Indiana Department of Environmental Management

BP Products North America Inc. – Whiting Refinery, NPDES IN 0000108
NPDES Permit Issued February 21, 2019
Fact Sheet Excerpt of 316(b) provisions

c. All of the thermal and biological data collected during the demonstration and/or used to support the demonstration, provided in a format amenable for electronic data interfacing into the Office of Water Quality's External Data Framework of the Assessment Information Management System (AIMS). Summarized data and data compilations alone will NOT be accepted.

d. Executive summary of study findings.

e. Request for Thermal Mixing Zone. The thermal mixing zone request must specify the temperatures within and at the edge of the mixing zone and the proposed sizes of the mixing zones as applicable.

f. Any other information deemed necessary and developed by the discharger for the demonstration.

g. A delineation/model of the thermal plume under representative flow conditions based on in-lake temperature monitoring data, and with the proposed point of compliance for the proposed thermal limits.

h. Any additional studies conducted since the last demonstration was completed and an analysis of any changes from the previous assessments and conclusions.

6. Once a technical, regulatory and completeness review has been completed, IDEM will make a tentative decision to approve the ATEL, deny the ATEL, or approve a modified ATEL. The tentative decision will be included in a draft NPDES permit that is placed on public notice for a 30-day public comment period. The public notice will provide the proposed ATEL and the limitations that would have been required otherwise. A public hearing may be requested during the 30 day comment period.

7. IDEM will respond to all comments received during the 30 day comment period and from a public hearing, if applicable, and make a final decision regarding the ATEL. The final decision regarding the ATEL will be included in the final NPDES permit with the opportunity to appeal the final decision during the 18 day appeal period after the final permit is issued.

6.3.2. Clean Water Act (CWA) Section 316(b) Cooling Water Intake Structure(s) (CWIS)

A. Introduction

In accordance with 40 CFR 401.14, the location, design, construction and capacity of cooling water intake structures of any point source for which a standard is established pursuant to section 301 or 306 of the Act shall reflect the best technology available for minimizing adverse environmental impact.

The EPA promulgated a Clean Water Act (CWA) section 316(b) regulation on August 15, 2014, that establishes standards for cooling water intake structures. 79 Fed. Reg. 48300-439 (August 15, 2014). The regulation establishes best technology available standards to reduce impingement and entrainment of aquatic organisms at existing power generation and

manufacturing facilities and it became effective on October 14, 2014. The regulation is applicable to point sources with a cumulative Design Intake Flow (DIF) greater than 2 MGD where 25% or more of the water withdrawn is used exclusively for cooling purposes.

Impingement is the process by which fish and other aquatic organisms are trapped and often killed or injured when they are pulled against the CWIS's outer structure or screens as water is withdrawn from a water body. Entrainment is the process by which fish larvae and eggs and other aquatic organisms in the intake flow enter and pass through a CWIS and into a cooling water system, including the condenser or heat exchanger, which often results in the injury or the death of the organisms. (see definitions at 40 CFR § 125.92(h) and (n)).

The BP Whiting facility's design intake flow rate based on pump capacity is 258 MGD. The Actual Intake Flow is estimated at 90 MGD with approximately 91% of that water used for cooling water.

Therefore, since the facility has a DIF greater than 2 MGD, and because the percentage of flow used at the facility exclusively for cooling is greater than 25%, the facility is required to meet the BTA standards for impingement and entrainment mortality, including any measures to protect Federally-listed threatened and endangered species and designated critical habitat established under 40 CFR 125.94(g).

The permittee is required to submit information relevant to the CWIS as part of their NPDES application in accordance with 40 CFR § 122.21(r)(2) through r(8) as described below.

- Physical Information for Source Water (§122.21(r)(2))
- Physical description of CWIS (§122.21(r)(3))
- Biological Information for Source Water (§122.21(r)(4))
- Cooling Water System Data (§122.21(r)(5))
- Impingement Mortality BTA Demonstration (§122.21(r)(6))
- Entrainment Performance Studies (§122.21(r)(7))
- Operational Status (§122.21(r)(8))

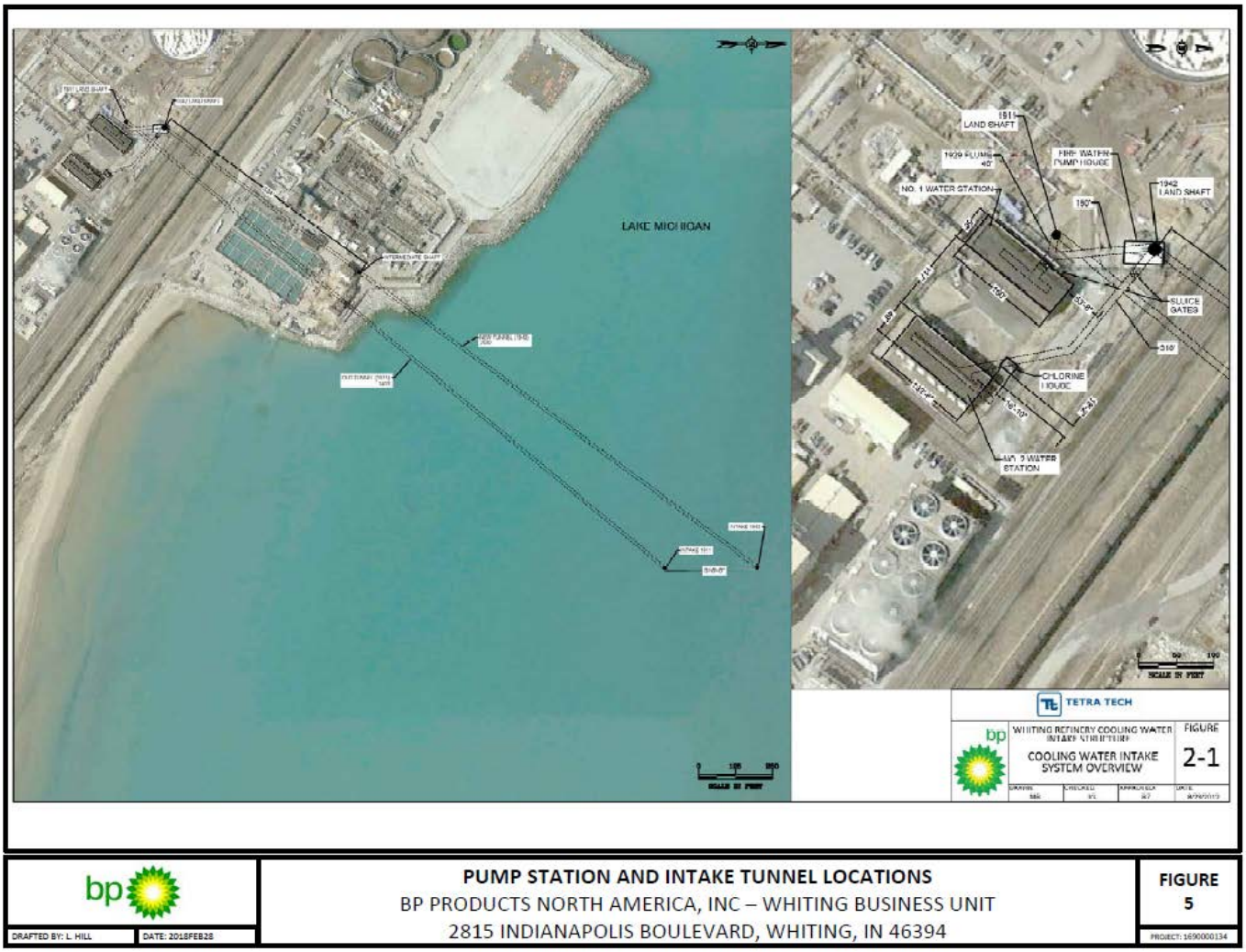
BP submitted their 316(b) application with their NPDES renewal application on January 31, 2018. A complete copy of the BP 316(b) application can be accessed upon request.

