



## Harambe 2920

### 304.c.(7): Operations Safety Management Plan

#### 1. Introduction to VESMS

Verdad Resources (“Verdad”) is committed to conducting our business in a manner that protects the health and safety of all personnel at company facilities and that minimizes the impact to the environment and the communities in which we operate. Acting on that commitment, Verdad utilizes an Environment, Health and Safety (“EHS”) Management System to ensure excellent EH&S performance. The Verdad Environmental & Safety Management System (aka “VESMS”) employs a simple, smart and strategic approach that expects and empowers all staff and contractors to have personal responsibility and authority to ensure safe and environmentally conscious decisions and execution of work occur at all levels of our operations. By adhering to this approach, we strive to minimize injuries and incidents while protecting the environment and complying with all applicable environmental, health and safety regulations.

To follow through on the commitment and achieve the goals described above, Verdad Resources: 1) implements VESMS to provide expectations and guidance on objectives and performance standards to which the company aspires; 2) identifies, assesses and manages EHS risks to people, the environment and assets as an integral part of the business; 3) selects competent staff, contractors and suppliers to manage and support the business; 4) provides the necessary training, tools and procedures to its staff to perform their work safely and with appropriate regard for the environment; 5) maintains procedures which will allow an effective response in the event of an emergency; and 6) continually evaluates and seeks to improve our EH&S performance.

VESMS, the commitment of Verdad Resources leadership and the execution on the Verdad’s EH&S goals are critical to the wellbeing of all employees and our business success and allow us to systematically minimize losses and add value. Helping to fulfil these goals is the responsibility of everyone who works at Verdad Resources. VESMS helps us measure and continuously improve our EHS Performance by executing conformance to EHS expectations through the PLAN-DO-CHECK-ACT process. VESMS is based on management system structures including ISO 14001. The VESMS objectives set out to achieve: 1) leadership’s goals and to meet public and private policy expectations; 2) maintain compliance in systematic cost effective manner; 3) use a proactive approach to risk; 4) achieve consistent improvement through measurement, review and evaluation; and most importantly, 5) integrating VESMS into our daily activities to help us create an injury-free workplace, minimize our environmental impact, maintain our social license to operate, and treat our neighbors and surrounding communities with respect.

All Employees of Verdad have a role in VESMS. Executive Leadership, Board of Directors and managers create company commitment through policies and goals that describe what is expected of the company.



Managers and Directors create and run the management system by developing plans that direct what needs to be done to meet Policy expectations and be successful. All Verdad staff are expected to work in conformance with practices and procedures outlined by management to meet Policy and Plan requirements.

## 2. Safety

Verdad's Safety program utilizes VESMS as its backbone, but our Safety Culture empowers individuals to own the company's safety for themselves, their co-workers and the locations where they work. Verdad owes its safety success to a highly accountable and vetted workforce with very experienced leaders who drive execution excellence in all aspects of work including and especially safety. Each employee and contractor in Verdad's platform have STOP WORK Authority.

Verdad's Safety program Plans and expectations are outlined in the following parts of VESMS:

- Safety Practices Plan
- Contractor Management Plan
- Emergency Preparedness and Response/Incident Management Plan
- Risk Management Plan

The following Practices direct how the work is done to meet the requirements and expectations in the Plans and to ensure safe operational control and hazard identification within Verdad's risk tolerances.

- Contractor Management Practices
- Confined Space Practice
- Driving Safety Practice
- Drug and Alcohol Practice
- Energy Isolation (LOTO) Practice
- Fire and Explosion Prevention Practice
- Gas Detection Practice
- HazCom Practice
- Hot Work Practice
- Job Safety Analysis Practice
- PPE Practice
- Working at Heights Practice
- Emergency Response Plan
- Risk Management/Hazard Identification, Elimination and Control Practice (MOC and PSSR)

Practices include applicability; scope; core information and requirements; roles and responsibilities; goals, objectives and performance measures; training and personnel requirements; resources; and associated forms, documents and references. Many of the Practices have procedures, forms and periodic training required. Practices are periodically reviewed by EH&S management and evaluated with field supervisors and personnel that apply the practices operationally. Through this periodic review the Practices are



modified for constant improvement. The Practices, and the Management System as a whole, are living documents constantly under development for improvement.

