



# U.S. Department of Energy

## Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Oklahoma State University - Establishing validation sites for field-level emissions quantification from Grain Sorghum (Milo) in Southern Great Plains

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Stillwater, OK; Manhattan, KS; College Station, TX; Keyes, OK; Colby, KS; Perryton, TX

Proposed Action Description:

SECOND AMENDED NEPA DETERMINATION: (See attached original Determination, dated April 13, 2020, and attached amended Determination dated July 13, 2021) This Second Amended Determination follows the approval of additional funds to support the project team's small-scale, research and development activities to collect three seasons of measurements of various constituents in soil samples from grain sorghum fields. Specifically, the project team will purchase and install additional systems to monitor greenhouse gas emissions at the soil level with existing field equipment to gather data consistent with other teams conducting similar research in the SMARTFARM program. Tasks to ensure quality control and data analysis in addition to soil archiving and storage equipment purchases will also be added with the increased funding. If successful, the project team will develop data to quantify field-level GHG emissions from grain sorghum production and lower the costs of monitoring such emissions.

Project activities will be conducted at existing facilities at Oklahoma State University (Stillwater, OK), Kansas State University (Manhattan, KS), Texas A&M University (College Station, TX), and at agricultural field locations in Keyes, OK; Colby, KS; and Perryton, TX. Project tasks continue to fit within the class of actions identified under the DOE Categorical Exclusion identified below and do not involve any extraordinary circumstances that may affect the significance of the environmental effects of the project. This assessment was based on a review of the proposed scope of work and the potential environmental impact of the project. Project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

B3.8 - Outdoor terrestrial ecological and environmental research

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of [10 CFR Part 1021](#).

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: **GEOFFREY GOODE** Digitally signed by GEOFFREY GOODE  
Date: 2022.04.21 08:59:46 -04'00'

Date Determined: 04/21/2022



# U.S. Department of Energy

## Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Oklahoma State University - Establishing validation sites for field-level emissions quantification from Grain Sorghum (Milo) in Southern Great Plains

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Stillwater, OK; Manhattan, KS; College Station, TX; Keyes, OK; Colby, KS; Perryton, TX

Proposed Action Description:

AMENDED NEPA DETERMINATION: (See attached original Determination, dated April 13, 2020)

This Amended Determination follows the approval of additional funds to support the project team's small-scale, research and development activities to establish publicly available open-source datasets of GHG emissions, meteorology, soil, vegetation, and unmanned aerial-systems based remote sensing data to support testing and validation of emerging biofuel production monitoring technologies.

Specifically, the project team will generate 3 seasons of data sets from all commercial field sites, based on analysis of NH<sub>4</sub>, NO<sub>3</sub>, EC, pH, microbial composition and dissolved organic carbon in soil samples. If successful, the project team will develop data to quantify field-level GHG emissions from grain sorghum production and lower the costs of monitoring such emissions.

Project activities will be conducted at existing facilities at Oklahoma State University (Stillwater, OK), Kansas State University (Manhattan, KS), Texas A&M University (College Station, TX), and at agricultural field locations in Kayes, OK; Colby, KS; and Perryton, TX. Project tasks fit within the class of actions identified under the DOE Categorical Exclusions listed below and do not involve any extraordinary circumstances that may affect the significance of the environmental effects of the project. This assessment was based on a review of the proposed scope of work and the potential environmental impact of the project. Project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

B3.8 - Outdoor terrestrial ecological and environmental research

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of [10 CFR Part 1021](#).

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: **GEOFFREY GOODE** Digitally signed by GEOFFREY GOODE  
Date: 2021.07.13 11:40:49 -04'00'

Date Determined:



# U.S. Department of Energy

## Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Oklahoma State University -- Establishing Validation Sites for Field-Level Emissions Quantification from Grain Sorghum in Southern Great Plains

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Stillwater, OK; Manhattan, KS; College Station, TX

Proposed Action Description:

Funding will support the project team's small-scale research and development activities to establish publicly available open-source, high-resolution datasets of greenhouse gas (GHG) emissions, meteorology, soil, vegetation, and unmanned aerial-systems (UAS) based remote sensing data (hyperspectral, thermal, and LIDAR) to support testing and validation of emerging biofuel production monitoring technologies. Specifically, the project team will (1) install and demonstrate Eddy Covariance Tower, (2) generate comprehensive datasets from all commercial field sites, and (3) establish and validate model determining the carbon intensity of the crops produced. If successful, the project team will develop standard data for quantifying field-level greenhouse gas emissions from grain sorghum production systems. In addition, the costs for monitoring emissions from field-sites and production risks will be reduced significantly.

Project activities will be conducted at existing facilities at Oklahoma State University (Stillwater, OK); Kansas State University (Manhattan, KS); and Texas A&M University (College Station, TX) designed for the applicable activities. Project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. No modifications will be made to existing facilities to accommodate the proposed work.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of [10 CFR Part 1021](#).

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: **Geoffrey Goode** Digitally signed by Geoffrey Goode  
Date: 2020.04.13 11:45:56 -05'00'

Date Determined: