



State of Ohio Environmental Protection Agency

Northwest District Office

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Bob Taft, Governor
Bruce Johnson, Lieutenant Governor
Joseph P. Koncelik, Director

June 9, 2006

Mr. Douglas E. Roberts, President
Envirosafe Services of Ohio, Inc.
876 Otter Creek Road
Oregon, Ohio 43616-1200

**Re: Hazardous Waste Permit Modification
Class 1 Acknowledgment
Envirosafe Services of Ohio, Inc.
U.S. EPA ID#: OHD 045 243 706 / Ohio Permit #: 03-48-0092**

Dear Mr. Roberts:

On April 10, 2006, Ohio EPA received a notification for a Class 1 hazardous waste permit modification from Envirosafe Services of Ohio, Inc. (ESOI) located at 876 Otter Creek Road, Oregon, Ohio. With this letter, Ohio EPA acknowledges the above referenced Class 1 modification submitted pursuant to Ohio Administrative Code (OAC) Rule 3745-50-51, and accordingly has updated the facility's Part B permit application and permit.

ESOI's permit was issued draft on May 12, 2005 and final on December 29, 2005. Ohio EPA approved and/or acknowledged several permit modifications between draft and final issuance of ESOI's permit. This modification to add these previously approved and/or acknowledged modifications to ESOI's December 29, 2005 permit was assigned a permit information tracking system (PITS) ID number of OHD045243706-060410-1-1.

Enclosed is a copy of the permit application revision(s). This has been included to ensure that all involved parties have written confirmation of the change(s). If you have any questions concerning this action, please contact Gary Deutschman at the Ohio EPA Northwest District Office (419)373-3056.

Sincerely,

John Pasquarette
Manager
Division of Hazardous Waste Management

*In accordance with Ohio Administrative Code Rule 3745-50-51(D)(1)(a)(ii), Envirosafe Services of Ohio, Inc. shall send a notice within 90 days of replacement of the permit application pages to all persons on the Agency mailing list. An updated mailing list can be obtained by contacting Pamela Allen at (614) 644-2980, or by e-mail at pamel.a.allen@epa.state.oh.us.

/cs

- pc: Pamela Allen, Manager, RIS, DHWM, CO
- Jeremy Carroll, Supervisor, Engineering Unit, DHWM, CO
- Gary Deutschman, DHWM, NWDO
- John Gaitskill, USEPA, Region 5 (DW-8J)
- Mayor Marge Brown, City of Oregon
- Oregon Document Depository - Permit Binder
- ESOI Permit File, DHWM, NWDO
- ESOI Permit Application, DHWM, NWDO
- ec: Michael Terpinski, Supervisor, DHWM, NWDO
- Christopher Hunt, DHWM, CO
- Ben Smith, On-Site Inspection, DHWM, NWDO

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September 1, 2006

Mr. Douglas E. Roberts, President
Envirosafe Services of Ohio, Inc.
876 Otter Creek Road
Oregon, Ohio 43616-1200**Re: Hazardous Waste Permit Modification
Addendum to June 9, 2006 Class 1 Acknowledgment
Envirosafe Services of Ohio, Inc.
U.S. EPA ID#: OHD 045 243 706 / Ohio Permit #: 03-48-0092**

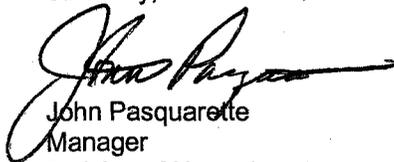
Dear Mr. Roberts:

On June 9, 2006, Ohio EPA acknowledged a Class 1 hazardous waste permit modification [(PITS) ID number OHD045243706-060410-1-1] for Envirosafe Services of Ohio, Inc. (ESOI) located at 876 Otter Creek Road, Oregon, Ohio. The June 9, 2006 letter acknowledged several permit modifications issued to ESOI before the final issuance of ESOI's renewal permit on December 29, 2005. Included with the June 9, 2006 acknowledgment letter were several attachments which were intended to ensure that all involved parties had written confirmation of the acknowledged changes. However, Ohio EPA inadvertently failed to send a complete copy of the acknowledged attachments to all persons on the facility mailing list and the appropriate units of State and local government.

Ohio EPA has determined that the Agency failed to include as attachments to the June 9, 2006 acknowledgment letter a clean copy of Module K of ESOI's permit terms and conditions. The clean copy of Module K includes modifications to Permit Condition K.6(e)(i), EPA PITS #050505-1a-1 approved on July 15, 2005, Permit Condition K.2, EPA PITS #050509-2-1 approved on August 12, 2005, and Permit Conditions K.6(c), K.6(e), K.7(b)(vi), K.7(c) and Attachment K-1, PITS #050630-1-1 acknowledged on November 29, 2005.

Attached is a complete copy of Permit Module K which includes the modifications acknowledged on June 9, 2006. If you have any questions concerning this letter, please contact Gary Deutschman at the Ohio EPA Northwest District Office.

Sincerely,



John Pasquarette
Manager
Division of Hazardous Waste Management

/cs
Enclosure

pc: Pamela Allen, Manager, RIS, DHWM, CO
~~Jeremy Carroll, Supervisor, Engineering Unit, DHWM, CO~~
 Gary Deutschman, DHWM, NWDO
 Lynn Ackerson, DHWM, NWDO
 Mike Beal, DDAGW, NWDO
 Harriet Croke, USEPA, Region 5 (HRP-8J)
 Mayor Marge Brown, City of Oregon
 Oregon Document Depository - Permit Binder
 ESOI Permit File, DHWM, NWDO
 ESOI Permit Terms & Conditions, DHWM, NWDO
 ec: Michael Terpinski, Supervisor, DHWM, NWDO
 Jeremy Carroll, DHWM, CO
 On-site Inspector, DHWM, NWDO

MODULE K – INTEGRATED GROUND WATER MONITORING PROGRAM

K. MODULE HIGHLIGHTS

The Permittee maintains a network of ground water monitoring wells around the site for the purpose of detecting releases of hazardous constituents from the active (Cell M) and closed disposal units. The monitoring network wells are screened at various depths – from the upper till zone down to bedrock and at various zones in between. The ground water monitoring network does not monitor RCRA units and pre-RCRA areas of concern (AOCs) separately. Generally, with the exception of the Millard Road Cell and Cell M, the monitoring network does not include wells between each RCRA unit and AOC. Due to the proximity of these units/AOCs to one another, the facility is monitored as a whole with a network of wells circumscribing all the units and AOCs.

During the October 1997 sampling event, laboratory analysis confirmed the presence of hazardous constituents in four wells located along the northern boundary of the facility. Although none of these affected wells monitor the primary source of ground water in the area (the bedrock aquifer), the Permittee's permit requires the facility to move into a more advanced stage of ground water protection when constituent detection has been confirmed.

This permit module institutes an Integrated Ground Water Monitoring Program (IGWMP). The IGWMP is designed to coordinate the requirements of three programs: 1) on-going detection monitoring for detection of new contaminant releases; 2) compliance monitoring for detection of concentrations exceeding ground water protection standards; and, 3) RCRA Corrective Action requirements. Specific RCRA Corrective Action requirements are found in Module E of this permit.

The IGWMP applies to the entire facility, including all regulated and corrective action units listed in Module E. Under an integrated program and in accordance with OAC Rule 3745-54-101, the well system, sampling scheme (including parameters monitored, appropriate sampling and analytical methods, and frequency of monitoring), evaluation procedures, record keeping, reporting and any necessary corrective action are coordinated across the site.

The Permittee's "S" wells monitor the contact between the lacustrine clay and the shallow (a.k.a. "upper") till, the "D" wells monitor the contact between the shallow till and the deep till (a.k.a. "lower till" or "hardpan") and sand lenses at that

contact. Due to a ruling May 8, 1991, by the Hazardous Waste Facility Board, these shallow zones are monitored by "S" and "D" wells as an early leak detection system. The Permittee's "R" wells monitor the bedrock, which is considered to be the uppermost aquifer. The data quality requirements are the same regardless of the geologic unit being monitored, such that each well's samples are collected, analyzed and validated as if the well were at the compliance point. Contamination detected in each zone is evaluated in accordance with the exposures associated with each zone defined in the ACL model in Appendix E.11 of the approved Part B permit application.

Wells that do not indicate a potential or known release from the facility are considered to be "unaffected" and are monitored essentially as if they are in detection monitoring according to OAC Rule 3745-54-98. Wells with elevated constituent concentrations, defined by Permit Condition K.2(b)(i) and (ii), K.6(e)(iii) and K.6(f) and (g), are considered to be "affected" and are monitored essentially as if they are in compliance monitoring according to OAC Rule 3745-54-99. A more detailed description of the relationship between these two types of wells can be found in Section E of the approved Part B permit application.

Each well is monitored for at least the constituents listed in Tables K-1, K-2 and K-3 in Permit Condition K.2(b). In addition, the following monitoring wells are monitored for the following additional constituents:

- Affected wells are monitored annually for constituents in the Appendix to OAC Rule 3745-54-98. Affected wells are defined in the module highlights and Permit Condition K.6(d).
- Affected wells, previously-affected wells and adjacent wells (wells in the same horizon and wells in the same cluster monitoring the zone above and/or below the affected well) of either an affected or previously-affected well are monitored semi-annually for elevated constituents or previously-elevated constituents. Elevated constituents are defined in Permit Conditions K.2(b), K.6(c), K.6(D), K.6(e)(iii) and K.6(g).

Data are compared to comparison standards defined in Permit Condition K.2(b)(i) and (ii) and K.6(e)(iii) and subject to confirmation sampling in Permit Conditions K.6(c) and K.6(e)(ii), as a means to determine whether ground water quality has been adversely impacted. In addition to the constituents listed in Tables K-1 and K-2, affected wells and adjacent wells (vertical and horizontal) are also monitored

for any other elevated constituents identified as part of Appendix to OAC Rule 3745-54-98 sampling and Permit Conditions K.6(e), (f) and (g).

The data for elevated constituents are evaluated using the Permittee's ACL Model. The model uses standard risk assessment practices that are consistent with site-wide ground water risk assessment requirements, which will be necessary as part of corrective action under OAC Rule 3745-54-101. The details of the ACL model are presented in Appendix E.11 of the approved Part B permit application.

K.1 Well Location, Installation and Construction
OAC Rules 3745-54-97 through 3745-54-101

The Permittee must maintain a ground water monitoring system to comply with the requirements specified below:

- (a) The Permittee must maintain ground water monitoring wells in conformance with the list in Attachment K-1 at the locations shown on the map in Attachment K-2 and wells installed in accordance with the following:
 - (i) As referred to in the July 2002 Operations and Maintenance Report, in order to determine the full vertical extent of the plumes that exist at MR-3D west of the Millard Road Unit and SW-3D east of the North Sanitary Landfill, the Permittee must install two additional bedrock ground water monitoring wells. One located at well nest MR-3D and MR-3S and the other located at well nest SW-3D and SW-3S. The wells must be installed in accordance with the requirements of Permit Conditions K.1(c) and (e). The installation of the wells shall occur during Phase II of the RCRA facility investigation (RFI).
 - (ii) The ground water monitoring system must yield samples in upgradient wells that represent the quality of the background ground water unaffected by leakage from the facility; and, in downgradient wells, yield samples that represent the quality of water passing the point of compliance. The number and location of monitoring wells must be sufficient to identify and define all logical release pathways from the facility based on site-specific hydrogeologic characterization.

