

Supplemental Information Report  
July 29, 2011

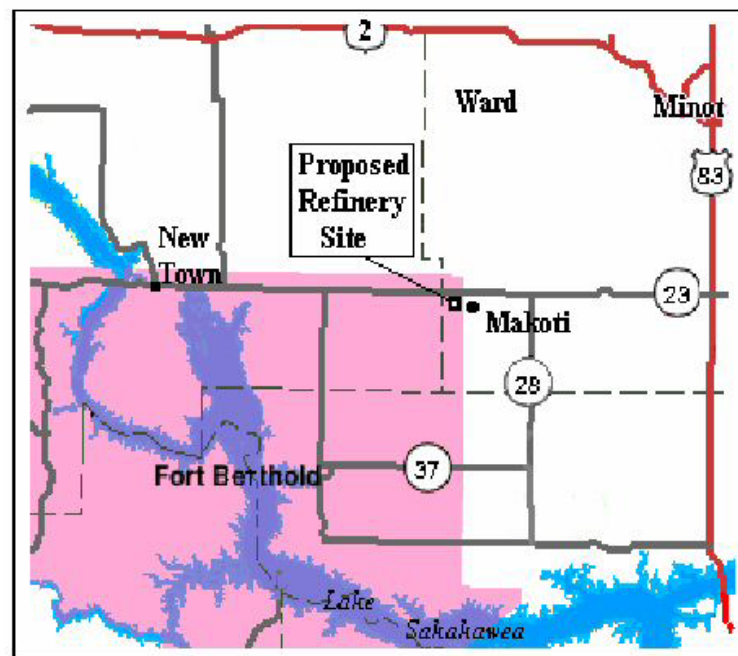
Mandan, Hidatsa and Arikara Nations  
Proposed  
Refinery Project  
Environmental Impact Statement

**U.S. Environmental Protection Agency  
Region 8  
1595 Wynkoop Street  
Denver, CO 80202-1129**

## I. Introduction

The Three Affiliated Tribes (Tribes) comprising the Mandan, Hidatsa and Arikara (MHA) Nation have proposed to construct and operate a petroleum refinery with a capacity of 13,000 barrels per day on the Fort Berthold Indian Reservation in North Dakota. The MHA Nation originally proposed that the refinery would process synthetic crude produced from the Alberta, Canada tar sands mines. In 2010, the Tribes decided to change the proposed refinery feedstock from the Alberta synthetic crude to the local Bakken crude oil. The Bakken oil fields have been developing rapidly over the last five years.

The MHA Nation owns the 468.39 acre site. The refinery footprint is projected to cover approximately 190 acres of the site. The remaining 278 acres would be used to grow forage for the Tribes' buffalo herd, although buffalo would not be located at the site. The proposed refinery location is in the northeast corner of the Fort Berthold Indian Reservation in Ward County as show in Figure 1.



**Figure 1 - Proposed Refinery Location**

**National Environmental Policy Act (NEPA) Background:** The proposed refinery invokes NEPA compliance responsibilities for both the U.S. Environmental Protection Agency (EPA) and the Bureau of Indian Affairs (BIA). EPA's NEPA compliance responsibilities arise from the Tribes' request that EPA issue a Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) "new source" wastewater discharge permit for the proposed refinery in accordance with CWA § 511(c)(1). EPA's Clean Air Act (CAA) actions, including permitting activities, are not subject to NEPA pursuant to the Energy Supply and Environmental Coordination Act, 15 U.S.C. § 793(c)(1). BIA's NEPA responsibilities arise from the Tribes' request that BIA accept Tribally-owned land into trust status for purposes of constructing and operating the

proposed refinery and to produce forage for buffalo. EPA and BIA are co-leads in the NEPA process for this project. The U.S. Army Corps of Engineers is a cooperating agency and the MHA Nation is a cooperating Sovereign Nation.

EPA and BIA began the NEPA process in 2003, issued the Draft Environmental Impact Statement (DEIS) in June 2006, and the Final Environmental Impact Statement ([FEIS](#)) in August 2009. EPA and BIA provided the public opportunities to submit verbal and written comments on the DEIS and FEIS. Tribal members, non-governmental organizations and other individuals submitted comments raising various issues including concerns regarding: the impacts analyses for air quality; absence of a CAA Prevention of Significant Deterioration (PSD) permit; cumulative impacts; greenhouse gas emissions; human health impacts; and Environmental Justice. After release of the FEIS, the Tribes informed EPA and BIA of their intent to change the refinery feedstock from the Alberta synthetic crude to the local Bakken crude.

## II. Supplemental Information Report

This Supplemental Information Report (SIR) documents EPA's evaluation and consideration of the change in feedstock for the MHA Nations' Proposed Clean Fuels Refinery Project. The Council on Environmental Quality (CEQ) regulations provide direction regarding the review of an EIS and preparation of supplemental statements. The CEQ regulations at 40 C.F.R. § 1502.9(c) state:

*Agencies shall prepare supplements to either draft or final EIS's if:*

- 1. The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or*
- 2. There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts.*

This report summarizes EPA's evaluation of the changes in impacts resulting from the switch to the Bakken crude feedstock and the EIS to determine: (1) if substantial changes have been made to the Project since completion of the FEIS in 2009 that are relevant to environmental concerns, and (2) if significant new circumstances or information relevant to environmental concerns and bearing on the proposed refinery or its impacts have occurred since the FEIS was completed. This SIR also provides technical information to the decision maker to assist him in determining whether to issue an NPDES new source wastewater discharge permit for the proposed refinery.

