Enerplus - Various Well Sites
Partial Compliance Evaluation (PCE)
On-Site Clean Air Act (CAA) Inspections

Inspection Date:	June 12 – 15, 2023
Inspection Report Date:	July 24,2023
EPA Representatives:	Alexis North, Katelyn Bergl, Youn Joo Kim
Tribal Representatives:	Dwight Bruce, Jr Talon Two Crow
Company Representatives:	None onsite during inspections.
Inspection Report Prepared By:	Alexis North
Inspection Report Reviewed By:	Katelyn Bergl, Youn Joo Kim, Scott Patefield
Applicable Rules:	Federal Implementation Plan for Oil and Natural Gas Well Production Facilities; Fort Berthold Indian Reservation (Mandan, Hidatsa and Arikara Nation), North Dakota (Fort Berthold FIP) Part 60, Subpart OOOOa- Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015 (OOOOa)

SCOTT PATEFIELD
Digitally signed by SCOTT PATEFIELD
Date: 2023.08.14 13:05:53 -06'00'

Compliance Assistance
None

Enforcement History
Consent Agreement Final Order on August 13, 2020, Docket No. CAA-08-2020-0008.

Areas of Concern

1. The EPA detected visible smoke using Method 22 at the following well pads:
   - Enerplus- Igneous Pad
   - Enerplus- Oklahoma Pad
   - Enerplus- Cats Pad
   - Enerplus- Ducks & Hans Pad
   - Enerplus- Spiders Pad

2. The EPA detected unburned hydrocarbon (UBHC) emissions from operating utility flares at the following well pads:
   - Enerplus- Metals East
   - Enerplus- Igneous Pad
   - Enerplus- Metamorphic Pad
   - Enerplus- Oklahoma Pad
   - Enerplus- Windom Pad

- Enerplus- Ducks & Hans Pad

See Table 1 below for more details regarding inspected locations and Tables 2 & 3 for inspection details for all pads.

General Source Information

Unannounced well site inspections were conducted jointly by U.S. EPA and Fort Berthold Indian Reservation (FBIR) Tribal inspectors (inspectors) on June 12-15, 2023, at multiple Enerplus facilities located on the FBIR.

The EPA evaluated each Enerplus well site listed in Table 1 using audio, visual, and olfactory (AVO) inspection methods including the use of an optical gas imaging (OGI) camera and EPA Reference Method 22. At each facility, inspectors scanned the crude and/or water storage tanks, closed vent system and flares onsite for any detectable emissions. Specifically, inspectors scanned storage tank covers and closed vent systems for hydrocarbon emissions to determine compliance with the regulations listed below.

EPA's geospatial mapping of air pollution (GMAP) van also collected data using OGI and air sampling equipment at Enerplus facilities from June 12-15, 2023. Data collected and observations made by GMAP EPA personnel are also included in this inspection report, where relevant and when available.

Table 1 lists well pad specifics for each inspection including latitude/longitude location as well as time of entry. The well information located in the tables below is from the North Dakota Industrial Commission (NDIC) well index located online at https://www.dmr.nd.gov/oilgas/.

Table 1: List of Facilities Inspected June 12-15, 2023

Pad Name	Latitude	Longitude	Inspection Date	Time In
Baker/Biron Pad- Baker 29-31H, 20-34H, Biron 20-24H	47.70375	-102.482	6/13/2023	8:04
Cactus Pad- Ocotillo, Wooly Torch, Sauaro, Desert rose, Euphorbia, Cacuts, Rebutia	47.68783	-102.421	6/13/2023	11:38
Spiders- Huntsman, Blackwidow, Spider, Cobweb, Tarantula, Trapdoor, Orbweaver, Recluse	47.67499	-102.484	6/13/2023	12:44
Metals East- Nickel, Lead, Titanium, Tungsten, Cobalt, Steel, Zinc, Platinum	47.55936	-102.529	6/14/2023	12:05
Igneous- Scoria, Basalt, Andesite, Granite, Gabbro, Ryolite, Diorite, Pumice	47.557581	-102.544247	6/14/2023	12:23
Metamorphic- Argillite, Slate, Mylonite, Hornfels, Amphibolite	47.55843	-102.549	6/14/2023	12:40
Oklahoma- FB 148-94-36D-25-2H, 148-94-36D-25-11H, 147-94-1A-12-2H, 148-94-36D-25-10H, 149-94-1a-12-12h, 147-94-1A-12-11H	47.58675	-102.636	6/14/2023	13:04
Ethan Hall- Ethan Hall 6B-31-30-1H, 6B-7-1H, Dance Hall, Town Hall,	47.5877	-102.582	6/14/2023	13:18

