

Operations Safety Management Program Plan

Management of Change Plan
and
Pre-Startup Safety Review



Ruh State OGDP

Ruh State North SHL: NW/4 NW/4 of 1-6N-62W

Ruh State South SHL: SE/4 NE/4 of 11-6N-62W

Weld County, Colorado

Introduction

HERV Oil, LLC ("HERV") is committed to prioritizing the health and safety of all personnel, third-party contractors, and vendors above all else. Change is necessary to meet varying circumstances, make needed improvements or respond to emergency conditions. Careful consideration must be given to the safety and environmental implications that result from any change. Without proper review, a change may result in unsafe conditions, hazards, or operating issues. For that reason, in accordance with Colorado Oil and Gas Conservation Commission ("COGCC") Rule 602.d, HERV has developed and implemented an Operations Safety Management Program with the assistance and guidance of SRP Environmental, LLC, which includes a Change Management Program, also known as our Management of Change Process, ("MoC") and Pre-Startup Safety Review Program ("PSSR"), in order to ensure facilities are operated and maintained in a safe manner and prevent potential threats to public health, safety, welfare and the environment. All HERV staff working on a location or facility are trained in and expected to work in conformance with the practices and procedures outlined herein. Management is responsible for ensuring training takes place regularly and practices are adhered to throughout the life of a project.

The MoC describes how HERV records changes to technology, equipment, and procedures; and changes to facilities that affect a process. The PSSR describes how the safety and technical review inspection is conducted prior to startup of any new or modified equipment or process on location.

Through proactive planning, execution, and proper documentation of changes to processes and equipment HERV can minimize, if not eliminate, risk of injuries and incidents while protecting the environment and complying with all applicable environmental, health and safety ("EHS") regulations. This document does not replace, modify, or supersede applicable Federal, State and Local regulations or vendor policies, procedures and guidelines. Where conflicts occur between this document and other regulations or vendor requirements, the higher or more stringent standard shall be followed.

At a minimum, HERV management will review the Operations Safety Management Program, including MoC and PSSR contents, forms, and documentation, annually, and update or revise when warranted. HERV will maintain and keep all MoC documents and associated records stored on the company's server, with backup, accessible to all HERV employees, for a minimum of five (5) years. MoC documents can be provided within seven (7) business days of written request.

Best Management Practices

Environmental Monitoring: Regularly monitor and assess the environmental impacts of oil and gas operations, including air emissions, water quality, soil contamination, and wildlife habitats. Use modern technologies and techniques to detect and address any potential issues promptly.

Spill Prevention and Response: Implement strict spill prevention measures, including proper storage and handling of chemicals and hazardous materials, regular equipment inspections, and comprehensive spill response plans. Provide training to employees on spill response procedures and conduct drills to ensure readiness.

Water Management: Adopt responsible water management practices, including water conservation, recycling, and reuse when possible and cost-effective. Properly manage produced water, drilling fluids, and other wastewater to prevent contamination of water sources.

Energy Efficiency: Optimize energy use in oil and gas operations by using advanced technologies, regular equipment maintenance, and adopting energy-saving practices. Implement energy management programs to reduce greenhouse gas emissions and minimize the environmental impact of operations.

Waste Management: Develop and implement waste management plans to properly handle and dispose of solid waste, drilling cuttings, and other waste materials generated from oil and gas operations. Follow regulations and guidelines for waste disposal and recycling.

Stakeholder Engagement: Engage with local communities, indigenous peoples, and other stakeholders to build positive relationships, understand their concerns, and address social and environmental impacts. Develop communication plans and participate in public consultation processes.

Safety and Health: Prioritize safety and health in all aspects of oil and gas operations. Develop and implement comprehensive safety programs, provide regular training to employees, and enforce strict safety protocols to prevent accidents and protect workers' well-being.

Regulatory Compliance: Stay up to date with applicable laws, regulations, and industry standards related to oil and gas operations, and ensure compliance at all times. Maintain proper permits, licenses, and documentation, and cooperate with regulatory authorities during inspections and audits.

Emergency Preparedness: Develop and maintain robust emergency response plans that cover various scenarios, such as spills, fires, and other incidents. Conduct regular emergency drills, train employees on emergency response procedures, and have adequate resources and equipment on-site for prompt response.

Continuous Improvement: Regularly review and improve operational practices based on lessons learned, technological advancements, and industry best practices. Foster a culture of continuous improvement and innovation to minimize the environmental footprint and maximize operational efficiency.

HERV Oil, LLC

Health, Safety, and Environmental Management System

Management of Change Process and Pre-Startup Safety Review

This document and the information herein is the sole property of HERV Oil, LLC. Intellectual property rights, confidentiality rights and copyrights are declared. This document may not be reproduced or distributed for any purpose without the express written consent of HERV Oil, LLC.

Printed Copies of this document are considered uncontrolled.

HERV Oil, LLC	Health, Safety, and Environmental Management System		
		Date	04/02/2023
		Revision No.	1
Management of Change and Pre-Startup Safety Review			
Page 5 of 10			

AMENDMENTS

Revision	Revision Date	Section	Description of Amendment
1	04-02-2023		New Document

This is an electronically generated document which has been reviewed and approved in accordance with HERV Oil, LLC HSE Management System. An audit trail of review and approval is available within the electronic system and a master approved copy is available from the HSE Department.

The screen version of this document is the CONTROLLED COPY at all times. When printed it is considered a FOR INFORMATION ONLY copy, and it is the holder's responsibility that he / she holds the latest valid version.

HERV Oil, LLC	Health, Safety, and Environmental Management System		
		Date	04/02/2023
		Revision No.	1
Management of Change and Pre-Startup Safety Review			
Page 6 of 10			

TABLE OF CONTENTS

1. INTRODUCTION..... 5

1.1 PURPOSE 1

1.2 SCOPE 1

1.3 RESPONSIBILITY 1

1.4 ABBREVIATIONS 1

2. GUIDANCE..... 1

2.1 APPLICATION..... 1

2.2 CHANGE..... 2

2.3 MOC PROCESS..... 2

3. TRAININGERROR! BOOKMARK NOT DEFINED.

1. INTRODUCTION

1.1 PURPOSE

The purpose of this document is to describe HERV Oil, LLC Management of Change (MOC) Process.

