

ATTACHMENT G-5
DRAFT FRAMEWORK BLASTING PLAN

Draft Framework Blasting Plan

Boardman to Hemingway Transmission Line Project

Prepared By



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Agency Review Process

The agency review process outlined in this section aligns with the OAR 345-025-0016 agency consultation process applicable to monitoring and mitigation plans.

As described in the draft Framework Blasting Plan, blasting may be required in areas of rocky terrain, if determined necessary following the site-specific geotechnical investigation for transmission line structure foundation and access road locations. If blasting is required, the draft Framework Blasting Plan will be finalized, as described throughout the plan. In addition, the plan may be amended at any time during construction, subject to the agency review process outlined below.

To afford an adequate opportunity for applicable local, state and federal agencies to review the draft plan prior to finalization and implementation, and any future plan amendments, the certificate holder shall implement the following agency review process.

- Step 1: Certificate Holder's Initial Notification to the Department of Potential Blasting: In the electronic transmittal of the pre-construction Geotechnical Investigation to the Department (Structural Standard Condition 1(b)), the certificate holder shall identify whether blasting activities are recommended for facility construction, and shall identify, in table and map format, potential blasting locations including tower number, milepost and county.
- Step 2: Certificate Holder's Update of Draft Plan or Future Plan Amendment: The certificate holder may develop one Blasting Plan to cover all blasting activities for the entire facility; or, may develop individual plans per county, segment or phase, as best suited for facility construction. Based on the draft Framework Blasting Plan included as Attachment G-5 of the Final Order on the ASC, the certificate holder shall update the draft plan(s) identifying applicable regulatory requirements, including any necessary blasting or explosive permits. If the plan(s) are amended following finalization, the certificate holder shall clearly identify and provide basis for any proposed changes.
- Step 3: Certificate Holder and Department Coordination on Appropriate Review Agencies and Agency Review Conference Call(s): Prior to submission of the updated draft plan, or any future amended plans, the certificate holder shall coordinate with the Department's Compliance Officer to identify the appropriate federal, state and local agencies to be involved in the plan review process. In this instance, "appropriate" federal agencies are based on landownership where blasting is recommended or planned; "appropriate" state agencies are based on landownership where blasting is recommended or planned, as well as the Department of Geology and Mineral Industries (DOGAMI) and Oregon State Fire Marshal. "Appropriate" local agencies include the local planning department of the jurisdiction blasting is recommended or planned to occur. Once appropriate federal, state and local agency contacts are identified by the Department and certificate holder, the Department's Compliance Officer will initiate coordination between agencies to schedule review/planning conference call(s). If blasting is recommended within multiple counties, the Department and certificate holder may agree to schedule separate conference calls per county.

The intent of the conference call(s) are to provide the certificate holder, or its contractor, an opportunity to describe blasting locations, details of the updated draft or amended plan; and, agency plan review schedule. Agencies may provide initial feedback on requirements to be included in the plan during the call, or may provide written comments during the 14-day comment period. The Department will request that any comments provided be supported by an analysis and local, state or federal regulatory requirement (citation).

The certificate holder may coordinate with appropriate review agencies, in advance of or outside of the established agency review process; however, this established agency review process is necessary under OAR 345-025-0016 and may result in more efficient plan finalization and amendment if managed in a consolidated process, utilizing the Department's Compliance Officer as the lead Point of Contact.

Step 4: Agency Review Process: Either with, or prior to, the agency conference call(s), the certificate holder shall distribute electronic copies of the draft, or future amended, plan(s) requesting that the Department coordinate agency review comments within 14-days of receipt, or as otherwise determined feasible. Following the 14-day agency review period, the Department will consolidate comments and recommendations into the draft, or amended, plan(s), using a Microsoft Word version of the plan provided by certificate holder. Within 14-days of receipt of the agency review comments, the certificate holder shall provide an updated final version of the plan, incorporating any applicable regulatory requirements, as identified during agency review or must provide reasons supporting exclusion of recommended requirements. Final plans will be distributed to applicable review agencies by the Department, including the certificate holder's assessment of any exclusions of agency recommendations, and a description of their opportunity for dispute resolution.

