Petroleum Oriented Safety Training

Behaviour Based Safety Worker Orientation Guide

POST gratefully acknowledges the following oil companies for their ongoing support and involvement of this program.

Imperial Oil
Shell Canada Limited
Suncor Energy Inc.

Petroleum Oriented Safety Training
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Lou Cerruti	Claybar Contracting Inc.
Bruno De Melis	S & F De Melis Construction Ltd.
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Glenn Cooper	Shell Canada Limited
Michelle Rae	OPCA/CPCA
Kimberly von Eicken	Suncor Energy Inc.

PURPOSE OF THIS GUIDE:

This guide is intended as a summary of the requirements for contractors who are working for companies who have adopted a **Behavior Based Safety (BBS)** program. It is not intended to replace the basic requirements of the various occupational health and safety acts that exist in your jurisdiction, but rather it is to describe in summary the basic minimums required of contractors.

If there are any questions with respect to the requirements laid out here, see your respective contact for clarity.

Most Important Point:

Owner personnel must ensure that anyone working for the respective companies, whether it is an employee or contractor, is not hurt. There is no task so important that it overrides the need for it to be done safely. To us, **"Nobody Gets Hurt"** clearly catches the meaning of where we stand on the issue of safety; we will not tolerate people getting hurt. To this end, we require certain safety minimums of everyone. This guide highlights those minimums. The guide will evolve as we develop increased capability in managing risk and safety.

Contents:

WHY WE REQUIRE YOU TO DO CERTAIN SAFETY ORIENTED ACTIVITIES

Industry experience shows that . . .

Safety incidents are a result of a momentary loss of control, which results in an incident. The outcome of the incident is unpredictable. For example, if you were to fall from a short ladder there are many outcomes that could result from this incident. You could land on the ground, cat-like on your feet, and suffer no injury. Equally, you could land awkwardly and twist an ankle, knee, wrist, or fracture a bone or skull. The outcome is a function of circumstances outside your direct control and is often characterized as "luck". Therefore, ***as we cannot control the outcome of the incident*** and it is irresponsible to rely on luck, ***we must work to prevent the incident in the first place***. Furthermore, as any incident can result in varying degrees of injury, we must focus not only on preventing certain incidents, but all incidents.

The prevention of <u>all</u> incidents does not happen by itself. It requires deliberate action by you and your management. Management must establish a work environment that provides for your safety (appropriate procedures, safety equipment, employee selection and skill development, critical safety expectations and rules). You must ensure that safety is built into each and every aspect of your behaviour. In other words, ***management is responsible for establishing an environment for safe behaviour and the worker is responsible for behaving safely***.

To create an environment where we have better control of our actions or behaviour***, behaviour-based safety tools*** were developed. Behaviour based safety tools encourage workers to do effective risk analysis before launching into an activity. They are premised on the belief that a low risk tolerance and a mind engaged on the task will eliminate all incidents. Both conditions, a low risk tolerance and a mind engaged in the task, need to be discussed to better understand both management's and the worker's role in preventing incidents.

Generally speaking, every individual has a different tolerance or acceptance of risk. To some, taking a risk is nothing more than a means to an end and the degree to which this is done varies dramatically. There is no such thing as zero risk. When we breathe, we take risk. However, there is a point beyond which the outcome is has potential to become an unfavourable result. Collectively, we must be smart enough to determine the unfavourable result threshold. Determining this requires deliberate thought and is where the three basic steps of risk management come into play. Risk management is a simple process where you:

- ✓ **identify** all the hazards that could occur as a result of the planned activity,
- ✓ **assess** those hazards to determine which could easily result in an unfavourable outcome, and
- ✓ **mitigate** or prevent those outcomes from happening through deliberate action before the task is started.

Simply stated risk management is ***identify, assess, mitigate*** through action. Management must create an environment that ensures that this happens and you must execute your work such that it is happening with each and every action.

The use of behaviour based safety tools is a simple and proven approach to encouraging effective risk assessment. Our behaviour based safety system addresses risk assessment at two levels:

- ✓ **for routine, generally lower risk activities** (activities for which no reasonable person would require a documented procedure)
- ✓ **for commonly identified, higher risk activities** (activities where there is a generally accepted need for more thorough consideration of the risks and how they will be mitigated and better co-ordination of all parts of the activity)

LAST MINUTE RISK ASSESSMENT (LMRA)

Managing routine, generally lower risk, activities is done through the deliberate use of what is generically called **Last Minute Risk Assessment (LMRA).** Last minute risk assessment requires that in the last minute before you embark upon an activity, you need to intentionally take a moment to do a risk assessment to ensure that you have identified and mitigated the risks so that there is not an incident.
LMRA is a mental process for which there is no documentation required. If the routine activity involves other workers, then the process needs to be discussed (still not requiring documentation). It is to be used before all routine activities and it is a skill that needs to be encouraged and honed.

JOB SAFETY ANALYSIS (JSA)

Managing higher risk activities requires a more formal and documented risk management process. This process is generically referred to as **Job Safety Analysis (JSA)**. A job safety analysis has exactly the same considerations, as does an LMRA (what you are going to do, step by step; hazards that each step creates; and lastly how you are going to prevent the possible harmful/unfavourable outcome from happening). Since the JSA is protecting against a more substantial risk, it needs to be:

- ✓ documented,
- ✓ discussed with everyone in the work crew involved in the work, and then
- ✓ reviewed by the site supervisor to ensure that the appropriate level of risk management is brought to the task.

JSAs need to consider site, activity, current environment and crew issues. A change in any of these parameters/conditions could introduce a new risk. Therefore, JSAs require review when things change. A JSA can be started from a pre-established document but it must always be tailored to the specific site conditions by the work crew immediately before the activity is started (and renewed on a daily basis). The value of the JSA lies in the quality and thoroughness of the discussion amongst the work crew. Our company requires the use of JSAs at a minimum for the tasks outlined on the Clearance Certificate (CC) issued to the contractor by the owner and the Daily Safe Work Permit issued by the contractor to the work crew. If tasks involve a critical procedure (also identified on the clearance certificate/work permit) then an additional checklist/procedure needs to be incorporated into the JSA.

Effective use of the above two behaviour based risk management tools, LMRA and JSA, has the potential of eliminating all incidents. As a worker, it is your responsibility to understand and use the tools. It is management's responsibility to ensure that you understand the tools and are using them. In addition to the above two risk management tools; there are two equally simple diagnostic tools that can be used by management to gauge the quality of execution of each of the two risk assessment tools.

