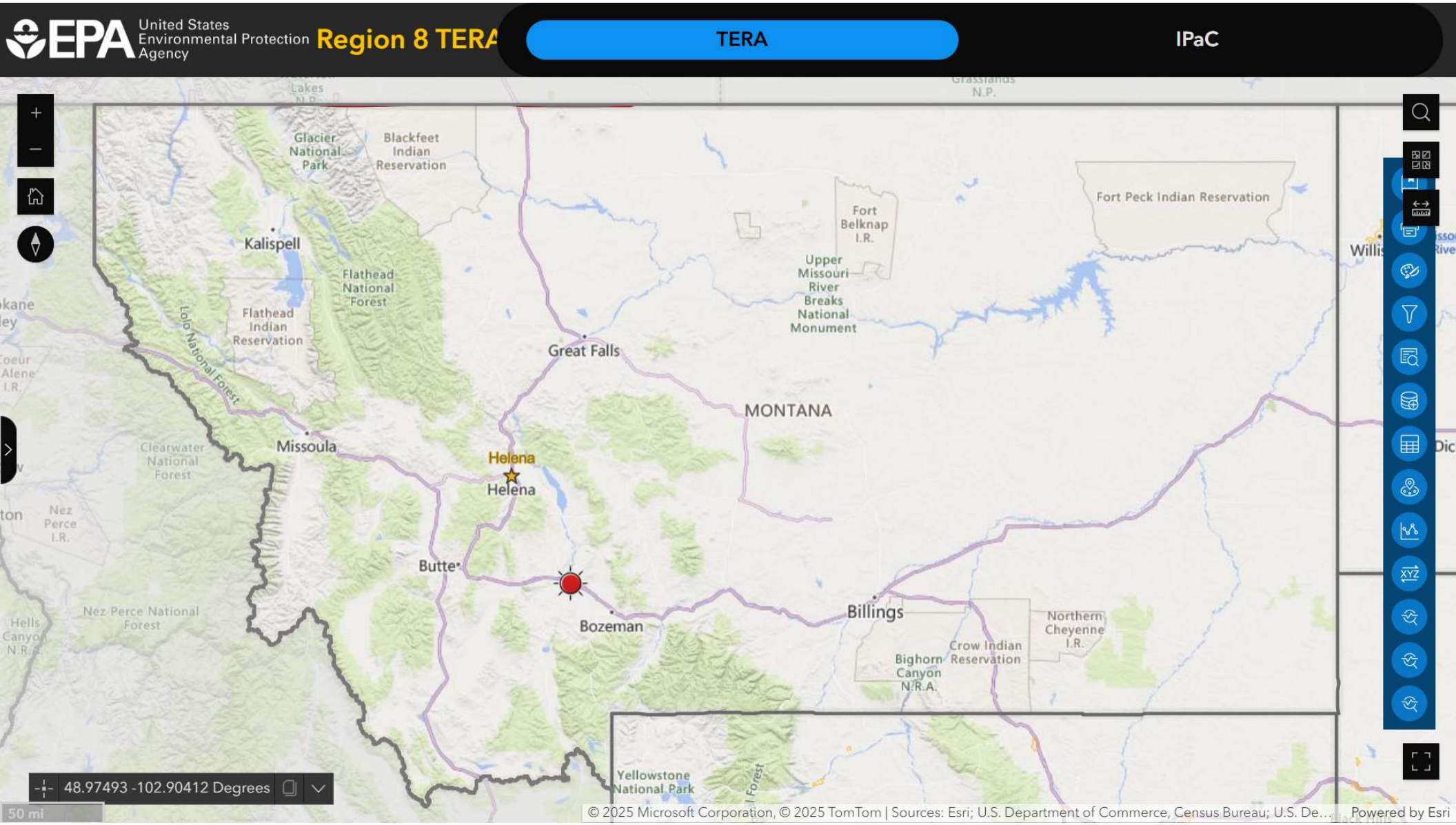
X Terminal FRP: Small, Medium and Worst-Case Discharge Scenarios

