How to Conduct Research at CAES

Completing the Work Planning and Safety Envelope

CAES Center for Advanced Energy Studies

PRESENTED BY

CAES Operations

2022

INL Idaho National Laboratory

BOISE STATE UNIVERSITY

Idaho State University

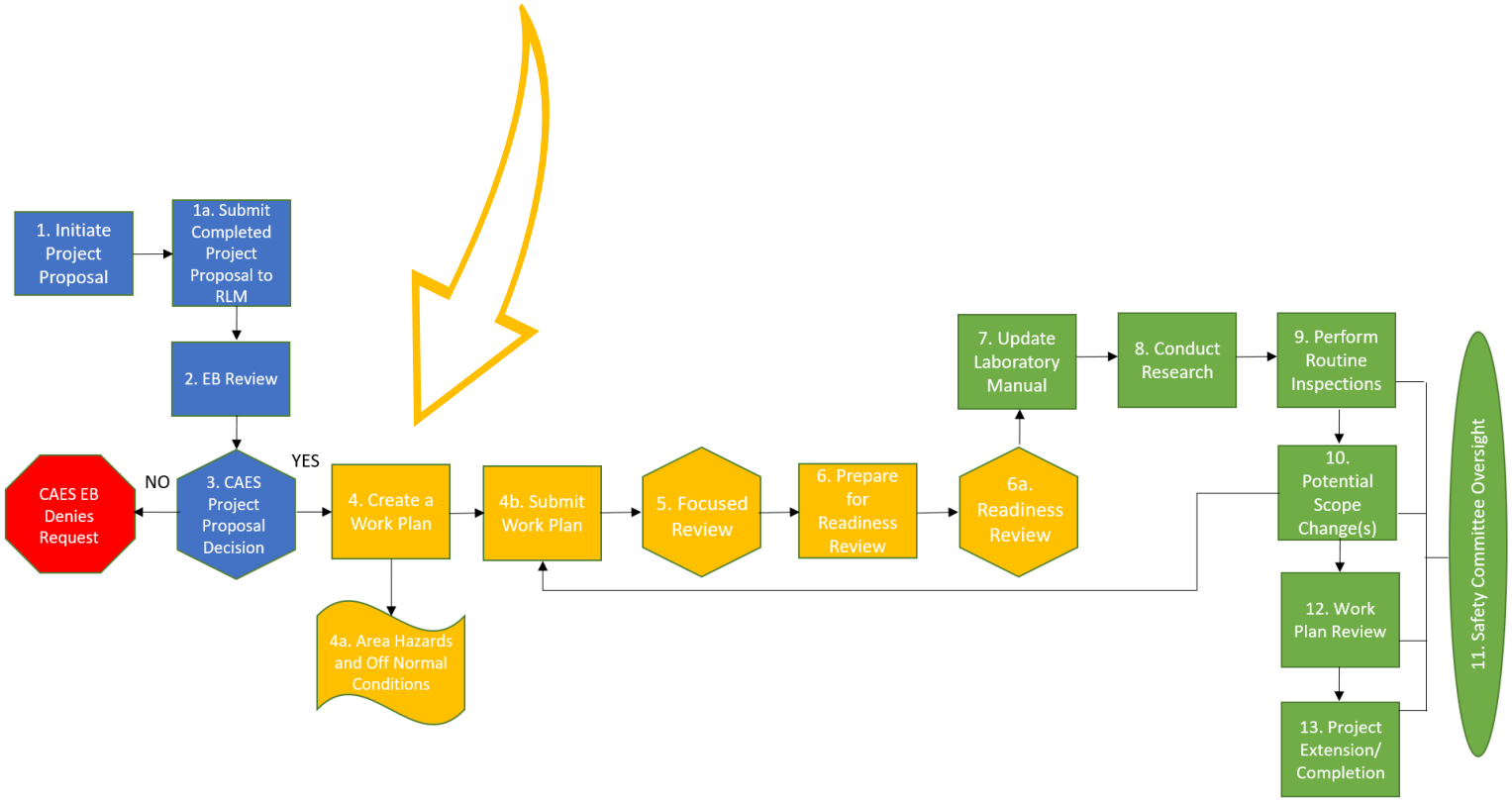
University of Idaho

Introduction

CAES Center for Advanced Energy Studies

Introduction

Work Planning and Safety Envelope



Introduction

CAES staff is here to help.

Role	Name	Email	Phone
Director	Philip Ruppert	Philip.Reppert@inl.gov	208.526.3984
Executive Assistant	Donna Wuthrich	Donna.Wuthrich@inl.gov	208.526.1784
Research Laboratory Manager	Rocklan McDowell	Rocklan.McDowell@inl.gov	208.526-3198
Chief Safety Officer	Kristi Moser-McIntire	kristimosermcinti@isu.edu	208.533-8133
Operations Support	Jennifer Evaly	Jennifer.MaguireEvaly@inl.gov	208.586.1149
BSU Associate Director	Dave Estrada	daveestrada@boisestate.edu	208.426.6132
ISU Associate Director	Dave Rodgers	davidrodgers@isu.edu	208.282.3365
UI Associate Director	John Russell	jtrussell@uidaho.edu	208.533.8164

Introduction

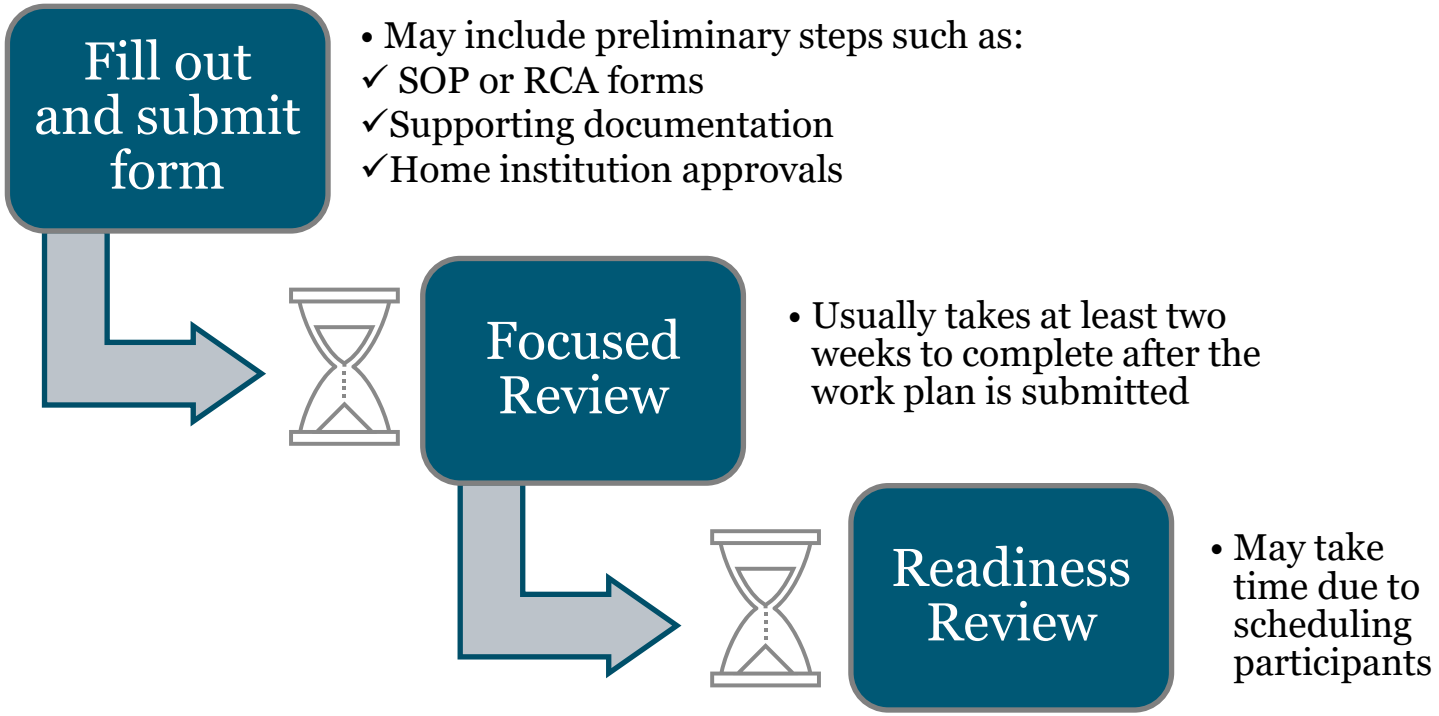
Work planning addresses several elements.

1. Training Requirements
2. Purpose/Scope/ Applicability
3. Risks and Controls
4. Area Hazards and Off-Normal Conditions
5. Export Control
6. Facility Conditions
7. Emergency Procedures
8. Post-performance Activities
9. Supporting Documentation
10. Drawings and Diagrams
11. Appendices
    - A. Chemical Inventory
    - B. Waste generation and disposal

Introduction

- Use the *CAES-048, CAES Work Plan* form.
- Additional templates may include
  - *CAES-002, Researcher Controlled Activity*
  - *CAES-034, Equipment Standard Operating Procedure.*
- Detailed instructions can be found in *CAES-046, Project Planning, Work Control, and Research Execution at CAES* (steps 4, 5, and 6).
- Supplemental instructions are included in the *CAES User Guide for Researchers* document.