The effectiveness of last minute risk assessment is determined through the use of **LMRA testing**. LMRA testing is where a supervisor, manager, owner or any other interested party safely interrupts routine work activity and asks the worker or workers some simple questions. The questions are to determine the quality of the worker(s) understanding of three things:

- ✓ what the workers are doing,
- ✓ what are the hazards in what the workers are doing and
- ✓ how are they managing the identified hazards?

From this discussion, anyone can draw conclusions on the quality of the LMRA process as executed by this worker(s). This also allows the evaluation of the worker's attitude to safety in general. Coaching by the tester can be provided after the tester has made an assessment of the test results. The results of LMRA tests must be collected and used to direct the site and company safety program. It must be emphasised that this is an "*ask, listen, learn"* process. It is driven by the need to understand the worker's level of engagement in risk assessment and skill, not that of the tester.

The frequency of LMRA testing is driven by the rule-of-thumb: for the average worker to retain the LMRA habits and skills, each worker should be subjected to an LMRA test at least once every 10 working days. This level of contact provides sufficient reinforcement and encouragement to keep the practice alive. Therefore, a company should schedule its LMRA tests such that this standard is met. In a typical work crew of 10 people, this would require the supervisor do an LMRA test of a different worker each day to satisfy the standard. Similarly, in a crew of 2 people, a supervisor (or team leader/lead hand) would have to do an LMRA test of a different worker at least once a week to meet the standard. Contractor ownership and owner personnel visiting the site should also support this activity by doing an LMRA test every time they are on site to encourage the behaviour as well as test the level of engagement in this important risk management process.

It is worth noting that our experience shows that of the incidents that were a result of behaviour failures (which was 80% of the incidents over a 5-year period), 70% could have been prevented through the better application of LMRA. It is important to test and encourage effective use of LMRA.

PLANNED JOB OBSERVATION (PJO)

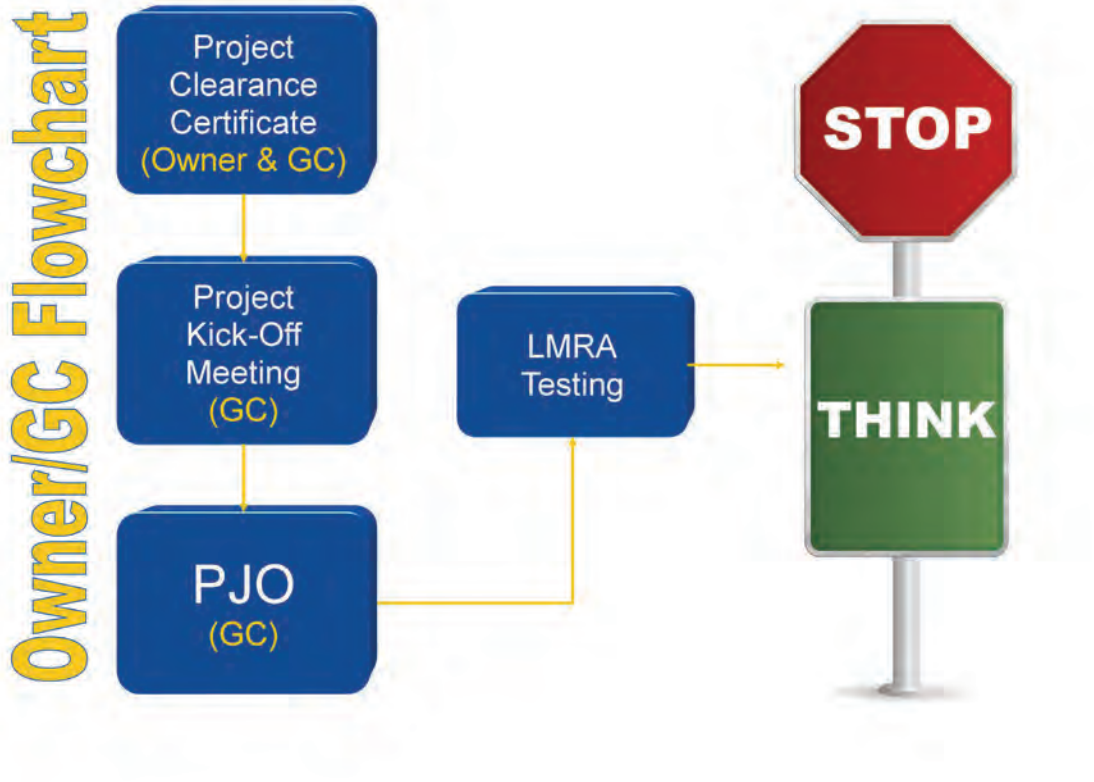
The effectiveness of the more formal process, Job Safety Analysis (JSA), can be determined through the use of a simple diagnostic tool called **Planned Job Observation (PJO)**. In a planned job observation the supervisor, manager or any other interested party stands back from the work and observes it in progress. He or she then documents his/her observations and determines (in his or her opinion) whether the worker is “safe” or “at risk” in the performance of the work. The observations are done against a predetermined checklist of typical items to look for and/or against the JSA that was prepared by the work crew for the task in progress (i.e. is the work crew following the job steps and mitigation that they built into the JSA). Once the observations are made and recorded, the observer must engage the crew in a discussion of what he/she observed. It is to be an open, constructive discussion and consideration should be given to the worker’s opinions on “safe” or “at risk” judgement as well. The PJO will likely result in follow-up which should be appropriately closed (occasionally the follow-up required is by others not associated with the task being observed). As in the case of the LMRA testing, the outcome of the PJO must be collected and used to direct the site and company safety program. A worker/work crew should also be exposed to JSA-based PJO at least once every 10 working days to make this useful reinforcement and to ensure that effective use of JSAs. This will address the remaining 30% of the behaviour-based failures resulting in personal injury incidents in our experience.

It is worth noting that this behaviour based safety approach is focused on adjusting every worker's risk tolerance and improve his or her risk management awareness and skill. We are attempting to change people’s habits, no matter where they are working, whether at work or at home. Promoting off the job safety with the same techniques and discipline as on the job safety reinforces habit creation and works to develop a situation where nobody gets hurt, anywhere.

WHAT WE REQUIRE OWNER/GENERAL CONTRACTOR TO DO:

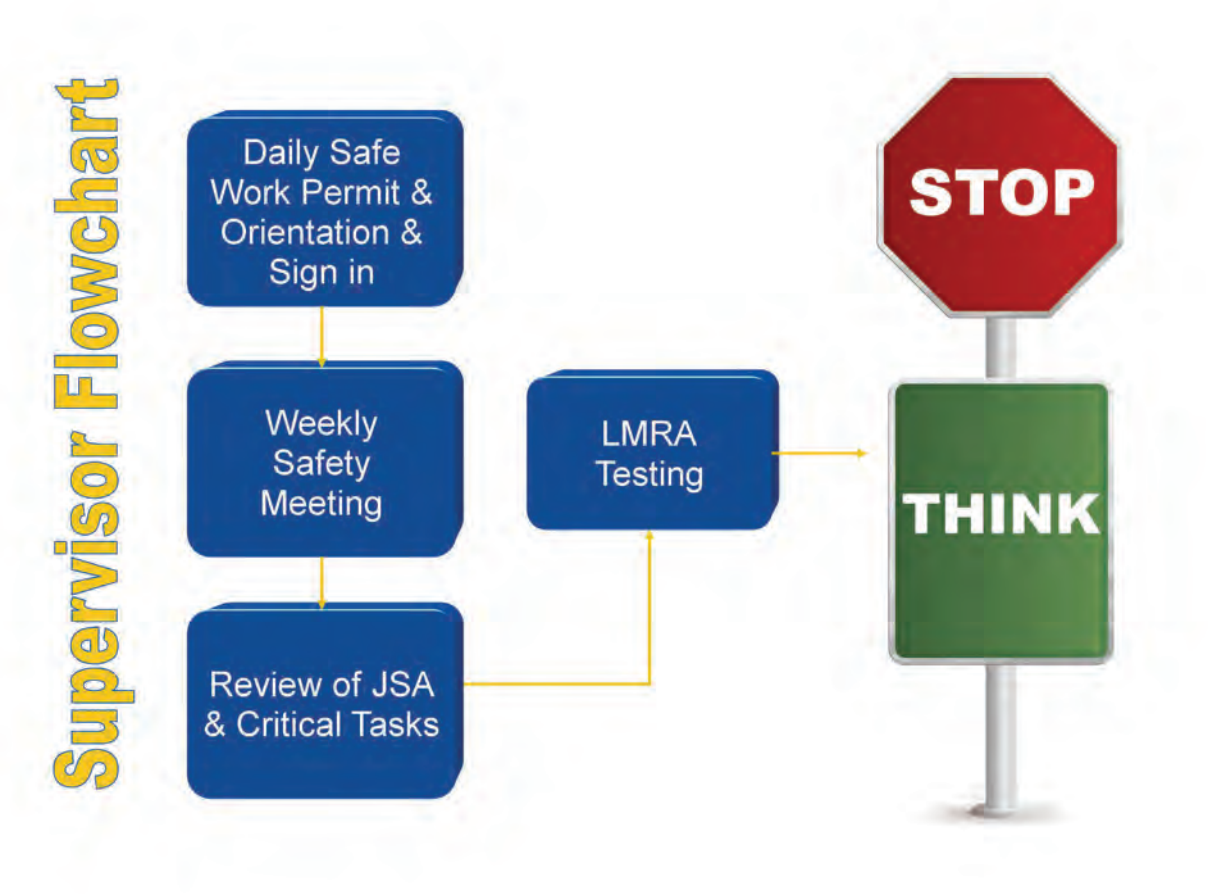
- ✓ Provide Project Clearance Certificate
- ✓ Ensure that the required activities are effectively occurring

  Kick-off meetings, safe work permits, safety meetings, site conditions, PPE
- ✓ Test for compliance to required BBS activity
- ✓ Review JSA quality and test through both informal and formal planned job analysis to ensure that job safety analyses are being effectively done and executed against
- ✓ Do last minute risk assessment testing to get a feel for the level of BBS proficiency at the site
- ✓ Do safety assessments to measure the proficiency of the contractor and how he manages safety overall
- ✓ Provide feedback to the contractor on what we see and learn (on site visits, in contractor safety forums and in one-on-one risk mitigation plans discussions)
- ✓ Help guide and support our contractor community in learning and continuously improving our mutual approach to safety management



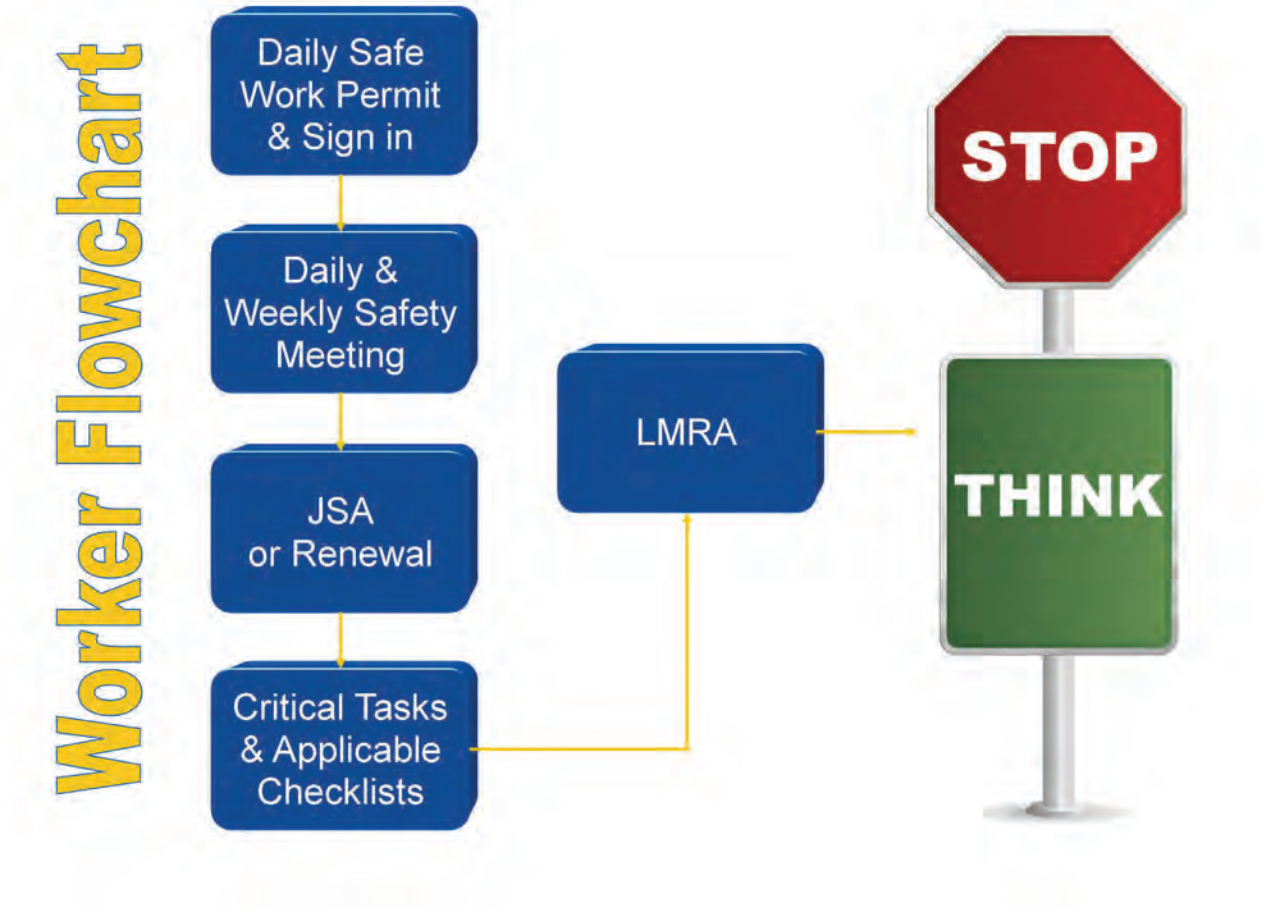
WHAT WE REQUIRE THE SUPERVISOR TO DO:

- ✓ Enforce and reinforce safety rules (PPE)
- ✓ Execute the required safety procedures expected
- ✓ Orientation of both workers and visitors to the site (kick-off meeting, Daily Safe Work Permits, emergency procedures, safety meetings)
- ✓ Actively participate in your BBS activity
- ✓ Do your last minute risk assessment testing, review and approve job safety analyses and do your planned job observations
- ✓ Learn and improve the way work gets done
- ✓ Apply the learnings developed towards improving the safe behaviour of workers and improving the manner in which work is done at the site



WHAT WE REQUIRE THE WORKER TO DO:

- ✓ Actively participate in BBS activities
- ✓ Get in the habit of doing last minute risks assessments before every routine activity (stop and think before you act)
- ✓ Understand, get involved in and use the job safety analysis process as a means of formally planning how you are going to manage the safe execution of your work
- ✓ Follow site rules and the procedures designed to keep all people on and around the site safe



PERSONAL PROTECTIVE EQUIPMENT (PPE)

At a minimum, all people on site must wear personal protective equipment (PPE) as required by the local OH&S regulations.

Basic PPE

- ✓ CSA approved Hard Hat (appropriate Type I or Type II)
  TYPE I Hard Hat: Tested for Top impact and penetration.
  TYPE II Hard Hat: Tested for Top and Lateral impact and penetration
- ✓ CSA approved safety glasses
- ✓ Visi-Vest - fitted or tear-away
- ✓ CSA approved boots - above the ankle
- ✓ Gloves on your person fit for use
- ✓ Long pants
- ✓ Shirts with sleeves (short sleeves acceptable)

Supplemental PPE

Additionally, the work activity may require the wearing of the following PPE. The contractor must ensure that the necessary PPE is on site and the workers are trained in its use.

Examples (including but not limited to):

- ✓ Face protection
- ✓ Respiratory equipment
- ✓ Hearing protection
- ✓ Fall protection gear
- ✓ Fire retardant clothing

ADDITIONAL REQUIREMENTS

Smoking on sites

No smoking is permitted on site

Work at heights

All work over 1.5 m (5 feet) *feet to ground* is to be considered "work at height" as governed by all relevant regulations.

POST - BEHAVIOR BASED SAFETY ORIENTATION

POST ONLINE COURSE

The POST online course is available at **www.POSTtraining.ca**

- ✓ Each year the worker must receive a behavior based safety orientation.
- ✓ Once orientated, the worker will receive a hard hat decal and wallet card of proof of orientation
- ✓ The worker will/may be asked questions to validate orientation when entering a new job site

Validation Questions

- ✓ What is a JSA (job safety analysis)?
- ✓ What is LMRA (last minute risk assessment)?
- ✓ What does Behavior Based Safety mean to you?

ONSITE ORIENTATION

Under circumstances where the worker is unable to complete POST online, the Supervisor may perform onsite orientation with the worker using this guide as a reference. Onsite orientation is valid only for the duration the worker is on the specific site they received orientation for.

APPENDIX A

FORM SAMPLES

WEEKLY SAFETY MEETING

Agenda & Minutes

MEETING LEADER: **Tom Smith** (Name) **Supervisor** (Title)

PROJECT DESCRIPTION: **Gas Bar Rebuild** (Scope) **Main/King St., Your City** (Location)

OWNER/ PROJECT MANAGER: **Oil Company XYZ/ Mike Van Petersen** (Name)

Date : **Mon, Dec 6, 2010**

ATTENDEES:

Name	Company	Signature
Tom Smith	Best Contracting	Tom Smith
John Jones	Best Contracting	John Jones
Jim Johnson	TT Piping	Jim Johnson
Tim Toolman	JJ Electric	Tim Toolman

SUBJECTS DISCUSSED:

Subject		Comments and follow-up
Snow		**Ensure that all areas are shovelled and clear so no one slips/trips. Remove tripping hazards, fill in holes.**
Canopy Erection		**Prepare area for crane to be positioned. Level out with gravel in next couple of days. Get hoisting certificate ready.**
Contamination Removal		**Talk to office to get flagman for truck coming to site. Review traffic control plan.**
Excavate for feature wall		**Make sure we have the stakeouts for that area and that they are not expired.**

Topics for next meeting: **Snow, Propane storage, working at heights for canopy, Excavator needs to be serviced**

Date of Next Meeting: **December 13/10** Time: **10 am**

Note:

- *Items of concern shall be addressed with the necessary corrective actions and records attached. Use back of page to document any addtional discussion items.*
- *Include review of follow-up items from Daily Safe Work Permits.*

JOB SAFETY ANALYSIS (JSA) FORM

Site/Project: ***Anysite @ Anytown, Ontario***

Name of Contractor/Subcontractor: ***Do it Right Inc.***	**Date:** ***Oct 12/10***	**Weather:** ***Clear***

