

# WASTEWATER MANAGEMENT AT NIST-BOULDER

NIST S 7301.13

Document Approval Date: 07/13/2023

Effective Date<sup>1</sup>: 07/13/2023

## 1. PURPOSE

The purpose of this suborder is to establish the requirements and associated roles and responsibilities to ensure NIST-Boulder will comply with all regulations, codes, and permits as they pertain to the discharge of wastewater.

## 2. BACKGROUND

- a. The NIST – Boulder site generates wastewater from research, construction, facilities operation and maintenance and sanitary processes. This wastewater is discharged offsite to the sanitary sewer system maintained by the City of Boulder Water Quality and Environmental Services (WQES). The sanitary sewer subsequently discharges to the 75th Street Wastewater Treatment Facility owned by the City of Boulder.

The quality of the wastewater discharge is regulated under an Industrial Wastewater Discharge Permit (IWDP) issued by WQES. The permit, CIU 2021-4, A9962C2619\_NIST, is a vehicle for communicating regulatory requirements to NIST.

- b. [NIST P 7300.00](#) articulates NIST’s commitment to making management of wastewater discharges in compliance with applicable regulations and permits an integral core value and vital part of the NIST culture by, in part:

- (1) Complying with applicable laws, regulations, and other promulgated safety and health requirements; and

- (2) Abating deficiencies and taking actions to prevent incidents from occurring.

---

<sup>1</sup> For revision history, see Appendix A.

- 38 c. NIST-Boulder must meet the requirements of the following:  
39  
40 (1) 40 CFR 104-149;  
41  
42 (2) BRC 11-3; and  
43  
44 (3) Industrial Wastewater Discharge Permit, CIU 2021-4, A9962C2619\_NIST.  
45

46  
47 **3. APPLICABILITY**

- 48 a. This suborder applies to all activities and processes in the NIST-Boulder facility related to  
49 the generation, and discharge of wastewater under IWDP. This includes space leased by the  
50 National Telecommunications Information Administration.  
51  
52 b. This suborder does not apply to:  
53  
54 (1) Buildings owned by the General Services Administration and leased by the National  
55 Oceanic and Atmospheric Administration<sup>2</sup>;  
56  
57 (2) The NIST WWV/WWVB and WWVH broadcast facilities; and  
58  
59 (3) NIST personnel performing work on the University of Colorado campus.  
60

61  
62 **4. REFERENCES**

63 Legal and other requirements common to all NIST Environmental Suborders can be found in  
64 [NIST O 7301.00 \*Environment Management\*](#). The legal and other requirements specific to  
65 this suborder are as follows:  
66

- 67 a. [Code of Federal Regulations \(CFR\), Title 40, Subchapter D](#)  
68  
69 b. [Boulder Revised Code \(BRC\), Title 11, Chapter 3](#)  
70  
71 c. [Industrial Wastewater Discharge Permit, CIU 2021-4, A9962C2619\\_NIST](#)  
72  
73 d. 6 CCR 1007-3, Parts 260-273 and 279, [Hazardous Waste Regulations](#)  
74  
75

---

<sup>2</sup> These buildings discharge to the City of Boulder sanitary sewer at a location separate from the outfalls listed in the permit and are outside the scope of this suborder.

76 **5. APPLICABLE NIST DIRECTIVES**

77 Other NIST Environmental Suborders applicable to work covered by this suborder include  
78 the following:

79

80 a. NIST S 7101.24: [Incident Reporting and Investigation](#)

81

82 b. NIST S 7101.60: [Chemical Management](#)

83

84 c. NIST S 7301.01: [Environmental Management System](#)

85

86 d. NIST S 7301.07: [Chemical Waste Accumulation/Disposal at NIST-Boulder](#)

87

88 e. NIST S 7301.09: [Oil Storage and Handling at NIST-Boulder](#)

89

90 f. NIST S 7301.11: [Stormwater Management at NIST-Boulder](#)

91

92

93 **6. REQUIREMENTS**

94 a. General

95 Chemicals shall not be released to the sanitary sewer without review and approval by the  
96 Program Manager for Wastewater Management at NIST-Boulder. The following exceptions  
97 apply:

98

99 (1) Household products used as directed by the manufacturer for household use; and

100

101 (2) Substances approved for discharge to the neutralization system in Building 81. See  
102 Section 6.c(2)(b) for more information.

103

104 b. Discharge Restrictions

105 All NIST staff (employees and associates) and contractors operating on the NIST-Boulder  
106 facility shall comply with the terms of the IWDP (Appendix B) and BRC 11-3 (Appendix C),  
107 including ensuring their activities do not discharge pollutants listed in BRC 11-3-4 to  
108 wastewater, exceed levels specified in BRC 11-3-5, dilute discharges to be no higher than  
109 the limits on concentrations per BRC 11-3-7 and the IWDP (whichever is less).

110

111 c. Equipment Specific Requirements

112

113 (1) All sinks, floor drains, and other drains discharging to the sanitary sewer must be posted  
114 with signage prohibiting the discharge of chemicals.

115

116 (2) The pretreatment systems in use at NIST-Boulder are as follows:

117  
118  
119  
120  
121  
122  
123  
124  
125  
126  
127  
128  
129  
130  
131  
132  
133  
134  
135  
136  
137  
138  
139  
140  
141  
142  
143  
144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154

(a) Building 21 Oil-Water Separator

The oil-water separator in Building 21 shall be maintained in accordance with the manufacturer's specification.

(b) Building 81 Acid/Base Neutralization System

Employees and associates in Building 81 shall ensure that only the substances listed in Appendix D are discharged to the neutralization system, provided that they are not contaminated with other material that is regulated as a hazardous waste per the following characteristics and regulations:

- i. Ignitability (D001) [6 CCR 1007-3.261.21];
- ii. Reactivity (D003) [6 CCR 1007-3.261.23];
- iii. Toxicity (D004 – D043) [6 CCR 1007-3.261.24]; or
- iv. Being listed in 6 CCR 1007-3.261.31, 32 or 33

Discharges must also comply with the requirements listed in Section 6.b. See Appendix D for a list of allowable discharges to the Building 81 Acid/Base Neutralization System.

d. Requesting Authorization to Discharge

(1) Personnel planning to discharge waste streams not identified in the Wastewater Classification Survey (Appendix E) or specifically authorized under the permit or listed in Appendix F shall request approval from the Program Manager for Wastewater Management at NIST-Boulder. The requestor shall provide the Program Manager for Wastewater Management at NIST-Boulder with the following information:

- (a) Name of chemicals to be discharged;
- (b) Safety Data Sheet (SDS) for each substance to be discharged;
- (c) Quantities of material to be discharged;
- (d) Volume of water to be discharged;
- (e) Date(s) and time(s) of proposed discharges and/or frequency of discharge;
- (f) Procedure for discharging the material; and
- (g) Any additional information requested by the City of Boulder, Water Quality and Environmental Services (WQES) Industrial Pretreatment Group, including analytical results of required sampling.

155            **NOTE:** The Industrial Pretreatment Group has up to 30 days to approve or deny a  
156            request for authorization to discharge.

157  
158            (2) The Program Manager for Wastewater Management at NIST-Boulder shall review the  
159            request for compliance with permit terms, BRC 11-3 and 40 CFR 122, Appendix D,  
160            Tables II, III, IV and V and submit discharge authorization requests to the City of  
161            Boulder, Water Quality and Environmental Services, Industrial Pretreatment Group. This  
162            applies to the discharge of any chemical waste not presently authorized, discharge of  
163            treatment/cleaning chemicals during construction or maintenance and substances not  
164            listed in Appendix D as allowable discharges to the acid/base neutralization system.

165  
166            **NOTE:** Flushing of uncontaminated firewater systems shall be discharged to  
167            stormwater as allowed under the Municipal Separate Storm Sewer System (MS4)  
168            Permit. Water containing treatment chemicals (other than those added by the City of  
169            Boulder) may be considered to contain pollutants and be subject to the requirement  
170            for discharges to be authorized by the City of Boulder.

