/86

FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-385

Results by Sample

SAMPLE ID Well #9 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY DLH

DATA FILE 18905

DATE INJECTED 01/14/86

ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-385

Results by Sample

SAMPLE ID Well #9 1/8/86

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

Date & Time Collected 01/08/86 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	7.46	7.46	7.46	7.46	0.000
CONDUCTIVITY	540	540	540	540	540	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	1	<1	0.10

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #9 1/8/86 B.#72411 SAMPLE # 02 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL 24 /100ml

SAMPLE ID Well #11 1/9/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	9 pCi/L	CA	123.000 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	0.21 mg/L	FE	2.930 mg/L	HG	<0.0002 mg/L	K	0.984 mg/L	MG	28.300 mg/L		
MN	0.193 mg/L	NA	12.900 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.007 mg/L		
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	88.0 mg/L	TDSI	423.00 mg/L		
ZN	<0.025 mg/L												

HOWARD LABS INC REPORT LAB # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #11 1/9/86 FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/12/86 DATE INJECTED 01/23/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #11 1/9/86

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

Date & Time Collected 01/09/86 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 # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #11 1/9/86 FRACTION 03H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/09/86 Category

DATA FILE 18906

DATE INJECTED 01/14/86 ANALYST JGW

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #11 1/9/86

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

Date & Time Collected 01/09/86 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	7.42	7.42	7.42	7.42	0.000
CONDUCTIVITY	650	650	650	650	650	0.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-385

SAMPLE ID Well #11 1/9/86 B.#72412 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 01/09/86 Category

TOCOL <4 /100ml

SAMPLE ID Well #13S 1/8/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	15 pCi/L	CA	137.000 mg/L		
CD	<0.002 mg/L	CLI	25.0 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	2.710 mg/L	HG	<0.0002 mg/L	K	2.050 mg/L	MG	28.600 mg/L		
MN	0.205 mg/L	NA	14.700 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	<0.005 mg/L		
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	92.0 mg/L	TDSI	300.00 mg/L		
ZN	<0.025 mg/L												

HOWARD LABS INC REPORT LAB # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13S 1/8/86 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/12/86 DATE INJECTED 01/23/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13S 1/8/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	40.0	52.0	44.0	42.0	44.7	5.26

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13S 1/8/86 FRACTION 04H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/08/86 Category

VERIFIED BY DLH

DATA FILE 18907

DATE INJECTED 01/14/86 ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-385

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13S 1/8/86 FRACTION 04B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.15	7.15	7.15	7.15	7.15	0.000
CONDUCTIVITY	690	690	700	700	695	5.77
TOTAL ORGANIC CARBON	<1	<1	<1	1	<1	0.05

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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-385

Results by Sample

SAMPLE ID Well #13S 1/8/86 B.#72413 SAMPLE # 04 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <4 /100ml

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

03/27/86 18:33:22

LAB # 86-01-386

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

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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

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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01	Well #13D	1/8/86	
01	Well #13D	1/8/86	B.#72414
02	Well #15S	1/8/86	
02	Well #15S	1/8/86	B#72415
03	Well #16S	1/8/86	
03	Well #16S	1/8/86	B#72416
04	Well #16D	1/8/86	
04	Well #16D	1/8/86	B#72417

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		

HOWARD LABS INC REPORT

LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13D 1/8/86 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	< 5.0 pCi/L	CA	163.000 mg/L
CD	<0.002 mg/L	CLI	61.0 mg/L	CN	<0.005 mg/L	CODI	13 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.31 mg/L	FE	6.930 mg/L	HG	<0.0002 mg/L	K	5.110 mg/L	MG	44.000 mg/L
MN	0.349 mg/L	NA	49.000 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.012 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	300.0 mg/L	TDSI	956.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #13D 1/8/86

FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13D 1/8/86 FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	78.0	79.0	80.0	79.0	79.0	0.82

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #13D 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY SFK

DATA FILE 18908

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with typical detection limits		
of:		
Halogenated volatiles	<1.0	ug/L
Non-halogneated volatiles	<2.0	ug/L

HOWARD LABS INC REPORT

LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #13D 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	6.97	6.97	6.97	6.97	6.97	0.000
CONDUCTIVITY	1,250	1,250	1,250	1,250	1,250	0.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-386

SAMPLE ID Well #13D 1/8/86 B.#72414 SAMPLE # 01 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #15S 1/8/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	< 5.0 pCi/L	CA	71.900 mg/L
CD	<0.002 mg/L	CLI	23.0 mg/L	CN	<0.005 mg/L	CODI	17 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.43 mg/L	FE	0.082 mg/L	HG	<0.0002 mg/L	K	2.370 mg/L	MG	19.500 mg/L
MN	<0.020 mg/L	NA	11.900 mg/L	NI	<0.005 mg/L	NO3I	3.30 mg/L	PB	<0.005 mg/L	PHNLI	0.007 mg/L
PTI	0.12 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	49.0 mg/L	TDSI	376.00 mg/L
ZN	<0.025 mg/L										

752

99

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #15S 1/8/86

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #15S 1/8/86

FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	22.0	22.0	20.0	23.0	21.8	1.26

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #15S 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY SFK

DATA FILE 18909

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT

LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #15S 1/8/86

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

Date & Time Collected 01/08/86 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	7.53	7.54	7.54	7.54	0.006
CONDUCTIVITY	490	500	500	500	498	5.00
TOTAL ORGANIC CARBON	1	<1	<1	<1	<1	0.01