Task/Activity: ***Remove and replace damaged spill container***

Check applicable anticipated or potential hazards:		**CRITICAL PROCEDURES**: *Where work involves any of the following hazards, applicable **Critical Checklists** must be incorporated into the JSA*
☐ **Demolition**	☐ **Work affecting integrity of critical controls**	☐ Work at heights above 1.5 m (5 ft- includes excavations)
☐ **Underground tank removal/disposal/high vapours**	☐ **Welding, cutting, grinding**	☐ Confined Space Entry (includes tank cleaning)
☐ **Excavation**	☐ **Hydroblasting / sandblasting**	☐ Electrical/Mechanical Lockout (live, isolation, lock out/tag out)
☑ **Activities in or near traffic areas**	☐ **Radiography / X-ray testing**	☐ Heavy Equipment Lifting (cranes, boom trucks, excavators)
☑ **Concrete cutting / coring**	☐ **Pressure testing**	☐ Drilling/borehole/excavations (sub-surface clearance, locates)
☐ **Mobile heavy equipment activity (excavators, dump trucks, vacuum and hydrovac trucks)**	☐ **Other: _____** **(Includes clearing brush/trees, reactive chemical**	☐ Entry into excavations/trenches > 1.2 m (4 ft) deep ☑ Hot Work (in a potentially explosive atmosphere)
☐ **Pile driving / Shoring**	**handling, working in proximity to deep water, etc.)**	

Ensure that all hazards identified are addressed in JSA below

Sequence of Basic Job Steps *(Order in which the work will be carried out and brief details of how tasks will be performed)*	**Potential Hazards** *(Examples: underground services, hazardous zone area, impacted soil, overhead power lines, adjacent works, etc)*	**Safety Controls to Reduce or Eliminate Hazard** *(Describe the precautions that will be taken)*
- ***Unload tools and equipment*** - ***Barricade work area***	- ***Muscle strain*** - ***Pinch points*** - ***vehicle traffic on site***	- ***Use proper lifting technique / watch hands, gloves*** - ***Be alert of vehicles / have crew member act as spotter***
- ***Saw cut concrete with quick cut saw***	- ***Dust, noise, debris*** - ***Tool failure***	- ***Use water when possible to keep dust down*** - ***Wear hearing, dust, and eye protection*** - ***Inspect tools before use*** - ***Have fire extinguisher readily available***
- ***Break out concrete with jackhammer***	- ***Concrete debris*** - ***Noise*** - ***Hoses coming loose from compressor***	- ***Wear safety glasses, and hearing protection*** - ***Ensure compressor connections are tied together with wire to prevent from coming apart***

Sequence of Basic Job Steps *(Order in which the work will be carried out and brief details of how tasks will be performed)*	**Potential Hazards** *(Examples: underground services, hazardous zone area, impacted soil, overhead power lines, adjacent works, etc)*	**Safety Controls to Reduce or Eliminate Hazard** *(Describe the precautions that will be taken)*
- *Dig out and remove existing concrete debris from around spill container*	- *Tripping over debris* - *Cutting hands on edges of broken concrete*	- *Keep work area as clean as possible* - *Place concrete debris away from direct working area* - *Wear gloves to prevent hands from scrapes and cuts*
- *Remove existing spill container*	- *Pinch points* - *Cuts from edges of broken concrete* - *Muscle strain*	- *Wear proper gloves and use caution around broken edge of concrete* - *Have a good grip on pipe wrench to prevent slipping and causing possible injury*
- *Install new spill container*	- *Pinch points* - *Cuts from edges of broken concrete* - *Muscle strain*	- *Wear proper gloves and use caution around broken edge of concrete* - *Have a good grip on pipe wrench to prevent slipping and causing possible injury. Pull toward body*
- *Pour and finish new concrete around spill container*	- *Concrete truck arriving on site* - *Splash from concrete* - *Tripping hazards* - *Knee injuries while finishing concrete*	- *Use a signal person to guide Concrete truck onto site and into work area, SIGNALPERSON:_____* - *Wear safety glasses* - *Have work area clean and free of debris to prevent any slips or trips*
		- *Wear knee pads to avoid any knee injuries*
- *Remove barricades, cleanup work area, and leave site*	- *Vehicle traffic on site* - *Highway driving/accidents*	- *Keep head up and watch for cars on site* - *Obey posted speed limits, stay alert, and do not talk on cell phone while driving*

Tools / Equipment: *(List of tools/equipment to be used and their storage on site including ladders, steps, mobile scaffold, harness etc., if relevant to safety at the site)*

Quick cut saw, pipe wrench, jackhammer, compressor, trowel, shovels

Personal Protective Equipment: ***(Minimum requirement: safety shoes / hard hat / visi-vest / safety glasses / gloves fit for use)***

Additional PPE:	☐	Eye Protection (specify)	☐	Other (e.g. fire retardant coveralls, breathing apparatus, etc.)
	☑	Hearing Protection		
	☐	Fall Protection		
	☐	Rubber footwear and gloves if in damp area		
	☐	Portable Gas Monitor		

Outside Authorities: (*Any authorities who need to be advised including site operator)*

Disposal of designated substances, surplus or impacted materials: *(Disposal details, e.g. when, where to, how, etc)*

Consultant on site:

Prepared By: ***Fred Foreman*** Position: ***Crew leader*** Date: ***Oct 12/10***

Names of person(s) Carrying out work :	Signed:	Date:
Fred Foreman	*Fred Foreman*	***Oct 12/10***
Harry Helper	*Harry Helper*	***Oct 12/10***

JSA Approved By (Site Supervisor): ***John Smith*** Signed: *John Smith* Date: ***Oct 12/10***

Note: For tasks/activities that extend beyond a single day, use attached DAILY RENEWAL form for review of JSA with current crew and weather.

