ESTVOLD OILFIELD SERVICES

HYDROBLAST SAFETY POLICY

Document Number: EST-HSE-504
Title: Hydroblast Policy
Revision: 1
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Owner: HSE Department

Policy Control Item	Policy Information
Company	Estvold Oilfield Services
Document Type	Policy / Program Manual / Field Forms / Hydroblast Safety and Audit Package
Applies To	All hydro-blasting operations, pressure washing activities, customer sites, shops, yards, vehicles, contractors under company direction, and field operations involving high-pressure fluid systems
Program Intent	High-pressure hazard recognition, injection injury prevention, equipment integrity, employee protection, exclusion zone management, emergency response readiness, and continuous improvement
Regulatory Alignment	OSHA pressure equipment safety expectations, high-pressure fluid hazard principles, PPE requirements, manufacturer requirements, client rules, and company safety management expectations
Revision	Comprehensive V2 - Editable Master
Approval	Management / HSE / Operations

INCLUDED IN THIS PACKAGE

- Expanded Hydroblast Safety policy manual
- Roles, responsibilities, and accountability expectations
- Hydroblast planning, hazard assessment, and high-pressure exposure controls
- Equipment, hose, fitting, pressure testing, and inspection requirements
- Exclusion zone, barricade, communication, and line-of-fire management guidance
- PPE, injection injury response, and emergency coordination expectations
- Trend analysis, KPIs, audit expectations, and management review
- Supervisor quick response guide, field forms, logs, and verification tools

DOCUMENT CONTROL

Revision	Date	Description of Change	Approved By
0	Initial Release	Original controlled document issue	Management
1	Current Draft	Expanded hydroblast safety manual and forms package	Management
2	Current Revision	BBS master management-system format applied; operational guidance, forms, trend tools, audit expectations, and supervisor resources expanded	Management / HSE / Operations

This document is considered a controlled safety management document. Printed copies are considered uncontrolled unless verified current through the company safety management system or authorized document control location.

DISTRIBUTION AND CONTROL

Controlled copies may be distributed to HSE, operations management, field supervision, training coordinators, company shared safety systems, client-required safety documentation platforms, and field locations where hydroblast or high-pressure cleaning operations are performed.

HOW TO USE THIS MANUAL

- Use Sections 1-24 as the governing program standard for hydroblast and high-pressure cleaning operations.
- Use the Supervisor Quick Response Guide during field planning, equipment concerns, exclusion zone issues, or suspected injection injury events.
- Use Forms A-L as field-ready documentation tools for hazard assessment, equipment inspection, pressure verification, PPE verification, audits, incidents, and corrective actions.
- Review hydroblast inspection findings, incidents, near misses, equipment defects, and exclusion zone concerns monthly.
- Use corrective actions to address system weaknesses, equipment condition, planning deficiencies, training gaps, and repeated exposure patterns.

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1. PURPOSE AND POLICY STATEMENT

Estvold Oilfield Services is committed to protecting employees, contractors, visitors, client representatives, and the public from hazards associated with hydroblasting, pressure washing, and high-pressure cleaning operations. Hydroblast activities can create serious exposure to high-pressure injection injuries, hose whip, flying debris, struck-by hazards, slip hazards, noise exposure, equipment failure, and uncontrolled pressure release.

This program establishes company expectations for hydroblast planning, high-pressure hazard recognition, equipment inspection, hose and fitting integrity, pressure verification, exclusion zone management, PPE selection, communication, emergency response readiness, incident review, corrective action tracking, and continuous improvement.

No production expectation, operational pressure, schedule demand, customer request, or client expectation shall take priority over employee safety. Employees are expected to stop, ask, reassess, and correct hazards before continuing work.

2. SCOPE AND APPLICATION

This policy applies to all Estvold Oilfield Services employees, temporary workers under company supervision, supervisors, management personnel, contractors under company direction, and company-controlled worksites where hydroblasting or high-pressure cleaning operations occur.

The process applies to pressure washing operations, industrial hydroblasting activities, tank cleaning, pipe cleaning, surface preparation, equipment cleaning, maintenance cleaning, customer site activities, shop and yard operations, and any work involving high-pressure fluid systems.

3. REGULATORY ALIGNMENT AND REFERENCES

This policy is written to align with OSHA pressure equipment safety expectations, high-pressure fluid hazard principles, PPE requirements, equipment manufacturer instructions, client-specific safety expectations, and company safety management requirements.

This program does not replace OSHA requirements, customer site rules, manufacturer instructions, equipment-specific operating manuals, JSA requirements, lockout/tagout expectations, or permit requirements. Where another requirement is more stringent, the more protective requirement shall apply.

4. DEFINITIONS

Hydroblast operation: Use of high-pressure water systems to clean, cut, remove, or dislodge material from surfaces, equipment, piping, tanks, vessels, or other work areas.

High-pressure injection injury: A serious injury caused by high-pressure fluid penetrating the skin. These injuries may appear minor at first but can result in severe tissue damage, infection, amputation, or fatality if not treated immediately.

Exclusion zone: A restricted work area established to protect personnel from high-pressure fluid streams, hose movement, flying debris, line-of-fire exposure, and uncontrolled pressure release.

Hose whip: Sudden uncontrolled hose movement caused by pressure release, hose failure, coupling failure, or improper restraint.

Line of fire: The path where personnel may be exposed to high-pressure discharge, hose movement, flying debris, or released energy.

5. PROGRAM PHILOSOPHY AND CORE PRINCIPLES

The Estvold Oilfield Services Hydroblast Safety Program is based on the understanding that high-pressure fluid energy can create serious injury exposure even during short-duration or routine cleaning tasks. Hydroblast work shall be treated as a planned high-energy activity requiring hazard assessment, equipment verification, exclusion zone control, communication, and emergency readiness.

The program is intended to prevent injuries by identifying exposure before work begins, verifying equipment condition, removing personnel from the line of fire, and ensuring employees understand the severity of injection injury hazards.

- Plan hydroblast work before pressure is applied.
- Inspect equipment, hoses, nozzles, fittings, restraints, and controls before use.
- Establish and maintain exclusion zones before operations begin.
- Verify PPE and communication before pressure testing or operation.
- Stop work immediately when pressure equipment, hoses, fittings, barricades, communication, or controls are questionable.

6. HYDROBLAST HAZARD RECOGNITION

Potential hydroblast hazards may include high-pressure injection injury, hose failure, fitting separation, nozzle reaction force, flying debris, struck-by exposure, noise exposure, slip hazards, limited visibility, fatigue, poor communication, and equipment malfunction.

Employees shall recognize that high-pressure injection injuries may initially look like a small puncture wound. Any suspected injection injury shall be treated as a medical emergency and shall receive immediate medical evaluation.

Hazard Category	Example Exposure	Required Control Focus
High-Pressure Injection	Nozzle contact, hose leak, pinhole leak, wand contact	Immediate stop work, medical response, PPE, line-of-fire control
Hose / Fitting Failure	Coupling separation, hose whip, damaged hose	Inspection, rated components, restraint, pressure verification
Flying Debris	Dislodged scale, coating, sand, sludge, or metal fragments	Face protection, exclusion zone, shielding, housekeeping
Slip / Trip Exposure	Water accumulation, hose routing, poor walking surface	Housekeeping, hose management, drainage, access controls
Noise Exposure	Pump operation, blasting activity, enclosed areas	Hearing protection, communication planning, exposure review
Chemical / Environmental Exposure	Contaminated residue, runoff, process material	PPE, containment, waste handling, environmental controls

7. ROLES AND RESPONSIBILITIES

Employees are responsible for recognizing hydroblast hazards, inspecting equipment before use, wearing required PPE, maintaining exclusion zones, following instructions, reporting unsafe equipment, and stopping unsafe work.

