



DEPARTMENT OF ECOLOGY
CENTRAL REGIONAL OFFICE

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ADDENDUM TO THE ENGINEERING DESIGN REPORT

Microsoft EAT02-03-04 Data Center Campus
East Wenatchee, Washington

March 7, 2024

Prepared for

Microsoft Corporation
Redmond, Washington

Addendum to the Engineering Design Report Microsoft EAT02-03-04 Data Center Campus East Wenatchee, Washington

This document was prepared by, or under the direct supervision of, the undersigned, whose seal is affixed below.

Name: Daniel M. Joseph
Washington/No. 20105394

Date: March 7, 2024



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Associate Engineer

Daniel Joseph, PE

Document reviewed by:


Quality Reviewer

Katherine Saltanovitz, PE

Date: March 7, 2024
Project No.: 1409015.030
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Project Coordinator: Christopher C. Young

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LIST OF ABBREVIATIONS AND ACRONYMS

AHU	air-handling unit
City	City of East Wenatchee
COC	cycle of concentration
CMI	5-chloro-2-methyl-4-isothiazolin-3-one
CWD	clear water discharge
DCSD	Douglas County Sewer District
EAT05-09	EAT05, EAT06, and EAT09 data centers
Ecology	Washington State Department of Ecology
EDR	engineering design report
ESD	Environmental Systems Design, Inc.
Facility	EAT02, EAT03, and EAT04 data centers
gpd	gallons per day
Landau	Landau Associates, Inc.
mg/L	milligrams per liter
Microsoft	Microsoft Corporation
MIT	2-methyl-4-isothiazolin-3-one
SDS	safety data sheet
SWD	State Waste Discharge
TDS	total dissolved solids

1.0 PROJECT INTRODUCTION

This report is an addendum to the engineering design report (EDR) for the Microsoft Corporation (Microsoft) EAT02-03-04 data centers (Facility) in East Wenatchee, Washington dated February 26, 2021. The Facility EDR (Report) was submitted with the State Waste Discharge (SWD) permit application and approved by the Washington State Department of Ecology (Ecology) on November 5, 2021. The Facility is currently permitted under temporary SWD Permit No. ST0501334. To account for changes at the Facility since the submittal of the Report, Microsoft has submitted update letters to notify Ecology of these changes. These update letters have been approved by Ecology and are provided in Appendix A.

Additional data center buildings EAT05, EAT06, and EAT09 (EAT05-09) are proposed for a property adjacent to the Facility. The additional buildings plus the Facility make up the EAT02-09 Data Center Campus (EAT02-09 Campus). Plans and permitting documentation for EAT05-09 are being prepared separately from this EDR addendum.

This EDR addendum is to notify Ecology of the following updates to the Facility:

1. Since the submittal of the Report, Environmental Systems Design, Inc. (ESD) prepared a technical memorandum with updated estimates of non-contact cooling water volumes generated by the Facility (Appendix B). Furthermore, an additional operational source of wastewater (maintenance flushing) has since been found to be necessary. These discharges from the Facility collectively are referred to as clear water discharge (CWD). As presented herein, the updated peak daily CWD flow and peak monthly CWD volumes are less than those presented in the Report. This addendum will document the updated CWD volumes, which shall be consistent with the CWD volumes used for permitting of all EAT02-09 Campus buildings.
2. A discussion regarding the use of biocides and descaling agents took place with Ecology and the Douglas County Sewer District (DCSD) representatives on November 9, 2023. To prevent discharging biocides in the CWD, Microsoft proposes biocide use and disposal prior to discharge from the Facility. All biocide-treated CWD will be removed from the air-handling unit (AHU) sumps and hauled off site to a licensed waste disposal facility. As a result, no discharge of biocides in the CWD is anticipated. Descaling agents are also proposed for occasional cleaning of the AHU sumps; however, as discussed in this addendum, the descaling agents' active ingredients will either be removed prior to discharge or neutralized by a pH neutralization solution.

Microsoft requested that Landau Associates, Inc. (Landau) prepare this addendum with the expectation that this addendum can be reviewed separately from the EAT05-09 permitting documents, and approval for the above-mentioned changes will be received before the summer of 2024.

2.0 FACILITY DESCRIPTION

This section of the addendum includes a brief description of the changes to the Facility operations not previously documented.

2.1 Clear Water Discharge Updates

As described in the Report, AHUs will generate wastewater (blowdown) periodically when the concentration of total dissolved solids (TDS) exceeds operating parameters and the cooling water must be disposed of.

An additional source of wastewater generation has been identified that was not included in the Report. This additional source of wastewater is from an operational procedure used to flush the water storage and conveyance network (maintenance flushing).

These two sources of wastewater from the Facility collectively are referred to as CWD. Maintenance flushing will take place year-round, and non-contact cooling water blowdown is anticipated to take place from May through September. As a result, CWD quantity and quality will vary seasonally.

To reflect this change, the wastewater conveyance overview and process flow diagram from the Report have been updated (Figures 1 and 2).

2.2 Chemical Usage

A biocide will be used to manage Legionella bacteria growth within the Facility AHUs on an as-needed basis. Biocides are proposed because the evaporative media manufacturer has identified that chemicals such as acids, caustics, and chlorine can damage the evaporative media material and their use should be avoided. No discharge of biocides in the CWD is anticipated. All biocide-treated CWD will be removed from the AHUs' sumps and hauled off site to a licensed waste disposal facility.

The biocide to be used is Nalco 7330, which has the active ingredients 5-chloro-2-methyl-4-isothiazolin-3-one (CMI) and 2-methyl-4-isothiazolin-3-one (MIT, see Appendix C for safety data sheet [SDS]). Biocide remediation of an AHU requires recirculating 4 fluid ounces of Nalco 7330 and 50 gallons of water within each AHU. Microsoft anticipates treating up to four or five AHUs per day during the evaporative cooling season (May through September). Less than 10 gallons of Nalco 7330 will be stored on site.

Because all CWD that has been treated with biocides will be pumped from the AHU sumps and stored in separate containers until it is hauled off site, the biocides are expected to have no impact on the CWD that is discharged to the DCSD. The toxicity of biocides in an aquatic environment is based on the concentration of the biocides. In an aqueous environment, the biocides CMI and MIT are stable and do not break down quickly (NCBI; accessed November 22, 2023). In a terrestrial environment, the biocides CMI and MIT are not stable and will break down with ultraviolet light exposure and biodegradation (Silva et al. 2020).

To prevent scale buildup observed at other facilities, a descaling agent will be used annually in March and April within the AHU sumps. The descaling agent to be used is the Peroxide Multi-Surface Cleaner

and Disinfectant (see Appendix C for SDS), which is a thick liquid that will be applied to the inside of a dry AHU sump. The scale buildup and spent cleaning agent will be wiped clean once the scale has softened, and the spent rags with this material will be disposed of as a non-hazardous solid waste. No wastewater discharge of this compound is anticipated, and less than 10 gallons of the compound will be stored on site.

On an as-needed basis, the descaling agent Nalco 8344 (see Appendix C for SDS), with the active ingredient citric acid, will be used in a batch-cleaning process to remove substantial scale and mineral buildup within the AHU sumps. Nalco 8344 will be used within the AHU sumps when taken offline. Once the mineral buildup has been dissolved from the sump surfaces, the batch of cleaning solution in the sump will be neutralized to within a pH range of 6.0 to 6.5 before it is discharged to the CWD conveyance and before that sump is put back into normal operation. Approximately 30 gallons of the compound will be stored on site. Less than 10 gallons of Nalco 8735 (a blend of potassium hydroxide and sodium hydroxide) will be stored on site for neutralization of the Nalco 8344 descaling agent.

The chemicals used for biocide remediation and descaling of the AHUs will be stored indoors in a secure location. These chemicals will be used by trained staff following the operations and methods described in this section. An operations and maintenance manual describing these methods will be kept on site for training of new staff and for annual review for previously trained staff. If the methods to conduct biocide remediation and descaling are to change from that described in this addendum, a revised EDR or EDR addendum should be prepared for submittal to Ecology addressing such a proposed change.

2.3 Wastewater Conveyance Design

Changes to the wastewater conveyance design as presented in the Report have been documented in the approved update letters (Appendix A). These changes have also been captured in the updated conveyance and process flow diagrams (Figures 1 and 2).

3.0 WATER QUANTITY AND QUALITY

This section describes the updated water balance and predicted water quality parameters resulting from the maintenance flushing operation that were not included in the Report.

3.1 Water Balance

The only input to the Facility's water balance will be potable water from the City of East Wenatchee (City). The wastewater streams generated at the Facility will be CWD (including AHU blowdown and maintenance flushing), and sanitary wastewater through domestic uses.

The non-contact cooling water consumption and generation at the Facility were calculated by ESD and Microsoft based on the Facility cooling process design, the known average ambient air conditions,¹ the potable water quality from the City (see Section 3.3), and the anticipated ability to cycle the water four times through the cooling process (i.e., 4 cycles of concentration [COCs]), as described in the ESD technical memorandum dated June 3, 2022 (Appendix B). The ESD memorandum refers only to the non-contact cooling water component of the CWD, and excludes maintenance flushing, which is calculated separately.

Microsoft operations provided an estimate of the maintenance flushing contribution to the CWD consumption and generation volumes. Maintenance flushing is anticipated to take place once per week with up to 5,000 gallons per day (gpd) per equivalent data center building discharged during winter months (October through April), and up to 2,500 gpd per equivalent data center building discharged during the cooling season (May through September). For the Facility, this will result in maximum maintenance flushing flows during the cooling season of 7,500 gpd taking place once per week. Maintenance flushing will not be conducted during peak evaporative cooling conditions and, therefore, the flows from maintenance flushing are not included in the peak demand/discharge estimates.

For the average values calculated for this addendum, the Facility's average maintenance flushing flow during the cooling season was estimated as the maximum weekly flow volume of 7,500 gallons averaged over 7 days. The monthly maintenance flushing volumes were approximated assuming 4 weeks per month.

Over the 5-month cooling season (May through September) when water consumption demand is highest, the average daily water consumption for the Facility is estimated to be approximately 48,159 gpd (Appendix D). Based on the peak evaporative cooling model output and the anticipated maintenance flushing demand, peak water consumption for the Facility is calculated to be approximately 379,510 gpd (Figure 3 and Appendix D).

The sanitary sewer flows from the Facility are unchanged from the Report.

¹ The water service requirements were determined by analyzing the ambient temperature for a typical meteorological year using Typical Metering Year 3 data, and variability between cold and hot years was not considered.

3.2 Clear Water Discharge Water Quantity

The updated CWD values reported below are based on the ESD technical memorandum and the estimated maintenance flushing volumes. The calculations using these values are provided in Appendix D. CWD associated with AHU blowdown will be generated only from May through September. Maintenance flushing of the water storage and conveyance network using potable water is anticipated all year.

The updated estimate of peak daily CWD for the Facility is 90,000 gpd (Appendix D), which is 2,256 gallons less than the value included in the Report. The peak monthly discharge volume based on the updated estimates is 722,682 gallons (Table 1), which is 39,365 gallons less than that in the Report. The average daily CWD for the Facility during the cooling season is estimated to be 11,773 gpd.

The anticipated monthly CWD discharges from the Facility are provided in Table 1 below.

Table 1: Monthly Clear Water Discharge Volumes for EAT02, EAT03, and EAT04

Month	AHU Blowdown (gallons)	Maintenance Flushing (gallons)	Total CWD Volume (gallons)
January	0	60,000	60,000
February	0	60,000	60,000
March	0	60,000	60,000
April	0	60,000	60,000
May	93,201	30,000	123,201
June	289,983	30,000	319,983
July	485,844	30,000	515,844
August	692,682	30,000	722,682
September	75,567	30,000	105,567
October	0	60,000	60,000
November	0	60,000	60,000
December	0	60,000	60,000

3.3 Clear Water Discharge Water Quality

From April to October, the source of CWD is from the maintenance flushing of the water storage and conveyance systems. The water quality of this CWD can be estimated by the anticipated potable source water quality as reported in Table 2, as no chemical additives are anticipated for the maintenance flushing that will take place. The anticipated potable source water quality is the same as that presented in the Report.

From May to September, evaporative cooling will involve recirculating potable water within the AHUs until the minerals in the potable water are too concentrated to be used again (e.g., due to risk of scale formation or other issues). The expected quality of the CWD discharged during these months was calculated based on the average AHU blowdown volume of 10,702 gpd (at 4 COCs of the sampled

potable water quality) plus the average volume of maintenance flushing of 1,071 gpd at the potable water quality.

Based on the SDSs for the descaling agent additives, the known potential pollutants discharged in the CWD are assumed to be TDS and sodium. Using the average CWD flows during the cooling season, the potential contributions of sodium and TDS from these additives have been incorporated into the anticipated values in Table 2 (Appendix D). For this calculation, it was assumed that all 160 AHU sumps per equivalent data center building (3 equivalent buildings total for the Facility) will be treated each summer, which is considered a worst-case condition.

Table 2: Expected Water Quality of Clear Water Discharge for Discharges to the Douglas County Sewer District

Constituent	Unit	CWD October – April (Anticipated Potable Water Quality)	CWD May – September (CWD with 4 Cycles of Concentration + Flushing)
Alkalinity (calcium carbonate; CaCO ₃)	mg/L as CaCO ₃	72.6	270.6
Barium (Ba)	mg/L	0.02805	0.10454
Calcium (Ca)	mg/L	23	86
Chloride (Cl)	mg/L	1.1	4.1
Fluoride (F)	mg/L	0.12	0.45
Iron (Fe)	mg/L	0.112	0.417
Magnesium (Mg)	mg/L	4.6	17.1
Manganese (Mn)	mg/L	0.00249	0.00928
Nitrate (NO ₃ -N)	mg/L as N	0.07	0.26
Ortho Phosphate	mg/L as P	0.07	0.26
Silica	mg/L as SiO ₂	7	26
Sodium	mg/L	3.19	63.89
Sulfate	mg/L	9.2	34.3
TDS	mg/L	102	670

Abbreviations and Acronyms:

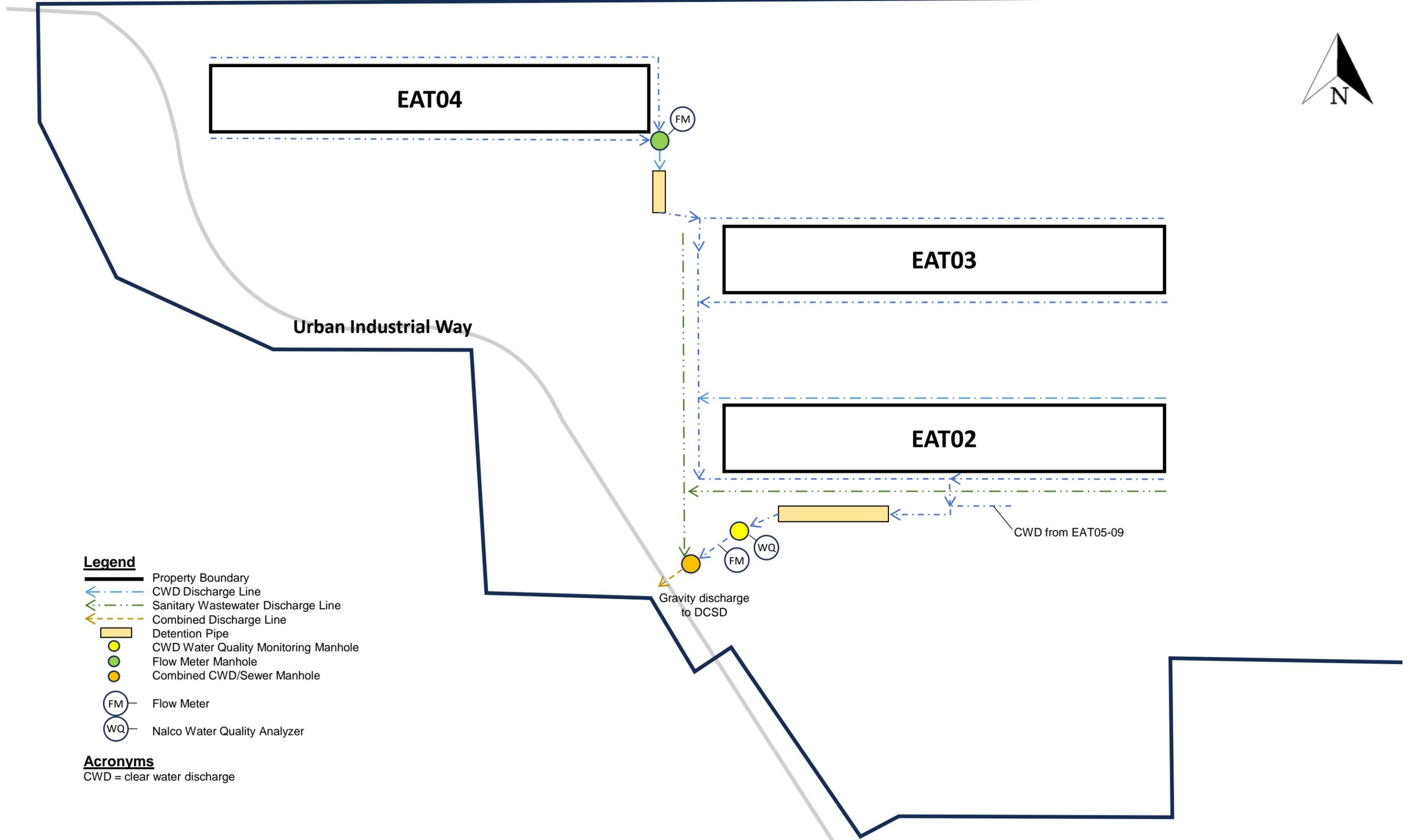
mg/L = milligrams per liter
 TDS = total dissolved solids

4.0 USE OF THIS REPORT

This Engineering Design Report Addendum has been prepared for specific application to the EAT02, EAT03, and EAT04 data center Facility. Use of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau shall be at the user's sole risk. Landau warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. Landau makes no other warranty, either express or implied.

5.0 REFERENCES

- EPA. 2021. Columbia and Lower Snake Rivers Temperature Total Maximum Daily Load. Region 10, US Environmental Protection Agency. August 13. <https://www.epa.gov/system/files/documents/2022-06/tmdl-columbia-snake-temperature-errata-update-05102022.pdf>.
- NCBI. PubChem Compound Summary for CID 33344, 5-Chloro-2-methyl-4-isothiazolin-3-one. National Center for Biotechnology Information. <https://pubchem.ncbi.nlm.nih.gov/compound/5-Chloro-2-methyl-4-isothiazolin-3-one>.
- Silva, V., C. Silva, P. Soares, E.M. Garrido, F. Borges, and J. Garrido. 2020. "Isothiazolinone Biocides: Chemistry, Biological, and Toxicity Profiles." *Molecules*. 25 (4). doi: 10.3390/molecules25040991. February 23.