WORK AT HEIGHTS CHECKLIST

(attach to completed JSA)

Site location, name: *435 Main St. Hamilton – Petro Canada* Date: *September 20/10*

Description of activity or task over 1.5m (5 feet grade to feet): _____

Lift and install HVAC unit onto room of C-Store

Maximum height workers will be exposed to: *12 – 14 feet*

	Yes	*No	N/A	COMMENTS
1. **Work at height control method:** a) Railings b) Travel Restraint c) Fall Arrest ***Where fall arrest applies:*** d) Is there a documented emergency plan? e) Has horizontal lifeline system been designed by professional engineer?	☑ ☐ ☐ ☐ ☐	☐ ☐ ☐ ☐ ☐	☐ ☑ ☑ ☑ ☑	*Existing permanent guard rails*
2. **Equipment for access to work at height:** a) Ladders b) Scaffold c) Power elevated work platform d) Other: _____	☑ ☐ ☐ ☐	☐ ☐ ☐ ☐	☐ ☑ ☑ ☑	*Ladder to be tied off*
3. **Worker training:** a) Work at height certification (mandatory in Ontario) b) Power elevated work platform operation (oral and written) c) Scaffold building and dismantling	☑ ☐ ☐	☐ ☐ ☐	☐ ☑ ☑	*All workers have proof of training*
4. **Equipment inspection:** a) Power elevated work platform maintenance inspections documented and complete? b) Power elevated work platform manufacturer's design certification available? c) All ladders inspected and in good condition? d) All safety harness gear certified and inspected? e) Scaffold inspected prior to use?	☐ ☐ ☑ ☑ ☐	☐ ☐ ☐ ☐ ☐	☑ ☑ ☐ ☐ ☑	
5. **Working Near Excavations/Overhead Utilities** a) Is control zone identified? Dependent on depth of dig, and soil composition, overhead wires b) Are travel restriction systems in place when work is required in control zone?	☑ ☑	☐ ☐	☐ ☐	

*Where question is applicable and response is 'NO' do **not** proceed with work at height

Completed by: *Joe Cool* Position: *Crew leader* Date: *9/20/10*

Supervisor: *Fred Foreman* Date: *9/20/10*

HEAVY EQUIPMENT LIFT CHECKLIST

(attach to completed JSA)

Site Location: *435 Main St. Hamilton* Date: *Sept 20/10*

Description and Area of Work: *Hoist HVAC unit onto roof of C-Store*

Weight of equipment to be lifted: *Approx. 400 lbs.*

Height of equipment to be lifted: *Approx. 3 feet*

Approximate radius of lift: *65° horizontal, 75° vertical*

Procedure	Yes	No
1. Is the safety factor less than 25%? (Exceed 75% of crane/excavator capacity) See note 1.		✓
2. Is the safety factor less than 50% when lifting over critical lines / equipment? See note 1.		✓
3. Is the swing arc of the boom within 3 meters of high voltage lines or conductors?		✓
4. The approximate weight range of the object being lifted unknown or not specified due to modifications, outdated drawing, etc.?		✓
5. Are two cranes required and is the lift less than 50% of the safety factor?		✓
6. The integrity of the ground (soil/cement/stone) is questionable based on visual observation regarding total weight for outriggers?		✓
7. Is an engineering study required with specifications and/or drawings for the lift?		✓
8. Is the lift infrequently done or have unusual characteristics? Explain:_____		✓
9. Is there a second crane requiring a man in a basket?		✓
10. Is the lift over 5 tons?		✓
If any of the above questions are answered with "Yes", contact the owner project manager and complete – Critical Lift Pre-Job Checklist		
11. Are there underground obstructions in the vicinity of work area? (i.e. piping, sewers, cables, etc.). If Yes, avoid these obstructions or provide satisfactory protection.	✓	
12. Are there overhead obstructions in vicinity of work area? (i.e. piping, hydro/phone/cables lines, etc.) If Yes, state precautions. _____		✓
13. Does equipment appear to be in good working order? (i.e. outrigger pads, blocks, hooks, cables, chains and hoses, etc.) If **No**, do not permit use.	✓	
14. Does the work involve an excavation?		✓
15. Does operator have a valid certificate to operate the equipment if required?	✓	
16. Does operator have a clear view of work area? If **No**, ensure signaler is used.		✓
17. Will terrain allow for good access and stability of equipment during work? If **No**, provide adequate stabilization or cribbing.	✓	
18. Is there good access and egress for workers and assistance in case of emergency? If **No** do not permit lift to continue.	✓	
19. Can outriggers be fully extended on equipment? If **No** do not permit lift to continue.	✓	
20. Will a person be required to be lifted in a basket? If yes, ensure appropriate fall protection is in place (eg. harness, etc.) and complete - **Work at Height Checklist**		✓
21. Has adequate traffic and personnel control (e.g. barricades) been provided?	✓	

Notes: *1) A Load Chart, listing the maximum gross loads at various radii and boom lengths, must be provided by the crane manufacturer. These capacities shall **not** be exceeded.*

Operator: *Larry Lifter* Date: *9/20/10*

Sign

Site Supervisor: *Fred Foreman* Date: *9/20/10*

Sign

Near Miss/Hazard Identification Report

SECTION 1 – NEAR MISS IDENTIFICATION, GENERAL INFORMATION					
Near Miss Title	(e.g. Injury, Environmental, Property Damage, etc.) *Potential Injury/Hazard elimination*				
☐ Project Mgr ☑ Contractor ☐ 3rd Party		**Contractor Company Name**	*ABC Company*		
Site Address:	*123 Street, Anytown, Province*				
Location of Near Miss/Hazard ID	☑ Onsite ☐ Offsite	**Description if Offsite: (on the road, customer site)**			
Owner (oil company):	*Petroleum Company*				
Equipment and/or Property involved in Near Miss/Hazard ID:	*n/a*				
Date (mm/dd/yy)	*10/14/10*	**Time: (24 hr clock):**	*07 h 30*	**Shift:**	☑ Day ☐ Night
Report completed by: (person's name)	*Fred Foreman*	**Date form completed:**	*10/14/10*		
Persons directly involved in the Near Miss/Hazard ID:					
Person 1:	*Harry Helper*	**Person 2:**			
Relationship: (e.g. Contractor, Sub-contractor, 3rd Party)	*Contractor*	**Relationship: (e.g. Contractor, Sub-contractor, 3rd Party)**			

SECTION 2 – NEAR MISS GENERAL INFORMATION

Description (What, Where, When, Who, How)

While cleaning out a garage bay, we found a piece of re-bar sticking out of the floor.

What acts or conditions contributed to the near miss and/or hazard event?

The floor was old and damaged. This in turn contributed to the re-bar sticking out of the floor.

Why was the unsafe act committed, or why was the unsafe condition present?

It was a pre existing problem.

What steps have been taken to prevent/control a similar incident or condition?

A quick cut saw was used to cut the bar out of the floor eliminating the hazard.