Supervisors are responsible for ensuring hazard assessments are completed, equipment inspections are performed, pressure ratings are verified, exclusion zones are established, emergency response expectations are reviewed, and unsafe conditions are corrected before work continues.

Management is responsible for providing resources, supporting training, reviewing incidents and trends, ensuring corrective actions are completed, and reinforcing accountability for hydroblast safety performance.

HSE personnel are responsible for supporting program administration, audit tools, trend tracking, training guidance, incident review, and continuous improvement.

Role	Primary Responsibilities
Employees	Inspect tools and hoses, follow controls, wear PPE, report concerns, stop unsafe work.
Supervisors	Plan work, verify inspections, establish barricades, review emergency response, correct unsafe conditions.
Management	Provide resources, support accountability, review trends, remove barriers, verify corrective action closure.
HSE	Support training, program review, audit completion, incident learning, and documentation quality.

8. HYDROBLAST PLANNING REQUIREMENTS

Hydroblast work shall be planned before pressure is applied. Planning shall address pressure rating, hose routing, nozzle selection, wand control, exclusion zones, environmental conditions, communication, emergency access, PPE, pressure testing, and shutdown procedures.

- Review the task and pressure requirements.
- Verify hose, fitting, nozzle, and equipment compatibility.
- Identify line-of-fire exposure and personnel positioning.
- Confirm emergency shutdown methods and communication.
- Review runoff, waste, noise, and environmental exposure.

9. EQUIPMENT INSPECTION AND MAINTENANCE EXPECTATIONS

Hydroblast pumps, hoses, nozzles, valves, fittings, gauges, wands, restraints, and accessories shall be inspected before use. Damaged equipment shall be removed from service immediately and tagged or segregated to prevent use.

- Inspect hoses for cuts, bulges, soft spots, exposed reinforcement, leaks, and abrasion.
- Verify gauges, controls, emergency shutdown devices, and relief systems are functional.
- Confirm fittings and couplings are compatible and secure.
- Document defects and corrective actions.

10. HIGH-PRESSURE HOSE AND CONNECTION REQUIREMENTS

Hoses and fittings shall be rated for the operating pressure and used within manufacturer limitations. Hose routing shall minimize pinch points, sharp bends, traffic exposure, trip hazards, and line-of-fire exposure. Approved restraint systems shall be used where required.

- Use rated components only.
- Avoid makeshift fittings or unauthorized repairs.
- Protect hoses from vehicle traffic and sharp edges.
- Verify connection integrity before pressurization.

11. PRESSURE TESTING AND OPERATIONAL CONTROLS

Pressure systems shall be tested and operated according to manufacturer requirements, company expectations, and the approved work plan. Pressure shall be relieved safely before maintenance, adjustment, hose movement, nozzle changes, or disconnection.

- Verify operating pressure before work begins.
- Increase pressure in a controlled manner.
- Never inspect leaks by hand or body contact.
- Depressurize before adjustments or disassembly.
- Maintain emergency shutdown readiness.

12. PPE AND EXPOSURE CONTROL REQUIREMENTS

Required PPE shall be based on task exposure, pressure level, debris potential, noise level, chemical exposure, and environmental conditions. PPE shall be inspected before use and maintained in serviceable condition.

- Face shield and safety glasses or goggles.
- Cut-resistant or hydroblast-rated hand protection where required.
- Rain suit or protective clothing suitable for exposure.
- Hearing protection when noise exposure exists.
- Steel-toe footwear and additional protection based on task hazards.

13. EXCLUSION ZONE AND BARRICADE REQUIREMENTS

Exclusion zones shall be established before hydroblast operations begin. Barricades, warning signs, attendants, or physical controls shall be used to prevent unauthorized personnel from entering areas exposed to high-pressure streams, hose movement, flying debris, or uncontrolled release.

