

From: [Stoffel, Jared](#)
To: [Eads, Cristina, EMNRD](#)
Cc: [Wiley, Joe](#)
Subject: Indian Basin (NAB1927162165 NATURAL GAS PIPELINE INDIAN BASIN LINE @ L-36-17S-27E 0N 0E) Remediation Approach and Extension Request
Attachments: [image001.png](#)
[Indian Basin Workplan.pdf](#)

Cristina,

After re-evaluation of the Indian Basin Release Site remediation, Natural Gas Pipeline Company of America (NGPLA) wishes to propose a different approach. Some site-specific items that will help give context to our plan are outlined below, and the previously approved Work Plan is attached to this email for reference. Please let us know if you concur with all parts of our plan, or if you would request any modification.

- Brief Site Review

- The area designated for remediation, where initial delineation sampling indicated TPH impacted soil was located, is approximately 76,000 square feet.
- Results of soil analytical testing indicate the affected depth, where initial delineation sampling indicated TPH impacted soil was located, is from the land surface to less than 1 foot below the land surface. No NMOCD regulatory guideline exceedances were reported for any soil samples collected at the 12" depth, except at the SS-5 sample location at the south end of the investigation area.
- In the area where the SS-5 sample was collected, 2010 and prior satellite imagery shows the presence of an above ground storage tank battery. The nature of the Indian Basin Pipeline release (aerial spraying of liquids from a natural gas pipeline, which subsequently settled on the land surface) does not provide a mechanism for hydrocarbon impact at depth. As such, the hydrocarbon detections in soils in the SS-5 location beneath 12 inches in depth cannot be considered to be associated with this release. The impacts in the SS-5 area below a depth of 12 inches are most certainly related to the historical activities at this tank battery. Accordingly, only the surface (0-1' interval) will be addressed in this area.
- Based on the affected area footprint and depth, the estimated volume of impacted soil is approximately 2,820 cubic yards.
- During a January 2021 confirmation soil sampling event, each 2019 soil sample location which had exhibited TPH impact during the delineation phase was resampled for TPH analysis and also for chlorides. At each location, chloride concentrations were below regulatory guidelines except at the SS-16 sample location (northernmost sample location inside the affected area). At the time of this sample event, field staff noticed a monument marking the location of an abandoned production well in the area of SS-16 (photo attached). It is likely that post-remediation confirmation soil samples collected from this area will exhibit chloride concentrations above regulatory guidelines due to historical well activity in this area. NGPLA maintains that the elevated chloride concentrations, which appear at this time to be isolated to the northernmost end of the affected area around the plugged and abandoned well, are unrelated to the Indian Basin Pipeline release and will not be addressed by NGPLA, as they are related to another operator's historical activities. Chloride analysis will, however, be included in

the post-remediation confirmation sampling.

- NGPLA proposes to remediate documented hydrocarbon impacts inside the remediation area utilizing MicroBlaze[®] solution. MicroBlaze is approved by the EPA for use in soil remediation.
 - MicroBlaze manufacturer application instructions state that 1 gallon of concentrate treats 5 – 7 cubic yards of impacted soil, and the concentrate should be diluted to create a solution between 3% and 10%
 - The target depth of remediation is less than 1 foot. At a 1-foot thickness, one cubic yard = 3 square yards: therefore, 1 gallon of concentrate treats 15 to 21 square yards
 - The 76,000 square foot remediation area equals 8,445 square yards. Assuming the more conservative application rate of 1 gallon of MicroBlaze per 5 cubic yards (15 square yards to 1-foot depth), 563 gallons of MicroBlaze concentrate will be needed.
 - The MicroBlaze solution for this application event will be a mixture of 660 gallons (2 totes) of MicroBlaze concentrate combined with approximately 7600 gallons of commercially sourced water, which will yield 8,260 gallons of MicroBlaze solution at a concentration of approximately 8%.
 - An application rate of approximately 1 gallon of MicroBlaze solution per square yard will be applied to the affected area.

- The proposed remediation would follow the below generalized schedule:
 - Apply Microblaze –No mechanical mixing or tilling, and trailer mounted sprayers pulled by trucks will be utilized to minimize damage to surface vegetation.
 - Apply Water – Two applications following the MicroBlaze application, which is intended to remobilize microbes to targeted depths.
 - Two water application events
 - Timing of the watering events will be dependent on local weather conditions
 - Approximately 3800 gallons of water sprayed on the remediation area to re-saturate and remobilize microbes from MicroBlaze - from an offsite commercial source during each event
 - Will utilize trailer mounted sprayers pulled by trucks to minimize damage to surface vegetation
 - Collect confirmation soil samples – approximately 2.5 months following the initial MicroBlaze application – MicroBlaze solution has had approximately 2.5 months to remediate the hydrocarbon impacts, with additional vertical mobility facilitated by subsequent watering events
 - Soil samples to be collected on a 1 soil sample per 800 square foot basis (as previously approved for the Site)
 - Soil samples will be collected from the 0-1' bgs depth interval
 - Samples will be analyzed for TPH (GRO, DRO, ORO), BTEX, and chlorides
 - Closure Reporting or Further Remediation
 - If each soil sample (approximately 96 soil samples on a 800 square foot basis over an approximately 76,000 square foot affected area, sampled at the 0-1'

interval) exhibits TPH, BTEX, and chloride concentrations below regulatory guidelines, a closure request will be prepared

- If each soil sample exhibits TPH, BTEX, and chloride concentrations below regulatory guidelines, with the exception of chlorides in areas near the plugged and abandoned well and any other infrastructure not yet noted during site visits, a closure request will be prepared
- If a subset of soil samples exhibit TPH or BTEX concentrations above regulatory guidelines, further remediation will be enacted in the 800 square foot area each sample represents. If elevated chlorides are present in areas other than the vicinity of the plugged and abandoned production well, further investigation as to the source of the concentrations will be conducted.

NGPLA will begin the remediation process with your concurrence. The MicroBlaze application is currently scheduled to be conducted on June 8-10, 2021. At this time NGPLA requests a 90 day extension to enact the remedial plan. Please let me know if you disagree with any part of the plan, as proposed. If you'd like to discuss further, I am available at your convenience. Thank you very much.

Jared Stoffel, P.G.
Project Manager



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