



BOOMHOG 8-59 3 OGD P OPERATIONS SAFETY MANAGEMENT PLAN

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Article I. Introduction

Location Information

This document provides site-specific information for the Boomhog 8-59 3 Pad within the Boomhog 8-59 3 OGD. The information in this document relates specifically to the time during the construction, drilling, completion, and production of the twelve (12) proposed horizontal wells on this location.

The proposed location is rangeland approximately 4.9 miles north of the intersection of WCR 115 and Highway 14. The Pad will be in the NWSW of Section 3, Township 8 North, Range 59 West, zoned Agricultural within Weld County’s Ag-Rural planning area. A 1041WOGLA was filed in June 2023 as 1041WOGLA22-0045.

The proposed Pad will be 15.0 acres, reduced to 10.6 after interim reclamation. The working pad surface will be 9.6 acres. The Pad is on Parcel 053903000013 owned by Wade E Castor and Deland Castor. The location is currently used for grazing.

The proposed production facility equipment for the Boomhog 8-59 3 Pad will be located within the WPS adjacent to the wells and will consist of gas lift meters, heater treaters, scrubbers, oil tanks, produced water tanks, recycle pumps, oil and water Lease Automatic Custody Transfers (LACTs), gas lift compressors, sales gas meters/buildings, electrical skids, vapor recovery towers (VRT), vapor recovery units (VRU), blower/oxygen destructors, and emission control devices (ECD).

Phase	Duration (days)	Estimated Start Date
Construction	+/- 20 days	2 nd Quarter (May) 2024
Drilling	+/- 120 days	2 nd Quarter (June) 2024
Completion	+/- 45 days	3 rd Quarter (August) 2024
Flowback	+/- 10 days	4 th Quarter (October) 2024
Production	Ongoing +/- 30 years	4 th Quarter (October) 2024
Interim Reclamation	+/- 30 days	4 th Quarter (November) 2024*

**or the first favorable weather/growing season.*

Article II. Definitions

Approver – The supervisor, manager, or person who is accountable to approve the change and who has the functional authority in the area where the change is being implemented.

Change – Any significant or material change in physical means of operation, method of operation, equipment, or procedure.

Engineering Assessment – Formal review carried out by the Responsible Person which incorporates development of the Scope of Work, Risk Assessment, Cost Estimate, and Benefits Analysis.



Emergency Change – A change that is performed in response to urgent conditions because of unforeseen circumstances or events to continue safe operations or alleviate an unsafe condition. It is followed with a full MOC to ensure no new hazards have been introduced.

Facility Change – A facility change includes a revision, rearrangement, addition, or deletion of an asset at an existing facility, as well as the installation of any new equipment.

HAZOP – Hazard and Operability Study.

HAZID – Hazard Identification Study.

MOC – Management of Change

MOC Coordinator – Oversees MOC program, assigns MOC number, maintains MOC register, and sets up MOC folders.

Operations Change – An operations change is any facility change that could result in changes in operations, facility changes, and/or a pipeline utilization change.

Originator – Any person who identifies the need for a change and initiates the MOC process.

Pre-Startup Safety Review (PSSR) – The PSSR is a thorough review of equipment and its related processes to ensure that safety measures are in place.

Process – Any activity involving plumbing, repairing, constructing, repurposing, or major modifications to oil and gas equipment. This equipment may include, but is not limited to, surface wellhead equipment, flowlines, pipelines, process piping, compressors, separation equipment and tanks.

Process Hazard Analysis (PHA) – Process Hazard Analysis is an organized and systematic evaluation to identify and analyze the significance of potential hazards.

Replacement-in-Kind – Replacement of an item with a direct substitute that satisfies the design specifications and does not alter the process conditions.

Responsible Person (RP) – Individual responsible for all aspects of the MOC, to include CloseOut.

Responsible Team Lead (RTL) – The Responsible Team Lead is a Team Leader or Manager/Supervisor within the Division with primary responsibility for the MOC.

Temporary Change – A change that will only be used for a short, predetermined time to accommodate an abnormal situation or until a final, or permanent change can be implemented.

Article III. OVERVIEW



Management of change (MOC) procedures are required when there are:

- Major changes in equipment design
- Major changes in operating procedures.
- Major changes in maintenance procedures.
- Major changes to facility operations.

You must NOT:

- Make equipment significant or material, facility, technical, or procedural changes without getting prior approval.

You MUST:

- Perform a Process Hazard Analysis (PHA) as applicable and apply mitigation measures.
- Perform a Pre-Startup Safety Review (PSSR) as applicable to ensure safety measures are in place.
- Give workers appropriate training

Article IV. Purpose and Scope

The purpose of this procedure is to satisfy the requirements of the Colorado Energy Carbon Management Commission (ECMC) Rule 602.d.(1) and (2) and define the requirements for the Management of Change (MOC) process within Bison IV Operating, LLC (Bison) operations. Reference the Definitions Section of this procedure for defined terms and acronyms used throughout this procedure.

This MOC process is intended to confirm the proposed changes to Bison procedures, facilities, processes, services, and activities are identified, evaluated by knowledgeable personnel, conform to acceptable industry standards, and approved before they are implemented. The following sections spell out the three steps of the MOC protocol.

INITIATE THE MOC PROCESS

Define the problem and/or opportunity, the proposed change, and why the change is necessary. Identify the potential impacts to public health, safety, welfare, and the environment.

REVIEW AND APPROVE THE PROPOSED MOC PROCESS

Confirm engineering, risk, operability, cost, schedule assessments, and implementation planning is completed, and that the change is formally approved by the proper staff.

CLOSE OUT THE MOC PROCESS

Confirm implementation of MOC scope through field verification by a Responsible Party (RP).

SCOPE

This MOC process will be applicable to all Bison personnel and facilities. It outlines the procedures used to manage any temporary or permanent alterations, modifications, or substitutions to equipment, facilities,

procedures, raw materials, chemicals, processing conditions, or technology that is outside the design specifications or operating procedures. The MOC process does not apply to instances of "replacement in kind."

Article V. MOC PROCESS

Any Bison employee may propose a change to an existing Bison procedure, equipment, technology, or process where the situation warrants. The MOC process involves continuous communication between Operations, Environmental Health and Safety (EHS), and other relevant groups. When an operational change must occur, either through process changes or equipment changes, the Originator of the change notifies all relevant groups for input and agreement. The feedback is accounted for prior to implementing the change in the field. Any documentation that is impacted by such change, like plans, procedures, PHA, or other documents, are updated accordingly and stored on the centrally located Bison shared drive. Any prior versions of the document may be archived on the shared drive for historical reference. The location of the updated document is then communicated to the relevant groups.

A "replacement in kind" is not a change; therefore, an MOC is not required. However, the personnel making the modification should confirm with their Supervisor that an MOC is not required.

Bison maintains a library of various operational safety management forms that are used to provide supporting documentation of the proposed facility or process changes. The final recommendation should typically include documentation of the development or modification of the following deliverables, as appropriate:

- Scope of Work.
- Engineering Analysis.
- Engineering Documents.
- Process Hazard Analysis (PHA) – When applicable, Bison shall perform an initial PHA on MOCs. The PHA should be appropriate to the complexity of the process and seek to identify, evaluate, and control the hazards involved. The PHA should consider one or more of the following methodologies that are appropriate to determine and evaluate the hazards of the MOC:
 - Hazard and Operability Study (HAZOP).
- EHS Impacts.
- Operability Review.
- Cost Estimate/Benefit Analysis.
- Schedule.
- Regulatory, Technical, etc. reviews as needed.

Pre-Startup Safety Reviews (PSSR)

The Responsible Party (RP) ensures that the change is implemented as designed and ready for service. The RP is responsible for involving others, as needed, to complete the appropriate PSSR checklist and document all findings and follow-up work required. Types of inspections and testing reviewed under the PSSR include, alarms and shutdown device operation and functionality, electrical component installation and integrity, facility signage, equipment guards, housekeeping and safety concerns, ladders (if applicable),

production equipment condition and installation, pumping unit operations (if applicable), pressure relief valves and setpoints, tank conditions, walkway conditions, pressure vessel condition, grounding, piping installation and protection, and pressure testing. Assigned RPs shall verify that findings from the PHA, EHS, and other reviews are resolved. As the above review can only be completed on an individual basis, a separate PSSR will be required for each location when utilizing one MOC for multiple locations. If a PSSR or another approved checklist is used, it should be documented on Bison's centrally located shared drive.