Records for the Management of Change (MOC) program, which cover changes to technology, equipment and procedures are stored electronically in the Verdad Resources backed up server in a file specific to MOC. The MOC records will be kept for the life of the Company. If records are requested by the COGCC, they can be provided within 2 business days. Records are updated whenever a project requiring the MOC process is completed. The MOC process identifies the basis for the proposed change and why it is needed, identifies the potential impacts to Public Health, Safety, Welfare, and the Environment that may occur from implementing the change or that may occur from not implementing the change. The supervisor of the change initiating employee must approve the change. The MOC process identifies if the change is permanent or temporary. If the change is temporary, the MOC process provides an estimate of how long the equipment or process will be in service.

A safety review conducted prior to startup (commissioning) of a change, new or modified equipment or new facility to ensure that installations meet the original design or operating intent, to catch and re-assess any potential hazard due to changes during the detailed engineering and construction phase of a project. In other words, it ensures the "Ready for Start-up" status of a process or facility. Safety, operating, maintenance, and emergency procedures shall be updated and, if required, a Pre-Start-Up Safety Review (PSSR) checklist shall be completed. As an example, the PSSR checklist for the Harambe 2920 that will be conducted prior to oil and gas production to the facility on this location is below:

**Note: Start-up cannot proceed without all required sign-offs AND Chief Operations Officer approval.**

# Prestart-up Safety Review Checklist & Signatures

Facility: \_\_\_\_\_ Start Date: \_\_\_\_\_ End Date: \_\_\_\_\_

Description of Project: \_\_\_\_\_

Start-up Authorization: \_\_\_\_\_  
(COO Signature)



The undersigned certify the equipment included in this process has been constructed as designed, undergone a complete pre-startup review and checkout, and is now ready to start up.

Role and Signature Final:			Date
Facilities Engineering:	Print	Signature	
Operations:	Print	Signature	
Construction:	Print	Signature	
Safety:	Print	Signature	
Env. - Field:	Print	Signature	
Env. - Denver:	Print	Signature	
Automation	Print	Signature	

Responsible: (R) Randy / (S) Safety / (EF) Enviro Field / (ED) Enviro Denver / (A) Automation

Field Start-up Checklist ( R )		Yes	No	N/A	Initials	Resp.	Required before Start-up?	Date Completed	Notes
1	Has a noise survey been scheduled/completed for the facility?					R,EF,ED			
2	Does the VCS analysis match the facility?					R,ED			
3	Is this a BLM location (surface, minerals, or CA)?					R,ED			
4	Has the Site Security Plan for federal sites been updated or developed?					R,EF,ED			
5	Is the location in a 100-year floodplain?					R,ED			
6	Have the location and onsite equipment been added to the Floodplain Management Plan?					R,ED			
7	Have the onsite wells been equipped with remote shut-in capability?					R,A			
8	Do onsite tank containments have tertiary containment?					R,EF			
9	Have the tanks and separation equipment been anchored?					R,EF			
10	Is all applicable oil containing equipment in sufficient secondary containment?					R,EF			
11	Are there flow through vessels without containment that will trigger quarterly SPCC inspections?					R,EF,ED			
12	All purging has been completed as required?					R			
13	All start-up blinds been removed?					R			
14	All valves are properly lined (open, closed) for start-up?					R			
15	Have all the systems been charged with the correct amount of the correct materials? (mole sieve, heat medium, lean oil, filters, amine, water, glycol, etc.?)					R			
16	Is equipment info up to date in eVIN? (i.e. does equipment match whats on location?)					R			
17	Have equipment serial numbers been added to the equipment lists?					R,EF			
18	Has all equipment been checked to ensure operational readiness?					R			
19	Have procedures to maintain the ongoing mechanical integrity of equipment been completed?					R,EF			
20	Have all permits been reviewed with operations?					R,ED			
21	LP gas routed as specified in permit and VCS design analysis?					R,ED			
22	Compressor dumps cascaded and routed to tanks?					R			
23	Separators, HT or VRT set to operate ≤ psig on the design analysis?					R,ED			
24	Is the site security diagram and seal tracking log in a storage box onsite?					R,EF			
25	Has flow direction been verified as correct?					R			
26	Darts and seals have been installed?					R,EF			
27	Have appropriate building, fabrication, electrical/instrumentation, construction and design codes and standards been followed?					R			
28	All foundations have been installed to design specifications?					R			
29	All electrical equipment has been checked for proper area classification?					R,A			
30	All equipment has been properly bonded and grounded?					R,S			
31	All electrical equipment and instrumentation has been labeled and tagged?					R,A			
32	All equipment can be isolated safely by lock-out provisions for repair work?					R			
33	Have conduit fitting covers been installed, conduit seals poured, and electrical equipment been adequately protected from weather and corrosion?					R,A			
34	Alarms, ESD's, control valves, instrument and power systems have been tested and activated?					R,A			
35	Do PSV to atmosphere have rain caps installed if equipped with vertical discharge/vent ?					R			
36	PSVs are set properly and do not exceed the design criteria?					R			
37	Are Enardo thief hatch model ES-660 installed on all atmospheric water storage tanks? Is this set at 16 oz. spring rate?					R,EF			
38	Are Enardo thief hatch model ES-660 and PRVw installed on all atmospheric oil storage tanks and oil slop tanks? Are these set at 16 oz.?					R,EF			
39	Are all atmospheric vents and drains directed to safe locations at safe elevations?					R,S			
40	All appropriate hydrostatic or pneumatic integrity testing has been completed, including all flanges to ensure proper installation?					R			
41	All flushing, draining, and drying has been completed as required after the hydro-test?					R			
42	Have inspection been completed (x-ray, magnetic particle, dye penetrant, impact tests, hardness tests, hydrostatic and/or pneumatic test records etc.) and records reviewed and filed?					R			
43	Is adequate spacing provided for maintenance activities around all mechanical equipment, including removal of major components (filters, cylinders, exchanger tubes, rotors, impellers, etc?)					R			