A copy of the 316(b) application was sent to U.S. Fish and Wildlife on April 11, 2018. No comments were received.

Much of the factual information below was taken, sometimes directly, from the 316(b) application submitted by BP.

B. Facility/CWIS Description

Water for the Whiting Refinery is withdrawn from Lake Michigan from two intake structures, referred to as the 1911 Intake and the 1942 Intake. The two water intake structures are located approximately 1330 feet (1911 Intake) and 1440 feet (1942 Intake) offshore, approximately 300 feet apart as shown in Figure 5 below.



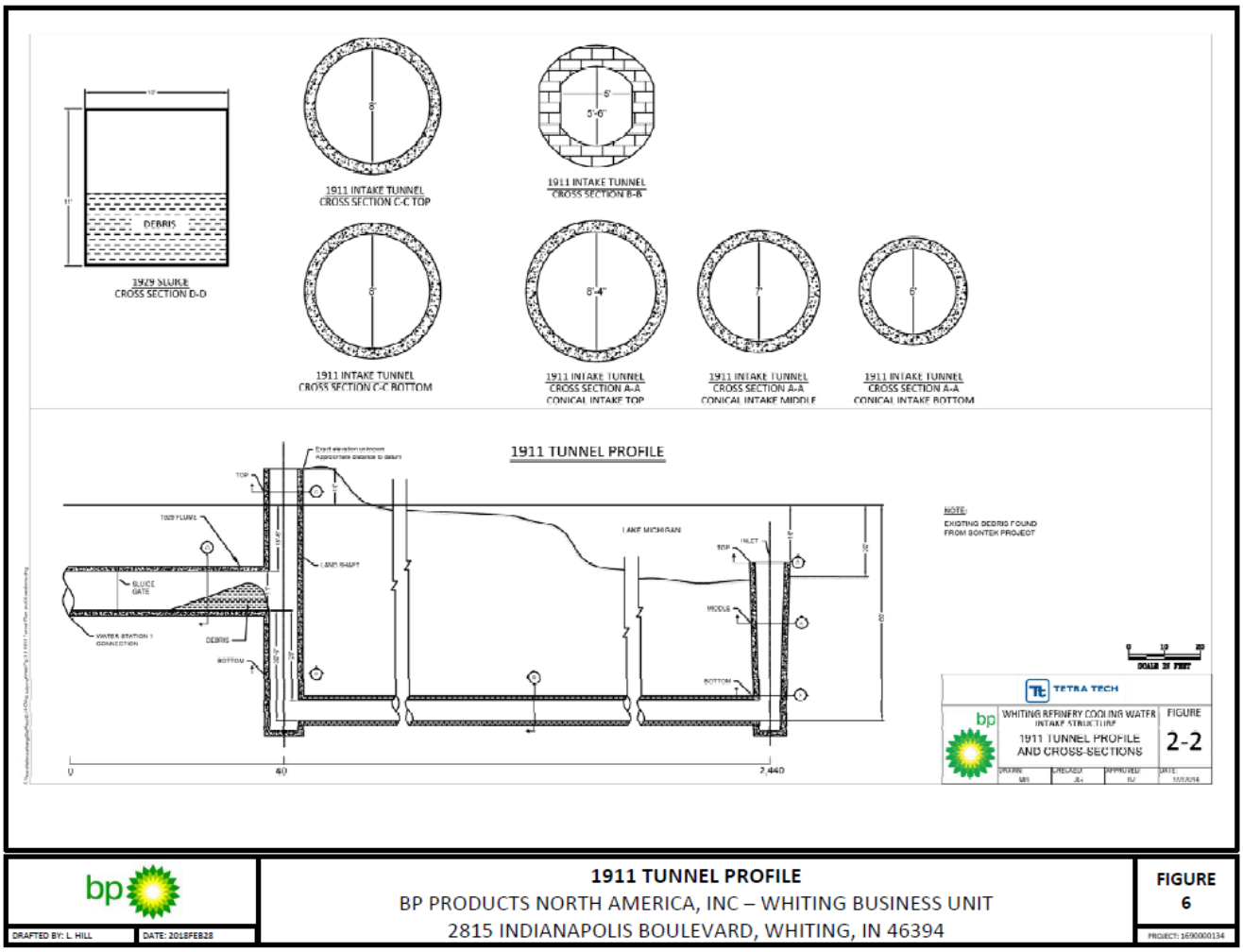
PUMP STATION AND INTAKE TUNNEL LOCATIONS
BP PRODUCTS NORTH AMERICA, INC – WHITING BUSINESS UNIT
2815 INDIANAPOLIS BOULEVARD, WHITING, IN 46394

FIGURE 5

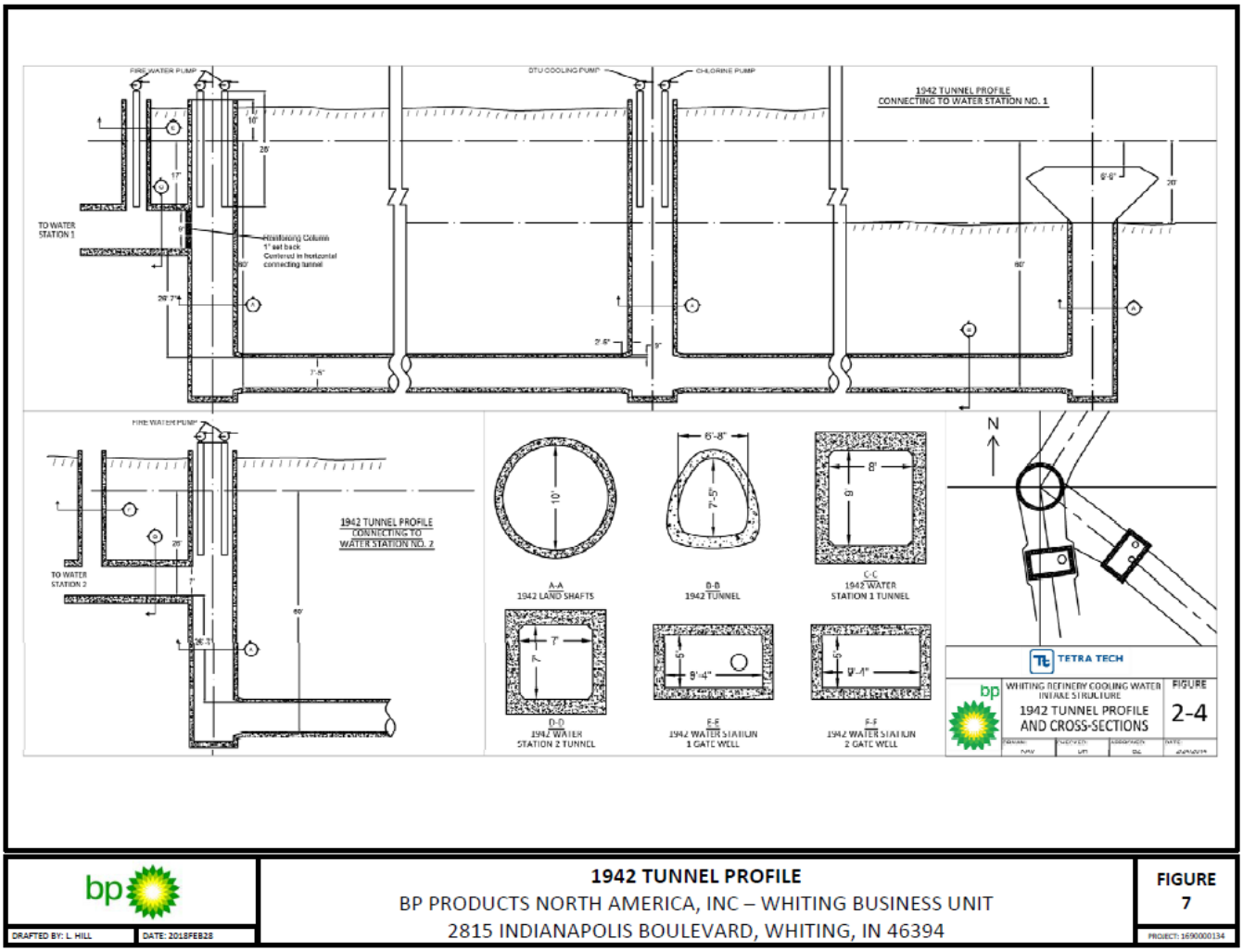
DRAFTED BY: L. HILL | DATE: 2018FEB28 | PROJECT: 1690000134