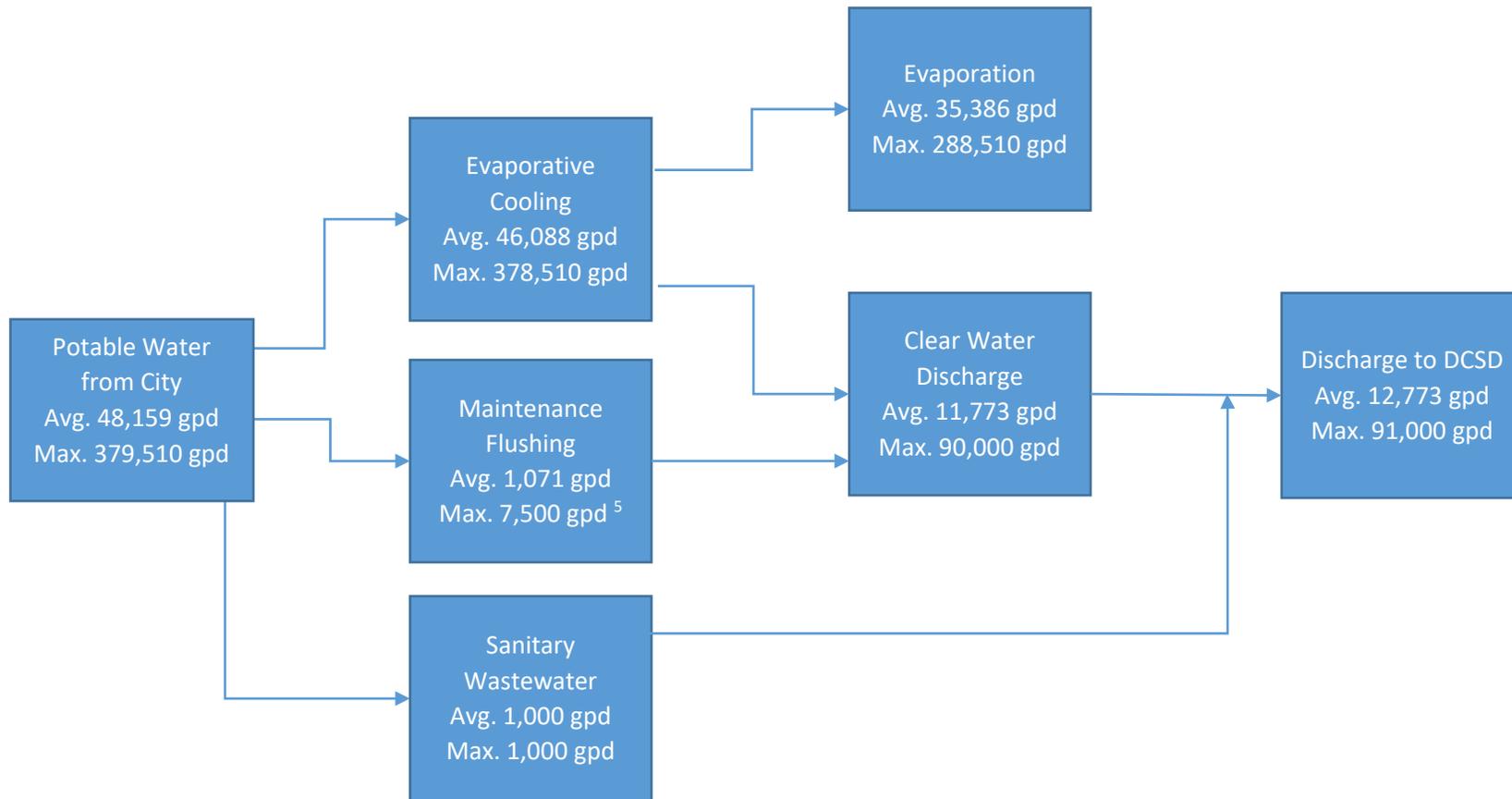


Legend

- Property Boundary
- CWD Discharge Line
- Sanitary Wastewater Discharge Line
- Combined Discharge Line
- Detention Pipe
- CWD Water Quality Monitoring Manhole
- Flow Meter Manhole
- Combined CWD/Sewer Manhole
- Flow Meter
- Nalco Water Quality Analyzer

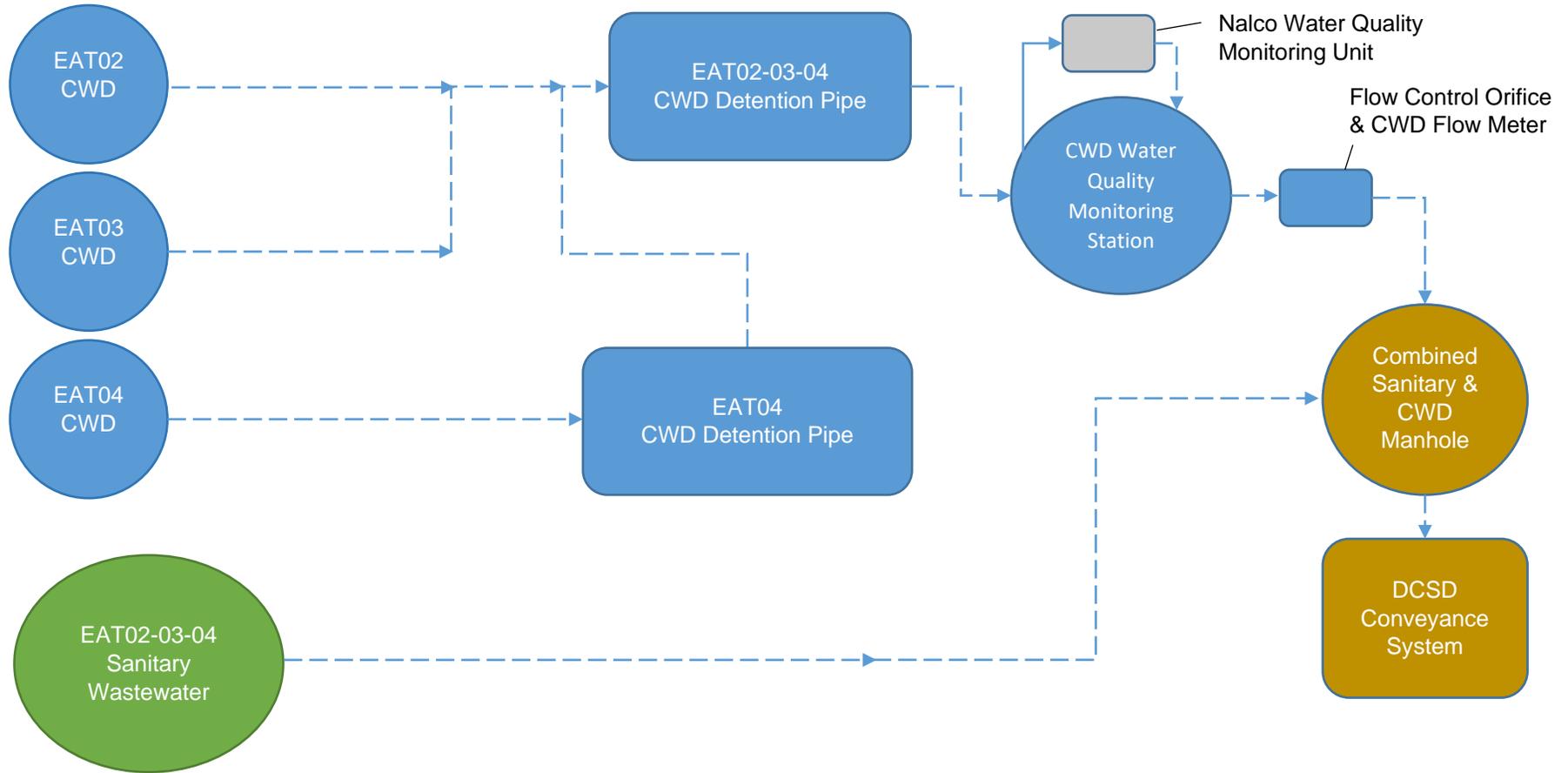
Acronyms

CWD = clear water discharge



Notes:

1. City = East Wenatchee Water District
2. DCSD = Douglas County Sewer District
3. Average and maximum values provided for cooling months only (May through September)
4. Avg. = Average flow, Max. = Maximum flow, gpd = gallons per day
5. Maintenance flushing will not take place during peak cooling days when the maximum daily demand and discharge take place.



Notes

1. CWD = clear water discharge
2. DCSD = Douglas County Sewer District
3. IE = invert elevation
4. Water Quality Monitoring Manhole outlet IE is 1.26' above the Combined Sanitary & CWD Manhole outlet IE.
5. All gravity drain lines are 8" diameter PVC pipe.

Legend

- Pumped flow
- Gravity flow

Report Update Letters and Approvals



October 26, 2022

Washington State Department of Ecology
Attn: David Matthews, Permit Manager
1250 W Alder St
Union Gap, WA 98903-0009

*Submitted via e-mail
to david.matthews@ecy.wa.gov*

Dear Mr. Matthews,

I am reaching out to you regarding the Microsoft EAT02/03/04 Data Center State Waste Discharge Permit (SWDP; Permit No. ST0501334) to provide you with two project updates, including:

1. Verification of SWDP coverage for EAT03; and
2. Sanitary lift station design modification.

As a quick recap, Microsoft obtained SWDP coverage for the proposed development of three co-located data center facilities in East Wenatchee – EAT02, EAT03, and EAT04 (Facility) – with the Temporary SWDP issued on November 5, 2021 (effective date is October 22, 2021). Construction of the EAT02 data center is currently underway, and the second data center, EAT03, is in the design phase.

1. SWDP Applicability for EAT03

Microsoft's mechanical design team, ESD, has reviewed the EAT03 design and determined that there are no changes to the mechanical processes for EAT03 that affect the quantity or quality of the clear water discharge (CWD) identified in the Facility's SWDP application. Landau Associates, the wastewater design/permitting consultant, has also verified that no changes to the wastewater conveyance are included in the EAT03 design relative to the Facility's SWDP. As such, we don't anticipate modifications to the SWDP being required for EAT03.

2. Sanitary Lift Station Design Modification

In addition, Microsoft is providing notification of a change in the sanitary wastewater conveyance design that was driven by updated guidance from the DCSD. A sanitary lift station was included in the Facility's engineering design report (EDR) based on initial feedback from DCSD that the Facility would be required to limit the combined instantaneous flow rate of sanitary wastewater and CWD below 200 gallons per minute (gpm). However, based upon subsequent design review comments from RH2, DCSD's consultant,

the sanitary lift station was not required and was ultimately not constructed. As identified on Page 8, Comment 1 of the attachment to this submittal, RH2 stated that the insignificant sanitary discharges combined with a peak CWD flow of 174 gpm is acceptable to the DCSD without the need for a sanitary lift station for metering. This change to the sanitary wastewater conveyance system does not change the quantity or quality of CWD being discharged to DCSD, and therefore we don't anticipate modifications to the SWDP being required. As-built drawings of the CWD/wastewater conveyance and discharge system for EAT02 and EAT03 may be provided to Ecology upon request.

Please feel free to contact me at eantonakos@microsoft.com or at 425.421.6761 if you would like to discuss any of these notifications in more detail.

Best Regards,

ELENA ANTONAKOS

Cc:

Adam McKnight
Kanwar Mahal
Corey Rowles
Katrina Keene



DOUGLAS COUNTY TRANSPORTATION & LAND SERVICES

140 19TH STREET NW, SUITE A • EAST WENATCHEE, WA 98802

PHONE: 509/884-7173 • FAX: 509/886-3954

www.douglascountywa.net

NOTICE OF ADDITIONAL INFORMATION

March 16, 2021

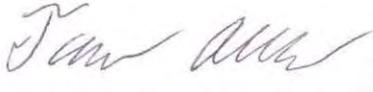
Applicant(S): Chad Mendell, Environmental Systems Design
Project: BPC-2021-003
Parcel Number(S): 22210920004, 22210920005, 22210920006
Location: NNA Urban Industrial Way, East Wenatchee, WA 98802

The application for BPC-2021-003 requires additional information to be submitted to Douglas County Land Services and/or items to be addressed before it can be processed. The additional information is outlined below:

1. Comment letters from the Douglas County Sewer District, and Sewer District's Engineer, have been attached. Please review each letter and ensure that all Sewer District requirements are met.
2. Comments from the Douglas County Transportation and Stormwater Department are attached. Please reply to all the requirements listed within the comment.
3. Comments from the Douglas County Land Services Department state: "Please show the location of the current property lines on the site plan. The structure appears to cross the property line between parcel #22210920005 and 22210920006. The structure must meet setbacks laid out in DCC 18.60.060(B). If the structure crosses property lines please relocate the building to meet current setbacks, or apply for a Boundary Line Adjustment/ Lot Consolidation to adjust property lines accordingly." Please provide updated site plans showing setbacks, or a Boundary Line Adjustment/ Lot Consolidation application, to address setbacks. A Lot Consolidation form has been attached.
4. Comments from the Douglas County GIS Department are still pending. Please contact the GIS Department to ensure all requirements are met.
5. Comments from the Douglas County Building Department are still pending. Please contact the Building Department to ensure all requirements are met.

Use this letter as a checklist to make sure that you have included all of the requested information. Partial or incomplete submittals will not be accepted. **Once the additional information is submitted, staff will need additional time to review materials before proceeding with the project.** Please contact myself, or the applicable agency, if you have any questions.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tanner Ackley".

Tanner Ackley
Associate Planner - Land Services

Attachments:

Agency Comments

DOUGLAS COUNTY SEWER DISTRICT NO. 1

692 Eastmont Avenue

East Wenatchee, WA 98802

(509) 884-2484 ♦ Fax (509) 884-8091

March 11, 2021

BPC-2021-003 application comments:

Requirements and notes for Building Permit Approval:

1. A General Facilities Charge (GFC) of \$600,419.60 must be paid in full prior to building permit approval. This fee (sometimes referred to as a connection fee) is based on the building sanitary plumbing fixture count, plus the estimated maximum month daily average discharge of “clear water discharge” (CWD) provided by the applicant. Clear water discharge in this context is also known as “non-contact cooling water”.
2. The GFC is calculated in part based on the applicant’s estimated volume of CWD. If the actual metered volume of CWD is greater than the estimated volumes, the Sewer District reserves the right to collect additional GFC funds.

Requirements and notes for Occupancy:

1. The applicant must initiate a State Waste Discharge Permit (SWDP) application with the Washington Department of Ecology (WDOE) and provide the Sewer District with a copy of the completed application.
2. The applicant must obtain a SWDP from WDOE or provide a response from WDOE stating that such a permit is not required for the facility.
3. The applicant may be required to submit additional information to the Sewer District, as requested, as a supplement to the SWDP.
4. The applicant will be required to enter into a Douglas County Sewer District No. 1 Industrial Wastewater Contracted User Contract. The contract will specify terms of use, monthly rates and charges, and all other Sewer District requirements related to the applicant’s use of, and discharge to, the public sewer facilities.
5. The applicant will be required to extend public gravity sewer in Urban Industrial Way to the extent shown on the attached civil engineering comments.
6. The applicant will be required to enter into a Developer Extension Agreement (DEA) with the Sewer District. The application is attached. All engineering costs, other technical consultation costs, legal expenses and/or staff costs incurred by the Sewer District related to the building permit application, the administration of the DEA, and/or the Industrial Wastewater Contracted User Contract, will be reimbursable to the Sewer District, by the applicant, under the terms of the DEA.
7. The Sewer District’s acceptance of all or part of the applicant’s CWD is contingent upon the current and future requirements and limitations of the District’s National Pollutant Discharge Elimination System (NPDES) permit with WDOE, other operational, environmental, or regulatory constraints or considerations that may arise in the future, and the applicant’s compliance with all permits, the terms of the DEA, and the Industrial Wastewater Contracted User Contract.

Questions and correspondence may be directed to:

Kurt Hosman
Development Liaison
Douglas County Sewer District
kurt@docosewer.org
509-884-2484 office
509-630-4099 mobile

DOUGLAS COUNTY SEWER DISTRICT NO. 1
DOUGLAS COUNTY, WASHINGTON

**APPLICATION FOR EXTENSION OF
SANITARY SEWER SERVICE**

Development Name: EAT02 Project
Developer/Owner:
Primary Point of Contact:

1. The undersigned hereby applies to Douglas County Sewer District No. 1, Douglas County, Washington, for permission to construct and install an extension of the District's sanitary sewer system located in public rights-of-way under the District's franchise, and/or on easements over private property to connect to the District's sanitary sewer system, all of which are subject to the approval of the District.

2. A check for the **\$0.00** review / Administrative fee for this application is attached. **Application fee waived.**

3. The proposed extension will be installed in roads and/or easements and/or on other approved public rights-of-way and shall be for the use and benefit of the property legally described as follows:

The common street address of the property is:

and the legal description of the property is:

--

Parcel #

4. (a) Describe the type of improvements planned for the above-described property, i.e., single family residences, other individual residential units or commercial usage, and the proposed number of units.

Commercial data center

(b) If this development is residential, please note the number of residential units (or Equivalent Residential Units) requested for connection in 2021____, 2022 _____, and 2023_____. **N/A**

(c) If this development is commercial or industrial, please note the number of Equivalent Residential Units (ERU's) requested for connection in 2021 _____, 2022 _____, and 2023 _____. **N/A**

(d) Attached to the application shall be two copies of each of the following:
N/A

Submit updated civil plans on Douglas County SMARTGOV site. Email application to District point of contact listed below.

5. Set forth the proposed date for construction of the project and the anticipated completion date for the project:

Start of Construction:
Completion of Construction:

- 6.

Developer/Owner Primary Point of Contact:
Street Address:
Mailing Address:
E-Mail:
Telephone Numbers:

- 7.

Engineer:
Address:
Phone No.:
Email:

Contractor:
Address:
Phone No.:
Email:

Douglas County Sewer District point of contact:

Kurt Hosman

kurt@docosewer.org

509-884-2484 office

509-630-4099 mobile



March 11, 2021

Ms. Bernita Landers
Douglas County Sewer District
692 Eastmont Avenue
East Wenatchee, WA 98802

Sent via: Email

Subject: Microsoft EAT02 Data Center – Civil Construction Plan Review

Dear Ms. Landers:

This letter is in response to the On-site and Off-site Civil Construction Plans (“Plans”) for the Microsoft Corporation (“Developer”) EAT02 Data Center that were signed and stamped on January 22, 2021 by John Hanson. These Plans were received by RH2 Engineering, Inc. (“RH2”) for an engineering review on behalf of the Douglas County Sewer District No. 1 (“District”). RH2 has reviewed the sanitary sewer portion of these plans and is providing the following comments regarding this proposed infrastructure:

On-Site Plan Comments

1. The Plans depict a sanitary sewer lift station for metering the output of sanitary sewer discharge from the site. While downstream capacity limitations have been placed on the Developer, peak instantaneous flows developed by the sanitary system are expected to be insignificant and metering of the discharge is not necessary. It is anticipated that insignificant sanitary discharges combined with a peak Clean Water Discharge (“CWD”) of 174 gallons-per-minute (gpm) will be acceptable to District. Thus, the District shall not require the Developer to install a sanitary sewer lift station for metering. A fixture count will be performed to determine sanitary sewer billing fees.
2. CWD pipe and Sanitary Sewer pipe shall be different colors to provide clear identification between the two systems. Sanitary Sewer pipe shall be green in color; CWD pipe shall be another color, preferably white or purple.
3. District standard for pipe schedule is D3034 SDR26. Note 2 on Sheet C-E2-01 incorrectly states that all pipe shall be SDR 35. Revise the note to require SDR26 pipe for all District-owned sewer pipe.
4. The Nalco Monitoring station for the CWD shall measure, at a minimum, temperature and conductivity. It shall also include a composite grab sampler.



**WASHINGTON
LOCATIONS**

Bellingham
Bothell (Corporate)
East Wenatchee
Issaquah
Richland
Tacoma

**OREGON
LOCATIONS**

Medford
Portland



5. The Nalco Monitoring Station data and the output of the orifice flow meter output shall be transmitted to District's SCADA System. The Developer shall provide a means of integrating this information into the District's SCADA System.

Off-Site Plan Comments

6. It has been the District's practice to require Developers to extend sewer to the outer limits of the subject property along two of its four sides where the topography makes such extensions reasonable to construct and beneficial for providing future gravity sewer service beyond the Developer's parcel. Developable land exists north of the project site and the District shall require the Developer to extend gravity sewer within Urban Industrial Way ("UIW") to approximate STA 83+50. In designing this extension, the District shall require the following:
 - a. Gravity sewer pipe shall be 10-inch diameter 3034 PVC SDR 26 and shall maintain a minimum slope of 1.00%.
 - b. The existing sewer pipe and manholes upstream of the manhole located at STA 60+20 shall either be removed or abandoned in place and the UIW sewer extension shall follow the alignment of the existing downstream sewer.
 - c. Installation of an 8-inch diameter sewer stub at approximate STA 68+25. Stub shall be located 30 feet offset from the southern property boundary of parcel no. 22210920006 so as to be centered in the existing 60' wide access and utility easement. The stub shall extend beyond the 15-foot-wide PUD easement.
 - d. Installation of an 8-inch diameter sewer stub heading south from the proposed sewer main at approximate STA 80+50 for future connectivity of parcel #22210920003. Stub shall extend from UIW sewer main to the south side of the 15-foot-wide PUD easement. Provide a 15-foot wide sewer easement for this stub across Microsoft property from UIW ROW to the neighboring parcel.
 - e. Terminate the UIW gravity sewer in a manhole with approximately 4.0' of cover.
7. Where the combined on-site sanitary and CWD sewer pipe leaves the Developer's site, an 8-inch cleanout per DCSD11 shall be installed to delineate the public vs. private ownership of the lines.
8. The most recent version of the District's Standard Details shall be attached to the off-site Civil Plans.



If you have any questions or need RH2 to clarify any of the comments provided, please do not hesitate to call me at (509) 886-6773.

Sincerely,

RH2 ENGINEERING, INC.

Jeremy Stumetz, P.E.

Engineers for the Douglas County Sewer District No. 1



Signed
3/11/2021



Signed
3/11/2021

Attachments: Microsoft EAT02 Data Center Plans, signed and stamped 1/22/2021 applicable sheets with RH2 Comments

IESD
 122 S. Wilson Ave. Ste 100
 Springfield, VA 22153
 Phone: 703.733.1000
 Fax: 703.733.1001
 Website: www.iesd.com
 Project: EAT02
 Date: 01/11/2011
 Scale: 1" = 40'

EAT02
DATA CENTER
901 URBAN
INDUSTRIAL WAY

NO. 1	DATE	BY	APP'D
NO. 2	DATE	BY	APP'D
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NO. 4	DATE	BY	APP'D
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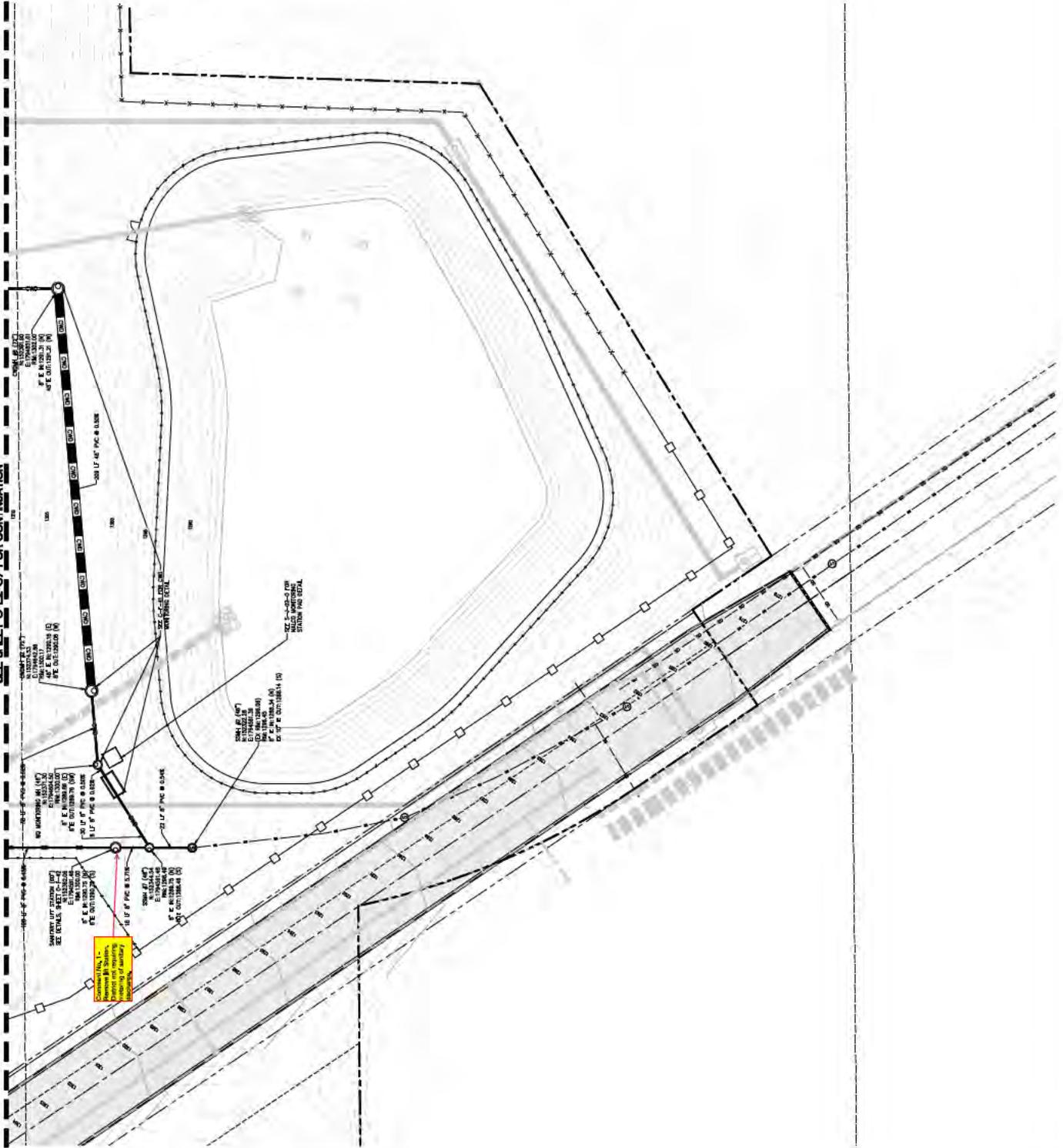


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61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

CIVIL SEWER PLAN
C-E2-D7



- LEGEND**
- PROPERTY LINE
 - IMPROVED PAVEMENT
 - IMPROVED SIDEWALK
 - CURB WITH REINFORCED PVC
 - PROPOSED SIDEWALK
 - PROPOSED SIDEWALK WITH REINFORCED PVC
 - PROPOSED SIDEWALK WITH REINFORCED PVC AND MANHOLE
 - PROPOSED SIDEWALK WITH REINFORCED PVC AND MANHOLE AND CURB
 - PROPOSED SIDEWALK WITH REINFORCED PVC AND MANHOLE AND CURB AND PLUS WITH BLOOMING
 - PROPOSED SIDEWALK WITH REINFORCED PVC AND MANHOLE AND CURB AND PLUS WITH BLOOMING AND RESTRICTION JOINT
- NOTES**
- SEE EXISTING AND PROPOSED PLANS FOR EXISTING AND PROPOSED MANHOLE
 - SEE EXISTING AND PROPOSED PLANS FOR EXISTING AND PROPOSED CURB STOP
 - SEE EXISTING AND PROPOSED PLANS FOR EXISTING AND PROPOSED PLUS WITH BLOOMING
 - SEE EXISTING AND PROPOSED PLANS FOR EXISTING AND PROPOSED RESTRICTION JOINT



MICROSOFT CONFIDENTIAL



REVISIONS	DATE
1.1	10/26/2021
2.1	11/23/2021
3.1	01/07/2022
4.1	01/27/2022



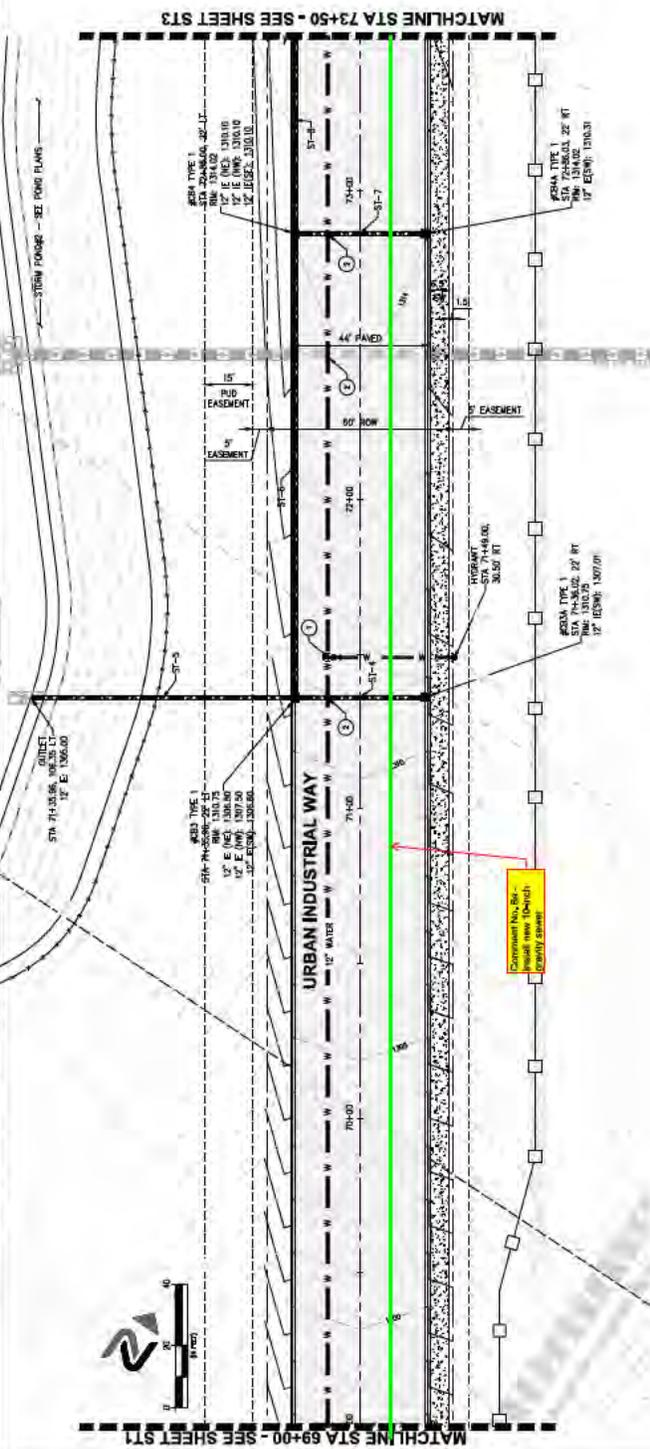
SECTION, TOWNSHIP, RANGE:
M.E. 19 OF SECTION 10,
TOWNSHIP 36 NORTH,
RANGE 51
EAST W.A.
PROJECT TEAM
DESIGNED BY: JH
SHAFT

SHEET NAME
**URBAN INDUSTRIAL
WAY PLAN AND
PROFILE**
SHEET NUMBER
STZ

PIPE SCHEDULE	PIPE #	DIAMETER	LENGTH (FT)	SLOPE (%)	TYPE
	SI-E	12"	150	1.376	HDPE
	SI-S	12"	85	2.118	HDPE
	SI-A	12"	42	0.506	HDPE
	SI-B	12"	150	0.736	HDPE
	SI-F	12"	42	0.506	HDPE

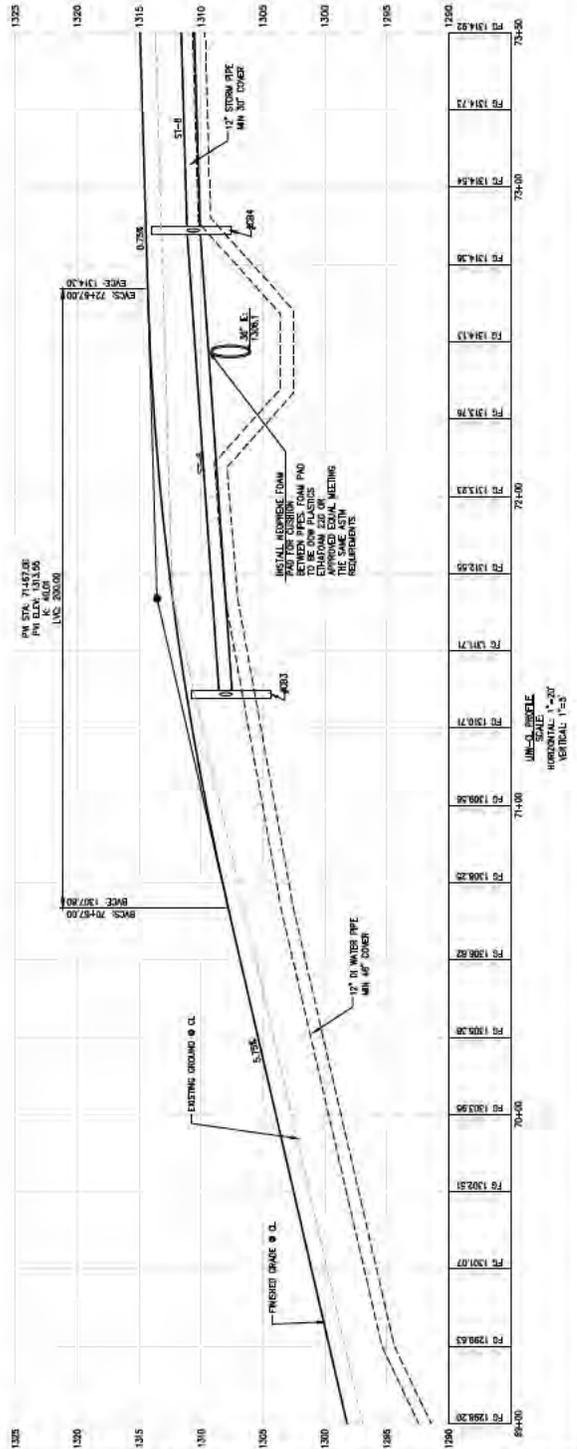
KEYNOTES

- INSTALL PIPE IN ACCORDANCE WITH DOWG 1000 W-02 (1) OF DOWG 1000 (1) OF DOWG 1000 (1) OF DOWG 1000
- INSTALL WATER MAIN TO PROVIDE A MINIMUM 12" SEPARATION BETWEEN TOP OF WATER MAIN AND BOTTOM OF STORM PIPE.
- INSTALL 60" RAD PROTECTION AT OUTLET. REFER TO PROJECT DESIGN CONTROL PLANS.



LEGEND:

064-100	CENTRELINE / STATION LINE
---	PROPERTY LINE
---	RIGHT OF WAY LINE
---	CURB AND GUTTER
---	SEWER LINE
---	SANITARY LINE
---	WATER LINE





REVISIONS

NO.	DATE	DESCRIPTION
1	03.15.20	ISSUE FOR PERMITS
2	03.15.20	ISSUE FOR PERMITS
3	03.15.20	ISSUE FOR PERMITS
4	03.15.20	ISSUE FOR PERMITS



SECTION, TOWNSHIP, RANGE:
RANGE 18N, TOWNSHIP 18N, RANGE 11E
EAST, WA.