44	All equipment has been installed according to manufacturer's recommendations?					R			
45	Have all PSV and piping runs adequately supported for relieving forces and piping run lengths?					R			
46	All equipment is numbered and tagged?					R			
47	Have all platforms, or railings been installed with adequate toe-boards and safety gates for safety of personnel?					R,S			
48	Do steps (concrete and others) and handrails meet OSHA requirements?					R,S			
49	Are rotating equipment guards in place and secure?					R,S			
50	Are all bird screens, sales orifices, filter elements, Compressor catalyst?					R,EF			
51	Are all open ended valves appropriately plugged?					R			
52	Are all above ground piping and equipment guarded from vehicular traffic as necessary?					R,S			
53	Are all lease signs installed, including facility sign and wellhead signs at the entrance, wellhead signs at separator containment, and wellhead signs at tank containment?					R,EF			
54	Has the new equipment been installed such that it does not cause an emergency egress problem?					R,S			
55	If located at a syn-minor facility (for NOx, CO, HCHO), are proper catalyst ports in place to record pressure drop across the catalyst and the catalyst inlet temperature?					R,EF,ED			
56	Are all required controls in place?					R,EF,ED			
57	Truck loadout vapor return lines (VRL)?					R,EF,ED			
58	Tank vapor, and/or associated gas ECDs?					R,EF,ED			
59	If facility has grid power, all pneumatics are instrument air?					R,EF,ED			
60	Is all applicable oil containing equipment in sufficient secondary containment?					R,EF			
61	Are all loadouts equipped with drip containment?					R,EF			
62	Do wildlife protection controls meet the requirements of the Migratory Bird Treaty Act (containment netting, separator exhaust cones, ECD bird cones)?					R,EF			
63	Proving loops have been installed?					R			