It is to define the process for when a Management of Change is to be utilized. This program establishes the minimum requirements for the use of the MOC procedures to be used when changes to procedures, project related task, and when there is an unscheduled change in supervisory personnel.

1.2 SCOPE

This procedure applies to employees of HERV Oil, LLC only, working on HERV Oil, LLC managed sites. When working on a client's site HERV Oil, LLC will follow client's MoC process. If a manager is in doubt as to whether the provisions apply, s/he should consult the HSE Team.

1.3 RESPONSIBILITY

The Lead HSE Manager - is responsible for the development and maintenance of this document and for annual review against regulatory standards.

However, it is ultimately the responsibility of the Site Supervisor, or Project Manager to ensure the Management of Change process is followed. However, any and all persons working under HERV Oil, LLC control or on projects run by HERV Oil, LLC are responsible for notifying and alerting supervision when there is a change in the planned work activity.

When a change or alteration is identified all work is to STOP and the Supervision at sight shall assess the needed changes, determine the alterations to the original plan and perform a new risk assessment to account for any new hazards, either to personnel, equipment, or the environment.

1.4 ABBREVIATIONS

Term	Description
HSE	Health, Safety, Environmental
MoC	Management of Change

2. GUIDANCE

2.1 APPLICATION

The MoC shall be utilized for;

- the unscheduled change of Supervisory personnel due to an unplanned event.
- to the change of a planned work team (subcontractor) is different from the planned task or assignment.
- Environmental changes impacting installation
- Changes identified at mobilization stage
- Changes to design or task procedure
- Client /3rd Party requests for change of work scope

- Worksite not as expected
- Failure of or change of equipment not of like kind

2.2 CHANGE

Change is an event or issue where there is a transition from one situation or state to a different one. It can be any planned or enforced change, temporary or permanent, to vessel systems and equipment for HERV Oil, LLC activities.

The principle of Management of Change (MoC) is that approval for any change must be given by the right authority and only after a systematic process to examine the impact and management of any associated risks.

The MoC process within this Procedure establishes control measures to achieve the systematic approach and is driven by stages covering the following key elements:

- Identifying the reason for Change
- Consultation with Line Management, stakeholders and discipline experts
- Assessment of risks and identification of mitigating actions
- Authority for approving Change
- Developing the Change Request Form with actions
- Implementing the Change
- Documenting the Change process
- Reviewing the Change and sharing lessons learned
- Closing out the Change

It is appreciated that the application of this Process will vary widely depending on the nature of the Change and associated risks.

Existing Change Procedures that relate to project activities or where the activity is routine (and already covered by robust documented procedures) may continue to be used within the business.

2.3 MOC PROCESS

Management of Change is a four-step gated process consisting of:

Step 1: Identify (Appraise and Select)

Step 2: Risk/Hazard Assessment (Define)

Step 3: Implement/Communicate (Execute)

Step 4: Complete (Operate)

2.3.1 STEP 1 - IDENTIFY (APPRAISE AND SELECT)

Minimum Step Requirements

1. Proposed Change initiated by Change Originator.
2. Is the Change a Replacement in Kind, i.e. a like-for-like replacement/repair, or where the activity is routine and already covered by robust well documented maintenance or operating procedures? If YES, proceed outside MoC process; if NO, continue to follow this Procedure.

3. The nominated person for the Change (who may also be the Change Originator) establishes requirements and identifies all stakeholders who will need to be consulted about the Change. These could include:
 - Technical Support Specialists
 - Operational Manager
 - Process System/Document System Manager
 - Functional Advisors (HSEQ, HR, Finance, Legal, Strategy & Compliance)
4. Does Site Technical Manager support the proposal? If YES then proceed; if NO then modify scope and requirements, or state why rejected.

2.3.2 STEP 2 – RISK/HAZARD ASSESSMENT

Minimum Step Requirements

1. If a Change as defined by this Procedure is to proceed then a Risk Assessment must be completed in accordance with relevant HERV Oil, LLC practices to ensure the identification and implementation of suitable controls for the hazards associated with proposed Changes. This shall include involvement of other stakeholders and areas that may be impacted by the Change and the resultant impact.
2. Risks identified with the Change must be supported by a risk mitigation plan before the Change process is initiated so as to clearly define the actions required.
3. If the scope of the Change changes or the duration of the Change is long term, then the risk assessment must be reviewed and amended as appropriate to take account of any changed circumstances.

2.3.3 STEP 3 – IMPLEMENT/COMMUNICATE(EXECUTE)

Minimum Step Requirements

1. The Nominated person shall ensure that a Change Proposal plan is developed. This Plan will include actions identified from the hazard identification, risk assessment and technical/business review.
2. Approval for plan must be sought from the Responsible Manager. Authorization shall be based upon current business climate, strategic considerations, or upcoming statutory and regulatory changes. If authorization is not given, the reasons must be documented for future reference.
3. Approved changes are to be communicated back out to affected parties.
4. If Change proposal is authorized implementation may now proceed.

2.3.4 STEP 4 – COMPLETE (OPERATE)

Minimum Step Requirements

1. The Nominated person shall ensure that the Change and all actions in the Change Proposal form have been completed, i.e. the MoC has been performed as intended with any actions identified during the process being addressed and closed. If YES, proceed; if NO, revisit the Change Proposal form.
2. The Coordinator/ Nominated person shall ensure that a pre-start-up review is completed for any changes that require one before commissioning; including a system reset or reboot. This review is of high importance due to the complex interfaces between the systems. In particular safety of all personnel in the vicinity during the commissioning and testing phases is to be evaluated.

3. The Coordinator/ Nominated person shall ensure that a post-Change review is conducted, that any lessons learned are documented and that these lessons are shared with all the stakeholders.
4. The Coordinator shall ensure that the Change is closed out by taking the following actions:
 - Sign off by the Responsible Manager
 - Record and file all documentation

3. TRAINING

All personnel shall be trained on the MoC procedure to an awareness level to make them aware that it does exist and is utilized within HERV Oil, LLC. This initial training is carried out through new hire orientations. More in depth training is given to personnel such as Site Manager's, Superintendents, Supervisors, Lead Engineers and PM's that are responsible for utilizing the paperwork and are to be given a thorough knowledge of the system and its' requirements.

INTRODUCTION: Change Control Form

The Form Starts on the Following Page

What This Is

Form for documenting a change someone is requesting be made to a project or to a system, product, or service being delivered by a project.

The forms sections provide space to:

- Describe the change, the reason for it, and what the change would affect in terms of project deliverables and documentation, as well as what resource time would be needed to implement and validate the change.
- And space to track all the change impacts to completion (major implementation tasks and document updates).
- Officially sign off on the change.

Why It's Useful

Projects are often plagued by "scope creep" – changes get made without review, adding to the work of the project, and sometimes delaying the schedule, increasing the costs, or causing late issues to arise. Companies use change control to make sure the impact of any proposed change to the project definition, or specific components of the project (such as hardware or software deliverables, or a business process associated with a service) are thoroughly understood, carefully considered, and formally approved in some fashion. The change control form in this template file shows the type of information the team should get on a proposed change to fully understand its impact.

Change control usually grows more stringent as a project progresses, in order to protect the project against late, disruptive changes.

How to Use It

1. Establish a process by which changes will be proposed and reviewed using the change control form. The process should ensure that proposed changes are reviewed frequently enough to keep the project moving.
2. The details of each section of the form should be customized for your project types and project deliverables – i.e., for what the output of your projects is, whether product, system, service, etc.
3. Provide the form to team members and others who might need to submit a change.
4. This form can also be used when you are using contractors or outside firms to do work on your project. In this case that outside party would be required to provide the information relevant to the work they're performing.
5. Identify who should be involved in reviewing various types of changes. Document that in simple guidelines.
6. After the impacts have been considered, use the bottom portion of the form to document the decision on this change: approved or not, and why. The signature lines at the bottom become the official signoff on that decision.
7. File the change forms as important project records.

CHANGE CONTROL FORM

Change Request #: _____

Project: _____

CHANGE REQUEST INITIATION: Originator: _____ Phone#: (____) _____ email: _____

Date Submitted: ____/____/____ Location Name: _____ Location Number: _____

CHANGE TYPE: New Requirement: ____ Requirement Change: ____ Design Change: ____ Other: _____

CHANGE TYPE (DURATION): Permanent: ____ Emergency: ____ Temporary: ____

If Temporary: Start Date: ____/____/____ | End Date: ____/____/____

CHANGE TYPE (EMPLOYEE): Technical: ____ Personnel: ____ Administrative: ____

REASON: Legal: ____ Environmental: ____ Performance/Profitability: ____ Landowner Request: ____ Defect/Reliability: ____

Other: _____ (describe)

PRIORITY: Emergency: ____ Urgent: ____ Routine: ____ **Date Required:** ____/____/____

CHANGE DESCRIPTION: (Detail functional and/or technical information. Use attachment if necessary.)

Attachments: Yes / No

TECHNICAL EVALUATION: (Use attachment to explain changes, impact on other entities, impact on performance etc.)

Received By: _____ Date Received: ____/____/____ Assigned To: _____ Date Assigned: ____/____/____

Type of Equipment/Software/Hardware/etc. Affected _____

Documentation Affected:	Section #	Page #	Date Completed	Initial
Requirements Specification	_____	_____	____/____/____	_____
System Design Specification	_____	_____	____/____/____	_____
System Test Plan	_____	_____	____/____/____	_____
Training Plan	_____	_____	____/____/____	_____
User System Reference Manual	_____	_____	____/____/____	_____
System Maintenance Manual	_____	_____	____/____/____	_____
Other (Specify)	_____	_____	____/____/____	_____

TIME ESTIMATES to make the change: (Use attachment if necessary.)

Lifecycle Stage	Est. Time	Act. Time	Date Comp.	Remarks
Analysis/Design	_____	_____	____/____/____	_____
Testing	_____	_____	____/____/____	_____
Acceptance	_____	_____	____/____/____	_____
Total Hours:	_____	_____	_____	_____

Project Impact Analysis Needed: Yes / No (If yes, include impact on budget, resources, schedule, risk etc.)

APPROVALS: Change Approved: ____ Change Not Approved: ____ Hold (Future Enhancement): ____

1. Signature _____ Date: ____/____/____

2. Signature _____ Date: ____/____/____

3. Signature _____ Date: ____/____/____

HERV Oil, LLC PRELIMINARY IMPACT ASSESSMENT CHECKLIST

CHECK ALL THAT APPLY

OPERATIONS:	I&E:	ENGINEERING:
ALARMS	ALARM PANELS	BUILDINGS
COMMISSIONING EQUIPMENT	ELECTRICAL SYSTEMS	CHEMICALS
COMPANY REPUTATION	INSPECTIONS	CIVIL-FOUNDATION, SUPPORTS, DIRT
COMPRESSION	MAINTENANCE PROCEDURES	CORROSION/EROSION
CONSTRUCTION/INSTALLATION	PORTABLE EQUIPMENT	DESIGN PRESSURE
CONTRACTORS	TRIP AND ALARM TESTING	DESIGN TEMPERATURE
EMERGENCY RESPONSE	UTILITY POWER	FILTERS
FIRE PREVENTION/PROTECTION	ARC FLASH	FLAMMABILITY
GENERAL ARRANGEMENT	OTHER	FLOW
INSPECTION PROGRAM		LEVEL
LOCK OUT TAG OUT	AUTOMATION:	LIFTING EQUIPMENT
MAINTENANCE ACCESS	AUXILIARY SYSTEMS	MATERIAL COMPOSITION
MAINTENANCE PROGRAM	ELECTRONIC DATA	MATERIALS OF CONSTRUCTION
MECHANICAL INTEGRITY	INSTRUMENT AIR	MECHANICAL INTEGRITY
OPERATING PROCEDURES (SOP'S)	INSTRUMENTATION	PIPEWORK/SUPPORTS
PIPELINES	POWER	PIPING/PUMPS/OTHER EQUIPMENT
REGULATORY COMPLIANCE	SECURITY SYSTEMS	PIPING VALVE STANDARDS
STRUCTURE	SOFTWARE	PRESSURE
UTILITIES	TELEMETRY	REACTION CONDITIONS
WORK PRACTICES	UTILITIES	RELIEF RATE
WORK PLACE STRESS	OTHER	RELIEF VALVES
OTHER	OTHER	SERVICE/UTILITIES
		TANKS
HEALTH AND SAFETY:	MEASUREMENT:	TEMPERATURE
PPE	EQUIPMENT	VENTS
HAZCOM (SDS)	MEASUREMENT	VESSELS
SAFE WORK PRACTICES	POWER	VIBRATION
CONFINED SPACE	TELEMETRY	VESSEL (CONTAINER) RATING
CRITICAL LIFTS	OTHER	OTHER
ERGONOMICS	MECHANICAL:	ENVIRONMENTAL & REGULATORY:
ON SITE SAFETY SUPPORT	FUEL CONDITIONING	ACCIDENTAL SPILLS
EXCAVATION/TRENCHING	FAS COMPRESSION	AIR EMISSION/QUALITY
EMERGENCY RESPONSE	INSTRUMENT AIR	FEDERAL SITE
NOISE	PUMPS	NOISE
TRUCK LOADING (HM 126)	MAINTENANCE PROGRAM	RELEASE TO ATMOSPHERE
SAFETY TRAINING	OTHER	WASTE MANAGEMENT/HAZ WASTE
SAFETY SYSTEMS	LAND:	SPCC
OTHER	ROW	DOT REGULATORY COMPLIANCE
OTHER	DISTURBANCE	HYDRO TEST WATER DISPOSAL
OTHER	EASEMENT	REGULATORY COMPLIANCE
OTHER	LANDOWNER CONCERNS	OTHER
OTHER	OTHER	OTHER

IMPACT/RISK ASSESSMENT AND ACTION ITEM TRACKING

Risk level:	What Type of Risk Review:	Type of Prestart Up Safety Review:	Overall Risk Level	HERV Oil, LLC
LOW	[] Impact Assessment	[] JSA		
MEDIUM	[] What If (or equivalent)	[] PSSR		
HIGH	[] HAZOP	[] PSSR		

	IMPACTED ASPECT	HAZARDS	DETAILED DESCRIPTION OF IMPACTS	EXISTING RISK CONTROL MEASURES	SEVERITY	LIKELIHOOD	RISK RANK	ACTION ITEM	RESPONSIBLE PERSON	DATE COMPLETED
	Determined From Preliminary Impact Checklist	Conditions in which the impacted assets become a hazard during installation &/or operation	(Consequences)							
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
Date:		Title:			Closeout Signature:					

Pre-Startup Safety Program

Establish a Pre-Startup Safety Review ("PSSR") Team	Form a dedicated team comprising of qualified personnel with expertise in engineering, operations, maintenance, safety, and other relevant areas. The team should have a clear understanding of the facility's design, construction, and operational requirements.
Review Design and Construction Documentation	Conduct a comprehensive review of design and construction documentation, including engineering drawings, specifications, equipment data sheets, and construction records. Ensure that the facility has been constructed in accordance with the design, and that all relevant codes, standards, and regulations have been followed.
Verify Equipment Readiness	Verify that all equipment, including process equipment, control systems, safety devices, and instrumentation, are installed, calibrated, and functioning properly. Conduct functional and performance testing to confirm that equipment is ready for safe operation.
Check Safety Systems	Review the status of safety systems, such as fire protection systems, emergency shutdown systems, and safety instrumented systems (SIS), to ensure that they are designed, installed, and functioning according to the approved specifications and standards.
Review Operating Procedures	Review and verify that comprehensive operating procedures, including startup and shutdown procedures, emergency procedures, and operating manuals, are in place and aligned with the facility's design and intended operation. Ensure that personnel are trained on these procedures.
Conduct Hazard Identification and Risk Assessment	Identify and assess potential hazards and risks associated with the facility's operation, including process hazards, fire and explosion risks, toxic gas releases, and other safety and environmental risks. Implement appropriate safeguards and mitigation measures to minimize risks.
Review Permitting and Compliance	Review and ensure that all necessary permits, licenses, and approvals required for the facility's operation have been obtained and are in compliance with applicable laws and regulations. This may include environmental permits, safety permits, and other regulatory requirements.
Conduct Site Inspection	Conduct a comprehensive site inspection to verify that the facility is constructed, operated, and maintained in accordance with applicable regulations, standards, and best practices. Identify any deficiencies and ensure that they are addressed before startup.
Verify Training and Competency	Verify that personnel involved in the facility's operation have received appropriate training and possess the required competency to safely operate the facility. Confirm that all necessary certifications and qualifications are in place.
Document Findings and Actions	Document all findings and actions taken during the pre-startup safety review process, including any deficiencies identified and corrective actions taken. Maintain a comprehensive record of the PSSR process for future reference.
Management Review and Approval	Ensure that the findings and results of the PSSR are reviewed and approved by management to ensure that all necessary measures have been taken to mitigate risks and ensure safe operation.