Step 5: Dispute Resolution: If any review agency considers the final, or amended, plan(s) not to adhere to applicable state, federal or local laws, Council rules, Council order, or site certificate condition or warranty, the review agency may submit a written request of the potential violation to the Department's Compliance Officer or Council Secretary, requesting Council review during a regularly scheduled Council meeting. The Council would, as the governing body, review the violation claim and determine, through Council vote, whether the claim of violation is warranted and identify any necessary corrective actions.

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ACRONYMS AND ABBREVIATIONS

CIC	Compliance Inspection Contractor
IPC	Idaho Power Company
ODOE	Oregon Department of Energy
POD	Plan of Development
Project	Boardman to Hemingway Transmission Line Project
U.S.	United States

1.0 INTRODUCTION

The Blasting Plan Framework outlines methods to mitigate risks and potential impacts associated with blasting procedures that may be required for construction of the Boardman to Hemingway Transmission Project (Project). Also included in this section is a preliminary outline for the Blasting Plan to be prepared by the Construction Contractor(s) and submitted to Idaho Power Company (IPC) if blasting is required. The Compliance Inspection Contractor (CIC) and the appropriate agencies will be notified in advance of any required blasting so the area can be cleared. If blasting is to occur on federal lands, IPC will submit the Blasting Plan to the federal land-management agencies for final review and approval.

1.1 Plan Framework Updates

This plan framework will support the Project sufficiently to complete and execute the Oregon Department of Energy (ODOE) site certificate. This plan framework serves as baseline document to guide development of the complete Blasting Plan developed with the Plan of Development before issuance of the site certificate and commencement of construction. The complete Blasting Plan will be developed by the Construction Contractor(s) in consultation with IPC as detailed engineering design of the Project is completed and will contain the detailed information necessary for site-specific guidance. This plan framework provides Project-specific guidance for development of the complete Blasting Plan by identifying treatments and measures required to avoid, minimize, and mitigate Project-related impacts; prevent unnecessary degradation of the environment; ensure blasting activities comply with federal, state, or other agency requirements; and meet any stipulations of the Site Certificate. The Construction Contractor(s) will be responsible for preparing and implementing the complete Blasting Plan.

1.2 Blasting Plan Purpose

Once completed, the Blasting Plan will provide construction crews, the CIC, and environmental monitors with Project-specific information concerning blasting procedures, including the safe use and storage of explosives. The objective of the Blasting Plan is to prevent adverse impacts on human health and safety, property, and the environment that could potentially result from the use of explosives during Project construction.

Blasting may be needed in certain areas with rocky terrain to excavate tower footings, prepare station pads, and to construct access roads. Blasting will be used only in areas where traditional excavation and earth-moving equipment and practices are unable to accomplish the excavation. If hard rock is encountered within the planned drilling depth, blasting may be required to loosen or fracture the rock to reach the required depth to install the structure foundations. Precise locations where blasting is expected will be identified based on a site-specific geotechnical investigation carried out as part of detailed design. In addition, the Construction Contractor(s) may elect to use implosive sleeves during line-stringing activities to fuse conductor wire together.

2.0 REGULATORY COMPLIANCE AND PROCEDURES

The Construction Contractor(s) will be responsible for preparing and implementing the Blasting Plan and must comply with all applicable federal, state, and local laws and regulations. No blasting operations will be undertaken until approval and appropriate permits have been obtained from the applicable agencies. Failure to comply with such laws could result in substantial financial penalty and/or imprisonment.

The Construction Contractor(s) will use qualified, experienced, and licensed blasting personnel who will perform blasting using current and professionally accepted methods, products, and procedures to maximize safety during blasting operations. Blasting procedures will be carried out according to, and in compliance with, applicable laws and will be closely monitored by the CIC.