- (b) The Permittee must monitor and maintain the monitoring wells identified in Permit Conditions K.1(a) in accordance with Appendix E.9 of the approved Part B permit application, and with Permit Condition I.1.(c)(ii)(b), including replacement of wells, if needed.
- (c) Abandonment and replacement of an existing network well that has been damaged or rendered inoperable, without change to location, design or depth of the well, will require a Class 1 permit modification in accordance with OAC Rule 3745-50-51. Addition of a monitoring location or removal of a monitoring location from the network will require a Class 2 permit modification in accordance with OAC Rule 3745-50-51. Each of these types of changes must be accompanied by a revised map in Attachment K-2 of the permit terms and conditions. Within 30 days from the date a well is added to the ground water monitoring well network, the Permittee must submit to the director and Ohio EPA, Northwest District Office, all well construction details.
- (d) All wells replaced or removed in accordance with Permit Condition K.1.(c) should be plugged and abandoned in accordance with the *State of Ohio Technical Guidance for Sealing Unused Wells* (State Coordinating Committee on Ground Water, 1996) and *Ohio EPA's Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring* (1995). Well plugging and abandonment methods, and certification must be submitted to the director within thirty (30) days from the date the wells are removed from the monitoring program.
- (e) Whenever any well specified in Permit Condition K.1(a) is replaced for any reason or, if any other well is added to the network (i.e., any well that is not already installed), the Permittee must:
 - (i) Conduct Appendix to OAC Rule 3745-54-98 sampling at that well within one year from the date of installation;
 - (ii) Within one year of the date of installation, collect from that well all ground water samples necessary to develop comparison standards for data from that location for naturally occurring constituents in accordance with Permit Condition K.2(b)(ii)(c);
 - (iii) Whenever any of the wells specified in Permit Condition K.1(a) are replaced, the Permittee must demonstrate to Ohio EPA that the

ground water chemistry at the replacement well meets the criteria in Permit Condition K.1(a) prior to submittal of the next semi-annual data report according to Permit Condition K.7 using means appropriate to the reason for replacement. For all replacement wells, the Permittee must perform a statistical comparison of the water quality at the replacement well with that of the original well;

- (iv) Submit a report to Ohio EPA Northwest District Office detailing the results due to Permit Conditions K.1(e)(i), (ii) and (iii). This report is due along with the semi-annual data report for the event immediately following the end of the first year after the installation of the new well. The schedule for semi-annual reports is found in Permit Condition K.7. The Permittee must enter the Appendix to OAC Rule 3745-54-98 sampling and analysis data generated pursuant to Permit Condition K.1(e)(i) into the operating record as described in Permit Condition K.7;
- (v) If the comparison of ground water quality pursuant to Permit Condition K.1(e)(iii) shows a statistically significant difference between that of the original well and the replacement well, then the report described in Permit Condition K.1(e)(iv) must include an evaluation as to whether this difference has an effect on the ground water monitoring program, including the assessment of risk for the ground water medium; and,
- (vi) If any changes are necessary to the ground water monitoring program as a result of a statistically significant difference in ground water quality between a replacement well and the well it replaced, the Permittee must submit a request for permit modification in accordance with Permit Condition K.8.

K.2 Comparison Methods and Ground Water Protection Standard
OAC Rules 3745-54-95 through 3745-54-101

(a) Compliance Point

The Permittee must monitor the wells listed in Attachment K-1 at the locations shown on Attachment K-2 and any other well described in Permit Condition K.1(a) that meet the intent of compliance point wells per OAC

Rule 3745-54-95 for at least the constituents specified in Tables K-1, K-2 and K-3 and in Permit Condition K.2(b) at the following locations:

- (i) Table K-1: Attachment K-1 shallow till ("S") wells, deep till ("D") and bedrock wells ("R").
 - (ii) Table K-2: Attachment K-1 deep till wells ("D") and bedrock wells ("R").
 - (iii) Table K-2, barium and fluoride only: Attachment K-1 shallow till ("S") wells.
 - (iv) Table K-3: Attachment K-1 shallow till ("S"), deep till ("D") and bedrock wells ("R").
- (b) Monitoring Constituents and Comparison Standards

Constituents specified below must be monitored at the locations specified in Permit Condition K.2(a) to determine if the constituent concentration is elevated due to the past or current operations of the facility. A constituent must be considered elevated if its concentration is equal to or greater than the comparison standard in paragraphs K.2(b)(i) or K.2(b)(ii) and an alternate source demonstration in accordance with Permit Condition K.6(i) has not been submitted.

(i) Table K-1. Constituents With Specified Comparison Standards

Constituent	Comparison Standard for Unaffected Wells (µg/L)
acetone	10
benzene	1
chloroform	1
1,1-dichloroethane	1
1,2-dichloroethane	1
1,4-dioxane	50
ethylbenzene	1
methylene chloride	1
methyl ethyl ketone	10
total phenols	5
tetrahydrofuran	2
toluene	1
1,1,1-trichloroethane	1
trichloroethene	1
vinyl chloride	2
total xylenes	1
cadmium (dissolved)	1
chromium (dissolved)	25
dissolved lead	5
cyanide	10

(ii) Table K-2. Constituents With Comparison Standards determined in accordance with the following requirements:

Constituent
Barium (dissolved)
Chloride
Fluoride
Sodium

- (a) The Permittee must evaluate the first analytical result of each constituent in Table K-2 at each well in the monitoring system and determine, based on historical data at the site, regional data, geologic information and other relevant information, whether the constituent concentration at each well has been affected by past or current operations at the facility per Permit Condition K.6(c). The determination and justification supporting the determination must be submitted with the first semi-annual final data.
- (b) In the case that the Permittee finds, in accordance with Permit Condition K.2(b)(ii)(a), that the concentration (first analytical result following the approval of this permit modification) of a constituent at a well has been affected by past or current operations at the facility or the director does not concur with the Permittee's findings that it is not elevated, then that constituent at that well will be considered elevated until demonstrated, to the director's satisfaction, that it is not elevated due to past or current operations of the facility.
- (c) In the case that the Permittee finds, in accordance with Permit Condition K.2(b)(ii)(a), that the concentration (first analytical result following the approval of this permit modification) of a constituent at a well has not been affected by past or current operations at the facility, then the Permittee must develop comparison standards using intrawell statistical methods in accordance with OAC Rule 3745-54-97(G), (H) and (I). If there are less than 8 historical data points for background, then the Permittee must collect the necessary background data within the first year following the approval of this permit modification. Background must be updated in accordance with the procedures in Permit Condition K.2(b)(ii)(d) until the background data set consists of at least 16 data points.