PROJECT TEAM
DESIGNED BY: [Signature]
CHECKED BY: [Signature]

SHEET NAME
URBAN INDUSTRIAL
WAY PLAN AND
PROFILE

SHEET NUMBER
S13

PIPE SCHEDULE

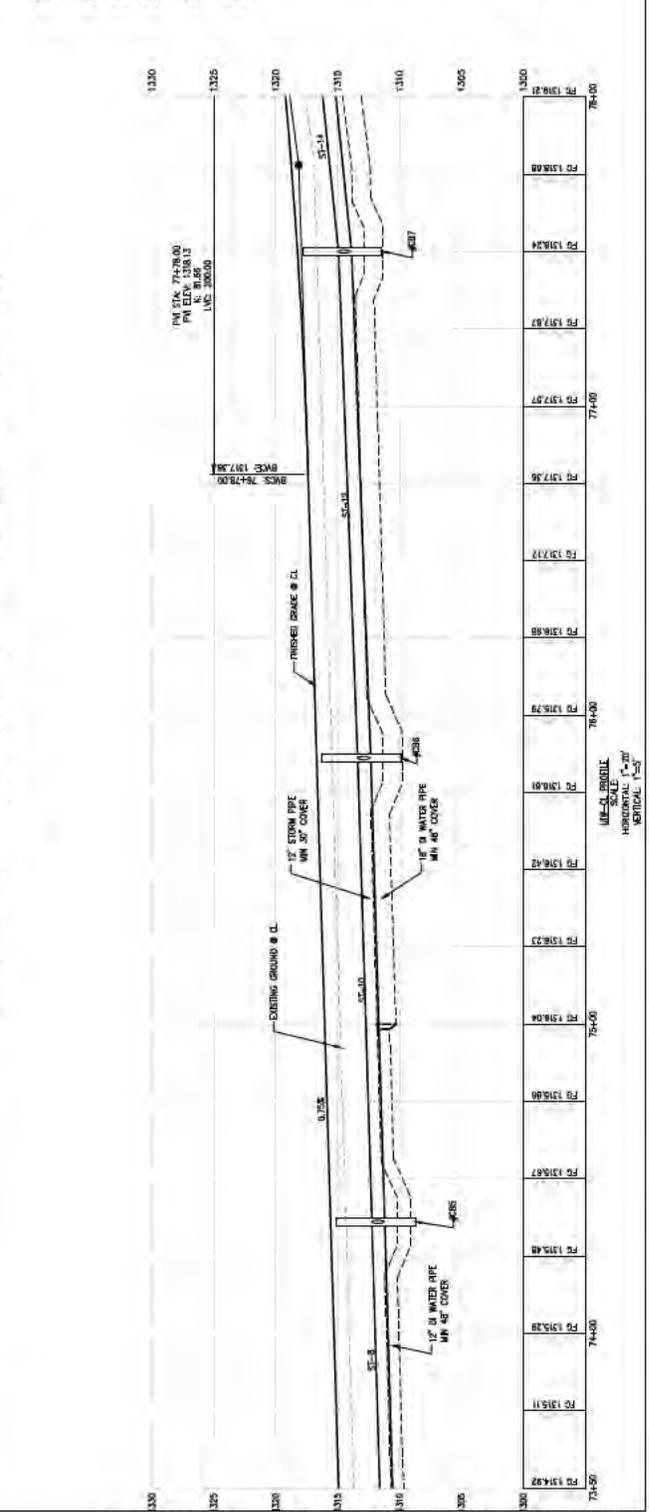
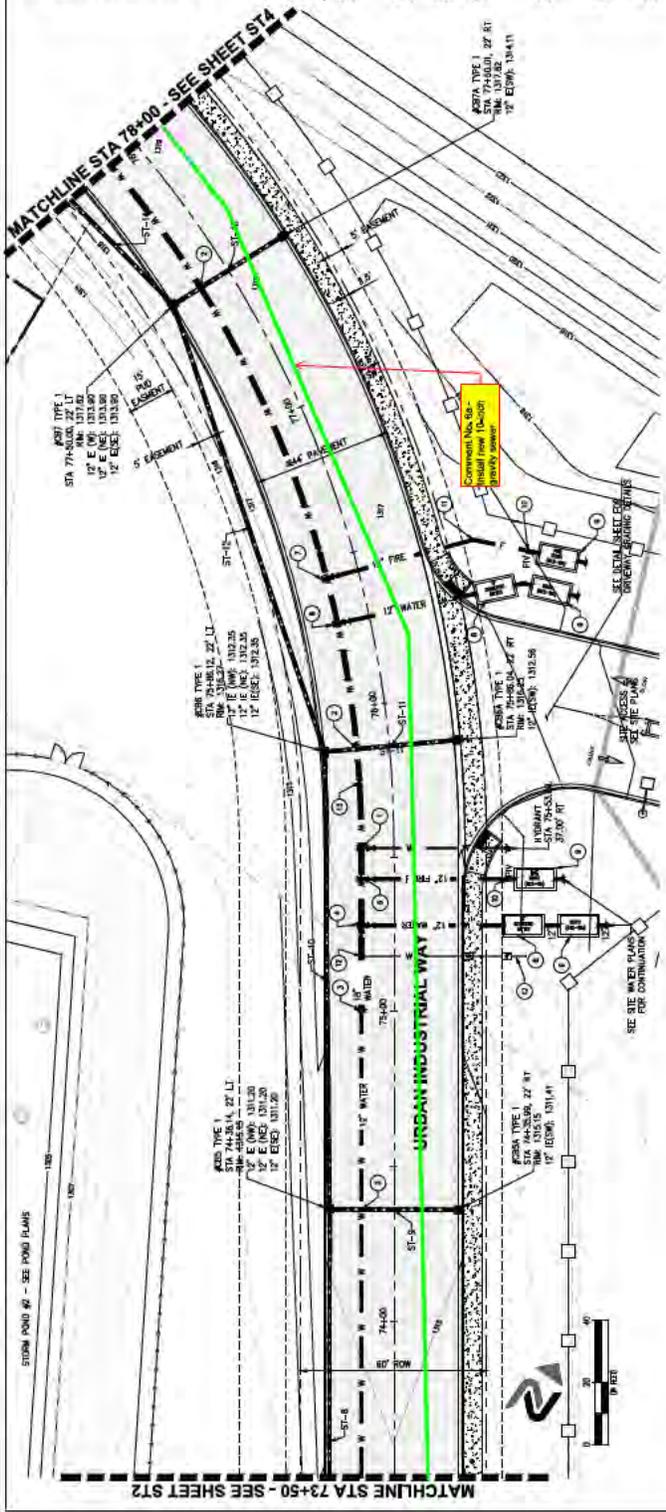
PIPE #	DIMENSIONS	LENGTH (FT)	SURFE (IN)	TYPE
ST-3	12" x 12"	42	0.00X	HOPE
ST-11	12" x 12"	43	0.00X	HOPE
ST-13	12" x 12"	42	0.00X	HOPE
ST-4	12" x 12"	160	0.00X	HOPE
ST-14	12" x 12"	160	2.00X	HOPE
ST-12	12" x 12"	153	1.00X	HOPE
ST-10	12" x 12"	148	0.00X	HOPE

KEYNOTES

- INSTALL FIRE HYDRANT PER ENDING DWS #1-03
(1) 8" FLAM COV.
STA 74+00, 10.5' LT @ TEE
- REFLECT WATER MAIN TO PROVIDE A MINIMUM 12" SEPARATION BETWEEN TOP OF WATER MAIN AND BOTTOM OF STORM PIPE.
(1) 12" HOPE FL REDUCER
STA 74+00, 10.5' LT
- STA 74+00, 10.5' LT
(1) 12" HOPE
(1) 12" HOPE
(1) 12" HOPE
- STA 74+44, 10.5' LT
(1) 12" HOPE
(1) 12" HOPE
(1) 12" HOPE
- STA 74+08.5, 10.5' LT
(1) 12" HOPE
(1) 12" HOPE
(1) 12" HOPE
- STA 74+44, 10.5' LT
(1) 12" HOPE
(1) 12" HOPE
(1) 12" HOPE
- INSTALL 1" IRRADIATION SERVICE WITH 1" METER AND BURNDOWN WITH 1" BURNDOWN VALVE & BYPASS LINE. COORDINATE WITH OWNER FOR APPROVAL OF SMALLER BYPASS LINE.
(1) 1" BURNDOWN VALVE
(1) 1" BURNDOWN VALVE
- BURNDOWN ASSEMBLY PER ENDING DWS #1-13
(1) 1" BURNDOWN VALVE
(1) 1" BURNDOWN VALVE
- POST INDICATOR VALVE WITH TAMPER SWITCH
(1) 1" BURNDOWN VALVE
(1) 1" BURNDOWN VALVE
- INSTALL 2x4.5" FITTING W/ VAL.
(1) 1" BURNDOWN VALVE
(1) 1" BURNDOWN VALVE
- INSTALL 1" IRRADIATION SERVICE WITH 1" METER AND BURNDOWN WITH 1" BURNDOWN VALVE & BYPASS LINE.
(1) 1" BURNDOWN VALVE
(1) 1" BURNDOWN VALVE

LEGEND:

- 88-00 CONTIGUOUS / STATION LINE
- PROPERTY LINE
- RIGHT OF WAY LINE
- CURB AND GUTTER
- SMOOTH LINE
- STORM LINE
- WATER LINE



VERTICAL: 1"=3'

HORIZONTAL: 1"=20'

LEGEND: SEE PLAN

SEE DETAIL SCHEDULE FOR PIPE SIZES

SEE DETAIL SCHEDULE FOR MANHOLE SIZES

SEE DETAIL SCHEDULE FOR COVER SIZES

SEE DETAIL SCHEDULE FOR FITTINGS

SEE DETAIL SCHEDULE FOR VALVES

SEE DETAIL SCHEDULE FOR HYDRANTS

SEE DETAIL SCHEDULE FOR SIGNAGE

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SEE DETAIL SCHEDULE FOR EROSION CONTROL

SEE DETAIL SCHEDULE FOR LANDSCAPE



REVISIONS	DATE
1.1	5/26/2021
2	10/28/2021
3	10/28/2021
4	10/28/2021



SECTION, TOWNSHIP, RANGE:
R15E 23S 12E
TOWNSHIP 23S, RANGE 12E, EAST WA.

PROJECT TEAM

SHEET NAME

URBAN INDUSTRIAL
WAY PLAN AND
PROFILE

SHEET NUMBER

ST4

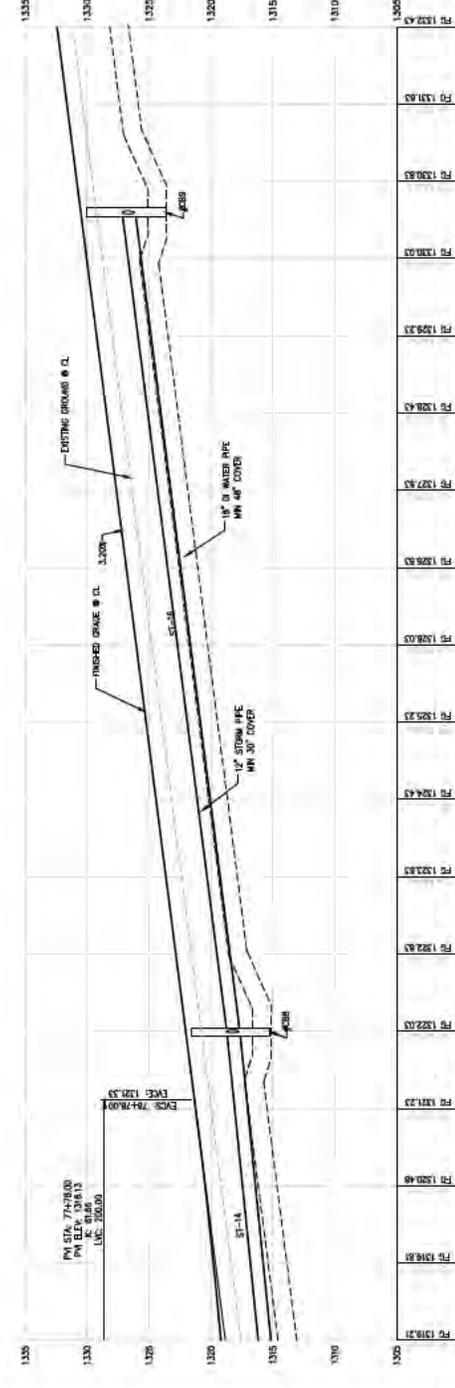
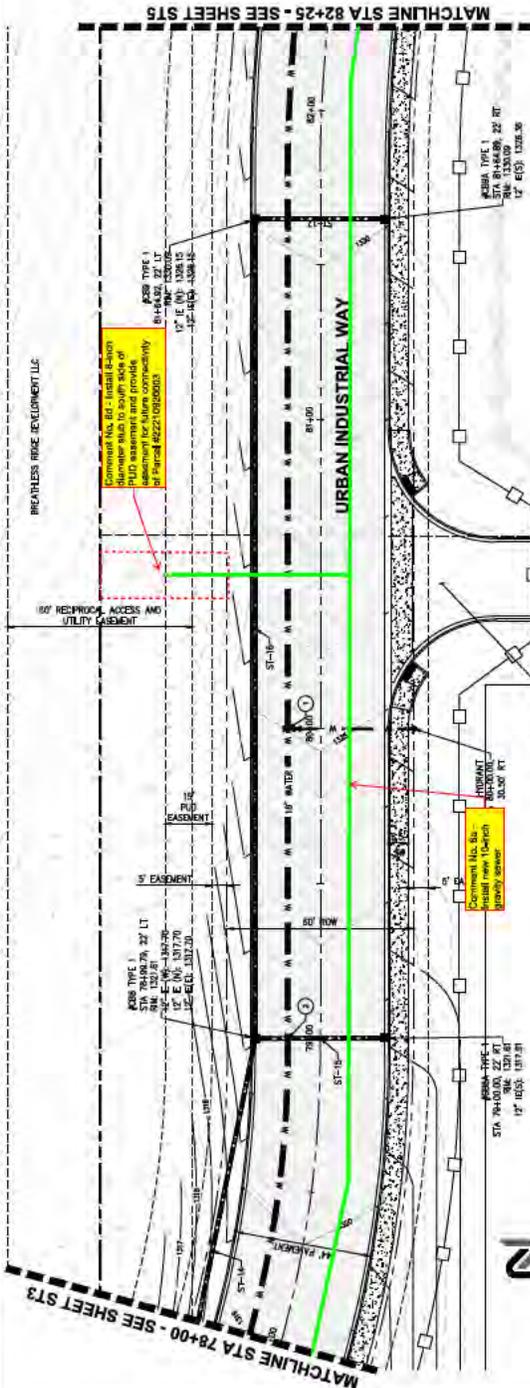
PFE #	DIMETER	LENGTH (FT)	SLOPE (%)	TYPE
ST-18	12"	42	0.00%	HOPE
ST-14	12"	140	2.71%	HOPE
ST-16	12"	265	3.19%	HOPE
ST-17	12"	42	0.00%	HOPE

KEYNOTES

- 1. INITIAL PFE INFORMATION PER EMD 19M-10-02
O.P. OF TANK, TEL.
STA 80+00, 10.0' LT @ TIE.
- 2. DEFLECT WATER MAIN TO PROVIDE A MINIMUM 12" SEPARATION
BETWEEN TOP OF WATER MAIN AND BOTTOM OF STORM PIPE.

LEGEND:

- 84+00 --- CENTERLINE / STATION LINE
- PROPERTY LINE
- RIGHT OF WAY LINE
- CURB AND GUTTER
- SANITARY LINE
- STORM LINE
- WATER LINE





REV#	DATE	DESCRIPTION
1	03.15.20	ISSUE FOR PERMIT
2	03.15.20	ISSUE FOR PERMIT
3	03.15.20	ISSUE FOR PERMIT
4	03.15.20	ISSUE FOR PERMIT



SECTION, TOWNSHIP, RANGE:
M 1/2 OF SECTION 10, T12N, R12E
TOWNSHIP 12N, RANGE 21
EAST, WA.

PROJECT TEAM
DESIGNED BY: JH
CHECKED BY: JH

SHEET NAME

URBAN INDUSTRIAL
WAY PLAN AND
PROFILE

SHEET NUMBER

ST5

PIPE SCHEDULE				
PIPE #	DIMETER	LENGTH (FT)	SLOPE (%)	TYPE
ST-18	12"	42	0.50%	HDPE
ST-19	12"	150	0.50%	HDPE

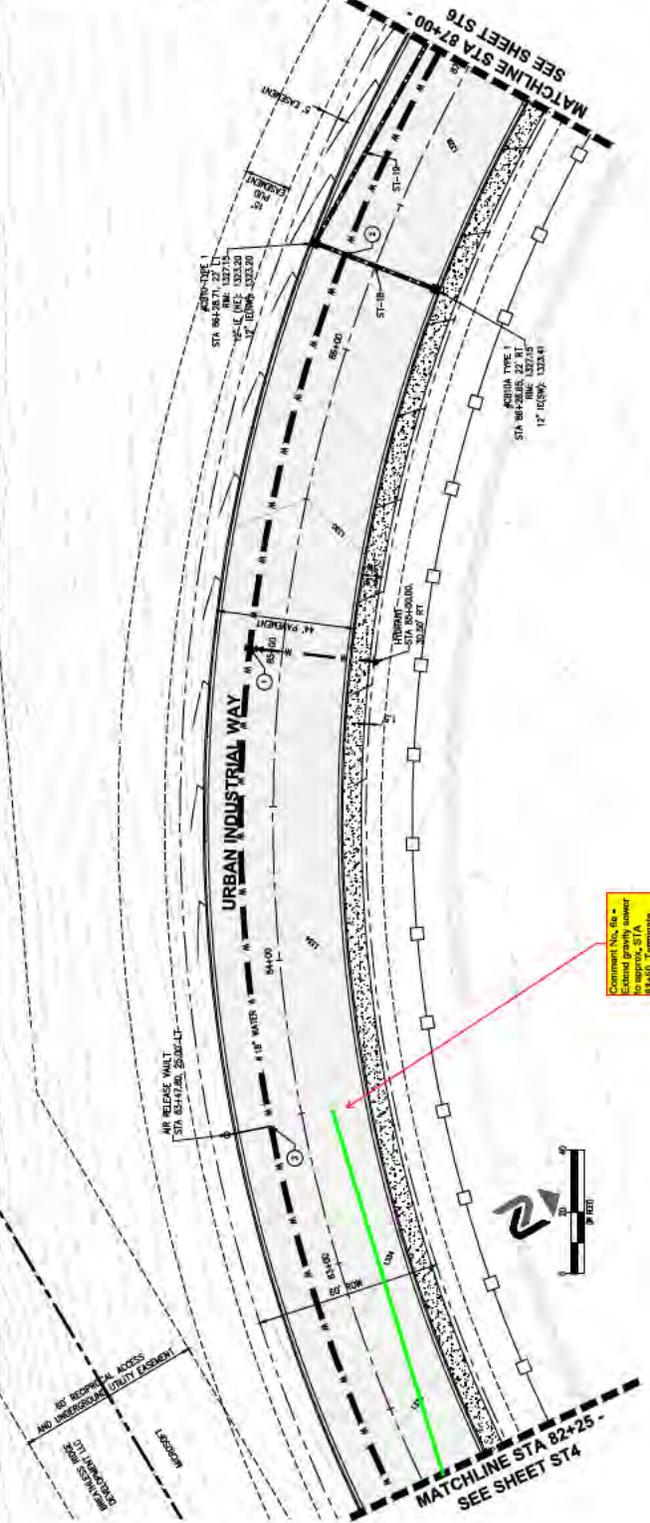
KEYNOTES

- INSTALL PIPE INVERT PER EING DING W-02
(1) 18" W/ 12" HDPE
(2) 6" TUMBU BY
SIN. 0.50%, 10.5' LT @ TIE
- SELECT WATER MAIN TO PROVIDE A MINIMUM 12"
BOTTOM OF WATER MAIN AND
BOTTOM OF STORM PIPE
- INSTALL AIR RELEASE VALVE PER EING DING W-10
SIN. 0.50%, 10.5' LT

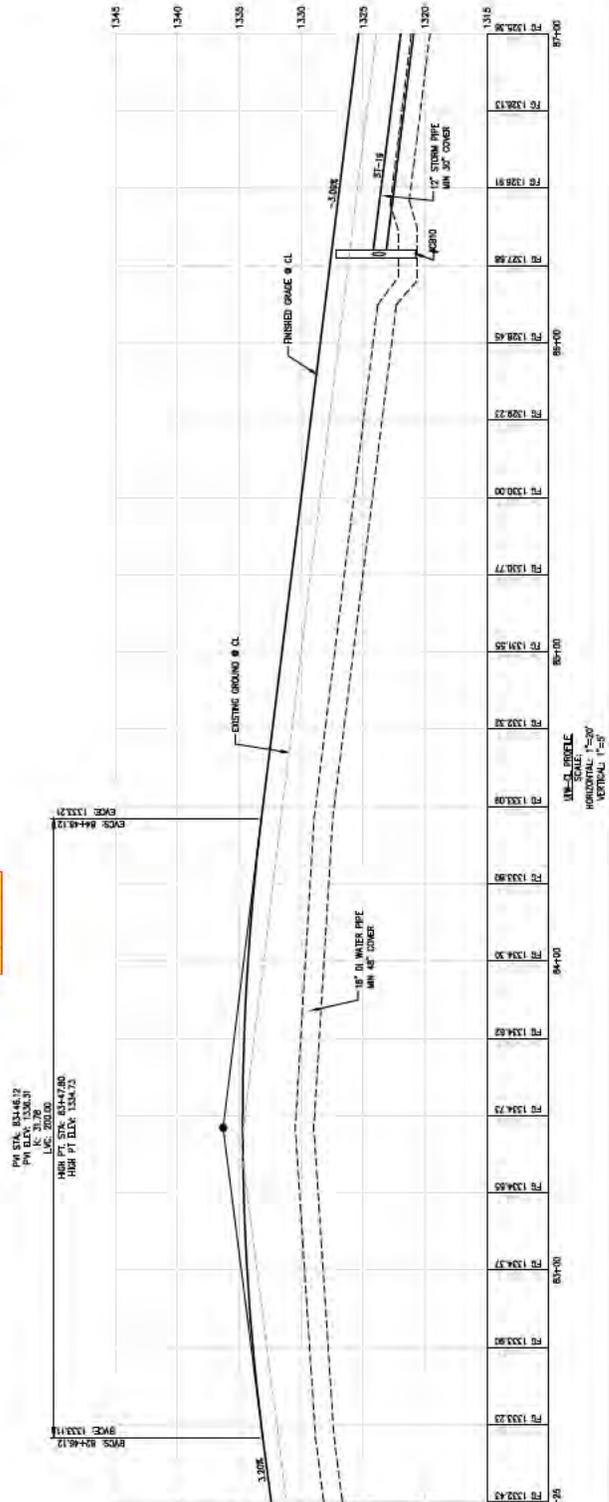
LEGEND:

- CONTIGUOUS / STATION LINE
- PROPERTY LINE
- RIGHT OF WAY LINE
- CURB AND GUTTER
- SEWER LINE
- STORM LINE
- WATER LINE

Comment No. 8 - Allow main recent version of OGSB Standard Details to Official Plans



Comment No. 8a -
Extend gravity sewer
to approach STA
84+00. Gravity sewer
to gravity sewer in
manhole with 4.2' of
down.



PW STA: 83+47.00
PI STA: 83+47.00
LVC: 200.00
HUB PT STA: 83+47.00
HUB PI STA: 1327.15

PWS STA: 82+46.12
PI STA: 1333.12
LVC: 200.00

LINE IS PROFILE
SCALE
HORIZONTAL 1"=50'
VERTICAL 1"=5'



DOUGLAS COUNTY

Transportation & Land Services

STATE OF WASHINGTON

March 2, 2021

John Hanson, PE
Navix Engineering
11400 SE 8th St. STE 345
Bellevue, WA 98004

Chad Mendell
233 S Wacker Dr, STE 5300
Chicago, IL 60606

Subject: BPC-2021-003 Microsoft EAT02 Data Center
Construction Plan Review 1

Dear Mr. Hanson,

Construction plans and supporting information submitted on January 22, 2021 have been reviewed by Douglas County Transportation and Stormwater. Items to be addressed prior to acceptance of the construction plans and drainage report are noted within this letter and attached.

Traffic Impact Analysis:

- 1) The traffic impact analysis utilizes a growth rate of 0.5 percent. Per previous coordination with TENW, a 1.5% traffic growth rate shall be utilized.

Site Construction Plans:

- 2) **Sheet 1** – Include the designation “BPC-2021-003” on the cover sheet.
- 3) **Sheet C-D1-01** – Include reference to the Early Grading Plan set for site demolition, erosion control, and mass grading.

Off-site Construction Plans:

- 1) **General** – The pre-application meeting notes include a statement that Urban Industrial Way is a collector with a required paved surface from face of curb to face of curb of 44. While this is accurate per the code requirements, the entirety of the previously constructed Urban Industrial has a width of 36 feet from face of curb to face of curb. Please revise the design for the Urban Industrial Way extension to match the previously approved width of 36 feet.
- 2) **General** – Ensure all stormwater pipes are within the right of way.
- 3) **Cover Sheet** – Include the designation “BPC-2021-003” on the cover sheet.
- 4) **Cover Sheet** – Include the statements in Douglas County Code 12.55.020.C & D on the cover sheet of the plan set.
- 5) **Sheet ST1** – Revise the layout for the sanitary sewer to avoid a sewer manhole in the sidewalk.

- 6) **Sheet ST2** - A Franchise Agreement for private stormwater facilities located within Douglas County right of way, including but not limited to private storm drainage pipes, is required to be complete after the right of way is dedicated and prior to issuance of any certificate of occupancy. This is applicable to the 36-inch storm pipes that cross Urban Industrial Way at approximately station 72+60 and 88+75.
- 7) **Sheet ST3, ST4, & DET-3** – revise the driveway connections to Urban Industrial way to utilize a WSDOT Type 1 approach.
- 8) **Sheet ST3, ST6 & ST7** – Include WSDOT Type 4 approaches for each of the pond access road connections to Urban Industrial Way.
- 9) **Sheet ST7** – The on-site plans show a private drive on the north side of the property that will need to connect to Urban Industrial Way at an angle between 75 degrees and 105 degrees. Install a WSDOT Type 1 approach at the connection location.
- 10) **Sheet ST7** – The plans show the north side of Urban Industrial Way being constructed off the Microsoft property and outside of Douglas County right of way from approximately station 94+85 to 96+15. This would only be acceptable if the adjacent property owner agreed to dedicate right of way via a statutory warranty deed, which is not required for this project. Unless this offsite right of way dedication is planned by your team and can be finalized prior to building permit issuance, revise the road design to taper down to the 24 foot wide section proposed for 10th Street in a manner that would allow the road be constructed within the project boundary.
- 11) **ST8 & 9** – Douglas County Transportation typically prohibits rockeries in the right of way. Please revise the design to use a keystone block wall or equivalent. Please provide structural calculations and wall details for all walls being proposed within existing right of way that exceed 4 feet in height and/or are surcharged.
- 12) **Sheet ST9 & 10** – Revise the design to replace the proposed nyloplast drain basins with a WSDOT Type 1, 1L, or 2 catch basin.
- 13) **Sheet ST10** - The arch culvert proposed to convey the upstream runoff across 10th Street shall be designed to accommodate full buildout of 10th. A culvert length of 47 feet will allow for future full build out of a 36-foot wide road with curb, gutter, and a 6 foot sidewalk on the north side of the road.
- 14) **Sheet ST9 & 10** – It is unclear how the proposed drainage design complies with 2019 SWMMEW and Douglas County Code requirements in regards to flow control and water quality treatment.
- 15) **Sheet DET-4** –It appears the Contech design details for the box culvert require additional design details and analysis by an engineer. One location where this is evident is note 2.4 on the detail labeled sheet 1 of 6:

2.4 ALL ASPECTS OF THE STRUCTURE DESIGN AND SITE LAYOUT INCLUDING FOUNDATIONS, BACKFILL, END TREATMENTS AND NECESSARY SCOUR CONSIDERATION SHALL BE PERFORMED BY THE ENGINEER.

All of the Contech details state that they are “Preliminary-Not for Construction”. Please refer to Douglas County Code 12.54 Bridges and Drainage Structures for additional information on the Design Standards for box culverts. Revise accordingly.

Drainage Report:

- 1) Include the designation “BPC-2021-003” on the cover of the Stormwater Report.
- 2) Include the statements in Douglas County Code 12.55.020.C & D on the cover sheet of the storm water report.

- 3) On page 10 of the report, it is noted that WWHM2012 was used to size the infiltration facilities. Revise to accurately note that Hydrocad was used.
- 4) Utilize the correction factors in the 2019 SWMMEW rather than applying a factor of safety to the measured infiltration rates.
- 5) The Terracon Geotechnical Engineer Report identified "0" for the infiltration rates for IT-2 & IT-3. Infiltration ponds 2 and 3 are proposed at the location of test pits IT-2 and IT-3 respectively. The analysis/design for ponds 2 and 3 is based on a 1 inch per hour design infiltration rate. Unfortunately, 0 is 0, and averaging the rates with other locations may result in ponds 2 and 3 not functioning as intended. Additional infiltration testing may be required.
- 6) It does not appear that 1 foot of freeboard has been provided for the infiltration ponds. Review and revise accordingly.
- 7) The report appears to be missing information regarding the drywells that are proposed in each pond. Review and revise accordingly
- 8) The report appears to be missing information regarding stormwater mitigation for the improvements in the 10th Street right of way. The plans show a dispersion trench very close to the right of way line. As proposed, the design does not meet the 2019 SWMMEW design requirements for full dispersion.
- 9) Provide conveyance calculations for all of the storm pipes.
- 10) The arch culvert designed to convey the upstream runoff across 10th Street shall be designed to accommodate full buildout of 10th. A culvert length of 47 feet will allow for future full build out of a 36-foot wide road with curb, gutter, and a 6-foot sidewalk on the north side of the road. In addition, please provide analysis/discussion regarding headwall design and permanent erosion protection for the flow path of the bottomless culvert in order to allow the potential extreme flows to pass through bottomless culvert without undermining the road/culvert.
- 11) The stormwater facilities proposed meet the criteria to be classified as an Underground Injection Control (UIC) facility. These facilities are required to be registered with the Washington State Department of Ecology 60 days prior to construction. A copy of the registration shall be provided to our department to enclose within the Declaration of Stormwater Maintenance Covenants required prior to final occupancy issuance.

Upon submittal of a revised **construction plan set, storm drainage report, and response to comments letters**, a review to ensure that all required items have been addressed will be performed. Additional review by Douglas County beyond the 2nd will be charged at actual expense, in accordance with the Permit Cost Recovery Schedule, Resolution TLS 20-53. Review costs incurred shall be paid by the applicant prior to Douglas County acceptance of construction plans.

Douglas County Transportation and Stormwater encourages the applicant and/or their consultants to request clarification of any comments to be addressed which are not clearly stated in the review letters. As always, feel free to contact us if you should have any questions regarding these comments.

Sincerely,

Mike Neer, PE
Development Review Engineer



Type: Permit Workflow Step

Id: PLANNING

Note Type:* DEFICIENCY

Note Code:

Text:*
Please show the location of the current property lines on the site plan. The structure appears to cross the property line between parcel #22210920005 and 22210920006. The structure must meet setbacks laid out in DCC 18.60.060(B). If the structure crosses property lines please relocate the building to meet current setbacks, or apply for a Boundary Line Adjustment to adjust property lines accordingly.

Begin Date:* 03/16/2021

End Date:

Link:

Publish on Portal - Private: Public:

Attachments

Return document to: Permit Coordinator
Douglas County TLS
140 19th Street NW Suite A
East Wenatchee, WA 98802

**DECLARATION RE: CONSOLIDATION OF PARCELS
AND CERTIFICATION OF LEGAL DESCRIPTIONS**

This Declaration is made by the undersigned for the purpose of consolidating two or more real property parcels into one legal lot of record having one tax parcel number.

PROPERTY INFORMATION

Parcel A

Parcel B

Property Owner

Property Owner

Name

Name

Address

Address

Daytime Phone

Daytime Phone

Note: All persons or companies holding a financial interest in the property must be listed, i.e., banks, personal contract holders, etc.

Name

Name

Address

Address

Parcel # _____

Parcel # _____

Section _____ Township _____ Range _____

CERTIFICATE OF LICENSED SURVEYOR

The undersigned certifies that he/she is a professional land surveyor licensed to practice in the State of Washington and that he/she has prepared the site plan and the legal descriptions of newly configured lots.

Signature

Date: _____

Print Name: _____

Telephone: _____

[Affix License Seal Here]

This Declaration has no legal effect until processed by each of the following Douglas County Officials.

Step 1. Submit to Douglas County Assessor's Office.

<p>DOUGLAS COUNTY ASSESSOR</p> <ul style="list-style-type: none">• Parcel #s match with owner records.• Current use and open space classification issues are addressed. <p>Processed By: _____ Date: _____</p>
--

Step 2. Submit to Douglas County Treasurer's Office

<p>DOUGLAS COUNTY TREASURER</p> <ul style="list-style-type: none">• All taxes and assessments are paid in full through year _____. <p>Processed By: _____ Date: _____</p>
--

Step 3. Submit to the Douglas Co. Dept. of Transportation & Land Services

<p>DOUGLAS COUNTY TRANSPORTATION AND LAND SERVICES</p> <ul style="list-style-type: none">• No additional parcels are created nor will the resulting parcels be inconsistent with standards of Douglas County Code titles 17 & 18, the provisions of RCW 58.17 or any court order.• Plat conditions are not affected by the boundary adjustment. <p>Processed By: _____ Date: _____</p>
--

Step 4. Submit this completed Declaration, deed(s) transferring title to adjusted property, completed excise tax statement and recording fees to the Douglas County Auditor. The boundary adjustment is not considered complete until the boundary adjustment form and deeds transferring title to the properties involved are executed and recorded with the County Auditor. Confirm recording fee by calling the Auditor's Office at (509) 745-8527.

SITE PLAN

Attach a scaled drawing (labeled Exhibit A) prepared by a licensed professional land surveyor that discloses the location of the present and proposed property boundaries, location of all buildings, water lines, septic systems, easements, streets, etc.

LEGAL DESCRIPTIONS

Include legal descriptions of the current lot configuration, and legal descriptions of newly configured lots prepared by a licensed professional land surveyor.

Current Parcel A:

Current Parcel B:

Consolidated Parcel:

From: [Matthews, David C. \(ECY\)](#)
To: [Dan Joseph](#)
Cc: [Elena Antonakos](#); [Jeff Gutierrez](#); [Miller, Coleman \(ECY\)](#)
Subject: RE: Microsoft EAT 02/03 SWDP Update
Date: Thursday, December 15, 2022 9:23:56 AM
Attachments: [image005.png](#)

Hi Dan,

Thanks for talking on the phone. The second bullet point on November 2nd was supposed read:

- As this modification does *NOT* impact the relevant quality or quantity of the cooling water discharge, we waive the requirement to submit this modification in an as-built drawing.

Have a great day.

David Matthews

WA Department of Ecology | Water Quality Program Technical Unit
Central Regional Office, 1250 Alder St., Union Gap, WA 98903
509-654-2759 | davm461@ecy.wa.gov



From: Dan Joseph <DJoseph@landauinc.com>
Sent: Tuesday, November 15, 2022 4:58 PM
To: Matthews, David C. (ECY) <davm461@ECY.WA.GOV>
Cc: Elena Antonakos <eantonakos@microsoft.com>; Jeff Gutierrez <jeff.gutierrez@erm.com>; Miller, Coleman (ECY) <comi461@ECY.WA.GOV>
Subject: RE: Microsoft EAT 02/03 SWDP Update

Hi David,

I am following up on your response to the EAT02/03 summary that I submitted via email October 27, 2022. Could you please review the second bullet in your response email below and provide clarification if needed? I want to make sure that we aren't missing any follow up items based upon your response.

Thank you again for the help.

// DAN JOSEPH PE

LANDAU ASSOCIATES

971.978.7890

From: Dan Joseph

Sent: Wednesday, November 2, 2022 10:00 AM

To: 'Matthews, David C. (ECY)' <davm461@ECY.WA.GOV>

Cc: Elena Antonakos <eantonakos@microsoft.com>; Jeff Gutierrez <jeff.gutierrez@erm.com>;
Miller, Coleman (ECY) <comi461@ECY.WA.GOV>

Subject: RE: Microsoft EAT 02/03 SWDP Update

Hi David,

Thank you for the response and review of the EAT02/03 summary. Could you please review the second bullet below and provide clarification if needed? We want to make sure that we aren't missing any follow up items.

Thanks again.

// DAN JOSEPH PE

LANDAU ASSOCIATES

971.978.7890

From: Matthews, David C. (ECY) <davm461@ECY.WA.GOV>

Sent: Wednesday, November 2, 2022 8:57 AM

To: Dan Joseph <DJoseph@landauinc.com>

Cc: Elena Antonakos <eantonakos@microsoft.com>; Jeff Gutierrez <jeff.gutierrez@erm.com>;
Miller, Coleman (ECY) <comi461@ECY.WA.GOV>

Subject: RE: Microsoft EAT 02/03 SWDP Update

Hi Dan,

Your letter is received, and will be uploaded to our permit database. Thank you for notifying Ecology of Sanitary Lift Station design modification:

- We agree that this modification does not change the conditions of the existing SWDP.
- As this modification does impact the relevant quality or quantity of the cooling water discharge, we waive the requirement to submit this modification in an as-built drawing.

Otherwise, I don't have any further comments.

All the best,

David

David Matthews

WA Department of Ecology | Water Quality Program Technical Unit
Central Regional Office, 1250 Alder St., Union Gap, WA 98903
509-654-2759 | davm461@ecy.wa.gov



From: Dan Joseph <DJoseph@landauinc.com>
Sent: Thursday, October 27, 2022 10:00 AM
To: Matthews, David C. (ECY) <davm461@ECY.WA.GOV>
Cc: Elena Antonakos <eantonakos@microsoft.com>; Jeff Gutierrez <jeff.gutierrez@erm.com>
Subject: Microsoft EAT 02/03 SWDP Update

Hi David,

Thank you for working with Microsoft on the EAT02 facility DMR submittals. There are a few other items of clarification that we wanted to provide to you at this time. Please see the link below for an update regarding the EAT02/03/04 facility SWDP on behalf of Microsoft.

 [Microsoft EAT003 SWDP Update 10.26.22.pdf](#)

Please let me know if you have questions or concerns.

Sincerely,

// DAN JOSEPH PE

SENIOR ENGINEER

971.978.7890 // djoseph@landauinc.com

LANDAU ASSOCIATES

503.542.1080

[1500 SW 1st Ave, Ste 1015, Portland, OR 97201](#)

www.landauinc.com

NOTICE: This communication may contain privileged or other confidential information. If you have received it in error, please advise the

sender by reply e-mail and immediately delete the message and any attachments without copying or disclosing the contents. Thank you.



July 11, 2023

Washington State Department of Ecology
Attn: David Matthews, Permit Manager
1250 W Alder St
Union Gap, WA 98903-0009

*Submitted via e-mail
to david.matthews@ecy.wa.gov*

Dear Mr. Matthews,

I am reaching out to you regarding the Microsoft EAT02/03/04 Data Center State Waste Discharge Permit (SWDP; Permit No. ST0501334) to provide you with two project updates, including:

1. Verification of SWDP coverage for EAT04; and
2. CWD detention design modification for EAT04.

For reference, Microsoft obtained SWDP coverage for the proposed development of three co-located data center facilities in East Wenatchee - EAT02, EAT03, and EAT04 (Facility) - with the Temporary SWDP issued on November 5, 2021 (effective date is October 22, 2021). Construction of the EAT02 data center is complete, and the second and third data centers, EAT03 and EAT04, are currently being constructed or will start construction soon.

1. SWDP Applicability for EAT04

Microsoft's mechanical design consultant, ESD, has reviewed the EAT04 design and determined that there are no changes to the mechanical processes for EAT04 that affect the quantity or quality of the clear water discharge (CWD) identified in the Facility's SWDP application. Landau Associates, the wastewater design/permitting consultant, has also verified that no changes to the wastewater disposal processes are included in the EAT04 design that would affect the Facility's SWDP. As such, Microsoft does not anticipate modifications to the SWDP will be required for EAT04.

