

Official Draft Public Notice Version August 23, 2019

The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

**FACT SHEET AND STATEMENT OF BASIS  
ENSIGN-BICKFORD COMPANY  
UPDES PERMIT # UT0025283  
RENEWAL PERMIT FOR MINOR INDUSTRIAL FACILITY**

**FACILITY CONTACT:** Mr. Haldon R. Jaussi  
Director of Environmental Remediation  
The Ensign-Bickford Company  
8305 South Highway 6 & 89  
Spanish Fork, Utah 84660  
Phone: (801) 794-4538

**DESCRIPTION OF FACILITY:** An explosives manufacturing plant has been operated at the present Ensign-Bickford Company (EBCo) site since prior to World War II. Around June of 1986 a large quantity of dilute nitric acid was released at this facility as the result of liner failure in a storage pond. Prior to 1988 the wastewater disposal practices at the EBCo site may have included disposal of industrial waste from explosives production into unlined ditches, pits, and ponds. Elevated concentrations of nitrates, and low concentrations of constituents of energetic materials (CEM's) have been detected in a municipal water supply well owned and operated by Mapleton City. This prompted Mapleton City to remove this well from service in November of 1994. EBCo, in cooperation with Mapleton City and the Utah Department of Environmental Quality (DEQ) has developed a plan to reactivate the well for use in either the municipal water system or in a municipal pressurized irrigation system. The following compounds have been detected in the Mapleton No. 1 well:

Nitrate	
RDX	Cyclotrimethylenetrinitramine
EGDN	Ethylene Glycol Dinitrate; Nitroglycol; Glycol Dinitrate
DEGDN	Diethylene Glycol Dinitrate; Dinitrodiglycol

In addition to the compounds identified above, the following compounds have been detected in ground water between the EBCo site and the Mapleton No. 1 well:

HMX	Cyclotetramethylenetetranitramine
PETN	Pentaerythritol Tetranitrate
TEGDN	Triethylene Glycol Dinitrate
TMETN	Metriol Trinitrate; 1,3-Propanediol; 2-Methylnitrate
BTTN	Butanetriol Trinitrate
TNT	Trinitrotoluene

DEQ has required that the Mapleton No. 1 well be pumped to serve as a hydraulic barrier to impede further northward migration of nitrate and other CEM's. To comply with this condition, the Mapleton No. 1 well reactivation alternative has been designed to include surface water discharge that enables pumping of the well when municipal demand requirements do not warrant the well's

use. The reactivation plan includes the utilization of a granular activated carbon (GAC) treatment system that will remove CEM's from the ground water prior to use in the culinary and/or pressurized irrigation systems. No reduction of nitrate concentration is contemplated for water discharged to surface water, nor will any be required to meet the permit effluent limitations contained in this permit.

The Hobble Creek portion of the Facility consists of flow from the Mapleton GAC facility and the Orton GAC facility with a discharge to either the Mapleton pressurized Irrigation System or directly to Hobble Creek. The flow from the Mapleton GAC makes up roughly 2/3 of the flow and the Orton GAC makes up roughly 1/3 of the flow to the system.

The Spanish Fork treatment facility is located at 3710 East Hwy. 6 in Spanish Fork. This discharge is mostly, if not completely, discharged to the City of Spanish Fork's pressurized irrigation system and only makes the Spanish Fork River when irrigation activities do not warrant its' use (approximately November through March). Effluent is piped via a conveyance pipeline (approximately 4.5 miles of 12-inch diameter PVC) from the treatment facility to a vault (located approximately 500 feet from the river), where it blends with other waters not associated with this groundwater recovery process before reaching the river.

In 2014, the Utah Division of Water Quality adopted *UAC R317-1-3.3*, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule. The TBPEL rule as it relates to "non-lagoon" wastewater treatment plants establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The TBPEL rule requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020. However, since phosphorus is not a constituent of concern and not expected to be in the effluent, the facility is exempt from the TBPEL rule and phosphorus limits are not included in this permit.

#### **SUMMARY OF CHANGES FROM PREVIOUS PERMIT**

In February of 2018, the Utah Division of Water Quality adopted a new Permit and Enforcement Guidance Document for Whole Effluent Toxicity. In that guidance document it states, that if no toxicity is observed for 10 consecutive tests, testing frequency may be reduced if approved by the Director in accordance with administrative procedures for modifying the permit. The justification for the change in testing frequency should include an evaluation of the applicable factors used for evaluating reasonable potential. The facility has never failed a WET test going back to 1998. During the renewal process, the facility has requested that their WET testing be eliminated. Reviewing their prior history, and lack of WET failures, WET testing has been eliminated from the permit.

#### **DISCHARGE**

#### **DESCRIPTION OF DISCHARGES:**

**Outfall 001** Final discharge from Outfall 001 is directly to Hobble Creek where it passes under Main Street. This discharge point is located at latitude

40° 08' 52" and longitude 111° 34' 40" with STORET No. 499559. During the irrigation season, the facility discharges to the Mapleton City pressurized irrigation system with the flow being direct to a storage impoundment located east of the city. There is no public access to this storage impoundment. Outfall 001 is located at latitude 111° 34' 40" and longitude 40° 08' 52".

**Outfall 002**

Discharge from Outfall 002 will be to the pressurized irrigation system or discharge to the Spanish Fork River depending on the season. Discharges to the Spanish Fork River will only be allowed when the background flow of the Spanish Fork River is 12 cfs or greater. If background falls below 12 cfs, discharge in the Spanish Fork River shall cease until such time the upstream flow in the Spanish Fork River equals or exceeds 12 cfs. Outfall 002 is located at latitude of 111° 35' 21" and longitude of 40° 05' 06".

**STREAM CLASSIFICATION:** According to the Utah Water Quality Standards as contained in R317-2, the Hobble Creek is classified as indicated below:

- 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
- 3A - Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
- 4 - Protected for agricultural uses including irrigation of crops and stock watering.

According to Utah Water Quality Standards contained in Utah Administrative Code (UAC) R317-2, the Spanish Fork River is classified as:

- 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
- 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- 3D - Protected for water fowl, shore birds, and other water-oriented wildlife not included in classes 3A, 3B or 3C, including the necessary aquatic organisms in their food chain.
- 4 - Protected for agricultural uses including irrigation of crops and stock watering.

**BASIS FOR EFFLUENT LIMITATIONS:** Utah Administrative Code (UAC) R317-1-3 lists State secondary treatment standards for five-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), fecal coliforms, total coliforms, and pH. Based on data provided in the original permit application, and because the effluent is composed only of ground water, BOD<sub>5</sub>,

TSS, and E. coli limitations are not necessary, thus will not be included in this permit. However, pH is applicable to this discharge permit and will be limited to between 6.5 and 9.0 at Outfall 001.

Total dissolved solids and ammonia limits are included in this permit because Utah Lake for these parameters is impaired for these pollutants and is listed on the 303d list. Facilities are not allowed to exceed water quality standards for pollutants on the 303d list where a TMDL is not been completed.

Additional concerns addressed in this permit are the concentration and types of organic constituents in the effluent. As discussed above, a number of organic compounds are found to be present in the effluent. Most of these organic compounds are at very low concentrations, and the major confirmed component of all the organics is RDX. Therefore, if RDX concentrations are sufficiently controlled then other organic parameters should likewise remain below concentrations of concern. There is no State numeric water quality standard for RDX. However, there is a published EPA Lifetime Drinking Water Health Advisory (Office of Drinking Water, U.S. EPA, Washington D.C., November 1988) for RDX of 0.002 mg/L. The methodology for deriving the 0.002 mg/L health advisory for RDX has been challenged by EBCo, and will continue to be the subject of further evaluation by EBCo and the Department of Environmental Quality. Until an alternate resolution is determined, the lifetime health advisory will serve as the basis for establishing the effluent limits (e.g., the concentration of RDX, after mixing in the receiving stream, shall not exceed 0.002 mg/L).