- (d) Background for comparison standards developed in accordance with Permit Condition K.2(b)(ii)(c) and OAC Rule 3745-54-97(G), (H) and (I) may be updated in accordance with the following requirements:
 - (i) Background is not updated with less than 4 new data points at any one time.
 - (ii) The new background (previous background data plus new background data) must be checked for slowly increasing trends. If a slowly increasing trend is identified, then the background must not be updated unless concurrence from Ohio EPA is received that the Permittee has adequately demonstrated that the increasing trend is not the result of a release from the facility.
 - (iii) Background updates must be accumulative and not a moving window, unless a trend is identified in the background data. As required in Permit Condition K.2(d)(ii), the Permittee must adequately demonstrate that the identified trends are not the result of a release from the facility before the background update would be accepted by Ohio EPA.
 - (iv) When a trend in background data has been identified and it has been adequately demonstrated to not be the result of a release from the facility, then a moving widow background should be used. The size of the moving window will be dependent upon the rate of change and the best balance between background size and variance.
- (iii) In addition to the constituents in Tables K-1 and K-2, the Permittee must collect and analyze samples from each well for the parameters listed in Table K-3 below. For each of the Table K-3 parameters, except for temperature, for wells defined as affected in accordance with permit condition K (the module highlights), the Permittee must also present a graph of analytical results versus

time (current analytical result and all applicable historical analytical results) and provide a qualitative discussion correlating any anomalies, trends, or changes in ground water quality to any observed changes in indicator parameter analytical results, in accordance with the schedule in Permit Condition K.7.

Table K-3. Ground Water Quality Parameters

Parameters
pH
specific conductance
temperature
turbidity

Note: The parameters in Table K-3 will be measured in the field in accordance with the Permittee's Standard Operating Procedures for the collection of ground water samples as described in Appendix E.9 of the Part B Permit Application. These parameters will be collected to demonstrate that the collected ground water samples are representative of formation water.

(c) Concentration Limits

In lieu of establishing individual concentration limits for elevated constituents determined in Permit Condition K.2(b)(i) and (ii), K.6(c), (d), (e)(iii) and (g), per OAC Rule 3745-54-94 for the affected wells and their constituents, the Permittee must apply the ACL Model in accordance with Appendix E-11 of the approved Part B permit application.

(d) Compliance Period

The Permittee must monitor for the constituents identified in Tables K-1, K-2 and K-3 in Permit Condition K.2(b) during the compliance period described in Permit Condition I.1(c).

K.3 Corrective Action Program

OAC Rules 3745-54-98, 3745-54-99, 3745-54-100 and 3745-54-101

When target risk levels, calculated in accordance with the ACL model in Appendix E-11 of the approved Part B permit application, are exceeded in the wells listed in K.2(a), the Permittee must:

- (a) In accordance with OAC 3745-54-99(H), notify the director in writing within seven days of this finding.
- (b) Within 90 days of this finding, submit a permit modification to establish and implement a correct action program that prevents constituents in the ground water from exceeding the risk standards specified in Permit Condition K.6(l)(i) by removing the hazardous waste constituents or by treating them in place. If corrective action pursuant to OAC Rule 3745-54-101 and Permit Module E is already occurring, then any corrective action necessary in response will be coordinated with Permit Module E to the extent practical.
- (c) The Permittee may demonstrate that a source other than the facility caused exceedance of the ACL risk goal or that the exceedance is an artifact caused by an error in sampling, analysis or statistical evaluation or natural variation in the ground water. In making such a demonstration, the Permittee must:
 - (i) Notify the director in writing, within seven (7) days of determining that the facility has reached or exceeded the ACL risk goal of the intent to make a demonstration.
 - (ii) Include in the Final Report in Permit Condition K.7(c)(v) a report which successfully demonstrates that a source other than the facility caused the standard to be exceeded of that the apparent noncompliance with the standards resulted from error in sampling, analysis or evaluation.
 - (iii) Include in the Final Report in Permit Condition K.7(c)(v) an application for a permit modification to make any appropriate changes to the IGWMP at the facility.

- (iv) The Permittee may make this demonstration in addition to, or in lieu of, submitting a permit modification application to modify the IGWMP for corrective action as required by Permit Condition K.3(b) and OAC Rule 3745-54-99(H)(2). However, the same period of ninety (90) days is required for both a successful "Other Source Demonstration" and the submittal of the permit modification application in accordance with Condition K.3(b). The Permittee is not relieved of the ninety (90) day requirement for a permit modification unless the "Other Source Demonstration" is deemed successful by the Agency prior to the ninety (90) day time limit.
- (v) Continue to monitor in accordance with the IGWMP at the facility.

K.4 Sampling and Analysis Procedures
OAC Rule 3745-54-97(D) and (E)

The Permittee must use the following techniques and procedures when obtaining and analyzing samples from the ground water monitoring wells described in Permit Condition K.1:

- (a) Ground water elevations must be measured using the techniques described in Appendix E.9 of the approved Part B permit application.
- (b) Each well must be checked for the present of immiscible layers using an interface probe prior to purging where dissolved concentrations of any site-specific parameter indicates that immiscible layers could be present using the methods described in Appendix E.9 of the approved Part B permit application.
- (c) Sample Collection
 - (i) Samples must be collected and handled (including well evacuation, sample withdrawal, preservation, containerization, filtration and shipment) to ensure representative samples are obtained using the techniques and equipment described in Appendix E.9 of the approved Part B application.
 - (ii) The Permittee must collect samples from the wells least likely to exhibit ground water contamination prior to collecting samples from wells with known or suspected ground water contamination.

- (d) Field analysis must be performed using instruments, procedures and forms described in the approved Part B permit application. Instruments must be calibrated as described in Appendix E.9 of the approved Part B permit application.
- (e) Sampling equipment must be decontaminated using techniques described in Appendix E.9 of the approved Part B permit application.
- (f) Purge water must be disposed in accordance with procedures described in Appendix E.9 of the approved Part B permit application.
- (g) Laboratory Analysis
 - (i) Laboratory analytical methods, detection limits and sample holding time must be in accordance with techniques described in Appendix E.9 of the approved Part B permit application.
 - (ii) Laboratory selection for sample analysis shall not be contingent upon Ohio EPA approval of laboratories.
- (h) Quality Assurance/Quality Control
 - (i) Quality assurance, including field/lab/equipment blanks, duplicate samples and identification of potential interferences, must be in accordance with the methods described in Appendix E.9 of the approved Part B permit application.
 - (ii) Field and analytical data must be validated in accordance with the procedures specified in Appendix E.12 of the approved Part B permit application and reported as specified in Permit Condition K.7(b)(vi) and (vii).
 - (iii) Chain of custody procedures, including standardized field tracking reporting forms, and sample labels, must be in accordance with Appendix E.9 of the approved Part B permit application.