2. CWD Detention Modification

In addition, Microsoft is providing notification of a change to the CWD detention design that was described in the Facility's SWDP application. Because additional future data center buildings at the site (EAT05, 06, 07, and 09) are anticipated to discharge to the Douglas County Sewer District (DCSD) using the same CWD conveyance infrastructure and discharge point as EAT02/03/04.

An additional detention pipe has been added as part of the EAT04 design to increase the overall site-wide detention storage capacity, reduce the instantaneous peak discharge flow rate, and meet the anticipated DCSD flow limit for future discharges.

The change to the CWD detention design at EAT04 does not change the daily quantity or quality of CWD being discharged to DCSD by EAT02, 03, and 04 as identified in the Facility's SWDP application, and therefore Microsoft does not anticipate modifications to the SWDP will be required due to this change. As-built drawings of the CWD/wastewater conveyance and discharge system for EAT04 will be provided to Ecology upon request.

CWD from future anticipated datacenter buildings EAT05, 06, 07, and 09 and their potential impacts to detention storage shared with EAT02, 03, and 04 will be evaluated when permitting EAT05, 06, 07, and 09. It is anticipated that the SWDP will need to be modified to include EAT05, 06, 07, and 09 prior to those data centers beginning operation.

Please feel free to contact me at eantonakos@microsoft.com or at 425.421.6761 if you would like to discuss any of these notifications in more detail.

Best Regards,

A handwritten signature in black ink, appearing to read 'Elena Antonakos', is positioned above the typed name.

Elena Antonakos
Environmental Program Manager, Americas West
Microsoft Corporation

From: [Matthews, David C. \(ECY\)](#)
To: [Elena Antonakos](#)
Cc: [Dan Joseph](#); [Miller, Coleman \(ECY\)](#); [Morgan Ireland](#); [Douglas Falkner \(Averro\)](#)
Subject: RE: Microsoft EAT02/03/04 SWDP Update
Date: Friday, January 26, 2024 4:51:27 PM
Attachments: [image001.png](#)

Hi Elena,

Thank you for the follow-up, and my apologies for not confirming sooner. Yes, we appreciate this notification of the design change. As this doesn't not affect the temporary permit, there are no issues on that end.

For plans review, I'm waiving the need to review this minor change. Can you provide me with an updated schematic drawing of the cooling water collection, storage, and flows? As the site expands, this change should be reflected in updates to the engineering report/plans and specs/O&M manual.

All the best,

Dave

David Matthews, PE
Environmental Engineer
WA Department of Ecology | Water Quality Program Technical Unit
Central Regional Office, 1250 Alder St., Union Gap, WA 98903
509-654-2759 | davm461@ecy.wa.gov



From: Elena Antonakos <eantonakos@microsoft.com>
Sent: Wednesday, January 24, 2024 6:09 AM
To: Matthews, David C. (ECY) <davm461@ECY.WA.GOV>
Cc: Dan Joseph <djoseph@landauinc.com>; Miller, Coleman (ECY) <comi461@ECY.WA.GOV>; Morgan Ireland <mireland@microsoft.com>; Douglas Falkner (Averro) <v-dofalkner@microsoft.com>
Subject: RE: Microsoft EAT02/03/04 SWDP Update

External Email

Hi David,

I apologize for pestering you but just wanted to follow-up on the attached letter. Can you confirm via email if you are comfortable with what has been provided?

Thank you,

ELENA ANTONAKOS

she/her

Environmental Program Manager - AMERICAS

Datacenter Development

Office: 425.421.6761

eantonakos@microsoft.com



From: Elena Antonakos

Sent: Tuesday, December 12, 2023 10:57 AM

To: davm461@ECY.WA.GOV

Cc: Dan Joseph <djoseph@landauinc.com>; comi461@ECY.WA.GOV; Morgan Ireland <mireland@microsoft.com>; Douglas Falkner (Averro) <v-dofalkner@microsoft.com>

Subject: RE: Microsoft EAT02/03/04 SWDP Update

Hi David,

I just wanted to follow-up with you on the attached letter. As discussed during our meeting a few months ago, can you confirm via email if you are comfortable with what has been provided?

Thank you,

ELENA ANTONAKOS

she/her

Environmental Program Manager - AMERICAS

Datacenter Development

Office: 425.421.6761

eantonakos@microsoft.com



From: Elena Antonakos
Sent: Friday, November 10, 2023 3:45 PM
To: davm461@ECY.WA.GOV
Cc: Dan Joseph <djoseph@landauinc.com>; comi461@ECY.WA.GOV; Morgan Ireland <mireland@microsoft.com>; Douglas Falkner (Averro) <v-dofalkner@microsoft.com>
Subject: RE: Microsoft EAT02/03/04 SWDP Update

Hi David,

It was great talking to you yesterday. I just wanted to bring this back up to the top of your inbox. As discussed yesterday, would you mind taking a look at the attached and confirming via email if you are comfortable with what has been provided?

As discussed, we will regroup internally and will follow-up with you in the next few weeks on a path forward/timing for permitting the additional builds and whether we will move forward with permitting biocides or not.

Thank you,

ELENA ANTONAKOS

she/her

Environmental Program Manager - AMERICAS

Datacenter Development

Office: 425.421.6761

eantonakos@microsoft.com



From: Elena Antonakos <eantonakos@microsoft.com>
Sent: Monday, July 24, 2023 5:27 PM
To: davm461@ECY.WA.GOV
Cc: Dan Joseph <djoseph@landauinc.com>; comi461@ECY.WA.GOV; Morgan Ireland <mireland@microsoft.com>; Douglas Falkner (Averro) <v-dofalkner@microsoft.com>
Subject: Re: Microsoft EAT02/03/04 SWDP Update

Hi David,

I just wanted to follow-up and confirm you received the attached. Can you confirm you received this letter? Please let me know if you need any additional information to

support your review.

Thank you,

ELENA ANTONAKOS

she/her

Environmental Program Manager - AMERICAS

Datacenter Development

Office: 425.421.6761

eantonakos@microsoft.com



From: Elena Antonakos

Sent: Tuesday, July 11, 2023 4:25 PM

To: davm461@ECY.WA.GOV <davm461@ECY.WA.GOV>

Cc: Dan Joseph <djoseph@landauinc.com>; comi461@ECY.WA.GOV <comi461@ECY.WA.GOV>;

Morgan Ireland <mireland@microsoft.com>; Douglas Falkner (Averro) <[\[dofalkner@microsoft.com\]\(mailto:dofalkner@microsoft.com\)>](mailto:v-</p></div><div data-bbox=)

Subject: Microsoft EAT02/03/04 SWDP Update

Hi David,

I hope you are doing well. On behalf of Microsoft, I would like to submit the attached letter for an update regarding the EAT02/03/04 facility SWDP. Please let me know if you have any questions once you have had a chance to review.

Thank you,

ELENA ANTONAKOS

she/her

Environmental Program Manager - AMERICAS

Datacenter Development

Office: 425.421.6761

eantonakos@microsoft.com



**Environmental Systems Design, Inc.
Technical Memorandum**



Technical Memo

Client Company	Microsoft	ESD Project #	C200459-011
Client Contact / Phone #	Avery Africa	Date	06/03/22
Author / Phone #	Chad Mendell / 312-456-2387	Date of Visit	
Project Name	Microsoft EAT02 LDO-Energy		
Location	East Wenatchee, Washington (in Douglas County)		

Subject
Clear Water Discharge Demand

Comments																								
<p>Summary: The utility to accept the clear water discharge from the Microsoft EAT02 site in Malaga, Washington should be sized for 6 Data Center Buildings. The current need is for 3 Buildings, but this is anticipated to expand to 6 Buildings in the future.</p> <p>Clear Water Discharge will come from the mechanical equipment used to cool the data center spaces within the building.</p> <p>General Statistics:</p> <ul style="list-style-type: none"> • Cycles of Concentration: 4 • Estimated Use Per Year: 420 Hours per Year <p>Clear Water Discharge During the Hottest Month of the Year (August):</p> <ul style="list-style-type: none"> • Discharge Temperature: 83.5 Deg F Average / 83.5 Deg F Max <table border="1"> <thead> <tr> <th></th> <th>1 Building</th> <th>6 Buildings</th> <th>Unit</th> </tr> </thead> <tbody> <tr> <td>Peak Instantaneous Discharge</td> <td>65</td> <td>390</td> <td>GPM</td> </tr> <tr> <td>Peak Hour Discharge</td> <td>65</td> <td>390</td> <td>GPM</td> </tr> <tr> <td>Total Discharge on Peak Day</td> <td>30,000</td> <td>180,000</td> <td>GPD</td> </tr> <tr> <td>Avg Discharge Over Peak 7 Days</td> <td>21,225</td> <td>127,350</td> <td>GPD</td> </tr> <tr> <td>Avg Discharge Over Peak Month</td> <td>7,450</td> <td>44,700</td> <td>GPD</td> </tr> </tbody> </table>		1 Building	6 Buildings	Unit	Peak Instantaneous Discharge	65	390	GPM	Peak Hour Discharge	65	390	GPM	Total Discharge on Peak Day	30,000	180,000	GPD	Avg Discharge Over Peak 7 Days	21,225	127,350	GPD	Avg Discharge Over Peak Month	7,450	44,700	GPD
	1 Building	6 Buildings	Unit																					
Peak Instantaneous Discharge	65	390	GPM																					
Peak Hour Discharge	65	390	GPM																					
Total Discharge on Peak Day	30,000	180,000	GPD																					
Avg Discharge Over Peak 7 Days	21,225	127,350	GPD																					
Avg Discharge Over Peak Month	7,450	44,700	GPD																					



Comments			
Clear Water Discharge Per Month:			
	1 Building	6 Buildings	Unit
January	0	0	Gallons
February	0	0	Gallons
March	0	0	Gallons
April	0	0	Gallons
May	31,067	186,402	Gallons
June	96,661	579,965	Gallons
July	161,948	971,687	Gallons
August	230,894	1,385,366	Gallons
September	25,189	151,137	Gallons
October	0	0	Gallons
November	0	0	Gallons
December	0	0	Gallons
TOTAL (ANNUAL)	545,759	3,274,556	Gallons

Safety Data Sheets

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : NALCO® 7330

Other means of identification : Not applicable.

Recommended use : BIOCIDES

Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.

Company : Nalco Company
1601 W. Diehl Road
Naperville, Illinois 60563-1198
USA
TEL: (630) 305-1000

Emergency telephone number : (800) 424-9300 (24 Hours) CHEMTREC

Issuing date : 07/13/2022

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals : Category 1
Acute toxicity (Oral) : Category 4
Acute toxicity (Inhalation) : Category 4
Acute toxicity (Dermal) : Category 4
Skin corrosion : Category 1B
Serious eye damage : Category 1
Skin sensitization : Category 1

GHS Label element

Hazard pictograms : 

Signal Word : Danger

Hazard Statements : May be corrosive to metals.
Harmful if swallowed, in contact with skin or if inhaled.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.

Precautionary Statements : **Prevention:**
Keep only in original container. Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wear protective gloves/ protective clothing/ eye protection/ face protection. Wash skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace.
Response:

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IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

Storage:

Store in corrosive resistant container with a resistant inner liner.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Magnesium Nitrate	10377-60-3	1 - 5
5-Chloro-2-Methyl-4-Isothiazolin-3-one	26172-55-4	1.1
2-Methyl-4-Isothiazolin-3-one	2682-20-4	0.4

Section: 4. FIRST AID MEASURES

- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
- In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
- If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention.
- Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
- Notes to physician : Treat symptomatically.
- Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

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- Unsuitable extinguishing media : None known.
- Specific hazards during firefighting : Not flammable or combustible.
- Hazardous combustion products : Carbon oxides nitrogen oxides (NOx) Hydrogen chloride metal oxides
- Special protective equipment for firefighters : Use personal protective equipment.
- Specific extinguishing methods : Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
- Environmental precautions : This pesticide is toxic to fish and wildlife. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters, unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. Do not contaminate water by cleaning of equipment or disposal of waste. Apply this pesticide only as specified on this label.
- Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. DEACTIVATION SOLUTION - prepare a fresh solution of 5% sodium bicarbonate and 5% sodium hypochlorite in water (i.e. add 50 grams of sodium bicarbonate per 1 liter of household bleach, seal container then shake well for 1 minute) away from the immediate area of spill. Prepare 10 times the estimated volume of the residual spill. The materials and equipment for preparing solutions should be kept available for use in areas where spills may occur.

Section: 7. HANDLING AND STORAGE

- Advice on safe handling : Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.
- Conditions for safe storage : Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.

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- Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: HDPE (high density polyethylene), PTFE, Perfluoroelastomer, Polyvinylidene difluoride, Polypropylene, CPVC (rigid), Plexiglass
- Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Carbon steel, Stainless Steel 304, Nitrile, Brass, Nylon, Neoprene, EPDM, Fluoroelastomer, Plasite 7122, Stainless Steel 316L

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

- Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

- Eye protection : Safety goggles
Face-shield
- Hand protection : Wear impervious chemical-resistant gloves when handling this product. The following glove types are recommended based on our review of glove manufacturer information and/or other available sources. Nitrile-rubber, Butyl-Rubber and Neoprene gloves. Other glove types may be used for short term, incidental contact if determined by testing to provide adequate worker protection. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Skin protection : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
- Respiratory protection : No personal respiratory protective equipment normally required. If user operations generate significant vapours that cannot be controlled with ventilation or engineering controls, use an approved air-purifying respirator fitted with a gas and vapour cartridge. Use a particulate pre-filter where operations generate significant mists or aerosols. Recommended gas and vapour cartridge: Multi-purpose combination filter. In event of emergency or planned entry into unknown concentrations a positive pressure, full-facepiece SCBA or supplied-air respirator should be used.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

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Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: Clear, Colorless to light green - yellow
Odour	: pungent
Flash point	: Not applicable.
pH	: 2 - 5
Odour Threshold	: no data available
Melting point/freezing point	: -4 °C, ASTM D-1177
Initial boiling point and boiling range	: 100 °C, Method: ASTM D 86
Evaporation rate	: no data available
Flammability (solid, gas)	: Not applicable.
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: similar to water
Relative vapour density	: no data available
Relative density	: 1.026, (25 °C),
Density	: 8.5 lb/gal
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition	: no data available
Viscosity, dynamic	: 3 mPa.s (25 °C)
Viscosity, kinematic	: no data available
Molecular weight	: no data available
VOC	: 0 %, EPA Method 24

Section: 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.

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- Incompatible materials : Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.
- Hazardous decomposition products : In case of fire, hazardous decomposition products may be produced such as:
Carbon oxides
nitrogen oxides (NO_x)
metal oxides
Hydrogen chloride

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact, Ingestion

Potential Health Effects

- Eyes : Causes serious eye damage.
- Skin : Harmful in contact with skin. Causes severe skin burns. May cause allergic skin reaction.
- Ingestion : Harmful if swallowed. Causes digestive tract burns.
- Inhalation : Harmful if inhaled. May cause nose, throat, and lung irritation.
- Chronic Exposure : Health injuries are not known or expected under normal use.

Experience with human exposure

- Eye contact : Redness, Pain, Corrosion
- Skin contact : Redness, Pain, Irritation, Corrosion, Allergic reactions
- Ingestion : Corrosion, Abdominal pain
- Inhalation : Respiratory irritation, Cough
Respiratory irritation, Cough

Toxicity

Product

- Acute oral toxicity : no data available
- Acute inhalation toxicity : LC50 rat: 13.7 mg/l
Exposure time: 4 h
Test atmosphere: vapour
Test substance: Product
- Acute dermal toxicity : no data available
- Skin corrosion/irritation : no data available
- Serious eye damage/eye : no data available

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irritation

Respiratory or skin sensitization : no data available

Carcinogenicity : no data available

Reproductive effects : no data available

Germ cell mutagenicity : no data available

Teratogenicity : no data available

STOT - single exposure : no data available

STOT - repeated exposure : no data available

Aspiration toxicity : no data available

Components

Acute oral toxicity : 5-Chloro-2-Methyl-4-Isothiazolin-3-one
LD50 rat: 105 mg/kg
2-Methyl-4-Isothiazolin-3-one
LD50 rat: 105 mg/kg

Components

Acute dermal toxicity : Magnesium Nitrate
LD50 rat: > 5,000 mg/kg
5-Chloro-2-Methyl-4-Isothiazolin-3-one
LD50 rabbit: 200 mg/kg
2-Methyl-4-Isothiazolin-3-one
LD50 rabbit: 200 mg/kg

Section: 12. ECOLOGICAL INFORMATION

Toxicity

Environmental Effects : Toxic to aquatic life.
Harmful to aquatic life with long lasting effects.

Product

Toxicity to fish : LC50 Cyprinodon variegatus (sheepshead minnow): 32 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Inland Silverside: 16.62 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Rainbow Trout: 7.5 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Bluegill Sunfish: 13.3 mg/l
Exposure time: 96 hrs
Test substance: Product

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LC50 *Cyprinodon variegatus* (sheepshead minnow): 0.3 mg/l
Exposure time: 96 hrs
Test substance: Active Substance

NOEC *Cyprinodon variegatus* (sheepshead minnow): 18 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Inland Silverside: 12.5 mg/l
Exposure time: 96 hrs
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : LC50 Mysid Shrimp (*Mysidopsis bahia*): 18 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 *Ceriodaphnia dubia*: 13 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Mysid Shrimp (*Mysidopsis bahia*): < 10 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 *Daphnia magna*: 15.2 mg/l
Exposure time: 48 hrs
Test substance: Product

EC50 *Daphnia magna*: 15.2 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC *Daphnia magna*: 6.3 mg/l
Exposure time: 48 hrs
Test substance: Product

Toxicity to algae : EC50 Marine Algae (*Skeletonema costatum*): 0.003 mg/l
Exposure time: 72 h
Test substance: Active Substance

EC50 Green Algae (*Pseudokirchneriella subcapitata*, previously *Selenastrum capricornutum*): 0.018 mg/l
Exposure time: 72 h
Test substance: Active Substance

Components

Toxicity to fish (Chronic toxicity) : 2-Methyl-4-Isothiazolin-3-one
NOEC: 4.93 mg/l
Exposure time: 98 d
Species: *Oncorhynchus mykiss* (rainbow trout)

Components

Toxicity to daphnia and other aquatic invertebrates : 2-Methyl-4-Isothiazolin-3-one
NOEC: 0.044 mg/l

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(Chronic toxicity)

Exposure time: 21 d

Species: Daphnia magna (Water flea)

Persistence and degradability

Total Organic Carbon (TOC) : 7,850 mg/l

Chemical Oxygen Demand (COD): 20,000 mg/l

Biochemical Oxygen Demand (BOD):

Incubation Period

Value

Test Descriptor

20 mg/l

Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	:	<5%
Water	:	30 - 50%
Soil	:	50 - 70%

The portion in water is expected to be soluble or dispersible.

