TABLE OF CONTENTS

[1.0 PURPOSE 1](#_Toc501444463)

[2.0 SCOPE 1](#_Toc501444464)

[3.0 reference documents 1](#_Toc501444465)

[3.1 TI Standard Policy and Procedure (SP&P) 04-04-01: "Environmental, Health and Safety" 1](#_Toc501444466)

[3.2 TI ESH Standard 3.01E “Chemical Storage, Spill Control, And Spill Response 1](#_Toc501444467)

[4.0 Definitions 1](#_Toc501444468)

[5.0 Requirements 3](#_Toc501444469)

[5.1 General Requirements 3](#_Toc501444470)

5.2 [Industrial Wastewater Management Program 3](#_Toc501444471)

[5.3 Storm Water Pollution Prevention 4](#_Toc501444486)

[5.4 Sewage Wastewater Treatment Plants 4](#_Toc501444489)

[5.5 Water Resource Usage 4](#_Toc501444490)

[5.6 Training Requirements 5](#_Toc501444491)

[6.0 STANDARD Approval 5](#_Toc501444492)

[7.0 Revision history 5](#_Toc501444493)

# PURPOSE

This standard establishes the minimum requirements for a site's water management program, including industrial and domestic wastewater discharges, storm water pollution prevention.

# SCOPE

This standard applies to TI Wafer Fab sites and Assembly/Test sites or any TI owned site that operates an on-site wastewater or sewage waste treatement plant.

# reference documents

## TI Standard Policy and Procedure (SP&P) 04-04-01: "Environmental, Health and Safety"

## TI ESH Standard 3.01E “[Chemical Storage, Spill Control, And Spill Response](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/03-01E.doc)

3.3 TI ESH Standard 02.05 “Agency Inspection Notification and Processing Procedure”

# Definitions

[TI ESH Standards Glossary of Definitions](https://sps01.itg.ti.com/sites/wwf/esh/standards/Knowledge_Bank/00.01a.xls)

|  |  |  |
| --- | --- | --- |
| ENV06.01 | BEST MANAGEMENT PRACTICES | Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. Examples include: outdoor housekeeping practices, operating procedures and practices to prevent or control contaminated stormwater runoff, spill response and cleanup procedures. |
| ENV06.01 | AREAS OF INDUSTRIAL ACTIVITY | Locations with impervious surfaces on a TI site associated with manufacturing, processing, or material storage/handling involving raw materials, products or wastes. Examples may include loading docks, dock yards, scrubber yards, or building roofs. This does not include any indoor areas.  |
| ENV06.01 | CONSTRUCTION ACTIVITIES | Outdoor activities which result in a land disturbance or exposed soil, including clearing/removing landscape, grading, excavating/digging, construction of roads or buildings, or demolition of buildings.  |
| ENV06.01 | CONTAMINATED STORM WATER | Any precipitation that falls onto, or otherwise contacts areas of industrial activity, and accumulates contaminants while flowing off the TI site. |
| ENV06.01 | OFFSITE TREATMENT WORKS | A wastewater treatment plant not owned or operated by TI and not located on TI property. |
| ENV06.01 | RECLAIM or RECYCLE | Water that is collected after it has been used and is then reused by a manufacturing or support process with or without prior treatment. |
| ENV06.01 | SITE WATER BALANCE | An overall site schematic (or other suitable method or document) indicating the major water use locations and the measured, calculated, or estimated flow rates. The schematic should also show the interconnects between the major areas of operations, along with the site inlets/inputs and discharges/outputs including evaporation losses. |
| ENV06.01 | EMERGENCY CAPACITY | The sites determination of the treatment capability necessary to meet limits during peak flow for any parameter expected to be present in the plant influent when:* a materials is used in manufacturing that could affect the limit or
* a material has been demonstrated though analysis as a value that is present from on-going intermittent manufacturing events or other normal activity.”
 |
| ENV06.01 | SIGNIFICANT CHANGE | New manufacturing equipment is added or manufacturing process changes occur that require the wastewater system owner to reconsider the adequacy of the capacity when there is a:* volume increase in a currently used chemical/material or
* new chemical or material use that could impact wastewater.

Examples:* + Increased wet cleaning steps to facilitate a new technology,
	+ A new chemistry in a clean, etch or other steps where that chemical can in anyway leave the equipment as either exhaust (that could be scrubbed and results in wastewater effluent) or wastewater.
	+ A new plating chemical
	+ Any change to a slurry, singulation or backgrinding process that could change the conditions of the influent
 |
| ENV06.01 | SEWAGE WASTEWATER TREATMENT PLANT | A wastewater treatment plant designed to treat domestic sewage on-site prior to discharge from the TI site. |

# Requirements

## General Requirements

Sites shall establish and implement a water management program to:

### ensure compliance with wastewater discharge regulatory requirements;

### ensure compliance with storm water pollution preventionregulatory and other requirements;

### ensure compliance with sewage wastewater requirements when treated on-site prior to off-site discharge and;

### encourage the efficient use of water.

### The Site Environmental Specialist shall be responsible for program compliance and the the Site Wastewater System Owner shall manage operations and maintenance of the system.