K.5 Ground Water Surface Elevation
OAC Rule 3745-54-97(F)

- (a) The Permittee must determine the ground water surface elevation at each well, including chart recorder wells DUG-1, DUG-2, DDG-3, DDG-1 and CR-1, each time ground water is sampled, and submit the information in accordance with Permit Condition K.7(b)(xv).
- (b) The Permittee must report, in writing to the Ohio EPA, Northwest District Office, the surveyed elevation of the tops of casing, ground surface and/or aprons, and protective casings of any new or replacement monitoring wells specified in Permit Condition K.1(c) within 30 days of the date of installation.

K.6 Monitoring Program and Data Evaluation
OAC Rules 3745-54-96, 3745-54-98, 3745-54-99 and 3745-54-100

The Permittee must establish and implement an IGWMP as effective as the programs for detection monitoring under OAC Rule 3745-54-98 (ability to detect releases from the facility); compliance monitoring under OAC Rule 3745-54-99 (ability to determine if corrective action is required); and, where necessary, corrective action monitoring under OAC Rules 3745-54-100 and 3745-54-101 (ability to return the ground water to concentrations meeting the acceptable target risk levels using the ACL model). The Permittee must determine ground water quality as follows:

- (a) The Permittee must collect, preserve and analyze samples in accordance with Permit Condition K.4.
- (b) The Permittee must semi-annually determine the concentrations of the constituents specified in Tables K-1, K-2 and K-3 in Permit Condition K.2(b) throughout the compliance period and any extensions due to corrective action implementation, to demonstrate conformance with the ground water protection standard. Sampling for this determination must occur in April and October of each year. Analysis results for the samples must be submitted to Ohio EPA Northwest District Office and entered into the operating record in accordance with OAC Rule 3745-54-73 and Permit Condition K.7.

- (c) During each semi-annual sampling event, the Permittee must compare the concentrations of the constituents in Permit Condition K.2(b)(i) and (ii) in each well to the comparison standards specified or established in Permit Condition K.2(b)(i) and (ii) as indicated in Section E-6b of the approved Part B permit application. When the initial sample concentration of a constituent is equal to or exceeds its associated comparison standard in Permit Condition K.2(b)(i) or exceeds its associated comparison standard in Permit Condition K.2(b)(ii), the Permittee must re-sample the well(s) in question in duplicate. The duplicate samples will be analyzed by two independent laboratories. If the independent laboratory results have a relative percent difference of 30% or less, then the exceedence will be considered confirmed only if the analysis results from both laboratories exceed the associated comparison standard. If the independent laboratory results have a relative percent difference greater than 30%, then the exceedence will be considered confirmed if either result exceeds the associated comparison standard. If the exceedence is confirmed, the constituent will be considered to be elevated and the well will be considered to be affected. If the exceedence is not confirmed, the constituent will be considered to be not elevated and the well will remain unaffected and in detection monitoring, except as described in Permit Condition K.6(d), below:
- (d) If multiple non-naturally occurring constituents are confirmed in an unaffected well but at concentrations less than their associated comparison standards, then the Permittee must note this occurrence in the sampling report for that event. Ohio EPA will determine on a case-by-case basis whether such constituents and wells must be considered elevated constituents and affected wells.
- (e) Elevated Constituents
- (i) Sampling and analysis of constituents listed in Appendix to OAC Rule 3745-54-98 must be conducted in accordance with the following:
- (a) Whenever the concentration of a hazardous constituent listed in Permit Condition K.2(b)(i) is confirmed to be equal to or greater than its associated comparison standard, or whenever the concentration of a constituent listed in Permit Condition K.2(b)(ii) is confirmed to exceed its associated

comparison standard at an unaffected well, the Permittee must conduct Appendix to OAC Rule 3745-54-98 sampling at all of the monitoring wells in that particular cluster and at adjacent wells screened in the same horizon as described in Section E.8b of the approved Part B permit application, initiated no later than the next regularly scheduled sampling event.

- (b) Whenever the concentration of a non-hazardous (i.e., chloride, fluoride, sodium) constituent listed in Permit Condition K.2(b)(ii) is confirmed to exceed its associated comparison standard at an unaffected well, the Permittee must conduct Appendix to OAC Rule 3745-54-98 sampling at the monitoring well that exceeded its associated comparison standard for the non-hazardous constituent. If an Appendix to OAC Rule 3745-54-98 constituent is detected above its associated comparison standard, sampling for Appendix to OAC Rule 3745-54-98 constituents at monitoring wells in that particular cluster and at adjacent wells screened in the same horizon as the well that exceeded its comparison standard will be conducted. Procedures described in Section E-8b of the approved Part B permit application must be initiated no later than the next regularly scheduled sampling event.
- (ii) The Permittee may confirm the initial results of Appendix to OAC Rule 3745-54-98 sampling conducted pursuant to Permit Condition K.6(e)(i) in the same manner as described in Permit Condition K.6(c); otherwise any constituents reported initially will be assumed to be present.
- (iii) All non-naturally occurring constituents reported to be present during the Appendix to OAC Rule 3745-54-98 sampling in accordance with Permit Condition K.6(e)(i) and (ii) must be considered elevated. For naturally occurring constituents the Permittee must determine if the constituents are elevated by developing comparison standards in accordance with the requirements of Permit Condition K.2(b)(iii).

- (iv) The Permittee must report to the director in writing, according to the schedule in Permit Condition K.7:
 - (a) The change in status from unaffected to affected for the wells found to have elevated constituents in accordance with Permit Conditions K.6(c) through (g);
 - (b) The concentrations of all constituents reported following the Appendix to OAC Rule 3745-54-98 sampling in Permit Conditions K.6(e)(i) and (ii), K.6(f) and K.6(g).
 - (c) A list of elevated constituents for each well; and
 - (d) A permit modification request to add the elevated constituents to the constituent list for the affected wells and the wells monitoring the vertical and horizontal extent of elevated constituents (adjacent wells in the same horizon and wells in the same cluster monitoring the zone above or below). The Permittee must begin sampling for the elevated constituents in the associated affected wells and adjacent (vertical and horizontal) wells during the next semi-annual sampling event.

- (f) If the results of Appendix to OAC Rule 3745-54-98 sampling in accordance with Permit Condition K.6(e) indicate constituents are present exceeding comparison standards, in accordance with Permit Condition K.6(e)(iii), in any of the wells adjacent to the well with the initial exceedence of a comparison, determined in accordance with Permit Condition K.2.(b)(i) and (ii), then the Permittee must conduct additional Appendix to OAC Rule 3745-54-98 sampling using the well sampling strategy described in Permit Condition K.6(e) not later than the next regularly scheduled sampling event at these adjacent wells. A well need only be sampled once within a given sampling event, excluding resampling or confirmation considerations, to meet the requirements of this Permit Condition, even if it is identified for this sampling more than once due to overlap.

- (g) The Permittee must analyze samples from all affected monitoring wells for all constituents contained in the Appendix to OAC Rule 3745-54-98 annually to determine if there are any new elevated constituents. The

Permittee may confirm the initial results of this sampling in the same manner as described in Permit Condition K.6(c); otherwise, any constituents reported initially will be assumed to be present. The Permittee must identify the constituents that are elevated in accordance with the procedures in Permit Conditions K.2(b)(ii) and K.6(e)(iii). The Permittee must report the analysis results and identify any new elevated constituents to the director in writing as well as submit a modification request to add any newly identified elevated constituents to the constituent list for the affected wells and the adjacent wells (vertical and horizontal), according to the schedule in Permit Condition K.7(c)(iii). The Permittee must begin sampling and analyzing for the new constituents in the associated affected wells during the next semi-annual sampling event.

- (h) Affected well will revert to unaffected status when there have been no elevated constituents detected at the well for three consecutive sampling events. Non-naturally occurring constituents at the site listed in Permit Condition K.2(b)(i) or the Appendix to OAC Rule 3745-54-98 are no longer considered elevated when they have not been detected for three consecutive sampling events. Naturally occurring constituents listed in Permit Condition K.2(b)(i) or K.2(b)(ii) or the Appendix to OAC Rule 3745-54-98 are no longer considered elevated when they are less than the associated comparison standard for three consecutive sampling events. Constituents that were added to a well's sampling and analysis list must remain on the well's sampling and analysis list.

- (i) If a constituent's analytical result is equal to or greater than its comparison standard determined in accordance with Permit Conditions K.2.(b), K.6.(c), (e), (f) or (g), then, in accordance with OAC Rule 3745-54-98(G)(1), the Permittee must notify the director, in writing, within seven (7) days of this finding. The notification must indicate what chemical parameters or hazardous constituent have shown statistically significant evidence of contamination. The Permittee may demonstrate that a source other than the facility caused the contamination or that the detection is an artifact caused by an error in sampling, analysis or statistical evaluation or natural variation in the ground water. In making such a demonstration, the Permittee must:
 - (i) Notify the director, in writing, within seven (7) days of determining that a constituent has reached or exceeded its comparison standard, of the intent to make a demonstration.

- (ii) Include in the Final Report in Permit Condition K.7(c)(v) a report which successfully demonstrates that a source other than the facility caused the newly elevated constituent(s), or that the newly elevated constituent(s) exceedance resulted from error in sampling, analysis or evaluation.
- (iii) Include in the Final Report in Permit Condition K.7(c)(v) an application for a permit modification to make any appropriate changes to the IGWMP at the facility.
- (iv) If this exceedance also causes an exceedance of the risk standard in the ACL model in Appendix E.11 of the approved Part B permit application, the Permittee may make this demonstration in addition to, or in lieu of, submitting a permit modification application to modify the IGWMP for corrective action as required by Permit Condition K.3(c) and OAC Rule 3745-54-99(H)(2). However, under Permit Condition K.3(c), the same period of ninety (90) days is required for both a successful "Other Source Demonstration" and the submittal of the permit modification application. The Permittee is not relieved of the ninety (90) day requirement for a permit modification unless this "Other Source Demonstration" is deemed successful by the Agency prior to the ninety (90) day time limit.
- (v) Continue to monitor in accordance with the IGWMP at the facility.
- (j) For each elevated constituent the Permittee must report the extent of the plume. The report must include an isoconcentration map and isoconcentration cross section for each elevated constituent. The concentration or value of the parameter must be printed on the map and cross section next to the appropriate well location and concentration contours must be drawn on the map and cross section. The estimated extent of the plume must be indicated on the map and cross section. The report must include an evaluation of the need for additional monitoring wells to determine the full extent of the plume. If additional wells are needed to determine the extent of the plume, a Class 2 permit modification in accordance with Permit Condition K.1(c) must be included in the report. This report information must be included in each Final Data Report and Evaluation submitted in accordance with the schedule in Permit Condition K.7(c)(vi).

- (k) The Permittee will evaluate all elevated constituents in accordance with the ACL model in Appendix E.11 of the approved Part B permit application.
- (l) When evaluating the results of the ACL model:
 - (i) The comparison standard for noncarcinogenic risk is a hazard index of unity. The comparison standard for carcinogenic risk is 1.0×10^{-5} . The Permittee must calculate the total noncarcinogenic and carcinogenic risks for all of the constituents detected (and confirmed, optionally or as required) in all of the unaffected and affected wells, in accordance with the scenarios described in Appendix E.11 and Data Usability Guidelines in Attachment F of Appendix E.12 of the approved Part B permit application.
 - (ii) If the total noncarcinogenic and carcinogenic risks in a particular vicinity do not exceed their respective standards in Permit Condition K.6(l)(i), then routine monitoring will continue.
- (m) Applying the ACL Model
 - (i) If the results of the ACL model indicate that the Permittee has not met the risk standards in Permit Condition K.6.(l)(i), then corrective action will apply, and must be conducted in accordance with Permit Condition K.3.
 - (ii) In addition to the risk standards for the ACL model, no concentrations in the uppermost aquifer in excess of maximum concentration levels (for constituents that have them) are permitted to leave the facility, including easements and rights-of-way. If such an exceedence occurs, then corrective action will apply, and must be conducted in accordance with Permit Condition K.3.
- (n) The Permittee must determine and report the ground water flow rate and direction in the uppermost aquifer semi-annually in accordance with Permit Condition K.7(b)(xvi).

K.7 Record Keeping and Reporting
OAC Rule 3745-54-75

- (a) The Permittee must submit semi-annually both a Preliminary Data Report and a Final Data Report and Evaluation for each semi-annual sampling and analysis event, conducted in April and October each year. Preliminary Data Reports must be submitted on or before July 1st for April events and January 2nd for October events. Final Data Reports and Evaluations must be submitted on or before September 1st for April events and March 1st for October events. If any of these dates fall on a weekend or state holiday, the reports will be due no later than the following business day. The reports must be submitted to Ohio EPA Northwest District Office and entered into the operating record in accordance with OAC Rule 3745-54-73. The Permittee must maintain all documentation from the laboratories regarding analysis of ground water samples. Ohio EPA may require submittal of a copy of the full quality assurance/quality control (QA/QC) report for a particular event if circumstances warrant; but, in general, this will not be required except as described in Permit Conditions K.7(b) and (c).
- (b) Preliminary Data Reports required by Permit Condition K.7(a) must include all the information listed below for: 1. Replacement well sampling required by Permit Condition K.1(e); 2. Background sampling for statistics required by Permit Condition K.2(b)(ii)(c); 3. Semi-annual sampling and analysis events required by Permit Condition K.6(b); 4. Appendix to OAC Rule 3745-54-98 sampling and analysis required by Permit Condition K.6(e)(i) and K.6.(f); and, 5. Annual Appendix to OAC Rule 3745-54-98 sampling and analysis required by Permit Condition K.6(g).
- (i) The laboratory results from each of the wells, including duplicates, and their associated data qualifiers;
- (ii) The date each well was sampled (tabulated);
- (iii) The date, time and identification of all blanks and duplicates (tabulated);
- (iv) Any field log documenting deviation from the procedures in Appendix E.9 of the approved Part B permit application including documentation of parameter omissions during the sampling event;

- (v) The date the Permittee received the results from the laboratory.
- (vi) The date the owner or operator completed their review of the analytical laboratory's verification of the accuracy and precision of the analytical data and determined its quality. This review must be based upon the elements in Permit Condition K.7(b)(vii) and the data validation procedures in Appendix E.12 of the approved Part B permit application. Compliance will be facilitated by referring to:

Ohio EPA Technical Guidance Manual for Hydrogeologic Investigations and Ground Water Monitoring, February 1995;
- (vii) The results of the data validation review per K.7(b)(vi) including: report completeness, chain of custody, sample receipt form, signed statement of validity, technical holding time review, data qualifiers including their definitions, dilutions, blank data, spikes, spike recovery %, surrogate recovery, and an explanation of any rejected results consistent with the U.S. EPA and Ohio EPA guidelines for data review;
- (viii) The results from all blanks (temperature, trip, field, equipment, method, etc.), matrix spike analysis, and laboratory control samples;
- (ix) Results of the field parameters;
- (x) All Chains-of-Custody;
- (xi) A list of affected wells;
- (xii) The constituent lists for the affected wells;
- (xiii) Identified of the person(s) performing the statistical evaluation;
- (xiv) Ground water elevation data, tabulated and evaluated as required by Permit Conditions K.5(a) and K.6(n);
- (xv) Potentiometric surface maps for each monitored zone based on the ground water elevation data [one map for each zone based on data from all wells and five maps (one for each month preceding the sampling event) for the bedrock aquifer based on data from DUG-1,

DUG-2, DDG-3, DDG-1 and CR-1], whether the data are
contourable or not; and,

- (xvi) A discussion of flow characteristics, including any changes in
ground water flow direction in the bedrock zone.
- (c) Final Data Reports and Evaluations required by Permit Condition K.7(a)
must include the following:
- (i) The information specified in Permit Condition K.7(b)(i) through (xiii)
for all resampling and analysis and confirmation sampling and
analysis conducted to satisfy the requirements of the Permit
Conditions referenced in paragraph K.7(b);
 - (ii) The date of completion of all data evaluation (ACL model, statistical
analysis, etc.);
 - (iii) In accordance with Permit Condition K.6(c) and (g), identification of
elevated constituents for each well; in accordance with Permit
Condition K.6(d), identification of non-naturally occurring
constituents that are confirmed in an unaffected well but at
concentrations less than their associated comparison standards; in
accordance with Permit Condition K.6(e)(iv), notice of change in
well status from unaffected to affected; and, in accordance with
Permit Condition K.6(h) notice of change in well status from
affected to unaffected, and change in constituent from elevated to
non-elevated;
 - (iv) Reserved;
 - (v) Plan maps, cross sections, and evaluations for each elevated
constituent showing the extent of the plume in accordance with
permit Condition K.6(j);
 - (vi) The results of applying the ACL model, including a discussion of
the effect of using any qualified data;
 - (vii) A report on the effectiveness of the IGWMP, performed by a
qualified hydrogeologist; and,

- (viii) A report on, and schedule for, any permit modification requests to be submitted in accordance with Permit Condition K.8. Permit modification requests may include, but are not limited to, those required by Permit Conditions:
 - (a) K.1(c), to add, remove or replace wells;
 - (b) K.1(e)(vi), for changes to the program as a result of a difference in ground water quality between a well and a replacement well;
 - (c) K.3(b) and (c)(iii), to establish a corrective action program meeting the requirements of OAC Rules 3745-54-100 and 3745-54-101;
 - (d) K.6(e)(iv)(d) and K.6(g), to add constituents to sampling and analysis lists for affected wells and adjacent wells;
 - (e) K.6(i)(iii), for changes to the program as a result of a demonstration;
 - (f) K.6(j), add wells to determine extent; and,
 - (g) K.8 changes as a result of the Permittee or the director determining that the IGWMP established by this Permit no longer satisfies the regulatory requirements.

- (d) The Permittee must submit an annual report to the director by March 1st of each year. The Permittee may submit this report in conjunction with the October sampling event Final Data Report [see Permit Condition K.7(a)]. Annual reports must reference the titles and dates of the semi-annual reports and any updates to those reports (for example, due to confirmation sampling, comments by Ohio EPA, etc.), but generally do not need to include duplicates of hard copies previously submitted. The annual reports must include at least a copy on disk of all ground water analyses and elevations, blank data, and a hard copy of well-specific information (location, depth, etc.) for any new/replacement wells in the format selected by Ohio EPA, as well as any other information specified in the instructions for the annual report not addressed in this Permit Condition.