Flows from the 1911 Intake and the 1942 Intake are combined before reaching the wet wells of Number 1 and Number 2 Water Pump Stations. This allows both intake structures to provide water to either Water Station or the firewater system pump house. This configuration allows either Water Station to be isolated for maintenance, but does not allow either Intake to be isolated.

Schematic drawings of each intake tunnel profile is presented below in Figures 6 and 7. A narrative description of each intake follows.



bp DRAFTED BY: L. HILL DATE: 2018FEB28	**1911 TUNNEL PROFILE** BP PRODUCTS NORTH AMERICA, INC – WHITING BUSINESS UNIT 2815 INDIANAPOLIS BOULEVARD, WHITING, IN 46394	**FIGURE 6** PROJECT: 1690000134



bp DRAFTED BY: L. HILL DATE: 2018FEB28	**1942 TUNNEL PROFILE** BP PRODUCTS NORTH AMERICA, INC – WHITING BUSINESS UNIT 2815 INDIANAPOLIS BOULEVARD, WHITING, IN 46394	**FIGURE** **7** PROJECT: 1690000134

1911 Intake

The 1911 Intake consists of grating over the intake opening to exclude large debris, a brick tunnel constructed below grade that connects the intake opening to a land shaft on shore, and a reinforced rectangular concrete tunnel that connects the land shaft to the No. 1 Water Station.

The intake opening is an open pipe 8 feet 4 inches in diameter located approximately 6 feet above lake bottom and 16 feet below lake level. The brick tunnel, which was originally constructed in 1911, has inside dimensions of 5 feet by 5.5 feet. The total length of the brick tunnel is approximately 2,400 feet from the intake opening to the land shaft. The flume, located from No. 1 Water Station to the land shaft, was built in 1929 along with the No. 1 Water Station. The flume has inside dimensions of 10 feet wide by 11 feet high (Figure 6).

For maintenance activities, a gate well and sluice gate (which can be operated manually or via an electric motor) controls the water supply to the No. 1 Water Station. If the gate well and

sluice gate are closed for maintenance activities, the 1911 Intake flow will continue to be a source of water to the No. 2 Water Station.

1942 Intake

The 1942 Intake consists of a velocity cap with wood slat grating over the intake opening to exclude large debris, a reinforced concrete egg-shaped tunnel that connects the intake opening to a land shaft, a reinforced rectangular concrete tunnel that connects the land shaft to the plume of the No. 1 Water Station, and a second rectangular concrete tunnel that connects the land shaft to the No. 2 Water Station wet well.

The cap design has a steel plate top with the wood slat grating placed on an angle. The entrance is located about 5.5 feet from the lake bottom and 15.5 feet from the lake surface. The top steel plate dimension is 23 feet in diameter with an outside diameter to the edge of the wood slats of 32 feet.

The egg-shaped tunnel, which was originally constructed in 1942 along with the No. 2 Water Station, has inside dimensions of 6 feet 8 inches wide by 7 feet 5 inches high. The total length of the egg-shaped tunnel is approximately 2,530 feet from the intake opening to the land shaft. The inside dimensions of the Nos. 1 and 2 Water Station Tunnels are 8 feet wide by 9 feet high for the No. 1 Water Station Tunnel and 7 feet wide by 7 feet high for the No. 2 Water Station Tunnel, respectively. For isolation to perform maintenance activities on the Water Stations, there is a gate well in the No. 1 Water Station Tunnel and a gate well (with gearbox for easier operation) and sluice gate in the No. 2 Water Station Tunnel.

Water Stations and DIF/AIF

Nos. 1 and 2 Water Stations (and firewater system pump house) can receive water from either of the Intakes via a wet well located under each Water Station (and firewater system pump house). No. 1 Water Station houses five pumps (including one smaller firewater pump) with one of the five pumps removed from service (in place for it to be re-installed to satisfy future needs, if necessary). No. 2 Water Station houses four pumps. The firewater system pump house houses three firewater pumps. The firewater pump in No. 1 Water Station and the three pumps in the firewater system pump house only operate under emergency and are seldom used.

The No. 1 Water Station, No. 2 Water Station, and firewater system pump house original design capacities are 138.5 MGD, 157.8 MGD, and 18 MGD, respectively (total capacity equal to 314.3 MGD). The corresponding currently installed and operational design capacities for the No. 1 Water Station and No. 2 Water Station are 112 MGD and 146.3 MGD respectively (total capacity equal to 258.3 MGD). However, the actual intake flow (AIF) from 2015 through 2017 at 90.2 MGD was significantly lower than design capacity.

Of the 90.2 MGD AIF, 7.8 MGD is for process water uses, 10.5 MGD is for cooling tower make up water and 71.9 MGD is used for once through cooling water. The percentage of cooling water withdrawn (cooling tower make-up plus once through cooling water) is therefore approximately 91% of the 90.2 MGD AIF.

As compared to the DIF of 258.3 MGD, the facility is currently operating at approximately 35% of the DIF. This reduction is due to several water optimization projects that have been implemented over the years, including but not limited to the shutdown of process units using once through cooling water, installation of cooling towers, condensate recovery, stripped sour water reuse, and winterization efforts. Specific recent examples that were part of the Whiting Refinery Modernization Project (WRMP) include the operation of new cooling tower #8 in November 2012 that resulted in a reduction of cooling water usage at the Sulfur Recovery Unit; the operation of new cooling tower #7 in November 2013 to support the new Coker (Coker 2); the shutdown of old No. 11B Coker process unit, which used once-through non-contact cooling water, in May 2014; and operation of a new condensate recovery system in October 2013 that recovers and treats the condensate from various process units in the refinery for re-use as boiler feed water. As a result of these recent examples as part of the WRMP, an estimated 15.0 MGD reduction in water usage was realized.

The number of pumps and design capacities were provided in the April 2018 NPDES permit application materials. As stated previously, water enters each pump house from the two offshore intake tunnels to a pump house suction well. Pumps draw water from the well for distribution throughout the refinery as well as supply to other users such as Whiting Clean Energy, Praxair, and previously the City of Whiting.

There are no dedicated debris screens or fish returns at the pump houses or intakes. Debris screening is achieved at the individual process unit standard pump screens.

The following Table No.1 provides additional information on the intakes.

Table 1. Summary of IDNR Permitted Surface Water Intake Capacity (by Pump Size)

Description	GPM	MGD
No. 1 Water Station (Lake Michigan)	**96,150**	**138.5**
P-11	19450	28.0
P-12	19450	28.0
P-13	19450	28.0
P-14	19450	28.0
P-15(Abandoned)	14350	20.7
P-19 (Fire Water)	4000	5.8
No. 2 Water Station (Lake Michigan)	**109600**	**157.8**
P-21	25400	36.6
P-22	25400	36.6
P-23	25400	36.6
P-24	25400	36.6
D-6 (Abandoned)	4000	5.8
D-10 (Abandoned)	4000	5.8
Fire Water System Pump house (Indiana Harbor Canal)	**12500**	**18**
IDNR Permitted Capacity	**218250**	**314.3**

Notes: GPM = gallons per minute; MGD = million gallons per day; IDNR = Indiana Department of Natural Resources

Description of Intake Structure Operation

The intake Water Station pumps are operated 24 hours a day, 7 days a week, 365 days a year. The pumps are operated by maintaining a minimum pressure of approximately 34 to 35 pounds per square inch gauge (psig) in the main header feeding the Refinery. Therefore, the number and combinations of pumps operating at any given time depends on refinery water demand. Given that the majority of the water from the Intakes is used for cooling, it would be expected that higher water demands would be required during the warmer summer months.

