# enhance

**Online Site Orientation – Enhance Facilities** 

A trusted leader in carbon emission reduction through CO<sub>2</sub> enhanced oil recovery

www.enhanceenergy.com

#### **ENHANCE ENERGY AREA'S**



CLIVE	04-15-040-24W4M
FENN BIG VALLEY	05-14-036-20W4M
GLEN PARK	05-02-049-27W4M
GLIDDEN	13-16-027-26W3M
HAYNES	10-15-038-24W4M
INNISFAIL	01-03-035-01W5M
WOODRIVER	16-28-042-23W4M





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### **THIS IS ENHANCE**

#### https://vimeo.com/372743484





#### LAND ACKNOWLEDGEMENT

#### Treaty 6

Land Acknowledgement

#### Treaty 7

Land Acknowledgement

Enhance Energy acknowledges that we operate our Clive Sequestration project on Treaty 6 territory—the traditional and ancestral territory of the Cree, Dene, Blackfoot, Saulteaux and Nakota Sioux, and the Métis Nation of Alberta, Region 3.

We acknowledge the many First Nations, Métis and Inuit who have lived in and cared for these lands for generations.

In the spirit of respect, reciprocity and truth, we honour and acknowledge Moh'kinsstis, and the traditional Treaty 7 territory and oral practices of the Blackfoot confederacy: Siksika, Kainai, Piikani, as well as the Îyâxe Nakoda and Tsuut'ina nations.

We acknowledge that this territory is home to the Métis Nation of Alberta, Region 3 within the historical Northwest Métis homeland.

Finally, we acknowledge all Nations – Indigenous and non – who live, work and play on this land, and who honour and celebrate this territory.



# **1. SAFETY STANDARDS**

#### General Requirements

- No firearms, alcohol, marijuana or related compounds, unapproved prescription drugs or medications or illegal drugs allowed on rig, lease, camp or vehicles; and
- Jewelry is prohibited except approved medic alert type (Drilling and Completions Personnel).

#### Fit for Duty, Drugs and Alcohol

- All personnel are expected to be mentally and physically fit for duty when reporting for work and to remain fit for the duration of the workday;
- Employees may not possess, distribute or be under the influence of alcohol, unapproved prescription or over-the-counter drugs or medications, illegal drugs or have drug paraphernalia in the workplace, as defined in the Company Substance Abuse program;
- No person shall report for duty or remain on duty for a safety sensitive function having used or being
  in possession of any unapproved prescription or over-the-counter drug or medication, including
  legally accessed medicinal cannabis-marijuana, except when (i) the use of the drug is pursuant to
  the instructions of a licensed medical practitioner and, (ii) they have confirmation that the drug will
  not adversely affect their ability to work safely; and (iii) they have advised their supervisor when
  using any drug that could affect their fitness to work safely and efficiently;
- No person shall intentionally misuse prescription or over-the-counter medications in such a manner as to render him or her unfit to safely perform their duties;
- Any employee who believes that they or any another person are, or have become, unfit for duty, must cease work and immediately advise their supervisor.





#### Confined Space Entry

- Must be performed by competent persons according to legislated Occupational Health and Safety requirements, Company Codes of Practice and Safe Work Procedures, and
- Contractors shall not enter confined spaces such as tanks, vessels, sumps, valve boxes. etc. without explicit authorization and an entry permit from the Company Representative.

#### Cranes and Hoists

- Must be operated by properly trained and certified personnel;
- Access to lift areas must be controlled;
- Workers must not stand on or under suspended loads;
- Tag lines must be used; and
- All rigging components must be approved and inspected according to legislated requirements.

#### **Electrical Operations**

- Must be performed by suitably trained and certified personnel following all legislated requirements for the control of hazardous energy;
- Equipment must be properly locked out and tagged by a competent person and those who will be performing the work before electrical maintenance can be performed;
- Workers on equipment must maintain legislated and required distances between power lines and energized equipment, clearance requirements must be confirmed with the utility or person-in-charge of the line or equipment before work can begin; and
- Workers who perform electrical work are prohibited from wearing any type of jewelry.





#### Excavations and Trenches

- Excavations exceeding 1.5m depth, or as specified by local regulations, cannot be entered unless they are protected from cave-ins or sliding material by shoring or other approved methods carried out by competent persons;
- Locations of underground pipelines, cables and conduits must be identified (flagged and documented) before digging or disturbing the ground;
- Buried pipelines and cables must be hand exposed or day lighted before mechanical excavation is permitted.
   Follow legislated requirements, and Company Ground Disturbance Code of Practice;







- Safe access and egress must be provided and used for all excavations;
- Mechanical equipment is not permitted within 60cm of exposed energized pipelines and electrical cables, or as specified within the client's sitespecific procedures, or pipeline crossing agreements;
- The spoil pile must be at least 1m from the edge of the trench and the slope cannot exceed 45°; and
- Excavations and trenches must be inspected before work and adequately marked and/or barricaded to prevent accidental entry by personnel, livestock or wildlife.



#### Fall Arresting Equipment

An approved personal fall arrest system or equivalent must be used according to the requirements of the site fall protection plan:

- While working on any unguarded area that is higher than 3 meters above the ground, and
- Where a fall from a height of less than 3 meters involves a risk of injury greater than the risk of injury from the impact on a flat surface.

#### Hair

- Must be completely confined or cut short where there is a danger of it contacting moving equipment.
- Beards, goatees, or excessive facial hair are prohibited on worksites where respirators and/or SCBA/SABA units may be required for work or emergencies.









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#### Housekeeping

- All facilities, offices, well sites, etc. shall be maintained with the highest regard for good housekeeping practices in the areas of cleanliness and appearance, and
- Appropriate measures must be implemented to prevent spills and leaks from becoming a health, safety, or environmental hazard (e.g., drip pans, splashguards, sight glass isolations, etc.).

#### Ladders

- Inspect all ladders prior to use;
- Both hands shall be kept free for climbing;
- Only one person at a time shall be on the ladder;
- Portable ladders shall be equipped with anti-slip feet;
- The first ascent up a portable ladder should always be for the purpose of tying it off;
- Portable straight ladders are to be set at the correct angle. For every 4 units of vertical ladder height, the base should be extended 1 unit out at the bottom from the vertical support (i.e., 4:1 ratio); and
- Electricians who work near live power lines must use approved wooden or fibreglass ladders.

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#### Lockout/Tagging and Isolation

- All valves or sources of hazardous energy must be locked out and isolated if their accidental opening or closing will create a hazard to workers;
- Every worker conducting maintenance or repairs must lockout and tag the equipment they are working on, using a lock that is operated by only one key;
- The worker must retain possession of that key while working on the equipment; and
- The worker must remove the lock/tag when they're finished the repair or maintenance work.

#### Machine Guards

- Guards are provided to protect personnel from moving parts on machinery and must be kept in place at all times, and
- Hand-held grinders must always have approved manufacturers or equivalent guards in place.





# 3. HYDROGEN SULPHIDE (H<sub>2</sub>S)

 Hydrogen sulphide (H<sub>2</sub>S) is commonly encountered in the oil and gas industry, may be present as a gas or be dissolved in produced water, brines, crude oil, or natural gas condensate, produced gas and CO2. Hydrocarbons containing H<sub>2</sub>S are commonly called "sour".





# 3. PHYSICAL CHARACTERISTICS OF HYDROGEN SULPHIDE (H<sub>2</sub>S)

The physical characteristics of hydrogen sulphide (H<sub>2</sub>S) are as follows:

- H<sub>2</sub>S is colourless, heavier than air, and very toxic. It burns with a blue/green flame to produce sulphur dioxide (SO<sub>2</sub>), which is a very irritating gas with a pungent odour;
- H<sub>2</sub>S may form an explosive mixture with air. The lower limit of flammability is 4.0% H<sub>2</sub>S, and the upper limit is 44.0%, by volume;
- In small concentrations, H<sub>2</sub>S has a rotten egg smell and causes eye and throat irritations. At increasing concentrations, it can deaden your sense of smell; and
- H<sub>2</sub>S is soluble in water and hydrocarbons. H<sub>2</sub>S gas may be present or produced in dangerous concentrations above liquid surfaces and in gas spaces above liquids.