3.0 BLASTING PLAN GUIDANCE

Prior to blasting, the Construction Contractor(s) shall prepare a Blasting Plan for review and approval by IPC, ODOE, CIC, and any other relevant jurisdictional organization, as applicable. The plan will address safety as well as design for production and controlled blasting. The Blasting Plan also will contain the full details of the drilling and blasting patterns, as well as the controls the Construction Contractor proposes to use for both controlled and production blasting. Review of the plan by the parties shall not relieve the Construction Contractor(s) of the responsibility for the accuracy and adequacy of the Blasting Plan when implemented in the field. A minimum of 2 weeks should be allowed for review and approval of the Blasting Plan by ODOE and other appropriate agencies. If at any time changes are proposed to the Blasting Plan, the Construction Contractor(s) shall submit them to IPC, who will then submit the proposed changes to ODOE and other appropriate agencies and the CIC for review and approval.

3.1 Overview of Blasting Principles

3.1.1 Locations

The Construction Contractor(s) will avoid blasting in potential rockslide/landslide areas to the maximum extent possible and will consult with a geologist before blasting in such areas. A common practice for fusing conductor wire together is the use of implosive sleeves, which use explosive materials. The Construction Contractor(s) should be knowledgeable about this practice and should coordinate with the CIC, particularly with regard to the locations of these practices.

3.1.2 Materials

The Construction Contractor(s) will determine the specific materials needed for blasting operations. These materials will be included on the hazardous materials list for the Project, and their use and storage will comply with applicable federal, state, and local laws and regulations.

3.2 Blasting Plan Components

The Blasting Plan prepared by the Construction Contractor(s) shall contain the following minimum information in the following format:

1. Purpose
2. Scope of the Blasting
3. Definitions
4. Responsibilities
 - 4.1 Management Organization
 - 4.2 Authority Responsibility
 - 4.3 Blaster in Charge (licensed in Idaho and Oregon)

5. Location of Blasting Area

5.1 Description of Blasting Area

5.2 Description of Bedrock and Geological Problems

5.3 Description of Adjacent Utility Facilities

6. Environmental Considerations

7. Safety Considerations

7.1 General

7.2 Warning Signs and Signals

7.3 Procedures around Adjacent Utility Facilities

7.4 Traffic Control

7.5 Emergency Blast Initiation

7.6 Safety Publications

7.7 Fire Prevention

7.8 Safety Hazards

7.9 Emergency Services and Communication

7.10 Minor or Nonemergency Medical Care

7.11 First Aid

8. Risk Management

8.1 Protection of Adjacent Utility Facilities

8.2 Lightning

8.3 Flyrock (Note: Flyrock will be controlled with blasting mats.)

8.4 Carbon Monoxide

8.5 Ground Vibrations

8.6 Seismically Sensitive Receptors and Monitoring Plan

Description of seismic monitoring to ensure ground vibration does not exceed the maximum limit in 2018 NFPA 495 Figure 11.2.1 at the nearest structures or buildings. Where seismic monitoring is not provided, explosive use shall be limited to the "scaled distance factors" at the nearest structure as identified in 2018 NFPA 495 Table 11.2.2

8.6.7 Preblast Survey and Inspection

8.8 Post Monitoring and Seismic Report

8.7.8.9 Blast Damage Complaints

8.10 Airblast

8.8.11 Bond or insurance certificate

Demonstration that contractor has bond or insurance certificate for blasting activities in an amount not less than \$1,000,000. The Fire Marshal may determine that more coverage is necessary for certain projects

9. Blast Design Concept

9.1 Station limits of proposed shot

9.2 Plan and section views of proposed drill pattern, including free face, burden, blasthole spacing, blasthole diameter, blasthole angles, lift height, and sub-drill depth

