

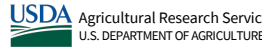




Overview of the plans for the new USD FRC research dairy




Dennis Hancock
Center Director
Dennis.Hancock@usda.gov

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U.S. Dairy Industry

- Nearly \$60B in revenue and ~\$800B in economic impact
 - Wisconsin: \$45.6B economic impact
- <30,000 dairy farms
 - ~6,000 dairy farms in WI
- ~9.4M cows
 - 1.28M cows in WI





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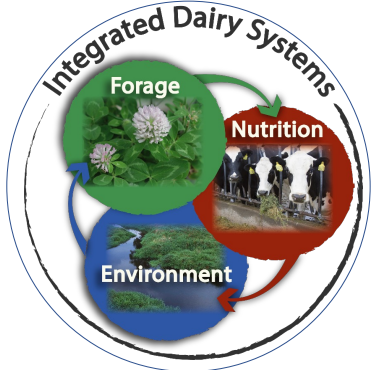
Our vision: Leading the world in integrated dairy forage systems research.

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The Value of Integrated Research

- **Cell Wall Biology and Utilization Research Unit**
 - Better understand dairy animal and forage physiology (Basic Science)
- **Dairy Forage Research Unit**
 - Improve dairy forage production and feeding systems to increase efficiency, minimize losses, and reduce carbon footprint (Applied Science)
- **Environmentally Integrated Dairy Management Research Unit**
 - Reduce the environmental footprint of the US dairy industry (Environmental Science)



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Impacts

- Assisted in efficiency gains in the U.S. Dairy Industry
 - To produce a 1 million tons of milk in 2017, it required 25% fewer cattle, 17% less feed, 20% less land, 30% less water and produced 20% less manure, 19% less methane, and 18.5% nitrous oxide compared to 2007.
- Over 2600 publications since 1995 (~4000+ all-time)
- Released over 30 varieties of cool season grasses and legumes
- Edited, co-edited, authored, or co-authored over 40 reference or textbooks

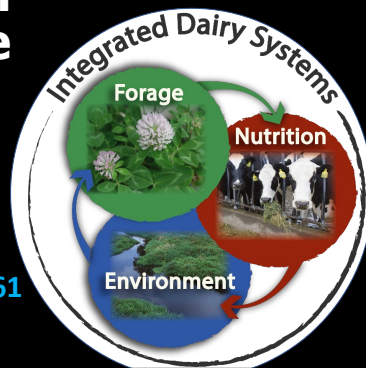


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Celebrating 40 Years of Research and Impact at the U.S. Dairy Forage Research Center