# **3. H2S OCCUPATIONAL EXPOSURE LIMITS**

Occupational Exposure Limit values (OELs) are set by provincial regulators as limits for concentrations of hazardous compounds in workplace air. OELs for hazardous substances represent an important tool for risk assessment and management. As well, OELs provide valuable information for occupational safety and health activities concerning hazardous substances.

Table 2 – Occupational Exposure Limits of H2S			
	8-Hour OEL	15-Minute OEL	Ceiling
Alberta	10 ppm	15 ppm	15 ppm



# **3.** H<sub>2</sub>S TRAINING AND SAFETY REQUIREMENTS

All employees or contractors who work near or in areas where H<sub>2</sub>S may be encountered must have the following training:

- All personnel, prior to entering an area where H<sub>2</sub>S is known to be present or may reasonably be expected to be encountered, shall
  receive orientation on the site rules, procedures, and relevant rescue and evacuation procedure information;
- All personnel working in areas where they may be exposed to H<sub>2</sub>S must have an H<sub>2</sub>S Alive certification, and must maintain the certification;

Enhance Energy shall meet the following H<sub>2</sub>S requirements, which are that a worker who may be exposed to a harmful substance at a work site:

- Is informed of the health hazards associated with the exposure to that substance;
- Is informed of measurements made of airborne concentrations of harmful substances at the work site; and
- Is trained in the procedure developed by the company and understands the procedure.

All personnel having the potential to be exposed to sour gas (in any concentration) will be trained in the following:

- Respiratory protection;
- Use and calibration of personal gas monitors;
- Atmospheric monitoring;
- Rescue procedures;
- First aid/cardiopulmonary resuscitation; and
- Emergency response procedures.



# **4. HEALTH HAZARDS**

#### Health Hazards

- Appropriate Personal Protective equipment must be worn according to the hazard they are intended to control. Respirators must be properly fitted, used, cared for and maintained, and
- For all hazardous products that may be present you may refer to the SDS found at facility offices.

#### Smoking

- Smoking is PROHIBITED on all Company leases and work sites except in designated smoking areas;
- Strike anywhere matches and single action lighters are strictly forbidden; and
- Safety matches that light only on the container in which they are sold, are permitted on Company property.





# **5. SAFETY TRAINING**

#### First Aid / CPR

• All Personnel; WHMIS

• All Personnel;

TDG

- All personnel who receive, transport, offer for transport or receive dangerous goods; H<sub>2</sub>S Alive
- All personnel who could be exposed to  $\rm H_2S$  or an Oxygen deficient atmosphere; Confined Space
- All personnel who could be working in a confined space; Service Rig BOP
- Service Rig Supervisor; Drilling BOP
- Driller and Second Line Supervisor; Fall Protection/Rescue
- All personnel exposed to a falling hazard in excess of 3 metres; Driver's License
- All personnel operating a motor vehicle; and Ground Disturbance
- All personnel who are supervising and performing excavation operations below 30 cm.





# 6. PERSONAL PROTECTIVE EQUIPMENT

All workers at worksites must wear the following personal protective equipment:

- ANSI or CSA approved hard hats;
- CSA approved safety-toed footwear appropriate to the work being done;



- Flame resistant outer work wear when working on any site or location where hydrocarbons are present or could be released;
- Nylon clothing is prohibited in any area that has hydrocarbons present;
- Minimum CSA approved safety eyewear with side shields must be worn at all times. Safety eyewear must be appropriate to the hazards of the work being done, (face shields for grinding & lighting burners, goggles and a face shield when handling chemicals);
- Hearing protection in areas where posted or required and/or noise levels exceed 85 dBA; and
- CSA approved personal fall arrest system or equivalent protection when working more than 3m above the ground or more than 3m above a permanent worksite or platform.