- On a temporary change, a PSSR may be required to commission the change.
 - Detailed PSSR should be used for more complex projects that involve more than one discipline/trade or electrical changes.
- The PSSR must confirm the following:
 - Construction and equipment are in accordance with design specifications.
 - Safety, operating, maintenance, and emergency procedures are in place and adequate.
 - A PHA has been performed for new facilities as necessary and recommendations have been resolved or implemented before startup, and modified facilities meet the MOC requirements.

MOC Close Out

The MOC will be considered closed when the RP ensures that the following items have been completed.

- For MOC's requiring a HAZOP, all action items have been fully addressed and resolved.
- The changes outlined within the MOC have been verified to have been implemented accurately on the most recent revision(s) of all the document(s) impacted by the change.
- All required and relevant documentation regarding engineering and risk assessments have been completed. This includes documentation of the MOC procedure that the RP, Responsible Team Lead (RTL), or Approver has deemed necessary for full documentation of the proposed change.
- All required signatures and approvals have been obtained from the necessary parties.
- The MOC and PSSR documentation will be maintained and stored in accordance with Bison records retention and management policies (for a period of no less than five years) and will be updated as needed. MOC and PSSR records are housed in centrally located shared drives in Bison's Denver office. Bison will coordinate closely with ECMC in the event of a records request and provide applicable records within 7 business days.

Article VI. Training and Notification

Once the RTL has endorsed the MOC, the RTL and RP will identify which work groups require extensive (working knowledge) training versus those that only need awareness training of the change.

The RTL will communicate the change to confirm affected personnel are notified of the change prior to implementing the change.

Article VII. Temporary Changes



The procedure for completing a Temporary MOC is the same as permanent MOC's EXCEPT:

- All Temporary MOC's must state an intended duration for the change.
- Temporary MOC's that remain in service past the change duration must obtain an extension approval in writing. This approval must be included in the MOC file. A temporary MOC without an extension is considered expired and must be removed.

To Receive an Extension:

- Number this MOC the same as the Temporary MOC in all supporting documentation.
- Note EXTENSION in the MOC Title.
- Describe why another extension is needed.
- Attach a copy of the original MOC documentation.
- Obtain and document approvals from all original approvers.
- Once approved, return the extension paperwork to the MOC Coordinator.

Article VIII. Emergency Changes

There are occasions when changes are required quickly to prevent an unsafe condition, an environmental event, or some other event. The changes cannot wait for the permanent MOC procedure. Therefore, an Emergency MOC can be obtained. It is followed with a full MOC to verify the change has a full review, is implemented safely, and no new hazards have been introduced.

The procedure for completing an Emergency MOC is the same as permanent MOC's EXCEPT:

- The scope of the change is determined by the operator and Supervisor and is approved by the Supervisor.
- The Supervisor obtains verbal approval from the Engineer and the Superintendent/Manager.
- It is the Supervisor's responsibility to:
 - Write any needed procedures to cover the change.
 - Confirm that any required training, formal or informal, is completed.
 - Verify that the change matches the approved scope.
 - Give final approval that the change is ready for service.
 - Once approved, the change can be put into service.

Article IX. Exhibits/References/Appendices

Example MOC Request Form and PSSR Form

BISON MOC REQUEST FORM

This Section to be filled out by the person requesting the change

Who is requesting the change: _____ Date of request: _____
Month/Day/Year

What is the location of the proposed change? _____

MOC Action Type: Replace Remove Alter Add VCS Design

Will this be charged to: AFE & Cost Code LOE

Is this a BLM regulated well/facility?

Reason why change is needed
(Add scope details in tasks below):

Estimated cost of change: _____
Order of magnitude cost

Will the change require an outage that will result in a loss in production? If YES, what is the estimated outage time? _____ If YES, what is the estimated total BOE lost? _____

MOC Task Details

Task 1 Details

Required completion date: _____ *Month/Day/Year* Actual Completion Date: _____ *Month/Day/Year*

Task 2 Details

Required completion date: _____ *Month/Day/Year* Actual Completion Date: _____ *Month/Day/Year*

Task 3 Details

Required completion date: _____
Month/Day/Year

Actual Completion Date: _____
Month/Day/Year

Scope of Work - By Group

Engineering Scope of Work:

Mechanical Construction
Scope of Work:

Automation Construction
Scope of Work:

Equipment Information

Equipment description:

Manufacturer:

Model Number:

Serial Number:

BISON IV Operating, LLC
MOC EXECUTION APPROVALS

This section to be filled out by the MOC Committee prior to execution

Exploration & Geoscience

Comments:

Signature of Bison Rep: _____

_____ *Date*

Operations

Comments:

Signature of Operations Rep: _____

_____ *Date*

Safety

Comments:

Signature of Safety Rep: _____

_____ *Date*

Regulatory

Comments:

Signature of Env. Rep: _____

_____ *Date*

Compliance Order Requirements

Comments:

Signature of COC Rep: _____

_____ *Date*

Construction

Comments:

Signature of Const. Rep: _____

_____ *Date*

Engineering

Comments:

Signature of Eng. Rep: _____

_____ *Date*

Automation

Comments:

Signature of Auto. Rep: _____

_____ *Date*

Location/Facility:						
Date:						
#	ITEM	YES	NO N/A	NOTES	RESPONSIBLE PARTY	DATE
1. GENERAL						
1.1	HAS PM PROGRAM BEEN GENERATED FOR THIS EQUIPMENT?					
1.2	ARE LEVEL SWITCHES AND DUMP VALVES OPERATING PROPERLY?					
1.3	HAVE ALL ANCHOR BOLTS BEEN CHECKED TO ENSURE THAT THE HOLDDOWN NUTS ARE TIGHT AND LOCKED?					
1.4	ARE ALL REQUIRED CONTAINMENT STRUCTURES IN PLACE (DIKES, BERMS, ETC.)?					
2. ALARMS/INSTRUMENTATION						
2.1	IS THE WIRING IN GOOD REPAIR AND UNEXPOSED?					
2.2	ARE JUNCTION AND SWITCH BOX COVERS IN PLACE AND PROPERLY SEALED?					
2.3	ARE ELECTRICAL MOTORS GROUNDED?					
2.4	IS THE CONDUIT IN GOOD CONDITION AND ALL WIRING IN CONDUIT?					
2.5	ARE ALL ELECTRICAL CONTROL PANELS LABELED AS TO FUNCTION AND VOLTAGE?					
2.6	ARE FIXED AND PORTABLE MONITORING INSTRUMENTS CALIBRATED AND IN GOOD WORKING CONDITION?					
2.7	IS OVERHEAD POWER LINE CLEARANCE A CONCERN?					
2.8	ARE ALL LOCAL INDICATORS (TEMPERATURE, PRESSURE, FLOW, ETC.) VISIBLE AND ACCESSIBLE?					
2.9	ARE THERMOWELLS OF ADEQUATE LENGTH FOR CORRECT TEMPERATURE INDICATIONS?					
2.1	DO LOCATIONS OF LIQUID LEVEL CONTROL FLOATS PROVIDE FOR PROPER LEVEL ELEVATION?					
2.11	DOES THIS CHANGE MAINTAIN THE DESIGN INTENTION OF THE ESD SYSTEM?					
2.12	HAVE ALARM, SHUTDOWN, AND CONTROL SYSTEM LOGIC BEEN UPDATED AND BACKED-UP?					
2.13	HAVE DISPLAY GRAPHICS BEEN VERIFIED AND/OR UPDATED? HMI?					
2.14	HAVE THE ALARM SETTINGS BEEN VERIFIED AND DOCUMENTED?					
2.15	HAVE THE EQUIPMENT SHUTDOWNS BEEN VERIFIED WITH THE UPDATED CAUSE AND EFFECT DIAGRAMS?					
2.16	HAVE THE INPUT SWITCHES AND TRANSMITTERS (PRESSURE, TEMPERATURE, LEVEL, FLOW, ETC.) FOR EACH CONTROL LOOP BEEN CALIBRATED AND HAVE THE SETPOINTS AND/OR RANGES BEEN VERIFIED AND DOCUMENTED?					
2.17	HAVE THE OUTPUT DEVICES (i/p, VALVE POSITIONER, SOLENOID, ETC.) FOR EACH CONTROL LOOP BEEN CALIBRATED AN HAVE THE SETPOINTS BEEN VERIFIED AND DOCUMENTED?					
2.18	HAVE THE SHUTDOWN SETPOINTS BEEN CHECKED AND DOCUMENTED?					
2.19	IS INSTRUMENTATION INSTALLED PROPERLY WITH REGARDS TO DIRECTION?					
3. FACILITY SIGNS						
3.1	IS A "HARD HAT REQUIRED" AND "NO SMOKING" SIGN PRESENT?					
3.2	605.e(3) - IF THE LOCATION IS A KNOWN SOURCE OF H2S, IS THERE AN H2S SIGN AT THE ENTRANCE?					
3.3	IF APPLICABLE, ARE THERE "UNIT STARTS AUTOMATICALLY" WARNING SIGNS ON PUMPING UNIT?					
3.4	ARE ALL PROCESS VESSELS, STORAGE TANKS, DRUMS and ECD's PROPERLY LABELED (I.E. NORM, NFPA, AIRS ID)?					
3.5	IS THERE A "NO TRESPASSING" OR "AUTHORIZED EMPLOYEES ONLY" SIGN AT THE ENTRANCE?					
3.6	IS THE TANK BATTERY PROPERLY IDENTIFIED WITH A SIGN?					
3.7	IS THERE A LEASE SIGN AND WELLHEAD SIGNS AT THE LOCATION?					