- Define the work area before pressurizing equipment.
- Control access with barricades or attendants.
- Keep non-essential personnel outside the exclusion zone.
- Reassess barricades when the work area changes.

14. COMMUNICATION AND LINE-OF-FIRE CONTROL

Communication shall be established between the operator, pump operator, supervisor, attendants, and affected personnel before work begins. Personnel shall remain outside the line of fire and shall not position body parts near pressurized leaks, nozzles, hose connections, or discharge paths.

- Review hand signals or radio communication.
- Confirm stop signals before operations begin.
- Maintain visual or radio contact where feasible.
- Pause work if communication is lost or unclear.

15. WORKSITE HAZARD ASSESSMENT

Before work begins, supervisors and employees shall evaluate pressure exposure, hose routing, slip hazards, environmental conditions, noise exposure, access/egress, nearby personnel, customer operations, emergency access, and equipment condition.

16. EMERGENCY RESPONSE AND INJECTION INJURY EXPECTATIONS

High-pressure injection injuries, hose failures, uncontrolled releases, or equipment failures shall be treated as emergencies. Suspected injection injuries require immediate medical evaluation even when the wound appears minor.

Emergency response planning shall include communication methods, emergency shutdown procedures, EMS access, first aid availability, supervisor notification, and incident documentation.

- Stop work immediately and relieve pressure safely.
- Remove personnel from exposure.
- Notify supervision and emergency response resources.
- Do not delay medical evaluation for suspected injection injury.
- Preserve equipment and scene information for incident review.

17. CONTRACTOR AND THIRD-PARTY EXPECTATIONS

Contractors working on company-controlled sites are expected to comply with Estvold hydroblast safety expectations, PPE requirements, equipment inspection requirements, exclusion zone controls, emergency response expectations, and Stop Work Authority principles.

18. DOCUMENTATION AND RECORDKEEPING

The company shall maintain hydroblast hazard assessments, equipment inspections, hose inspections, pressure verification records, exclusion zone verification forms, PPE verification records, training documentation, incident review documentation, corrective action records, and audit records.

19. INCIDENT REPORTING AND INVESTIGATION

Hydroblast incidents, hose failures, pressure releases, injection injuries, equipment defects, exclusion zone breaches, near misses, or unsafe conditions shall be reported immediately. Incident reviews shall identify contributing factors, work planning concerns, equipment condition, communication issues, supervision factors, and corrective actions.

20. STOP WORK AUTHORITY

All employees and contractors have the authority and responsibility to stop work when hydroblast hazards exist, pressure equipment is unsafe, exclusion zones are not maintained, communication is unclear, PPE is inadequate, or serious injury exposure exists. Employees shall not face retaliation for exercising Stop Work Authority in good faith.

21. TRAINING REQUIREMENTS

Training may include hydroblast hazard recognition, high-pressure injection injury awareness, equipment inspection, hose management, exclusion zone expectations, PPE requirements, emergency response, communication expectations, and Stop Work Authority.

22. TREND ANALYSIS, KPIS, AND DATA REVIEW

Hydroblast inspections, equipment deficiencies, exclusion zone concerns, incidents, near misses, corrective actions, and employee feedback shall be reviewed periodically to identify repeated exposure patterns and opportunities for system improvement. Trend review shall focus on learning and prevention, not blame.

Metric	Purpose
Equipment Inspection Completion	Confirms pumps, hoses, fittings, gauges, and safety devices are being reviewed before use.
Defective Equipment Removal	Tracks whether damaged components are removed from service and repaired or replaced.
Exclusion Zone Compliance	Identifies barricade, access control, and line-of-fire weaknesses.
PPE Compliance	Evaluates whether exposure-based PPE is selected, inspected, and worn correctly.
Corrective Action Closure	Confirms actions have owners, due dates, completion dates, and verification.
Incident / Near Miss Trends	Identifies recurring equipment, communication, planning, or supervision concerns.