171  
172 e. Analytical Monitoring of Wastewater and Routine Reporting

173  
174            (1) In accordance with the IWDP, sampling and analysis of the NIST-Boulder Site  
175            wastewater shall be conducted quarterly. Samples shall be collected from the outfalls  
176            specified in the permit. Monitoring parameters, sampling frequency, sample type and  
177            responsibilities are summarized in Appendix G.

178  
179            (2) NIST shall submit quarterly wastewater analysis reports the WQES to demonstrate  
180            compliance with the requirements of the IWDP. The reports corresponding to the  
181            previous quarter are due each year on April 28, July 28, October 28, and January 28.

182  
183            (3) The Program Manager for Wastewater Management at NIST-Boulder shall conduct the  
184            quarterly monitoring and submit the analytical reports.

185  
186 f. Notification Requirements

187  
188            (1) NIST shall notify WQES both verbally and in writing if it is discovered that any  
189            requirements of the IWDP are not being met. Non-compliance with requirements may be  
190            discovered through routine sampling, WQES conducted sampling, bypass of NIST  
191            pretreatment systems, or accidental discharges of prohibited materials (Section 6.b.) into  
192            the wastewater system.

193

194 (2) The Program Manager for Wastewater Management at NIST-Boulder shall make all  
195 notifications to WQES. All non-compliance shall follow the notification procedures  
196 listed here:

197  
198 (a) Notify WQES verbally within 24 hours of becoming aware of the non-compliance.

199  
200 (b) Within 5 days, submit a written report to WQES, which must include:

- 201
- 202 i. A description of the exceedance or discharge and the cause of noncompliance;
  - 203 ii. The period of noncompliance with exact dates and times, or if not corrected,  
204 the anticipated time the noncompliance is expected to continue;
  - 205 iii. Steps being taken or planned to reduce, eliminate, and prevent recurrence of  
206 the noncompliance; and
  - 207 iv. Results from additional sampling, if required by WQES.
- 208

209 g. Management of Change

210 On an ongoing basis, the Program Manager for Wastewater Management at NIST-Boulder  
211 will evaluate new projects and changes to existing systems and equipment, to evaluate  
212 compliance with the IWDP, and then determine any necessary actions that must be taken by  
213 NIST prior to implementation (*e.g.*, request authorization to discharge, amend the wastewater  
214 classification survey, or request permit modifications). The Program Manager for  
215 Wastewater Management at NIST-Boulder will then provide guidance to implement action  
216 items needed to ensure full compliance throughout the change process.

217  
218 h. Training

219 Training requirements under the IWDP shall be fulfilled by completing the training listed  
220 below as applicable to the employee's duties:

221  
222 (1) All NIST staff handling or generating hazardous or universal waste shall complete one of  
223 these courses:

224  
225 (a) [NIST S 7301.07: Hazardous Waste Generator Training for NIST-Boulder](#); or

226  
227 (b) [NIST S 7301.07: Boulder Labs Hazardous Waste Generator Training for OFPM  
228 Boulder Personnel](#).

229  
230 (2) All NIST staff shall complete the appropriate version of NIST S 7301.07: *Accidental  
231 Hazardous Material Release Training* for their duties as listed below:

232  
233 (a) [Employees and associates using chemicals](#) as part of their responsibilities; or

- 234 (b) [Employees and associates not using chemicals.](#)  
235
- 236 (3) Employees and associates assigned responsibilities requiring the operation or  
237 maintenance of petroleum storage tanks or oil-filled equipment with a capacity of 55  
238 gallons or more shall complete one of the following dependent upon which division the  
239 personnel are under:  
240
- 241 (a) [NIST S 7301.09: SPCC Training for Division 184](#)  
242
- 243 (b) [NIST S 7301.09: Boulder Spill Prevention, Control and Countermeasures Training](#)  
244 [\(FMD-B, 194\)](#)  
245
- 246 (c) [NIST S 7301.09: Spill Prevention, Control and Countermeasures Training for](#)  
247 [Division 647](#)  
248
- 249 (d) [NIST S 7301.09: Spill Prevention, Control and Countermeasures Training for](#)  
250 [Division 688](#)  
251
- 252 (4) Job-specific training for all NIST staff shall include requirements for waste handling,  
253 including the following information when applicable to the staff members' and  
254 contractors' duties:  
255
- 256 (a) Location of waste containers;  
257
- 258 (b) Types of waste containers;  
259
- 260 (c) Wastes that are compatible and may be combined;  
261
- 262 (d) Wastes that are incompatible and must be segregated;  
263
- 264 (e) Labeling of waste containers; and  
265
- 266 (f) If applicable, materials that may be discharged to the Building 81 neutralization  
267 system.  
268
- 269 i. Recordkeeping  
270 NIST will maintain records as necessary to demonstrate compliance with the IWDP.  
271
- 272 (1) General Records  
273 The following records shall be maintained:

274 (a) Any records, books, documents, memoranda, reports, correspondence, and summaries  
275 of these materials relating to testing, internal or external monitoring, calibrations,  
276 investigations, and chemical analyses made by or on behalf of NIST associated with a  
277 discharge; and

278  
279 (b) All records that pertain to matters that are the subjects of special orders or any other  
280 enforcement or litigation activities brought by the City of Boulder shall be retained  
281 and preserved until all enforcement activities have concluded and all periods of  
282 limitation with respect to any and all appeals have expired.

283  
284 (2) Equipment Specific Records  
285 Records to demonstrate compliance with equipment-specific requirements shall be  
286 maintained by the owners of the equipment.

287  
288 (3) Retention of Records  
289 All records required by this Suborder shall be maintained for a minimum period of three  
290 (3) years.

291  
292

293 **7. DEFINITIONS**  
294 Definitions common to all NIST EMS suborders can be found in NIST O 7301.00. There are  
295 no definitions specific to this suborder other than those in 6.b.

296  
297 a. NIST-Boulder – The personnel (including associates, tenants and contractors) buildings and  
298 facilities of the National Institute of Standards and Technology located the Department of  
299 Commerce Boulder Laboratories facility. This excludes buildings and facilities owned by the  
300 General Services Administration and leased to the National Oceanic and Atmospheric  
301 Administration.

302  
303 b. Wastewater Classification Survey – The questionnaire covering the discharges from the  
304 facility industrial wastewater users must complete and submit to WQES per the  
305 requirements of BRC 11-3-14 to receive an IWDP.

306  
307 **NOTE:** Sampling is required to identify pollutants discharged by the facility.

308  
309

310 **8. ACRONYMS**  
311 Acronyms common to all NIST EMS suborders can be found in NIST O 7301.00. The  
312 acronyms specific to this suborder are as follows:

313



- 314 a. AHMRRP – NIST Accidental Hazardous Material Release Reporting Procedure
- 315
- 316 b. EMS – NIST Environmental Management System
- 317
- 318 c. FMD-B – NIST OFPM Facilities Maintenance Division - Boulder (194)
- 319
- 320 d. OFPM – NIST Office of Facilities and Property Management
- 321
- 322 e. SDS – Safety Data Sheets
- 323
- 324 f. SPCC – Spill Prevention, Control and Countermeasures
- 325
- 326 g. WQES – City of Boulder, Water Quality and Environmental Services
- 327

## 329 9. RESPONSIBILITIES

330 Roles and responsibilities common to all NIST Environmental Suborders can be found in NIST  
331 O 7301.00. The roles and responsibilities specific to this suborder are as follows:

- 333 a. The Chief Safety Officer, as NIST’s designated Environmental Manager, is responsible for  
334 overseeing NIST’s efforts in complying with the requirements identified in this suborder.  
335
- 336 b. OU Directors are responsible for:  
337
  - 338 (1) Establishing implementing policies and procedures, as needed, for the requirements of  
339 this suborder to be met;
  - 340
  - 341 (2) Ensuring subordinate managers have the authority, resources, and training needed to  
342 implement OU-established policies and procedures; and
  - 343
  - 344 (3) Using OU funds to pay any civil penalties identified in regulatory inspections and  
345 resulting from regulatory violations in their respective OUs.
  - 346
- 347 c. Division Chiefs and Group Leaders are responsible for:  
348
  - 349 (1) Implementing this suborder as it applies to activities involving their personnel and space  
350 in accordance with any applicable OU-established policies and procedures;
  - 351