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-386

SAMPLE ID Well #15S 1/8/86 B#72415 SAMPLE # 02 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #16S 1/8/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	< 5.0 pCi/L	CA	88.500 mg/L
CD	<0.002 mg/L	CLI	19.0 mg/L	CN	<0.005 mg/L	CODI	11 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.22 mg/L	FE	0.078 mg/L	HG	<0.0002 mg/L	K	2.170 mg/L	MG	23.400 mg/L
MN	0.025 mg/L	NA	15.600 mg/L	NI	<0.005 mg/L	NO3I	2.52 mg/L	PB	<0.005 mg/L	PHNLI	0.009 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	50.0 mg/L	TDSI	364.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #16S 1/8/86 FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #16S 1/8/86 FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	16.0	18.0	15.0	18.0	16.9	1.50

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-386

SAMPLE ID Well #16S 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY SFK

DATA FILE 18910

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT

LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #16S 1/8/86 FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.50	7.50	7.50	7.49	7.50	0.005
CONDUCTIVITY	560	560	560	560	560	0.00
TOTAL ORGANIC CARBON	<1	1	1	1	1	0.005

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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #16S 1/8/86 B#72416 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #16D 1/8/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	< 5.0 pCi/L	CA	81.800 mg/L
CD	<0.002 mg/L	CLI	20.0 mg/L	CN	<0.005 mg/L	CODI	21 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L
CU	<0.025 mg/L	F	0.16 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	1.850 mg/L	MG	20.700 mg/L
MN	<0.020 mg/L	NA	11.100 mg/L	NI	<0.005 mg/L	NO3I	2.36 mg/L	PB	<0.005 mg/L	PHNLI	0.009 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	60.0 mg/L	TDSI	356.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #16D 1/8/86 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #16D 1/8/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	31.0	28.0	28.0	26.0	28.5	2.06

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-386

Results by Sample

SAMPLE ID Well #16D 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY SFK

DATA FILE 18911

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-386

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #16D 1/8/86 FRACTION 04B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 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	7.54	7.54	7.54	0.000
CONDUCTIVITY	520	520	520	520	520	0.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-386

SAMPLE ID Well #16D 1/8/86 B#72417 SAMPLE # 04 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86 03/27/86 19:56:25

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

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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

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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01	Well #17S	1/8/86
01	Well #17S	1/8/86 B.#72418
02	Well #17D	1/8/86
02	Well #17D	1/8/86 B#72419
03	Well #18D	1/9/86
03	Well #18D	1/9/86 B.#72420
04	Well #19D	1/8/86
04	Well #19D	1/8/86 B.#72421

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		

115

752

RECEIVED: 01/10/86

HOWARD LABS INC REPORT LAB # 86-01-387

Results by Sample

SAMPLE ID Well #17S 1/8/86 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	148.000 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	0.30 mg/L	FE	0.101 mg/L	HG	<0.0002 mg/L	K	1.940 mg/L	MG	32.100 mg/L
MN	0.234 mg/L	NA	8.750 mg/L	NI	<0.005 mg/L	NO3I	0.15 mg/L	PB	<0.005 mg/L	PHNLI	0.006 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	150.0 mg/L	TDSI	612.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17S 1/8/86 FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/26/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17S 1/8/86

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

Date & Time Collected 01/08/86

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 # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17S 1/8/86 FRACTION 01H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/08/86 Category

DATA FILE 18915 VERIFIED BY SFS

DATE INJECTED 01/14/86 ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Typical detection limits are		
as follows:		
Halogenated organics	<1.0	ug/L
Non-halogenated organics	<2.0	ug/L

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17S 1/8/86 FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.12	7.13	7.13	7.13	7.13	0.01
CONDUCTIVITY	810	810	810	810	810	0.00
TOTAL ORGANIC CARBON	1	<1	<1	<1	<1	0.01

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #17S 1/8/86 B.#72418 SAMPLE # 01 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #17D 1/8/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	106.000 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	0.12 mg/L	FE	1.290 mg/L	HG	<0.0002 mg/L	K	1.900 mg/L	MG	19.500 mg/L
MN	0.360 mg/L	NA	10.200 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.011 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	72.0 mg/L	TDSI	612.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17D 1/8/86 FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/26/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17D 1/8/86 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-387

Results by Sample

SAMPLE ID Well #17D 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY SFS

DATA FILE 18916

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #17D 1/8/86 FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.30	7.30	7.31	7.31	7.31	0.01
CONDUCTIVITY	550	550	550	560	553	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #17D 1/8/86 B#72419 SAMPLE # 02 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #18D. 1/9/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	102.000 mg/L		
CD	0.002 mg/L	CLI	4.0 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	0.44 mg/L	FE	8.940 mg/L	HG	<0.0002 mg/L	K	0.556 mg/L	MG	35.300 mg/L		
MN	0.104 mg/L	NA	4.590 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.006 mg/L		
PTI	0.11 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	62.0 mg/L	TDSI	388.00 mg/L		
ZN	<0.025 mg/L												

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #18D 1/9/86

FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/26/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #18D 1/9/86 FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/09/86 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: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-387

Results by Sample

SAMPLE ID Well #18D 1/9/86

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

Date & Time Collected 01/09/86

Category

VERIFIED BY SFS

DATA FILE 18917

DATE INJECTED 01/04/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #18D 1/9/86

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

Date & Time Collected 01/09/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.29	7.30	7.30	7.30	7.300.	005
CONDUCTIVITY	570	580	570	580	575	5.77
TOTAL ORGANIC CARBON	1	1	<1	<1	<1	0.13

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #18D 1/9/86 B.#72420 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 01/09/86 Category

TOCOL	<4	/100ml

SAMPLE ID Well #19D 1/8/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030	ALPHA	<15.0	AS	<0.005	BA	<0.200	BETA	<5.0	CA	240.000
	mg/L		pCi/L		mg/L		mg/L		pCi/L		mg/L
CD	<0.002	CLI	57.0	CN	<0.005	CODI	<10	CR	<0.005	CR6	<0.005
	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L
CU	<0.025	F	0.08	FE	<0.050	HG	<0.0002	K	8.730	MG	35.500
	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L
MN	3.730	NA	86.800	NI	0.009	NO3I	0.46	PB	<0.005	PHNLI	0.011
	mg/L		mg/L		mg/L		mg/L		mg/L		mg/L
PTI	<0.04	RADIUM	<5.0	RAD_SC	<5.0	SE	<0.005	SO4I	440.0	TDSI	424.00
	mg/L as P		pCi/L		pCi/L		mg/L		mg/L		mg/L
ZN	<0.025										
	mg/L										

1330

HOWARD LABS INC REPORT LAB # 86-01-387

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #19D 1/8/86 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/26/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #19D 1/8/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #19D 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY SFS

DATA FILE 18918

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #19D 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	6.81	6.84	6.83	6.84	6.83	0.01
CONDUCTIVITY	1,600	1,600	1,600	1,600	1,600	0.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-387

SAMPLE ID Well #19D 1/8/86 B.#72421 SAMPLE # 04 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <4 /100ml

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

03/27/86 20:17:01

LAB # 86-01-388

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

CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01	Well #21S	1/8/86
01	Well #21S	1/8/86 B.#72422
02	Well #22S	1/9/86
02	Well #22S	1/9/86 B.#72423
03	Well #20S	1/8/86
03	Well #20S	1/8/86 B.#72424
04	Well #20D	1/8/86
04	Well #20D	1/8/86 B.#72425

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: 01/10/86

HOWARD LABS INC REPORT LAB # 86-01-388

Results by Sample

SAMPLE ID Well #21S 1/8/86 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	400 pCi/L	CA	148.000 mg/L
CD	<0.002 mg/L	CLI	37.0 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	0.262 mg/L	HG	<0.0002 mg/L	K	9.350 mg/L	MG	18.000 mg/L
MN	0.052 mg/L	NA	28.300 mg/L	NI	<0.005 mg/L	NO3I	39.30 mg/L	PB	<0.005 mg/L	PHNLI	0.015 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	84.0 mg/L	TDSI	712.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #21S 1/8/86 FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #21S 1/8/86 FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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 # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #21S 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY SFK

DATA FILE 18920

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
with typical detection limits		
of:		
Halogenated volatiles	<1.0	ug/L
Non-halogenated volatiles	<2.0	ug/L

HOWARD LABS INC REPORT

LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #21S 1/8/86 FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.28	7.33	7.36	7.36	7.33	0.04
CONDUCTIVITY	900	910	910	910	908	5.00
TOTAL ORGANIC CARBON	1	1	1	1	1	0.00

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 # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #21S 1/8/86 B.#72422 SAMPLE # 01 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #22S 1/9/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	78 pCi/L	CA	137.000 mg/L
CD	<0.002 mg/L	CLI	62.0 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	0.71 mg/L	FE	0.379 mg/L	HG	<0.0002 mg/L	K	3.950 mg/L	MG	40.300 mg/L
MN	0.061 mg/L	NA	31.800 mg/L	NI	<0.005 mg/L	NO3I	42.00 mg/L	PB	<0.005 mg/L	PHNLI	0.006 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	98.0 mg/L	TDSI	712.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-388

Results by Sample

SAMPLE ID Well #22S 1/9/86

FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #22S 1/9/86 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/09/86 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	28.0	29.0	25.0	33.0	29.0	3.30

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-388

SAMPLE ID Well #22S 1/9/86

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

Date & Time Collected 01/09/86 Category

DATA FILE 18921

DATE INJECTED 01/14/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #22S 1/9/86 FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/09/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.30	7.30	7.30	7.30	7.30	0.00
CONDUCTIVITY	980	980	980	980	980	0.00
TOTAL ORGANIC CARBON	2	2	2	2	2	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-388

SAMPLE ID Well #22S 1/9/86 B.#72423 SAMPLE # 02 FRACTIONS: I
Date & Time Collected 01/09/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #20S 1/8/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	9 pCi/L	CA	96.600 mg/L
CD	<0.002 mg/L	CLI	21.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	0.017 mg/L	CR6	<0.01 mg/L
CU	<0.025 mg/L	F	0.15 mg/L	FE	0.102 mg/L	HG	<0.0002 mg/L	K	2.460 mg/L	MG	21.100 mg/L
MN	0.043 mg/L	NA	11.600 mg/L	NI	<0.005 mg/L	NO3I	5.67 mg/L	PB	<0.005 mg/L	PHNLI	0.006 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	78.0 mg/L	TDSI	436.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #20S 1/8/86 FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #20S 1/8/86 FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	25.0	28.0	28.0	34.0	36.5	2.06

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-388

Results by Sample

SAMPLE ID Well #20S 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY SFK

DATA FILE 18922

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-388

SAMPLE ID Well #20S 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY DR

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.50	7.50	7.50	7.50	7.50	0.00
CONDUCTIVITY	540	540	550	550	545	5.77
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-388

SAMPLE ID Well #20S 1/8/86 B.#72424 SAMPLE # 03 FRACTIONS: I
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #20D 1/8/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	99.000 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	0.11 mg/L	FE	1.120 mg/L	HG	<0.0002 mg/L	K	1.690 mg/L	MG	23.100 mg/L
MN	0.235 mg/L	NA	14.100 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	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	80.0 mg/L	TDSI	420.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-388

