Introduction

To help permittees develop a Sampling and Analysis Plan (SAP) that is consistent with the Construction General Permit (CGP), the Arizona Department of Environmental Quality (ADEQ) has created this SAP Template (or, “the Template”). Use of the Template will help ensure that your SAP addresses all the necessary elements required in Part 7.2 of the 2020 CGP.

Before completing the Template, make sure you read and understand the requirements in the CGP. A copy of the CGP is available at [www.azdeq.gov](http://www.azdeq.gov), search for “construction.”

**Using the SAP Template**

* + - * **This Template is designed for use by all construction sites with one or more outfalls within 1/4 mile upstream of an impaired, not-attaining or outstanding Arizona water (OAW), or as otherwise specified by ADEQ.**
* **Complete a SWPPP and this SAP *before* submitting your Notice of Intent (NOI) for permit coverage.**
* **Each section includes “instructions” and space for your construction site’s specific information. You should read the instructions for each section before you complete that section.**
* **The Template was developed in *Microsoft Word* so that you can add tables and additional text. Some sections may require only a brief description while others may require several pages of explanation.**
* **To make it easier to complete, the Template generally uses blue text where the operator is expected to enter information.**

While ADEQ has made every effort to ensure the accuracy of all instructions and guidance contained in the Template, the actual obligations of regulated industrial facilities are determined by the relevant provisions of the CGP, not by the Template. In the event of a conflict between the Template and any corresponding provision of the CGP, the CGP controls. ADEQ welcomes comments on the Template at any time and will consider those comments in any future revision of this document.

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Sampling and Analysis Plan

for:

Insert Construction site Name

Insert Construction site Address

Insert City, State, Zip Code

Insert Construction site Telephone Number

**SWPPP Contact(s):**

Insert SWPPP Contact Name

Insert SWPPP Contact Business Name

Insert SWPPP Contact Business Address

Insert SWPPP Contact Telephone Number

Insert SWPPP Contact Fax/Email

SAP Preparation Date:

**\_\_ \_\_/ \_\_ \_\_ /** **\_\_ \_\_ \_\_ \_\_**

Contents

Instructions:

* Right click on Table of Contents and select ‘Update Field’ 🡪’Update page numbers only’ to update page numbers once the SAP template has been completed with the construction site’s specific information.

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# 1.0 SAMPLING AND ANALYSIS PLAN

This Sampling and Analysis Plan is intended to provide all details required by the Construction General Permit (CGP), Part 7.2. It shall be completed, when required by activity or location, in conjunction with a Stormwater Pollution Prevention Plan (SWPPP) prior to filing a Notice of Intent (NOI) via a myDEQ account.

## Sampling and Analysis Plan Objectives

Instructions:

* Fill in the blanks as appropriate.

There are multiple objectives for this plan:

* Establish sampling protocols and methods for stormwater monitoring and sampling, as required under the CGP;
* Provide sampling locations for <construction site name> , which are identified as <outfall name> , <outfall name> , and <outfall name> and are intended to monitor stormwater quality for discharges into <receiving water> and <receiving water> .
* Document sampling and analysis methods and equipment for collecting representative samples of stormwater that maximize resources;

## Recordkeeping Requirements

Records of monitoring information must include the results of each stormwater monitoring event (Sample Collection Form) and laboratory analyses, including all field calibration and maintenance records.

Monitoring data must be submitted on an electronic Discharge Monitoring Report (eDMR) via a myDEQ account as prescribed in the 2020 CGP, Part 7.5(3)(d). Copies of the analytical test results will be maintained with the construction site records.

## Sampling Personnel

Instructions:

* Complete Table 1 by listing the personnel responsible for collecting, packing and shipping/delivering samples.

**Table 1 – Sampling Personnel**

|  |  |
| --- | --- |
| **Staff Names** | **Specific Responsibilities** |
| Insert name of SWPPP team member or position/title of person responsible for sampling | Insert explanation of responsibilities related to sampling |
| [Repeat as necessary] | [Repeat as necessary] |

## Sampling Requirements

Instructions:

* Check boxes to indicate all monitoring required at construction site
* Complete Table 2 (a,b,etc…) with information related to Outfall(s), SWQS or TMDL/ WLA
* Complete Table 3 with information related to monitoring parameters
* Copy and paste the table for each outfall as necessary
* Complete Table 4 with information related to Additional Monitoring Required by ADEQ