3.8	IF REQUIRED, IS THERE A "REGULATED CONFINED SPACE" SIGN?				
3.9	REG 7 – ARE APPLICABLE STORAGE TANK MEASUREMENT AND/OR NON-EMITTING CONTROLLER SIGNS PRESENT?				
4. GUARDS					
4.1	ARE ALL SIGHT GLASSES IN GOOD CONDITION?				
4.2	DO ALL PUMPS HAVE THE COUPLINGS AND SHAFTS GUARDED?				
4.3	ARE ALL BELTS AND PULLEYS TOTALLY ENCLOSED?				
4.4	ARE FANS, FLYWHEELS AND OTHER MOVING PARTS PROPERLY GUARDED?				
4.5	IS LIVE ELECTRICAL/TRANSFORMER EQUIPMENT GUARDED?				
4.6	IF APPLICABLE, IS THERE A HORSE HEAD GUARD ON THE PUMPING UNIT WHEN BELOW 7 FT?				
5. HOUSEKEEPING					
5.1	HAVE STUMBLING, TRIPPING AND FALLING HAZARDS BEEN ELIMINATED OR MARKED?				
5.2	ARE ALL BUILDINGS IN GOOD REPAIR?				
5.3	HAVE WEEDS BEEN CUT AROUND THE PRODUCTION EQUIPMENT?				
5.4	IF APPLICABLE, ARE FIRE EXTINGUISHERS ON SITE & SERVICED?				
5.5	ARE THE CATTLE GUARD AND STORMWATER CONTROL MEASURES PROPERLY MAINTAINED?				
5.6	ARE THERE ANY ROADWAY HAZARDS THAT NEED TO BE MARKED, GUARDED, OR ELIMINATED? (ANCHORS, PIPELINES, RISERS, LARGE RUTS OR HOLES, ETC.)				
5.7	ARE APPROVED SDS SHEETS PROVIDED FOR ALL APPROPRIATE PRODUCTS?				
6. LADDERS (IF APPLICABLE)					
6.1	ARE LADDER RUNGS, RAILS, BRACKETS, ETC., IN GOOD CONDITION AND FREE OF ANY PROJECTIONS (SPLINTERS, SHARP EDGES, BURRS) WHICH MAY BE A HAZARD?				
6.2	ARE ALL LADDERS CAGED WHEN OVER 20 FT. AND EXTEND A MINIMUM OF 42 INCHES ABOVE THE TOP OF THE LANDING SURFACE?				
6.3	DO SIDE RAILS OF THROUGH OR SIDE-STEP LADDERS EXTEND AT LEAST 42 INCHES ABOVE LANDINGS?				
6.4	IS THE ACCESS OPENING TO LADDERS PROVIDED WITH A SWINGING GATE OR CHAIN CLOSURE?				
7. PRODUCTION EQUIPMENT					
7.1	ARE ALL PRESSURE GAUGES IN GOOD WORKING ORDER?				
7.2	ARE ALL WELLHEAD MASTER AND WING VALVES IN GOOD CONDITION?				
7.3	ARE VALVES AND CONNECTIONS PROPERLY BOLTED, SUPPORTED, AND IN GOOD CONDITION?				
7.4	ARE HYDROCARBON SERVICE LINES STEEL OR STAINLESS STEEL?				
7.5	IS ALL PROCESS EQUIPMENT PROPERLY ANCHORED FOR MOVEMENT FROM WIND AND VIBRATION?				
7.6	ARE BURNER FLAME ARRESTORS IN GOOD CONDITION? (FREE OF WEAR OR PAINT DISTORTION)				
7.7	IS EVERYTHING GROUNDED WHERE NECESSARY?				
7.8	HAVE ALL FASTENERS IN CONCRETE BEEN INSPECTED TO PREVENT WATER, OIL, OR OTHER CONTAMINATION FROM ENTERING?				
7.9	CAN ALL EQUIPMENT BE PROPERLY ISOLATED FOR MAINTENANCE (INCLUDING DOUBLE BLOCK AND BLEED WHERE REQUIRED)?				
7.10	HAS THE PROPER EQUIPMENT LUBRICATION OIL BEEN INSTALLED (FIRST TIME)?				
7.11	IS ADEQUATE SPACING PROVIDED FOR MAINTENANCE ACTIVITIES AROUND ALL MECHANICAL EQUIPMENT, INCLUDING REMOVAL OF MAJOR COMPONENTS (CYLINDERS, EXCHANGER TUBES, ROTORS, ETC.)?				
7.12	IS ADEQUATE VEHICLE ACCESS PROVIDED AROUND EQUIPMENT (INCLUDING CRANE ACCESS)?				
7.13	IS EQUIPMENT PROPERLY INSTALLED?				