### **7. EMERGENCY PROCEDURES**



- All workers must be familiar with the Site-Specific Emergency Response Plans. Supervisors must be familiar with the Corporate Emergency Response Plan, and
- All workers will be trained in how to declare an emergency, obtain assistance in an emergency and evacuation procedures.



## 8. EMERGENCY EQUIPMENT

• All workers must be familiar with the location of fire extinguishers, eye wash stations, SDS's, the first aid station, and any other emergency equipment on site that they may be expected to use.





#### 8. EMERGENCY EQUIPMENT SITE MAP 4-15-40-24W4 (CLIVE) SOUR FACILITY





### 8. 4-15-40-24W4 CLIVE FIELD AREA SUMMARY

#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- Enhance Energy 4-15-40-24w4 Clive Field is a high-pressure CO<sub>2</sub> injection, EOR and sour oil producing field located in central Alberta approximately 25 km east of Red Deer and 26 km east of the Town of Lacombe. It is located in Townships 38 to 42, Ranges 23 to 25, W4M in Lacombe County.
- Enhance owns and operates 5 satellites, one oil battery / disposal facility, one compressor station, one injection plant and multiple oil and gas wells and gathering systems in the Clive Field.
- Product from the producing oil and gas wells is collected into the gathering system and pipelined to the Clive battery and disposal facility at LSD 04-15-040-24 W4M.
- Enhance operates the Clive Facilities with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



### 8. EMERGENCY EQUIPMENT SITE MAP 5-14-36-20W4 (FENN BIG VALLEY)

#### **SOUR FACILITY**





### 8. 5-14-36-20W4 FENN BIG VALLEY FIELD AREA SUMMARY

#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- Enhance's Fenn Big Valley Field is a sour oil and gas producing field located in south- central Alberta. approximately The Village of Big Valley, AB is located within the field area. It is located in Townships 34 to 37, Ranges 19 to 21, W4M in the County of Stettler.
- Enhance's main facility in the Fenn Big Valley field is the Plant at LSD 05-14-036-20 W4M which consists of a gas gathering system, injection plant, and battery. Enhance also owns and operates two (2) operational batteries and 10 satellites throughout the Fenn Big Valley Field.
- Enhance operates the Fenn Big Valley Facilities with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



# 8. EMERGENCY EQUIPMENT SITE MAP 5-14-49-27W4 (GLEN PARK)

#### SWEET OIL FACILITY

#### Legend:



- AED (NO AED)





### 8. 05-02-49-27W4 GLEN PARK AREA SUMMARY

#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- The Enhance Glen Park area is a light medium crude oil and gas field approximately eight kilometers south of Calmar, in the County of Leduc. The field contains one flowing crude oil well and one pumping crude oil well producing to a Battery and Injection Plant at 05-02-049-27 W4M.
- Enhance operates the Glen Park Facilities with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



# 8. EMERGENCY EQUIPMENT SITE MAP 13-16-27-26W3 (GLIDDEN)

#### SWEET OIL FACILITY







### 8. 13-16-27-26W3 GLIDDEN AREA SUMMARY

#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- Enhance Energy 13-16-27-26W3 Glidden area of operations is an oil and gas producing property located in southwestern Saskatchewan, approximately 30 km southwest of Kindersley. It is located in Township 27, Range 26 W3M in the RM of Chesterfield No. 261.
- Enhance operates the Glidden Facilities with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