***Check each type of monitoring required*** ***or exceptions taken*** based on activity, receiving water(s), or additional monitoring by ADEQ:

[ ]  Construction site is/has been maintained as Inactive/Unstaffed (documented in SWPPP)

[ ]  Impaired Waters Monitoring without a TMDL

[ ]  Impaired Waters Monitoring with a TMDL

[ ]  Outstanding Arizona Water (OAW) Monitoring

[ ]  Additional Monitoring Required by ADEQ (maintain official correspondence with SWPPP)

**Description of Outfall(s)**

[ ]  A copy of the approved myDEQ Notice of Intent (NOI) Certificate has been included which incorporates by reference the specific monitoring requirements determined by receiving water(s) (Impaired/TMDL, OAW), and additional monitoring required by ADEQ. The attached NOI certificate serves as a summary of monitoring requirements at each outfall (Table 2).

Narrative Description of Outfall ***(Use one table below for each outfall. Copy and paste the table as necessary)***.

[Repeat as necessary]

**Table 2 – Summary of Outfalls**

|  |  |  |  |
| --- | --- | --- | --- |
| **Outfall Name** | **Parameter** | **SWQS, TMDL/ WLA** | **Frequency** |
| Outfall (e.g. OF-1) | Parameter analyzed | Value | Frequency |
| [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] |

**Water Quality Monitoring Parameters**

Complete Table 3 with the sampling requirements for each analyte.

**Table 3 – Sample Requirements**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Analytical Method** | **Target RL** | **Volume of Sample Container** | **Type of Preservative** | **Type of Bottle** | **Holding Time** |
| Parameter analyzed | Method | Target RL | Volume | Preservation | Type of Bottle | Holding Time |
| [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] |

**Quality Assurance/Quality Control Procedures**

Indicate in Table 4 when and how any of the following Quality Assurance/Quality Control (QA/QC) samples will be used:

**Table 4 – Quality Control Procedures**

|  |  |  |
| --- | --- | --- |
| **QC Method** | **Frequency** | **Specific Use** |
| Field Blank | Frequency | specific use |
| Trip Blank | Frequency | specific use |
| Split/Duplicate Samples | Frequency | specific use |
| Matrix Spikes | Frequency | specific use |
| Background Samples | Frequency | specific use |
| Temperature Blanks | Frequency | specific use |
| Rinsate Sample | Frequency | specific use |

**Additional Monitoring Parameters Required by ADEQ**

***(Delete paragraph and Table if not applicable)*** In addition to the parameters listed in Table 1, ADEQ has specifically requested monitoring for the following additional analytes (Table 5):

**Table 5 – Summary of Additional Monitoring Required by ADEQ**

|  |  |  |  |
| --- | --- | --- | --- |
| **Outfall/ Receiving Water** | **Parameter** | **SWQS, TMDL/ WLA** | **Frequency** |
| Outfall (e.g. OF-1) | Parameter analyzed | Benchmark Value | Frequency |
| [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] | [Repeat as necessary] |

## Analytical Methods and Laboratories

**Instructions:**

* Information and procedures related to determining Hardness
* Procedure for comparing monitoring results to WLA in TMDL

Other than parameters required to be sampled at the time of sample collection (e.g. field parameters), ***all samples shall be analyzed by a laboratory that is licensed by the Arizona Department of Health Service (ADHS) Office of Laboratory Licensure and Certification.*** Identification of the analytical methods and related limits of detection (if applicable) for each parameter is required.

***All laboratory analyses shall be conducted according to test procedures specified in 40 CFR 136, unless other test procedures have been specified in this general permit.*** This requirement does not apply to parameters that require analysis at the time of sample collection as long as the testing methods used are approved by ADHS. The permittee may conduct field analysis of turbidity if the permittee has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to properly perform the field analysis.

**NOTE:** *Reporting limits and sample results should be reported to the number of significant figures available or required on the eDMR generated by myDEQ.*

**Hardness**

If hardness characterization of the receiving water included analysis of samples from the ***surface water receiving the discharge*** or ***surface water data collected by a third party*** (provided the data is credible, scientifically defensible and is representative of current conditions), the data and the methodology for determining the hardness values must be ***submitted to ADEQ in the myDEQ eDMR*** to allow ADEQ to compare monitoring results with applicable SWQS. The permittee shall retain all reports and monitoring data in accordance with Part 8.1(2) of the permit.

**Total Maximum Daily Load**

***(Delete paragraph if not applicable)*** If applicable to <construction site name> , once the analytical results have been received, they will be compared to the applicable WLAs in the approved TMDL. Include a copy of each TMDL applicable to the construction site’s stormwater discharges. Approved (and draft) TMDLs can be found here: [www.azdeq.gov](http://www.azdeq.gov), search for “TMDL.”

## Laboratory Information

**Instructions:**

* Complete the Table with information for the laboratory that will be used by the construction site to analyze samples

**Table 4 - Laboratory Information**

|  |  |
| --- | --- |
| Name of Laboratory | **POC:** Name |
| Phone Number | Email Address |
| Street Address  |
| City, State, Zip |

## Sampling Procedures

**Instructions:**

* Include procedures for the sample collection process: from sample collection to getting the samples to the lab

**Event Planning and Preparation**

Enter Description

Some required sampling materials include ***(check those that apply, add items as necessary)***:

|  |  |
| --- | --- |
| [ ]  Sample Collection Form(s) for each outfalls | [ ]  Sample containers for each outfall |
| [ ]  Cooler(s) | [ ]  A temperature blank for each cooler |
| [ ]  Chain-of-Custody (COC) forms and seals | [ ]  Field preservation supplies (ice, lab-supplied chemicals). |
| [ ]  Enter Description | [ ]  Enter Description |

**Access**

Access to the stormwater sampling location(s) is Enter Description (e.g. accessible, restricted, 4x4 vehicle, requires a key, etc.).

**Calibration and Maintenance of Monitoring Equipment and Instrumentation**

All monitoring instruments and equipment (including the field instruments for measuring pH and turbidity) shall be calibrated and maintained in accordance with the manufacturer's recommendations. Calibration procedures are as follows: Enter Description

Calibration of the instruments will occur (enter a specific time prior to sample collection) Enter Description.

The preferred manufacturer(s) and instrument(s) for the collection of field parameters (pH, temperature, turbidity, and specific conductance) is/are:

* Enter Description
* [Repeat as necessary]

**Monitoring Equipment and Instrumentation**

List equipment and instrumentation and describe the procedures for collecting data from them.

* Enter Description
* [Repeat as necessary]

**Field Documentation**

The following information will be recorded on an inspection form, on a sampling form (template Sample Collection form included, one form for each outfall’s sampling event), or Enter Description during collection of samples:

|  |  |
| --- | --- |
| * Names of personnel participating in event
 | * Sample location and description (outfall or other)
 |
| * Description of weather conditions
 | * Date and time of sample collection
 |
| * Estimated duration (in hours) of the rainfall event
 | * Type of sample (grab, discrete, manual, auto sampler)
 |
| * Estimated rainfall total (in inches) for that rainfall event and source
 | * Observations of sampling procedures and conditions at the time of sampling
 |
| * Date of the previous measurable storm event
 | * Field observations and description of problems encountered or changes made from the plan
 |
| * Field instrument calibration information
 | * Sample identification name
 |
| * Field parameter measurements (see partial list below)
 | * Field observations relevant to sample integrity
 |
| * Estimated rainfall/storm duration
 | * Rainfall measurement in inches
 |
| * (optional) Stream flow
 | * QC samples and sample names if taken for the event
 |
| * Field filtration methods used
 | * Enter Description
 |

***(Delete paragraph and table if not applicable)*** The following field parameters will be measured and recorded at the time of sample collection ***(Check all that apply, Add/Delete field parameters/data as required)***:

|  |  |  |
| --- | --- | --- |
| [ ]  Sample Temperature | [ ]  Electrical Conductivity | [ ]  pH |

**Sample Container Labeling**

Each sample should be assigned a unique identifier by the sampling team. The unique identifier may consist of the sample location name (e.g. Outfall #1 or Outfall #2) followed by a date suffix such as YYMMDD. The unique identifier will be recorded on the COC form and the sample container. Provide the unique identifier ***format*** here: Enter Description.

Each container in the sample must be labeled with the unique identifier as well as the following minimum information:

|  |  |  |
| --- | --- | --- |
| * Sampler initials
 | * Sample collection date
 | * Sample collection time
 |

The laboratory will provide labels to be placed on each of the sample containers. The laboratory ***may*** affix the labels in advance. **Self-adhesive labels will be secured to each sample container. *Samples should be immediately placed on ice for transport to the designated lab. Note: blue ice or similar cooling methods are prohibited.***

**Sample Container Preservation**

Procedures necessary to properly preserve samples will be provided by the laboratory contracted to perform sample analysis. Include the procedures here: Enter Description.