Potential Incident as a Result of a Near Miss/Hazard ID (check all boxes that apply)		**Other (if not listed):**	
☐ Fire/Explosion	☐ Property/Equipment Damage	☐ Business Interruption	
☑ Injury/Illness	☐ Vehicle Accident (Transport of Personnel)	☐ Contamination	
☐ Product Spill or leak	☐ Transport of Commodities (Materials)	☐ Government Inspection / Report	
☐ Security / Crime	☐ Damage to Third Party Property / Facility	☐ Process Safety	

Completed by (signature): Fred Foreman **Date:** 10/14/10

Complete and Fax to your oil company representative

Frequency: Fenced sites - 1 per week per site / Maintenance - 2 per month per company

APPENDIX B

CPCA RECOMMENDED PRACTICE
FOR CONFINED SPACE ENTRY

CPCA RECOMMENDED PRACTICES
CONFINED SPACE ENTRY

BACKGROUND FOR CONFINED SPACE REQUIREMENTS

Based on Regulations, CPCA and POST has adopted the definition of a Confined Space as;
A fully or partially enclosed space,
(a) that is not both designed and constructed for continuous human occupancy, and
(b) in which atmospheric hazards may occur because of its construction, location or contents or because of the work that is done in it.
NOTE: in Quebec, hazards in the enclosed space are not limited to atmospheric hazards.

Before any entry into a confined space can occur, the regulation requires the employer to;
(a) develop a written program to cover projects with confined space entry
(b) conduct hazard assessments of each confined space
(c) prepare specific plans for each confined space entry
(d) prepare permits for entry
(e) conduct plan specific training
(f) prepare emergency response procedures.

A Restricted Space is defined by CPCA and POST as;
A fully or partially enclosed space that does not meet all the criteria for a Confined Space because;
(a) there are no atmospheric hazards present, and
(b) atmospheric hazards can not be created by the work being done in it.

ASSESSMENT OF THE SPACE

Before any work starts, an assessment of the fully or partially enclosed space must be done to determine if it falls under the confined space definition.

- Is it a space that is confining in any way i.e. a pit or underground vault; an excavation; an underground oil/water separator; an STP sump: a sewer manhole; a crawl space; a false ceiling or duct?
- Is it built with the expectation that humans will not continuously work in the space?
- Does it contain, or can it develop a hazardous atmosphere; for example,
  - are there vapours from gasoline, diesel, CO, nitrogen, sewer gas (methane), rotting vegetation (H_2S), etc. or a potential for them to occur?
- Can the work being done develop a hazardous atmosphere; for example,
  - draining product from a line or opening a fitting can generate flammable or toxic vapours
  - solvent cleaning, epoxy bonding, etc.
  - a combustion engine driven pump, compressor or concrete cutting power saw can generate CO in the exhaust
  - welding and similar activity can generate toxic fumes
  - vapours created by these actions can create an Oxygen deficiency.

When performing the assessment, all the elements of the definition must be present for the space to be considered as a “confined space”.

A fully or partially enclosed space can be limiting and difficult to work in but if no atmospheric hazards can occur it falls outside the definition of a confined space and should be considered a “restricted space”.

ATMOSPHERIC TESTING

In both confined and restricted spaces, atmospheric testing must done to ensure conditions do not change during the work.

Before entering any space not designed for human occupancy, the air quality must be tested. This is done using instruments specifically designed to measure at least vol% O_2 and vol% LEL. For added safety, the instrument should also measure CO and H_2S, which are deadly toxics that have been known to be present in service station areas. A specific site may require testing for other contaminants based on prior use or other documents provided.

There are a number of manufacturers of air testing meters such as BW Technologies and MSA.

The meter alone is not sufficient.

- The user must have been trained to use the meter
- The operating manual must be available
- Calibration gas must be available for the daily bump test and monthly field calibration
- The meter must be returned to the manufacturer or a qualified service company for a yearly factory calibration or as required by the manufacturer

Enclosed spaces must be monitored continuously using the air quality meter to ensure the vol% O_2 ideally remains at 20.8 - 20.9 vol%, LEL readings are below 5 vol% and there is no CO and H_2S present. If conditions change, a restricted space could become a confined space.

NOTE:

1 - the air quality testing meter requires a minimum reading of 15% O_2 for the LEL cell to work accurately.

2 – the acceptable vol% O_2 range is from 19.5 vol% (the lowest level that humans can breath without affecting body functions) **and 23.0 vol%** (above this level very little energy is required to start a fire)

CONFINED SPACE ENTRY REQUIREMENTS

Once a fully or partially enclosed space has been assessed and determined to meet the criteria for a confined space, a defined series of steps must be taken.

1) Written program
   For each confined space, a qualified person must write an overall procedure to ensure the proper analyses, controls and emergency response measures are in place to make the confined space safe for the worker to enter and do his tasks.
2) Hazard Assessment (JSA)
   An assessment of the hazards presented by the confined space must be generated by a competent person. Hazards include; physical (ease of entry/exit, slipping, falling, fire, heat stress), ergonomic (lifting, bending, repetitive motion), chemical (toxics, asphyxiation), biological (bacteria), environmental (contamination).
3) Confined Space Entry Plan
   A procedure for the entry into a specific confined space to do defined work must be written and will include;
   - a daily permit system
   - requirements for atmospheric testing
   - PPE requirements both for work and emergency rescue
   - duties of the outside attendant
4) Training
   Workers must be trained in all elements of the confined space entry plan. They will have;
   - reviewed the overall program and hazard assessment
   - been trained in the permit system, entry and emergency procedure
   - been trained in the use of the specified PPE
   - be competent to perform the work
5) Emergency Procedure
   A written emergency procedure for the specific confined space entry must be on hand.
   An adequate number of people, trained in the emergency response plan and with the appropriate PPE shall be in the vicinity to execute a rescue.
   One person on the rescue team must be trained in first aid and CPR

6) Record Keeping
   For Confined Space Entry projects, all records must be kept for 1 year or for two of the most recent entries.

RETAIL SITE CONFINED SPACES

CPCA personnel, working with a consultant (Pinchin Environmental), have reviewed both the construction and maintenance activities on a typical retail site. They have determined the following to be the major work areas which either are always, or under certain circumstances are considered to be, confined spaces.

1) New to Industry, raze and rebuild or tank replacement projects

In general, during construction of these types of projects, with no product other than tank ballast in the system, there are no work areas that meet the confined space definition in the petroleum equipment area.

Always test the quality of the atmosphere in the excavation or sump before entering and test continuously, or at frequent intervals, during the work.

Tamping and compacting the first lift

Spreading pea stone

Before entering any excavation, ensure the sidewalls are sloped adequately and there are means of exiting in case of emergency.

Initial installation of sumps is not considered to be a confined space entry

When work is being done to tie in new sanitary sewers or storm drains, the hazard analysis must be done before work starts. If atmospheric hazards are found, the overall plan and all the required elements for a confined space entry and permit system must be written.