## III. Feedstock Change

In 2010, the Tribes informed EPA of their intent to change the feedstock for their proposed refinery from synthetic crude to the local Bakken crude oil. In comparing the two feedstocks, EPA notes that both the synthetic and Bakken crudes are light, sweet crudes. Refineries with heavier or sour crude feedstocks have more refinery process units and additional waste streams increasing potential environmental impacts. The Bakken crude has a higher salt content, has a bottoms (residual oil) component, and has more variability of composition than the synthetic crude, since the latter would be partially refined in Canada. The Tribes have not changed the site location or the proposed capacity of the refinery from what is described in the FEIS.

## **IV. Changes to the Refinery to Process Bakken Crude**

### **A. Refinery**

The preliminary refinery design and site plans used to determine the environmental impacts of the proposed projects in the FEIS are the same for both the synthetic and the Bakken crudes with the following process units added for the Bakken crude:

- Vacuum crude heater
- Two decant oil tank heaters
- Desalter
- Desalter brine disposal facilities
- Additional air pollution control units: second sulfur recovery, tail gas treating, and amine treating.

For most environmental resources and issues of concern, the environmental analysis for a refinery using Bakken crude is similar to that of a refinery using Alberta synthetic crude as analyzed in the FEIS. The refinery is still projected to be a relatively small refinery using a light, sweet crude feedstock:

- Same location and general site layout;
- The output capacity does not increase;
- The above additional process units are expected to fit within the existing site boundaries. No additional area of disturbance for the refinery is anticipated.

### **B. Crude Oil Transportation and Traffic Considerations**

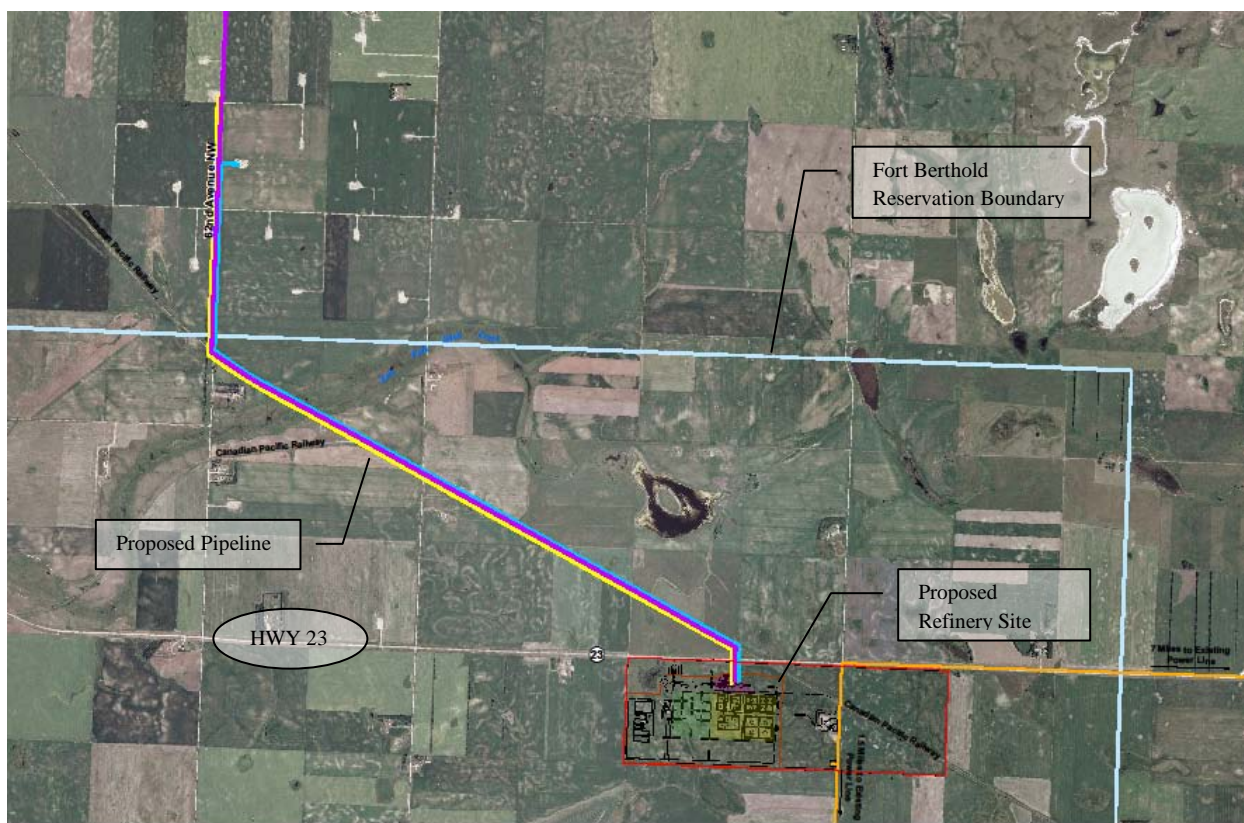
The pipeline analyzed in the FEIS for transporting synthetic crude to the proposed refinery remains the most likely alternative to convey Bakken crude to the proposed refinery. A 4-mile pipeline would be constructed from the refinery to an existing Enbridge pipeline spur to the Wabek/Plaza oil field. The Enbridge pipeline currently transports Bakken crude. As shown in Figure 2, the proposed pipeline spur parallels the existing railroad tracks.