Introduction to the X Terminal

- Refined products terminal in Gallatin County, Montana
- WOTUS is Gallatin River <0.25 miles north of facility
- Receives gasoline and diesel shipments from a Billings, MT refinery
- Primary fuel storage in four 24,000 bbl ASTs and eight 1,000 bbl ASTs
- Loads tanker trucks for delivery to fuel stations in SW Montana
- Rail unloading transfer area and truck loading rack
- 24-hr truck loading rack operations; rail unloading during days only
- 3-5 personnel on site during days, but unmanned at night


EPA United States Environmental Protection Agency
Region 8 TERA
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IPaC
Glacier National Park
Blackfeet Indian Reservation
Kalispell
Flathead National Forest
Flathead Indian Reservation
Lolo National Forest
Fort Belknap I.R.
Fort Peck Indian Reservation
Upper Missouri River Breaks National Monument
Great Falls
MONTANA
Missoula
Clearwater National Forest
Helena
Helena
Butte
Nez Perce I.R.
Nez Perce National Forest
Bozeman
Billings
Crow Indian Reservation
Bighorn Canyon N.R.A.
Northern Cheyenne I.R.
Yellowstone National Park
48.97493 -102.90412 Degrees
50 mi
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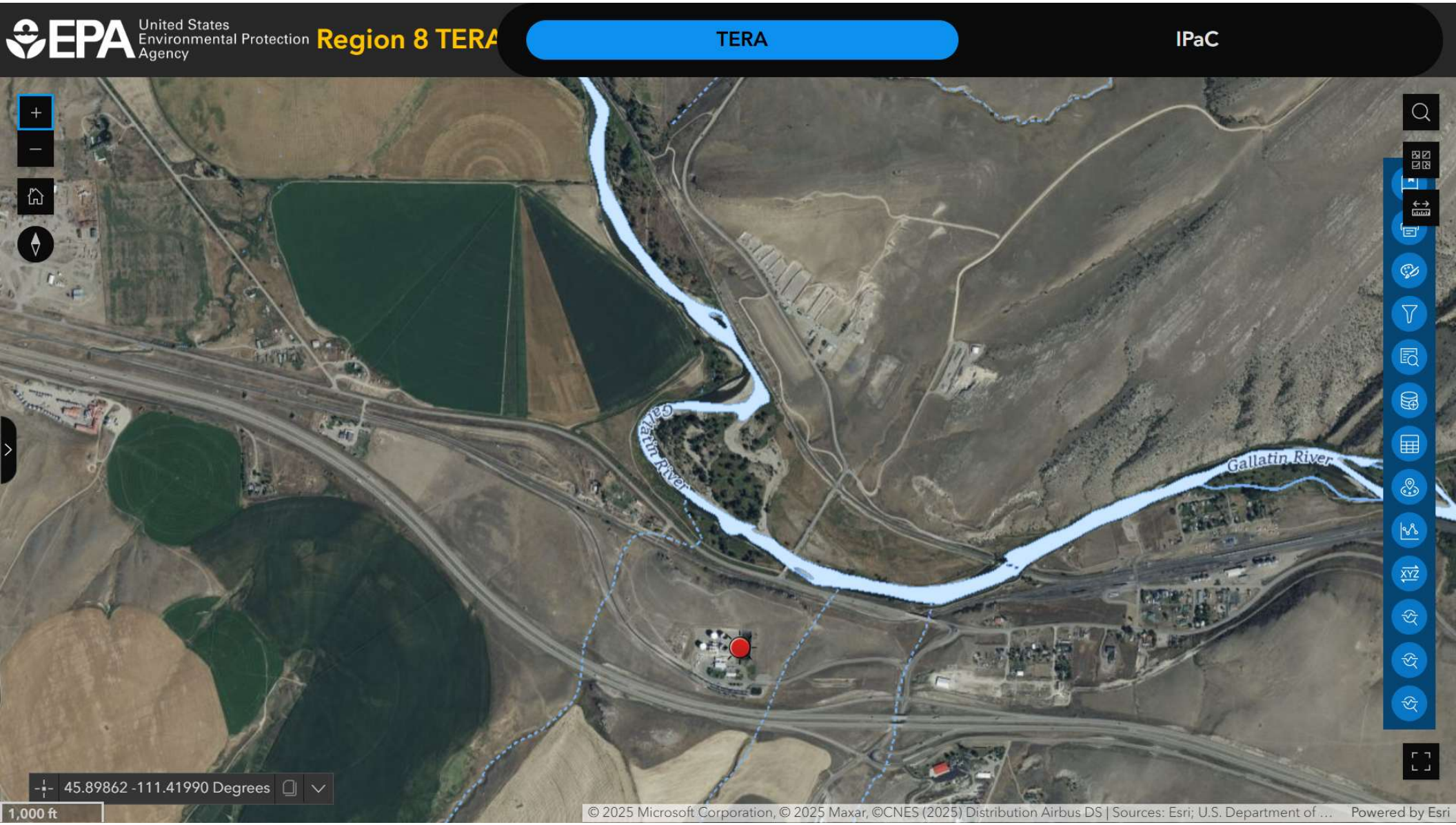
United States Environmental Protection Agency
Region 8 TERA
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Gallatin River
Gallatin River
45.89862 -111.41990 Degrees
1,000 ft
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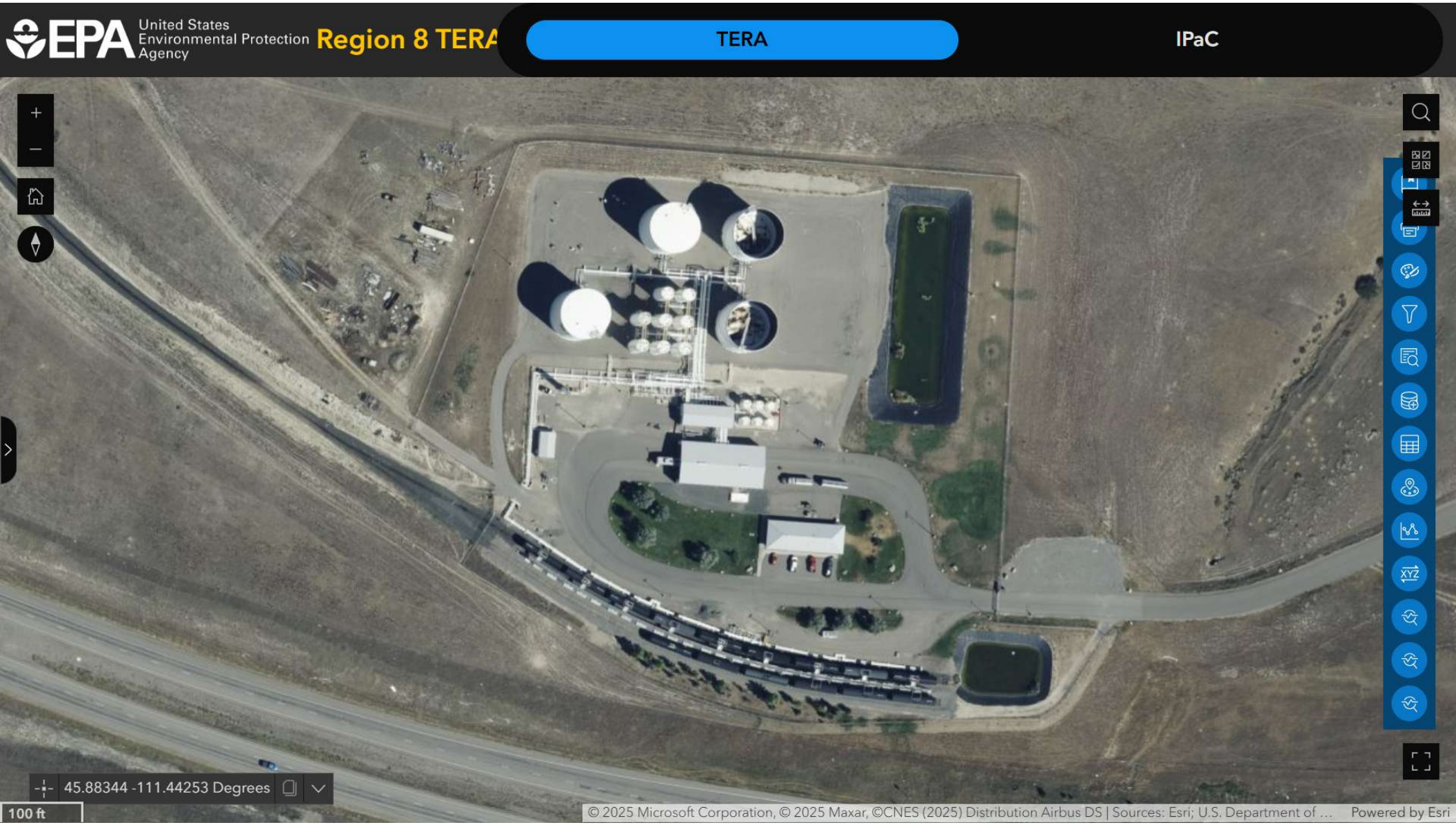
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Region 8 TERA
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45.88344 -111.44253 Degrees
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Small Discharge Scenario