Nitrate nitrogen is also a parameter of concern. It is included in the State drinking water standards at a concentration of 10 mg/l and is included in the State water quality standards as a pollution indicator (4 mg/L in order to protect against eutrophication). If it appears that the in-stream mix may exceed 4 mg/L, either that limit must be met, or an appropriate stream assessment must be completed to determine what in-stream mix is appropriate.

The wasteload allocation indicates that there are six flow ranges needed to determine specific RDX and nitrate nitrogen effluent limit concentrations at Outfall 001 and Outfall 002. These flow ranges, and the corresponding effluent limit concentrations for RDX and nitrate nitrogen are shown in the tables below. EBCo will be required to meet the RDX and nitrate nitrogen concentrations of the flow range associated with the highest flow rate of the month. For example, if EBCo's discharges varied in any particular month, but reached no higher than 2.0 cfs at any time, then the flow range would be considered in the 1.68-2.23 cfs range in the table, and the corresponding effluent limitation would be 0.007 mg/L for RDX, and 32.5 mg/L for nitrate nitrogen. EBCo's maximum effluent flow rate is limited to 6.13 cfs by this permit. When calculating these effluent limits, the maximum flow rate for each flow range was used as the effluent flow in the mass balance equation. Additionally, an additional 20% margin of safety factor was included when determining the final effluent limitation. The results of these calculations can be found in Table 2.

There is no published standard analytical method in the literature (which has been certified by EPA) as an approved method for detection of such low concentrations of RDX and other CEM compounds. Therefore, it was up to the State and the permittee to develop an appropriate analytical method for RDX and other CEM compounds. EPA Method SW8330 has been modified to facilitate low concentration quantification of RDX and other CEM compounds. Future advances in analytical technology may warrant appropriate modifications to this method.

**REASONABLE POTENTIAL ANALYSIS:** Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit renewal was conducted following DWQ's September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required

A qualitative RP check was performed on metals to determine if there was enough data to perform a reasonable potential analysis on the outfall. Because of their process, treating ground water with nitrogenous compounds by means of granular activated carbon (GAC), Ensign-Bickford was not required to sample metals during the previous permit cycle, and as a result there is no metals data to analyze for RP.

**NUMERIC PERMIT LIMITATIONS:**

Below are the numeric permit limitations in the permit.

<b>Table 1: Effluent Limitations Outfall 001</b>				
Parameter, Units	30-Day Average	7-Day Average	Daily Minimum	Daily Maximum
pH, S.U.	NA	NA	6.5	9.0
Nitrate-Nitrogen, mg/L	NA	NA	NA	a/
RDX, ug/L b/	NA	NA	NA	a/
Total Dissolved Solids (TDS) mg/L c/	NA	NA	NA	1200
Ammonia mg/L /c/	NA	NA	NA	3.29
Total Phosphorus mg/L	Report	NA	NA	NA
Flow, cfs	NA	NA	NA	6.13
DO, mg/L d/	NA	NA	4.5	NA

a/ Nitrate nitrogen and RDX limitations are based upon effluent flow ranges as indicated in the tables below. The permittee is required to meet the RDX and nitrate-nitrogen concentrations of the flow range associated with the highest flow rate of the month. The permittee is not allowed to discharge more than 3.34 cfs at any time.

b/ Analyses of RDX shall be made by the method appended to the fact sheet and statement of basis in Appendix A, or by any other method approved in writing by the Director.

c/ If the facility can show after 10 samples that there is no reasonable potential to exceed water quality standards for these pollutants, they may petition the Director for a reduction in sampling frequency or removal from the permit for the remainder of the permit cycle.

d/ DO limits are only applicable if the discharge is going to surface waters.