23. AUDITING AND PROGRAM REVIEW

The company shall periodically review hydroblast planning quality, equipment inspection practices, exclusion zone implementation, PPE compliance, documentation quality, incident trends, corrective action closure, employee feedback, and program consistency. Audit findings shall be reviewed with operations and HSE leadership and tracked through completion.

Audit Item	Satisfactory Evidence
Hazard Assessment Completion	Forms are complete, task-specific, and based on actual hydroblast work activity.
Equipment Inspection Quality	Inspection records identify hoses, fittings, pressure equipment, and emergency shutdown verification.
Exclusion Zone Control	Barricades, warning signs, and access controls are documented and effective.
PPE Verification	Required protection is available, inspected, and used properly.
Emergency Readiness	Injection injury response and shutdown expectations are reviewed before work begins.
Corrective Action Closure	Actions have owners, due dates, completion verification, and follow-up.

24. SUPERVISOR QUICK RESPONSE GUIDE

Situation	Immediate Action	Key Documentation / Control
Pressure hose damage identified	Stop operation immediately and remove equipment from service.	Inspection checklist / damaged tool removal
Exclusion zone breach occurs	Suspend hydroblast activities and reestablish controls.	Exclusion zone verification / hazard assessment
Injection injury suspected	Initiate emergency medical response immediately.	Incident review / medical response documentation
Pressure equipment concern identified	Remove equipment from service until corrected.	Pressure verification / corrective action
Communication failure occurs	Stop work until communication is restored.	Hazard assessment / JSA update
Hydroblast incident occurs	Initiate reporting, secure the area, and begin incident review.	Incident review form / corrective action log

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25. FORMS PACKAGE

The following forms are provided as editable templates. The company may convert these forms into electronic format, fillable PDF, shared drive logs, or safety management software entries as needed.

FORM A - HYDROBLAST HAZARD ASSESSMENT FORM

Date	Supervisor	Department / Crew	Location / Job
Task Description	Customer / Site	Operating Pressure	Weather / Conditions
Hydroblast Equipment	Nozzle / Attachment	Product / Material Being Removed	Environmental Concerns
Assessment Item	**Verified**	**N/A**	**Comments / Controls**
JSA complete and task-specific	☐	☐	
Operating pressure reviewed	☐	☐	
Hose routing reviewed	☐	☐	
Exclusion zone established	☐	☐	
PPE verified	☐	☐	
Emergency shutdown reviewed	☐	☐	
Injection injury response reviewed	☐	☐	
Environmental controls reviewed	☐	☐	

FORM B - HYDROBLAST EQUIPMENT INSPECTION CHECKLIST

Item	Yes	No	Comments
Pump condition acceptable	☐	☐	
Pressure gauges operational	☐	☐	
Emergency shutdown functional	☐	☐	
Nozzle condition acceptable	☐	☐	
Valves and fittings acceptable	☐	☐	
Leaks not observed	☐	☐	
Manufacturer limits reviewed	☐	☐	

FORM C - PRESSURE HOSE INSPECTION FORM

Item	Yes	No	Comments
Hose condition acceptable	☐	☐	
No cuts, bulges, exposed reinforcement, or soft spots	☐	☐	
Connections secure	☐	☐	
Whip checks or restraints used where required	☐	☐	
Pressure rating verified	☐	☐	
Hose routing protected	☐	☐	
Damaged hose removed from service	☐	☐	

FORM D - EXCLUSION ZONE VERIFICATION CHECKLIST

Item	Yes	No	Comments
Barricades installed	☐	☐	
Warning signs visible	☐	☐	
Unauthorized access controlled	☐	☐	
Line-of-fire reviewed	☐	☐	
Communication established	☐	☐	
Work area monitored	☐	☐	
Changes reassessed	☐	☐	

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FORM E - PPE VERIFICATION CHECKLIST