Results by Sample

SAMPLE ID Well #20D 1/8/86

FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86

Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #20D 1/8/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	19.0	20.0	17.0	19.0	18.9	1.26

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-388

Results by Sample

SAMPLE ID Well #20D 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY SFK

DATA FILE 18923

DATE INJECTED 01/14/86

ANALYST DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-388

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #20D 1/8/86 FRACTION 04B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 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	7.41	7.41	7.41	7.41	0.01
CONDUCTIVITY	560	560	560	560	560	0.00
TOTAL ORGANIC CARBON	1	<1	<1	<1	<1	0.06

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-388

SAMPLE ID Well #20D 1/8/86 B.#72425 SAMPLE # 04 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

03/27/86 20:28:21

LAB # 86-01-389

CLIENT WEST M O SAMPLES 5
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

CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01 Well #TP-20 1/9/86
01 Well #TP-20 1/9/86 B#72426
02 Well #HK-DG 1/9/86
02 Well #HK-DG 1/9/86 B#72427
03 Well #HK-S 1/9/86
03 Well #HK-S 1/9/86 B#72428
04 Well #HK-D 1/9/86
04 Well #HK-D 1/9/86 B#72429
05 Well #AW 1/9/86
05 Well #AW 1/9/86 B.#72430

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		

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #TP-20 1/9/86 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	0.011 mg/L	BA	<0.200 mg/L	BETA	77 pCi/L	CA	108.000 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	0.47 mg/L	FE	5.430 mg/L	HG	<0.0002 mg/L	K	1.220 mg/L	MG	31.700 mg/L
MN	1.040 mg/L	NA	4.100 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.007 mg/L
PTI	0.44 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	48.0 mg/L	TDSI	324.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #TP-20 1/9/86 FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #TP-20 1/9/86 FRACTION 01G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/09/86 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	25.0	25.0	25.0	26.0	25.5	0.50

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #TP-20 1/9/86 FRACTION 01H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/09/86 Category

DATA FILE 18895

DATE INJECTED 01/13/86 ANALYST JGW

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Typical detection limits are:		
Halogenated compounds	< 1.0	ug/L
non-Halogenated compounds	< 2.0	ug/L

HOWARD LABS INC REPORT LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #TP-20 1/9/86 FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/09/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.03	7.04	7.05	7.06	7.05	0.03
CONDUCTIVITY	570	570	570	570	570	0.00
TOTAL ORGANIC CARBON	3	3	3	3	3	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #TP-20 1/9/86 B#72426 SAMPLE # 01 FRACTIONS: I
Date & Time Collected 01/09/86 Category

TOCOL 10 /100ml

SAMPLE ID Well #HK-DG 1/9/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	143.000 mg/L		
CD	<0.002 mg/L	CLI	34.0 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	0.338 mg/L	HG	<0.0002 mg/L	K	32.400 mg/L	MG	47.000 mg/L		
MN	0.054 mg/L	NA	33.100 mg/L	NI	<0.005 mg/L	NO3I	7.99 mg/L	PB	<0.005 mg/L	PHNLI	0.012 mg/L		
PTI	0.38 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	102.0 mg/L	TDSI	600.00 mg/L		
ZN	0.070 mg/L												

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-DG 1/9/86 FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-DG 1/9/86 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/09/86 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	20.0	24.0	24.0	24.0	23.3	2.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-DG 1/9/86 FRACTION 02H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/09/86 Category

DATA FILE 18896

DATE INJECTED 01/13/86 ANALYST JGW

VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-DG 1/9/86 FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/09/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.14	7.15	7.16	7.15	7.15	0.04
CONDUCTIVITY	1,050	1,000	1,000	1,000	1,010	25.0
TOTAL ORGANIC CARBON	3	3	2	2	2.50	0.29

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 # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-DG 1/9/86 B#72427 SAMPLE # 02 FRACTIONS: I

Date & Time Collected 01/09/86 Category

TOCOL 2 /100ml

SAMPLE ID Well #HK-S 1/9/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G

Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	28 pCi/L	CA	67.800 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	0.46 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	2.360 mg/L	MG	18.900 mg/L
MN	<0.020 mg/L	NA	11.200 mg/L	NI	<0.005 mg/L	NO3I	2.55 mg/L	PB	<0.005 mg/L	PHNLI	0.008 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	54.0 mg/L	TDSI	304.00 mg/L
ZN	0.109 mg/L										

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-S 1/9/86 FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/13/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #HK-S 1/9/86 FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/09/86 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	32.0	32.0	32.0	31.0	32.0	0.50

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #HK-S 1/9/86 FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/09/86 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	7.49	7.48	7.48	0.01
CONDUCTIVITY	490	495	490	490	491	2.50
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #HK-S 1/9/86 B#72428 SAMPLE # 03 FRACTIONS: H
Date & Time Collected 01/09/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #HK-D 1/9/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G
Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	106.000 mg/L		
CD	<0.002 mg/L	CLI	28.0 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	0.13 mg/L	FE	2.610 mg/L	HG	<0.0002 mg/L	K	1.750 mg/L	MG	27.200 mg/L		
MN	0.349 mg/L	NA	6.800 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.014 mg/L		
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	86.0 mg/L	TDSI	408.00 mg/L		
ZN	0.071 mg/L												

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-D 1/9/86

FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86

Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-D 1/9/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/09/86 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	40.0	42.0	40.0	40.0	40.8	1.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #HK-D 1/9/86