8. PUMPING UNIT (IF APPLICABLE)					
8.1	ARE THERE GUARD RAILS AROUND THE UNIT?				
8.2	IS THERE PROPER SPACING BETWEEN THE GUARD RAILS AND THE COUNTER WEIGHTS (MIN-15 INCH/MAX-42 INCH)?				
8.3	DOES THE BRAKE FUNCTION PROPERLY?				
8.4	IS THE THROAT BOLT PRESENT AND TIGHT (IF REQUIRED BY THE MANUFACTURER)?				
8.5	IS THERE 4 INCH CLEARANCE BETWEEN THE POLISH ROD YOKE AND TOP OF STUFFING BOX AT BOTTOM OF STROKE?				
9. PRESSURE RELIEF VALVES					
9.1	ARE RELIEF VALVE INSPECTIONS CURRENT?				
9.2	ARE BLOCK VALVES WHICH AFFECT THE OPERATION OF RELIEF VALVES, SEALED OR LOCKED IN THE OPEN POSITION?				
9.3	ARE RELIEF VALVES DISCHARGED UP AND AWAY FROM PERSONNEL AND EQUIPMENT?				
9.4	ARE RELIEF VALVES SET AT OR UNDER THE MAXIMUM ALLOWABLE WORKING PRESSURE OF THE PROTECTED EQUIPMENT?				
9.5	ARE ALL PRESSURE VESSELS PROTECTED WITH RELIEF VALVES?				
10. TANKS, WALKWAYS, AND PRESSURE VESSELS					
10.1	ARE WALKWAYS AND STAIRWAYS IN GOOD ORDER?				
10.2	ARE ALL OF THE BOLTS TO THE STAIRWAYS/CATWALKS IN PLACE?				
10.3	ARE THERE TOE-BOARDS ON ELEVATED WALKWAYS OVER 4 FT.?				
10.4	DO THE TANK THIEF HATCHES SEAL AND ARE THEY IN GOOD REPAIR?				
10.5	ARE PROCESS VESSELS AND STORAGE TANKS IN SOUND CONDITION WITH NO SIGN OF CORROSION PROBLEMS?				
10.6	ARE THE INSULATING OR PROTECTIVE COATING MATERIAL IN GOOD CONDITION?				
10.7	ARE VESSEL/TANK FOUNDATIONS IN GOOD REPAIR AND FREE OF WASHOUT OR UNDERCUTTING?				
10.8	DOES THE TANK HAVE A VENT LINE ATTACHED AND IS IT FREE OF OBSTRUCTION?				
10.9	ARE ALL PRESSURE VESSELS OPERATING AT OR BELOW THEIR MAXIMUM ALLOWABLE WORKING PRESSURE?				
10.10	ARE ALL TANKS AND SECONDARY CONTAINMENT PROPERLY GROUNDED?				
10.11	ARE TANKS EXAMINED VISUALLY TO CHECK FOR LEAKS, TANK DISTORTION, CORROSION, COATING AND CATHODIC PROTECTION CONDITIONS?				
10.12	ARE ALL SECONDARY CONTAINMENTS SIZED APPROPRIATELY AND LINERS VISUALLY FREE OF LEAKS/TEARS?				
11. PIPING					
11.1	ARE ALL VALVES AND CONNECTIONS IN GOOD OPERATING CONDITION?				
11.2	ARE THE FACILITY PIPING SYSTEMS IN SOUND CONDITION, WITH NO SIGN OF LEAKS OR POTENTIAL CORROSION PROBLEMS?				
11.3	HAS ALL BURIED PIPING BEEN COATED/WRAPPED TO PREVENT CORROSION?				
11.4	ARE ALL BOLTS AND NUTS IN FLANGES USING THE CORRECT PIPING SPECS AND LENGTH? FULL NUT ON BOLTS?				
11.5	ARE ALL FLARE LINES, RELIEF LINES, AND VENT LINES FREE OF LIQUID TRAPS OR LOW POINTS?				
11.6	ARE THE VALVE AIR SUPPLIES OPEN AND HAVE THEY BEEN CHECKED FOR LEAKS?				
11.7	DO ATMOSPHERIC RELIEF VALVE HORNS HAVE DRAIN HOLES IN THE ELBOWS? WEEP HOLE?				
11.8	HAS PIPING BEEN INSPECTED FOR SIGNS OF STRESS, SAGGING, QUALITY, ETC.?				
11.9	HAS THE PROJECT BEEN REVIEWED TO ASSURE THAT ALL P&ID DRAWING COMPONENTS HAVE BEEN INSTALLED (I.E., PRESSURE, TEMPERATURE, AND FLOW ELEMENTS/INDICATORS, CONTROL VALVES, RELIEF VALVES, PIPE SIZE, MATERIALS OF CONSTRUCTION, ETC.)?				