- 352 (2) Ensuring employees and associates in the OU are trained in the handling and  
353 accumulation of chemical waste specific to the areas in which they work. See 6.h(4) for  
354 required contents.  
355
- 356 (3) Ensuring contaminants and pollutants are handled in a manner preventing unauthorized  
357 discharges;  
358
- 359 (4) Ensuring regulatory inspectors are provided access to areas under their supervision;  
360
- 361 (5) Upon receiving inspection reports on their respective workplaces, ensuring corrective  
362 actions are performed; and  
363
- 364 (6) Ensuring deficiencies or violations resulting from regulatory inspections of areas  
365 operated by that OU are addressed in the timeframe required by the regulatory agency.  
366
- 367 d. NIST-Boulder Employees and Associates are responsible for:  
368
- 369 (1) Completing the appropriate training per Section 6.h;  
370
- 371 (2) Ensuring [signage prohibiting discharges to drains](#) is posted at sinks and drains in their  
372 work areas;  
373
- 374 (3) Ensuring their activities do not release pollutants to wastewater, unless specifically  
375 authorized in the IWDP or a separate authorization issued by the City of Boulder;  
376
- 377 (4) Ensuring discharges from laboratory spaces in Building 81 comply with Section 6.c(1)b);  
378
- 379 (5) Reporting to the Program Manager for Wastewater Management at NIST-Boulder any  
380 activity that may cause unauthorized discharges to wastewater; and  
381
- 382 (6) Reporting any spills or releases in compliance with the NIST-Boulder *Accidental*  
383 *Hazardous Material Release Reporting Procedure (AHMRRP)*.  
384
- 385 e. The Program Manager for Wastewater Management at NIST-Boulder is responsible for:  
386
- 387 (1) Ensuring sampling is performed in accordance with the terms of the IWDP and that  
388 samples are analyzed following collection, including functioning as the contracting  
389 officer representative for the sampling contract and procuring analytical services;  
390
- 391 (2) Coordinating sampling and flow measurement activities;

- 392 (3) Performing an [internal audit](#) once per calendar year at a minimum to verify ongoing  
393 compliance with the IWDP;  
394  
395 (4) Submitting reports to WQES as required under the IWDP:  
396  
397 (a) Quarterly Reports; and  
398  
399 (b) Reporting releases to wastewater;  
400  
401 (5) Communicating the regulatory requirements to affected personnel and providing training  
402 as necessary. Providing informational outreach to NIST staff in regard to wastewater  
403 management;  
404  
405 (6) Assisting NIST personnel by submitting requests for authorization to discharge to  
406 WQES;  
407  
408 (7) Reviewing of site design packages to ensure that wastewater systems comply with the  
409 IWDP and BRC 11-3;  
410  
411 (8) Providing appropriate signage prohibiting discharge of chemical waste to NIST-Boulder  
412 personnel on request;  
413  
414 (9) Maintaining this suborder and related training; and  
415  
416 (10) Maintaining general records as required under the IWDP.  
417  
418 f. The NIST Chief Facilities Management Officer is responsible for:  
419  
420 (1) Ensuring wastewater treatment systems in areas controlled by the NIST Office of  
421 Facilities and Property Management (OFPM) are maintained in good working order and  
422 in accordance with the manufacturer's instructions. This includes:  
423  
424 (a) The oil-water separator in Building 21; and  
425  
426 (b) The acid/base neutralization system in Building 81;  
427  
428 (2) Ensuring sanitary sewers within the NIST-Boulder facility are maintained in operable  
429 condition and in compliance with BRC 11-3;  
430

- 431 (3) Ensuring drawings of the NIST-Boulder sanitary sewer system accurately reflect
- 432 conditions;
- 433
- 434 (4) Ensuring discharges from activities related to projects managed by OFPM personnel
- 435 comply with the IWDP or a separate authorization issued by the City of Boulder;
- 436
- 437 (5) Ensuring complaints or comments related to the operation of the sanitary sewer system
- 438 are addressed in a timely manner; and
- 439
- 440 (6) Ensuring construction of sanitary sewer systems within the NIST-Boulder facility
- 441 complies with the requirements of the IWDP and BRC 11-3 as well as applicable
- 442 building codes.
- 443

