Official Draft Public Notice Version **Month Day, year**
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's 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.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

During the last permit cycle, Total Dissolved Solids, Phosphorus, and Ammonia were added to the permit because Utah Lake is listed as being impaired for these pollutants. Since the issuance of that permit, the facility has monitored these pollutants with a limit set at the water quality standard. The facility requested that this data be reviewed and a reasonable potential calculation was conducted to see if the facility had the reasonable potential to exceed water quality standards for these pollutants. Based on the data collected by the facility, it was shown that there was no reasonable potential to water quality standards for these pollutants. As a result, these pollutants are being removed from the permit.

In 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, phosphorus limits were not included in this permit. However, the facility sampled phosphorus without a limit to determine the amount of the pollutant in the effluent. For outfall 001 five (5) phosphorus samples were collected. Phosphorous was not detected in in 3 of the five samples and found at 0.02 mg/L in the other two samples. This is well below the 1.0 mg/L Phosphorus limit in the TBPEL. For Outfall 002, Twenty-seven (27) samples were collected. Nineteen (19) of those sample were non-detect for phosphorus and eight (8) of those detected the presence of phosphorus. Of those samples where phosphorus was detected, the values ranged between 0.01 mg/L – 0.306 mg/L with an average of 0.08 mg/L. Again, these values are well below the annual mean of 1.0 mg/L phosphorus.

As a result, limits for Ammonia, Total Dissolved Solids are being removed from the permit. Additionally, monthly sampling from phosphorus is also being removed from the permit.

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 reasonable potential analysis was performed on the TDS and Ammonia to determine if there was enough data to perform a reasonable potential analysis on the outfall. It was shown there was no reasonable potential for the facility to violate water quality standards based on their previous sampling. Those results are included at the Appendix of this FSSOB.

The new permit limitations are

Table 1: Effluent Limitations Outfall 001

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/
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 6.13 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.
d/ DO limits are only applicable if the discharge is going to surface waters.

Table 2: Effluent Limitations Outfall 002a and Outfall 002b

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/
Flow, cfs	NA	NA	NA	3.34
DO, mg/L c/	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.

Table 3: 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	0.0274	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

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

Table 4: RDX And Nitrate-Nitrogen Limits Based for Outfall 002a

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.

Table 5: RDX And Nitrate-Nitrogen Limits Based for Outfall 002b

Effluent Flow Range (cfs)	Daily Maximum RDX Concentration (mg/L)	Daily Maximum Nitrate-Nitrogen Concentration (mg/L)*
0 - 3.34	0.002	10

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

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements will be implemented in the modified permit.

Table 6: Self-Monitoring and Reporting Requirements a/			
Parameter	Sampling Frequency	Sample Type	Units
pH	Monthly	Immediate	S.U.
Nitrate Nitrogen	Monthly	Grab	mg/L
RDX	Monthly	Grab	mg/L
Flow b/	Continuous	Recorded	cfs
DO	Monthly	Immediate	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.

TMDL REQUIREMENTS: This facility ultimately discharges to Utah Lake which is listed on Utah's 303(d) list of impaired waterbodies 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 phosphorous (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 in the future. Wasteload allocations would then be translated to effluent limits in UPDES permits.

PERMIT DURATION

It is recommended that this permit be effective until the original permit expiration date of September 30, 2024. .

Drafted by
Lonnie Shull, Discharge, Biomonitoring
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 Notice of the draft permit was published on the DWQ's website: https://deq.utah.gov/public-notices-archive/water-quality-public-notices

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

Reasonable Potential Analysis

RP Procedure Output

Facility Name:	**Ensign Bickford Outfall 001**
Permit Number:	**UT0025283**
Outfall Number:	**1**
Parameter	**Ammonia-N**
Distribution	**Lognormal**
Data Units	**mg/L**
Reporting Limit	**10**
Significant Figures	**3**
Confidence Interval	**95**

Maximum Reported Effluent Conc.	**0.2**	**mg/L**
Coefficient of Variation (CV)	**0.573**	
RP Multiplier	**1.48**	
Projected Maximum Effluent Conc. (MEC)	**0.296**	**mg/L**

Acute Criterion	**3.29**	**0**
Chronic Criterion	**3.29**	**0**
Human Health Criterion	**0**	**0**

RP for Acute?	**NO**
RP for Chronic?	**NO**
RP for Human Health?	**N/A**

Effluent Data

#	
1	**0.0826**
2	**0.05**
3	**0.05**
4	**0.05**
5	**0.05**
6	**0.149**
7	**0.05**
8	**0.05**
9	**0.05**
10	**0.05**
11	**0.0858**
12	**0.05**
13	**0.05**
14	**0.2**
15	**0.2**

RP Procedure Output

Facility Name:	**Ensign Bickford Outfall 001**
Permit Number:	**UT0025283**
Outfall Number:	**1**
Parameter	**TDS**
Distribution	**Lognormal**
Data Units	**mg/L**
Reporting Limit	**10**
Significant Figures	**3**
Confidence Interval	**95**

Maximum Reported Effluent Conc.	**568**	**mg/L**
Coefficient of Variation (CV)	**0.193**	
RP Multiplier	**1.17**	
Projected Maximum Effluent Conc. (MEC)	**665**	**mg/L**

Acute Criterion	**1200**	**0**
Chronic Criterion	**1200**	**0**
Human Health Criterion	**0**	**0**

RP for Acute?	**NO**
RP for Chronic?	**NO**
RP for Human Health?	**N/A**

Effluent Data

#	
1	**344**
2	**300**
3	**384**
4	**364**
5	**400**
6	**284**
7	**568**
8	**408**
9	**448**
10	**472**
11	**344**
12	**452**
13	**352**