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

Date & Time Collected 01/09/86 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	7.36	7.34	7.35	0.01
CONDUCTIVITY	630	640	640	640	638	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #HK-D 1/9/86 B#72429 SAMPLE # 04 FRACTIONS: H
Date & Time Collected 01/09/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #AW 1/9/86 SAMPLE # 05 FRACTIONS: A,B,C,D,E,F,G
Date & Time Collected 01/06/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	85.700 mg/L		
CD	<0.002 mg/L	CLI	26.0 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	1.250 mg/L	HG	<0.0002 mg/L	K	2.200 mg/L	MG	22.000 mg/L		
MN	0.373 mg/L	NA	10.500 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.020 mg/L		
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	58.0 mg/L	TDSI	308.00 mg/L		
ZN	<0.025 mg/L												

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #AW 1/9/86

FRACTION 05G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/06/86 Category

DATE EXTRACTED 01/13/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #AW 1/9/86

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

Date & Time Collected 01/06/86

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	43.0	43.0	43.0	44.0	43.3	0.50

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-389

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #AW 1/9/86 FRACTION 05B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/06/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.61	7.62	7.62	7.62	7.62	0.01
CONDUCTIVITY	560	580	580	580	575	10.0
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-389

SAMPLE ID Well #AW 1/9/86 B.#72430 SAMPLE # 05 FRACTIONS: H

Date & Time Collected 01/06/86 Category

TOCOL <2 /100ml

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

03/27/86 20:40:41

LAB # 86-01-390

CLIENT WEST M O SAMPLES 5
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

CERTIFIED BY

CONTACT D HOWARD

REPORT TO Westinghouse Materials
Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

Q1	Well #DS 1/9/86
Q1	Well #DS 1/9/86 B.#72431
Q2	Well #12 1/8/86
Q2	Well #12 1/8/86 B.#72432
Q3	Well SW-2 1/8/86
Q3	Well SW-2 1/8/86 B.#72433
Q4	Well #P-1 1/8/86
Q4	Well #P-1 1/8/86 B.#72434
Q5	Well #P-2 1/8/86
Q5	Well #P-2 1/8/86 B.#72435

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #DS 1/9/86 SAMPLE # 01 FRACTIONS: A,B,C,D,E,F,G

Date & Time Collected 01/09/86 Category

AG	<0.030 mg/L	ALPHA	20 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	42 pCi/L	CA	90.600 mg/L
CD	<0.002 mg/L	CLI	29.0 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	<0.050 mg/L	HG	<0.0002 mg/L	K	2.880 mg/L	MG	24.300 mg/L
MN	<0.020 mg/L	NA	11.000 mg/L	NI	<0.005 mg/L	NO3I	3.64 mg/L	PB	<0.005 mg/L	PHNLI	0.011 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	18.0 mg/L	TDSI	376.00 mg/L
ZN	0.037 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #DS 1/9/86 FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/09/86 Category

DATE EXTRACTED 01/14/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #DS 1/9/86

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

Date & Time Collected 01/09/86

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	49.0	51.0	48.0	49.0	49.3	1.26

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #DS 1/9/86

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

Date & Time Collected 01/09/86 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	7.39	7.39	7.40	7.39	0.01
CONDUCTIVITY	600	610	620	610	610	8.16
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #DS 1/9/86 B.#72431 SAMPLE # 01 FRACTIONS: H

Date & Time Collected 01/09/86 Category

TOCOL 40 /100ml

SAMPLE ID Well #12 1/8/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	18 pCi/L	AS	0.006 mg/L	BA	<0.200 mg/L	BETA	78 pCi/L	CA	72.100 mg/L
CD	<0.002 mg/L	CLI	105.0 mg/L	CN	<0.005 mg/L	CODI	<10 mg/L	CR	0.058 mg/L	CR6	<0.01 mg/L
CU	0.055 mg/L	F	1.21 mg/L	FE	30.800 mg/L	HG	<0.0002 mg/L	K	12.800 mg/L	MG	18.300 mg/L
MN	0.592 mg/L	NA	224.000 mg/L	NI	0.048 mg/L	NO3I	<0.02 mg/L	PB	0.040 mg/L	PHNLI	0.021 mg/L
PTI	0.14 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	64.0 mg/L	TDSI	580.00 mg/L
ZN	0.135 mg/L										

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HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #12 1/8/86 FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/14/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #12 1/8/86 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	65.0	63.0	64.0	64.0	64.0	0.82

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S. D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #12 1/8/86 FRACTION 02H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected 01/08/86 Category

DATA FILE 18897

DATE INJECTED 01/13/86 ANALYST JGW VERIFIED BY DLH

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Typical detection limits are:		
Halogenated compounds	< 1.0	ug/L
non-Halogenated compounds	< 2.0	ug/L

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #12 1/8/86

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

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.79	7.79	7.79	7.79	7.79	0.00
CONDUCTIVITY	990	1,000	1,000	1,000	998	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #12 1/8/86 B.#72432 SAMPLE # 02 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <4 /100ml

SAMPLE ID Well SW-2 1/8/86 SAMPLE # 03 FRACTIONS: A,B,C,D,E,F,G,H

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	93.200 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	<0.050 mg/L	HG	<0.0002 mg/L	K	2.350 mg/L	MG	28.900 mg/L
MN	0.154 mg/L	NA	17.400 mg/L	NI	<0.005 mg/L	NO3I	2.89 mg/L	PB	<0.005 mg/L	PHNLI	0.009 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	96.0 mg/L	TDSI	468.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT

LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well SW-2 1/8/86 FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/14/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well SW-2 1/8/86 FRACTION 03G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	61.0	61.0	61.0	63.0	61.5	1.00

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well SW-2 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY DLH

DATA FILE 18898

DATE INJECTED 01/13/86

ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		

HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well SW-2 1/8/86 FRACTION 03B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 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	7.36	7.36	7.36	7.36	0.01
CONDUCTIVITY	650	660	670	660	660	8.16
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well SW-2 1/8/86 B.#72433 SAMPLE # 03 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID Well #P-1 1/8/86 SAMPLE # 04 FRACTIONS: A,B,C,D,E,F,G

Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	116.000 mg/L
CD	<0.002 mg/L	CLI	36.0 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	5.310 mg/L	HG	<0.0002 mg/L	K	3.400 mg/L	MG	33.900 mg/L
MN	0.425 mg/L	NA	26.600 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.008 mg/L
PTI	0.12 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	16.0 mg/L	TDSI	420.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT

LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #P-1 1/8/86 FRACTION 04G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/14/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #P-1 1/8/86 FRACTION 04G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	11.0	13.0	15.0	12.0	12.8	1.71

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

200

752

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #P-1 1/8/86

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

Date & Time Collected 01/08/86 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	7.46	7.45	7.45	7.45	0.01
CONDUCTIVITY	840	830	830	840	835	5.77
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #P-1 1/8/86 B.#72434 SAMPLE # 04 FRACTIONS: H
Date & Time Collected 01/08/86 Category

TOCOL	<2 /100ml

SAMPLE ID Well #P-2 1/8/86 SAMPLE # 05 FRACTIONS: A,B,C,D,E,F,G
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	84.500 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	2.780 mg/L	HG	<0.0002 mg/L	K	1.220 mg/L	MG	23.600 mg/L
MN	0.358 mg/L	NA	11.500 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.012 mg/L
PTI	0.12 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	50.0 mg/L	TDSI	240.00 mg/L
ZN	<0.025 mg/L										

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #P-2 1/8/86

FRACTION 05G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/14/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #P-2 1/8/86

FRACTION 05G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86

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	10.0	10.0	11.0	<10.0	10.0	0.82

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-390

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #P-2 1/8/86 FRACTION 05B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.50	7.50	7.50	7.50	7.50	0.00
CONDUCTIVITY	550	560	560	550	555	5.77
TOTAL ORGANIC CARBON	.1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-390

SAMPLE ID Well #P-2 1/8/86 B.#72435 SAMPLE # 05 FRACTIONS: H

Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

03/27/86 21:09:37

LAB # 86-01-391

CLIENT WEST M O SAMPLES 10
COMPANY Westinghouse Materials Co.
FACILITY

REPORT TO Westinghouse Materials Company of Ohio
P. O. Box 39158
Cincinnati, Ohio 45239
ATTEN David Jones

WORK ID RCRA Groundwater Sampling
TAKEN 1/8 & 1/9/86
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

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: Wayne Fuller, Dames & Moore

SAMPLE IDENTIFICATION

01 Well #P-3 1/8/86
01 Well #P-3 1/8/86 B.#72436
02 CB-1 1/8/86
02 CB-1 1/8/86 B.#72437
03 Blanks
04 QC Stds - Sample #5 Conc 1
05 QC Stds - Sample #2 Conc 1
06 QC Stds - Sample #2 Conc 2
07 QC Stds - Sample #3 Conc 1
08 QC Stds - Sample #3 Conc 2
09 QC Stds - Sample #1
10 QC Stds - Sample #4

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
TOC	Total Organic Carbon
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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-391

SAMPLE ID Well #P-3 1/8/86

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

Date & Time Collected 01/08/86

Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	85.300 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	0.14 mg/L	FE	2.510 mg/L	HG	<0.0002 mg/L	K	1.620 mg/L	MG	22.200 mg/L
MN	0.408 mg/L	NA	11.000 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.018 mg/L
PTI	0.06 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	42.0 mg/L	TDSI	240.00 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT

LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #P-3 1/8/86

FRACTION 01G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86

Category

DATE EXTRACTED 01/14/86

CONCENTRATION FACTOR 30

DATE INJECTED 01/24/86

ANALYST DLH

VERIFIED BY SFK

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT

LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #P-3 1/8/86

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

Date & Time Collected 01/08/86

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	11.0	12.0	13.0	13.0	12.4	0.96

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Well #P-3 1/8/86 FRACTION 01B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	7.36	7.36	7.36	7.36	7.36	0.00
CONDUCTIVITY	530	540	530	530	533	5.00
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-391

SAMPLE ID Well #P-3 1/8/86 B.#72436 SAMPLE # 01 FRACTIONS: H
Date & Time Collected 01/08/86 Category

TOCOL <2 /100ml

SAMPLE ID CB-1 1/8/86 SAMPLE # 02 FRACTIONS: A,B,C,D,E,F,G,H
Date & Time Collected 01/08/86 Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	<0.050 mg/L		
CD	<0.002 mg/L	CLI	1.0 mg/L	CN	<0.005 mg/L	CODI	206 mg/L	CR	<0.005 mg/L	CR6	<0.005 mg/L		
CU	0.084 mg/L	F	0.06 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	<0.050 mg/L	MG	<0.010 mg/L		
MN	<0.020 mg/L	NA	<0.050 mg/L	NI	0.008 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	0.007 mg/L		
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	<1 mg/L	TDSI	48.00 mg/L		
ZN	<0.025 mg/L												

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID CB-1 1/8/86 FRACTION 02G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected 01/08/86 Category

DATE EXTRACTED 01/14/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID CB-1 1/8/86 FRACTION 02G TEST CODE TOXDQ NAME TOX-Quad Runs-Method 450.1

Date & Time Collected 01/08/86 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	23.0	21.0	21.0	19.0	21.1	1.63

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT

LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID CB-1 1/8/86

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

Date & Time Collected 01/08/86

Category

VERIFIED BY DLH

DATA FILE 18899

DATE INJECTED 01/13/86

ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		
Typical detection limits are:		
Halogenated compounds	< 1.0	ug/L
non-Halogenated compounds	< 2.0	ug/L

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID CB-1 1/8/86 FRACTION 02B TEST CODE WCQ NAME RCRA TOC/COND/PH IN QUAD.