444 g. The NIST-Boulder Emergency Coordinator is responsible for:

- 445
- 446 (1) Ensuring the Occupant Emergency Plan is followed during response to any emergency;
- 447
- 448 (2) Informing the DoC Boulder Labs Boulder Board of Directors of the emergency and the
- 449 nature of the response; and
- 450
- 451 (3) Reviewing reports of releases submitted to regulatory agencies.
- 452

453 h. The Department of Commerce Police are responsible for:

- 454
- 455 (1) Secure areas around reported releases that present a significant risk to human health,
- 456 safety or the environment;
- 457
- 458 (2) Notify Emergency Manager of release;
- 459
- 460 (3) Serve as incident commander until relieved; and
- 461
- 462 (4) Assist emergency responders from outside agencies (Boulder-Fire Rescue) with
- 463 accessing the DoC Boulder labs facility and locating the release.
- 464
- 465

## 466 10. AUTHORITIES

467 There are no authorities specific to this suborder alone. For authorities applicable to all NIST  
468 Environmental Suborders, see NIST O 7301.00.

469  
470

471 **11. DIRECTIVE OWNER**

472 Chief Safety Officer

473

474 **12. APPENDICES**

475

476 A. Revision History

477

478 B. Industrial Wastewater Discharge Permit

479

480 C. Boulder Revised Code Title 11, Chapter 3

481

482 D. Allowable Discharges to the Building 81 Neutralization System

483

484 E. Wastewater Classification Survey

485

486 F. Authorized Discharges

487

488 G. Sampling Parameters

489

490

491

492

493

494

495

496

497  
498

### Appendix A. Revision History

Version	Approval Date	Effective Date	Description of Change
1	07/13/23	07/13/23	NA

499  
500  
501

## Appendix B. Industrial Wastewater Discharge Permit



NIST S  
7301.13-Industrial D

## Appendix C. Boulder Revised Code Title 11, Chapter 3



NIST S  
7301.13-Boulder Rev



## Appendix D. Allowable Discharges to the Building 81 Neutralization System

Boric Acid ( $\text{H}_3\text{BO}_3$ )  
Carbonic Acid ( $\text{H}_2\text{CO}_3$ )  
Hydrobromic Acid ( $\text{HBr}$ )  
Hydrochloric Acid ( $\text{HCl}$ )  
Nitric Acid ( $\text{HNO}_3$ )  
Periodic Acid ( $\text{HIO}_4$ ,  $\text{H}_5\text{IO}_6$ )  
Phosphoric Acid ( $\text{H}_3\text{PO}_4$ )  
Sulfuric Acid ( $\text{H}_2\text{SO}_4$ ), unless drained from a battery  
Ammonium bicarbonate ( $\text{NH}_4\text{HCO}_3$ )  
Ammonium carbonate ( $(\text{NH}_4)_2\text{CO}_3$ )  
Ammonium hydroxide ( $\text{NH}_4\text{OH}$ )  
Calcium carbonate ( $\text{CaCO}_3$ )  
Calcium bicarbonate ( $\text{CaHCO}_3$ )  
Calcium hydroxide ( $\text{Ca}(\text{OH})_2$ )  
Magnesium hydroxide ( $\text{Mg}(\text{OH})_2$ )  
Potassium bicarbonate ( $\text{KHCO}_3$ )  
Potassium carbonate ( $\text{K}_2\text{CO}_3$ )  
Potassium hydroxide ( $\text{KOH}$ )  
Sodium bicarbonate ( $\text{NaHCO}_3$ )  
Sodium carbonate ( $\text{Na}_2\text{CO}_3$ )  
Sodium hydroxide ( $\text{NaOH}$ )