Introduction



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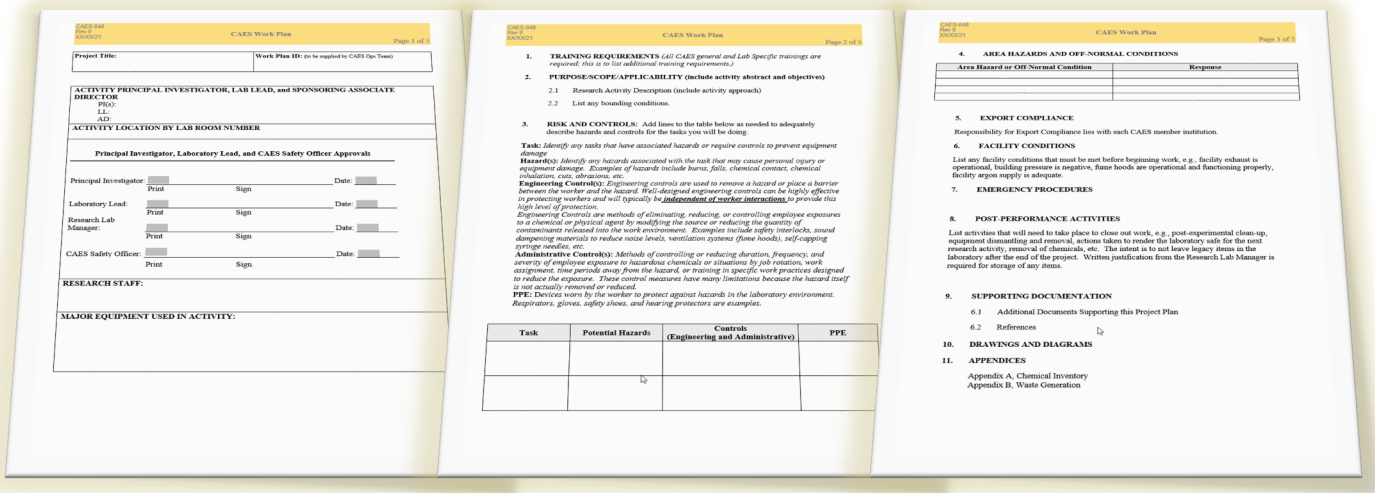

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CAES Work Plan

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RESEARCH STAFF:

MAJOR EQUIPMENT USED IN ACTIVITY:

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CAES Work Plan

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PPE: *Devices worn by the worker to protect against hazards in the laboratory environment. Respirators, gloves, safety shoes, and hearing protectors are examples.*

Task	Potential Hazards	Controls (Engineering and Administrative)	PPE

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4. **AREA HAZARDS AND OFF-NORMAL CONDITIONS**

Area Hazard or Off-Normal Condition	Response

5. **EXPORT COMPLIANCE**

Responsibility for Export Compliance lies with each CAES member institution.

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List any facility conditions that must be met before beginning work, e.g., facility exhaust is operational, building pressure is negative, fume hoods are operational and functioning properly, facility argon supply is adequate.

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9. **SUPPORTING DOCUMENTATION**
   - 6.1 Additional Documents Supporting this Project Plan
   - 6.2 References
10. **DRAWINGS AND DIAGRAMS**
11. **APPENDICES**

Appendix A, Chemical Inventory
Appendix B, Waste Generation

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APPENDIX A

CHEMICAL INVENTORY

(Chemical hazards are captured in the body of the Work Plan – this section only provides a list of chemicals used in execution of the plan.)

Name and CAS Number	NFPA	Chemical State	Concentration	Amount used per day	Frequency of Use	Max. Storage Volume	Use or Exposure Duration
	Health - Fire - Reactivity -						

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APPENDIX B

WASTE GENERATION

Type of Waste	Anticipated Volume	Container Type	Disposal Responsibility

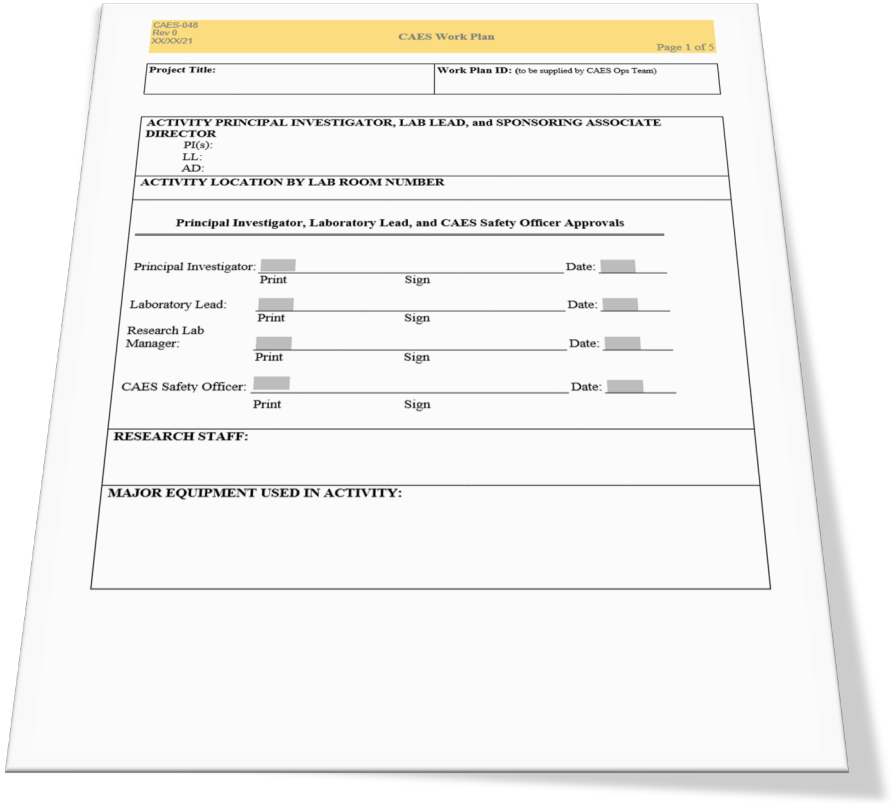
List any special needs/requirements for storage and handling and disposal of wastes.

If a spill occurs, how will it be cleaned up?

Form by Sections

CAES Center for Advanced Energy Studies

Title & Signature Page



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Principal Investigator: _____ Date: _____
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CAES Safety Officer: _____ Date: _____
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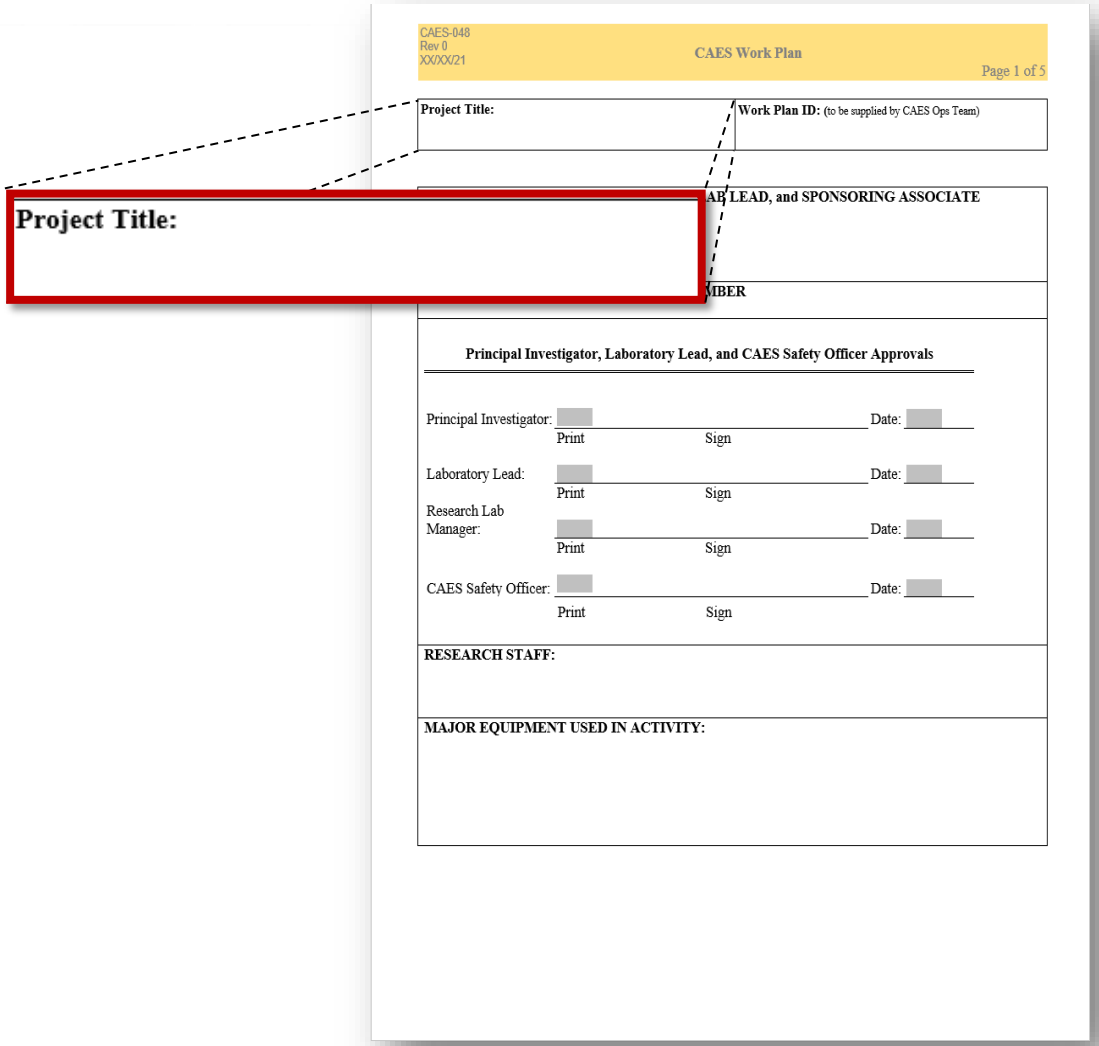
RESEARCH STAFF:

MAJOR EQUIPMENT USED IN ACTIVITY:

Project Title



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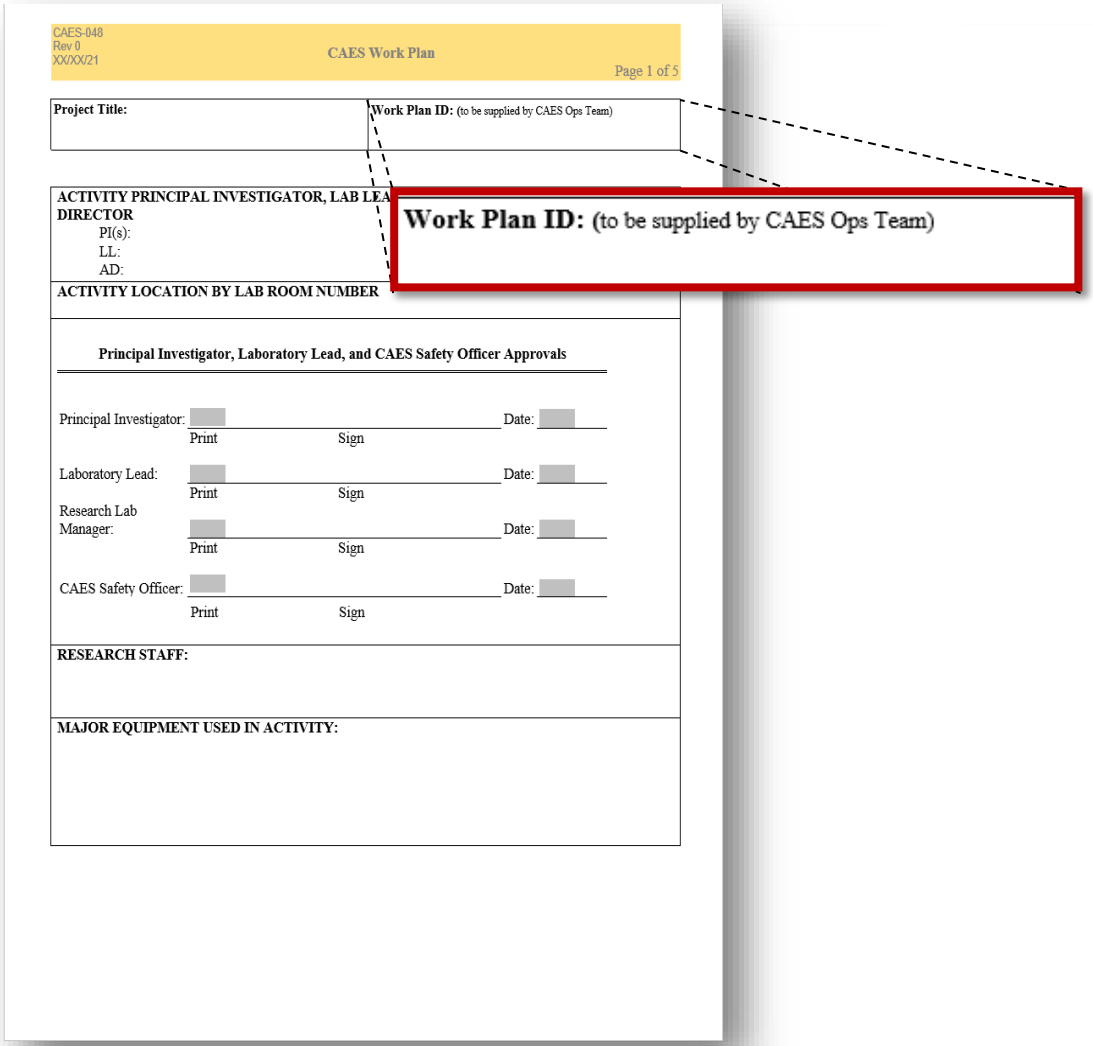

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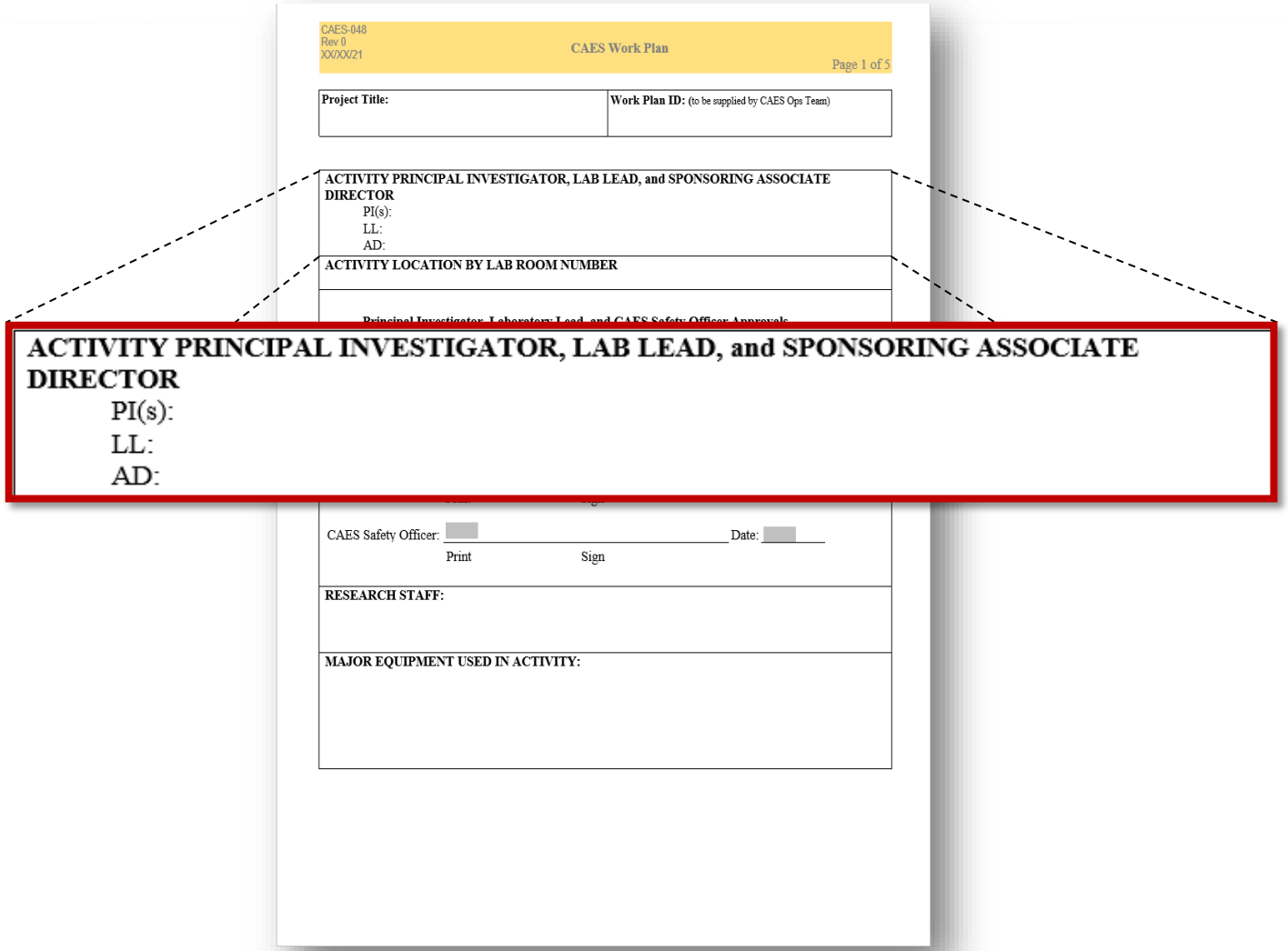
Activity PI, LL, and AD



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Research Lab Manager: _____ Date: _____
Print Sign

CAES Safety Officer: _____ Date: _____
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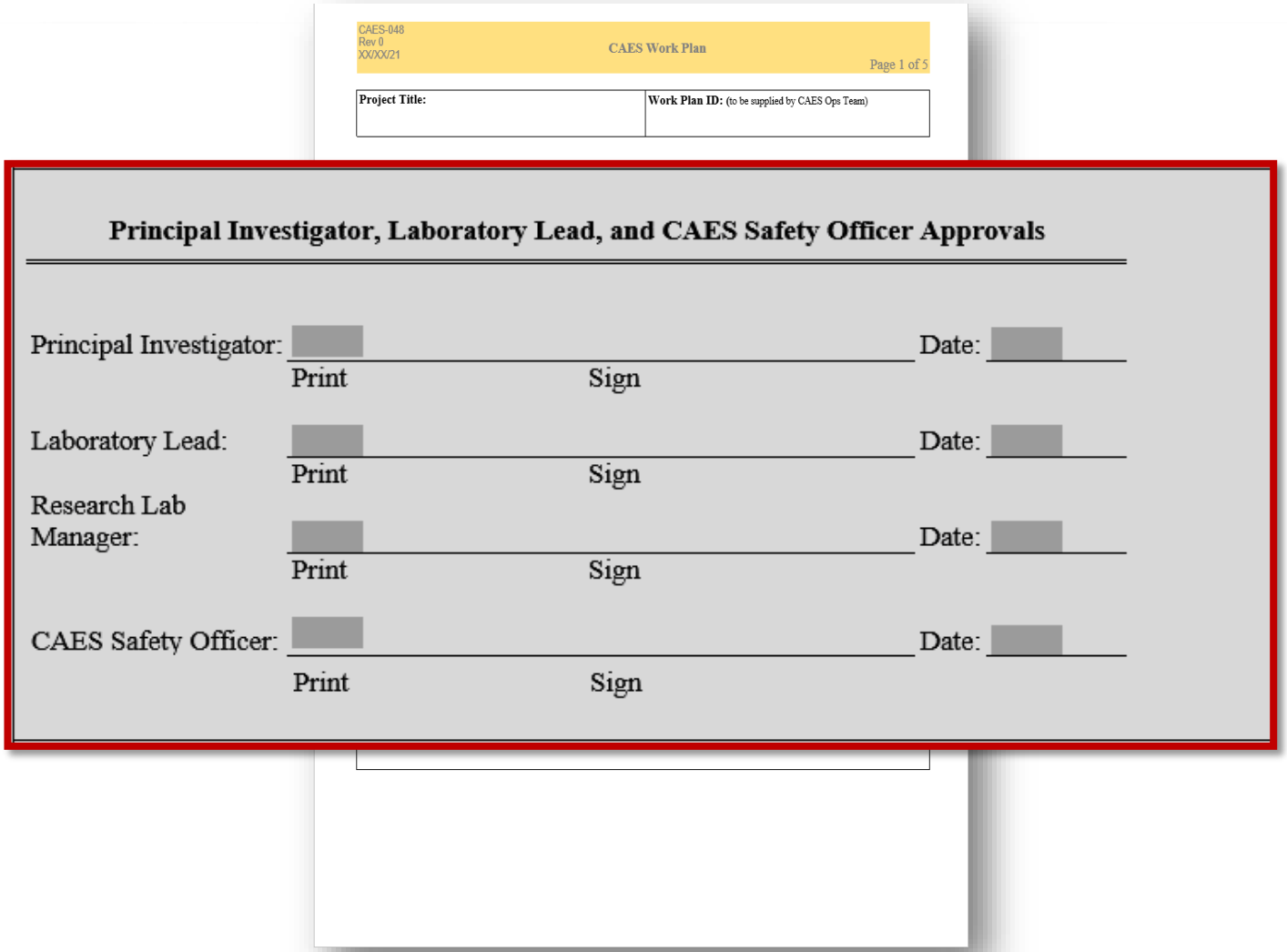
RESEARCH STAFF:

MAJOR EQUIPMENT USED IN ACTIVITY:

Signatures



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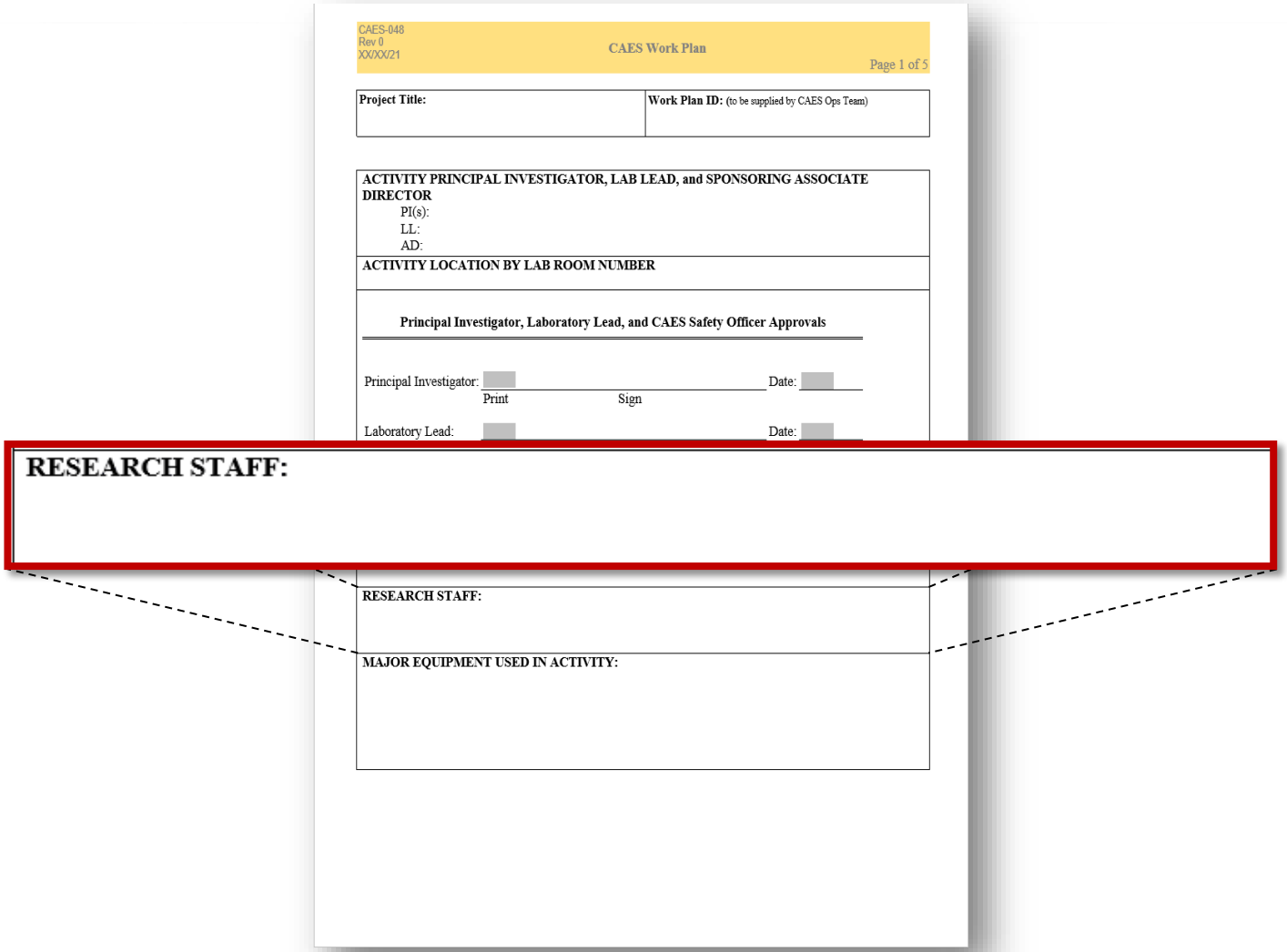
Research Staff



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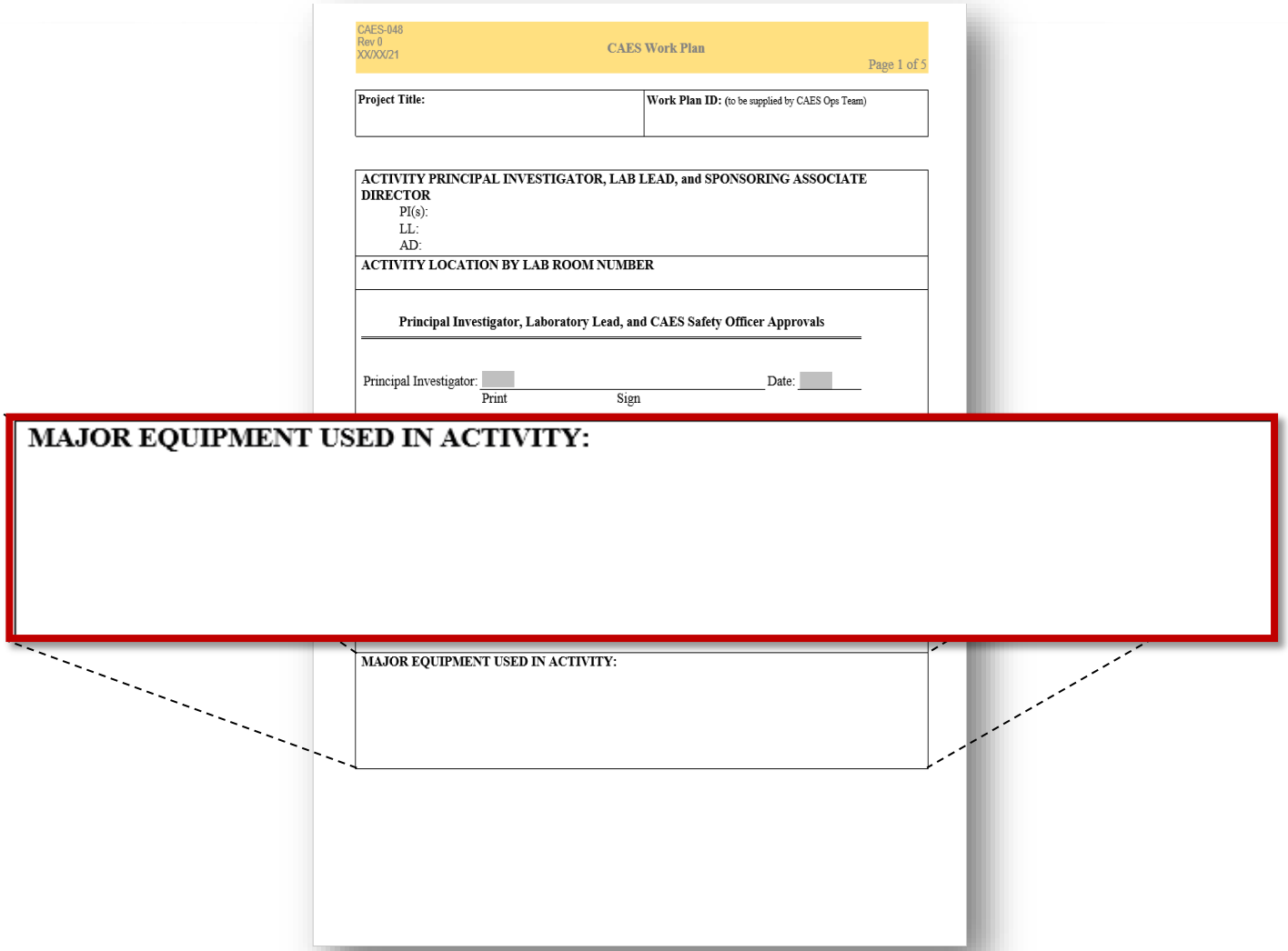

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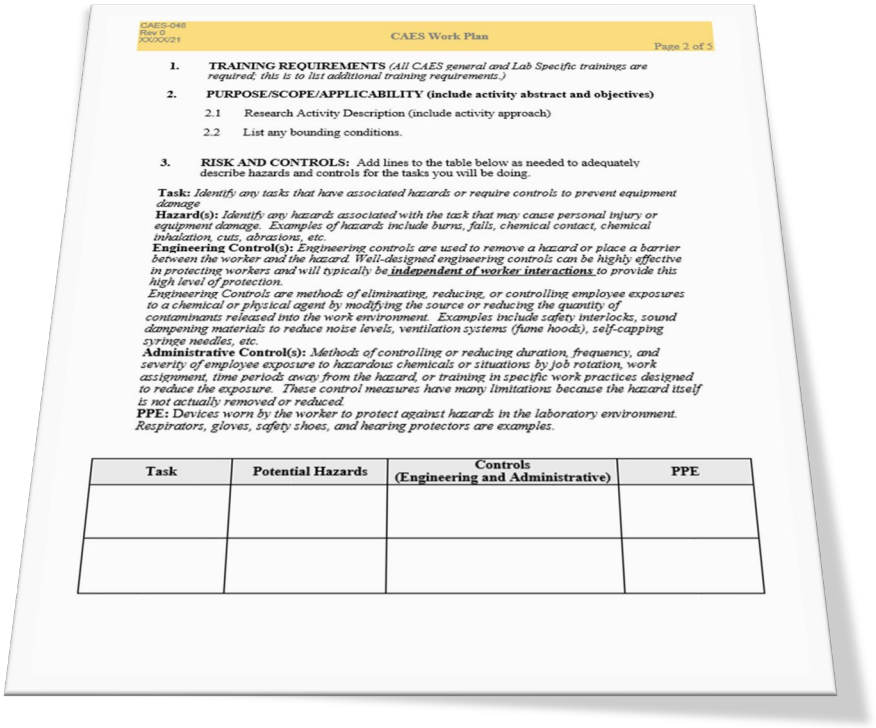
Numbered Components



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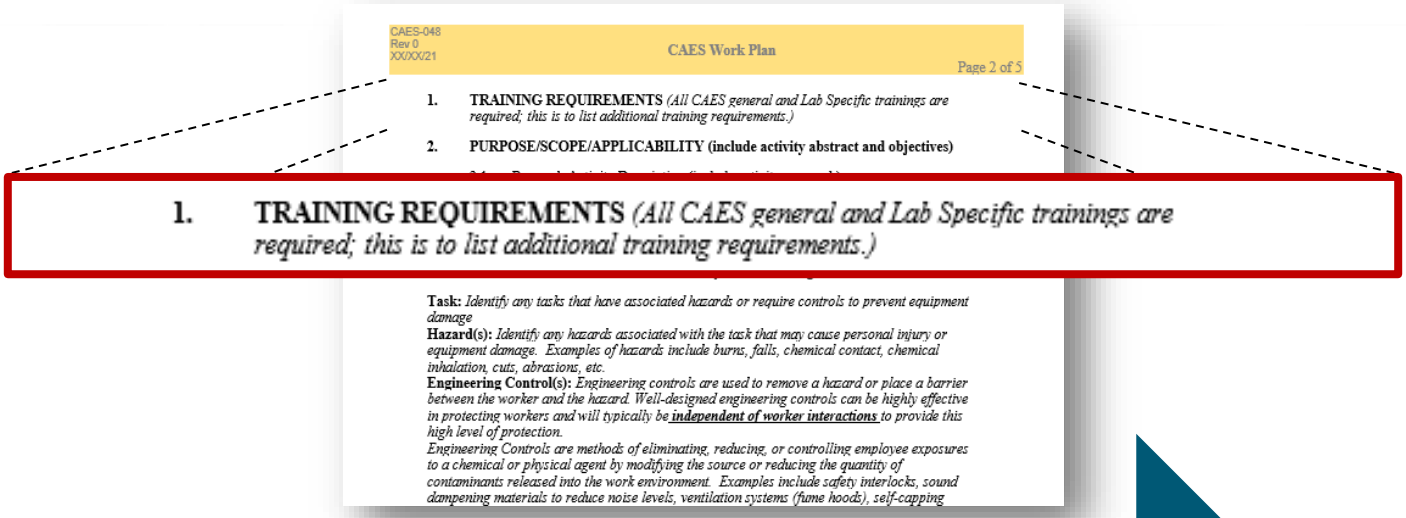
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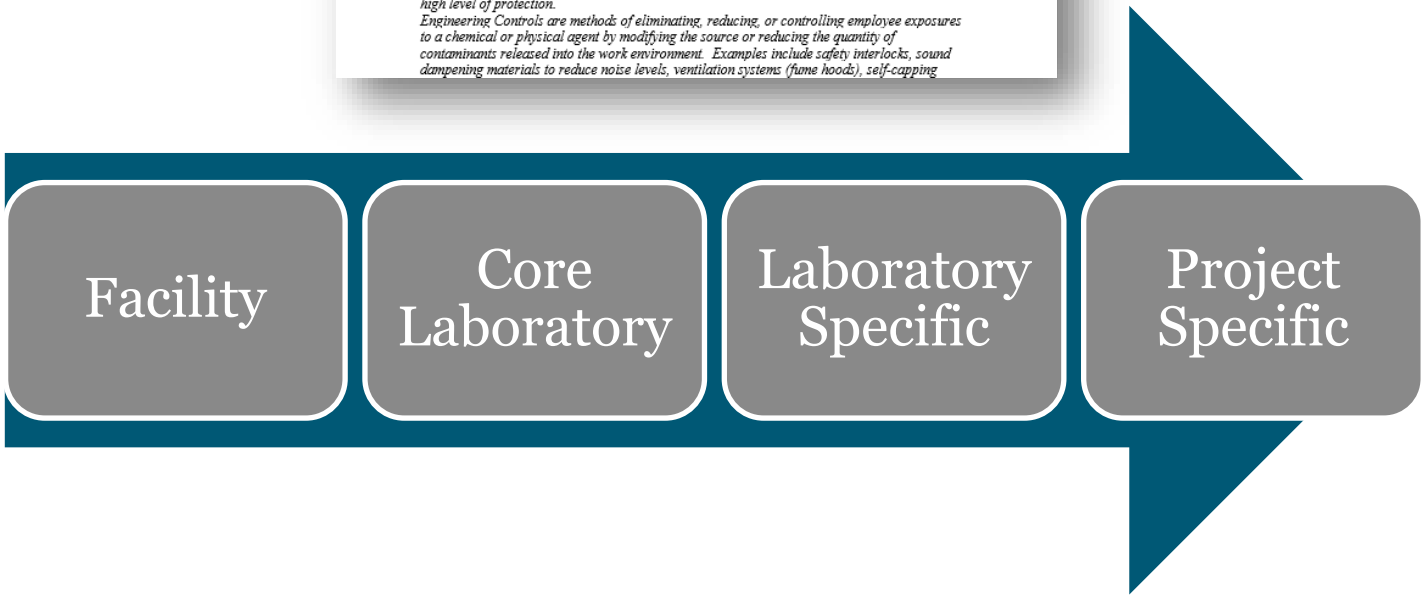

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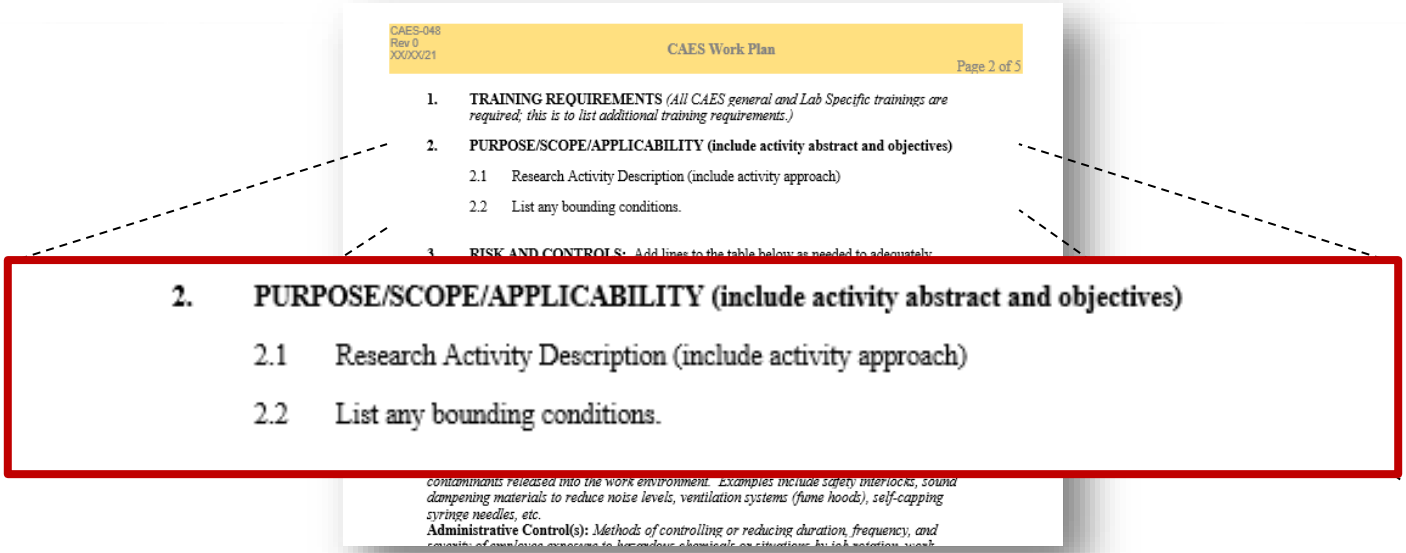

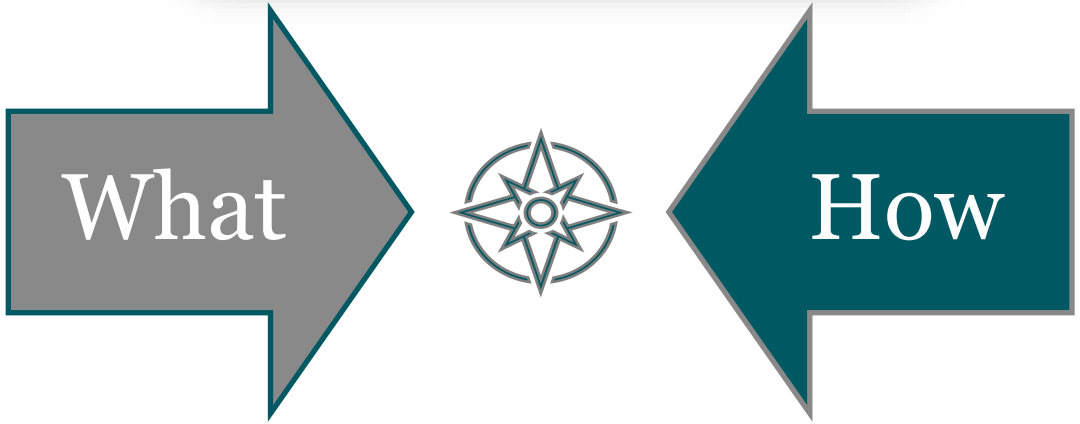

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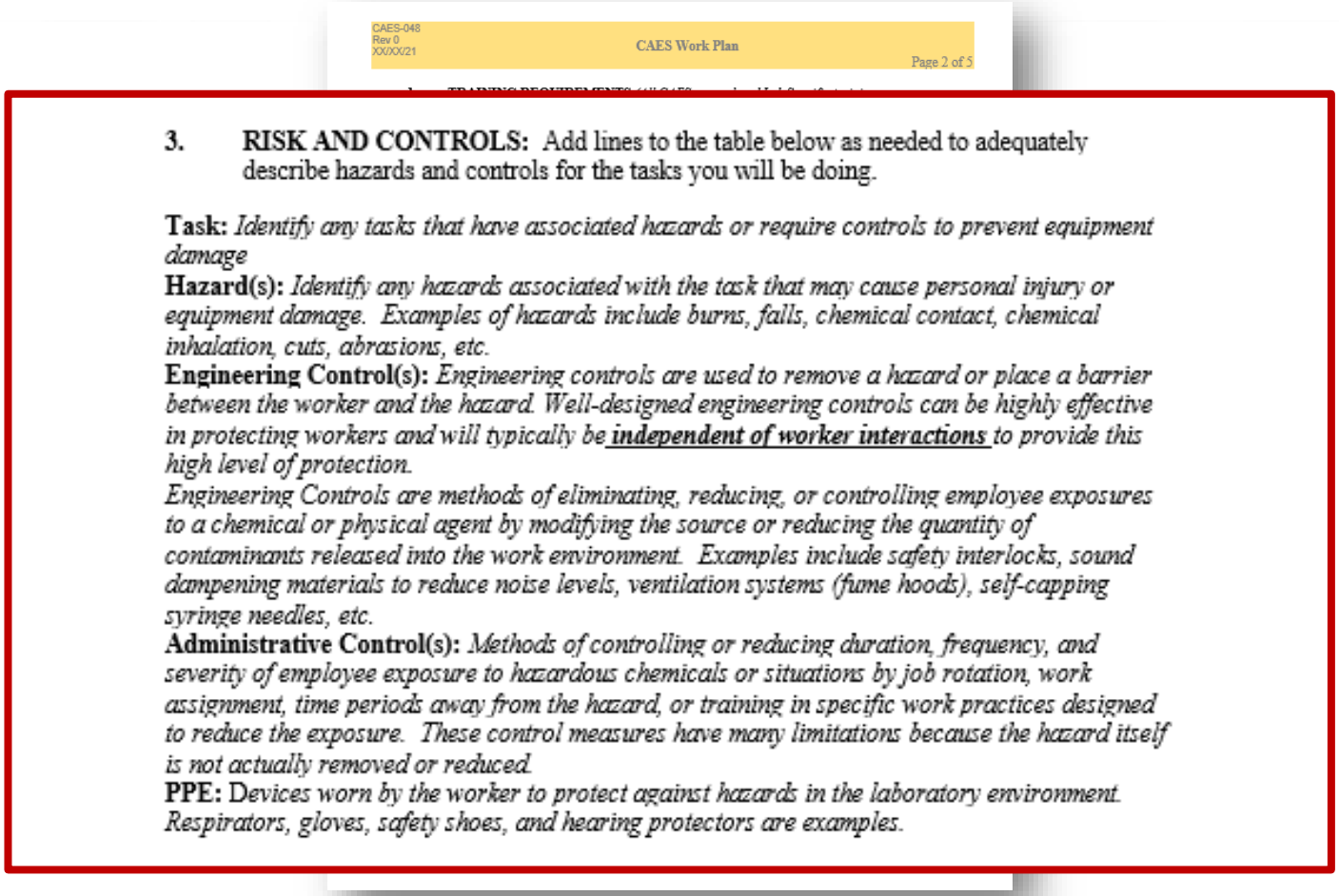

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4. Area Hazards and Off-Normal Conditions