Pre-Startup Safety Review (PSSR) Checklist

A PSSR inspection allows you to thoroughly review the status of employee training, construction, equipment, and other components involved in a company change. This PSSR checklist will help ensure that your employees are kept safe during Management of Change (MOC). Edit this pre-startup safety review (PSSR) checklist to fit your needs.

By:

Updated:

Pre-Startup Safety				
1. Have all affected personnel (Operations, Maintenance, Technical, and Supervision) received adequate and appropriate training on the new equipment and operating procedures?	Yes	No	N/A	Comments
2. Has adequate and appropriate PPE (Personal Protective Equipment) been specified in the Work Procedures and/or Standard Operating Procedures?	Yes	No	N/A	Comments
3. Has appropriate PPE been provided?	Yes	No	N/A	Comments
4. Have the PPE users been trained in the use of the PPE?	Yes	No	N/A	Comments
5. Is the training documented?	Yes	No	N/A	Comments

6. Have measures been taken to adequately guard all dangerous parts of this equipment?	Yes	No	N/A	Comments
7. Has sufficient provision been made for the electrical and/or mechanical isolation of the equipment?	Yes	No	N/A	Comments
8. Are points of isolation clearly marked/labeled and readily accessible?	Yes	No	N/A	Comments
9. Have bump/trip hazards been properly identified and adequately marked?	Yes	No	N/A	Comments
10. Have all sharp edges been removed?	Yes	No	N/A	Comments
11. Has proper guarding, handrails/barriers, been provided to prevent falls?	Yes	No	N/A	Comments
12. Have all hot/cold surfaces been adequately guarded to prevent burns?	Yes	No	N/A	Comments
13. Are all cold surfaces adequately insulated to prevent condensation drips (slip hazards)?	Yes	No	N/A	Comments
14. Are Safety Showers and Eyewash facilities provided and adequately marked?	Yes	No	N/A	Comments
15. Are the Safety Showers and Eyewash facilities routinely inspected?	Yes	No	N/A	Comments
16. Do the Safety Showers and Eyewash facilities locations comply with Corporate guidelines?	Yes	No	N/A	Comments

17. Are the Safety Showers and Eyewash facilities readily visible and accessible?	Yes	No	N/A	Comments
18. Has sufficient lighting been provided so that operation, servicing, maintenance and repair of the facilities can be carried out safely?	Yes	No	N/A	Comments
19. Are notices, dials, screens, etc. for providing operational instructions, safety warnings, and emergency information provided, if required, and positioned so that they are clearly visible and easily read?	Yes	No	N/A	Comments
20. Have all overhead fixtures, for example, pipe-hangers, pipe sleeves, pipe sleeve covers, valve handles, floor opening covers, etc., which could fall or be dislodged, been properly secured?	Yes	No	N/A	Comments
21. Are all of the applicable Work Permit Procedures (Confined Space Entry, Lock Out/Tag Out, Hot Work, High Work, etc.) in place?	Yes	No	N/A	Comments
22. Have the Operating, Maintenance, and Supervisory personnel been properly trained on the Work Permit Procedures?	Yes	No	N/A	Comments
23. Has the re protection systems been inspected by the insurance company?	Yes	No	N/A	Comments
24. Has acceptance testing been completed and documented?	Yes	No	N/A	Comments

25. Is there an agreed-on test and inspection program for the re protection systems (including alarm systems)?	Yes	No	N/A	Comments
--	-----	----	-----	----------

Machinery & Equipment Safety

26. Has the machinery/equipment been installed so that it will be stable and secure during operation?	Yes	No	N/A	Comments
27. Has all access to dangerous moving parts, or danger zones created by the equipment, been prevented by the provision of the correct guards, interlocks (both safety & non-safety) and/or barriers?	Yes	No	N/A	Comments
28. Have the correct safety measures been taken to prevent any risk from hot/cold surfaces, ejection of material, failure of parts and their ejection, overheating/fire?	Yes	No	N/A	Comments
29. Has safe access been provided to the equipment that requires operator and calibration and maintenance personnel access for normal operations, adjustments, service, calibration, maintenance, or repair?	Yes	No	N/A	Comments
30. Have slip, trip, trap, crush, entanglement, fall, bump, and cut hazards been minimized?	Yes	No	N/A	Comments

31. Is the equipment provided with the properly identified START/STOP and EMERGENCY controls that are positioned for safe operation without hesitation, or loss of time, and without ambiguity?	Yes	No	N/A	Comments
32. Is the equipment provided with a clearly identified means to securely isolate it from ALL energy sources?	Yes	No	N/A	Comments
Ergonomics				
33. Have the workstations, workplace, or equipment been constructed so that the need for stooping, bending stretching, over-reaching and working over-head during operation has been eliminated or minimized?	Yes	No	N/A	Comments
34. Has the need to lift, carry, push or pull heavy loads, or parts, been eliminated to the extent possible?	Yes	No	N/A	Comments
35. Are all display screens, dials and START/STOP/ EMERGENCY buttons positioned so that they are readily visible and accessible by the operating personnel?	Yes	No	N/A	Comments
36. Have Visual Display Screens been positioned so that interference from glare is reduced to the minimum?	Yes	No	N/A	Comments