<b>Table 2: Effluent Limitations Outfall 002</b>				
Parameter, Units	30-Day Average	7-Day Average	Daily Minimum	Daily Maximum
pH, S.U.	NA	NA	6.5	9.0
Nitrate-Nitrogen, mg/L	NA	NA	NA	a/
RDX, ug/L b/	NA	NA	NA	a/
Total Phosphorus mg/L	Report	NA	NA	NA
Flow, cfs	NA	NA	NA	3.34
DO, mg/L	NA	NA	4.5	NA

a/ Nitrate nitrogen and RDX limitations are based upon effluent flow ranges as indicated in the tables below. The permittee is required to meet the RDX and nitrate-nitrogen concentrations of the flow range associated with the highest flow rate of the month. The permittee is not allowed to discharge more than 3.34 cfs at any time.

b/ Analyses of RDX shall be made by the method appended to the fact sheet and statement of basis in Appendix A, or by any other method approved in writing by the Director.

c/ DO limits are only applicable if the discharge is going to surface waters.

<b>Table 3: RDX And Nitrate-Nitrogen Limits Based for Outfall 001</b>		
Effluent Flow Range (cfs)	Daily Maximum RDX Concentration (mg/L)	Daily Maximum Nitrate-Nitrogen Concentration (mg/L)*
0.00 - 0.56	0.0274	124.1
0.57 - 1.11	0.0148	67.6
1.12 - 1.67	0.0105	48.3
1.68 - 2.79	0.0071	32.9
2.80 - 4.46	0.0052	24.3
4.47 - 6.13	0.0043	20.4

Effluent Flow Range (cfs)	Daily Maximum RDX Concentration (mg/L)	Daily Maximum Nitrate-Nitrogen Concentration (mg/L)*
0.00 - 0.56	0.0449	124.1
0.57 - 1.11	0.0236	67.6
1.12 - 1.67	0.0164	48.3
1.68 - 2.23	0.0128	38.7
2.34 - 2.79	0.0106	32.9
2.80 - 3.34	0.0092	29.1

\*Assumes an upstream (background) nitrate-nitrogen concentration of 1 mg/L.

**SELF-MONITORING AND REPORTING REQUIREMENTS**

The following self-monitoring requirements are the same as in the previous permit. The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

Parameter	Sampling Frequency	Sample Type	Units
pH	Monthly	Immediate	S.U.
Nitrate Nitrogen	Monthly	Grab	mg/L
RDX	Monthly	Grab	mg/L
Flow b/ c/	Continuous	Recorded	cfs
DO	Monthly	Immediate	mg/L
Total Dissolved Solids d/	Monthly	Grab	mg/L
Ammonia d/	Monthly	Grab	mg/L
Total Phosphorus d/	Monthly	Grab	mg/L

a/ See Definitions, *Part VIII*, for definition of terms.

b/ If the rate of discharge is controlled, the rate and duration of discharge shall be reported.

- c/ If the flow in the Spanish Fork River immediately upstream of the point where this discharge enters the river drops below 12 cfs (7.8 MGD) the permittee shall cease discharging until the upstream flow again exceeds 12 cfs.
- d/ After 1 year of sampling, the facility can ask for a reduction in sampling frequency.

**STORM WATER REQUIREMENTS:** EBCo will not need to apply for an industrial storm water permit at this time. However, if it is known that one acre or more of ground will be disturbed during future construction activities, a storm water construction permit will be required. The Company has expressed their preference for such coverage under the Utah General Permit as opposed to including applicable requirements in this permit. Any such permit must be obtained before construction activities begin.

