

*****REMOVE THIS INSTRUCTION PARAGRAPH PRIOR TO SUBMITTAL*****

The following template provides a format for drafting an operation and maintenance plan under Ohio's Voluntary Action Program when an operation and maintenance plan is required by OAC 3745-300-11. This template contains sections based on the minimum plan components described by OAC 3745-300-11(F)(1). The NFA letter that is issued for the property would include the plan, as required by OAC 3745-300-13(B)(6). Each section of the operation and maintenance plan should, at a minimum, provide the information indicated below, as outlined in OAC 3745-300-11(F). No sections should be omitted. Please indicate when relevant information is not applicable for a certain section. The operation and maintenance plan should be updated and resubmitted under an addendum to the NFA letter when responding to Ohio EPA NFA Letter review comments. Fill in all [bracketed] text with the corresponding site-specific information, and remove the brackets prior to submittal. Remove all parenthesized and italicized instructional text prior to submittal.

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Operation and Maintenance Plan

for the:

[Property Name] Property

[Property Street Address]

[Property City], [Property County], Ohio [Zip Code]

[Volunteer(s) Name(s)], Volunteer

[Volunteer(s) Address(es)]

[Property Owner(s) Name(s)], Property Owner

[Property Owner(s) Address(es)] *(If different from Volunteer, otherwise delete and specify above that the Volunteer is also the Property owner)*

**NFA Letter Issued by: VAP Certified Professional [CP Name], [CP Number] with
[CP Firm/Company], [Address of CP Firm/Company address], [CP Work Phone
Number]**

[Date] *(Add additional dates as needed)*

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- [Example: Appendix A Inspection Form]
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Section 1.0 – Purpose of the Operation and Maintenance Plan (OAC 3745-300-11(F)(1)(a))

The purpose of this operation and maintenance (O&M) plan is to ensure this property maintains compliance with Ohio EPA Voluntary Action Program (VAP) applicable standards through the remedial activities described herein. The remedial activities contained in this operation and maintenance plan are to: *(check all that apply)*

- Operate and monitor an active remedial system/remedy
- Maintain and monitor an engineering control
- Monitor passive remediation via sampling events
- Other(s) (describe : _____ (Type in description of 'other' on this line) _____)

Section 2.0 – Identification of Remedial Activities Subject to the O&M Plan (OAC 3745-300-11(F)(1))

Remedial activities subject to this O&M plan include:

(List the remedial activities subject to this O&M plan)

1. [Example language: A parking lot engineering control.]
2. [Example language: A ground water gradient control system.]
3. [Etc., etc.]

Figure [INSERT FIGURE LABEL HERE] shows the location of the remedial activity(ies) identified above on the property. The remedial activity(ies) identified above has/have been built or implemented prior to the issuance of the no further action (NFA) letter.

Section 3.0 – Description and Purpose of the Remedial Activities Subject to the O&M Plan (OAC 3745-300-11(F)(1)(b))

(Provide a description of and the purpose for the remedial activities subject to this O&M plan)

1. [Example language: The parking lot was constructed on the western end of the property in 2015 as an engineering control remedy. It is approximately 1000 sq. ft. in size, 10 inches thick, and made of asphalt. Its purpose is to prevent human exposure to soils within the industrial/commercial point of compliance (two feet below ground surface) because soils beneath the parking lot exceed VAP applicable standards for direct contact for metals and semi-volatile organic compounds.]

2. [Example language: The ground water gradient control system, which was constructed in 2014, is an active remedy that consists of four pumping wells advanced in the shallow Class A ground water zone. The purpose of the system is to prevent Class A ground water from migrating past the property boundary in excess of VAP unrestricted potable use standards for metals.]

Section 4.0 – Applicable Standards Subject to the O&M Plan (OAC 3745-300-11(F)(1)(a) and (OAC 3745-300-11(F)(1)(c)(v))

(Provide a summary of the applicable standards subject to the O&M plan, and how the remedial activities subject to this O&M plan are achieving applicable standards. If ground water on the property is critical resource, be sure to specifically provide a description of the activities that will be conducted to comply with the response requirements for critical resource ground water, as required by OAC 3745-300-11(F)(1)(c)(v).)

[Example language: The VAP applicable standards subject to this O&M plan include direct contact soil standards for commercial/industrial land use and unrestricted potable use standards for Class A ground water without an urban setting designation. This O&M plan is required for the parking lot, which is an engineering control preventing direct contact with soil exceeding applicable standards for commercial/industrial receptors, and for the ground water gradient control system, which is operating to prevent Class A ground water from migrating past the property boundary in exceedance of unrestricted potable use standards (UPUS).]

(Fill in the table below as applicable. Current table has been populated by example language, which should be removed.)