Field Start-up Checklist ( Safety )		Yes	No	N/A	Initials	Resp.	Required before Start-up?	Date Completed
1	Are all atmospheric vents and drains directed to safe locations at safe elevations?					R,S		
2	Have all platforms, or railings been installed with adequate toe-boards and safety gates for safety of personnel?					R,S		
3	Do steps (concrete and others) and handrails meet OSHA requirements?					R,S		
4	Are rotating equipment guards in place and secure?					R,S		
5	Has required training and documentation been updated or developed?					S		
6	Have all procedures, SOP's (operations, maintenance, safety, emergency) been updated or developed as necessary?					S		
7	Are all above ground piping and equipment guarded from vehicular traffic as necessary?					R,S		
8	All GPS collection data has been completed?					R,S		
9	Has the site been cleared of construction machinery, surplus equipment, and unused material?					R,S		
10	Have emergency response planning procedures and training been updated or developed?					S		
11	Are there enough emergency exits and are they properly marked and located?					S		
12	Has all hazard communication (HAZCOM) been updated such as labeling, chemical lists updated, and SDS's in place?					S		
13	Are adequate safety signs in place (H2S, if applicable, Black/Yellow Standard sign, NFPA Placards,-etc.)?					S		
14	Is all fire fighting equipment in place and operational?					S		
15	Has the new equipment been installed such that it does not cause an emergency egress problem?					R,S		
16	Have cages been installed on all fixed ladders 20 ft or higher?					S		
17	Is there sufficient lighting for safe operation of the facility?					S		
18	Are there adequate numbers of wind socks and can they be readily seen from different vantage points throughout the facility?					S		
19	Has ready access to eye wash, first aid, AED, been addressed?					S		
20	All equipment has been properly bonded and grounded?					R,S		

Field Start-up Checklist ( Environmental Field )		Yes	No	N/A	Initials	Resp.	Required before Start-up?	Date Completed
1	Are Enardo thief hatch model ES-660 installed on all atmospheric water storage tanks? Is this set at 16 oz. spring rate?					R,EF		
2	Are Enardo thief hatch model ES-660 and PRVw installed on all atmospheric oil storage tanks and oil sloop tanks? Are these set at 16 oz.?					R,EF		
3	Have equipment serial numbers been added to the equipment lists?					R,EF		
4	Are all bird screens, sales orifices, filter elements, Compressor catalyst?					R,EF		
5	All GPS collection data has been completed?					S,FE		
6	Are all lease signs installed, including facility sign and wellhead signs at the entrance, wellhead signs at separator containment, and wellhead signs at tank containment?					R,EF		
7	Has a noise survey been scheduled/completed for the facility?					R,EF,ED		
8	Has a NORM survey been scheduled/completed for the facility?					EF,ED		
9	Are there any sampling or testing requirements in the permit associated with any equipment affected by the current PSSR modification?					ED,EF		
10	If Yes, have ports been installed to accommodate any potential sampling needs?					ED,EF		
11	If No, will necessary port(s) be installed prior to startup of affected source/equipment?					ED,EF		
12	If located at a syn-minor facility (for NOx, CO, HCHO), are proper catalyst ports in place to record pressure drop across the catalyst and the catalyst inlet temperature?					R,EF,ED		
13	Are all required controls in place?					R,EF,ED		
14	Truck loadout vapor return lines (VRL)?					R,EF,ED		
15	Tank vapor, and/or associated gas ECDs?					R,ED		
16	Is the site security diagram and seal tracking log in a storage box onsite?					R,EF		
17	Are onsite tank containments constructed with a steel ring and liner?					R,EF		
18	Do onsite tank containments have tertiary containment?					R,EF		
19	Have the tanks and separation equipment been anchored?					R,EF		
20	Has the location been scheduled for a Spill Prevention Countermeasure and Control (SPCC) plan inspection?					R,EF		
21	Is all applicable oil containing equipment in sufficient secondary containment?					R,EF		
22	Are all loadouts equipped with drip containment?					R,EF		
23	Are there flow through vessels without containment that will trigger quarterly SPCC inspections?					R,EF,ED		
24	Has the site specific SPCC been scheduled (w/in 6 months)?					EF		
25	Are storm water pollution prevention requirements (SWPPP)/Control Measures installed and functioning as designed?					EF,ED		
26	Do wildlife protection controls meet the requirements of the Migratory Bird Treaty Act (containment netting, separator exhaust cones, ECD bird cones)?					R,EF		
27	Are all equipment signs installed, including tank and separator signage (contents, volume, emergency contact info, NFPA, etc.)?					EF		
28	Darts and seals have been installed?					R,EF		
29	A binder is on location with required BLM data?					EF		
30	Has the Site Security Plan for federal sites been updated or developed?					R,EF,ED		