Anna G Baker 6B-30-2H-TF, 6B-7-2HTF				
Cats- Persian, Siamese, Tabby, Manx, Bengal, Calico	47.58638	-102.572	6/14/2023	13:33
Windom- FB 148-94-36C-25-4H, 148-94-36C-25-5H, 148-94-36C-25-6H, 148-94-36C-25-7H, 148-94-36C-25-8H, 147-94-1B-12-4H, 147-94-1B-12-5H, 147-94-1B-12-6H, 147-94-1B-12-7H, 147-94-1B-12-8H, 147-94-1B-12-13H	47.58987	-102.6	6/14/2023	14:10
Ducks & Hans- Muscovy 148-93-20A-29H-TF, Daffy 148-93-20A-29H, Mallard 148-93-20B-29H-Tf, Canvasback 148-93-20B-29H, Dewey 148-93-20B-29H-TF, Scrooge 148-93-20B-29H-TF, Hans 20-+21H	47.63088	-102.561	6/14/2023	14:54
Furbearer East Pad- Badger, Bobcat, Coyote, Fox, Mink, Muskrat, Prairie Dog, Racoon	47.84872	-102.716	6/15/2023	10:00
James Pad- FB James 150-94-3A10-6B, 7T, T2, 9B, 10T, 11B	47.84635	-102.699	6/15/2023	10:28
Bugs Pad- Beetle, Lady Bug, Wasp	47.82309	-102.683	6/15/2023	11:26

Tables 2 and 3 at the end of this report include the inspections details. Table 2 includes well head counts and storage tank details. Table 3 contains control device and AVO observations. Each well pad inspection followed the approach below:

1. Park on the well pad.
2. Make notations on the site operation including the number of each major type of site process equipment present (e.g., total number of storage tanks, number of oil tanks, number of water tanks, number of tank emission control devices).
3. Note any AVO indications of emissions from the storage tanks closed vent system and control devices.
4. Survey the site operations in infrared modes (auto, manual, and/or high-sensitivity modes), looking for emissions escaping the storage tank closed vent system, and control devices.
5. Observe control devices (enclosed combustor or utility flare) for visible emissions.

Fort Berthold FIP Applicability

Based on drilling information reported to the NDIC well index by Enerplus the facilities listed in Table 1 were completed after the August 12, 2007, applicability date (per 40 C.F.R. § 49.4161) and are producing from the Bakken Pool (per 40 C.F.R. § 49.4163(a)(1)) and are thus subject to the Fort Berthold FIP.

Closed Vent System Equipment Requirements [§49.4165(b)]

Per 49.4165(b)(1), "Each closed-vent system must route all produced natural gas and natural gas emissions from production and storage operations to the natural gas sales pipeline or the control devices…". The EPA, using an OGI camera, did not detect natural gas emissions from production and storage tanks at the fourteen well pads evaluated.

Utility Flare Requirements [§49.4165(c)]
Per 49.4165(c)(6)(vi), "The owner or operators must ensure that each enclosed combustor and utility flare is maintained in a leak-free condition." The EPA, using an OGI camera, did not detect emissions at the fourteen well pads evaluated.

Per 49.4165(c)(6)(vii), "The owner or operator must ensure that each enclosed combustor and utility flare is operated with no visible smoke emissions." Per 49.4166(g)(3) and EPA Reference Method 22, the EPA noted black smoke emissions at five out of fourteen well pads evaluated. See Area of Concern #1 above.

Per 49.4165(c)(1), "For each enclosed combustor or utility flare, the owner or operator must follow the manufacturer's written operating instructions, procedures and maintenance schedule to ensure good air pollution control practices for minimizing emissions." The EPA noted UBHC emissions indicating poor air pollution control practices from lit flares at six out of fourteen well pads evaluated. See Area of Concern #2 above.