# 8. EMERGENCY EQUIPMENT SITE MAP 10-15-38-24W4(HAYNES)

#### **SOUR FACILITY**







### 8. 10-15-38-24W4 HAYNES FIELD AREA SUMMARY

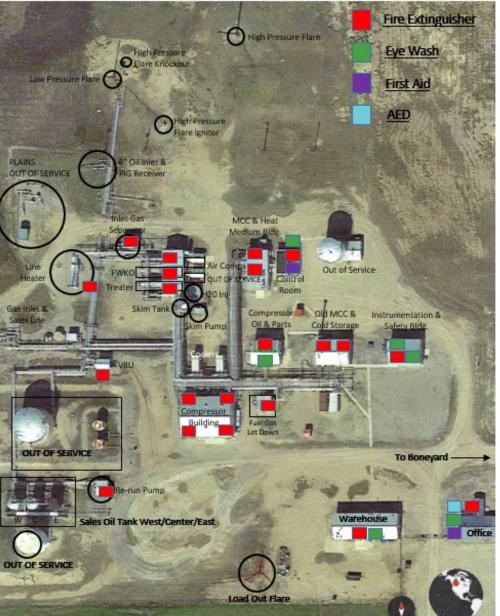
#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- The Haynes Field is a sour oil producing field located in central Alberta approximately 21 km east of the City of Red Deer. It is located in Township 38, Range 24, W4M in Lacombe County.
- Enhance owns and operates a gathering system with a compressor, battery and injection plant located at LSD 10-15-038-24 W4M. Enhance also has, 10 pumping oil wells, and two water disposal wells. The remainder of the wells are suspended, standing or abandoned wells.
- Enhance operates the Haynes Facilities with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



### 8. EMERGENCY EQUIPMENT SITE MAP 1-3-35-1W5 (INNISFAIL)

#### **SOUR FACILITY**





### 8. 1-03-35-01W5 INNISFAIL FIELD AREA SUMMARY

#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- Enhance Energy 1-03-35-01W5 Innisfail Field is a sour oil and gas producing field located in central Alberta approximately 8 km southwest of the Town of Innisfail. It is located in Townships 32 and 35, Ranges 01 and 02, W4M in Red Deer County.
- The Innisfail Field consists of approximately 19 producing sour oil and gas wells, two water disposal wells, and multiple abandoned and suspended wells, a battery and gathering system at LSD 01-03-035-01 W5M, several header systems and associated pipelines.
- Enhance operates the Innisfail Facilities with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



# 8. EMERGENCY EQUIPMENT SITE MAP 16-28-42-23W4 (WOODRIVER)

#### SOUR FACILITY

#### Legend:







### 8. 16-28-42-23W4 WOOD RIVER FIELD AREA SUMMARY

#### ALL VISITORS MUST CHECK INTO THE MAIN SITE OFFICE UPON ARRIVAL

- Enhance Eenrgy Wood River Field is a sweet and sour oil producing field located in central Alberta approximately 23 km east of the Town of Ponoka and 34 km northeast of Red Deer. It is located in Townships 42 to 43, Ranges 23 to 24, W4M in Ponoka County.
- Enhance operates the Woodriver Facility with maximum safety in mind. Operators attend to these facilities on a daily basis, seven days per week.