Per 40 CFR 125.92 (g). the DIF means the value assigned during the intake design to the maximum instantaneous rate of flow of water the cooling water intake system is capable of withdrawing from a source water, not including fire or back-up pumps. Based on the definition and known pump capacity summarized on Table 2, and as discussed previously, the DIF for the Whiting Refinery is 258.3 MGD.

The actual DIF for each intake structure is estimated to be lower than the known pump capacity based upon the tunnel design and anticipated frictional losses.

Intake Through Screen Velocity: Engineering Calculations and Supporting Cooling System Data

Based on the final rule, intake water velocities at or below 0.5 fps are an option available to meet the BTA requirements for impingement under the rule.

Velocity of the water at the intake openings was calculated using the standard equation:

TSV = Q/A, where;
TSV = through-screen velocity
Q = volume of water pumped
A = net area of the submerged openings
TSV = Q / A = (Flow in MGD*1,000,000)/(Area in sq. ft * 7.48 gal / cu. ft * 86400 sec / day)

To determine TSV, the net area of submerged openings was calculated for each intake tunnel.

Calculations for the 1911 Tunnel opening were based on a circular opening roughly 8’ 4” in diameter. The resulting open area of the 1911 Tunnel opening is approximately 54.5 square feet.

Due to the cap on the 1942 Tunnel, open area calculations were slightly more complex. Based on the 2011 marine survey during the intake cleaning by Mainstream Commercial, there were 6 sets of slats in 3 of the 8 sections and 8-1 1/2” pipe supports. The slats measured approximately 2”. Mainstream Commercial measured the slat spacing at 2.1 feet. Calculating the perimeter of the intake and dividing by 48 spaces, the slat spacing calculates as 2.09 feet. Open area calculations were based on each section containing 6 slats. Assuming the 2” slat has an actual board dimension of 1 5/8” (1 ½” after 1963), the open area for the 1942 Intake is calculated to be 410.5 square feet.

The open areas identified above were utilized to calculate the through-screen velocity for various intake flows for both the 1911 and 1942 Intake Tunnel. Calculations demonstrate that

the 1942 Tunnel would not exceed the 0.5 fps TSV standard at the current AIFs even if all the flow were routed through this tunnel alone. The intake velocity for the 1911 Tunnel is estimated to exceed the 0.5 fps standard around 18 MGD.

To determine intake velocity at AIF for the 1911 and 1942 Tunnels, additional information is needed regarding the percentage of the AIF routed through each intake tunnel.

Intake flow is calculated from the discharge of the Waste Water Treatment Plant, consumptive use, and water losses that occur within the refinery. No direct flow metering device is in place at the Water Stations or Intake Tunnels.

As both No. 1 and 2 Water Stations have the ability to withdraw from either intake tunnel, evaluations have taken place over the years to determine the potential flow split between the 1911 and 1942 Tunnels. On November 13, 2009, an intake inspection and velocity evaluation was performed with divers using a hand-held velocity meter. The velocity meter was positioned along the intake plane at specified locations, orienting the meter until the greatest velocity at each location was observed. Fifteen locations were measured at the 1942 intake to accurately depict varying areas around the velocity cap and one measurement was taken at the 1911 intake. Average intake flow on November 13, 2009 was calculated at approximately 85 MGD. During the period when the diver was taking velocity measurements, pumps were operated at 35 psig to simulate high refinery water demand and increased intake water velocities. The average velocity observed at the 1942 intake was 0.26 feet per second (fps) with a maximum velocity of 0.35 fps. The single velocity measurement for the 1911 intake was made at the center of the intake pipe and had a value of 0.56 fps. This location is likely the maximum velocity of the intake pipe velocity field and the average velocity would therefore be less than this value. Based on these findings, a theoretical flow split between the tunnels can be calculated.

Estimated flows based on the known velocity and intake areas is approximately 88.7 MGD, relatively close to the calculated 85 MGD for November 13, 2009 (within 4% difference). The flow split based upon these calculations is roughly 22% and 78% for the 1911 and 1942 intake tunnels respectively.

Applying the flow split to actual intake flow data from 2015, 2016 and 2017 the 1911 Intake Tunnel withdrawal rates are estimated to have an AIF equal to 19.8 MGD. The 1942 Intake Tunnel AIF using flows from 2015, 2016, and 2017 is estimated at 70.4 MGD.

Using AIF of 19.8 MGD for Intake 1911 and an AIF of 70.4 MGD for Intake 1942 results in a calculated intake velocity of 0.55 fps at Intake 1911 and 0.27 fps at the 1942 Intake.

Source Water Biological Characterization

The southwestern portion of Lake Michigan in the vicinity of the intake structures receives minimal commercial boat or ship traffic and is subject to occasional recreational boat activities. Bottom substrates in this portion of the southern shoreline of Lake Michigan consist of an unconsolidated surface layer, primarily sand, which is frequently disrupted by surface wave actions. No critical or significant contiguous habitats, such as extensive rock outcrops, gravel beds, or submerged aquatic vegetation or “sea grass beds”, have been identified in the area of the intake structures. The Southern Basin of Lake Michigan within the border of Indiana has

designated uses for full body contact (recreational use), human health and wildlife (fishable use), public water supply, and warm water aquatic life (aquatic life use).

The Indiana portion of Lake Michigan offers excellent recreational opportunities for sport anglers. IDNR has stocked salmon and trout from Michigan City to Whiting, Indiana, including the St. Joseph River, Trail Creek, and portions of the Little Calumet River since the early 1970's to the present(Indiana Department of Natural Resources Division of Fish and Wildlife, 2018, personal communication). Creel surveys have determined that the prime recreational fish species are Coho salmon, steelhead trout, Chinook salmon, lake trout, smallmouth bass and yellow perch. Sport anglers continue to be regulated through the Division of Fish and Wildlife with possession and size limits. A once viable commercial fishery for yellow perch no longer exists as a result of declines in recruitment and ecosystem alterations. A commercial fishing ban on yellow perch was implemented in 1996 and continues today for the remaining 6 commercial license holders.

Lake Michigan is divided into northern and southern pools by the Milwaukee Reef. These pools tend to have a large-scale counter-clockwise flow of water deriving from winds, bottom topography, vertical thermal structure, and the Coriolis Effect. Currents are stronger and more noticeable during winter. Lake levels, water temperatures, and currents are influenced by local wind and can be affected by wind-driven seiches (sudden, sometimes significant fluctuations in water level). Lake temperatures near the Whiting Refinery Intakes (based on NPDES Permit-required temperature monitoring) ranged from just above 32 degrees Fahrenheit (°F) to 76.28 °F from June 2014 to December 2016, with an average of approximately 54 °F.

Species Abundance Near CWIS and Most Susceptible to Impingement and Entrainment

In 2011, BP conducted a fish collection survey in support of the CWA Section 316(a) study. Species collected in greatest number were Sand Shiner (36.6%), Alewife (13.6%), Spottail Shiner (13.6%), Round Goby (12.8%) and Yellow Perch (5.0%).