There is potential for small discharges up to 2,100 gallons to occur due to the following:

Discharge Type/Location
Small container rupture
Personnel error during maintenance or oil transfer operations
Leaking hoses/loading arms/connections or truck release at product transfer areas
Leaking pipes, flanges, pumps, or valves in tank farm or other product transfer areas or s
Overfilling of a truck as a result of improper operations

Small Discharge Scenario, Continued

Small Discharge Planning Scenario

Location:	Aboveground Piping between ASTs and Truck Loading Rack
Weather:	Heavy rain, 70°F, early morning.
Personnel:	Limited, 1 truck driver
Incident:	5,000 gallon diesel fuel leak from piping outside of containment. Saturated soil conditions inhibit infiltration of released diesel. Spill exits facility to the northeast, flows overland through dammed drainage that had been compromised, and 2,100 gallons enters roadside ditch.

Medium Discharge Scenario

This size discharge would most likely occur due to a major equipment failure or during product transfer. Examples may include, but are not limited to:

Discharge Type/Location
Pipeline manifold rupture
Small container rupture
Personnel error during maintenance or oil transfer operations
Leaking hoses/loading arms/connections or truck/railcar release at product transfer areas
Ruptured or leaking pipes, flanges, pumps, or valves in tank farm or other product transfer areas
Overfilling of an oil storage tank or truck as a result of improper operations or high tank alarm failure

Medium Discharge Scenario, Continued

Medium Discharge Planning Scenario

Location:	Aboveground Piping Joint between AST and Truck Loading Rack
Weather:	Heavy rain, 70°F, early morning
Personnel:	Limited, 1 truck driver
Incident:	Failure of flange gasket outside of containment releasing 50,000 gallons of gasoline. Saturated soil conditions inhibit infiltration of released gasoline. 40,000 gallons of gasoline exits facility to the northeast, flows overland through the dammed drainage that had been compromised, and 36,000 gallons enters irrigation ditch flowing toward Gallatin River.