#### **9. SAFE WORK PERMITS**

C 8726 enhance SAFE WORK PERMIT Suite 2000, 500 - 4th Avenue SW, Calgary, AB T2P 2V6 24 Hr. Emergency Tel: 1.866.941.6025 Date Location of Work Estimate time of completion of work activity Contractor Company Performing Work DESCRIPTION OF WORK TO BE PERFORMED TYPE OF WORK Confined Space Ground Disturbance Electrical Cold Work Permit Checklist # \_\_\_\_ Hydrate Remova Maintenance Hot Work Hot Oiling H:S Well Work over C Other Review appropriate Code of Practice and associated Safe Work Procedures as part of Hazard Assessment process. Review the Hazard Identification Checklist and check off hazards associated with activities and perform a pre-job hazard assessment for each activity by completing the table below Sequence of Basic Job Steps Hazards Steps to Eliminate Hazards / Reduce Break the job down into steps. Each of the steps | Identify the hazards associated with each List the action required at each step necessary to eliminate or minimize even step - actions, conditions, and possibilities major task. Be sure to list all the steps in a job. that could lead to an incident. Be specific. Say exactly what needs to be done to correct the heat HAZARD IDENTIFICATION CHECKLIST Public / Community Affected 
Yes 
No | Vibration Hazard Weather Conditions Chemical Public Liability Confined Scace ice / Snow / Mud / Col ] Overhead Pinch Boints Participantius Source Hand Tools / Powe Flammable Subs Poor Lighting Ignition Sources Noise Hazard Material Handling Asbestos Pressurized Equipment H-S Stepping / Tripping Hazard High / Low Temp ( Benzene Low O2 Inert Gas forking at Heights Trench / Exca roperly Trained to do Job Flash Fire Hazard Hoisting Equipment Moving Equipment / Machinen Trapped By Exposure to Heavy Lifting Other Areas / Jobs Affected Airborne Particles Iron Sulphide Hit By Flying Ob ADDITIONAL PPE CHECKLIST Mandatory PPE: Hard Hat, Safety Toed Foo ar, Safety Glasses Complete with Side Shields Rubber Suit Safety Hame Flame Resistant Clot Rubber Boots Breathing Air Safety Lanyard Face Shield Personal H<sub>2</sub>S, LEL, O<sub>2</sub>, C 1 Life Line Rubber Gloves Heating Protection Communication Device PREPARATION CHECKLIST Based on the hazard assessment, check all job preparation items required and identify any hazardous energy solations required. **Diesel Motor Shut Of** Breakers Locked / Tagge: Rescue Equipment Required Ventilated / Flare Drained Lock Out / Tag Out Fire Eyes Isolated SDS Reviewed Safety Watch isconcerted Barricade Flag Area Ground Disturbance Checklin Block & Bleed Fire Fighting Equipment Binded Equipment Grounded Completed Purges Air Mover Water Hose Contined Space Remit Con heel Chocks Safety Warring Signs ned? Yes No If NO, or in doubt, r Gas readings at the work area (19.5 - 23%) L.E.L.s: (0%) H<sub>2</sub>S ppm Other lote: Further tests are required when returning to the work area after leaving for any reason, e.o. coffee, lunch, other task, next dev, next shift, etc. The undersigned workers have reviewed the hazards relating to this work and agree to comply with the safe work requirements and take the actions required to remove hazards and reduce risk. Compan Note: Make sure to check for appropriate First Aid, WHMUS, TDG, HyS Alive, Confined Space, Service Rig BOP, Fire Training, Ground Disturbance atc. tickets balls Permission to proceed with work as planned PERMIT ISSUED BY DESIGNATED COMPANY SUPERVISOR PERMIT VALID FROM Name and Signature: Time Date Telephone No: PERMIT CONDITIONS AGREED TO BY CONTRACTOR SUPERVISOR ERMIT RENEWED Name and Signature: ... Telephone No: In the event the designated company supervisor is not able to be in attendance at the work sile, I agree to assume responsibility for site safety as the prime contractor's representative Note: Enhance Energy Inc. is the Prime Contractor OB COMPLETED Contractor Supervisor Name and Signatus

us-321 White: Corrector Copy - Returns Co enhance Permits are used to ensure all personnel are aware of the scope of the job, and that hazards and safe operating procedures are identified. Types of work where permits are required include:

- Confined space entry;
- Ground disturbance;
- Hot Work (welding / cutting / grinding / electrical);
- Pressure testing;
- General construction work; and
- Any new work performed by a contractor.

If conditions change from those outlined in the permit, the permit becomes invalid, and all work must stop until a new permit and hazard assessment are prepared.

## **10. SAFETY MEETINGS**

- Pre-job safety meetings must be held prior to undertaking a hazardous or potentially hazardous activity;
- Ensure everyone on lease understands the work to be done, hazards they may encounter, the hazard controls that are in-place and how to use them, and all safety precautions to be taken;
- Document the meeting separately or as part of the permit; and
- Document attendance records of all personnel at the meeting.





## **11. INCIDENT REPORTING**

- Report any hazards or unsafe work conditions to your supervisor.
- All incidents and near misses must be reported immediately, investigated and followed up with corrective actions;
- Any serious near miss, incident resulting in damage or injury or causing environmental damage must be investigated; and
- Corrective actions must be put in place to reduce or eliminate the likelihood of a reoccurrence before work can resume.

INCIDENT REPORTING



#### CONTACTS

#### **Enhance Energy Inc.**

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