Numerous studies have been performed to characterize fish assemblages in the nearshore area of southern Lake Michigan in close proximity to the Refinery. Overall conclusions from these studies suggest Yellow Perch, Round Goby, Alewife, Gizzard Shad and Spottail Shiner are the most prevalent species in the vicinity of the intake structure.

Additional information on the studies is included in the permit application materials.

Species, typically juveniles, that typically reside in contiguous habitats, such as extensive rock outcrops, gravel beds, or submerged aquatic vegetation or "sea grass beds" , for reproduction or feeding are likely most susceptible to impact by intake operations. Given that the intakes are not located within these types of areas, impacts from impingement and entrainment is anticipated to be low.

Impacts from the BP intakes are more likely to affect pelagic species or life stages, which are typically identified fragile species.

Based on the species encountered during the environmental field studies discussed previously, the species with the most juveniles captured include Alewife, Spottail Shiner, Round Goby, Gizzard Shad, and Yellow Perch.

Impingement and Entrainment

Impingement of Species at BP Whiting

No impingement studies have been conducted for either intake location at the Whiting refinery. Impingement studies have, however, been conducted at the U.S. Steel Gary Works and Arcelor Mittal Indiana Harbor facilities which withdraw water from the same area in Lake Michigan.

Results of those studies are summarized below.

AM Indiana Harbor 316(b) Species and Relative Abundance Data

Impingement studies were conducted at the ArcelorMittal Indiana Harbor East (IHE) and West (IHW) facilities from June 2013 through May 2015. For the IHW intakes, withdrawal is via several pump houses located near-shore. For the IHE facility, withdrawal is either via the No. 2E Pumphouse that withdraws water from the Main Intake via a subterranean tunnel located approximately 1,280 feet off-shore, or via No. 7E Pumphouse from near-shore intake bays. The IHE No. 2E Pumphouse is most similar to the Whiting Refinery intakes based on the offshore location.

During the sampling period at the IHE facility, there were 9 different species impinged (Yellow Perch, Gizzard Shad, Round Goby, Spottail Shiner, Salmonidae, Shiner, Walleye, Green Sunfish, Bullhead Minnow, unidentifiable, mussels).

No species of special concern were impinged at IHE; however, there were several species of sport fish impinged, including Yellow Perch and Walleye. Yellow Perch, Gizzard Shad, and Salmonidae were the most frequently impinged fish species at IHE, accounting for 64.1%, 4.8%, and 4.5% of the total impinged fish sample respectively (Tetra Tech, 2016).

AM Burns Harbor 316(b) Species and Relative Abundance Data

Impingement studies were conducted at the ArcelorMittal Burns Harbor facility (BH) from June 2012 through May 2014. For BH, withdrawal is via two pump stations that withdraw water from Lake Michigan via two intake cribs located approximately 3,600 feet off-shore in about 40 feet of water. The DIF for both pump stations is 748.8 MGD.

During the sampling period at the BH pump stations, there were 11 different species impinged (alewife, round goby, yellow perch, smallmouth bass, bluegill, emerald shiner, spottail shiner, gizzard shad, rainbow smelt, burbot, unidentifiable). No species of special concern were impinged at the BH pump stations; however, there was one sport fish species impinged (yellow perch). Yellow perch, round goby, alewife, and spottail shiner were the most frequently impinged fish species at the BH pump stations, accounting for 39.8%, 31.3%, 18.9%, and 6.7% of the total impinged fish sample respectively (ENVIRON, 2015).56

USS Gary Works 316(b) Species and Relative Abundance Data

Two impingement studies conducted during Year 2 (March 2011 – February 2012) and Year 3 (March 2012 – February 2013) of the 2010 Permit were found to be publicly available. These

studies were conducted at No. 1 Pump Station, No. 2 Pump Station, and Lakeside Pump Station. No. 1 Pump Station and No. 2 Pump Station are located within the ore loading slip of Gary Harbor extending inland from the shore of Lake Michigan onto U.S. Steel property.

The Lakeside Pump Station is situated along the southern shore of Lake Michigan on U. S. Steel property with an intake structure positioned offshore a distance of 3,000 feet and at a lake depth of 28 feet. Based on the offshore location and submerged depth, the USS Lakeside Pump Station is most similar to the BP Whiting Refinery intake structures.

During the 2011 sampling period at the Lakeside Pump Station ("Lakeside") there were 16 different species impinged (Alewife, Burbot, Emerald Shiner, Gizzard Shad, Rainbow Smelt, Rock Bass, Round Goby, Sand Shiner, Spottail Shiner, Trout Perch, Walleye, Warmouth, White Perch, White Sucker, Whitefish, and Yellow Perch). Species richness at Lakeside peaked in late- spring through midsummer with a slight rise in the number of species encountered again in late fall. No species of special concern were impinged at Lakeside; however, there were several species of sport fish impinged, including Yellow Perch and Walleye. Round Goby and Yellow Perch were the most frequently impinged fish species at Lakeside in 2011, accounting for 52% and 37% of the total impinged fish sample respectively (United States Steel Corporation Gary Works, 2013).

Over the 2012 sampling period at the Lakeside Pump Station, there were eight (8) different species of fish impinged (Emerald Shiner, Gizzard Shad, Rainbow Smelt, Round Goby, Smallmouth Bass, Spottail Shiner, White Perch, and Yellow Perch). At the start of the sampling period, early February, the number of fish species impinged reached a yearly high of four species. The number of species impinged dropped by fifty percent later that month and steadily rose back to four species for the month of April before steadily decreasing to one in July. There was an increase in the number of fish species impinged in the late summer, but the number of fish species quickly fell off to zero in early October before rising again to three in late November, at the end of the sampling period. The vast majority of the fish impinged at Lakeside were Yellow Perch, accounting for 85% of all fish caught at the site and 70% of the accumulated biomass. The next two most prevalent fish were Round Goby and Spottail Shiner, which, when combined, represented less than 15% of the total fish found at Lakeside; although, Round Goby specifically accounted for 22% of the total biomass on its own. All other species combined only accounted for a little over 2% of the fish impinged by count and weight during the sampling period (United States Steel Corporation Gary Works, 2014).

Entrainment of Species at BP Whiting

No entrainment studies have been conducted at the BP Whiting facility. However, a number of entrainment studies at nearby facilities have been conducted and the results are summarized by facility below.

The results of those studies indicate a minimal number of organisms entrained by offshore intakes in relative close proximity to the BP Whiting facility. Distance of intakes from shore and lack of habitat likely contribute to the minor amounts of entrainment observed.

Based on the studies from these other nearby Lake Michigan facilities it appears that entrainment impacts from operation of the Whiting Refinery intakes would be negligible, given

that rates of entrainment are directly proportional to intake volumes, which are significantly greater for the other users discussed.

ArcelorMittal Burns Harbor

Concurrently with the impingement studies, entrainment characterization studies were performed over a two year period from 2012 to 2014. The BH pump stations withdraw water from Lake Michigan via two intake cribs located approximately 3,600 feet off-shore in about 40 feet of water, with a total DIF of 748.8 MGD.

Entrainment samples were collected during 32 sample events over a 24 month period from June 2012 to May 2014. Samples were collected more frequently during peak spawning months (February – May and October – November).

The results of the 32 entrainment sampling events found no fish larvae and/or eggs in over 80 percent of all sampling events at both pump stations. Subsequently, the total daily entrainment estimates of ichthyoplankton varied radically from 0 to 132,000 larvae and/or eggs per day.

Round goby larvae accounted for the majority of fish larvae entrained. The only other identified larvae were alewife from two sampling events at one of the pump stations. Fish eggs accounted for roughly two thirds of all ichthyoplankton entrained, but because they were only identified to the class or family level, no further assessment was possible. However, given the significant numbers of alewife found in the impingement data, it is assumed that the majority of the eggs are associated with alewife (ENVIRON, 2015).