The FEIS described four synthetic crude storage “breakout” tanks proposed along the Enbridge pipeline between Outlook, MT, and the proposed refinery site. When the refinery was first proposed, those tanks were needed because the refinery would have been the main customer for that synthetic crude pipeline. These storage tanks are no longer needed for the project. The proximity of the Bakken crude facilities and several pipeline and terminal projects completed in the last few years eliminate the need for crude storage along the route. The entire pipeline system is being expanded and revised to transport crude oil from North Dakota to refineries throughout the U.S.

With the proximity of the Bakken oil field to the refinery, other crude transportation options besides the pipeline described in the FEIS are feasible. The refinery operator may opt to receive crude oil via a local pipeline, truck or rail or a combination of these alternatives. Based on discussions with the Tribes’ contractors, the Tribes’ plan for crude oil conveyance continues to be piping crude to the refinery via the nearby Enbridge pipeline, following the same alignment analyzed in the FEIS (spur from Wabek/Plaza to the refinery site). However, Bakken crude may be trucked to the refinery during the first years of operation if the pipeline system has not been

completed prior to the refinery coming online. There may be other periods of trucking crude depending on pipeline capacity and the cost of transporting crude via the pipeline system.

In the long-term EPA understands from discussions with representatives of the Tribes that the refinery would receive crude via a pipeline either through the Enbridge pipeline, as described in the FEIS, or a local pipeline. No specific plans have been developed to date; however, the most likely pipeline route, shown in Figure 2, would be the same as was analyzed in the FEIS. For these pipeline options, the potential impacts would be generally comparable to those described in the FEIS, except that the potential impacts of the four storage tanks would be eliminated. An alternate route for the local pipeline could be along Highway 23. The pipeline length and resources that will be affected would be very similar to the analysis in the EIS.



**Figure 2 - MHA Refinery and Pipeline**

[Legend: Blue line = oil pipeline, light blue = reservation boundary, fuchsia & yellow = gas lines, orange = power lines]

While transporting crude oil to the refinery via truck was not considered in the FEIS, the FEIS did analyze trucking and rail for non-crude feedstocks and product shipment, as well as increases associated with employees commuting to and from the refinery. There would be some additional truck or train traffic, beyond what was analyzed in the FEIS, if crude were to be delivered to the refinery via truck or rail. The analysis predicted a 30% increase in traffic (FEIS, page 4-93) on US 23. We estimate an increase in commercial truck traffic to deliver Bakken crude of 100 trucks per day or 200 trips per day (100 trucks for crude delivery and 100 return trips). EPA based this estimate on a combination of oilfield size trucks and semis operating on a five-day work week. This additional truck traffic represents a 64% increase in truck traffic from what was estimated in

the FEIS. The estimated increase in traffic for the refinery with crude trucking is a 29% increase over 2010 annual average daily traffic (AADT) on US 23. While this increase in traffic will be noticeable, the potential impacts from accidents and spills will be comparable to those discussed in the EIS.

With regard to other roads, use of the local Bakken feedstock is anticipated to result in less crude truck traffic (200 trucks) in other areas of the Reservation and State. Currently, crude is being trucked to the refinery in Mandan. The primary routes used are Hwy 22 and I-94 west and south of Lake Sakakawea.

As shown below in Table 5, traffic has increased along US 23 by about 50% as a result of the Bakken oil development. Existing traffic levels now exceed the North Dakota Department of Transportation criteria for installing turn lanes. Right turn lanes are recommended mitigation measures for the proposed refinery. Depending on the anticipated westbound traffic turning left into the refinery, a left turn lane may also be warranted. EPA also recommends the MHA Nation prepare a traffic study as part of the final design of the refinery to determine if left turn lanes and other traffic mitigation measures are needed.

**Table 5 – Changes in Traffic on US 23**

<b>Highway Segment</b>	<b>EIS 2002/03 AADT</b>	<b>EIS 2002/03 Trucks</b>	<b>2009 AADT<sup>1</sup></b>	<b>2009 Trucks<sup>1</sup></b>	<b>2010 AADT<sup>1</sup></b>	<b>Trucks 2010<sup>1</sup></b>
S.H. 23 east of refinery site between refinery and Makoti intersection (338 <sup>th</sup> St SW)	1175	No Data	1680	250	1800	250
S.H. 23 east of Plaza/ Wabek intersection (64 <sup>th</sup> Ave. NW)	1450	No Data	1675	210	2125	No Data
S.H. 23 east of S.H 37 (road to Parshall)	1,550	180	1855	275	2260	No Data
Traffic Increase from Refinery (30% in EIS)	+ 465	+ 54	+ 465	+ 54	+ 465	No Data
Sum of Existing Traffic + FEIS Refinery Traffic	2015	234	2320	329	2725	--
Adding Bakken crude oil trucks (mix of small & semi-trucks)	+200	+200	+200	+ 200	+200	--
<b>Total Projected Traffic increase FEIS &amp; crude trucks</b>	2215	434	2520	529	2925	--
<sup>1</sup> Traffic data from the North Dakota Department of Transportation AADT = Annual average daily traffic						