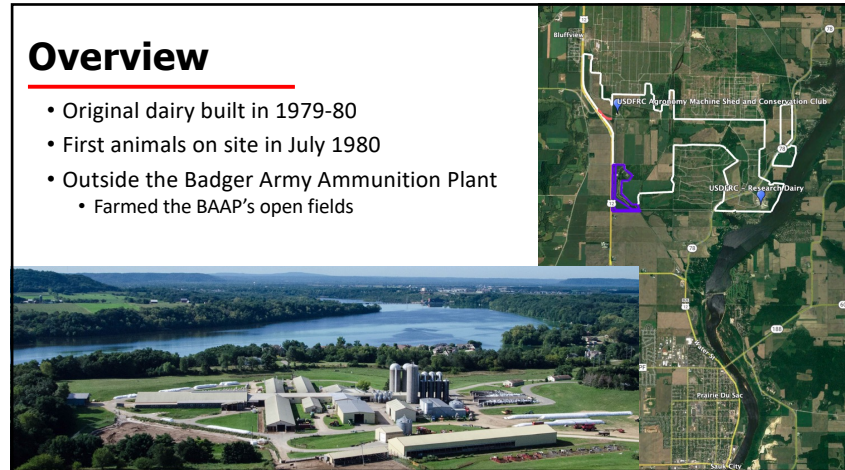


<https://youtu.be/XreTxexfBW8?t=61>

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Overview

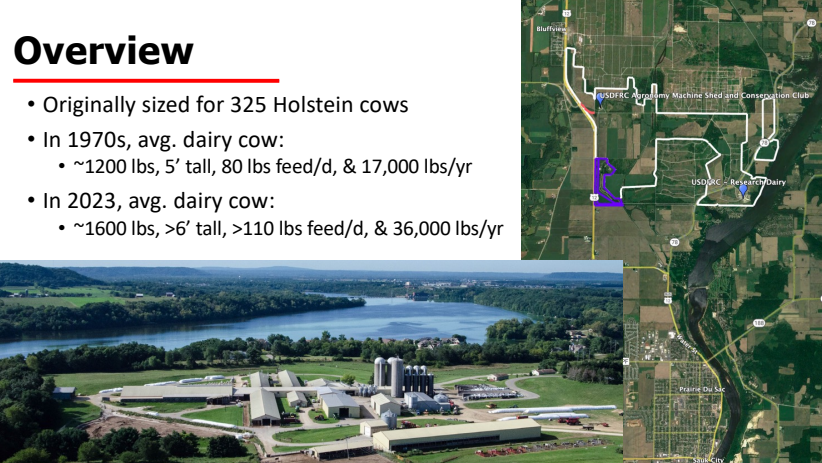
- Original dairy built in 1979-80
- First animals on site in July 1980
- Outside the Badger Army Ammunition Plant
 - Farmed the BAAP's open fields



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Overview

- Originally sized for 325 Holstein cows
- In 1970s, avg. dairy cow:
 - ~1200 lbs, 5' tall, 80 lbs feed/d, & 17,000 lbs/yr
- In 2023, avg. dairy cow:
 - ~1600 lbs, >6' tall, >110 lbs feed/d, & 36,000 lbs/yr



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New Research Dairy:

- State of the art design for animal care and welfare
 - Major improvements in cow comfort in past 44 years
 - Changes in size for modern dairy animals
- Far better ventilation for better cow health
 - Fog/moisture from river hampers cow health



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New Research Dairy:

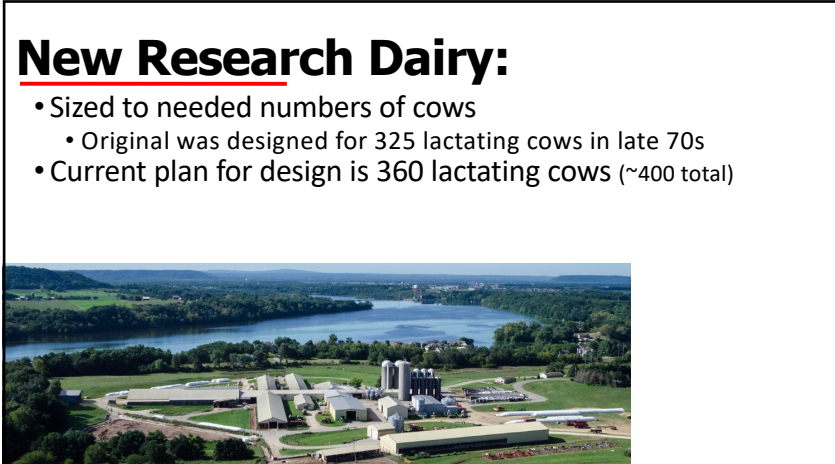
- Reduced risk of contaminating Wisconsin River
 - Current: <300 ft from buildings and ~750 from manure storage
- Closer to cropland base and eliminate need to cross highways
- Increase labor efficiency
 - Less time between buildings
 - Automation-robotics (milking, feeding, pushing up at bunk)



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New Research Dairy:

- Sized to needed numbers of cows
 - Original was designed for 325 lactating cows in late 70s
 - Current plan for design is 360 lactating cows (~400 total)



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Key units at new dairy

- Robotic (AMS) Unit (4 modules, 60 cows each)
- Conventional freestalls (pen and individual animal intake studies)
 - 4 set up for Jerseys, 16 set up for Holsteins
- Advanced Animal Nutrition Unit (48 tiestalls)
- Animal Emissions Unit (up to 4 individual cow chambers)
- Calf barn
- Replacement heifers will be at existing facilities
 - Goal to graze 50% of annual DMI off pasture