Given the high percentage of samples with no entrained ichthyoplankton, and with most of the positive samples being dominated by round goby larvae, the impact due to entrainment is considered negligible for AM BH.

ArcelorMittal Indiana Harbor

The IHE has one off-shore intake that withdraws water from Lake Michigan via the Main Intake and Pumphouse 2E. The total DIF for the Main Intake is 1152 MGD. During the IHE 2E Pumphouse sampling, entrainment samples were collected monthly or twice monthly over the two year period per the sampling plan at the 7E and 2E intakes. Sample events spanned periods both with and without chlorination for mussel control. Water volume of entrained samples averaged 122 cubic meters. The results of 32 events found no fish/larvae or eggs in the majority of sampling events. Only one fish all of the same species (slimy sculpin) was entrained during the sampling period (Tetra Tech, 2016).

U.S. Steel Midwest

The USS Midwest Plant operates a cooling water intake structure (CWIS) at the Portage facility which is located approximately 2,800 feet offshore at a depth of roughly 30 feet. Similar to the BP intakes, no screens are present at the Midwest CWIS. Intake flows for this pump station average approximately 50 MGD. Entrainment samples were collected during 32 sample events over a 24 month period from June 2012 to May 2014. Samples were collected every other week

during peak spawning months (March – May and October – November) and once a month during February, June – September.

Of the 32 sample events, 28 did not indicate the presence of any ichthyoplankton. A check on entrainment subsampling effectiveness was accomplished by evaluating the presence/absence of zooplankton and mussel veligers in the entrainment samples. Therefore is it believed that the subsampling system was operating effectively since nonicthyoplankton organisms (zooplankton and mussels) were present in the majority of samples.

Samples that were positive for the presence of ichthyoplankton were June 25, 2012, June 24, 2012, June 17, 2013, and August 19, 2013. Projections of ichthyoplankton per 24-hours ranged from 58 to 1,121. For Sample Events #1 - #16, the annual projection of ichthyoplankton entrained is 15,667, and for Sample Events #17- #32 the projection is 26,900. These projections are a combination of fish eggs and larvae collected, which includes Actinopterygii (class for ray-finned fishes), Gobidae (family for goby) juveniles, *Neogobius melanostomus* (species and genus for Round Goby). Zooplankton (not identified to species) were present during every sample event except June 25, 2012, while the appearance of mussel veligers was more inconsistent. No threatened or endangered species were encountered; nor were there any species on the Indiana Department of Natural Resources list of species of concern collected during sampling.

The results of entrainment sampling and the subsequent data evaluation demonstrate that entrainment of critical fish eggs, larvae, and other valued ichthyoplankton by the Midwest Plant CWIS and equipment is negligible. This is likely due to a variety of factors, including the fact that coastal shoreline fish assemblages in the vicinity of the Midwest Plant and the available habitat in the vicinity of the Midwest CWIS intake crib is limited. Moreover, the distance of the intake crib from the shore likely reduces this area of the lake to planktivorous fish. Consequently, the high number of samples with no entrained ichthyoplankton, and the few positive samples dominated by round goby larvae indicate that the impact due to entrainment would be considered negligible (United States Steel Corporation Midwest, 2015).

U. S. Steel Gary Works

Pursuant to the USS NPDES Permit, entrainment characterization studies were required to be performed starting in 2011 and annually thereafter for both the USS Lakeside Intake and the No. 1 Pump Station Intake located within the ore loading slip of Gary Harbor. A review of IDNR Online SWWF data suggests USS Lakeside intake volumes are significantly greater than the Whiting Refinery Intakes volumes. Details of the study results were only publicly available for Permit Year 2 and Permit Year 3. The following provides the publicly available details:

2011 Entrainment Characterization Events

Entrainment characterization samples were collected over a 24-hour period every other week from the week of May 23, 2011 through the week of August 27, 2011 for a total of eight sample events to capture the anticipated spawning periods.

Based on the information reviewed, the results were reported as combined for both USS Lakeside and No. 1 Pump Station. The results suggest extremely low rates of entrainment, with

only goby or goby-related species, consisting of 17 juveniles, 2 adults, and 3 fish eggs collected over the entire 2011 study period for both intakes, and the collection of larvae over two sampling events (United States Steel Corporation Gary Works, 2013).

2012 Entrainment Characterization Events

Entrainment characterization samples were collected during 16 sample events from the week of February 13, 2012 through the week of November 26, 2012. Samples were collected every other week during peak spawning months (February-May and October-November) and once a month during June – September.

Based on the information reviewed, the results for the USS Lakeside Intake suggest extremely low rates of entrainment, with no fish larvae or eggs found in the majority of the samples. The exceptions included the collection of nine Round Goby (*Neogobius melanostomus*) juveniles during the week of July 23 and the collection of four goby (*N. melanostomus*) larvae during the week of August 13. Zooplankton were present during every sampling event and mussel veligers appeared in all sample events except for the weeks of July 23 and November 5 (United States Steel Corporation Gary Works, 2014).

Protected Species Susceptible to Impingement and Entrainment

The Final Rule requires that facilities identify all federally listed threatened and endangered species and designated critical habitat that are present in the "action area." The "action area," as defined by the USFWS and NMFS under Section 7, includes all areas that may be directly or indirectly affected by the operation of a facility's CWIS and not merely the immediate area involved in the action; this is because the USFWS and NMFS consider that the effects of CWIS can extend well beyond the footprint of the CWIS.

There are no known federally listed threatened or endangered (T&E) aquatic species in the vicinity of the intake that may be susceptible to impingement and entrainment.

However, Lake Sturgeon (*Acipenser fulvescens*) is listed as a state Endangered Species and is identified on IDNR's Wildlife Action Plan. One tagged adult Lake Sturgeon was found during the 2011 316(a) Demonstration, although it was not at a location in the vicinity of the Whiting Refinery Intakes. It is possible, however, based on habitat preferences of Lake Sturgeon that they could be found near the BP CWIS Intakes.

In addition, Trout-perch (*Percopsis omiscomaycus*) and Slimy Sculpin (*Cottus cognatus*), both being State Species of Concern, have been identified in other 316(b) impingement studies in the area - USS Gary Works 316(b) Impingement (p.19); Arcelor-Mittal Indiana Harbor 316(b) Entrainment (p.21).

Best Technology Available (BTA) Determination

Impingement BTA:

The Final Rule requires that existing facilities subject to the rule must comply with one of the following seven options:

1. Operate a closed-cycle recirculating system as defined by the Final Rule (at §125.92)
2. Operate a CWIS that has a maximum design through-screen design intake velocity of 0.5 fps;
3. Operate a CWIS that has an actual through-screen intake velocity of 0.5 fps;
4. Operate an offshore velocity cap that is a minimum of 800 feet offshore;
5. Operate a modified traveling screen that the Director determines meets the definition of the rule (at §125.92(s)) and that the Director determines is BTA for impingement reduction;
6. Operate any other combination of technologies, management practices, and operational measures that the Director determines is BTA for impingement reduction; or
7. Achieve the specified IM performance standard of less than 24 percent.

For the 1942 Intake, BP has chosen impingement mortality option 3, operate a CWIS that has an actual intake velocity less than 0.5 fps, for compliance with the impingement mortality standard.

IDEM concurs that calculations, velocity measurements and intake flow data support the BP proposed impingement compliance alternative for the 1942 Intake and that the existing 1942 Intake complies with that compliance alternative (option 3 – actual intake velocity less than 0.5 fps).

For the 1911 Intake, BP has also chosen impingement option 3, operate a CWIS that has an actual intake velocity less than 0.5 fps, for compliance with the impingement mortality standard.