As discussed above, the proposed refinery could choose to receive crude via rail. The main rail route runs east along Highway 2. The impacts of the proposed refinery to rail traffic were evaluated in the FEIS for shipping out products, disclosing typical accident rates for bulk liquids, such as gasoline. The EIS did not quantify the anticipated number of trains. The frequency and

length of crude trains would be dependent on the number of cars. To deliver 10,000 barrels per day of crude, EPA estimates three 30 car trains per week or one longer train per week.

## V. Environmental Consequences of Change in Feedstock

### Air Quality

As noted above, EPA received comments regarding air quality and whether the refinery would need to obtain a PSD permit from EPA. In response to those comments and the feedstock change, EPA asked the MHA Nation to prepare an addendum to the *Air Quality Technical Report for the FEIS for the MHA Nation Proposed Clean Fuels Refinery Project*. The Addendum, dated March 9, 2011, is included in this report as Appendix A. The Addendum updates the Tribes' air emissions calculations to include emissions from the additional refinery units needed to refine the Bakken crude, explains more thoroughly the basis for the air emission calculations and corrects some typographical errors. On June 6, 2011, the Tribes submitted to EPA a modeling analysis of the projected emissions from the refinery using Bakken crude as feedstock.

Refinery air emissions will increase because of the additional process units (vacuum crude heater, and two decant oil heaters). Table 3 summarizes the potential air emissions changes based on the change to Bakken crude as feedstock. Table 4 summarizes the changes in air quality concentrations. As shown in these tables, no exceedances of the National Ambient Air Quality Standards (NAAQS) are anticipated; with the potential exception of the SO<sub>2</sub> hourly standard. The hourly SO<sub>2</sub> standard may be exceeded if the flare operates more frequently than anticipated, and both the sulfur recovery unit and the back-up unit are down at the same time.

Table 3 - Potential Air Emissions Changes

NAAQS Pollutant	PSD Permit Thresholds tons/yr	FEIS Annual Emission <sup>1</sup> tons/yr	Bakken Annual Emission <sup>2</sup> tons/yr	Change in Annual Emissions FEIS to SIR %
NO <sub>2</sub>	100	35.7	55.8	↑ 56
CO	100	78.3	83.3	↑ 6
PM <sub>2.5</sub> /PM <sub>10</sub>	100	16.8	38.8	↑ 131
SO <sub>2</sub>	100	51.2	80.5	↑ 57
VOCs	100	77	86.2	↑ 12

1. From Table 1, Appendix 1
2. From Table 2, Appendix 1

Table 4 – Changes in Air Quality Concentrations

Pollutant	Period	NAAQS ( $\mu\text{g}/\text{m}^3$ ) <sup>1</sup>	From FEIS, Table 4-17			SIR – Revised Air Emissions			Changes <sup>5</sup> from FEIS to SIR Modeled w/ Background %
			Back-ground ( $\mu\text{g}/\text{m}^3$ )	Modeled Impact ( $\mu\text{g}/\text{m}^3$ ) <sup>2</sup>	Modeled Impact w/Back-ground ( $\mu\text{g}/\text{m}^3$ )	Back-ground ( $\mu\text{g}/\text{m}^3$ )	Modeled Impact ( $\mu\text{g}/\text{m}^3$ )	Modeled Impact w/Back-ground ( $\mu\text{g}/\text{m}^3$ )	
NO <sub>2</sub>	1-Hour	188 <sup>3</sup>		New standard		41	33	74	n/a
	Annual	100	7.1	0.79	7.89	4	1	5	↓ 37 %
CO	1-Hour	40,000	10,832	67.7	10,900	7,980	56	8,036	↓ 26 %
	8-Hour	10,000	5,474	30.3	5,504	3,124	38	3,162	↓ 43 %
PM <sub>2.5</sub>	24-Hour	35 <sup>3</sup>	16.07	16.44 <sup>3</sup>	32.5	16	8	24	↓ 26 %
	Annual	15	5.82	2.94	8.76	6	1	7	↓ 20 %
PM <sub>10</sub>	24-Hour	150	37	26.3	63.3	45	51	96	↑ 52 %
SO <sub>2</sub>	1-Hour	196 <sup>4</sup>		New standard		96	63	159	n/a
						Model did <b>not</b> include intermittent flare <sup>6</sup>			
	" "	" "		" "		96	155	251	n/a
						Modeled for continuous flaring with no operating sulfur recovery units <sup>6</sup>			
	3-Hour	1300	106.5	45.5	152		Revised to 1-hr		n/a
	24-Hour	365	31.9	17.5	49.4	21	16	37	↓ 25 %
	Annual	80	4.3	1.34	5.64	3	1	4	↓ 29 %

Notes :

1.  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter

2. For 1-, and 8-, and 24-hour standards the modeled impacts are 1st highest short term values, except PM2.5.

3. 98th Percentile value, per the standard requirements.