37. Have workstations been designed and equipped so that the operator can adopt a comfortable position? (That is, able to stand, or change position and sit upright, angle at elbows and knees 90, feet on floor.)	Yes	No	N/A	Comments
38. Does the operation of this equipment increase the risk of Upper Limb Disorder; for example, repetitive tasks, handling operations, machine paced work and prolonged operation?	Yes	No	N/A	Comments
Occupational Health				
39. Have all health risks arising from the gases, liquids, dusts, mists, biological hazards or vapors used by, contained in or emitted by this equipment been assessed	Yes	No	N/A	Comments
40. Have the health risks been eliminated or are adequate engineering controls utilized to minimize the risks?	Yes	No	N/A	Comments
41. Has adequate RPE (Respiratory Protective Equipment) been specified in the Operating Procedures?	Yes	No	N/A	Comments
42. Has the need for an Occupational Health Monitoring Program been assessed?	Yes	No	N/A	Comments
43. Has a Monitoring Program been scheduled?	Yes	No	N/A	Comments
44. Have the Operating Procedures been reviewed to take into account any additional "health hazards" which	Yes	No	N/A	Comments

may arise from operation or maintenance of this equipment?				
45. Has adequate LEV (Local Exhaust Ventilation) been installed, tested, balanced, and entered on an Inspection Schedule?	Yes	No	N/A	Comments
46. Have adequate inspection/cleaning ports been provided on ductwork?	Yes	No	N/A	Comments
47. Are relief facilities directed to a safe place away from the workplace?	Yes	No	N/A	Comments
48. Has a Noise Survey been considered and a Noise Compliance Plan prepared, if required?	Yes	No	N/A	Comments
49. Has insulation been installed and identified?	Yes	No	N/A	Comments
50. Has all pipe work, tanks, and equipment containing hazardous materials been adequately labeled?	Yes	No	N/A	Comments
Process Safety & Technology				
51. Are up-to-date Material Safety Data Sheets available?	Yes	No	N/A	Comments
52. Have the hazardous effects of inadvertent mixing of different materials been considered (that is, has a chemical interaction matrix been prepared/updated)?	Yes	No	N/A	Comments

53. Has the process design basis been documented or updated?	Yes	No	N/A	Comments
54. Has the control philosophy and sequence of operations been documented?	Yes	No	N/A	Comments
55. Has the equipment design basis (for example, BPF's/P&IDs) been documented/updated?	Yes	No	N/A	Comments
56. Have the recommendations from safety reviews, Process Hazards Analysis (PHA), Hazards and Operability Reviews (HAZOP), CHAZOP, or others, been implemented?	Yes	No	N/A	Comments
57. Are there any incomplete items? Identify them in comments)	Yes	No	N/A	Comments
58. Are all relief devices shown on the P&IDs?	Yes	No	N/A	Comments
59. Are standard markings used on the relief devices?	Yes	No	N/A	Comments
60. Are the relief/rupture pressures included on the P&IDs?	Yes	No	N/A	Comments
61. Have the pressure relief device calculations been provided?	Yes	No	N/A	Comments
62. Was DIERS technology utilized to size the pressure relief devices for all pressure vessels?	Yes	No	N/A	Comments

63. Does the sizing of pressure relief devices agree with the calculated sizes?	Yes	No	N/A	Comments
64. Do the calculations take into the downstream piping?	Yes	No	N/A	Comments
65. Do the relief devices vent to safe locations?	Yes	No	N/A	Comments
66. Is containment provided for liquids and solids released from pressure relief devices?	Yes	No	N/A	Comments
67. Are there isolation valves that, if closed, will inhibit the operation of pressure relief devices?	Yes	No	N/A	Comments
68. If yes, Operations must establish control plans to ensure that the isolation valves cannot inhibit the operation of the pressure relief devices.	Yes	No	N/A	Comments
69. Are all pressure relief devices included in the Preventive Maintenance Program?	Yes	No	N/A	Comments
70. Are the inspection and testing of relief devices in accordance with local regulations?	Yes	No	N/A	Comments
Review & Documentation				
71. Has a management of change (MOC) – technology/subtle change document (for example, Change of Design - COD) been approved?	Yes	No	N/A	Comments

72. Has a test authorization been approved?	Yes	No	N/A	Comments
73. Are all action items, arising from the COD, that were deemed necessary for startup, complete?	Yes	No	N/A	Comments
74. Have all changes made during construction been recorded and authorized?	Yes	No	N/A	Comments
75. Have hazards evaluations (PHAs, HAZOP, or CHAZOP) been done on all the changes made during construction?	Yes	No	N/A	Comments
76. Have project Process Hazards Analyses (PHAs) been approved and a final project safety report been prepared?	Yes	No	N/A	Comments
77. Are all action items, deemed necessary by the PHA team for start-up, complete?	Yes	No	N/A	Comments
78. Has the project been approved as "Safe to proceed with" by the PHA team?	Yes	No	N/A	Comments
79. Have checks and inspections been made to ensure that critical equipment is installed properly and is consistent with design specifications and vendor's recommendations (for example, alarm and interlock (safety & non-safety) tests; equipment	Yes	No	N/A	Comments

alignment and service to process inter-connections)?				
80. Have quality assurance inspection reports, covering fabrication, assembly, and installation, been completed in accordance with the project's quality assurance plan and reports led with the equipment and design basis documentation?	Yes	No	N/A	Comments
81. List the specific items field checked as part of this Pre-Start-up Safety Review to ensure that: a) The construction meets the design specifications. b) The construction matches the drawings	Comments			
82-88. Have the following items been documented and approved:				
82. Instrument indexes and instrument loop diagrams?	Yes	No	N/A	Comments
83. A tabulation, including settings, of interlocks (both safety & non-safety) and trips (hardware and software), process alarms and permissive descriptions?	Yes	No	N/A	Comments
84. As-built drawings covering P&IDs, electrical, piping, and mechanical?	Yes	No	N/A	Comments
85. Data sheets for pressure equipment built to ASME or equivalent codes?	Yes	No	N/A	Comments
86. Welder certification?	Yes	No	N/A	Comments

87. Non-destructive test (NDT) certifications?	Yes	No	N/A	Comments
88. Electrical certification for classified areas?	Yes	No	N/A	Comments
Mechanical Safety				
89. Have maintenance procedures been approved?	Yes	No	N/A	Comments
90. Have maintenance personnel been trained?	Yes	No	N/A	Comments
91. Have spare parts listed been developed and entered into the parts ordering software program?	Yes	No	N/A	Comments
92. Are there adequate inventories of spare parts, operating supplies and maintenance materials?	Yes	No	N/A	Comments
93. Have quality control procedures been approved for maintenance materials and spare parts?	Yes	No	N/A	Comments
94-106. Have inspections and tests (including regulatory requirements) for the following equipment been included in a maintenance schedule?				
94. Pressure vessels and storage tanks?	Yes	No	N/A	Comments
95. Pressure relief systems, vent systems, and devices?	Yes	No	N/A	Comments