11.10	HAVE ALL "DIRECTIONAL ITEMS" BEEN VERIFIED FOR THE CORRECT FLOW DIRECTION (I.E., GLOBE VALVES, CHECK VALVES, LEVEL VALVES, PRESSURE VALVES, ETC.)?				
11.11	HAVE ALL BLOCK AND BLEED VALVES BEEN SET FOR FLOWING CONDITIONS?				
11.12	HAVE ALL CONSTRUCTION BLINDS OR SKILLETS BEEN REMOVED?				
11.13	WHERE APPLICABLE, HAVE ALL CONTROL VALVES BEEN VERIFIED FOR THE CORRECT "FAIL POSITION"?				
11.14	HAVE ALL FLANGES, FITTINGS, PIPE, AND OTHER COMPONENTS BEEN REVIEWED TO ASSURE PROPER WALL THICKNESS AND METALLURGY?				
11.15	HAVE ALL GASKETS BEEN INSPECTED FOR PROPER MATERIAL?				
11.16	HAVE ALL INSPECTION RECORDS (X-RAY, MAGNETIC PARTICLE, DYE PENETRANT, IMPACT TESTS, HARDNESS TESTS, ETC.) BEEN REVIEWED FOR COMPLIANCE WITH APPLICABLE CODES?				
11.17	HAVE ALL STARTUP ORIFICES, SCREENS, AND/OR FILTERS BEEN INSTALLED AND IN PROPER DIRECTION?				
11.18	HAVE HYDROSTATIC AND/OR PNEUMATIC TEST RECORDS BEEN REVIEWED?				
11.19	HAVE PRESSURE RELIEF VALVE TESTS BEEN REVIEWED TO VERIFY PROPER RELIEF SETTINGS AND DOCUMENTATION?				
11.20	HAVE THE P&ID INSULATION REQUIREMENTS BEEN REVIEWED TO ASSURE THE PROPER MATERIALS HAVE BEEN USED AND HEAT TRACE & INSULATION CONSTRUCTION IS COMPLETE?				
12. PRESSURE TESTING/STARTUP READY					
12.1	HAVE NECESSARY EQUIPMENT AND FLOWLINES BEEN PRESSURE TESTED? IF YES, PLEASE ATTACH DOCUMENTS.				
12.2	ARE ALL REQUIRED DEPARTMENTS IN AGREEMENT THAT THE PRE-STARTUP REVIEW HAS MET SATISFACTORY REQUIREMENTS AND THE SITE IS READY FOR STARTUP?				
13. ELECTRICAL					
13.1	DOES THE GROUNDING SYSTEM MEET NEC REQUIREMENTS?				
13.2	DOES THE INSTALLATION MEET ALL APPLICABLE NEC AND API 500?				
13.3	HAS ELECTRICAL HEAT TRACING BEEN PROPERLY INSTALLED AND DOES IT MEET NEC SPECIFICATIONS?				
13.4	HAS THE ELECTRICAL AREA CLASSIFICATION DRAWING BEEN UPDATED?				
13.5	HAVE ELECTRICAL CAUSE AND EFFECT DIAGRAMS BEEN UPDATED? SAFETY (SHUTDOWN MATRIX)				
13.6	HAVE ELECTRICAL ONE-LINE DIAGRAMS BEEN COMPLETED OR UPDATED? (POWER DISTRIBUTION)				
13.7	HAVE ELECTRICAL SCHEMATICS BEEN UPDATED?				
13.8	HAVE PLUGS AND SEALS BEEN INSTALLED AND POURED WHERE REQUIRED ON ALL CONDUIT?				
13.9	HAVE WIRING DIAGRAMS (INCLUDING ALL CABLES AND JUNCTION BOXES) BEEN UPDATED?				
13.10	MOTOR ROTATION DIRECTION VERIFIED AS CORRECT?				
13.11	POWER BREAKERS CORRECT POSITION?				
13.12	HOA switches properly labeled on all pumps?				
14. PROCESS SAFETY INFO					
14.1	CAUSE & EFFECT CHART/DESCRIPTION FOR SHUTDOWN SYSTEM(S)?				
14.2	P&IDS (INCLUDING PIPING DESIGN CODES AND PRESSURE RATINGS)?				
14.3	PFDS (INCLUDING MATERIAL AND ENERGY BALANCES)?				
14.4	PLOT PLAN AND OVERLAY FOR EMERGENCY EVACUATION ROUTES?				
14.5	RELIEF SYSTEM DESIGN DOCUMENTATION (DESIGN BASIS, PSV SIZING, AND CALCULATIONS)?				

