United States Department of the Interior

FISH AND WILDLIFE SERVICE
South Dakota Ecological Services
420 South Garfield Avenue, Suite 400
Pierre, South Dakota 57501-5408
(605) 224-8693, southdakotafieldoffice@fws.gov

IN REPLY REFER TO:
2019-EC-0063

September 13, 2019

Mr. Kent Woodmansey
Feedlot Permit Program Administrator
SD Department of Environment and Natural Resources
523 East Capitol Avenue
Pierre, South Dakota 57501

Dear Mr. Woodmansey:

This is in response to the South Dakota Department of Environment and Natural Resources' (DENR) notice to issue National Pollutant Discharge and Elimination System (NPDES) permit coverage for the proposed Ratio, LLC swine operation (Facility) in Hand County, South Dakota. This new Facility is designed to contain 9,060-head of swine consisting of 800-head of swine weighing less than 55 pounds and 8,260-head of swine weighing 55 pounds or more. The proposed manure management system will consist of one gilt development unit barn with a deep pit, one gestation barn with a deep pit, one farrowing barn with shallow pull-plug pits, and a gravity transfer pipe between the farrowing barn and the gestation barn. The designed capacity of the deep pits is for at least 365 days of liquid storage capacity.

The Facility location and allowable number of animal units indicates it would be regulated as a large Concentrated Animal Feeding Operation (CAFO) with the potential to discharge swine waste to public wetlands and waters of the state of South Dakota. Pollutants discharged by CAFOs include pesticides, trace elements, salts, nutrients, bacterial toxins, pathogens, hormones, and antibiotics (EPA 2004). CAFO pollutants enter wetlands by spills, overflows, lagoon ruptures, illegal discharges, field run-off from land application sites, and groundwater seepage as well as permitted discharges during large rain events. The proposed Facility, including its swine manure slurry land application sites, will generate CAFO pollutants that are likely to injure wildlife and their habitat, including two public areas managed for wildlife and recreation. The West Pearl Game Production Area (GPA) and the Cahalan Waterfowl Production Area (WPA) are located less than 370 meters from the Facility buildings. In addition to injury to wetland habitat and water quality degradation, the close proximity of the Facility to these public areas will likely result in a loss of public uses such as hunting and wildlife watching. Please consider our comments and our request to have the Facility located further away from public wetlands to protect their habitat quality and the public services they provide. Instead of covering the Facility under the South Dakota CAFO General Permit, we request that DENR considers requiring an individual permit for this Facility that would allow for site-specific requirements aimed at protecting public wetlands and the species that depend on them.

U.S. FISH AND WILDLIFE SERVICE (SERVICE) CONCERNS AND COMMENTS

Hand County Zoning Hearing.
On August 6, 2019, we attended a Hand County Zoning Board public meeting held for the purpose of hearing a Conditional Use Permit application for the Facility. Besides the land owner and the Facility

management company (Pipestone Systems), all of those that provided oral testimony at the hearing did so in opposition to the Facility. Much of the testimony centered on concerns for water quality degradation and the odors and flies that such a large CAFO would generate. Mrs. Kathy Tyler testified that she lives within ¾ of a mile from a swine CAFO very similar in size and design as the proposed Facility. She testified that she could "smelled the barns 3 miles away" and described the smell from the swine CAFO on her property as "tear-jerking", "nauseating", and "like no other smell." Other testimony she provided for the hearing included pictures of puddled swine slurry on land application sites as evidence of runoff potential. Oral testimony at the hearing also included concerns about how CAFO waste can generate fly infestations. Insect infestations associated with large CAFOs can be a public nuisance to people and a burden to cattle (Purdue University Extension 2007). Information from the hearing, along with our own assessment, gives us concern that the close proximity of the Facility to Cahalan WPA (within 230 meters) will result in wetland habitat degradation as well as a loss of public uses such as hunting, wildlife watching, and photography. Hand County has not yet decided whether to grant a permit for the Facility and may be waiting for further review by DENR.