96. Critical controls, interlocks (both safety & non-safety), alarms and instruments?	Yes	No	N/A	Comments
97. Emergency devices (including shutdown systems and isolation systems)?	Yes	No	N/A	Comments
98. Fire protection equipment?	Yes	No	N/A	Comments
99. Piping systems (incl. Components, for example, valves, excess flow valves, expansion bellows) in critical service?	Yes	No	N/A	Comments
100. Key process-to-service tie-ins?	Yes	No	N/A	Comments
101. Electrical earthing, grounding, bonding?	Yes	No	N/A	Comments
102. MCC starters?	Yes	No	N/A	Comments
103. Emergency alarm and communication system?	Yes	No	N/A	Comments
104. Monitoring devices and sensors?	Yes	No	N/A	Comments

I05. Pumps?	Yes	No	N/A	Comments
I06. Lifting equipment?	Yes	No	N/A	Comments
I07. Has a reliability engineering analysis been considered/completed for PSM critical equipment?	Yes	No	N/A	Comments
I08. Is the equipment inspected by any outside body and certificates on file (for example, CE marking, lifting equipment test certificates, pressure systems regulations, and other items)?	Yes	No	N/A	Comments
I09. Have all commissioning tests or inspections been identified (for example, pressure, or leak tests, passivating procedures)?	Yes	No	N/A	Comments
Standard Operating Procedures (SOPs) Safety				
I10. Have standard operating procedures been prepared/updated and approved?	Yes	No	N/A	Comments
I11-I21. Do the operating procedures cover:				
I11. Initial start-up?	Yes	No	N/A	Comments

I 12. Normal start-up?	Yes	No	N/A	Comments
I 13. Normal operations?	Yes	No	N/A	Comments
I 14. Normal shutdowns?	Yes	No	N/A	Comments
I 15. Emergency operations including emergency shutdowns?	Yes	No	N/A	Comments
I 16. Start-up after emergency shutdowns?	Yes	No	N/A	Comments
I 17. Start-up following turnarounds/prolonged shutdowns?	Yes	No	N/A	Comments
I 18. Non-routine procedures such as equipment clean-outs and preparation of equipment for maintenance?	Yes	No	N/A	Comments
I 19. Auxiliary equipment operations including, as examples, LEV and Ventilation Systems, Heat/Cool Skids, Water (Soft, RO, WFI, Tower, etc.) Systems, Instrument and Process Air Systems, Waste Treatment Systems, Cooling (Glycol Refrigeration) Systems, Steam Generation, and others?	Yes	No	N/A	Comments

I20. Safety and operational issues?	Yes	No	N/A	Comments
I21. Change control procedures?	Yes	No	N/A	Comments

Task Training

I22. Has specific process (or job task) training been given to personnel?	Yes	No	N/A	Comments
I23. Have training records been updated?	Yes	No	N/A	Comments
I24. Have all contract personnel been adequately trained in appropriate: chemical awareness, maintenance, and operating activities and evacuation procedures?	Yes	No	N/A	Comments

Interlocks and Alarms

I25. Has the alarm/interlock (safety & non-safety) been classified and designed by the Project Team? Did the Project Team include members of the PHA team?	Yes	No	N/A	Comments
I26. Did the loop testing confirm that the alarm/interlock (safety & non-safety) action proved, under all conceivable failure conditions, to be fail-safe?	Yes	No	N/A	Comments

I 27. Prior to this PSSR, has an interlock/critical alarm Standard Operating Procedure for testing, through to the final element, been prepared and reviewed/authorized by a competent person for each new or upgraded control system?	Yes	No	N/A	Comments
I 28. For alarms/interlocks (both safety & non-safety) with more than one software or hardware circuit, have all possible interlock routes been tested?	Yes	No	N/A	Comments
I 29. Has all appropriate process technology been updated (for example, interlock lists, P&IDs, logic drawings, etc.)?	Yes	No	N/A	Comments
I 30. Does your Control System documentation adequately specify:	Yes	No	N/A	Comments
I 31. All major components and their model and serial numbers?	Yes	No	N/A	Comments
I 32. All communication cables layout and configuration?	Yes	No	N/A	Comments
I 33. Any configurable or custom settings and set-up?	Yes	No	N/A	Comments
I 34. Has consideration been given to suitable re detection and prevention systems for the equipment?	Yes	No	N/A	Comments

I 35. Do you have an appropriate procedure to ensure that your software is protected (for example, routinely archived, key/password protected, etc.)?	Yes	No	N/A	Comments
I 36. Has the software been properly documented and led (for example, logic drawings, schematics, sequence/batch descriptions)?	Yes	No	N/A	Comments
I 37. Has all software been properly validated and tested?	Yes	No	N/A	Comments
I 38. Is there verification that the equipment does not restart, either on the re-setting of a protective device such as an interlock (safety & non-safety), or the reestablishment of power after an outage?	Yes	No	N/A	Comments
Environmental				
I 39. Are all secondary containment/bonding facilities adequate?	Yes	No	N/A	Comments
I 40. Are all material storage facilities adequate and appropriately labeled?	Yes	No	N/A	Comments

I 41. Have adequate arrangements been made, prior to start-up, for the identification, classification, and safe disposal of all waste materials?	Yes	No	N/A	Comments
I 42. Have all materials, used in the system, been entered on the Area Chemicals Inventory List (or equivalent)?	Yes	No	N/A	Comments
I 43. Are updated Area Spill Procedures available?	Yes	No	N/A	Comments
I 44. Are material Unloading Facilities adequate and constructed in accordance with Corporate Safety, Health, and Environmental Standards?	Yes	No	N/A	Comments
I 45. Is there adequate containment (110% of truck volume) in the unloading areas for bulk liquid chemicals?	Yes	No	N/A	Comments
I 46. Have the Corporate Environmental Guidelines been followed during the design stage of this project?	Yes	No	N/A	Comments
I 47. Have all waste streams been identified, quantified, analyzed and minimized?	Yes	No	N/A	Comments