Herd Inventory	
• Total Lactating Capacity	– 360 Cows
• Freestall Housing	– 400 Cows
• 20 Pens of 8 – Flex Housing	
• Robotic Stall	– 240 Cows
• Air Emissions	– 4 Cows
• AAN	– 48 Cows
• Dry Cows	– 44



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Review of design at several milestones

- Diverse panel of reviewers
 - Internal (USDFRC, other ARS, UW AES, UW Vet School, USACE)
 - External (other UW, 4 dairy farmers, 3 external researchers, and ~10 other stakeholders)
- Program of Requirements (June 2021)
- 15% Design Stage (Dec 2021)
- 35% Design Stage (Aug 2022)
- Value engineering review (Sept 2022)
- 50% Design Stage (Dec 2022)
- 95% Design Stage (Apr 2023)
- **100% Design Stage (Jul 2023)**



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Future milestones

- 100% Design Stage (Jul 2023)
- Advertisement (put out for bid) & Contract Award (Jul-Oct 2023)
- **Construction (Oct 2023 through mid 2026)**
- Demolition and renovation of parts of old research dairy (Phase II)



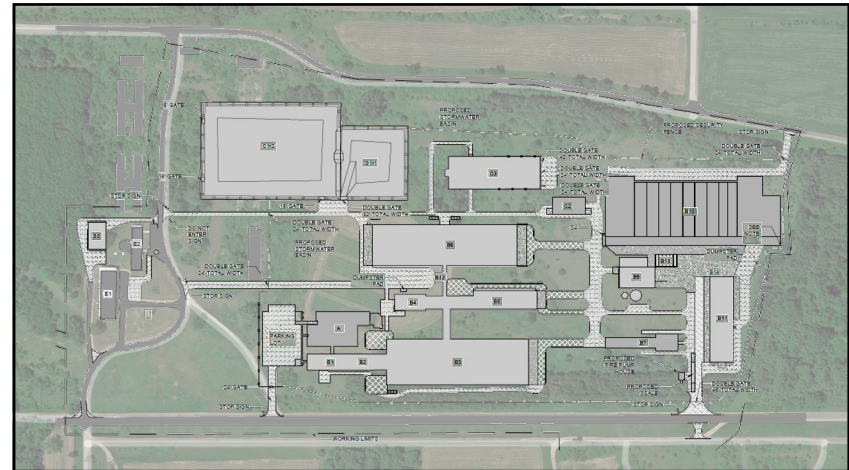
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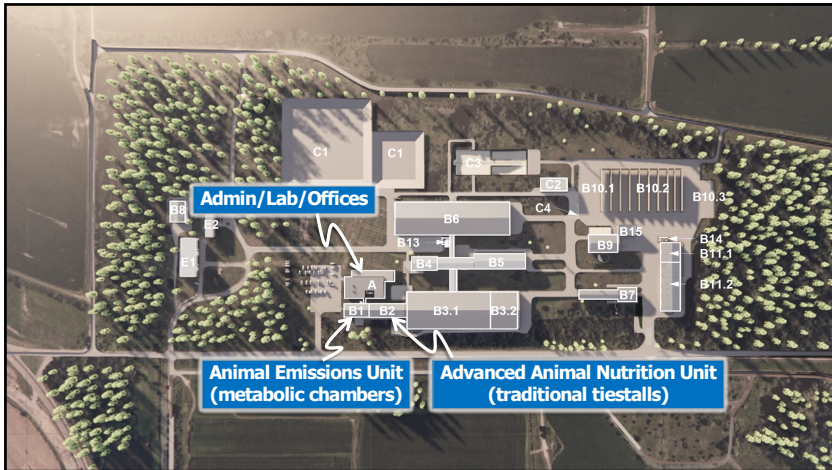