4. 99<sup>th</sup> Percentile

5. FEIS model - ISCST3, SIR remodeling -AERMOD

6. The refinery anticipates needing to run the flare a maximum of 100 hours per year. The first modeling run for the 1- hour SO<sub>2</sub> NAAQS [Result = 159  $\mu\text{g}/\text{m}^3$ ] did not include flare emissions. The second modeling run for the 1- hour SO<sub>2</sub> [Result = 251  $\mu\text{g}/\text{m}^3$ ] assumed continuous flaring (8760 hours/ year) with both sulfur recovery units not working. The proposed refinery would have two sulfur recovery units, one unit would be a full backup. Modeling for the annual SO<sub>2</sub> NAAQS assumed 100 hours/year of flaring.

EPA also evaluated the information submitted by the MHA Nation to determine whether the refinery needed to obtain a CAA Prevention of Significant Deterioration (PSD) permit. Under the CAA, new industrial facilities with major air emissions are required to obtain a PSD permit from EPA before starting construction. These requirements are also referred to as New Source Review (NSR). During preparation of the DEIS, EPA made an initial PSD applicability determination in an April 25, 2005 letter to the Tribes that stated that “the proposed refinery would not be considered a major source as defined in the PSD regulations” because the potential emissions were estimated by the Tribes to be below 100 TPY based on the proposed equipment and feedstock. On March 24, 2010, EPA issued a letter withdrawing the 2005 PSD applicability determination because of the change in crude feedstock and because of EPA’s reevaluation of the Tribes’ initial emission estimates from 2004. In a May 5, 2011 letter (in Appendix A), EPA notified the Tribes that the March 9, 2011 Addendum to the *Air Quality Technical Report for the FEIS for the MHA Nation Proposed Clean Fuels Refinery Project* did not have the information needed for EPA to concur with the Tribes assessment that the facility would be a minor source for air emissions. Due to the preliminary nature of design, EPA was not able at that time to make a determination of PSD applicability. EPA recommended that the Tribes apply for a PSD permit. Final design is not anticipated until many months after the conclusion of the NEPA process. On June 29, 2011, the MHA Nation sent a letter to EPA indicating that they had begun construction on the footing for the refinery flare stack.

#### Groundwater Quality and Underground Injection

The new brine waste stream from the desalter would be disposed of through a Class I UIC well. Triad (2010) estimated 700 bpsd (barrels per stream day) of briny water from the desalter would be injected into the well. Typical wastewaters from desalters contain salts, water soluble hydrocarbons such as benzene and potentially metals (depending on the chemistry of the crude oil). In addition, it is likely that reverse osmosis (RO) reject water (wastewater from RO treatment of operational water obtained from the Fox Hills aquifer) would also be disposed of via the UIC well. In the FEIS, the RO reject water was to be disposed of with other wastewater discharged in compliance with the proposed NPDES discharge permit.

The FEIS analyzed the option of disposal of refinery wastewater into an underground injection well as Alternative C. The desalter waste stream would be an additional source of wastewater. Impacts from the injection well would be controlled through a Class I UIC well permit which would specify well construction, well operations, closure requirements, and financial responsibility. In order to obtain a Class I UIC permit, the MHA Nation must demonstrate that the waste water would be injected below any underground sources of drinking water (as defined by SDWA). The purpose of the UIC permit is to control and limit environmental impacts associated with wastewater disposal. The MHA Nation will be required to apply for and obtain a Class I UIC well permit prior to construction of the UIC well. EPA also recommends that the MHA Nation include additional tanks at the refinery to store brine in case there are problems with the UIC well. As a minimum, the refinery should have the capacity to store desalter wastewater for one week’s operations.

In the application process, the Tribes will be required to determine whether the proposed injection formation is an USDW and whether any USDWs occur below the likely injection zone. In western North Dakota, the Dakota Group is commonly used for disposal of produced fluids via Class II

UIC wells (Class II UIC wells are for the disposal of produced water from oil production). The Dakota group is a likely injection target for the refinery wastewater.

In some USGS reports, water quality in the Dakota Group is of high enough quality to be considered a USDW under the refinery site. If the Dakota Group aquifers are determined to be an USDW, the refinery would have to inject into a deeper formation or request an aquifer exemption<sup>1</sup> for the portion of the Dakota that will comprise the injection zone. The EPA and North Dakota UIC program have approved an aquifer exemption for large areas of the Dakota Group formations in western North Dakota. However, this exemption applies only to Class II wells, and no exemption has been approved for the Dakota Group aquifers beneath the TAT Reservation. The SDWA requires that Class I wells inject below the lowermost USDW, therefore the applicant would also need to evaluate the numerous underlying formations to determine if any are USDWs. While some of the lower formations in this part of the Williston Basin would be likely to yield significant volumes of water, TDS (total dissolved solids, salinity) concentrations in groundwater in these formations tend to be very high, with TDS typically exceeding 10,000 mg/l, the threshold for assessing whether the aquifer is a USDW. Therefore it is not likely that there is a USDW below the Dakota Group aquifer.