148. Are all of the applicable Construction, Environmental and Operating Permits up to-date and approved?	Yes	No	N/A	Comments
Community Awareness & Emergency Response				
149. Have all necessary precautions been taken to ensure that the equipment is not a source of ignition to any flammable materials, irrespective of their source?	Yes	No	N/A	Comments
150. Are re-protection facilities adequate for example, re extinguishers, re walls, sprinkler systems, Alarm Boxes, etc.)?	Yes	No	N/A	Comments
151. Are Emergency Escape Routes, including ladders, adequate and properly signposted?	Yes	No	N/A	Comments
152. Is emergency lighting adequate?	Yes	No	N/A	Comments
153. Is sufficient Respiratory Protective Equipment, such as Escape Sets or Self-Contained Breathing Apparatus (SCBA) available?	Yes	No	N/A	Comments
154. Have Emergency Procedures been prepared and relevant personnel trained?	Yes	No	N/A	Comments
155. Is the Community Panel advised of proposed new major projects?	Yes	No	N/A	Comments

I 56. Has an Electrical Safety Checklist (Acceptance of Electrical Installations) been completed by a competent personnel?	Yes	No	N/A	Comments
I 57. Has the equipment been properly installed and constructed to Corporate guidelines and local legislation, and does it meet any special installation requirements noted on the manufacturer's certificate?	Yes	No	N/A	Comments
I 58. Has equipment been designed and purchased for the conditions under which it will operate (for example, hazardous areas)?	Yes	No	N/A	Comments
I 59. Are all live parts adequately enclosed to prevent access?	Yes	No	N/A	Comments
I 60. Does grounding and bonding comply with corporate and local standards/legislation?	Yes	No	N/A	Comments
I 61. Have fuses or circuit breakers been provided which will automatically disconnect the supply?	Yes	No	N/A	Comments
I 62. Are First Aid Stations, single line drawings and PPE requirements available in Motor Control Centers (MCC), Electrical Control Rooms (ECR)/Sub-stations, as appropriate?	Yes	No	N/A	Comments

I 63. Have all relevant documentation and drawings (for example, P&IDs, SLDs, Schematics, equipment arrangement, I/O, logic, electrical classification and Panel Schedule drawings) been updated to reflect the current installation?	Yes	No	N/A	Comments
I 64. Have all new Substation Breakers, MCC isolators, starters or other appropriate equipment been registered on to the Site Inspection Schedule?	Yes	No	N/A	Comments
I 65. Have any electrical circuits, made redundant by this installation, been properly D&R'd?	Yes	No	N/A	Comments

Field Verification

I 66. Is the normal lighting adequate for normal and maintenance operations?	Yes	No	N/A	Comments
I 67. Is emergency lighting sufficient?	Yes	No	N/A	Comments
I 68. Are all hot and cold surfaces, which may cause burns, in the proximity of personnel insulated?	Yes	No	N/A	Comments
I 69. Are all instruments, equipment and piping adequately labeled?	Yes	No	N/A	Comments

I 70. Is there any rusted and/or damaged equipment?	Yes	No	N/A	Comments
I 71. Are swing gates or chains installed at the top of ladders and/or on access platforms?	Yes	No	N/A	Comments
I 72. Are there any gaps between platforms and equipment that could create a foot hazard?	Yes	No	N/A	Comments
I 73. Is equipment and platform access adequate?	Yes	No	N/A	Comments
I 74. Do safety showers/Eyewash stations create a hazard to personnel (slips), potential for contamination of product (entry to equipment) or ingress to electrical equipment?	Yes	No	N/A	Comments
I 75. Are safety showers and eyewash stations adequately marked and readily visible?	Yes	No	N/A	Comments
I 76. Is the access to the safety showers and Eyewash stations uninhibited?	Yes	No	N/A	Comments
I 77. Are all pipelines labeled?	Yes	No	N/A	Comments
I 78. Are all electrical switches, disconnects, MCCs, control panels, cables, etc. labeled?	Yes	No	N/A	Comments

179. Is all the equipment clearly labeled?	Yes	No	N/A	Comments
180. Where required are the materials and hazards included on the labeling?	Yes	No	N/A	Comments
181. Are wall penetrations adequately sealed?	Yes	No	N/A	Comments
182. Are electrical conduits sealed in accordance with code requirements?	Yes	No	N/A	Comments
183. Are evacuation routes clearly marked?	Yes	No	N/A	Comments
184. Are fire extinguishers installed properly?	Yes	No	N/A	Comments
185. Has the required signage been posted?	Yes	No	N/A	Comments
186. Are emergency stops provided where there is a potential for entrapment or exposure?	Yes	No	N/A	Comments
187. Has all scaffolding and construction equipment been removed?	Yes	No	N/A	Comments
188. Is housekeeping acceptable?	Yes	No	N/A	Comments

189. Is all required equipment guarding installed	Yes	No	N/A	Comments
190. Does all the applicable equipment have the required CE marking displayed?	Yes	No	N/A	Comments
191. Does all the applicable equipment have the required UL listing/labeling?	Yes	No	N/A	Comments
192. Have noise-monitoring evaluations been completed?	Yes	No	N/A	Comments
193. Have signs been posted where noise levels exceed 85 dB?	Yes	No	N/A	Comments
194. Are ear-plugs available near areas exceeding 85 dB?	Yes	No	N/A	Comments
Completion				
195. Safe and ready for commissioning/startup?	Yes	No	N/A	Comments
Inspector Signature:				
Approval Signature:				
Approval Signature:				