Date & Time Collected 01/08/86 Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	5.78	5.77	5.73	5.80	5.77	0.02
CONDUCTIVITY	1.55	1.50	1.50	1.50	1.51	0.03
TOTAL ORGANIC CARBON	19	21	18	20	19.75	1.30

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: 01/10/86

HOWARD LABS INC REPORT

Results by Sample

LAB # 86-01-391

SAMPLE ID CB-1 1/8/86 B.#72437 SAMPLE # 02 FRACTIONS: I

Date & Time Collected 01/08/86 Category

TOCOL <4 /100ml

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

Date & Time Collected not specified Category

AG	<0.030 mg/L	ALPHA	<15.0 pCi/L	AS	<0.005 mg/L	BA	<0.200 mg/L	BETA	<5.0 pCi/L	CA	<0.050 mg/L
CD	<0.002 mg/L	CLI	1.0 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	0.04 mg/L	FE	<0.050 mg/L	HG	<0.0002 mg/L	K	<0.050 mg/L	MG	0.013 mg/L
MN	<0.020 mg/L	NA	0.092 mg/L	NI	<0.005 mg/L	NO3I	<0.02 mg/L	PB	<0.005 mg/L	PHNLI	<0.001 mg/L
PTI	<0.04 mg/L as P	RADIUM	<5.0 pCi/L	RAD_SC	<5.0 pCi/L	SE	<0.005 mg/L	SO4I	<1 mg/L	TDSI	<1 mg/L
ZN	<0.025 mg/L										

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Blanks FRACTION 03G TEST CODE PSDWA NAME SDWA Pesticides

Date & Time Collected not specified Category

DATE EXTRACTED 01/14/86 DATE INJECTED 01/24/86 VERIFIED BY SFK

CONCENTRATION FACTOR 30 ANALYST DLH

COMPOUND	RESULT	UNITS *
Lindane	<0.1	ug/L
Endrin	<0.1	ug/L
Methoxychlor	<0.1	ug/L
Toxaphene	<0.5	ug/L
2,4-D	<0.4	ug/L
2,4,5-TP Silvex	<0.2	ug/L

NOTES AND DEFINITIONS FOR THIS REPORT.

<=Less Than

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

RECEIVED: 01/10/86

HOWARD LABS INC REPORT LAB # 86-01-391

Results by Sample

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

Date & Time Collected not specified 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	28.0	31.0	28.0	29.0	29.2	1.41

NOTES AND DEFINITIONS FOR THIS REPORT.

< = Less Than

Total Organic Halogen reported in ug/L

S.D. = Standard Deviation

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID Blanks FRACTION 03H TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected not specified Category

DATA FILE 18900 VERIFIED BY DLH

DATE INJECTED 01/13/86 ANALYST JGW

COMPOUND	RESULT	UNITS
No volatile compounds detected		

RECEIVED: 01/10/86

HOWARD LABS INC REPORT

LAB # 86-01-391

Results by Sample

SAMPLE ID Blanks

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

Date & Time Collected not specified Category

VERIFIED BY LGL

RCRA WET CHEMICAL GROUND WATER INDICATOR PARAMETERS

PARAMETER	RUN 1	RUN 2	RUN 3	RUN 4	AVG	S. D.
pH	5.80	5.77	5.84	5.80	5.80	0.03
CONDUCTIVITY	0.75	0.80	0.85	0.80	0.80	0.04
TOTAL ORGANIC CARBON	<1	<1	<1	<1	<1	0.00

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 # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID QC Stds - Sample #5 Conc 1 SAMPLE # 04 FRACTIONS: A
Date & Time Collected not specified Category

CODI	13 mg/L	TOC	5 mg/L

SAMPLE ID QC Stds - Sample #2 Conc 1 SAMPLE # 05 FRACTIONS: A,B,C
Date & Time Collected not specified Category

AS	0.029 mg/L	CD	0.008 mg/L	CR	0.008 mg/L	CU	<0.025 mg/L	FE	<0.050 mg/L	HG	0.0009 mg/L
MN	<0.020 mg/L	NI	0.019 mg/L	PB	0.041 mg/L	SE	0.010 mg/L	ZN	<0.025 mg/L		

SAMPLE ID QC Stds - Sample #2 Conc 2 SAMPLE # 06 FRACTIONS: A,B,C
Date & Time Collected not specified Category

AS	0.245 mg/L	CD	0.041 mg/L	CR	0.247 mg/L	CU	0.319 mg/L	FE	0.762 mg/L	HG	0.0092 mg/L
MN	0.321 mg/L	NI	0.220 mg/L	PB	0.410 mg/L	SE	0.046 mg/L	ZN	0.400 mg/L		

SAMPLE ID QC Stds - Sample #3 Conc 1 SAMPLE # 07 FRACTIONS: A
Date & Time Collected not specified Category