**PRETREATMENT REQUIREMENTS:** It is not contemplated that discharges covered under this permit will be discharged directly to the sanitary sewer; however, water from back wash of GAC treatment units and/or carbon transfer slurry water could be discharged to the sanitary sewer. Any wastewater, discharged to a public sanitary sewer is subject to Federal, State, and local pretreatment regulations. Pursuant to Section 307 of the Clean Water Act, EBCo shall comply with all applicable Federal pretreatment regulations promulgated in *40 CFR Section 403*, the State pretreatment requirements found in *UAC R317-8-8*, and any specific local discharge limitations developed by the wastewater treatment plant accepting any process wastewater from EBCo.

If EBCo discharges any waste to a wastewater treatment system which is considered a hazardous waste, then EBCo must notify the publicly owned treatment works (POTW), the EPA Regional Waste Management Director and the State hazardous waste authorizes.

**BIOMONITORING REQUIREMENTS:** A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the Utah Pollutant Discharge Elimination System Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring), dated February 2018. Authority to require effluent biomonitoring is provided in Permit Conditions, *UAC R317-8-4.2*, Permit Provisions, *UAC R317-8-5.3* and Water Quality Standards, *UAC R317-2-5* and *R317 -2-7.2*.

The permittee is a minor municipal facility that will be discharging an infrequent amount of effluent, in which toxicity is neither an existing concern, nor likely to be present. Based on these considerations, and the absence of receiving stream water quality monitoring data, there is no reasonable potential for toxicity in the permittee's discharge (per State of Utah Permitting and Enforcement Guidance Document for WET Control). As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener provision that allows for modification of the permit should additional information indicate the presence of toxicity in the discharge.

**TMDL REQUIREMENTS:**

According to the Utah's 2016 303(d) Water Quality Assessment Report, the receiving water for the discharge from Outfall 001 is Hobbler Creek. Hobbler Creek from Utah Lake to confluence of Left Fork Hobbler Creek and Right Fork Hobbler Creek (AU UT16020202-003\_00) is listed as impaired

for pH for its class 2B and 3A beneficial uses. A TMDL has not been completed addressing the pH impairment. Secondary standards for pH are implemented as end of pipe criteria and are protective of downstream uses.

The downstream waterbody, the Provo Bay portion of Utah Lake (AU UT-L-1602020I-004\_02), is listed as impaired for PCB in fish tissue, pH, ammonia, and total phosphorus (38 Use Class). Utah Lake proper is also listed as impaired for total dissolved solids. Although the WLA may show higher allowed effluent limits for these impaired constituents should be evaluated in the effluent against the end of pipe Water Quality Standards in Table 1 to determine whether or not they have reasonable potential to cause or contribute to the existing impairments.

According to the Utah's 2016 303(d) Water Quality Assessment Report, the receiving water for the discharge Outfall 002 is the Spanish Fork River from Utah Lake to Moark Diversion (AU UT-L-16020202-001\_00) is not listed as impaired for any of its beneficial uses.

The downstream waterbody, Utah Lake other than Provo Bay (AU UT-L-16020201-004\_01), is listed as impaired for harmful algal blooms (Class 2B); PCB in fish tissue and total phosphorus (Class 38) and total dissolved solids (Class 4). Although the V/LA may show higher allowed effluent limits for these impaired constituents should be evaluated in the effluent against the end of pipe Water Quality Standards in Table 1 of the wasteload analysis to determine whether or not they have reasonable potential to cause or contribute to the existing impairments.

This facility ultimately discharges to Utah Lake which is listed on Utah's 303(d) list of impaired water bodies as defined in the Clean Water Act. As required under federal regulations, a total maximum daily load (TMDL) will be developed for all 303(d) listed waters. Specifically, Utah Lake has been identified as impaired for total phosphorus (TP) and Total Dissolved Solids (TDS). Currently, a TMDL evaluation is underway for the lake. The TMDL process may result in pollutant load reductions and wasteload allocations for either of these constituents. Wasteload allocations would then be translated to effluent limits in UPDES permits. It is therefore strongly recommended that the facilities' staff participate in the TMDL process. Based on the above it is recommended that the facility self-monitor TP on a monthly basis in order to better quantify their contribution of phosphorus to the lake. The TMDL staff at the Division of Water Quality will be responsible for scheduling and notifying appropriate facilities personnel regarding TMDL meetings. In addition, please contact your UPDES permit writer for information on scheduled TMDL meetings.