Buffer Zone Needed to Protect Recreation

The South Dakota CAFO General Permit (DENR 2017) identifies Location Standards (section k pages 10–11). This section establishes "minimum standards the producer shall consider when selecting a site for a new concentrated animal feeding operation" including "to prevent locating an animal feeding operation in an area unsuitable or inappropriate." Although this section lists both recreational areas and wetlands as examples of areas to keep at a safe distance from CAFOs, specific buffer zone widths are not provided. We are also not aware of any Hand County zoning ordinance that specifies a minimum buffer zone to protect public recreational areas and wetlands from large CAFOs. Some counties have established set-backs between public recreational areas and large CAFOs (Purdue University Extension 2016). Standards can also include setbacks from opposing property lines. We recommend that buffer zones for public recreation, wetland health, and opposing adjacent properties be further considered and established prior to DENR granting the Facility coverage under an NPDES permit.

Whooping Crane

The whooping crane (*Grus americana*) is federally listed as endangered under the Endangered Species Act. The proposed Facility is located in the primary Central Flyway migration corridor for the whooping crane. Whooping cranes migrate through South Dakota on their way to northern breeding grounds and southern wintering areas. They occupy numerous habitats such as cropland and pastures; wet meadows; shallow marshes; shallow portions of rivers, lakes, reservoirs, and stock ponds; and both freshwater and alkaline basins for feeding and loafing. Overnight roosting sites frequently require shallow water in which to stand and rest. Disturbance (flushing the birds) stresses them at critical times of the year. Thus, activity at the Facility (trucks, heavy equipment) may preclude the use of nearby wetlands by whooping cranes. Whooping cranes normally do not stay in any one area for long during migration. Any whooping crane sightings should be reported to the Service (see contact information below).

Wetlands

Facility spills, leaks, and land application of manure waste will likely result in pollutant exposure to surface waters including many wetlands in the area (Figure 1). Two public wetlands appear to be within 300 meters of the proposed CAFO buildings (Figures 1 and 2). The West Pearl Game Production Area, located north of the CAFO, is managed by the South Dakota Department of Game, Fish and Parks (SDGFP). Just south of the proposed CAFO is the Cahalan Waterfowl Production Area (WPA), managed by the U.S. Fish and Wildlife Service (Service) Huron Wetland Management District (District). The Nutrient Management Plan (NMP) posted on the Hand County website identifies all five of the CAFO manure land application sites as having a high risk to surface runoff and water quality degradation (Figure 3). Cahalan WPA and West Pearl GPA are down gradient from all of the proposed land application areas,

as well as the private wetlands and drainages contained within them. Thus, we would expect pollutants from CAFO manure land application runoff, as well as discharges from the Facility buildings (permitted or otherwise), to settle within these terminal public wetlands. Previous studies by the Service (Baker *et al.* 1998, Schwarz *et al.* 2004) and others (Burkenholder *et al.* 2007, Bradford *et al.* 2008, Raff and Meyer 2019) report that pollutants from CAFOs contaminate surface waters and soils, leading to wildlife habitat degradation. This contamination can occur despite the recommendations and requirements identified in NMPs and operational or NPDES permits. Evaluating and selecting the appropriate location for CAFOs is a preventative measure that may be required before land applying CAFO manure via a well-designed and executed NMP (Bradford *et al.* 2008).

South Dakota CAFO General Permit

We recognize that the South Dakota CAFO General Permit contains many best management practices (BMPs). However, the majority of these BMPs are voluntary and many of the requirements have exclusions and do not ensure practices will adequately protect wetland habitat, species of conservation need, federally listed species, and state species of concern. Furthermore, there are no monitoring requirements to ensure that voluntary measures and permit requirements are effective in protecting the adjacent wetlands. This is a concern, especially in areas with recent changes within the watershed such as increased use of agricultural tile drainage. Subsurface tile drainage can result in the direct transfer of pesticides and CAFO pollutants into wetlands. Land application of livestock manure to tile drained land, and the subsequent transport of pathogens by subsurface drainage to surface waters, has been identified as a major pathogen transport pathway (Jamieson *et al.* 2002). Tile drained lands that receive manure applications have also been found to transport phosphorus (Geohring *et al.* 2001, King *et al.* 2015), veterinary antibiotics (Kay *et al.* 2004) and estrogens (Burnison *et al.* 2003). We recommend that areas being considered for manure land applications not be tile drained areas and that this condition is stipulated in an individual permit for the Facility.