The permit will require that BP verify the actual intake velocity at Intake 1911 by actual measurements of that velocity. Alternate methods for determining actual intake velocity (other than actual velocity measurements) may be considered if those methods are accepted by IDEM. That evaluation of actual intake velocity will be completed and results submitted to IDEM within 12 months of the effective date of the permit renewal. The verification of actual intake velocity will be done for the range of pump combinations expected to operate at the facility. A study plan on the methodology used to verify actual intake velocity is required in the permit to be submitted to IDEM for review and approval prior to conducting the required study. The study will also evaluate the technical feasibility and costs to install flow meters on the intakes to allow an accurate measurement of the intake flows.

If the velocity verification study determines that the actual Intake velocity is above 0.5 fps or if BP decides to not proceed with the velocity verification study, BP has agreed to physically modify the 1911 Intake structure such that the actual intake velocity will be less than 0.5 fps. The modifications to the 1911 Intake will be completed as soon as practicable but no later than 36 months from the effective date of the permit.

Permit language is also included requiring BP to operate the pumps so as to assure actual intake velocity under normal operations is less than 0.5 fps.

BP will also be required to submit detail plans for review and approval on any improvements at the 1911 Intake structure, if those modifications are needed to assure an actual intake velocity less than 0.5 fps.

IDEM concurs with BP that the process of verifying actual intake velocity and subsequent physical modification of the intake, if needed to attain a velocity less than 0.5 fps, complies with the impingement mortality standard (option 3 above) for Intake 1911.

Entrainment BTA:

For existing facilities, EPA did not identify any single technology or group of technology controls as available and feasible for establishing national performance standards for entrainment. Instead, EPA's regulations require the permitting agency to make a site-specific determination of the best technology available standard for entrainment for each individual facility. *See* 40 CFR § 125.94(d).

EPA's regulations put in place a framework for establishing entrainment requirements on a site-specific basis, including the factors that must be considered in the determination of the appropriate entrainment controls. These factors include the number or organisms entrained, emissions changes, land availability, and remaining useful plant life as well as social benefits and costs of available technologies when such information is of sufficient rigor to make a decision. These required factors are listed under 40 CFR § 125.98(f) (2).

EPA's regulations also establish factors that may be considered when establishing site-specific entrainment BTA requirements, including: entrainment impacts on the waterbody, thermal discharge impacts, credit for flow reductions associated with unit retirements, impacts on reliability of energy delivery, impacts on water consumption, and availability of alternative sources of water. (*Id*. § 125.98(f)(3))

After considering all the factors that must and may be considered by the federal rules, see discussion below, IDEM finds that the existing facility meets BTA for entrainment.

IDEM will, however, require BP to conduct one year of entrainment sampling during the months of April through September of the sampling year, following issuance of the permit. This entrainment sampling is intended to validate conclusions on the numbers of organisms actually entrained at the BP Whiting facility. IDEM feels that this additional sampling is warranted due to the intake flow volumes (90 MGD AIF) at BP and the dominance of sport species, particularly yellow perch, in several of the representative impingement studies discussed previously.

40 CFR § 125.98(f) (2) and (3) Must and May Factor Discussion

MUST FACTORS (§ 125.98(f)(2))

i. Numbers and types of organisms entrained, including, specifically, the numbers and species (or lowest taxonomic classification possible) of Federally-listed, threatened and endangered species, and designated critical habitat (e.g., prey base);
As discussed previously, entrainment characterization studies reviewed from other representative Lake Michigan facilities (i.e., ArcelorMittal Indiana Harbor East, ArcelorMittal Burns Harbor, U. S. Steel Midwest Plant, U. S. Steel Gary Works Lakeside) suggest that entrainment impacts from operation of the Whiting Refinery intakes would be negligible, given that rates of entrainment are directly proportional to intake volumes, which are significantly greater for the other facilities.

There are no known Federally-listed threatened or endangered (T&E) aquatic species near the intakes that may be susceptible to impingement and entrainment. In addition, there is no Federally-listed designated critical habitat in the vicinity of the intakes. A state-listed endangered species, lake sturgeon (Acipenser fulvescens) is listed for Lake County, Indiana and is identified on IDNR's Wildlife Action Plan. One tagged adult lake sturgeon was found during the field work in 2011 in support of the 316(a) Demonstration, however it was not at a location near the Whiting Refinery intakes.

In addition to the lower withdrawal rates relative to other users in the area, the Whiting Refinery intakes are located approximately 1,330 feet offshore and submerged roughly 20 feet below the surface. Submerged, offshore intakes withdraw water from less biologically productive areas to reduce impingement and entrainment.

Intakes designed in this manner, specifically in the southern basin of Lake Michigan, exhibit a lower density of organisms as well as modify the species found as a function of the distance from the shoreline and depth in water column. Intakes at an offshore submerged location typically result in a larger proportion of round goby in the fish impacted than near shore intakes.

Round goby are considered high priority nuisance species in Lake Michigan by both NOAA and IDNR. IDEM has therefore decided to exclude round goby from the definition of 'all stages of fish and shellfish' in the definitions in 40 CFR Part 125.92(b).

IDEM agrees with BP that the entrainment impacts of the existing CWIS are expected to be negligible given the location of the intakes, a lower withdrawal rate at BP compared to other representative facilities and the low rates of entrainment of 'all stages of fish and shellfish' observed in those other studies.

IDEM, however, will require BP to verify these conclusions with one year of entrainment sampling conducted during the next permit cycle. The entrainment sampling will occur April through September of the sampling year. IDEM feels that this additional sampling is warranted due to the intake flow volumes (90 MGD AIF) at BP and the dominance of sport species, particularly yellow perch, in several of the representative impingement studies discussed previously. IDEM may reevaluate the Final BTA determination and require additional controls if the results of the entrainment sampling suggest additional controls are warranted to minimize the adverse environmental impact from operation of the CWIS at BP Whiting.

ii. Impact of changes in particulate emissions or other pollutants associated with entrainment technologies;

According to the Preamble to the Final 316(b) Rule, the operations of closed-cycle recirculating systems are considered the most effective technology for reducing entrainment. The Whiting Refinery currently has eight cooling towers in operation; however, to meet this option, the Whiting Refinery would have to install additional cooling towers in order to retrofit their existing once-through cooling system, estimated at 71.9% of the total withdrawal volume, to a closed-cycle recirculating system. The installation of additional cooling towers at the Whiting Refinery for such a large flow rate/volume, would be expected to result in:

• Increases in particulate emissions (e.g., PM, PM-10, and PM-2.5) from the cooling towers drift;
• Increases in Carbon dioxide (CO2) and other criteria air pollutants from the increase in energy required to operate the cooling towers;

• A potential increase of mists, fog, and icing from the cooling towers evaporation plumes; and,
• An increase in the total dissolved solids (TDS) effluent load to Lake Michigan due to cycling across the cooling towers hot and cold water basins and use of water treatment additives to effectively operate a cooling tower.

iii. Land availability insofar as it relates to the feasibility of entrainment technology;
The installation of cooling towers would result in a significant impact to land availability on the Whiting Refinery footprint. The land availability is limited given the Whiting Refinery proximity to heavily populated industrial and residential areas. The installation of cooling towers within the Whiting Refinery process units' area would be complex given the existing limited available space and the need for an additional area that can be used for buffer. The buffer area is required due to safety concerns from the increased potential for mists, fog, and icing (see response to factor ii. above).

iv. Remaining useful plant life; and,
The Whiting Refinery has no plans for ceasing refinery operations over the next 5 years.

v. Quantified and qualitative social benefits and costs of available entrainment technologies when such information on both benefits and costs is of sufficient rigor to make a decision.
The Whiting Refinery has not performed any detailed evaluation of quantified and qualitative social benefits and costs of available entrainment technologies.

However, it is anticipated that the installation of cooling towers would result in minimal further reductions in entrainment rates, given the predicted low rates of entrainment at BP based on a review of entrainment characterization data from representative nearby Lake Michigan intakes (see above).