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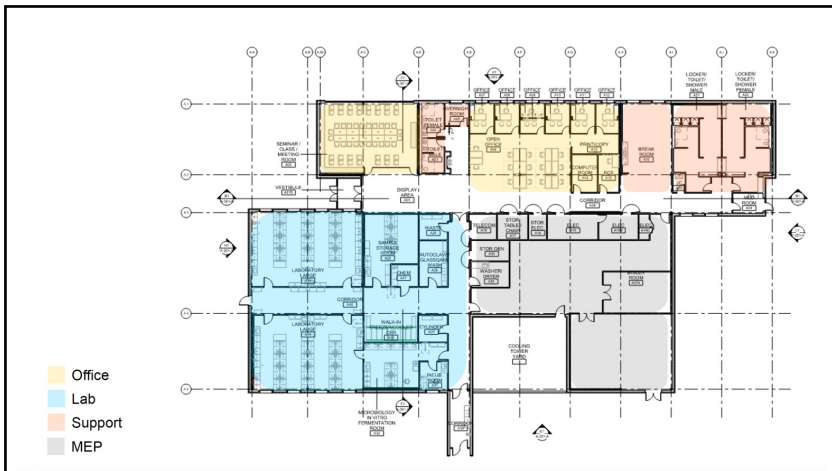
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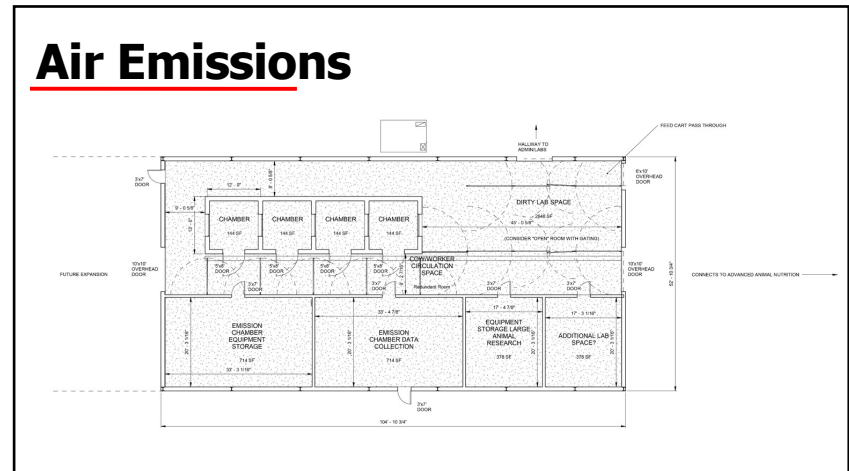
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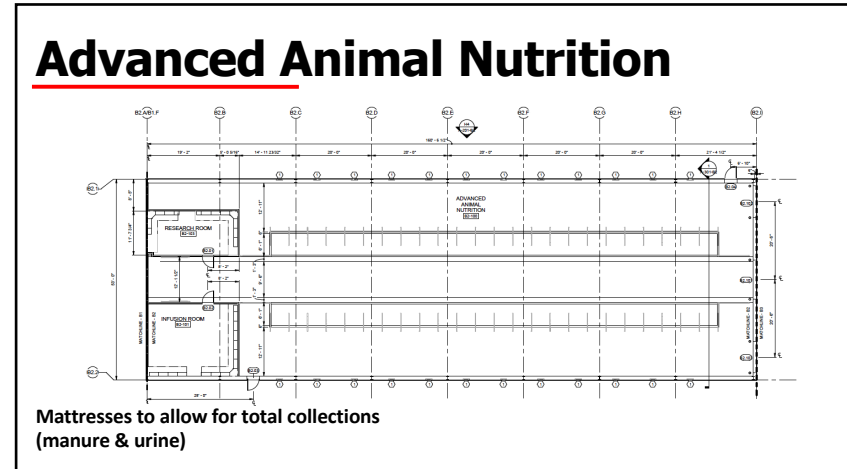
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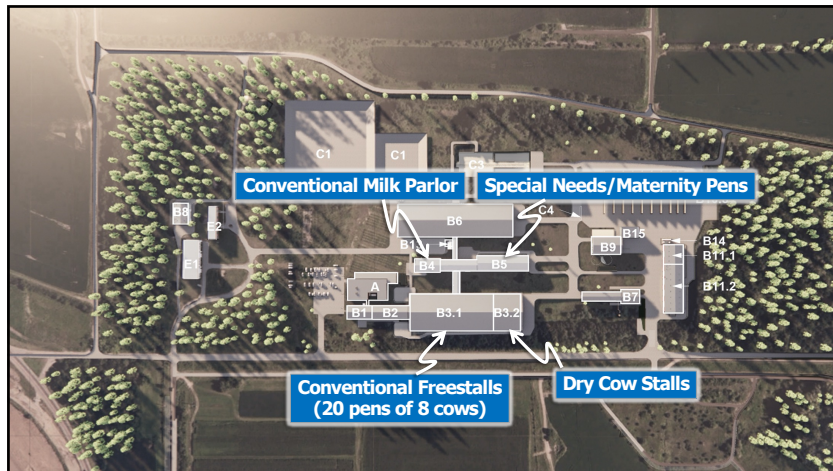
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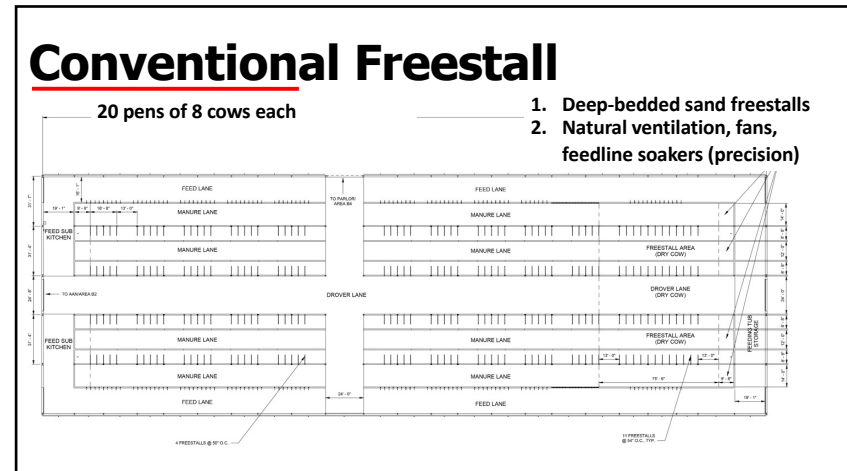
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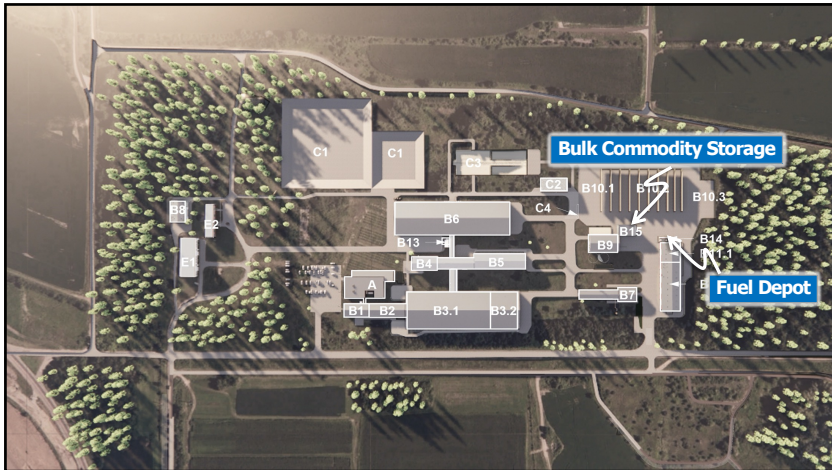