4. AREA HAZARDS AND OFF-NORMAL CONDITIONS

Area Hazard or Off-Normal Condition	Response

5. EXPORT COMPLIANCE

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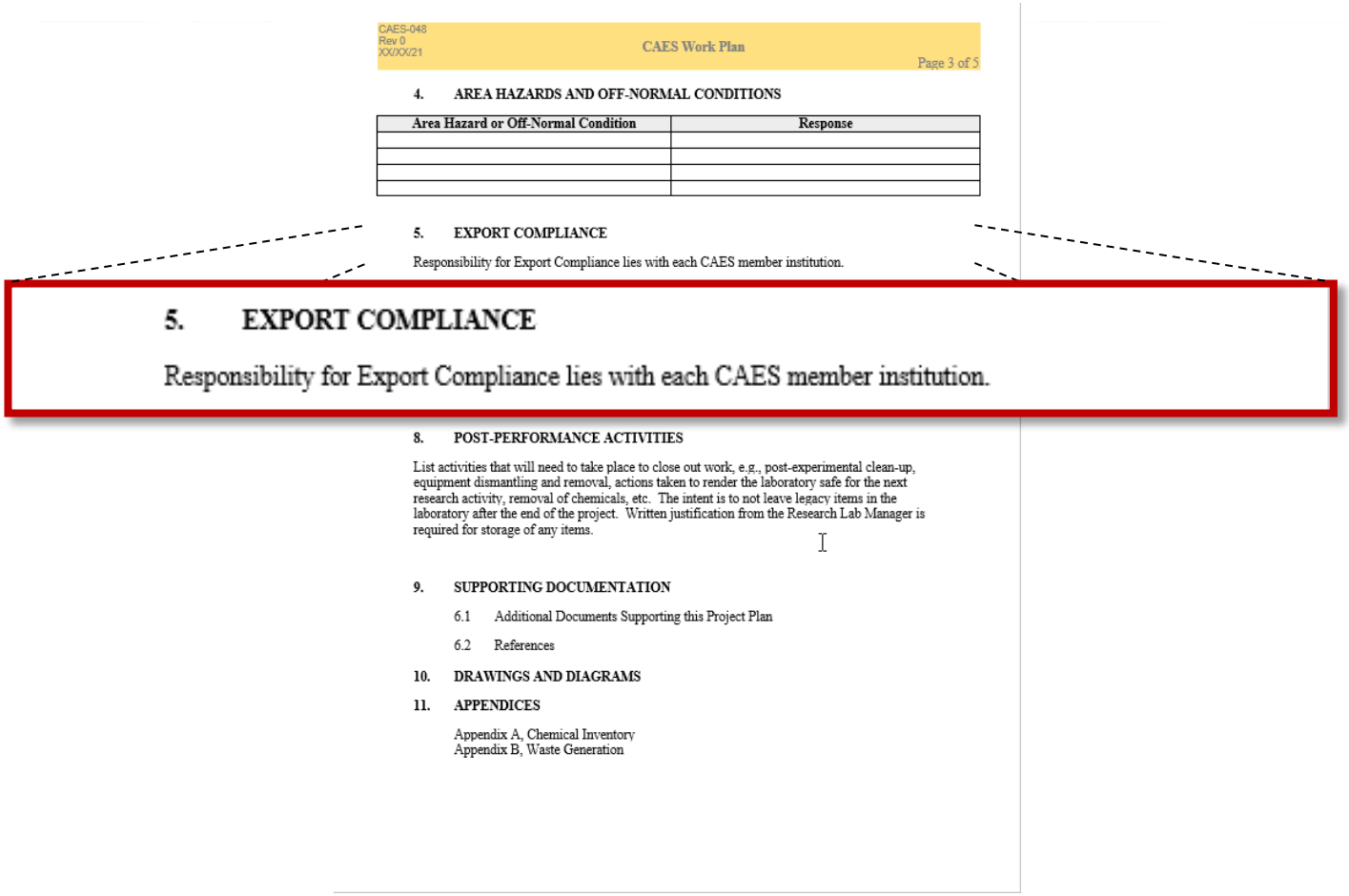
11. APPENDICES

Appendix A, Chemical Inventory
Appendix B, Waste Generation

5. Export Compliance



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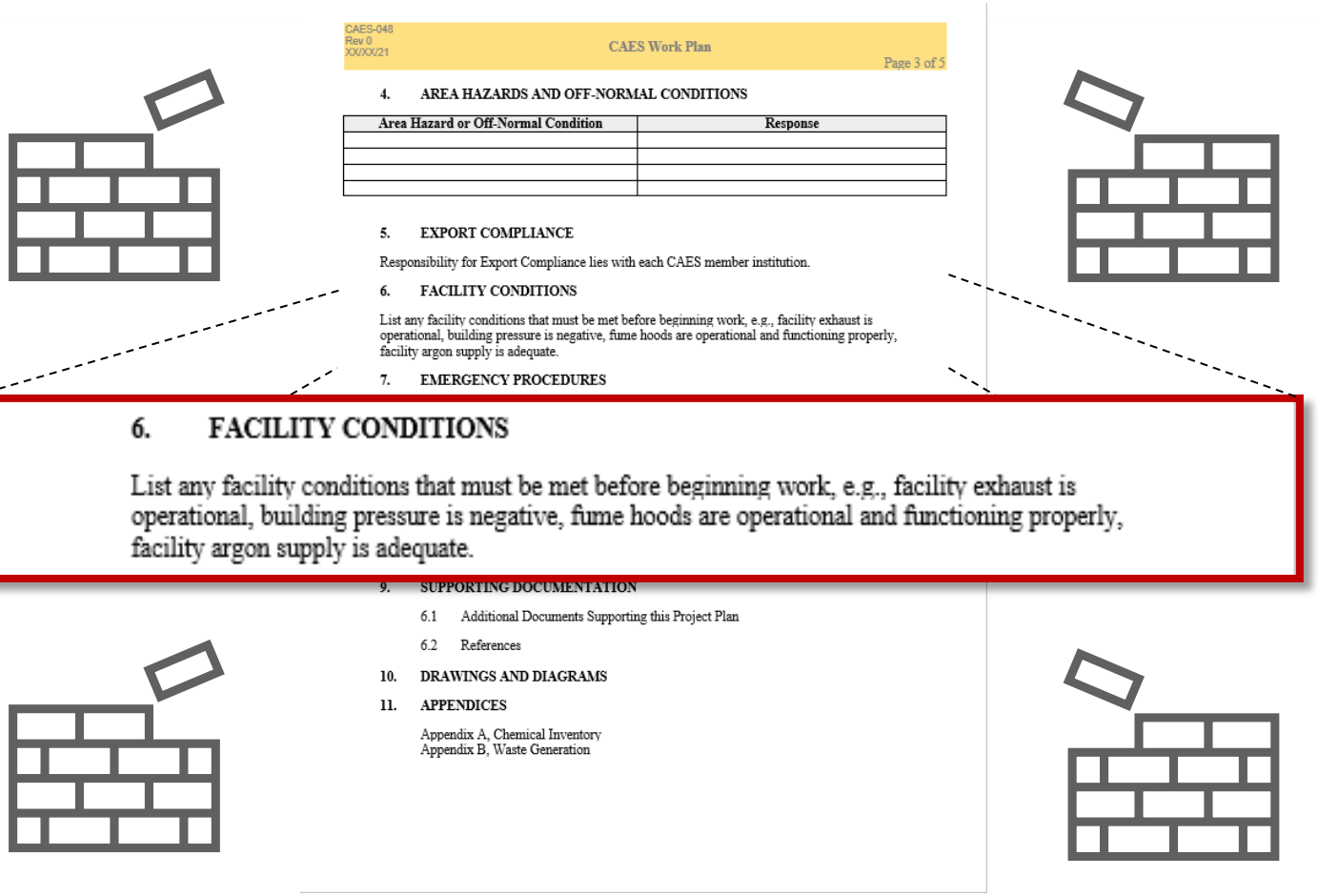
6. Facility Conditions



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7. EMERGENCY PROCEDURES

11. **APPENDICES**

Appendix A, Chemical Inventory
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8. Post-Performance Activities