Worst-Case Discharge

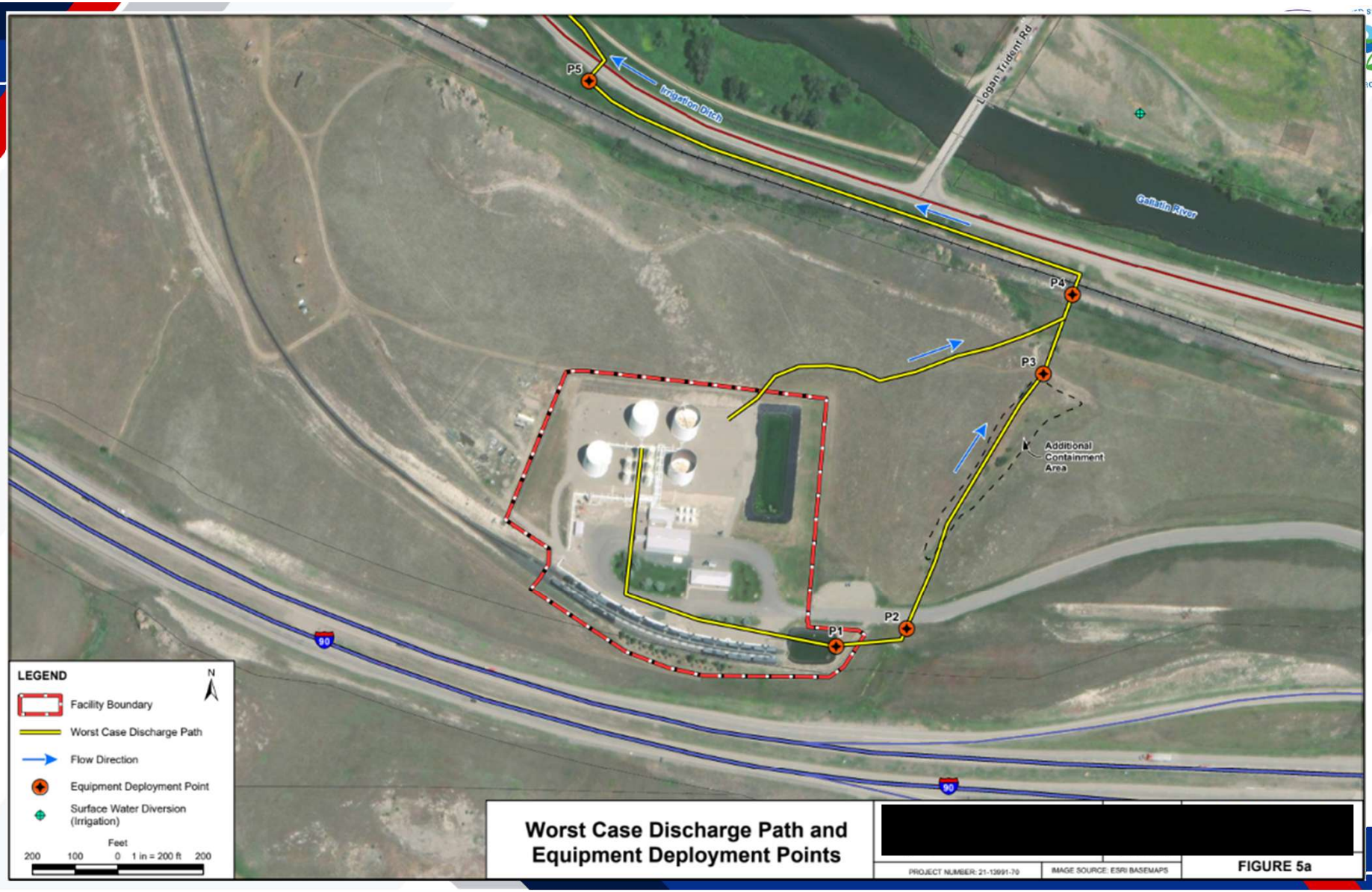
Potential for Worst Case Discharge

Discharge Location	Discharge Volume
AST Rupture (AST 1 - 4)	Up to 80,000 bbl (1,008,000 gallons)

Worst-Case Discharge

Worst Case Discharge Planning Scenario

Location:	AST 2 in Tank Farm
Weather:	Severe thunderstorms, 70°F
Incident:	Catastrophic failure of AST due to strong windstorm. Oil wave overtops then breaches northeast section of containment berm. Oil flows overland on saturated ground, bypassing retention pond and the dammed natural drainage to the east. Oil flows under railroad and Frontage Road, enters irrigation ditch, then Gallatin River.
Personnel:	Fully Staffed
Flow Path:	See Appendix A for the worst-case discharge flow path and identified control points along the determined Planning Distance.