If the wastewater that the MHA Nation proposes to dispose of via a Class I UIC well is determined to be hazardous additional RCRA requirements would apply, including but not limited to a waste analysis plan, the land disposal restrictions, monitoring, financial, and closure. For the UIC permit, the Tribes would need to submit a no-migration petition demonstrating several things including that there is a low-permeability confining zone to prevent vertical migration of the injected fluids and the injection zone has sufficient permeability, porosity, thickness and areal extent to prevent migration of fluids into USDWs (40 C.F.R. §148.20). The no-migration petition would need to demonstrate that fluid movement would not migrate within 10,000 years vertically upward out of the injection zone. Regulations governing Class I hazardous waste wells can be found at 40 C.F.R. Parts 146 and 148. If the wastewater is determined to be hazardous, treatment will be necessary prior to injecting via a non-hazardous Class I UIC well.

### Spills and Emergency Response

The environmental impacts from spills and emergency response planning would be generally comparable for either crude feedstock with the exception of crude transportation. The FEIS' probability analysis and impacts assessment of spills covered a range of spill scenarios, so remains valid for the Bakken crude refinery. If the Bakken crude is transported by truck or rail, there would be a small increase in risk for spills during crude offloading and transportation to the refinery. In the proposed design for the refinery, the loading/offloading area would be paved and curbed to prevent the release of spills to the environment.

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<sup>1</sup> Injection of waste into a USDW via a Class I well is prohibited. Thus, an aquifer exemption would be necessary in order to exempt the aquifer from being a USDW. Aquifer exemptions can be granted pursuant to the criteria at 40 C.F.R. § 146.4.

### Surface Water Quality

As noted above, the requirement for EPA to prepare an FEIS for the proposed MHA Nation refinery was triggered by the Tribes' application for an NPDES discharge permit for the proposed refinery. The draft NPDES permit was included in both the DEIS and FEIS. The draft NPDES permit contains both technology based effluent limits and water quality based effluent limits. Neither of the permit limits are based on the feedstock, but rather on the quantity and type of production at the facility for the technology limits and the water quality standards for the water quality based limits. The discharge limits, monitoring requirements and authorized outfalls would remain unchanged from the original public noticed permit. The water quality impacts of the facility discharging under permit conditions would be the same for either feedstock scenario as the limits remain unchanged.

### Solid and Hazardous Waste

The refinery would generate an additional hazardous waste stream through the refining of Bakken crude. A desalter unit would produce desalter sludge and additional wastes would be produced from cleaning the desalter during turnaround. These desalter wastes are EPA listed hazardous wastes -- F037. The FEIS identified other F037 wastes that would be generated at the refinery, and these desalter wastes would be managed in the same manner as the previously identified wastes as discussed in the FEIS. As described in FEIS, other process units would generate waste and or wastewater exhibiting characteristics of hazardous waste. All hazardous wastes generated by the refinery are required to be transported offsite within 90 days and disposed of at a Treatment, Storage and Disposal Facility in compliance with RCRA.

### Vegetation and Wetlands

If the crude oil pipeline is realigned to follow Hwy 23 instead of the railroad grade as discussed in the FEIS, different wetland and riparian resources would be impacted. The National Wetlands Inventory map shows similar wetland and riparian resources for both routes. The types of wetlands impacted would be similar and the extent (acres) of impacts (construction disturbance) would be comparable to the analysis of wetlands and vegetation impacts analyzed in the FEIS.

### Wildlife, Threatened and Endangered Species

EPA has not identified any potential impacts to wildlife, threatened and endangered species from the Bakken feedstock refinery that would be different from the potential impacts from the synthetic fuels refinery, as disclosed in the FEIS. EPA's "no effect" finding for issuance of the NPDES permit remains valid.

### Climate Change

The addition of several new refinery units to accommodate refining of Bakken crude will increase greenhouse gas emissions. However, the greenhouse gas emissions estimate in the FEIS was not based on actual modeled emissions from the refinery, given the uncertainties associated with the refinery design. The FEIS estimate was based on a similarly sized petroleum refinery operating in Canada. Since the estimate is not specific to the design of the refinery, but rather size, and since the size has not changed, the estimated emissions would be similar to those estimated in the FEIS.

### Environmental Justice and Socioeconomics

The Environmental Justice (EJ) analysis in the FEIS determined that there would be no disproportionate adverse impacts from the proposed refinery. Based on EPA's evaluation of impacts associated with refining Bakken crude, the conclusion reached in the FEIS remains valid.

Although there would be increases of air emission from the refinery, no EJ communities or other residents are located immediately adjacent to the refinery and only six residences are located within a one-mile radius of the proposed facility. As described on page 4-125 of the FEIS, there will be negligible human health impacts to the closest towns to the proposed refinery (Makoti and Plaza), and no impacts to towns further way such as Parshall and Ryder.

Socioeconomic impacts from the proposed refinery will continue to be a mix of positive and negative impacts as described in the FEIS. However, because the Tribes and Tribal members own some of the local Bakken oil that would be used as feedstock, there will be increased profitability for the Tribes and Tribal members.