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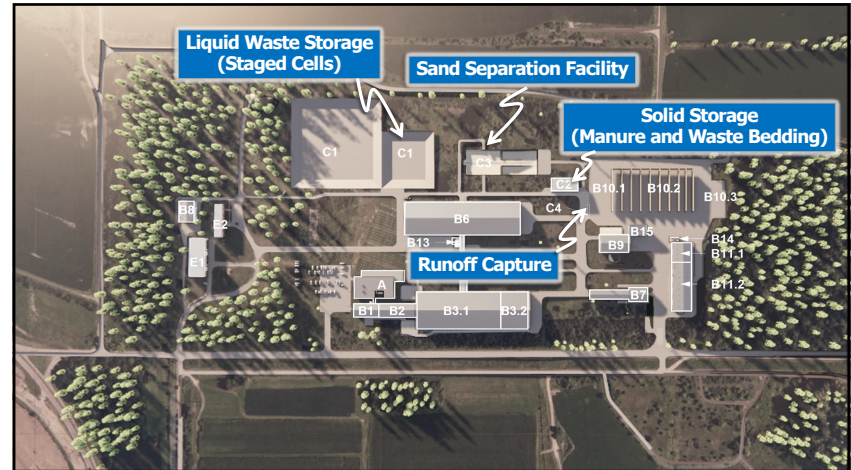
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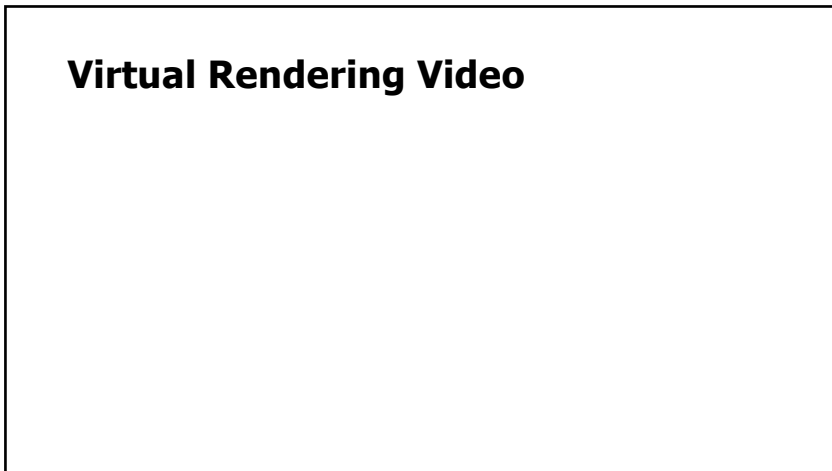
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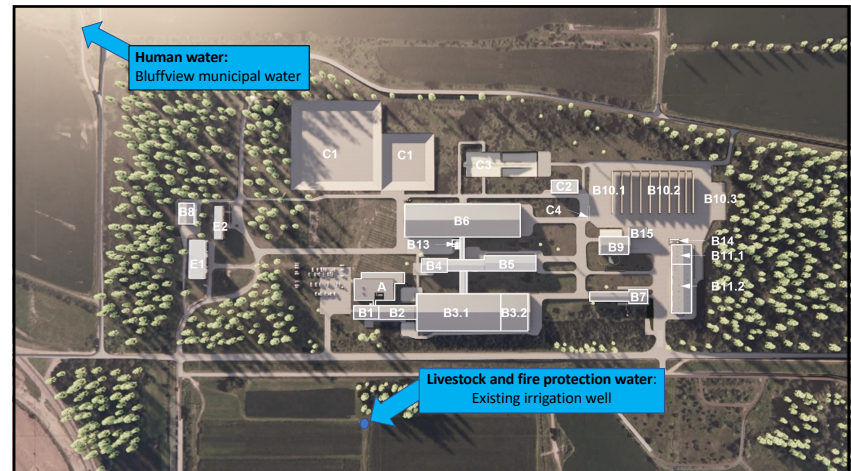
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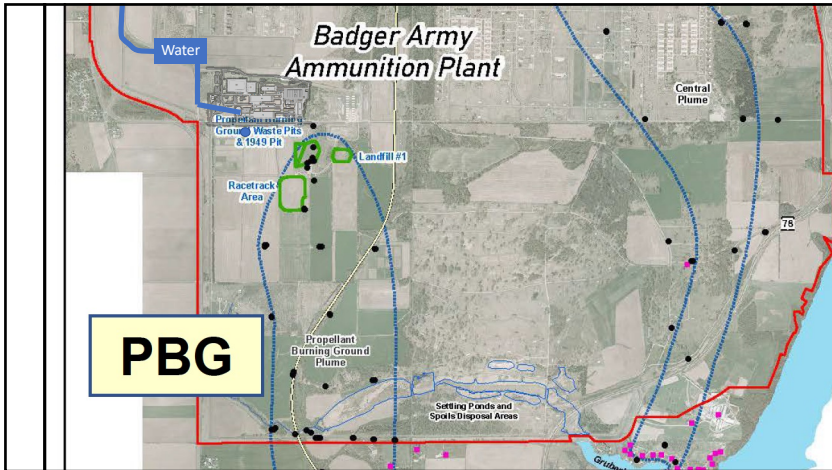
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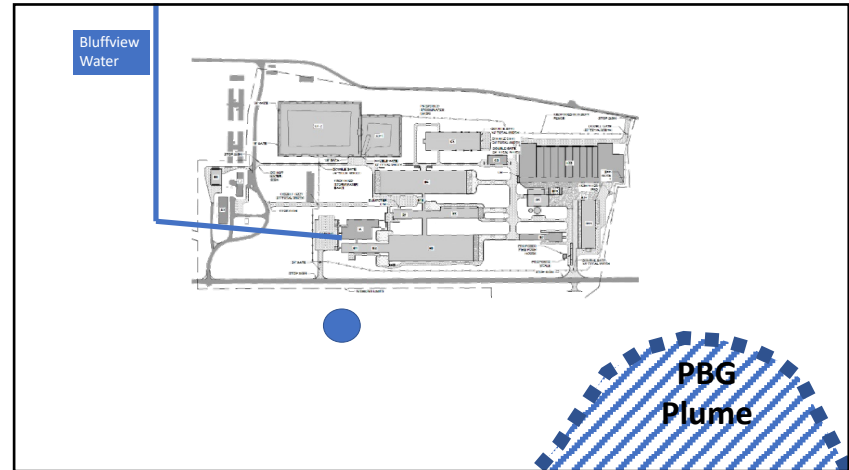