MAY FACTORS (§ 125.98(f)(3))

i. Entrainment impacts on the waterbody;
As discussed above, the entrainment impacts on Lake Michigan from operation of the Whiting Refinery intakes are expected to be negligible, given the minimal rates of entrainment determined at existing representative Lake Michigan intakes with higher water withdrawal rates.

ii. Thermal discharge impacts;
As discussed in Section 6.3.1 of this permit, BP has submitted a detailed 316(a) demonstration study showing that the existing thermal discharge load discharged by BP assures protection and propagation of a balanced and indigenous community of fish, shellfish and wildlife in and on the water.

Installation of additional cooling towers to address impingement and entrainment would reduce the thermal load discharged by BP and therefore any impacts from that thermal discharge. IDEM does not believe, however, that there would be a significant benefit to this reduced thermal load based on the results of that 316(a) demonstration study.

iii. Credit for reductions in flow associated with the retirement of units occurring within the ten years preceding October 14, 2014;
The Whiting Refinery is currently operating at approximately 35% of the Design Intake Flow (DIF) of 258.3 MGD. This reduction is due to several water optimization projects that have been implemented over the years, including but not limited to the shutdown of process units using once-through cooling water, installation of cooling towers, condensate recovery, stripped sour water reuse, and winterization efforts.

Specific recent examples that were part of the Whiting Refinery Modernization Project (WRMP) include the operation of new cooling tower #8 in November 2012 that results in a reduction of cooling water usage at the Sulfur Recovery Unit; the operation of new cooling tower #7 in November 2013 to support the new Coker (Coker 2); the shutdown of old No. 11B Coker process unit, which used once-through non-contact cooling water, in May 2014; and operation of a new condensate recovery system in October 2013 that recovers and treats the condensate from various process units in the refinery for re-use as boiler feed water. As a result of these recent examples as part of the WRMP, an estimated 15.0 MGD reduction in water usage was realized.

iv. Impacts on the reliability of energy delivery within the immediate area;
It is unknown if impacts on the reliability of energy delivery with the immediate area from installation of cooling towers would occur. However, it is believed that the impacts would be minimal given the nearby location of the Whiting Clean Energy co-generation facility that generates electricity for the local grid.

v. Impacts on water consumption; and,
The installation of cooling towers would result in an increase in net water consumption for the Whiting Refinery, due to the increase in consumptive use from cooling tower evaporation

vi. Availability of process water, gray water, waste water, reclaimed water, or other waters of appropriate quantity; and, quality for reuse as cooling water
The Whiting Refinery has limited options for available process, gray, waste, or reclaimed water in appropriate quantity and/or appropriate quality that could be used for reuse of the total volume of cooling water.

C. Permit Conditions

The permittee shall comply with requirements below:

1. In accordance with 40 CFR 125.98(b)(1), nothing in this permit authorizes take for the purposes of a facility's compliance with the Endangered Species Act.

2. At all times properly operate and maintain the CWIS and associated equipment.

3. If BP elects to proceed with the velocity verification study in this Item, BP shall verify the actual intake velocity at Intake 1911 through actual measurements (or alternate methods if those methods are accepted by IDEM), and submit a report to IDEM on the results of those measurements no later than February 1, 2020. The verification of actual intake velocity will be done for the range of pump combinations expected to operate at

the facility. The velocity verification study shall also include an evaluation of the costs and technical feasibility to install flow meters that would allow an accurate metering of the intake flow. A study plan on the methodology used to verify actual intake velocity shall be submitted to IDEM for review and approval prior to conducting the required study.

4. Submit an operation plan to IDEM no later than March 1, 2020 detailing which pump combinations will be operated at the facility and that will maintain an actual intake velocity less than 0.5 fps at each Intake during normal plant operations. Beginning in March 2020, records of pump(s) operation shall be maintained at the facility sufficient to determine compliance with the pump operation plan. Failure to operate the facility in accordance with this operation plan under normal operation of the intake structure will be considered a permit violation.

5. If the actual Intake velocity at Intake 1911 is determined to be above 0.5 fps, or if BP decides not to proceed with the study to verify intake velocity (Item 3 above), BP shall physically modify the 1911 Intake structure such that the actual intake velocity will be less than 0.5 fps. The modifications to the 1911 Intake will be completed as soon as practicable but no later than the dates developed in accordance with the following schedule:

    a. As soon as practicable but no later than 18 months after the effective date of the permit, complete detailed design of the modifications to the 1911 Intake structure and submit the detailed design to IDEM for review and approval.

    b. As soon as practicable but no later than 30 months after the effective date of the permit, initiate construction of the modifications to the 1911 Intake.

    c. As soon as practicable but no later than 36 months after the effective date of the permit, complete construction of the modifications to the 1911 Intake.

    d. Within thirty (30) days of completion of construction, the permittee shall file with the Industrial NPDES Permits Section of OWQ a notice of installation for the additional pollutant control equipment and a design summary of any modifications.

    e. The permittee shall submit a written progress report to the Compliance Data Section of the Office of Water Quality (OWQ) three (3) months from the effective date of this permit and every nine months thereafter until the requirements in the compliance schedule outlined above have been achieved. The progress reports shall include relevant information related to steps the permittee has taken to meet the requirements in the compliance schedule and whether the permittee is meeting the dates in the compliance schedule.

    f. If the permittee fails to comply with any deadline contained in the foregoing schedule, the permittee shall, within fourteen (14) days following the missed deadline, submit a written notice of noncompliance to the Compliance Data Section of the OWQ stating the cause of noncompliance, any remedial action taken or planned, and the probability of meeting the date fixed for compliance.

6. Conduct one year of entrainment sampling representative of both intakes of the CWIS, beginning on or before April 1 and lasting at a minimum through September 30 of the sampling year. The entrainment sampling shall be conducted in accordance with an IDEM approved plan of study. The entrainment sampling shall be completed and results submitted to IDEM within 36 months of the effective date of the permit. The plan of study for the entrainment sampling shall be submitted within 4 months of the effective date of the permit.

7. Inform IDEM of any proposed changes to the CWIS or proposed changes to operations at the facility that affect the information taken into account in the current BTA evaluation.

8. There shall be no discharge of debris from intake screen washing which will settle to form objectionable deposits which are in amounts sufficient to be unsightly or deleterious, or which will produce colors or odors constituting a nuisance.

9. All required reports shall be submitted to the IDEM, Office of Water Quality, NPDES Permits Branch.

10. The permittee shall submit all the information required by the applicable provisions of 40 CFR 122.21(r)(2) through (r)(8) as described above and under CWA Section 316(b) with the next permit renewal application. The permittee may request to reduce the information required, if conditions at the facility and in the waterbody remain substantially unchanged since the previous application so long as the relevant previously submitted information remains representative of the current source water, intake structure, cooling water system, and operating conditions. The permittee shall submit the request for reduced cooling water intake structure and waterbody application information at least two years and six months prior to the expiration of the NPDES permit. The request shall identify each element in this subsection that it determines has not substantially changed since the previous permit application and the basis for the determination. IDEM has the discretion to accept or reject any part of the request.

11. The permittee shall either conduct visual inspections or employ remote monitoring devices during the period the cooling water intake structure is in operation. The permittee shall conduct such inspections at least weekly to ensure that any technologies operated to comply with §125.94 are maintained and operated to function as designed including those installed to protect Federally-listed threatened or endangered species or designated critical habitat. Alternative procedures can be approved if this requirement is not feasible (e.g., an offshore intake, velocity cap, or during periods of inclement weather). An accepted alternative procedure is weekly inspections of the wet wells and biannual visual inspections (via divers) of both cooling water intake structures.

12. The permittee shall submit and maintain all the information required by the applicable provisions of 40 CFR 125.97 including the annual certification statement required in 40 CFR 125.97(c).