Official Draft Public Notice Version **October 2, 2023**
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
NUCOR STEEL
DISCHARGE RENEWAL PERMIT
UPDES PERMIT NUMBER: UT0023850
MINOR INDUSTRIAL FACILITY

FACILITY CONTACTS

Person Name:	Doug Jones
Position:	Manager
Phone Number:	(435) 458-2300
Facility Name:	Nucor Steel
Mailing Address:	P.O. Box 100 Plymouth, Utah 84330
Telephone:	(435) 458-2300
Actual Address:	7285 W 21200 N W Cemetery Rd

DESCRIPTION OF FACILITY

Nucor Steel, a Division of Nucor Corporation is located at SW ¼, Section 4 and NW ¼, Section 9, Township 13 North, Range 3 West, Box Elder County, Utah about 2.5 miles west and 1.5 miles north of Plymouth, Utah: Latitude 41°52'37"; Longitude 112°11'22".

Nucor's Plymouth facility is a non-integrated steel mill (SIC Code 3312) which produces approximately one million tons of structural steel products annually. The principal process at Nucor Steel involves two Electric Arc Furnaces (EAF) for melting scrap metal, the molten metal is then continuously cast into billets and the billets are directed to one of the two hot rolling mills for shaping into final products.

There are wells that produce the process water and culinary water at the facility. One well has water of a high quality that no other treatment is necessary for use a culinary water supply and also for water needed for the steel mill process. As long as this well is producing water there will be no discharge. Nucor Steel has as a back-up option, an Electrodialysis Reversal (EDR) treatment system which is used to remove dissolved solids from the well water from other wells. The wastewater from the EDR is discharged via outfall 001 to an open ditch then to the Malad River. Some of the wastewater from the EDR is used as dust suppression on the unpaved roads as per Nucor Steel's Air Quality Permit. All of Nucor Steel's sanitary wastewater is directed to one of 3 on-site septic systems.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

In August 2020, the Utah Division of Water Quality amended the secondary treatment requirements found in *UAC R317-1-3*. That rule change made the secondary treatment standards applicable only to Publicly Owned Treatment Works. As a result of that change Utah secondary treatment standards for Biological

Oxygen Demand, and Total Suspended Solids (TSS) do not automatically apply to industrial facilities, unless otherwise required by their effluent limitation guidelines. While Nucor Steel is listed as non-integrated steel mill and wastewater discharges from those facilities are regulated under *40 CFR Part 420 - Iron and Steel Manufacturing Point Source Category*, the discharge from this facility is not related to the steel manufacturing process. Rather, the discharge is for treatment of groundwater for drinking water purposes and there is not a controlling effluent limitation guidelines (ELG) for this activity. Since Nucor Steel is not classified as a POTW, neither Utah secondary treatment standards nor ELG limits for BOD and TSS apply at this time. Therefore, BOD or TSS have been omitted to reflect the changes in Utah Administrative Code (UAC) R317-1-3. Additionally, based upon TSS sampling for the previous permit cycle, TSS was shown not to be at issue with the facility's discharge.

Turbidity was evaluated as a potential substitute for TSS in the permit. However, because the turbidity standard included in UAC R317-2-14 is listed as an increase of 10 NTU over the receiving water and the fact that the facility does not typically discharge effluent that would reach the Malad River after being sampled, it determined by the permitting authority to not include turbidity monitoring in the permit at this time.

Additionally, Total Selenium was determined to have a reasonable potential to exceed the standard as described further in the Reasonable Potential Analysis section of this Fact Sheet. Therefore, both acute and chronic selenium limits have been added to the permit as appropriate.

Also, the previous Storm Water permit provisions have been removed as part of a of Water Quality (DWQ) programmatic separation of the previously combined UPDES industrial permits. The Nucor Steel facility may now be required to apply for and obtain separate UPDES Industrial Storm Water Permit coverage under the UPDES MSGP No. UTR000000, or an applicable exemption, as described further in the Storm Water section of this Fact Sheet.

DISCHARGE INFORMATION

DESCRIPTION OF DISCHARGE

Nucor Steel maintains a UPDES permit in the event that a discharge from their facility is necessary.

Nucor Steel has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. Nucor Steel has had one discharge event in the last 13 years. This discharge occurred because of the need to maintain the EDR treatment system. No violation of any permit limit was reported.

Outfall	Description of Discharge Point
001	Located at latitude 41°52'37", longitude 112°11'22". The discharge is piped to an un-named open ditch and then to the Malad River

RECEIVING WATERS AND STREAM CLASSIFICATION

If a discharge were to occur, it would be pumped into an un-named open ditch and then to the Malad River, which is a Class 2B and 3C according to *Utah Administrative Code (UAC) R317-2-13*:

Class 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.

Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
Geographical Boundary -- All open waters at or below approximately 4,208-foot elevation north of the Union Pacific Causeway and east of the Promontory Mountains, excluding salt evaporation ponds.
Beneficial Uses -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

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 quantitative RP analysis was performed on Arsenic, Barium, Cadmium, Chromium, Lead, Mercury, Selenium, Silver and Iron to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, Selenium was determined to have a reasonable potential to exceed the standard. A copy of the RP analysis is included at the end of this Fact Sheet.