BA	1.260 mg/L	CA	0.500 mg/L	K	0.178 mg/L	MG	0.106 mg/L	NA	0.111 mg/L

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID QC Stds - Sample #3 Conc 2 SAMPLE # 08 FRACTIONS: A

Date & Time Collected not specified Category

BA	9.780 mg/L	CA	7.740 mg/L	K	1.500 mg/L	MG	0.460 mg/L	NA	1.510 mg/L

SAMPLE ID QC Stds - Sample #1 SAMPLE # 09 FRACTIONS: A

Date & Time Collected not specified Category

ALPHA	420 pCi/L	BETA	1540 pCi/L	RADIUM	0.337 pCi/L	RAD_SC	See Note attached

HOWARD LABS INC REPORT LAB # 86-01-391

RECEIVED: 01/10/86

Results by Sample

SAMPLE ID QC Stds - Sample #4 FRACTION 10A TEST CODE VOAMSC NAME GC/MS SCAN TOTAL VOLATILES

Date & Time Collected not specified Category

DATA FILE 18901

DATE INJECTED 01/13/86 ANALYST DLH VERIFIED BY SFS

COMPOUND	RESULT	UNITS
Chloroform	11.2	ug/L
1,1,1-Trichloroethane	1.6	ug/L
1,2-Dichloroethane	2.1	ug/L
Carbon Tetrachloride	2.6	ug/L
Bromodichloromethane	2.2	ug/L
1,1,2-Trichloroethane	2.8	ug/L
Dibromochloromethane	2.8	ug/L
Bromoform	2.3	ug/L
Tetrachloroethene	1.6	ug/L
NOTE: Traces of methylene		
chloride were found in the		
methanol solvent of this		
sample.		

RECEIVED: 01/10/86 03/27/86 21:09:37

Westinghouse Materials Co.

COMMENTS ON RADIOACTIVITY RESULTS

The activity results for Beta particles is listed, but does not apply to the Drinking Water Regulations. The reason for this is that the activity associated with the Drinking Water Regulations is listed as mRem per year. A value of not more than 4 mRem per year is listed in the Regulations. EPA recognizes a maximum Beta of 50 pCi/L as an ANNUAL AVERAGE activity. Hence, these samples would meet the later requirements except for one sample.

The scan for the "Standard" submitted is listed below:

Tritium	1660	Activity/gram
Strontium-90	12.4	
Uranium-234	12.2	
Uranium-235	0.59	
Uranium-238	12.7	
Cesium-134	12.3	
Radium-228	3.4	
Radium-226	8.9	

No other isotopes detected above background.

NOTE: Samples prepared by weighing 1.0 g standard and diluting to 1000 mL water to simulate DWS(Drinking Water Standards), then concentrating samples for counting purposes.

Appendix 3

(914) 735-1200

See 6e/02

DAY, MONTH, YEAR 1-10-86

Chain of Custody Record

752

REASON FOR SAMPLING

RCRA Monitoring

WITNESSES

Roger Bennett - D+M
Joe Gordon - D+M
Wayne Fuller - D+M
Dave Jones - WHCO

COLLECTION PROCEDURE

Bailed: stainless bailer w/ Teflon bottom check valve

METHOD OF PRESERVATION

4°C on Ice, pres. added in lab before shipment

REMARKS:

10 bottles per sample, 32 samples as listed below:

P-1	MW-8d	MW-16s	MW-20s	HK-DG
P-2	MW-9	MW-16d	MW-20d	DS
P-3	T-11	MW-17s	MW-21s	AW
MW-3	MW-12	MW-17d	MW-22s	CB-1
MW-4	MW-13s	MW-18d	SW-2	
MW-5	MW-13d	MW-19d	HK-S	
MW-8s	MW-15s	TP-20	HK-d	

COLLECTED BY

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Robert P. Blaverett	D+M	Delivery to lab
SIGNATURE X Robert P. Blaverett	TIME AND DATE 1-9-86 10:00 PM	

CUSTODY TRANSFERRED TO

PRINTED NAME	UNIT	PURPOSE OF TRANSFER
Wayne R. Fuller	D+M	Delivered at lab
SIGNATURE X Wayne R. Fuller	TIME AND DATE 1-9-86 10:00 PM	

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 A Rose	Howard Labs	Analysis
SIGNATURE X Joyce A Rose	TIME AND DATE 1-10-86	

LOGGED IN BY

PRINTED NAME	UNIT	ACCESSION NO.
SIGNATURE X	TIME AND DATE	

91-11-17 (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)	Standards Secondary (7)	Standards 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	6.99	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	48	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 1-Round 2 Sampling

Table 3-1

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)
Chloride	30	25	76	---	250	---
Iron	<0.05	61.8	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	60	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	2.06	<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 1-Round 2 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	---	6.5.85	---
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 1-Round 2 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 1-Round 2 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	0.006	---	---	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	165	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	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 1-Round 2 Sampling

Table 3-1 (Cont'd)

	MW-14d	MW-14s	MW-18s	MW-19s	Standards Primary (6)	Standards Secondary (7)	Standards Recommended (8)
pH-lab(1)(2)	6.97	8.1	7.1	7.06	---	6.5.85	---
Conductivity-lab (1)(3)	400	420	480	1,000	---	---	---
T.O.C.(1)	4.5	4	3.25	3	---	---	---
T.O.X.(1)(4)	NA	NA	NA	NA	---	---	---

Results of Phase 1-Round 2 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 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) Maximum Permissible Activity taken from World Health Organization, 1970 European Standards. National Primary Drinking Water Regulation for gross beta is 4 mR/year.