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Disposal methods : Do not contaminate storm water drains, natural waterways or soil with chemical or used container. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of contents/container in accordance with local regulations Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

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The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical name(s) : 5-Chloro-2-Methyl-4-Isothiazolin-3-one
UN/ID No. : UN 3265
Transport hazard class(es) : 8
Packing group : II

Air transport (IATA)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical name(s) : 5-Chloro-2-Methyl-4-Isothiazolin-3-one
UN/ID No. : UN 3265
Transport hazard class(es) : 8
Packing group : II

Sea transport (IMDG/IMO)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical name(s) : 5-Chloro-2-Methyl-4-Isothiazolin-3-one
UN/ID No. : UN 3265
Transport hazard class(es) : 8
Packing group : II

*Marine pollutant : 5-Chloro-2-Methyl-4-Isothiazolin-3-one

* Note: This product is regulated as a Marine Pollutant when shipped by Rail or Highway (in bulk quantities), and when shipped by water in all quantities.

Section: 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.

The following substance(s) is/are subject to TSCA 12(b) export notification requirements: 5-Chloro-2-Methyl-4-Isothiazolin-3-one

EPA Reg. No. : 1706-153

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Cupric Nitrate	3251-23-8	100	132275

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Corrosive to metals
Acute toxicity (any route of exposure)
Respiratory or skin sensitisation

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Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory

This product is exempted under TSCA and regulated under FIFRA. The inerts are on the Inventory List.

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS)

All substances in this product comply with the Australian Industrial Chemicals Introduction Scheme (AICIS)

Canadian Domestic Substances List (DSL)

Substances regulated under the Pest Control Products Act are exempt from CEPA New Substance Notification requirements.

Japan. ENCS - Existing and New Chemical Substances Inventory

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

Korea. Korean Existing Chemicals Inventory (KECI)

All substances in this product comply with the Chemical Control Act (CCA) and are listed on the Existing Chemicals List (ECL)

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

China Inventory of Existing Chemical Substances

All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand

All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996, and are listed on or are exempt from the New Zealand Inventory of Chemicals.

Taiwan Chemical Substance Inventory

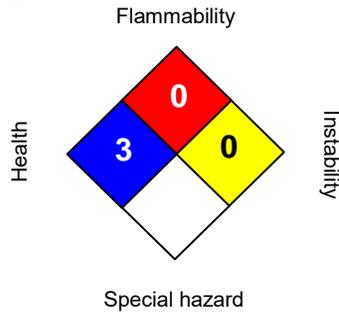
All substances in this product comply with the Taiwan Existing Chemical Substances Inventory (ECSI).

Section: 16. OTHER INFORMATION

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NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 07/13/2022
Version Number : 3.0
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. For additional copies of an SDS visit www.nalco.com and request access.

SAFETY DATA SHEET

NALCO® 8344 IRON REMOVER

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : NALCO® 8344 IRON REMOVER

Other means of identification : Not applicable.

Recommended use : IRON REMOVER

Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.

Company : Nalco Company
1601 W. Diehl Road
Naperville, Illinois 60563-1198
USA
TEL: (630) 305-1000

Emergency telephone number : (800) 424-9300 (24 Hours) CHEMTREC

Issuing date : 01/15/2021

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals : Category 1
Serious eye damage : Category 1

GHS Label element

Hazard pictograms :



Signal Word : Danger

Hazard Statements : May be corrosive to metals.
Causes serious eye damage.

Precautionary Statements : **Prevention:**
Keep only in original container. Wear eye protection/face protection.
Response:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. Absorb spillage to prevent material damage.
Storage:
Store in corrosive resistant container with a resistant inner liner.

Other hazards : Do not mix with bleach or other chlorinated products – will cause chlorine gas.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration: (%)
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SAFETY DATA SHEET

NALCO® 8344 IRON REMOVER

Citric Acid

77-92-9

30 - 60

Section: 4. FIRST AID MEASURES

- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
- In case of skin contact : Wash off with soap and plenty of water. Get medical attention if symptoms occur.
- If swallowed : Rinse mouth. Get medical attention if symptoms occur.
- If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.
- Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
- Notes to physician : Treat symptomatically.
- Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : None known.
- Specific hazards during firefighting : Not flammable or combustible.
- Hazardous combustion products : Decomposition products may include the following materials: Carbon oxides
- Special protective equipment for firefighters : Use personal protective equipment.
- Specific extinguishing methods : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only.

SAFETY DATA SHEET

NALCO® 8344 IRON REMOVER

Refer to protective measures listed in sections 7 and 8.

- Environmental precautions : Do not allow contact with soil, surface or ground water.
- Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

- Advice on safe handling : Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation. Do not mix with bleach or other chlorinated products – will cause chlorine gas.
- Conditions for safe storage : Keep away from strong bases. Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers. Freezing will affect the physical condition but will not change the material. Thaw and mix before using.
- Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: HDPE (high density polyethylene), Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.
- Unsuitable material : not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

- Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

- Eye protection : Safety goggles
Face-shield
- Hand protection : Wear protective gloves.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Skin protection : Wear suitable protective clothing.
- Respiratory protection : If significant mists, vapors or aerosols are generated an approved respirator is recommended.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick

SAFETY DATA SHEET

NALCO® 8344 IRON REMOVER

drenching or flushing of the eyes and body in case of contact or splash hazard.

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: Liquid
Colour	: clear
Odour	: Characteristic
Flash point	: does not flash
pH	: 1,(100 %)
Odour Threshold	: no data available
Melting point/freezing point	: Freezing Point: -12.1 °C
Initial boiling point and boiling range	: 102.2 °C
Evaporation rate	: similar to water
Flammability (solid, gas)	: Not applicable.
Upper explosion limit	: no data available
Lower explosion limit	: no data available
Vapour pressure	: 22 mm Hg, (25 °C),
Relative vapour density	: no data available
Relative density	: 1.25, (15.6 °C),
Density	: 1.24 g/cm ³ , 10.39 lb/gal
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition	: no data available
Viscosity, dynamic	: no data available
Viscosity, kinematic	: no data available
Molecular weight	: no data available
VOC	: 0 %, 0 g/l, EPA Method 24

Section: 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.

SAFETY DATA SHEET

NALCO® 8344 IRON REMOVER

- Possibility of hazardous reactions : Do not mix with bleach or other chlorinated products – will cause chlorine gas.
- Conditions to avoid : Freezing temperatures.
None known.
- Incompatible materials : Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors.
Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors.
Strong bases
- Hazardous decomposition products : In case of fire, hazardous decomposition products may be produced such as:
Carbon oxides

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

Potential Health Effects

- Eyes : Causes serious eye damage.
- Skin : Health injuries are not known or expected under normal use.
- Ingestion : Health injuries are not known or expected under normal use.
- Inhalation : Health injuries are not known or expected under normal use.
- Chronic Exposure : Health injuries are not known or expected under normal use.

Experience with human exposure

- Eye contact : Redness, Pain, Corrosion
- Skin contact : No symptoms known or expected.
- Ingestion : No symptoms known or expected.
- Inhalation : No symptoms known or expected.

Toxicity

Product

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Acute oral toxicity	:	LD50 rat: 5,000 mg/kg Test substance: Active Substance
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	Acute toxicity estimate: 4,902 mg/kg
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available
Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Toxicity

Environmental Effects : This product has no known ecotoxicological effects.

Product

Toxicity to fish : LC50 *Lepomis macrochirus* (Bluegill sunfish): 1,516 mg/l
Exposure time: 96 hrs
Test substance: Active Substance

Toxicity to daphnia and other aquatic invertebrates : EC50 *Daphnia magna* (Water flea): 120 mg/l
Exposure time: 72 hrs
Test substance: Active Substance

NOEC *Daphnia magna* (Water flea): < 80 mg/l
Exposure time: 72 hrs
Test substance: Active Substance

LC50 *Ceriodaphnia dubia*: 927 mg/l
Exposure time: 48 hrs
Test substance: Product

EC50 *Ceriodaphnia dubia*: 903 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC *Ceriodaphnia dubia*: 648 mg/l
Exposure time: 48 hrs
Test substance: Product

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Persistence and degradability

The organic portion of this preparation is expected to be readily biodegradable.

Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	:	<5%
Water	:	30 - 50%
Soil	:	50 - 70%

The portion in water is expected to be soluble or dispersible.

Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste. The information presented only applies to the material as supplied. The classification or waste code may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated at the time of disposal to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.

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Technical name(s) : Citric Acid
UN/ID No. : UN 3265
Transport hazard class(es) : 8
Packing group : III

Air transport (IATA)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical name(s) : Citric Acid
UN/ID No. : UN 3265
Transport hazard class(es) : 8
Packing group : III

Sea transport (IMDG/IMO)

Proper shipping name : CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.
Technical name(s) : Citric Acid
UN/ID No. : UN 3265
Transport hazard class(es) : 8
Packing group : III

Section: 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.

No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This product does not contain a RQ substance, or this product contains a substance with a RQ, however the calculated RQ exceeds the reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Corrosive to metals
Serious eye damage or eye irritation

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory

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NALCO® 8344 IRON REMOVER

On or in compliance with the active portion of the TSCA inventory

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS)

This product contains substance(s) which are not in compliance with the Australian Industrial Chemicals Introduction Scheme (AICIS) and may require additional review.

Canadian Domestic Substances List (DSL)

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Japan. ENCS - Existing and New Chemical Substances Inventory

This product contains substance(s) which are not in compliance with the Law Regulating the Manufacture and Importation Of Chemical Substances and are not listed on the Existing and New Chemical Substances list (ENCS).

Korea. Korean Existing Chemicals Inventory (KECI)

This product contains substance(s) which are not in compliance with the Chemical Control Act (CCA) and may require additional review.

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

This product contains substance(s) which are not in compliance with the Republic Act 6969 (RA 6969) and may require additional review.

China Inventory of Existing Chemical Substances

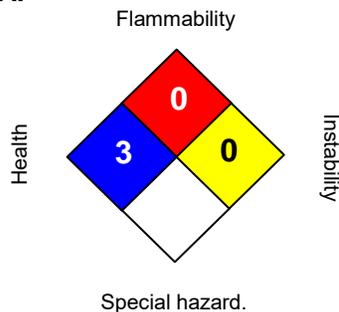
This product contains substance(s) which are not in compliance with the Provisions on the Environmental Administration of New Chemical Substances and may require additional review.

Taiwan Chemical Substance Inventory

On the inventory, or in compliance with the inventory.

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 01/15/2021
Version Number : 1.4
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

SAFETY DATA SHEET

NALCO® 8344 IRON REMOVER

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. For additional copies of an SDS visit www.nalco.com and request access.

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : NALCO® 8735

Other means of identification : Not applicable.

Recommended use : pH STABILIZER

Restrictions on use : Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.

Company : Nalco Company
1601 W. Diehl Road
Naperville, Illinois 60563-1198
USA
TEL: (630) 305-1000

Emergency telephone number : (800) 424-9300 (24 Hours) CHEMTREC

Issuing date : 04/03/2023

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals : Category 1
Skin corrosion : Category 1
Serious eye damage : Category 1

GHS Label element

Hazard pictograms :



Signal Word : Danger

Hazard Statements : May be corrosive to metals.
Causes severe skin burns and eye damage.

Precautionary Statements : **Prevention:**
Keep only in original container. Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.
Storage:
Store in corrosive resistant container with a resistant inner liner.
Disposal:

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Dispose of contents/ container to an approved waste disposal plant.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : Mixture

Chemical Name	CAS-No.	Concentration: (%)
Sodium Hydroxide	1310-73-2	30 - 60
Potassium Hydroxide	1310-58-3	10 - 30

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting : Not flammable or combustible.

Hazardous combustion products : metal oxides

Special protective equipment : Use personal protective equipment.

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for firefighters

Specific extinguishing methods : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling : Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation.

Conditions for safe storage : Do not store near acids. Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.

Suitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Stainless Steel 304, Stainless Steel 316L, Hastelloy C-276, Buna-N, Nylon, Polyethylene, Polypropylene, PVC, HDPE (high density polyethylene), Plexiglass, PTFE, Perfluoroelastomer, Chlorosulfonated polyethylene rubber
The following compatibility data is suggested based on similar product data and/or industry experience:

Unsuitable material : The following compatibility data is suggested based on similar product data and/or industry experience: Aluminum, Mild steel, Natural rubber, Brass, Copper, Ethylene propylene, Neoprene, Polyurethane, Fluoroelastomer
The following compatibility data is suggested based on similar product data and/or industry experience:

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Sodium Hydroxide	1310-73-2	C	2 mg/m ³	ACGIH
		C	2 mg/m ³	NIOSH REL

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		C	2 mg/m3	OSHA P0
Potassium Hydroxide	1310-58-3	C	2 mg/m3	ACGIH
		C	2 mg/m3	NIOSH REL
		C	2 mg/m3	OSHA P0

Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Eye protection : Safety goggles
Face-shield

Hand protection : Wear the following personal protective equipment:
Standard glove type.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin protection : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Liquid

Colour : colourless

Odour : odourless

Flash point : does not flash

pH : 14,(5 %), Method: ASTM E 70

Odour Threshold : no data available

Melting point/freezing point : Freezing Point: -23 °C, ASTM D-1177

Initial boiling point and boiling range : 145 °C, Method: ASTM D 86

Evaporation rate : no data available

Flammability (solid, gas) : Not applicable.

Upper explosion limit : no data available

Lower explosion limit : no data available

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Vapour pressure	: 0.5 mm Hg, (37.7 °C),
Relative vapour density	: no data available
Relative density	: 1.50 - 1.53, (15.6 °C), ASTM D-1298
Density	: 1.50 - 1.53 g/cm ³ , 12.5 - 12.7 lb/gal
Water solubility	: completely soluble
Solubility in other solvents	: no data available
Partition coefficient: n-octanol/water	: no data available
Auto-ignition temperature	: no data available
Thermal decomposition	: no data available
Viscosity, dynamic	: no data available
Viscosity, kinematic	: no data available
Molecular weight	: no data available
VOC	: no data available

Section: 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reaction known under conditions of normal use.
Conditions to avoid	: None known.
Incompatible materials	: Strong acids
Hazardous decomposition products	: metal oxides

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact, Ingestion

Potential Health Effects

Eyes	: Causes serious eye damage.
Skin	: Causes severe skin burns.
Ingestion	: Causes digestive tract burns.
Inhalation	: May cause nose, throat, and lung irritation.
Chronic Exposure	: Health injuries are not known or expected under normal use.

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Experience with human exposure

Eye contact : Redness, Pain, Corrosion
Skin contact : Redness, Pain, Corrosion
Ingestion : Corrosion, Abdominal pain
Inhalation : Respiratory irritation, Cough

Toxicity

Product

Acute oral toxicity : Acute toxicity estimate: 2,220 mg/kg
Acute inhalation toxicity : no data available
Acute dermal toxicity : no data available
Skin corrosion/irritation : no data available
Serious eye damage/eye irritation : no data available
Respiratory or skin sensitization : no data available
Carcinogenicity : no data available
Reproductive effects : no data available
Germ cell mutagenicity : no data available
Teratogenicity : no data available
STOT - single exposure : no data available
STOT - repeated exposure : no data available
Aspiration toxicity : no data available

Section: 12. ECOLOGICAL INFORMATION

Toxicity

Environmental Effects : This product has no known ecotoxicological effects.

Product

Toxicity to fish : LC50 *Oncorhynchus mykiss* (rainbow trout): 3,980 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC *Oncorhynchus mykiss* (rainbow trout): 2,500 mg/l
Exposure time: 96 hrs
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : LC50 *Ceriodaphnia dubia*: 3,415 mg/l
Exposure time: 48 h
Test substance: Product

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EC50 : 3,415 mg/l
Exposure time: 48 h
Test substance: Product

NOEC : 2,500 mg/l
Exposure time: 48 h
Test substance: Product

Persistence and degradability

The product does not contain any organic substances.

Chemical Oxygen Demand (COD): 140 mg/l

Biochemical Oxygen Demand (BOD):

Incubation Period	Value	Test Descriptor
	0 mg/l	Product

Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.

If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	: <5%
Water	: 30 - 50%
Soil	: 50 - 70%

The portion in water is expected to be soluble or dispersible.

Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it could meet the criteria of a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261. Before disposal, it should be determined if the waste meets the criteria of a hazardous waste.

Hazardous Waste: : D002

Disposal methods : Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of contents/container in accordance with local regulations
Dispose of wastes in an approved waste disposal facility.

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Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

The presence of an RQ component (Reportable Quantity for U.S. DOT) in this product causes it to be regulated with an additional description of RQ for road, or as Environmentally hazardous for road and air, ONLY when the net weight in the package exceeds the calculated RQ for the product.

Land transport (DOT)

Proper shipping name : CAUSTIC ALKALI LIQUID, N.O.S.
Technical name(s) : SODIUM HYDROXIDE, POTASSIUM HYDROXIDE
UN/ID No. : UN 1719
Transport hazard class(es) : 8
Packing group : II
Reportable Quantity (per package) : 2,999 lbs
RQ Component : Sodium Hydroxide

Air transport (IATA)

Proper shipping name : CAUSTIC ALKALI LIQUID, N.O.S.
Technical name(s) : SODIUM HYDROXIDE, POTASSIUM HYDROXIDE
UN/ID No. : UN 1719
Transport hazard class(es) : 8
Packing group : II
Reportable Quantity (per package) : 2,999 lbs
RQ Component : Sodium Hydroxide

Sea transport (IMDG/IMO)

Proper shipping name : CAUSTIC ALKALI LIQUID, N.O.S.
Technical name(s) : SODIUM HYDROXIDE, POTASSIUM HYDROXIDE
UN/ID No. : UN 1719
Transport hazard class(es) : 8
Packing group : II

Section: 15. REGULATORY INFORMATION

TSCA list : No substances are subject to a Significant New Use Rule.
No substances are subject to TSCA 12(b) export notification requirements.

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ
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			(lbs)
Sodium Hydroxide	1310-73-2	1000	2998

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Corrosive to metals
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory

On or in compliance with the active portion of the TSCA inventory

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS)

All substances in this product comply with the Australian Industrial Chemicals Introduction Scheme (AICIS)

Canadian Domestic Substances List (DSL)

The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Japan. ENCS - Existing and New Chemical Substances Inventory

All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

Korea. Korean Existing Chemicals Inventory (KECI)

All substances in this product comply with the Chemical Control Act (CCA) and are listed on the Existing Chemicals List (ECL)

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

China Inventory of Existing Chemical Substances

All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

New Zealand. Inventory of Chemicals (NZIoC), as published by ERMA New Zealand

All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996, and are listed on or are exempt from the New Zealand Inventory of Chemicals.

Taiwan Chemical Substance Inventory

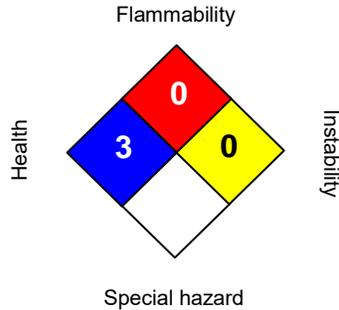
All substances in this product comply with the Taiwan Existing Chemical Substances Inventory (ECSI).

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Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 04/03/2023
Version Number : 1.5
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text. For additional copies of an SDS visit www.ecolab.com/sds and request access.

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT
--

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION
--

Product name : PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

Other means of identification : Not applicable

Recommended use : Disinfectant

Restrictions on use : Reserved for industrial and professional use.