BASIS FOR EFFLUENT LIMITATIONS
The wasteload analysis (see ADDENDUM) indicates that these limitations should be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. It has been determined that this discharge will not cause a violation of water quality standards. The oil and grease limitation is based on best professional judgment (BPJ). The Malad River does not include a stream classification that requires a TDS limit. However, a TDS limit is included in the permit to protect the Bear River, to which the Malad River flows. The TDS and dissolved oxygen limits are based on the wasteload analysis.

An Antidegradation Level II review is not required since the Level I review shows that water quality impacts are minimal. The permittee is expected to be able to comply with these limitations. Total dissolved solids (TDS) limitations are based upon Utah Water Quality Standards for concentration values

Based on effluent monitoring data and the existing treatment facility, the permittee is expected to be able to comply with the limitations. The permit limitations for Outfall 001 are:

	Effluent Limitations *a			
Parameter	Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
Flow, MGD	NA	NA	NA	0.72
Oil & Grease, mg/L	NA	NA	NA	10

Dissolved Oxygen, mg/L	NA	NA	5.0	NA
pH, Standard Units	NA	NA	6.5	9
Total Dissolved Solids (TDS), mg/L *b	NA	NA	NA	7000
Total Selenium, µg/L	NA	22.83	NA	63.3

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the similar to 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.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow	Continuous	Recorder	MGD
Oil & Grease *c	When Sheen Observed	Grab	mg/L
Dissolved Oxygen	Weekly	Grab	mg/L
pH	Weekly	Grab	SU
TDS	Weekly	Grab	mg/L
Selenium	Monthly	Grab	µg/L
Metals *d	Monthly	Grab	mg/L

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

*b If Total Dissolved Solids (TDS) exceeds the Daily Maximum limit of 7000 mg/L at Outfall 001 as determined by a handheld meter at the time of sampling, the facility is permitted to take a second sample at the Outfall from the Stormwater ponds to the Malad River. If the TDS level is below the permit limit at this location, the exceedance shall not be considered a violation at Outfall 001.

*c Grab samples required only if sheen is observed or there is reason to believe that there are hydrocarbons present.

*d Sampling required during first 10 months of discharge from outfall 001. Metals to be analyzed include arsenic, barium, cadmium, chromium, lead, mercury, silver and iron. Not required if no discharge from outfall 001.

TOTAL MAXIUM DAILY LOAD (TMDL) REQUIREMENTS

According to the Utah's 2022 303(d) Water Quality Assessment Report dated February 8, 2022, the receiving water for the discharge, Malad River from confluence with Bear River to Utah-Idaho state line (UT16010204-006_00) was listed as impaired for Benthic Invertebrate Assessment, Ammonia and *E. coli*. No TMDL has been completed for this watershed at this time. As a result, no additional effluent limits will be placed in the permit. Since the facility has no reasonable potential to discharge these pollutants no action is required with regard to additional TMDL discharge limits in this permit.

BIOSOLIDS

The State of Utah has adopted the 40 CFR Part 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is a Reverse Osmosis drinking water facility, there is not any regular sludge production. Therefore 40 CFR Part 503 does not apply at this time.

STORM WATER

As mentioned previously, the Storm Water provisions have been omitted from this UPDES permit. However, based on the Standard Industrial Classification (SIC) code and the type of industrial activities at the facility, a separate storm water permit may be required based on the types of activities occurring on site.

Permit coverage under the Multi Sector General Permit (MSGP) for Storm Water Discharges from Industrial Activities is required based on the SIC code for the facility and the types of industrial activities occurring. If the facility is not already covered, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation. Previously storm water discharge requirements and coverage were combined in this individual permit. These have been separated to provide consistency among permittees, electronic reporting for storm water discharge monitoring reports, and increase flexibility to changing site conditions.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturb an acre or more, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction.

Information on storm water permit requirements can be found at http://stormwater.utah.gov

PRETREATMENT REQUIREMENTS

Any process wastewater that the permittee discharges to a Publicly Owned Treatment Works (POTW), either as a direct discharge or as a hauled waste, is subject to federal, state, and local pretreatment regulations. Pursuant to section 307 of the Clean Water Act, the permittee shall comply with all applicable federal general pretreatment regulations promulgated, found in 40 CFR 403, the pretreatment requirements found in UAC R317-8-8, and any specific local discharge limitations, Pretreatment Standards or Pretreatment Requirements developed by the POTW accepting the waste or required by 40 CFR 403 or R317-8.

In addition, in accordance with 40 CFR 403.12(p)(1), the permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if they discharge any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under 40 CFR 261. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

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 industrial 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.

PERMIT DURATION

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

Drafted and Reviewed by
Lonnie Shull, Discharge Permit Writer, Biomonitoring
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Carl Adams, Storm Water
Mike Allred, TMDL/Watershed
Chris Shope, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE INFORMATION (to be updated after)

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 will be published on the DWQ website for at least 30 days as required.

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).