Prior Further Review Requested

In accordance with the South Dakota CAFO General Permit, DENR conducts a shallow aquifer assessment to determine if a ground water discharge permit and/or ground water monitoring is required. In general, we also encourage DENR to request environmental reviews from SDGFP to determine if new and expanding CAFO projects are detrimental to state listed species or species identified by the State as vulnerable, imperiled or critically imperiled (State ranks Sl–S3). A shallow aquifer assessment by DENR and an environmental review by SDGFP was not conducted prior to the public notice for Facility coverage under the South Dakota CAFO General Permit. Information from such reviews would help inform the Service and the public in preparing comments. Thus, we respectively request that, in the future, such reviews be done prior to public notice.

In summary, the Service has concerns about water and wetland habitat degradation that will likely result from Facility operations. We are concerned that pollutants from the Facility will diminish the habitat value of wetlands, especially the Cahalan WPA that is completely surrounded by manure land application sites and is less than 300 meters from the Facility's buildings. We expect that the close proximity of the Facility to two public wetlands (West Pearl GPA and Cahalan WPA) will also result in a loss of public services (e.g., wildlife watching, hunting, and photography) because of odors and flies.

SERVICE RECOMMENDATIONS

To protect wetlands, wildlife, and the public services provided by West Pearl GPA and the Cahalan WPA we recommend the following actions.

- The Facility should be moved further away from the public areas to protect their use for wildlife habitat and public uses such as wildlife watching and hunting. Based on set-backs between large CAFOs and recreational areas that have been established by others (Purdue University Extension 2016) and the testimony provided at the Hand County hearing for similar sized CAFOs (see above), a minimum buffer zone of one mile may be needed. We recommend further assessment that considers predominant seasonal wind direction and the best available science be completed in advance of DENR granting the Facility coverage under an NPDES permit.

- Vegetated buffers should be maintained between surface waters and Facility operations including land application sites. An effective buffer width should be determined based on acceptable sediment-reduction levels, potential water flow and velocity, landscape and soil variables, buffer species, and vegetation structure (Melcher and Skagen 2005, Grismer *et al.* 2006).

- Submit a request to SDGFP for an environmental review of the South Dakota Natural Heritage Database to identify, within the project area, any species listed under South Dakota's ESA law and species identified by the State as vulnerable, imperiled or critically imperiled (State ranks S1–S3).

- Instead of applying for a General Permit, we recommend that an individual permit be required to allow for site specific permit conditions that include tiling restrictions, specifications for vegetative buffers to address runoff, buffer zones for public recreational areas, and water quality monitoring.

We appreciate the opportunity to provide comments on these permit actions. Should you have any questions regarding these comments, please contact Mr. Matt Schwarz with our office at (605) 224-8693, Extension 232.

Sincerely,

Field Supervisor
North and South Dakota Field Offices

Enclosure

cc: Alysia Tien, Wastewater Section Chief, U.S. Environmental Protection Agency
Hilary Meyer, Environmental Review Senior Biologist, South Dakota Game, Fish and Parks

REFERENCES

Baker DL, Lusk JD, Giggleman CM. 1998. Phase II contaminants investigation of Buffalo Lake National Wildlife Refuge, Texas 1993-1994. U.S. Fish and Wildlife Service Region 2 Contaminants Program. Arlington Ecological Services Field Office. 35 pp.

Bradford SA, Segal E, Zheng W, Wang Q, Hutchins SR. 2008. Reuse of concentrated animal feeding operation wastewater on agricultural lands. *Journal of Environmental Quality* 37(5):97–115.