15. SAFETY					
15.1	ARE ALL ATMOSPHERIC VENTS DIRECTED TO SAFE LOCATIONS AND AT SAFE ELEVATIONS? (NOT POINTING BACK TO VESSEL)				
15.2	ARE APPROPRIATE WARNING SIGNS AND/OR SAFETY PAINT IN PLACE?				
15.3	ARE OUTLETS OF DRAIN VALVES DIRECTED SO AS TO AVOID PERSONNEL INJURY (FROM LIQUID, FLYING GRAVEL, ETC.)?				
15.4	ARE PLANT EMERGENCY AND PROCESS ALARMS AUDIBLE IN ALL AREAS?				
15.5	ARE PLATFORMS ADEQUATELY CONSTRUCTED WITH TOE-BOARDS AND SAFETY GATES?				
15.6	ARE PLUGS INSTALLED ON ALL VENTS AND DRAINS?				
15.7	ARE THERE ADEQUATE NUMBERS OF WIND SOCKS AND ARE THEY PROPERLY LOCATED?				
15.8	HAS THE EMERGENCY RESPONSE PLAN BEEN UPDATED?				
15.9	IS THE LIGHTING ADEQUATE?				

REMARKS:

STARTUP SAFETY AUTHORIZATION	
AUTHORIZED BY (PRINT):	DATE:
SIGNATURE:	ADDITIONAL FORMS ATTACHED: YES NO NUMBER OF FORMS:

STARTUP SAFETY TEAM		
TITLE	SIGNATURE	PRINTED NAME
OPERATION SUPERVISOR:		
ENGINEERING:		
EHSR:		
FACILITY OPERATOR:		
MECHANICAL CONTRACTOR:		
ELECTRICAL CONTRACTOR:		
IC&E PERSON:		
OTHER:		
OTHER:		
OTHER:		
OTHER:		