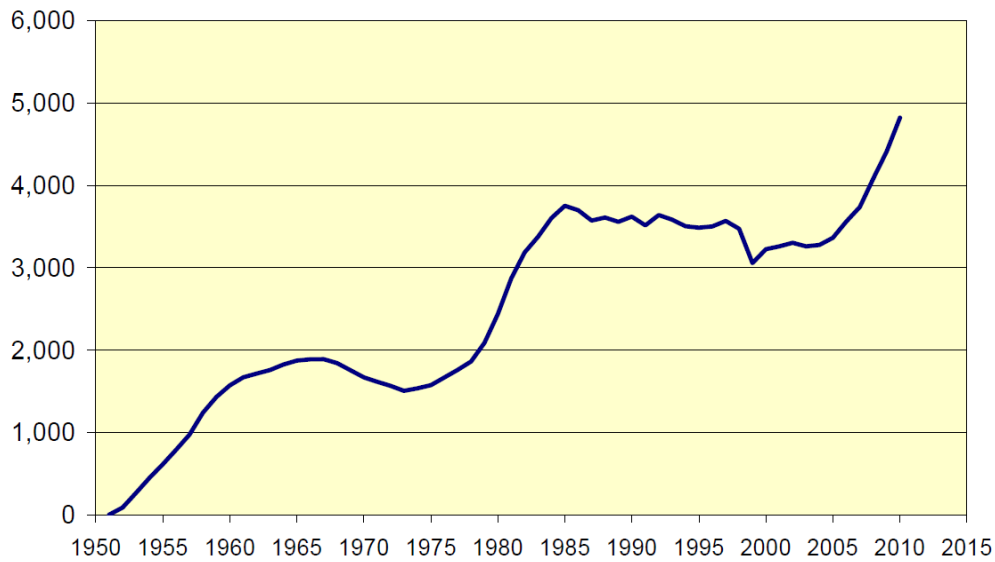
Baseline economic conditions used in the FEIS EJ and socioeconomic analyses have improved for the area through increased employment opportunities and mineral royalties for the Tribes and other owners of mineral rights. Tribal and state information releases and newspaper stories have described the improved employment situation for this area of North Dakota and the Fort Berthold Indian Reservation. The 2000 census was the primary source of demographic information used in the FEIS analysis. Comparable 2010 census data for the EJ analysis area is not yet available from the Census Bureau. Tables 5 and 6 show the changes in unemployment rates for North Dakota and the counties surrounding the refinery since the 2006.

<b>Unemployment Rates - Annual Average by Year</b>		
(Source: US BLS)	2006	2010
ND	3.2 %	3.9 %
Rank by State	7	1
U.S.	4.6 %	9.6 %

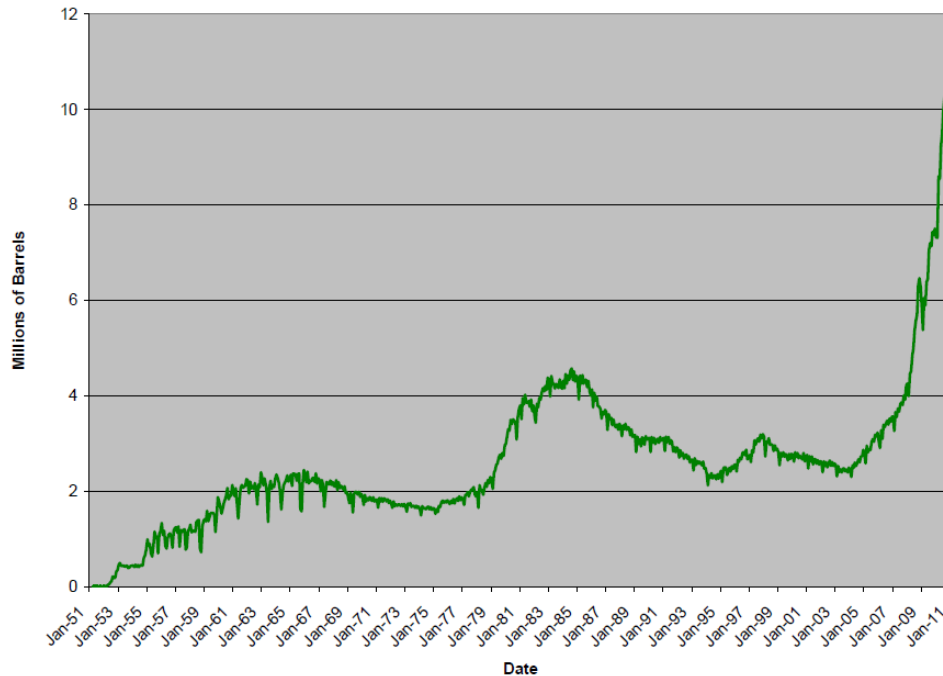
<b>Unemployment Rates – by County Annual Average</b>			(Source: US BLS)	
County	<b>2006</b>		<b>Feb 2010 - March 2011</b>	
	Unemploy. Rate	Labor Force	Unemploy. Rate	Labor Force
Ward (Minot, Makoti & refinery site)	3.1 %	28,646	3.1 %	29,240
Mountrail (Parshall, New Town & Stanley)	6.0 %	2,903	2.4 %	5,119
McLean (White Shield & Washburn)	4.5 %	4,653	4.7 %	4,588
McKenzie (Watford City & Mandaree)	3.2 %	2,809	1.9 %	3,662
Dunn (Killdeer & Twin Buttes)	3.3 %	1,730	2.8 %	2,171
Mercer (Beulah)	3.8 %	4,764	4.7 %	3,936