K.8 Request for Permit Modification

OAC Rules 3745-54-98(H), 3745-54-99(J), 3745-54-100(H) and 3745-54-101

If the Permittee or the director determines that the IGWMP established by this Permit no longer satisfies the regulatory requirements, then the Permittee must submit an application for a permit modification within 90 days of this determination to make any appropriate changes to the program.

K.9 Compliance Schedule

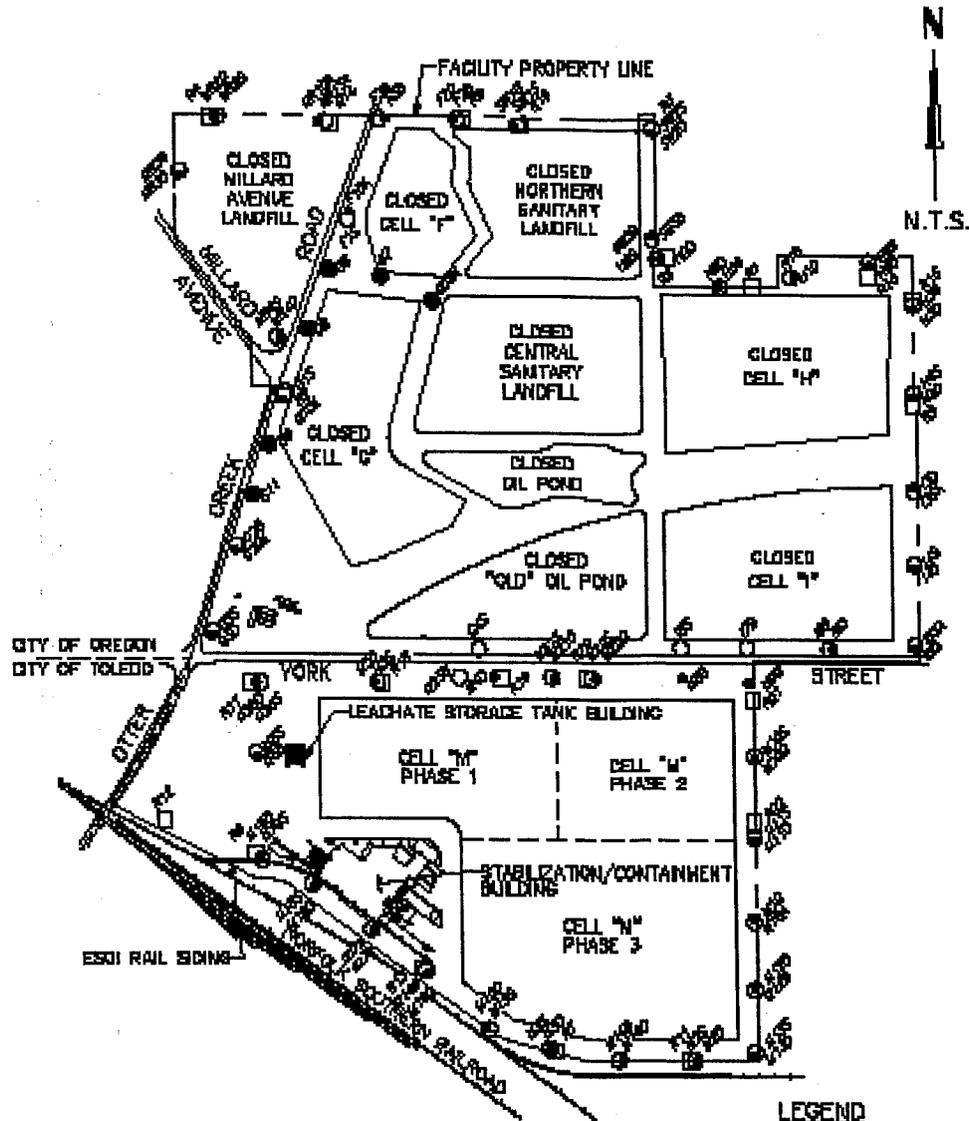
The Permittee must submit to Ohio EPA within ninety (90) days after permit journalization an updated Section E of the permit application which addresses all the comments outlined in Attachment A of the permit.

ATTACHMENT K-1
Monitoring Wells in the Integrated Ground Water Monitoring Program
Permit Condition K.1.(a)

"S" Wells		"D" Wells		Bedrock Wells
F1S	M6S	F1DA	M4D	R-1
F2S	M10S	F2D	M5D	R-2
F3S	M11S	F3D	M6D	R-3
G1S	M12S	G1DA	M8D	R-4
G2S	M13S	G2DA	M9D	R-5
G3S	M14S	G3D	M10D	R-6
G4S	M15S	G6	M11D	R-7
H1S	M16S	G7	M12D	R-8
H2S	M17S	G8	M13D	R-9
H3S	M18S	G9	M14D	R-10
H4S	M19S	G10A	M15D	R-11
H5S	M20S	G11	M16D	R-12
H6S	M21S	H1D	M17D	R-13
I3SA	M22S	H2D	M18D	R-14
I4S	M23S	H3D	M19D	R-15
I5SA	MR1SA	H4D	M20D	R-16
I6S	MR2S	H5D	M21D	R-17
I7S	MR3S	H6D	M22D	R-18
I8S	MR4S	I3D	MR1DA	R-19
M1S	SW1S	I4D	MR2D	R-20
M2S	SW2S	I5D	MR3D	R-21
M3S	SW3S	I6D	MR4D	R-22
M5S		M1D	SW1D	CR-1*
		M2D	SW2D	DDG-1*
		M3D	SW3D	DDG-3*
				DUG-1*
				DUG-2*

*Bedrock Water Level Monitoring Wells. These wells are utilized for collecting water level measurements only.

ATTACHMENT K-2
 Integrated Ground Water Monitoring Program
 Map of Monitoring Well Locations



NOTE
 SYMBOLS REPRESENT MONITOR WELL TYPE
 WITHIN EACH CLUSTER BUT DO NOT REFLECT
 EXACT LOCATION WITHIN THE CLUSTER.

LEGEND
MONITORING WELLS
 □ BEDROCK WELL
 ● DEEP WELL SAND
 ■ DEEP WELL TILL
 ○ SHALLOW WELL