Field Start-up Checklist ( Environmental Denver )		Yes	No	N/A	Initials	Resp.	Required before Start-up?	Date Completed
1	Have all permits been reviewed with operations?					R,ED		
2	Has a noise survey been scheduled/completed for the facility?					R,EF,ED		
3	Has a NORM survey been scheduled/completed for the facility?					EF,ED		
4	Has Air Permit been issued or GP submitted for all emission points?					ED		
5	If engine, is the permit issued?					ED		
6	Does production from this facility go to another location?					ED		
7	If Yes, has that production been accounted for in permitting at the primary facility?					ED		
8	List any specific operational requirements.					ED		
9	Have necessary facility design modifications been incorporated and relayed to Oper					ED		
10	Are there any sampling or testing requirements in the permit associated with any equipment affected by the current PSSR modification?					ED,EF		
11	If Yes, have ports been installed to accommodate any potential sampling needs?					ED,EF		
12	If No, will necessary port(s) be installed prior to startup of affected source/equipme					ED,EF		
13	Are the Engine monitoring data needs required by the air permit in place?					ED		
14	Totalizer in place for recording run hours?					R,ED		
15	If located at a syn-minor facility (for NOx, CO, HCHO), are proper catalyst ports in					R,EF,ED		
16	Is equipment info up to date in eVIN? (i.e. does match permitting)					ED		
17	Are the ECD monitoring data needs required by the air permit in place?					ED		
18	All ECDs are setup in eVIN (for inspections)?					ED		
19	Have all above monitoring requirements been communicated to operations?					ED		
20	Are all required controls in place?					R,EF,ED		
21	Truck loadout vapor return lines (VRL)?					R,EF,ED		
22	Was an Emissions Design Analysis completed on this facility?					ED		
23	LP gas routed as specified in permit and VCS design analysis?					R,EF,ED		
24	Does the VCS analysis match the facility?					R,ED		
25	Separators, HT or VRT set to operate $\leq$ psig on the design analysis?					R,ED		
26	If facility has grid power, all pneumatics are instrument air?					R,ED		
27	Is this a BLM location (surface, minerals, or CA)?					R,ED		
28	Has the Site Security Plan for federal sites been updated or developed?					R,ED		
29	Have the appropriate sundries been filed with the BLM for flow-meter approval.					ED,A		
30	Have the location and onsite equipment been added to the Floodplain Management					R,ED		
31	Has the location been scheduled for a Spill Prevention Countermeasure and Control (SPCC) plan inspection?					R,ED		
32	Are there flow through vessels without containment that will trigger quarterly SPCC inspections?					R,EF,ED		
33	Are storm water pollution prevention requirements (SWPPP)/Control Measures installed and functioning as designed?					EF,ED		
34	has a notice of start up GP09/GP10 been submitted to the state of colorado?					ED		
35	Separators, HT or VRT set to operate $\leq$ psig on the design analysis?					R,ED		
36	Is the location in a 100-year floodplain?					R,ED		

Field Start-up Checklist ( Automation )		Yes	No	N/A	Initials	Resp.	Required before Start-up?	Date Completed
1	All electrical equipment has been checked for proper area classification?					R,A		
2	All electrical equipment and instrumentation has been labeled and tagged?					R,A		
3	Have conduit fitting covers been installed, conduit seals poured, and electrical equipment been adequately protected from weather and corrosion?					R,A		
4	Alarms, ESD's, control valves, instrument and power systems have been tested and activated?					R,A		
5	Have instrument calibrations been completed, including electrical protective relays and safety devices?					A		
6	All detectors (combustible, fire, H2S, CO) and indicators (horns, lights, etc.) are installed, tested, and activated?					A		
7	Have the appropriate sundries been filed with the BLM for flow-meter approval.					ED,A		
8	Have the onsite wells been equipped with remote shut-in capability?					R,A		
9	Has the correct automation been installed and programming verified?					A		
10	Is the meter tube flow conditioner information displayed per BLM requirements?					A		
11	Required information is displayed on the HMI and Coriolis transmitter? (i.e. elevation)					A		

**MASTER ACTION PLAN**

(Priority Code Legend: 1 - Emergency 2 - Before Start-up 3 - After Start-up)

	Action Items to be Completed	Priority	Target Date	Person Responsible for Task Completion	Completed Yes / No	Notes
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