Worst Case Discharge Path and Equipment Deployment Points

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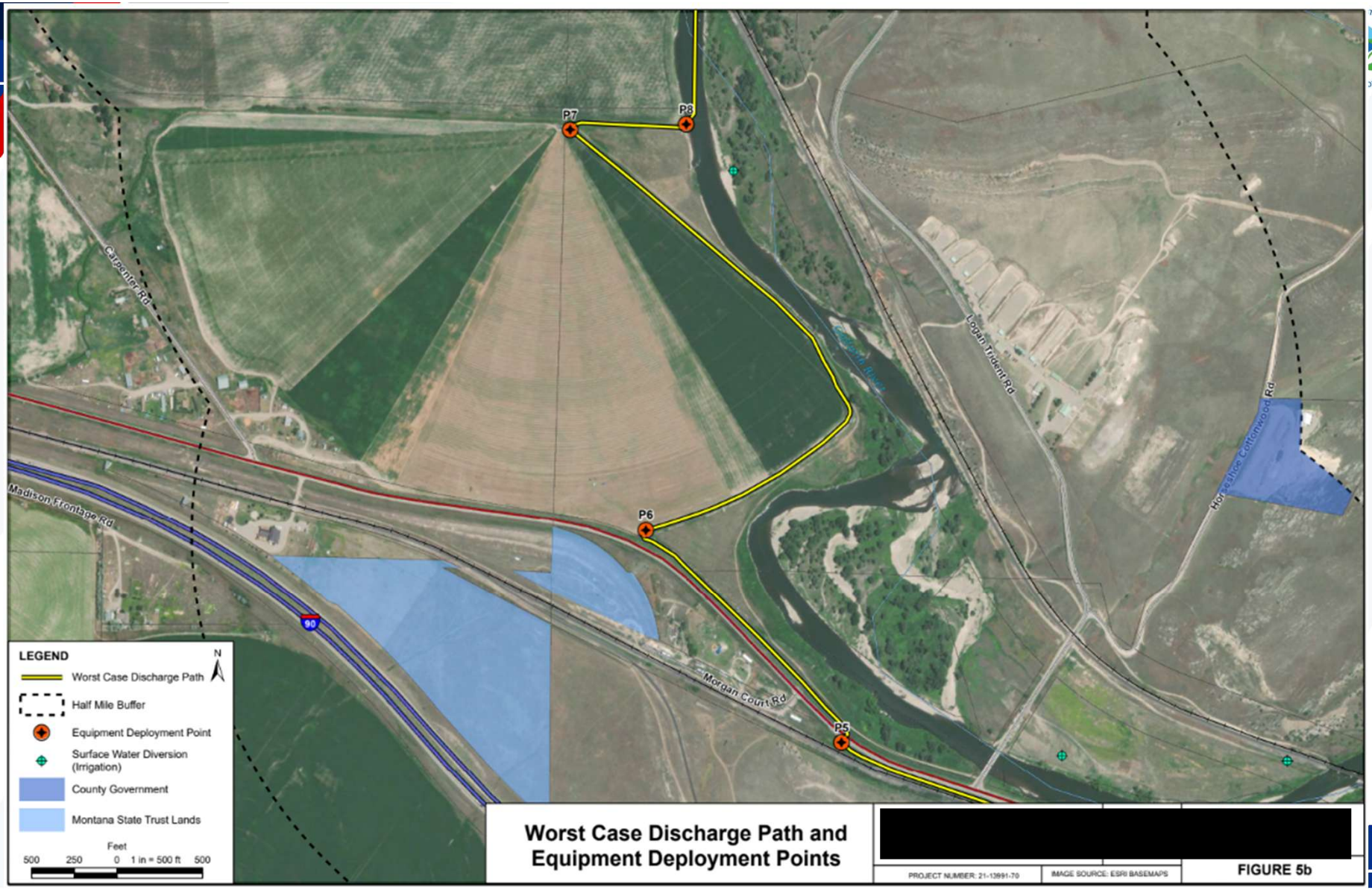
PROJECT NUMBER: 21-13991-70 | IMAGE SOURCE: ESRI BASEMAPS | FIGURE 5a



Worst Case Discharge Path and Equipment Deployment Points

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