Table 1: Applicable Standards and Remedial Activities Subject to the O&M Plan

Remedial Activity	Media	Point of compliance	Exposure Pathway	Receptor	Chemicals of concern	Applicable Standards
Parking lot	Soils	2 feet below ground surface	Direct contact with	On-property	Arsenic Lead	VAP generic numerical

			soil	commercial /industrial workers	Benozo(a)-pyrene Carbazole	direct contact soil standards
Gradient control system	Ground water	Property boundary	Potable uses	Off-property populations	Antimony Arsenic Lead	Unrestricted potable use standards
<i>(Add on additional rows to table as needed)</i>						

Section 5.0 – Evaluating the Effectiveness of the Remedial Activities (OAC 3745-300-11(F)(1)(c))

Section 5.1- Purpose and General Description of the Activities to Evaluate the Effectiveness of the Remedial Activities

(Provide a general description of the activities that will be performed to determine the effectiveness of the remedial activity(ies) in meeting or maintaining compliance with applicable standards subject to this O&M plan. Provide the purpose and objective of these activities.)

[Example language: To determine the effectiveness of the parking lot engineering control, the surface of the parking lot will be inspected x-annually, or at any time the volunteer has cause to believe the engineering control needs repair, for cracks or other breaches. The purpose of this activity is to ensure the contaminated soils underneath the parking lot do not become exposed to commercial/industrial workers on the property. The parking lot engineering control inspection form included in Appendix A will document the findings of the semi-annual engineering control inspections.

[Example language: To determine the effectiveness of the ground water gradient control system, ground water samples will be collected from the network of seven monitoring wells. Figure A depicts the location of the seven monitoring wells on the property. The purpose of the ground water monitoring is to verify that ground water is not migrating past the property boundary in exceedance of unrestricted potable use standards. Ground water samples will be collected for x consecutive quarters and analyzed by a VAP certified lab. Ground water data will be compared to VAP unrestricted potable use standards. The results of the ground water monitoring will be provided to Ohio EPA as part of the annual O&M plan

report. Further information on the ground water monitoring protocol can be found in Section 5.2)]

Section 5.2 – Monitoring and Data Collection Activities and Schedules

(Provide a summary of procedures for data collection, field testing, sampling, and/or data analysis, and provide a description of the anticipated length and planned frequency of each monitoring activity that will be performed to evaluate the effectiveness of the remedial activity(ies) subject to this O&M plan.)

[Example language: A designated person will inspect the parking lot in the spring and fall for any cracks or breaches. Any cracks or breaches discovered will be documented in the O&M plan engineering control inspection form found in Appendix x.]

[Example language: Seven sentinel monitoring wells (MW-1S through MW-7S) will be sampled x consecutive quarters to ensure that ground water is not migrating beyond the property boundary in excess of UPUS. Please refer to Figure A for the locations of the monitoring wells. The monitoring wells will be sampled in accordance with OAC 3745-300-07(F)(6)(d)(iii). Quarterly samples will be collected in January, April, July, and October, and analyzed for metals by a VAP certified laboratory. Quality assurance/quality control samples will be collected during the quarterly ground water sampling, including trip blanks and duplicate samples. If COCs are detected in any of the sentinel wells during any of the sampling events, a second sample shall be collected within x days to verify results. If confirmatory samples exceed UPUS, the Volunteer shall notify Ohio EPA within x days of confirmation. Please see Section 8.0 for further information on addressing problems with the ground water remedial activity. Additionally, if during the quarterly maintenance inspection of the ground water pumps (see Section 6.0) it is discovered that a pump is malfunctioning, within x days of discovery of the malfunctioning pump, and x days after installation of the new pump, sentinel ground water wells will be sampled to ensure ground water is not emanating past the property boundary above UPUS.

Section 6.0 – Operation and Maintenance of the Remedial Activities Subject to the O&M Plan (OAC 3745-300-11(F)(1)(b) and (OAC 3745-300-11(F)(1)(d))

(Provide a description of all tasks associated with the operation and maintenance of the remedial activities, including a schedule for all tasks, such as the maintenance and

replacement of monitoring and remedial equipment, and a description of the prescribed treatment or operating conditions for the remedial activity. Also include a description of the monitoring and remedial equipment required to operate and maintain the remedial activity(ies).)

A). Operation Tasks and Schedules:

1). [Example language: Parking lot: No activities are needed to operate the parking lot. The parking lot will operate (e.g., remain intact) at all times and under all conditions as an engineering control.]

2). [Example language: Ground water gradient control system: Three Grundfos ½ horsepower 240 volt ground water pumps were installed in three wells along the northern property boundary. The ground water pumps pump at a rate of x gallons per minute and operate continuously. The ground water pumps will operate at all times and under all conditions, except when undergoing repair or replacement.]

B). Maintenance Tasks and Schedules

1). [Example language: Maintenance tasks for the parking lot will be dependent upon the findings in the semi-annual inspection. If breaches and cracks that may result in soil exposure are identified, they will be repaired within x days of discovery. The repair will consist of filling and asphalt re-sealing for small cracks; larger cracks may require additional asphalt paving. The repair method will be specific to the size of the crack and will be evaluated at the time of discovery.]