## Industrial Wastewater Management Program

### Sites shall develop an industrial wastewater management program based on the requirements of this standard and applicable local regulations to comply with applicable local discharge limitations.

### Sites shall establish an inspection and maintenance program to minimize equipment breakdown or non-permitted releases.

### Sites shall identify applicable regulatory requirements and include procedures to ensure present and future compliance for the wastewater discharges generated at the site.

### Sites shall identify and obtain necessary sampling and monitoring equipment.

### Sites shall determine the frequency of sampling and monitoring; for example: regulated frequency of site analytical results, performance monitoring for internal use.

### Sites shall maintain wastewater treatment facilities necessary to maintain compliance.

### Sites shall perform a review of analytical laboratories used for compliance and process performance monitoring and determine that they meet a performance standard appropriate to the data use.

### Sites shall identify and communicate individuals’ roles and responsibilities for ensuring compliance with regulatory requirements and this standard.

### Sites shall communicate out-of-specification conditions, effluent limit exceedances, or other potential non-compliance events in accordance with TI ESH Std 02.05 Agency Inspection Notification and Processing Procedure.

### Sites shall maintain and retain the site's wastewater and storm water records as needed to meet regulatory requirements and TI’s record retention requirements.

### Sites shall ensure connections are made to the correct drain system based on a local assessment of discharge requirements.

### Wastewater systems shall have:

#### Adequate initial design capacity to meet the estimated load for new systems or system design changes.

#### Adequate emergency capacity for each regulated parameter that poses a risk of violation to a regulatory limit. The wastewater system owner shall determine and document the emergency capacity requirement using good engineering practices;

##### Emergency capacity is defined in terms of volume and treatment method. The capacity shall be sized to allow enough time to treat any reasonably foreseeable system failure or high volume flow of wastewater or predictable low volume flow of a high concentraton parameter affecting the treatment system’s ability to meet the required effluent limits. The capacity requirement may be satisfied with excess system capacity or additional storage to ensure treatment to meet regulatory specifications for each limit.

##### An emergency capacity evaluation shall be performed within six months of a new wastewater system installation or with the application of these requirements.

##### Updates to the emergency capacity evaluation shall be performed within one month of a significant change to increased manufacturing demand, building population change or integration of a new manufacturing process that generates wastewater that could affect the performance of the wastewater treatment system.

Note: Performing an emergency capacity analysis and implemting system improvements based on the results is not intended to represent that the system will never exceed any given limit.

#### Emergency operation capability that includes system redundancy for critical components and/or processes;

#### Monitoring, detection, alarming, and dosing equipment in all effluent treatment systems except manual batch treatment steps shall have automated controls.

## Storm Water Pollution Prevention

Sites shall establish and implement a storm water management program to:

### Ensure **best management practices** (such as housekeeping, control structures, etc.) are utilized to prevent the release of **contaminated storm water** to offsite land surfaces or surface waters

### Design and construct new facilities in a manner that prevents **contaminated storm water** runoff; and

### Ensure best management practices are utilized to prevent contaminated storm water discharges from **construction activities**.

## Sewage Wastewater Treatment Plants

Sites managing on-site sewage wastewater treatment plants shall:

### Follow all elements in Section 5.2, except 5.2.12.3 and 5.2.12.4;

### Ensure **best management practices** (such as housekeeping, control structures, etc.) are utilized to prevent the release of untreated sewage wastewater to offsite land surfaces or surface waters

### Design and construct new facilities in a manner that prevents groundwater contamination;

### Update the emergency capacity evaluation within one month of a building population change (increase by more than 10% of the original population as specified in the original system design) that could affect the performance of the wastewater treatment system.

## Water Resource Usage

Sites shall track water consumption and facilitate water reduction programs that are economically and technically feasible in accordance with the site’s own environmental and operational priorities. The water reduction program shall include:

### A **site water balance** (accounting for water flows entering and leaving the site) that accurately reflects site conditions;

### Assessment of the site's water use, water **reclaim/recycle** systems, and opportunities for water use reduction;

### Understanding of local availability of water resources (quality and quantity); and

### Reporting of water consumption and **reclaim**/**recycle** data to Worldwide ESH or the appropriate designee or team which collects such data.

## Training Requirements

Sites shall identify and implement the required training for operators, maintenance and ESH personnel necessary to ensure:

### Effective operation of the industrial wastewater collection systems, sampling and monitoring equipment, and treatment facilities;

### Compliance with applicable regulations; and

### Provide initial training and refresher training every three years for personnel who have the potential to impact storm water quality (e.g., outdoor chemical loading and unloading, chemical storage, cleaning).

# STANDARD Approval

This standard has been approved by Zane Broadhead, TI Vice President.

# Revision history

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Rev#** | **Date** | **Nature of Revision** | **Author/Editor** | **Approver** |
| A | 12/22/2006 | Major periodic review; format update | Kim Dawson | Brenda Harrison |
| B | 02-15-2013 | Periodic review | John Willis | ELC |
| C | 02-14-2018 | 3-year review; major additions to 5.2 regarding design, operation, and monitoring; definitions updated and outdated defintions removed.  | Tim Yeakley, John Willis | ELC |
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