This Page Intentionally Left Blank

ATTACHMENT 1

Effluent Monitoring Data

This Page Intentionally Left Blank

Effluent Monitoring Data.

Date	Flow Mgd	Oil and Grease mg/L	Dissolved Oxygen mg/L	pH		TDS mg/L	TSS	
				Min	Max		30 Day Avg mg/L	Wk Max mg/L
3/2019	0.72	0	7.1	7.82	8.03	2960	7.5	3
10/2022	0.52	0	6.2	8.1	7.61	1740	0	0
11/2022	0.2376	0	5.8	7.8	8.17	2300	4	8
12/2022	0.5904	0	5.9	7.76	8.2	2800	4	7
1/2023	0.42768	0	5.94	7.56	8.54	2800	1.2	6
2/2023	0.621561	0	6.78	7.4	8.17	3800	9.5	33

All other dates were No Discharge.

Nucor Metals sampling									
Date	Arsenic	Barium	Cadmium	Chromium	Iron	Lead	Mercury	Selenium	Silver
9/2020	0.0195	0.0124	ND	0.00226	0.284	ND	ND	0.0082	ND
1/2021	0.00506	3.23	ND	0.00684	0.272	ND	ND	0.00273	ND
2/2021	0.0203	0.00704	ND	0.00297	0.164	ND	ND	0.00656	ND
3/2021	0.0213	0.00814	ND	0.00285	0.207	ND	ND	0.00659	ND
11/2022	0.028	ND	ND	0.0043	0.06	ND	ND	0.021	ND
11/2022	0.0205	ND	ND	0.0014	ND	ND	ND	0.016	ND
12/2022	0.0303	ND	ND	0.0053	ND	ND	ND	0.0132	ND
12/2022	0.0314	ND	ND	0.0037	0.03	ND	ND	0.0109	ND
1/24/2023	0.0271	ND	ND	0.0032	0.12	ND	ND	0.0088	ND
2/7/2023	0.0177	ND	ND	ND	0.03	ND	ND	0.0058	ND
Average	0.022116	0.814395	ND	0.0036467	0.145875	ND	ND	0.009978	ND
Min	0.00506	0.00704	0	0.0014	0.03	0	0	0.00273	0
Max	0.0314	3.23	0	0.00684	0.284	0	0	0.021	0

All results in mg/L.

ATTACHMENT 2

Wasteload Analysis

This Page Intentionally Left Blank

ATTACHMENT 3

Reasonable Potential Analysis

This Page Intentionally Left Blank

REASONABLE POTENTIAL ANALYSIS

Water Quality has worked to improve our reasonable potential analysis (RP) for the inclusion of limits for parameters in the permit by using an EPA provided model. As a result of the model, more parameters may be included in the renewal permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis[1]. They are;

Outcome A: A new effluent limitation will be placed in the permit.
Outcome B: No new effluent limitation. Routine monitoring requirements will be placed or increased from what they are in the permit,
Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit,
Outcome D: No limitation or routine monitoring requirements are in the permit.

The RP model was run on all metals using the most recent data back through 2017 This resulted in approximately 10 data points for each metal. Based on the analysis, the Maximum Effluent Concentration was higher than the Maximum allowable concentration from the current Wasteload Analysis (WLA) for selenium. Therefore, there is a Reasonable Potential for the facility to exceed the chronic and acute limit for Selenium at Outfall 001 as found in the WLA. As a result, the permit will include both a acute and chronic limit for selenium (Outcome A). The RP analysis showed that for all other metals, the Maximum Effluent Concentration was lower than the Maximum allowable concentration from the current Wasteload Analysis. This result indicates that the inclusion of an effluent limit for (metal) is not required at this time, and that routine monitoring requirements can be added or increased in the permit. (Outcome C from Reasonable Potential Guide)

A Summary of the RP Model inputs and outputs are included in the table below. The Metals Initial Screening Table and RP Outputs Table are included in this attachment.

2023 Summary Results of Reasonable Potential Analysis for Nucor Steel (UT0023850)[1]

Parameter	Outfall	No. of Samples	MEC* mg/L	Water Quality Standard MAC**		Outcome/Result
				Acute mg/L	Chronic mg/L	
Total Arsenic	001	10	0.0509	1.065	0.7559	MEC < MAC***
Total Cadmium	001	8	0.0002	0.0378	0.0188	MEC < MAC***
Total Chromium	001	9	0.0113	26.79	2.159	MEC < MAC***
Total Iron	001	10	0.675	3.2007	NA	MEC < MAC***
Total Lead	001	10	ND	2.8306	0.1797	MEC < MAC***
Total Mercury	001	10	0.045	0.817	0.065	MEC < MAC***
Total Selenium	001	55	0.0668	0.0633	0.0228	MEC > MAC***

Units in mg/L

*MEC – Maximum expected effluent concentration as determined from existing data set and sufficiently sensitive method detection limits.
**MAC – Maximum allowable concentration from current Water Quality Standards.

***MEC less than MAC – No Acute or Chronic limit required for metals (Outcome C).

[1] See Reasonable Potential Analysis Guidance for definitions of terms