## VI. Bakken Oil Fields Development

In the last five years, there has been a large increase in oil and gas drilling and production in eastern Montana and western North Dakota, including on the Fort Berthold Indian Reservation. Figure 3 illustrates the number of producing wells per year in North Dakota. Since 2005, the number of producing oil wells in North Dakota has increased from 3503 wells to 5455 in 2010. The majority of the new wells have targeted the Bakken and Three Forks formations. Figure 4 illustrates the historic increase in monthly oil production in North Dakota, and highlights the substantial growth in this production since 2007.



**Figure 3 - ND # of wells producing each year** [Source: NDIC]



**Figure 4 - ND Historical Monthly Oil Production [Data from NDIC ]**

The FEIS generally discussed the oil and gas development in the Bakken oilfield through 2005 and included background air quality information through 2008. The additional Bakken oilfield development will affect the environment in a similar manner to historic development; however, the numbers of oil wells and drill rigs have increased dramatically. Potential impacts associated with the Bakken oilfield include:

- Increased potential for impacts to groundwater resources through improper well construction, hydraulic fracturing and well closure;
- Increased water consumption for hydraulic fracturing practices.
- Increased sediment loadings to lakes, streams wetlands from increased runoff from construction sites, well pads and dirt roads;
- Increased injection of produced water from oil production
- Increased water quality impacts from spills from wells, pipelines and transportation accidents;
- Changes in stream and wetland hydrology due to increased rates of runoff and construction of well/tank pads and impoundments;
- Increased disturbance of soils and vegetation from construction of well pads, tank batteries, pipelines, and additional or expanded roads;
- Increased disturbance of wetlands and riparian habitat from construction of well pads, tank batteries;
- Increased disturbance of wildlife habitat due to construction, noise and traffic;
- Increased air emissions from drill rigs, oilfield installations such as heater-treaters, and tank batteries;
- Increased dust from more traffic on dirt and paved roads;
- Increased traffic for roads, highways and rail;

- Increased need for emergency response for fires, oil spills, industrial accidents and traffic accidents;
- Increased population;
- Reduced unemployment, more jobs, increased wages; and
- Increased housing costs, housing shortages.

The BIA has been completing environmental assessments (EAs) to address their NEPA responsibilities for oil and gas development on the Fort Berthold Indian Reservation. Since 2008, there have been over 100 EAs (ranging from 1 to 20 wells per EA) prepared for over 550 exploratory oil and gas wells on Fort Berthold. The BIA recently released a second scoping notice (the first scoping notice was issued in 2008) for the Fort Berthold Oil and Gas Development Programmatic EA, which it intends to be used as a five year planning document to facilitate oil and gas development on the Reservation. There are approximately 260 producing oil wells on the Fort Berthold Indian Reservation as of September 2010. [North Dakota Industrial Commission (NDIC) GIS data, April 2011]

The Bureau of Land Management (BLM) has prepared environmental assessments for each Field Office in western Montana and North Dakota to analyze the impacts of greenhouse gas emissions from oil and gas development. The North Dakota Field Office of the BLM is currently preparing a revision to their Resource Management Plan which will include analysis of the environmental impacts of the continued development of the Bakken oilfield. BLM's air quality impact analysis, including a cumulative impacts analysis, is scheduled to be completed by the summer of 2011.

## **VII. Conclusion**

This SIR summarizes EPA's analysis of whether the impacts associated with refining Bakken crude, beyond the refinery-related impacts already analyzed in the FEIS, are significant enough to warrant preparing a supplemental EIS. EPA considered the following criteria:

- Are there any new, substantial environmental impacts from the project?
- Are there any new resources or issues with significant impacts to the human environment which were not considered in the EIS?
- Do the proposed project changes substantially change the environmental impacts or the methodologies needed to analyze the environmental impacts?

After considering the above criteria and the regulation at 40 C.F.R. § 1502.9(c), EPA finds that a Supplement to the FEIS is not warranted. After a thorough interdisciplinary review, we find that a change in feedstock to Bakken crude as compared to the refinery using synthetic crude will not significantly change the proposed action or its impacts.

## **Appendices**

1. Addendum, Air Quality Technical Report for the FEIS for the MHA Nation Proposed Clean Fuels Refinery Project, March 9, 2011
2. EPA letter to MHA Nation dated May 9, 2011, regarding Applicability of Clean Air Act Requirements for the MHA Nation Refinery
3. Air Quality Modeling Update for the FEIS for the MHA Nation Proposed Clean Fuels Refinery Project, June 6, 2011
4. Air Dispersion Modeling Analysis of Uncontrolled SO<sub>2</sub> Emissions, July 12, 2011
5. NDDOT Memorandum regarding Highway 23 Corridor, Turn Lane Request, November 10, 2009
6. Map --Traffic Counts 2002-2010 for North Dakota Highway 23