#### **PERMIT DURATION**

It is recommended that this permit be effective for a duration of five (5) years.

Drafted by  
Lonnie Shull, Discharge, Biomonitoring  
Jennifer Robinson/Mathew Garn, Pretreatment  
Dave Wham, Wasteload Analysis  
Utah Division of Water Quality, (801) 536-4300

**PUBLIC NOTICE**

Began: Month Day, Year  
Ended: Month Day, Year

Comments will be received at: 195 North 1950 West  
PO Box 144870  
Salt Lake City, UT 84114-4870

The Public Noticed of the draft permit was published in the (NEWSPAPER OF RECORD FOR AREA).

During the public comment period provided under R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in R317-8-6.12.

**ADDENDUM TO FSSOB**

During finalization of the Permit certain dates, spelling edits and minor language corrections were completed. Due to the nature of these changes they were not considered Major and the permit is not required to be re Public Noticed.

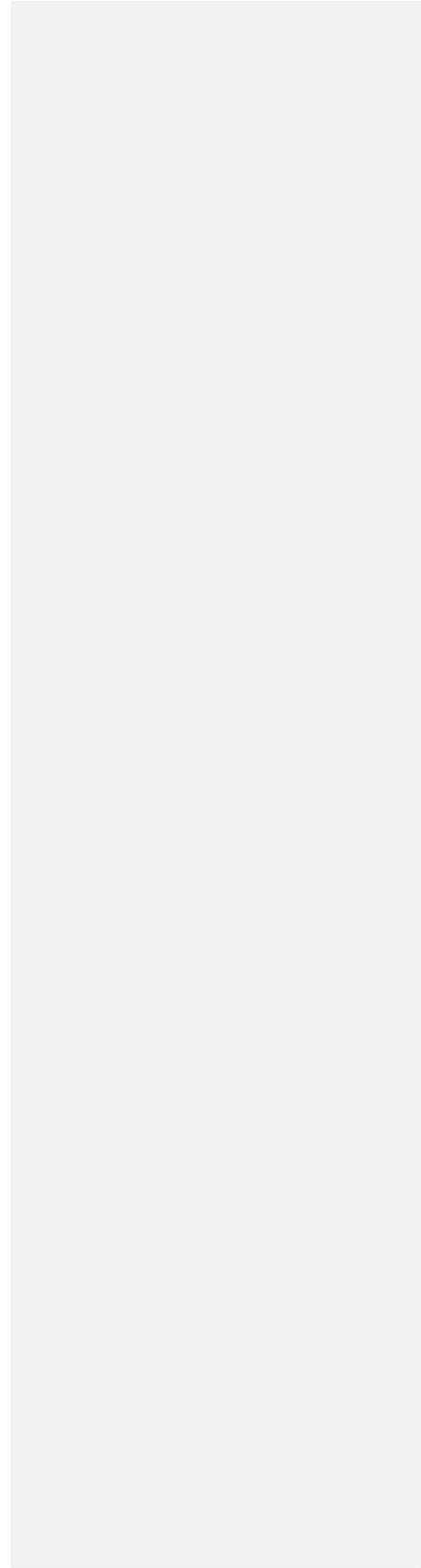
**Responsiveness Summary**

(Explain any comments received and response sent. Actual letters can be referenced, but not required to be included).

**ATTACHMENT 1**

*Wasteload Analysis*

PV Draft



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**Comment [d1]:** Insert Printed WLA after this page. WLA s included in Workflow and is document DWQ-20XX-XXXXXX

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**APPENDIX A:  
DEVELOPMENT OF EFFLUENT LIMITATIONS FOR RDX**

$C_{up} F_{up} + C_e F_e = C_{ds} F_{ds}$  Normal mass balance equation.