Item	Yes	No	Comments
Eye and face protection available	☐	☐	
Hand protection appropriate	☐	☐	
Hearing protection available	☐	☐	
Protective clothing acceptable	☐	☐	
Foot protection acceptable	☐	☐	
Additional task-specific PPE reviewed	☐	☐	
Defective PPE removed from service	☐	☐	

FORM F - PRESSURE TESTING VERIFICATION FORM

Item	Yes	No	Comments
Pressure rating confirmed	☐	☐	
Connections verified	☐	☐	
System pressurized gradually	☐	☐	
Leaks checked from safe distance	☐	☐	
Emergency shutdown verified	☐	☐	
Pressure relieved before adjustments	☐	☐	
Supervisor approval documented	☐	☐	

FORM G - SUPERVISOR AUDIT AND OBSERVATION FORM

Item	Yes	No	Comments
Hazard assessment complete	☐	☐	
Equipment inspected	☐	☐	
Exclusion zone effective	☐	☐	
PPE compliance acceptable	☐	☐	
Communication effective	☐	☐	
Emergency response reviewed	☐	☐	
Corrective actions assigned if needed	☐	☐	

FORM H - CORRECTIVE ACTION TRACKING FORM

Action ID	Source	Corrective Action	Owner	Due Date	Completion Date	Verified By	Status

FORM I - HYDROBLAST INCIDENT REVIEW FORM

Date	Location	Employee / Crew	Supervisor
Incident Type	Pressure / Equipment Involved	Injury / Exposure	Work Stopped?
Immediate Actions Taken	Medical Response Required	Equipment Secured	Corrective Actions

FORM J - HYDROBLAST TRAINING ACKNOWLEDGMENT

I acknowledge that I have been informed of the Estvold Oilfield Services Hydroblast Safety Program. I understand that hydroblast operations involve high-pressure hazards, injection injury potential, exclusion zone requirements, equipment inspection expectations, PPE requirements, emergency response expectations, and Stop Work Authority.

Employee Name	Signature	Date	Trainer / Supervisor

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FORM K - HIGH-PRESSURE TASK OBSERVATION CHECKLIST

High-Risk Area	Verified	N/A	Comments
JSA complete and task-specific	☐	☐	
Pressure equipment inspected	☐	☐	
Hoses / fittings verified	☐	☐	
Line-of-fire exposure controlled	☐	☐	
Exclusion zone established	☐	☐	
Communication established	☐	☐	
Emergency response reviewed	☐	☐	

FORM L - HYDROBLAST PROGRAM REVIEW SUMMARY

Review Period	Reviewer(s)	Departments Included	Date Completed
Top Safe Practices	Top At-Risk Trends	System Barriers Identified	Program Improvements Needed
Management Review Notes		Approved By / Date	

APPENDIX A - HYDROBLAST SAFETY REFERENCE SUMMARY

This program is intended to support high-pressure fluid hazard recognition, pressure equipment safety expectations, PPE requirements, exclusion zone control, emergency response readiness, and proactive incident prevention. Hydroblast safety reviews shall look beyond the immediate action and evaluate equipment condition, work planning, communication, supervision, training, environmental conditions, and operational pressure.

APPENDIX B - MINIMUM HYDROBLAST PPE REQUIREMENTS

- Face shield and safety glasses or goggles
- Hand protection appropriate for task exposure
- Hearing protection when noise exposure exists
- Protective clothing or rain suit suitable for the task
- Safety footwear
- Respiratory protection or chemical protection when exposure conditions require it
- Additional PPE based on pressure level, debris potential, chemical exposure, and customer requirements

APPENDIX C - PRESSURE EQUIPMENT CONTROL EXPECTATIONS

Pressure equipment control activities should include hose inspection, fitting compatibility review, pressure verification, emergency shutdown readiness, line-of-fire evaluation, exclusion zone verification, environmental condition review, and documented supervision expectations.