- 9.3 Loading diagram showing type and amount of explosives, primers, initiators, and location and depth of stemming
- 9.4 Initiation sequence of blastholes, including delay times and delay system
- 9.5 Manufacturers' data sheets for all explosives, primers, and initiators to be employed
- 10. Procedures
 - 10.1 Delivery of Explosives
 - 10.2 Storage of Explosives and Blasting Agents
 - 10.3 Blast Hole Drilling
 - 10.4 General Handling of Explosives
 - 10.5 Blast Hole Loading
 - 10.6 Notification
 - 10.7 Initiation of Blast
 - 10.8 Misfire Management
 - 10.9 Test Blasting
- 11. Records
- 12. Attachments

3.3 Safety Procedures

Safe storage and use of explosive materials will be a top priority during construction. The safety measures discussed in this section are intended to prevent theft and/or vandalism of the explosive materials, protect against fire, and prevent personal injury and property damage. These measures are intended as general guidelines and specific safety requirements will be identified by the construction contractor prior to construction.

3.3.1 Storage

Explosives must be stored in an approved structure (magazine) and kept cool, dry, and well-ventilated. IPC's Construction Contractor(s) will provide the respective states' Bureau of Alcohol, Tobacco, Firearms, and Explosives office with a list of dates and locations for the explosives and blasting-agent storage facilities to be used on the Project at least 14 days before the establishment of such storage facilities.

At a minimum, the following storage requirements will be implemented:

- Explosives must be stored in an approved structure (magazine), and storage facilities will be bullet, weather, theft, and fire resistant.
- Magazine sites will be located in remote (out-of-sight) areas with restricted access; will be kept cool, dry, and well ventilated; and will be properly labeled and signed.
- Detonators will be stored separately from other explosive materials.

- The most stringent spacing between individual magazines will be determined according to the guidelines contained in the Bureau of Alcohol, Tobacco, Firearms, and Explosives publication or state or local explosive storage regulations.
- Both the quantity and duration of temporary onsite explosives storage will be minimized.

The Construction Contractor(s) will handle and dispose of dynamite storage boxes in accordance with relevant federal, state, and local laws.

3.3.2 Blasting Notification and Safety Procedures

The Construction Contractor(s) will obtain a permit from the appropriate county as needed, for the period when blasting may occur and will comply with the following requirements developed by the federal land-management agencies:

- The ~~holder~~ Construction Contractor(s) shall publish a proposed blasting schedule in the local newspaper 1 week prior to any blasting taking place. The schedule shall identify the location, dates, and times blasting will occur. No blasting shall occur outside of the published schedule, except in emergency situations.
- The Construction Contractor(s) ~~holder~~ shall post warning signs at all entry points for the Project. Warning signs shall include information on blasting, including the general hours blasting might take place, and audible signals to be used warning of impending blasting and to indicate the site is all clear.
- Access points to areas where blasting will take place will be blocked to prevent access by the public at least 30 minutes prior to blasting. The site shall be swept 5 minutes prior to blasting to ensure no unauthorized personnel have wandered onto the site. An audible warning signal, capable of carrying for 0.5 mile, shall be used at least 2 minutes prior to blasting. An “all-clear” signal will be given once it has been determined the area is safe.
- Blasting in the vicinity of pipelines will be coordinated with the pipeline operator and will follow operator-specific procedures, as needed.
- Damages that result solely from the blasting activity will be repaired or the owner fairly compensated.

A determination that the blasting area is all clear of danger will be derived once the blasting area has been inspected for undetonated or misfired explosives. The blasting area also will be inspected for hazards, such as falling rock and rock slides. Once the area has been inspected and these issues have been addressed, the all-clear signal as described above will sound and persons will be able to safely re-enter the blast zone. Additional safety precautions will be developed to address site-specific conditions at the time of the blast. Special attention will be given to preventing potential hazards in the blasting area resulting from flying rock, destabilized walls or structures, presence of low flying aircraft, and dispersion of smoke and gases.