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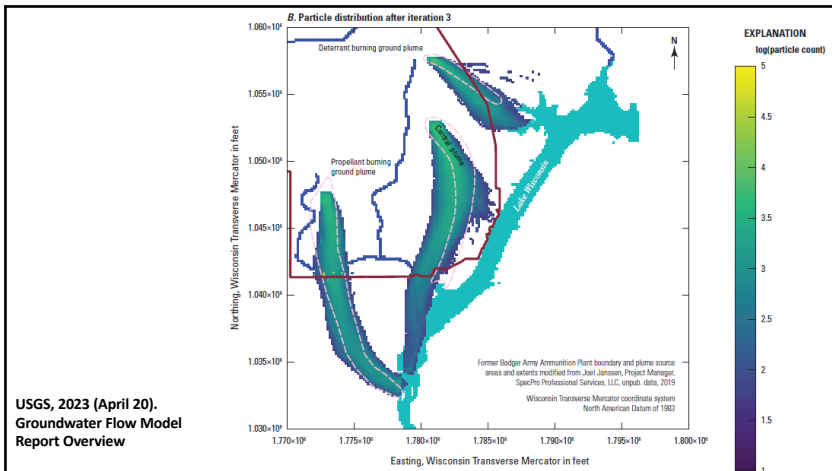
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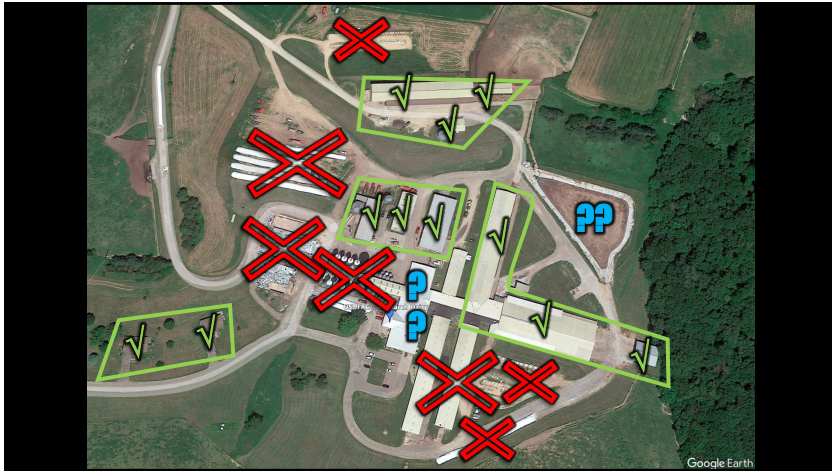
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Phase II: Demolition and renovation of parts of current research dairy

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 Agricultural Research Service
U.S. DEPARTMENT OF AGRICULTURE

 **U.S. Dairy Forage
Research Center**

Questions?

Dennis Hancock
Center Director
Dennis.Hancock@usda.gov



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