$C_{up}$  = Concentration upstream

$F_{up}$  = Upstream flow in cfs

$C_e$  = Concentration in the effluent

$F_e$  = Effluent flow

$C_{ds}$  = Concentration downstream

$F_{ds}$  = Downstream flow =  $F_{up} + F_e$

$$C_e F_e = C_{ds} F_{ds} - C_{up} F_{up}$$

$$C_e = \frac{C_{ds} F_{ds} - C_{up} F_{up}}{F_e}$$

$$F_{ds} = F_{up} + F_e$$

$$C_e = \frac{C_{ds} (F_{up} + F_e) - (C_{up} F_{up})}{F_e}$$

Plug in the real values:

$$C_{ds} = 0.002 \text{ mg/L}$$

$$F_{up} = 7.1 \text{ cfs which will be considered as the 7Q10 for this constituent.}$$

$$C_{up} = \text{Background RDX concentration which must be taken as } 0 \text{ mg/L.}$$

$$F_e = \text{Effluent flow } 6.13 \text{ cfs}$$

$$C_e = \frac{0.002 \text{ mg/L} * (9.0 \text{ cfs} + 6.13 \text{ cfs}) - (0 \text{ mg/L} * 7.1 \text{ cfs})}{6.13 \text{ cfs}}$$

$$C_e = 0.0043 \text{ mg/L}$$

The results of effluent limit calculations for RDX are summarized in tables presented previously in the Statement of Basis.

**DEVELOPMENT OF EFFLUENT LIMITATIONS FOR NITRATE-NITROGEN**

Using the same equation as for nitrate-nitrogen:

$$C_e = C_{ds} (F_{up} + F_e) - (C_{up} * F_{up})$$

$$F_e$$

Plug in the real values:

$$C_{ds} = 10.0 \text{ mg/L}$$

$F_{up} = 7.1$  cfs which will be considered as the 7Q10 for this constituent.

$$C_{up} = \text{Background nitrate-nitrogen concentration} = 1.0 \text{ mg/L}$$

$$F_e = \text{Effluent flow } 6.13 \text{ cfs}$$

$$C_e = \frac{10.0 \text{ mg/L} * (9.0 \text{ cfs} + 6.13 \text{ cfs}) - (1.0 \text{ mg/L} * 7.1 \text{ cfs})}{6.13 \text{ cfs}}$$

$$C_e = 20.4 \text{ mg/L}$$

The results of effluent limit calculations for nitrate-nitrogen are summarized in tables presented previously in the Statement of basis.

**Table 2: RDX And Nitrate-Nitrogen Limits Based for Outfall 001**

Effluent Flow Range (cfs)	Daily Maximum RDX Concentration (mg/L)	Daily Maximum Nitrate-Nitrogen Concentration (mg/L)*
0.00 - 0.56	0.0285	128.9
0.57 - 1.11	0.0152	69.1
1.12 - 1.67	0.0106	48.8
1.68 - 2.23	0.0070	32.5
2.34 - 2.79	0.0050	23.5
2.80 - 3.34	0.0041	19.3

<b>Table 3: RDX And Nitrate-Nitrogen Limits Based for Outfall 002</b>		
<b>Effluent Flow Range (cfs)</b>	<b>Daily Maximum RDX Concentration (mg/L)</b>	<b>Daily Maximum Nitrate-Nitrogen Concentration (mg/L)*</b>
0.00 - 0.56	0.0449	124.1
0.57 - 1.11	0.0236	67.6
1.12 - 1.67	0.0164	48.3
1.68 - 2.23	0.0128	38.7
2.34 - 2.79	0.0106	32.9
2.80 - 3.34	0.0092	29.1

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