3.3.3 Fire Safety

The presence of explosive materials on the Project site could potentially increase the risk of fire during construction. Special precautions will be taken to minimize this risk, including the following:

- Prohibiting ignition devices within 50 feet of explosives storage areas
- Properly maintaining magazine sites so they are clear of fuels and combustible materials, well ventilated, and fire-resistant
- Protecting magazines from wildfires that could occur in the immediate area

- Posting fire suppression personnel at the blast site during high-fire danger periods
- Prohibiting blasting during extreme fire danger periods

3.3.4 **Transportation of Explosives**

Transportation of explosives will comply with all applicable federal, state, and local laws, including Title 49 of the Code of Federal Regulations, Chapter III. These regulations are administered by the United States (U.S.) Department of Transportation and govern the packaging, labeling, materials compatibility, and safety of transported explosives, as well as driver qualifications. In general, these regulations require vehicles carrying explosive materials be well-maintained, properly marked with placards, and have a non-sparking floor. Materials in contact with the explosives will be non-sparking, and the load will be covered with a fire- and water-resistant tarpaulin. Vehicles also must be equipped with fire extinguishers and a copy of the Emergency Response Guidebook (U.S. Department of Transportation 2008). Every effort will be made to minimize transportation of explosives through congested or heavily populated areas.

Prior to loading an appropriate vehicle for carrying explosives, the vehicle shall be fully fueled and inspected to ensure its safe operation. Refueling of vehicles carrying explosives shall be avoided. Smoking shall be prohibited during the loading, transporting, or unloading of explosives. In addition, the following specific restrictions apply to transport of other items in vehicles carrying explosives:

- Tools may be carried in the vehicle, but not in the cargo compartment.
- Detonation devices can, in some cases, be carried in the same vehicle as the explosives, but they must be stored in a specially constructed compartment(s).
- Batteries and firearms shall never be carried in a vehicle with explosives.
- Vehicle drivers must comply with the specific laws related to the materials being transported.

Vehicles carrying explosives shall not be parked or left unattended except in designated parking areas with approval of the State Fire Marshall. When traveling, vehicles carrying explosives will avoid congested areas to the maximum extent possible.

3.4 **Design Features of the Project for Environmental Protection**

This section will serve as the baseline measures for inclusion in the complete Blasting Plan to be developed by the Construction Contractor(s). Design features of the Project for environmental protection are applied Project-wide and will address many of the concerns associated with blasting. Design Features of the Project for Environmental Protection are developed in accordance with ODOE and other appropriate agency standards. Following is a description of design features of the Project for environmental protection that relate to blasting during the construction and operation of Project facilities.

Design Feature 14. State standards for abandoning drill holes will be adhered to where groundwater is encountered.

Design Feature 21. Hazardous material will not be discharged onto the ground or into streams or drainage areas. Enclosed containment will be provided for all waste. All construction waste (i.e., trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials) will be removed to a disposal facility authorized to accept such materials within 1 month of Project completion, except for hazardous waste which will be removed within 1 week of Project completion.

Refueling and storing potentially hazardous materials will not occur within a 200-foot radius of all identified private water wells, and a 400-foot radius of all identified municipal or community water wells. Spill prevention and containment measures will be incorporated as needed.

Design Feature 32. If, based on landowner consultation, on parcels that contain a natural spring or well and on which blasting will be conducted, the certificate holder shall conduct pre-blasting flow measurements to establish a baseline for potential impacts to the spring or well.

Watering facilities (tanks, natural springs and/or developed springs, water lines, wells, etc.) will be repaired or replaced if they are damaged or destroyed by construction and/or maintenance activities to their predisturbed condition as required by the landowner or land-management agency. Should construction and/or maintenance activities prevent use of a watering facility while livestock are grazing in that area, then the Applicant will provide alternate sources of water and/or alternate sources of forage where water is available.

3.5 Literature Cited

U.S. Department of Transportation. 2008. Emergency Response Guidebook. Available at <http://www.ehso.com/hmerg.php>.