NSPS OOOOa Applicability
Based on Enerplus's NSPS OOOOa annual reporting, nine of the fourteen oil and natural gas production facilities identified in Table 1 are subject to requirements for storage vessel affected facilities in NSPS OOOOa:

- Cactus
- Spiders
- Metals East
- Igneous
- Metamorphic
- Oklahoma
- Cats
- Windom
- Ducks & Hans

Closed Vent System Equipment Requirements [§60.5411a(c)]
Per 60.5411a(c)(1), owners and operators must "Design the closed vent system to route all gases, vapors, and fumes emitted from the material in the storage vessel to a control device that meets the requirements specified in § 60.5412(c) and (d), or to a process." The EPA observed no emissions from the closed vent systems at nine facilities listed above.

Control Device Requirements [§60.5412a(d)]
Per 60.5412a(d)(1)(iii), owners and operators must, "Operate the combustion control device with no visible emissions, except for periods not to exceed a total of 1 minute during any 15-minute period." The EPA observed black smoke continuously for more than a minute (per Method 22) at the Igneous, Oklahoma, Cats, Ducks & Hans, and Spider well pads. See Area of Concern #1 above.

Table 2: Inspection Details: Well Head Count and Storage Tanks				
Pad Name	# Well Heads (WH)	# Total Storage Tanks	Tank Emissions Observations	File ID
Baker/Biron Pad- Baker 29-31H, 20-34H, Biron 20-24H	3	12		
Cactus Pad- Ocotillo, Wooly Torch, Sauaro, Desert rose, Euphorbia, Cactus, Rebutia	7	5		
Spiders- Huntsman, Blackwidow, Spider, Cobweb, Tarantula, Trapdoor, Orbweaver, Recluse	6	8		
Metals East- Nickel, Lead, Titanium, Tungsten, Cobalt, Steel, Zinc, Platinum	6	10		
Igneous- Scoria, Basalt, Andesite, Granite, Gabbro, Ryolite, Diorite, Pumice	9	16		
Metamorphic- Argillite, Slate, Mylonite, Hornfels, Amphibolite	5	7		
Oklahoma- FB 148-94-36D-25-2H, 148-94-36D-25-11H, 147-94-1A-12-2H, 148-94-36D-25-10H, 149-94-1a-12-12h, 147-94-1A-12-11H	6	16		
Ethan Hall- Ethan Hall 6B-31-30-1H, 6B-7-1H, Dance Hall, Town Hall, Anna G Baker 6B-30-2H-TF, 6B-7-2HTF	6	18		
Cats- Persian, Siamese, Tabby, Manx, Bengal, Calico	6	10	GMAP Observed leaking HC from the "Persian" well	
Windom- FB 148-94-36C-25-4H, 148-94-36C-25-5H, 148-94-36C-25-6H, 148-94-36C-25-7H, 148-94-36C-25-8H, 147-94-1B-12-4H, 147-94-1B-12-5H, 147-94-1B-12-6H, 147-94-1B-12-7H, 147-94-1B-12-8H, 147-94-1B-12-13H	11	15		
Ducks & Hans- Muscovy 148-93-20A-29H-TF, Daffy 148-93-20A-29H, Mallard 148-93-20B-29H-Tf, Canvasback 148-93-20B-29H, Dewey 148-93-20B-29H-TF, Scrooge 148-93-20B-29H-TF, Hans 20-+21H	7	10		
Furbearer East Pad- Badger, Bobcat, Coyote, Fox, Mink, Muskrat, Prairie Dog, Racoon	14	28	No emissions	

James Pad- FB James 150-94-3A10-6B, 7T, T2, 9B, 10T, 11B	8	12	No emissions	
Bugs Pad- Beetle, Lady Bug, Wasp	3	6	No emissions	

Table 3: Inspection Details: Control Devices and AVO					
Pad Name	Combustion Device (CD) Type	Visible flame CD?	AVO and/or IR Observations	File ID	Smoke from CD?
Baker/Biron Pad- Baker 29-31H, 20-34H, Biron 20-24H	1 air assisted steffes	Yes	Continuous flaring was observed.		
Cactus Pad- Ocotillo, Wooly Torch, Sauaro, Desert rose, Euphorbia, Cacuts, Rebutia	3 air assisted hi/lo steffes	Yes	Continuous flaring and intermittent black smoke observed from all three flares		Yes
Spiders- Huntsman, Blackwidow, Spider, Cobweb, Tarantula, Trapdoor, Orbweaver, Recluse	3 HP steffes	Yes	Single pronged HP steffes flares were continuously flaring with continuous black smoke.		Yes
Metals East- Nickel, Lead, Titanium, Tungsten, Cobalt, Steel, Zinc, Platinum	1-hP 3-pronged flare 1-hi/lo air assisted flare	Yes	Observed a trailing plume of UBHC from both flares.	MOV_0210	
Igneous- Scoria, Basalt, Andesite, Granite, Gabbro, Ryolite, Diorite, Pumice	1-hP 3-pronged flare 1-hi/lo air assisted flare	Yes	Observed a trailing plume of UBHC and continuous black smoke for >1 minute per Method 22 from the hi/lo air assisted flare. Inspectors also smelled a strong, intermittent smell of hydrocarbon.	MOV_0212	Yes
Metamorphic- Argillite, Slate, Mylonite, Hornfels, Amphibolite	1-hP 3-pronged flare 1-hP air assisted flare	Yes	1.UBHC observed from lit prong on the 3-pronged flare. 2. Continuous trailing plume of UBHC observed from hP air assisted flare.	1. MOV_0214 2. MOV_0215	
Oklahoma- FB 148-94-36D-25-2H, 148-94-36D-25-11H, 147-94-1A-12-2H, 148-94-36D-25-10H, 149-94-1a-12-12h, 147-94-1A-12-11H	1 hi/lo air assisted Steffes	Yes	Observed a moderate trailing plume of UBHC and continuous black smoke for >1 minute per Method 22 from the hi/lo air assisted flare. The flame zone was observed to be 1500 degrees.	MOV_0218	Yes
Ethan Hall- Ethan Hall 6B-31-30-1H, 6B-7-1H, Dance Hall, Town Hall, Anna G Baker 6B-30-2H-TF, 6B-7-2HTF	3 hi/lo air assisted Steffes flares	Yes			

Cats- Persian, Siamese, Tabby, Manx, Bengal, Calico	2 hP air assisted Steffes flares	Yes	At the 1-pronged flare, continuous black smoke for >1 minute per Method 22 was observed.		Yes
Windom- FB 148-94-36C-25-4H, 148-94-36C-25-5H, 148-94-36C-25-6H, 148-94-36C-25-7H, 148-94-36C-25-8H, 147-94-1B-12-4H, 147-94-1B-12-5H, 147-94-1B-12-6H, 147-94-1B-12-7H, 147-94-1B-12-8H, 147-94-1B-12-13H	1-lP air assisted flare 1-hi/lo air assisted flare	Yes	Continuous trailing plume of UBHC observed from hi/lo air assisted flare.	MOV_0224	
Ducks & Hans- Muscovy 148-93-20A-29H-TF, Daffy 148-93-20A-29H, Mallard 148-93-20B-29H-Tf, Canvasback 148-93-20B-29H, Dewey 148-93-20B-29H-TF, Scrooge 148-93-20B-29H-TF, Hans 20-+21H	1-hP air assisted flare 1-hi/lo air assisted flare	Yes	Continuous trailing plume of UBHC and black smoke for >1 minute per Method 22 observed from hP air assisted flare.	MOV_0226	Yes
Furbearer East Pad- Badger, Bobcat, Coyote, Fox, Mink, Muskrat, Prairie Dog, Racoon	3 flares, 2 flares, 3 flares	Yes		IR_3312, DC_3313, IR_3314, IR_3318 DC_3319	
James Pad- FB James 150-94-3A10-6B, 7T, T2, 9B, 10T, 11B	1 air assisted steffes, 1 tall steffes	Yes		IR_3321, DC_3322	
Bugs Pad- Beetle, Lady Bug, Wasp	1- double hi/lo steffes 1- three pronged steffes	Yes	Flames present	IR_3335, DC_3336	