***NOTE:*** *There are techniques that can be used if a longer hold time is necessary than the 24 hours unpreserved samples permit. An option would be to acquire laboratory-supplied bottles with preservatives to use in the field. For total metals, samples can be placed directly in sample bottles with preservatives (HNO3) and hold time is increased to 6 months. Dissolved metals must be field filtered before being placed in bottles containing preservatives in order to increase hold time to 6 months. Extending hold times can be helpful when you cannot deliver the samples to the laboratory within 24 hours. In addition to preservatives, samples are placed on ice and maintained at a temperature of four degrees Celsius.*

**Sample Preparation and Transport**

Specific procedures and instruction for proper sample cooler packing and transport are critical in maintaining sample integrity. The following section contains guidelines for sample packaging and transport.

The following procedures will be used when preparing the sample cooler(s) for shipment or delivery to the laboratory:

|  |  |
| --- | --- |
| * All labels remaining on the exterior of the cooler will be removed
 | * Sample bottles will be packaged per manufacturer and lab instructions to prevent breakage during shipment;
 |
| * A temperature blank will be placed in the cooler (if provided or available)
 | * All ice will be bagged in zip-locked plastic bags (confirm with specific lab)
 |

When placing the samples in the cooler, ensure that the COC form is in a sealed watertight bag taped to the inside of the lid. Sample coolers will be transported to the certified laboratory Enter Description (e.g. by the sampler or via courier).

**Relinquishment**

The assigned Stormwater Team Member Enter Description will sign over the COC form to the receiving entity (e.g. laboratory personnel or courier) Enter Description, and the COC form will be signed and dated with the time of relinquishment.

Once the cooler(s) is/are delivered to the laboratory, the cooler’s contents will be checked against information on the COC form. The condition, temperature, and appropriate preservation of samples will be checked and documented on the COC form by the lab. Any discrepancies between the COC and the sample conditions at the time of delivery to the laboratory will be communicated to the Stormwater Team Manager for proper resolution and documented in laboratory records.

**Receipt and Review of Lab Results**

The lab’s results report will generally be delivered to the Construction site’s assigned POC who will either disseminate or evaluate the results report. Following evaluation of the results report, refer to the SWPPP for the appropriate response or follow-up action.

|  |
| --- |
| **Construction Site Sample Information** |
| Construction site Name: | Name of Construction site | AZCN Auth. No. | Insert Authorization No. |
| Outfall Name: Name | "Representative Outfall"? | [ ]  Yes [ ]  No (identify representative outfalls): |
| Person(s)/Title(s) collecting sample: Name/Title |
| Person(s)/Title(s) assisting with sample: Name/Title |
| Date & Time Discharge Began: Enter date and time | Date Sample Collected: Enter date  | Time Sample Collected: Enter time |
| Unique Sample Identifier (Matches Identifier on COC)  | Sample Identifier |
| Substitute Sample? | [ ]  No [ ]  Yes (identify quarter/year when sample was originally scheduled to be collected): |
| Nature of Discharge: [ ]  Rainfall [ ]  Snowmelt |
| Rainfall Amount: No of inches\_ |
| **Field Sampling Data** |
| Type of Sample | [ ]  Grab [ ]  Discrete [ ]  Manual [ ]  Auto sampler (Date/Time Collected) |
| Field Parameter Measurements | pH: pH  | Temperature: temperature | Conductivity: conductivity | Turbidity: turbidity | Flow Rate: rate |
| Field Filtration Methods | Insert details |
| QC Samples  | Insert details |
| Field Instrument Calibration Data | Insert details |
| Indicators of Stormwater Pollution Observed? | [ ]  No [ ]  Yes (Describe): Insert details |
| **Observations of sampling procedures and conditions at the time of sampling:** Insert details |
|  |
| **Description of problems encountered or deviations made from the Plan:** Insert details |
| **Certification Statement (Refer to CGP Appendix B, Paragraph 9, for Signatory Requirements)** |
| “I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” |
| A. Name:  | name | B. Title:  | title |
| C. Signature: |  | D. Date Signed: | Insert details |