Product dilution information	: 3.125 % - 4.6875 %
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Company : Ecolab Inc.
 1 Ecolab Place
 St. Paul, Minnesota USA 55102
 1-800-352-5326

Emergency health information : 1-800-328-0026 (US/Canada), 1-651-222-5352 (outside US)

Issuing date : 09/13/2021

SECTION 2. HAZARDS IDENTIFICATION
--

GHS Classification
Product AS SOLD

Acute toxicity (Oral) : Category 4
 Acute toxicity (Inhalation) : Category 3
 Acute toxicity (Dermal) : Category 4
 Skin corrosion : Category 1A
 Serious eye damage : Category 1
 Skin sensitization : Category 1

Product AT USE DILUTION	
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Eye irritation	: Category 2B
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GHS label elements
Product AS SOLD

Hazard pictograms :





Signal Word : Danger

Hazard Statements : Harmful if swallowed or in contact with skin.
 Causes severe skin burns and eye damage.
 May cause an allergic skin reaction.
 Toxic if inhaled.

Precautionary Statements : **Prevention:**
 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear

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PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

protective gloves/ protective clothing/ eye protection/ face protection.

Response:

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth. IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. If skin irritation or rash occurs: Get medical advice/ attention. Wash contaminated clothing before reuse.

Storage:

Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal:

Dispose of contents/ container to an approved waste disposal plant.

Product AT USE DILUTION

Signal Word : Warning

Hazard Statements : Causes eye irritation.

Precautionary Statements : **Prevention:**
Wash skin thoroughly after handling.

Response:

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

Product AS SOLD

Other hazards : Do not mix with bleach or other chlorinated products – will cause chlorine gas.

Product AT USE DILUTION

Other hazards : Do not mix with bleach or other chlorinated products – will cause chlorine gas.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Product AS SOLD

Pure substance/mixture : Mixture

Chemical name	CAS-No.	Concentration (%)
dodecylbenzene sulfonic acid	27176-87-0	5 - 10
Hydrogen peroxide	7722-84-1	8
Fragrance mixture	Proprietary Ingredient	0.1 - 1

Product AT USE DILUTION

Chemical name	CAS-No.	Concentration (%)
Hydrogen peroxide	7722-84-1	0.375

SECTION 4. FIRST AID MEASURES

Product AS SOLD

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

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In case of skin contact	: Wash off immediately with plenty of water for at least 15 minutes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
If swallowed	: Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.
If inhaled	: Remove to fresh air. Treat symptomatically. Get medical attention immediately.
Protection of first-aiders	: If potential for exposure exists refer to Section 8 for specific personal protective equipment.
Notes to physician	: Treat symptomatically.
Most important symptoms and effects, both acute and delayed	: See Section 11 for more detailed information on health effects and symptoms.

Product AT USE DILUTION

In case of eye contact	: Rinse with plenty of water.
In case of skin contact	: Rinse with plenty of water.
If swallowed	: Rinse mouth. Get medical attention if symptoms occur.
If inhaled	: Get medical attention if symptoms occur.

SECTION 5. FIRE-FIGHTING MEASURES

Product AS SOLD

Suitable extinguishing media	: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Unsuitable extinguishing media	: None known.
Specific hazards during fire fighting	: Not flammable or combustible.
Hazardous combustion products	: Decomposition products may include the following materials: Carbon oxides Sulfur oxides
Special protective equipment for fire-fighters	: Use personal protective equipment.
Specific extinguishing methods	: Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Product AS SOLD

Personal precautions, protective equipment and	: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes.
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SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

emergency procedures : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

Product AT USE DILUTION

Personal precautions, protective equipment and emergency procedures : Refer to protective measures listed in sections 7 and 8.

Environmental precautions : Do not allow contact with soil, surface or ground water.

Methods and materials for containment and cleaning up : Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Flush away traces with water. For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway.

SECTION 7. HANDLING AND STORAGE

Product AS SOLD

Advice on safe handling : Do not ingest. Do not get in eyes, on skin, or on clothing. Do not breathe dust/ fume/ gas/ mist/ vapors/ spray. Use only with adequate ventilation. Wash hands thoroughly after handling. In case of mechanical malfunction, or if in contact with unknown dilution of product, wear full Personal Protective Equipment (PPE). Do not mix with bleach or other chlorinated products – will cause chlorine gas.

Conditions for safe storage : Keep away from strong bases. Keep out of reach of children. Store in suitable labeled containers.

Storage temperature : 0 °C to 50 °C

Product AT USE DILUTION

Advice on safe handling : Wash hands thoroughly after handling. In case of mechanical malfunction, or if in contact with unknown dilution of product, wear full Personal Protective Equipment (PPE).

Conditions for safe storage : Keep out of reach of children. Store in suitable labeled containers.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Product AS SOLD

Ingredients with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Hydrogen peroxide	7722-84-1	TWA	1 ppm	ACGIH

SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

		TWA	1 ppm 1.4 mg/m ³	NIOSH REL
		TWA	1 ppm 1.4 mg/m ³	OSHA Z1

Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

- Eye protection : Wear eye protection and/or face protection.
- Hand protection : Wear the following personal protective equipment:
Standard glove type.
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
- Skin protection : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
- Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use.
Wash face, hands and any exposed skin thoroughly after handling.
Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

Product AT USE DILUTION

Engineering measures : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

- Eye protection : No special protective equipment required.
- Hand protection : No special protective equipment required.
- Skin protection : No special protective equipment required.
- Respiratory protection : No personal respiratory protective equipment normally required.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

	Product AS SOLD	Product AT USE DILUTION
Appearance	: liquid	liquid
Color	: clear, yellow	yellow
Odor	: Perfumes, fragrances	Perfumes, fragrances
pH	: 0.5 - 1.5, (100 %)	2.0 - 2.5
Flash point	: Not applicable, Does not sustain combustion.	
Odor Threshold	: No data available	
Melting point/freezing point	: No data available	
Initial boiling point and boiling range	: > 100 °C	

SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapor pressure	: No data available
Relative vapor density	: No data available
Relative density	: 1.033
Water solubility	: soluble
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Autoignition temperature	: No data available
Thermal decomposition	: No data available
Viscosity, kinematic	: 1.041 mm ² /s (40 °C)
Explosive properties	: No data available
Oxidizing properties	: yes
Molecular weight	: No data available
VOC	: No data available

SECTION 10. STABILITY AND REACTIVITY

Product AS SOLD

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Contamination may result in dangerous pressure increases - closed containers may rupture.
Possibility of hazardous reactions	: Do not mix with bleach or other chlorinated products – will cause chlorine gas.
Conditions to avoid	: None known.
Incompatible materials	: None known.
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: Carbon oxides Sulfur oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : Inhalation, Eye contact, Skin contact

Potential Health Effects

Product AS SOLD

Eyes	: Causes serious eye damage.
Skin	: Causes severe skin burns. May cause allergic skin reaction.

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PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

Ingestion : Harmful if swallowed. Causes digestive tract burns.
Inhalation : Toxic if inhaled. May cause nose, throat, and lung irritation.
Chronic Exposure : Health injuries are not known or expected under normal use.

Product AT USE DILUTION

Eyes : Causes eye irritation.
Skin : Health injuries are not known or expected under normal use.
Ingestion : Health injuries are not known or expected under normal use.
Inhalation : Health injuries are not known or expected under normal use.
Chronic Exposure : Health injuries are not known or expected under normal use.

Experience with human exposure

Product AS SOLD

Eye contact : Redness, Pain, Corrosion
Skin contact : Redness, Pain, Irritation, Corrosion, Allergic reactions
Ingestion : Corrosion, Abdominal pain
Inhalation : Respiratory irritation, Cough

Product AT USE DILUTION

Eye contact : Redness, Irritation
Skin contact : No symptoms known or expected.
Ingestion : No symptoms known or expected.
Inhalation : No symptoms known or expected.

Toxicity

Product AS SOLD

Product

Acute oral toxicity : Acute toxicity estimate : > 300 mg/kg
Acute inhalation toxicity : Acute toxicity estimate : 0.55 mg/l
Test atmosphere: dust/mist
Acute dermal toxicity : Acute toxicity estimate : > 1,200 mg/kg
Skin corrosion/irritation : No data available
Respiratory or skin sensitization : No data available
Carcinogenicity : No data available
Reproductive effects : No data available
Germ cell mutagenicity : No data available
Teratogenicity : No data available
STOT-single exposure : No data available

SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

STOT-repeated exposure : No data available

Aspiration toxicity : No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product AS SOLD

Environmental Effects : This product has no known ecotoxicological effects.

Product AT USE DILUTION

Environmental Effects : This product has no known ecotoxicological effects.

Product AS SOLD

Product

Toxicity to fish : No data available

Toxicity to daphnia and other aquatic invertebrates : No data available

Toxicity to algae : No data available

Components

Toxicity to fish : dodecylbenzene sulfonic acid
96 h LC50: 4.3 mg/l

Components

Toxicity to algae : Hydrogen peroxide
72 h EC50: 1.38 mg/l

Persistence and degradability

Product AT USE DILUTION

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Product AS SOLD

Disposal methods : Do not contaminate ponds, waterways or ditches with chemical or used container. Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.

Disposal considerations : Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers. Dispose of in accordance with local, state, and federal regulations.

SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

RCRA - Resource Conservation and Recovery Authorization Act Hazardous waste : D002 (Corrosive)

Product AT USE DILUTION

Disposal methods : Diluted product can be flushed to sanitary sewer.

Disposal considerations : Dispose of in accordance with local, state, and federal regulations.

SECTION 14. TRANSPORT INFORMATION

Product AS SOLD

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Not dangerous goods

Sea transport (IMDG/IMO)

Not dangerous goods

SECTION 15. REGULATORY INFORMATION

Product AS SOLD

EPA Registration number : 1677-238

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Respiratory or skin sensitization
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 302 : The following components are subject to reporting levels established by SARA Title III, Section 302:
Hydrogen peroxide 7722-84-1 5 - 10 %

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

California Prop. 65

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

California Cleaning Product Right to Know Act of 2017 (SB 258)

SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

This regulation applies to this product.

Chemical Name	CAS-No.	Function	List(s)
water	7732-18-5	Diluent	Not Applicable
dodecylbenzene sulfonic acid	27176-87-0	Cleaning Agent	Not Applicable
Hydrogen peroxide	7722-84-1	Biocide	Not Applicable
Fragrance mixture	Not Available	Fragrance	Not Applicable
Aryl carboxylic acid	Withheld	Stabilizer	Not Applicable
Yellow dye	Withheld	Dye	Not Applicable
Silicone	Withheld	Processing Aid	Not Applicable

*refer to ecolab.com/sds for electronic links to designated lists

The ingredients of this product are reported in the following inventories:

United States TSCA Inventory :

All substances listed as active on the TSCA inventory

Canadian Domestic Substances List (DSL) :

This product contains one or several components listed in the Canadian NDSL.

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS) :

not determined

New Zealand. Inventory of Chemical Substances :

not determined

Japan. ENCS - Existing and New Chemical Substances Inventory :

not determined

Korea. Korean Existing Chemicals Inventory (KECI) :

not determined

Philippines Inventory of Chemicals and Chemical Substances (PICCS) :

not determined

China. Inventory of Existing Chemical Substances in China (IECSC) :

not determined

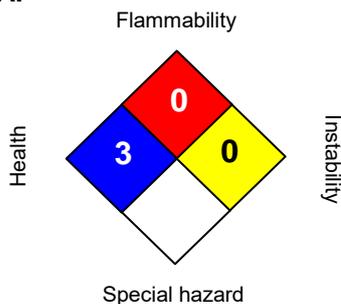
Taiwan Chemical Substance Inventory (TCSI) :

not determined

SECTION 16. OTHER INFORMATION

Product AS SOLD

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	0
PHYSICAL HAZARD	0

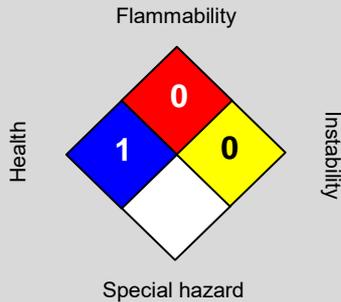
0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

SAFETY DATA SHEET

PEROXIDE MULTI SURFACE CLEANER AND DISINFECTANT

Product AT USE DILUTION

NFPA:



HMIS III:

HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Issuing date : 09/13/2021
Version : 1.6
Prepared by : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Water Quality and Quantity Calculations



Problem Statement: Document the updated flow volume calculations for the EAT02-03-04 buildings

Assumptions: EAT02-04 consists of EAT02, EAT03, and EAT04 data center buildings.
 The AHU shutdown estimates from the ESD Memo dated 6/3/2022¹ are applicable for EAT02-04 daily and monthly discharge values. The average and maximum values are provided for cooling months only (May through September).
 Per Microsoft operations, maintenance flushing will take place once per week, with up to 5,000 gallons per day (gpd) per equivalent data center building discharged during winter months (October through April), and up to 2,500 gpd per equivalent data center building discharged during the cooling season (May through September).
 Maintenance flushing will not take place during peak cooling days when the maximum daily demand and discharge take place.
 The average maintenance flushing was estimated as the maximum weekly flow volume averaged over seven days.
 Monthly maintenance flushing volumes were approximated assuming four weeks per month.
 Sanitary wastewater discharges is estimated to be 1,000 gallons for 3 buildings, as proposed in EAT02-03-04 Engineering Design Report.²

Calculations:

	Units	EAT02-04
Maximum Daily Wastewater Discharge Flow		
Total Cooling Discharge on Peak Day Per Building ¹	GPD/bldg	30,000
Evaporative Cooling CWD	GPD	90,000
Maintenance Flushing CWD	GPD	-
Combined CWD	GPD	90,000
Sanitary Wastewater	GPD	1,000
Total Discharge Flow	GPD	91,000

	Units	EAT02-04
Maximum Average Monthly Wastewater Discharge Flow		
Average Cooling Discharge Over Peak Month Per Building ¹	GPD/bldg	7,450
Evaporative Cooling CWD	GPD	22,350
Maintenance Flushing CWD	GPD	1,071
Combined CWD	GPD	23,421
Sanitary Wastewater	GPD	1,000
Total Discharge Flow	GPD	24,421

Unit	January	February	March	April	May	June	July	August	September	October	November	December
Evaporative Cooling CWD Per Building ¹	gallons/bldg	0	0	0	0	31,067	96,661	161,948	230,894	25,189	0	0
EAT02-04												
Evaporative Cooling CWD	Mgal	0	0	0	0	0.093	0.290	0.486	0.693	0.076	0	0
Maintenance Flushing CWD	Mgal	0.06	0.06	0.06	0.06	0.03	0.03	0.03	0.03	0.03	0.06	0.06
Sanitary Wastewater	Mgal	0.031	0.028	0.031	0.03	0.031	0.031	0.031	0.031	0.031	0.03	0.031
	Mgal	0.091	0.088	0.091	0.090	0.154	0.350	0.547	0.754	0.136	0.091	0.090
Total Discharges	gal	91,000	88,000	91,000	90,000	154,201	349,983	546,844	753,682	135,567	91,000	90,000
	GPD	2,935	3,143	2,935	3,000	4,974	11,666	17,640	24,312	4,519	2,935	3,000

Unit	EAT02-04
Average Potable Water Use During Cooling Season	
Mechanical Cooling Process Water ²	GPD 46,088
Maintenance Flushing Water	GPD 1,071
Admin/Sanitary Water ³	GPD 1,000
Total Potable Water Usage	GPD 48,159
Maximum Potable Water Use	
Mechanical Cooling Process Water ²	GPD 378,510
Maintenance Flushing Water	GPD -
Admin/Sanitary Water ³	GPD 1,000
Total Potable Water Usage	GPD 379,510

Notes:

¹ ESD. 2022. "Technical Memo, Clear Water Discharge Demand, ESD Project Name: Microsoft ET02 LDO-Energy, ESD Project #: C200459-011." June 03.
² Landau Associates, Inc. 2021. "Engineering Design Report, Microsoft EAT02-03-04 Data Center Campus, East Wenatchee, Washington." February 26.

Abbreviations and Acronyms:

- CWD = clear water discharge
- ESD = Environmental Systems Design, Inc.
- gal = gallons
- GPD = gallons per day
- Mgal = million gallons
- SWD = State Waste Discharge

Problem Statements:

Determine potential contributions of the descaling agent additives on total dissolved solids (TDS) and sodium.

Assumptions:

The calculation is for the full Facility buildout of 3 buildings.
 All 160 AHUs per building are cleaned with the Nalco 8344 descaling agent (descaling agent) and Nalco 8735 pH neutralization solution (pH neutralization solution) per cooling season.
 The average TDS load was estimated using the total volume of CWD from the cooling season.
 The maximum concentration of citric acid was used for the descaling agents source of TDS.
 The due to there being two caustic sources in the pH neutralization solution, the average concentration of each (NaOH and KOH) were used to estimate TDS.
 The total mass of citric acid in the descaling agent is assumed to contribute to TDS.
 The total mass of sodium hydroxide (NaOH) and potassium hydroxide (KOH) in the pH neutralization solution is assumed to contribute to TDS.

Conversions

1 gallon (gal) = 3.785 L
 1 liter (L) = 1,000 g
 1 gram (g) = 1,000 mg

Calculations

TDS Concentration From Descaling Agent (Nalco 8344)

Volume of descaling agent used per AHU	0.8 gallon	per Nalco email 1/3/24
Relative density of descaling agent	1.25	
Mass of descaling agent used per AHU	3,785 g	
Conc. citric acid by mass	60%	from SDS (Appendix C)
Mass of citric acid used per AHU	2,271 g	
Number of AHU cleaned per cooling season	480 AHUs	
Average CWD discharge per day during cooling season	11,773 gallon	per Section 3.2
	44,561 L	
Days per cooling season with biocide-treated CWD	11 days	
Days within a cooling season	153 days	
Conc. of citric acid averaged over cooling season	160 mg/L	
TDS from citric acid averaged over cooling season	160 mg/L	

TDS Concentration From pH Neutralizing Solution (Nalco 8735)

Volume of pH neutralizing sol'n used per AHU	0.5 gallon	per Nalco email 1/3/24
Relative density of pH neutralizing sol'n	1.5	from SDS (Appendix C)
Mass of pH neutralizing sol'n used per AHU	2,839 g	
Conc. NaOH by mass	45%	from SDS (Appendix C)
Conc. KOH by mass	20%	from SDS (Appendix C)
Mass of NaOH per AHU cleaning	1,277 g	
Mass of KOH per AHU cleaning	568 g	
Mass of NaOH and KOH used per AHU	1,845 g	
Conc. of NaOH and KOH over cooling season	130 mg/L	Using the same AHU cleaning frequency as descaling agent
TDS from NaOH and KOH averaged over cooling season	130 mg/L	

Estimated TDS from Descaling Agent, pH Neutralizing Solution

Combined TDS averaged over cooling season	290 mg/L
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Sodium Concentration From pH Neutralizing Solution (Nalco 8735)

Proportion Na of NaOH	58%	
Mass Na per AHU cleaning	735 g	using mass NaOH per AHU cleaning from above calc
Conc. of Na over cooling season	52 mg/L	