2). [Example language: The ground water pumping system will be inspected x to ensure that pumping rates are maintained and the pumps are operating correctly. If it is discovered that a pump is malfunctioning, a new pump will be installed within x days of the discovery. Within x days of discovery of the malfunctioning pump, and x days after installation of the new pump, sentinel ground water wells will be sampled to ensure ground water is not emanating past the property boundary above UPUS.]

Section 7.0 - Adjustments to Normal Operation and Maintenance (OAC 3745-300-11(F)(1)(e))

(Provide a description of the reasonably anticipated adjustments and criteria that may be required to maintain remedial activity effectiveness.)

[Example language: In the event repairs are needed in a certain location of the parking lot, the repair will be made within x days of discovery. If COCs in ground water (see Table 1) are detected above UPUS in the sentinel monitoring wells, or if x consecutive quarters of ground water monitoring shows an increasing statistical trend in concentrations of COCs, pumping rates for the gradient control system will be adjusted.]

Section 8.0 - Identifying and Addressing Potential Problems with the Remedial Activities Subject to the O&M Plan (OAC 3745-300-11(F)(1)(f))

(Provide a description and analysis of the potential operating and maintenance problems with the remedial activities, and a description of the means for detecting these problems, including but not limited to, the schedule for periodic inspection of each remedial activity. Also provide a description of the activities and equipment that will be utilized to correct potential problems with the remedial activities, including but not limited to inspection responses and repair methods.)

[Example language: The annual freeze-thaw effect may cause cracks to form in the asphalt of the parking lot, which may cause the soil beneath the parking lot to become exposed. X-annual visual inspections of the parking lot, as previously described, will be utilized to detect the problem. Any cracks which may result in soil exposure shall be repaired within x days of discovery. Repair may consist of filling and asphalt re-sealing for small areas. Larger areas may require additional asphalt paving. Suitable materials and installation methods depending on the weather conditions will be utilized.

Mechanical problems may cause insufficient gradient control from the ground water pump system. A new pump(s) will be installed within x days of the malfunction discovery. Within x days of discovery of the malfunctioning pump, and x days after installation of the new pump(s), sentinel ground water wells will be sampled to ensure ground water is not emanating past the property boundary above UPUS. Should the electricity be out for more than x hours, a backup generator will be brought in as an alternative source of electricity to operate the pumps.]

9.0 – Record Keeping (OAC 3745-300-11(F)(1)(g))

(Provide a description of all records that will be kept for the purpose of documenting that the requirements of paragraphs (F)(1) and (F)(2) of OAC 3745-300-11 are met.)

10.0 – Reporting on Operation and Maintenance Plan Activities (OAC 3745-300-11(F)(2))

(Replace the bold words located in the paragraph below with site-specific information.)

Following issuance of a no further action letter, **[name of volunteer or other person responsible for the operation and maintenance plan and agreement implementation]** will submit a report annually to the director, under affidavit, on *(Choose one of the dates, delete the other):* **[March 1st] [September 1st]**, beginning in the year **[20xx]**. The report will include the following:

- Results from all remedy effectiveness evaluation activities;
- A demonstration of the performance of all remedial activities subject to the O&M plan;
- A demonstration of how compliance with applicable standards is being met or maintained, including the measures used to maintain the remedy's protectiveness of public health and safety and the environment until the property achieves compliance with applicable standards through a permanent remedy within five years, or other time frame as agreed upon by the director in an operation and maintenance agreement; and
- Confirmation that the remedial activities remain necessary to achieve or maintain applicable standards at the property, or verification conducted in accordance with OAC 3745-300-11(E) that the remedial activities are no longer needed for the property to comply with applicable standards.

11.0 – Termination of the Operation and Maintenance Plan (OAC 3745-300-11(E)(2))

(Provide a plan for terminating the remedial activities subject to this O&M plan. This plan should include, but not be limited to, a description of the remedial activity(ies) for which further implementation of the operation and maintenance plan is no longer necessary to maintain compliance with applicable standards at the property; identification of the information relied upon to demonstrate that the property complies with applicable standards without further implementation of the remedial action; identification and description of the criteria for termination, identification and description of the data that will be collected to support the criteria for termination of the remedial activity subject to the operation and maintenance plan to verify completion of the remedial activity; and identification

and description of the criteria for termination, as appropriate, of the monitoring activity to verify completion of the remedial activity(ies) subject to the O&M plan.)

[Example language: The parking lot engineering control can be terminated upon demonstrating that the soils underneath meet VAP applicable standards for the property.

Termination of the ground water gradient control system can occur when ground water sampling over x years, along with appropriate modeling if necessary, demonstrates a statistic trend that the ground water plume is stable and will not migrate past the property boundary without the use of an active gradient control system.

Verification will be made after the completion of the remedial activities implemented thorough this operation and maintenance plan, in accordance with OAC 3745-300-11(E).]

12.0 – References *(If applicable, otherwise delete section heading)*