## Appendix E. Wastewater Classification Survey



NIST S 7301.13-NIST  
Boulder wastewater

**Appendix F. Active Discharges Authorized by the City of Boulder**

Description / Chemicals	Approval Date	Frequency
Neutralized H2SO4-H2O2 etchant, 200mL/month	9/26/2008	On-going
Killed E. coli lysogeny culture	6/11/2009	On-going
Polisher rinse water	7/14/2010	On-going
Algae inhibitor from 2-2802/2810, 20 L/month	7/13/2011	On-going
Water system flushing using 0.4% NaNO2 solution + dilution water approx 1500 gal per discharge	1/20/2012	On-going
GaN trace from cleaning equipment and Opti-Shield wash	12/6/2012	On-going
Small quantities of Aluminum and Copper etchants	12/10/2012	On-going
Killed cell culture	5/16/2013	On-going
Cooling tower cleaning water after neutralization	5/28/2013	On-going
Cooling tower blowdown with small quantities of treatment chemicals	1/13/2014	On-going
Cleaning the pure and ultrapure water systems. Annual PM.	11/18/2014	On-going
Small closed loop chiller PM discharges.	7/30/2015	On-going
Cleaning solution from the flushing of chilled water lines during construction.	2/9/2016	On-going
Rinsate from Electra-92 use on circuit wafers	5/16/2017	On-going
Chilled water system, 800 ppm Nalco 8338, 1000 gallon batches during construction and maintenance	7/27/2018	On-going

**Appendix G. Monitoring Parameters and Daily Loading Limits**

**Outfall 001**

<b>Parameter</b>	<b>Limit</b>	<b>Units</b>	<b>Sampling Method</b>	<b>Sampling Frequency</b>
Flow (gpd/mgd)	-		24-hr measurement	Quarterly
pH (SU)	5.5 – 10.5	SU	Handheld meter	Quarterly
Chemical Oxygen Demand – COD	700	mg/L	410.4	Quarterly
Phosphorus, Total	8	mg/L	365.1	Quarterly
Total Kjeldahl Nitrogen – TKN	55	mg/L	351.2	Quarterly
Total Suspended Solids – TSS	300	mg/L	2450D	Quarterly
Arsenic, Total	0.0548	lb/day	200.8	Semi-Annually
Cadmium, Total	0.0322	lb/day	200.8	Semi-Annually
Chromium, Total	1.74	lb/day	200.8	Semi-Annually
Copper, Total	0.2041	lb/day	200.8	Quarterly
Lead, Total	0.1266	lb/day	200.8	Semi-Annually
Mercury, Total	0.0026	lb/day	245.1	Semi-Annually
Molybdenum, Total	0.0580	lb/day	200.8	Semi-Annually
Nickel, Total	0.1680	lb/day	200.8	Semi-Annually
Selenium, Total	0.0902	lb/day	200.8	Semi-Annually
Silver, Total	0.0293	lb/day	200.8	Quarterly
Zinc, Total	1.48	lb/day	200.8	Semi-Annually
Volatile Organics	-		624	Semi-Annually
Semi-Volatile Organics	-		625	Semi-Annually

**Outfall 003**

<b>Parameter</b>	<b>Limit</b>	<b>Units</b>	<b>Sampling Method</b>	<b>Sampling Frequency</b>
Flow (gpd/mgd)	-		24-hr measurement	Quarterly
pH (SU)	5.5 – 10.5	SU	Handheld meter	Quarterly
Chemical Oxygen Demand – COD	700	mg/L	410.4	Quarterly
Phosphorus, Total	8	mg/L	365.1	Quarterly
Total Kjeldahl Nitrogen – TKN	55	mg/L	351.2	Quarterly
Total Suspended Solids – TSS	300	mg/L	2450D	Quarterly
Arsenic, Total	0.0548	lb/day	200.8	Semi-Annually
Cadmium, Total	0.0322	lb/day	200.8	Semi-Annually
Chromium, Total	1.74	lb/day	200.8	Semi-Annually
Copper, Total	0.2041	lb/day	200.8	Quarterly
Lead, Total	0.1266	lb/day	200.8	Semi-Annually
Mercury, Total	0.0026	lb/day	245.1	Quarterly
Molybdenum, Total	0.0580	lb/day	200.8	Semi-Annually
Nickel, Total	0.1680	lb/day	200.8	Semi-Annually
Selenium, Total	0.0902	lb/day	200.8	Semi-Annually
Silver, Total	0.0293	lb/day	200.8	Quarterly
Zinc, Total	1.4825	lb/day	200.8	Semi-Annually
Volatile Organics	-		624	Semi-Annually
Semi-Volatile Organics	-		625	Semi-Annually