7. EMERGENCY PROCEDURES

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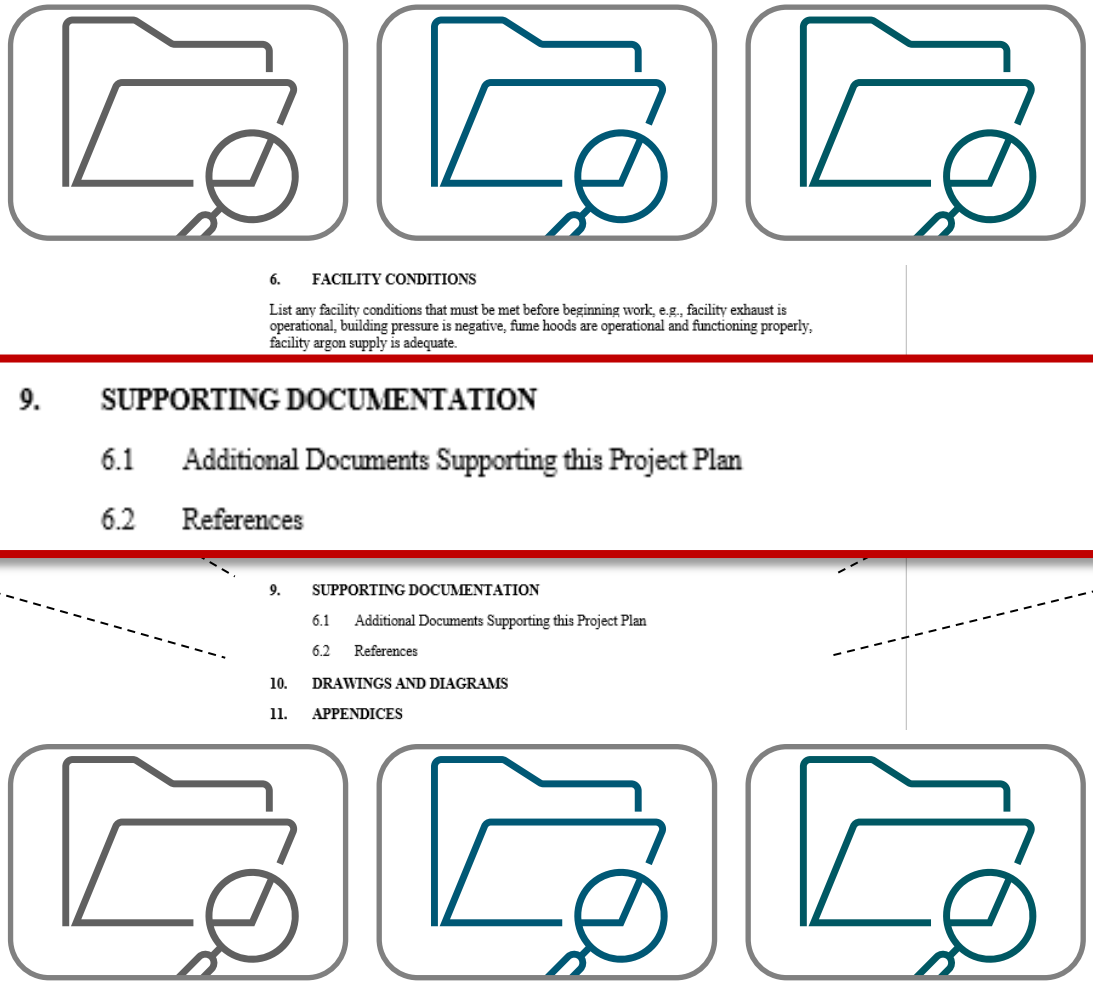

6. FACILITY CONDITIONS

List any facility conditions that must be met before beginning work, e.g., facility exhaust is operational, building pressure is negative, fume hoods are operational and functioning properly, facility argon supply is adequate.

9. SUPPORTING DOCUMENTATION

6.1 Additional Documents Supporting this Project Plan

6.2 References

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6.2 References

10. DRAWINGS AND DIAGRAMS

11. APPENDICES

10. Drawings and Diagrams

7. **EMERGENCY PROCEDURES**

8. **POST-PERFORMANCE ACTIVITIES**

List activities that will need to take place to close out work, e.g., post-experimental clean-up, equipment dismantling and removal, actions taken to render the laboratory safe for the next research activity, removal of chemicals, etc. The intent is to not leave legacy items in the laboratory after the end of the project. Written justification from the Research Lab Manager is required for storage of any items.

10. DRAWINGS AND DIAGRAMS

6.2 References

10. **DRAWINGS AND DIAGRAMS**

11. **APPENDICES**

Appendix A, Chemical Inventory
Appendix B, Waste Generation

11. Appendices

4. AREA HAZARDS AND OFF-NORMAL CONDITIONS

Area Hazard or Off-Normal Condition	Response

5. EXPORT COMPLIANCE

Responsibility for Export Compliance lies with each CAES member institution.

6. FACILITY CONDITIONS

List any facility conditions that must be met before beginning work, e.g., facility exhaust is operational, building pressure is negative, fume hoods are operational and functioning properly, facility argon supply is adequate.

7. EMERGENCY PROCEDURES

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11. APPENDICES

Appendix A, Chemical Inventory
Appendix B, Waste Generation

10. DRAWINGS AND DIAGRAMS

11. APPENDICES

Appendix A, Chemical Inventory
Appendix B, Waste Generation

Appendix A: Chemical Inventory

APPENDIX A

CHEMICAL INVENTORY

(Chemical hazards are captured in the body of the Work Plan – this section only provides a list of chemicals used in execution of the plan.)

Name and CAS Number	NFPA	Chemical State	Concentration	Amount used per day	Frequency of Use	Max. Storage Volume	Use or Exposure Duration
	Health - Fire - Reactivity -						

Appendix B: Waste Generation

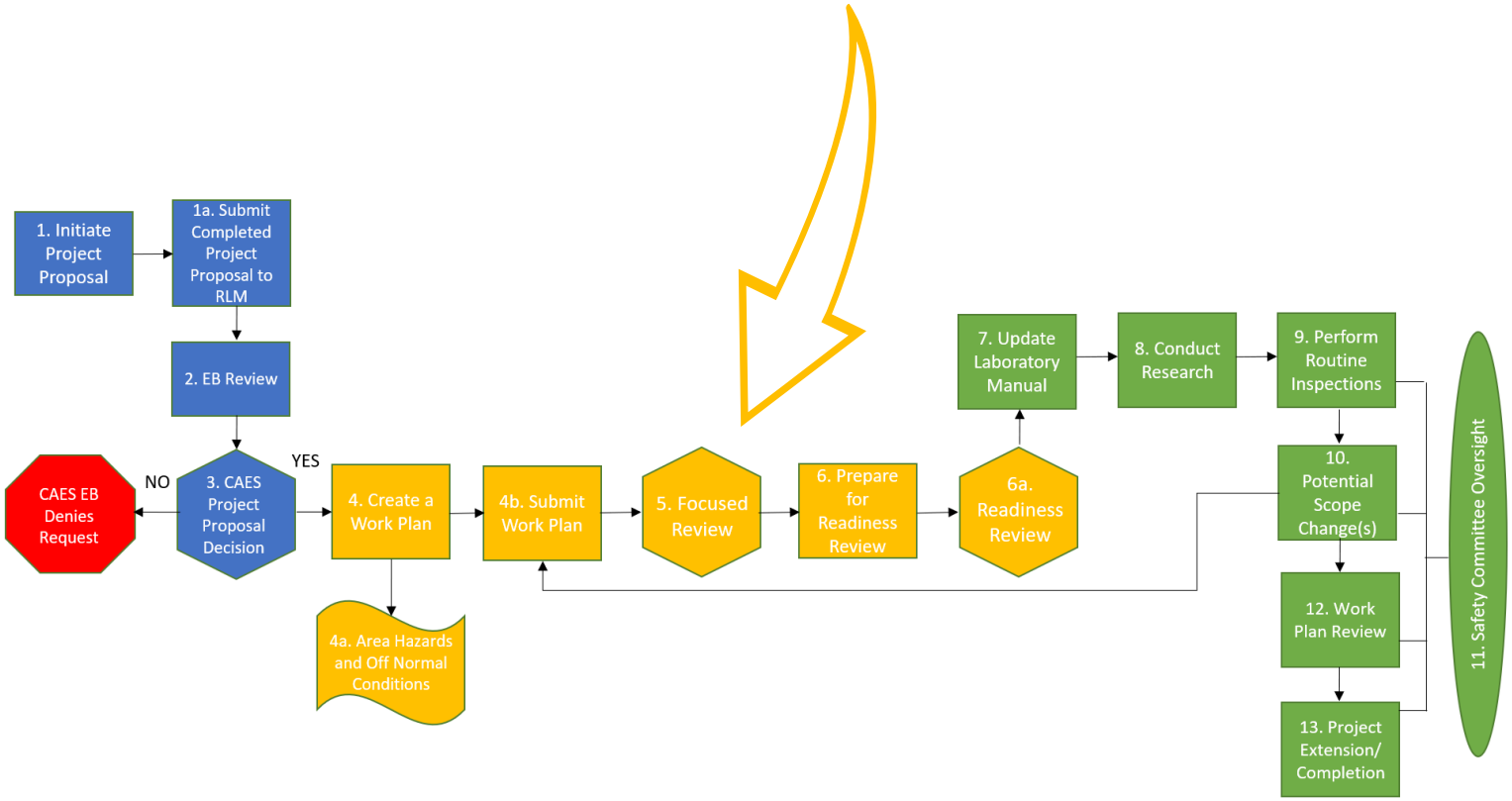
APPENDIX B

WASTE GENERATION

Type of Waste	Anticipated Volume	Container Type	Disposal Responsibility
List any special needs/requirements for storage and handling and disposal of wastes.			
If a spill occurs, how will it be cleaned up?			

Conclusion

Work Planning and Safety Envelope



Conclusion

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