Burkholder J, Libra B, Weyer P, Heathcote S, Kolpin D, Thorne PS, Wichman M. 2007. Impacts of waste from animal feeding operations on water quality. *Environmental Health Perspectives* 115(2):308–312.

Burnison BK, Hartmann A, Lister A, Servos MR, Ternes T, Van Der Kraak G. 2003. A toxicity identification evaluation approach to studying estrogenic substances in hog manure and agricultural runoff. *Environmental Toxicology and Chemistry* 22(10):2243–2250.

Geohring LD, McHugh OV, Walter MT, Steenhuis TS, Akhtar MS, Walter MF. 2001. Phosphorus transport into subsurface drains by macropores after manure applications: Implications for best manure management practices. *Soil Science* 166(12):896–909.

Grismer ME, O'Green AT, Lewis D. 2006. Vegetative filter strips for nonpoint source pollution control in agriculture. University of California publication 8195. 7 pp. http://anrcatalog.ucdavis.edu/pdf/8195.pdf.

Jamieson RC, Gordon RJ, Sharples KE, Stratton GW, Madani A. 2002. Movement and persistence of fecal bacteria in agricultural soils and subsurface drainage water: A review. *Canadian Biosystems Engineering* 44:1.1–1.9.

Kay P, Blackwell PA, Boxall ABA. 2004. Fate of veterinary antibiotics in a macroporous tile drained clay soil. *Environmental Toxicology and Chemistry* 23(5):1136–1144.

King KW, Williams MR, Macrae ML, Fausey NR, Frankenberger J, Smith DR, Kleinman PJA, Brown LC. 2015. Phosphorus transport in agricultural subsurface drainage: A review. *Journal of Environmental Quality* 44(2):467–485.

Melcher CP, Skagen SK. 2005. Grass buffers for playas in agricultural landscapes: a literature synthesis. U.S. Geological Survey, Biological Resources Discipline, Open-File Report 2005-1220. 35 pp.

Purdue University Extension. 2007. Contained animal feeding operations--insect considerations. ID 353. 2 pp. https://www.extension.purdue.edu/extmedia/ID/cafo/ID-353.pdf.

Purdue University Extension. 2016. County regulation of confined feeding operations in Indiana: an overview. 399 pp. https://ag.purdue.edu/extension/cfo/Reports/_Overview.pdf.

Raff Z and Meyer A. 2019. CAFOs and surface water quality: evidence from the proliferation of large farms in Wisconsin. 44 pp. http://dx.doi.org/10.2139/ssrn.3379678.

Schwarz MS, Echols KR, Wolcott MJ, Nelson KJ. 2004. Environmental contaminants associated with swine concentrated animal feeding operation and implications for McMurtrey National Wildlife Refuge. U.S. Fish and Wildlife Service Contaminant Report, Grand Island, Nebraska. 84 pp. https://www.fws.gov/mountain-prairie/contaminants/papers/Hastings%20Pork%20CAFO%2000%20final%20report.pdf.

South Dakota Department of Environment and Natural Resources (DENR). 2017. General water pollution control permit for concentrated animal feeding operations. Permit No.: SDG-100000. 92 pp. https://denr.sd.gov/des/fp/documents/2017GeneralPermit.pdf.

U.S. Environmental Protection Agency (EPA). 2004. Risk assessment evaluation for concentrated animal feeding operations. Managing manure nutrients at Concentrated Animal Feeding Operations. EPA/600/R-04/042. Office of Research and Development. 138 pp. https://cfpgeub.epa.gov/si/si_public_record_report.cfm?Lab=NRMRL&dirEntryId=85107.

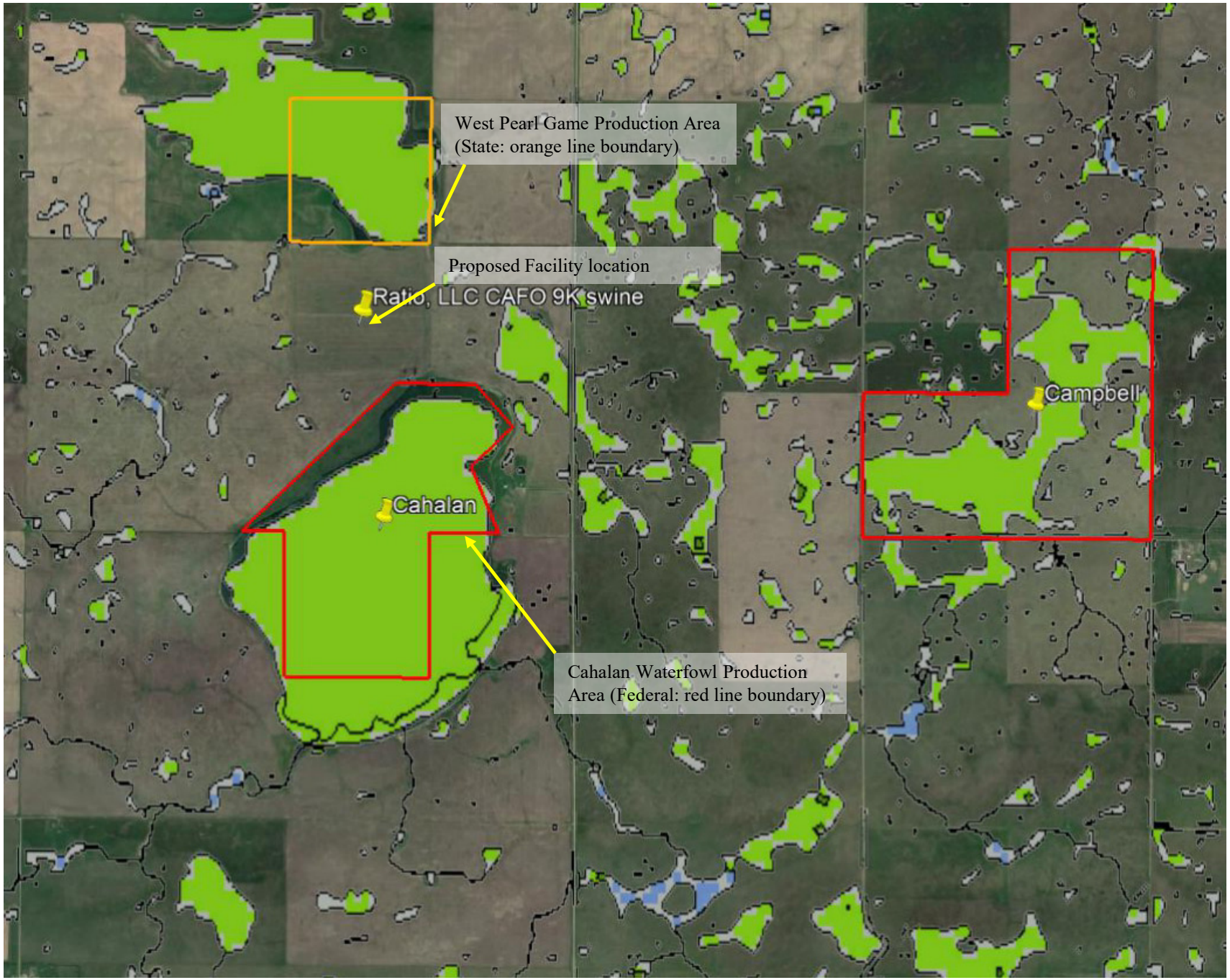
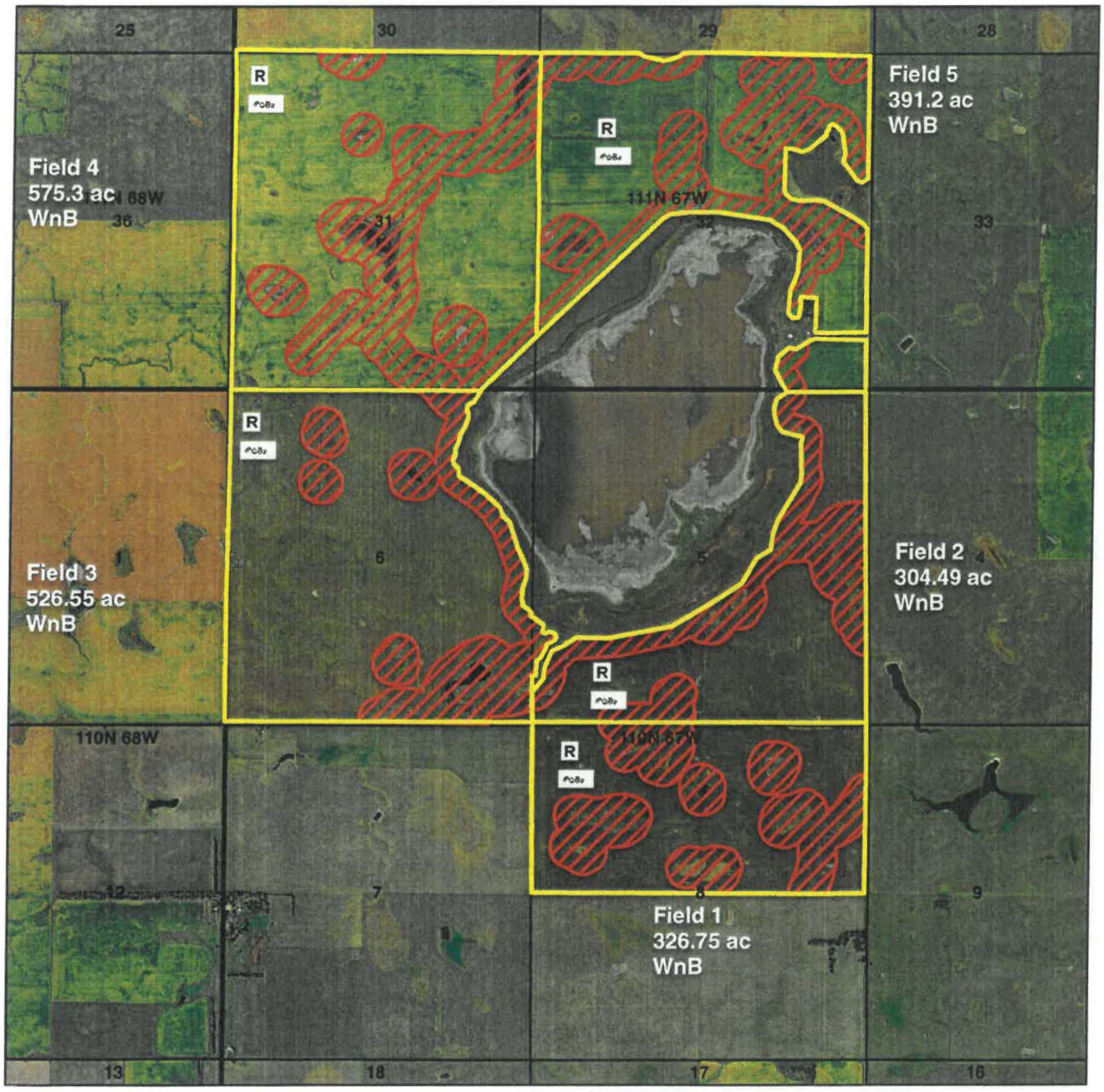


Figure 1. Proximity of Facility to public and private wetlands identified by the National Wetlands Inventory database.

Figure 2. Location of Facility buildings.

Water Quality Risk Assessment Map
Frozen and Snow Covered Ground
Aughenbaugh Site
5,6,8-110N-67W & 31,32-111N-67W



Legend

- Aughenbaugh Borders
- Frozen_Snow Covered Exclusions
- Manure Application Field
- R Runoff High Risk
- L Leaching High Risk

0 0.15 0.3 0.6 0.9 1.2 Miles

N

CENTROL® CROP CONSULTING

Figure 3. Areas of high risk to surface runoff.