2) Maintenance or major work on an operating site

Always test the quality of the atmosphere in the sump, pit or any other space before entering.

2.1 Sumps

Before a detailed assessment is done at a specific site for a specific task, an STP pump chamber (sump) is initially to be considered a confined space.

If a sump is assessed to meet the criteria of a confined space, the tripod, winch and harness setup would be the same for an STP chamber (sump) entry as for this manhole entry. The stand-by, rescue person is always required.

If the sump is considered a restricted space, the JSA will determine the critical task procedures to follow for the work.

2.2 Car Wash Pits

Car wash reclaim tanks/pits may not meet all the definitions of a confined space until work such as power saw cutting is to be done. A detailed assessment has to be done for the specific enclosed space to determine if it is classified as ‘confined’ or ‘restricted’.

NOTE: always isolate the pit by plugging all entry lines from the car wash and the exit line to the sewer to ensure no fluids or gases can enter the pit.

Area is marked off by caution tape, air blower is ensuring a safe atmosphere in the pit, fire extinguishers on stand-by

Note the brackets on the side wall temporarily installed for the tripod.

Even if the entry is not under confined space rules, the tripod and harness may be required for fall protection.

2.3 Other Types of Spaces

- Crawl spaces under buildings – would be considered a confined space if atmospheric hazards were present and a restricted space if no atmospheric hazards were present.

- Tank excavations – are considered restricted spaces when the proper slope of the side walls is in place. There must be continuous air quality testing to ensure no atmospheric hazards occur; for example, from contaminated soil. Ladders are required for entry and exit.

- Other spaces – when any type of bodily entry is required to perform work in spaces not meant for human occupancy, conduct an assessment as part of the daily work permit. If the assessment shows the space meets the confined space criteria, develop the confined space program and write all the elements required. Otherwise, consider it as a restricted space.

WRITTEN PLANS, PERMITS AND RESCUE PLANS

POST has developed checklists for Confined Space Entry Plan/Permit and Rescue Procedures.

These documents can be obtained from POST and are to be used to develop the hazard assessment, confined space entry plan and emergency rescue plan for the specific confined space to be entered. Refer to CPCA Recommended Practices for examples.

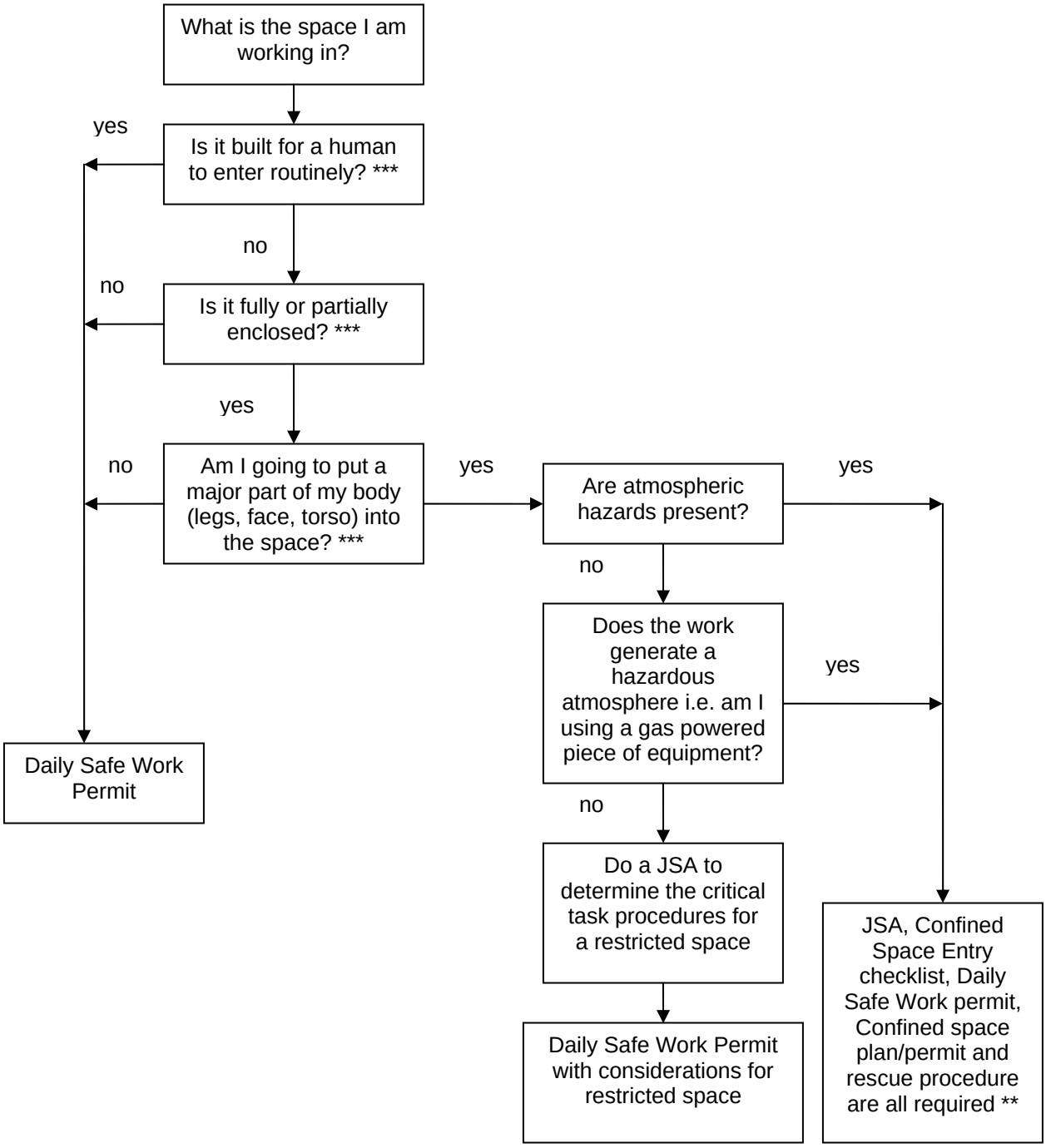
OVERVIEW AND SUMMARY

When starting any project at a retail service station site, whether it is a new development, a raze and rebuild or routine maintenance, the requirement to assess all enclosed or partially enclosed spaces for the confined space criteria is the highest priority.

The following flow chart is meant only as a guide to your decision making. Always err on the side of caution. Confined space accidents, injuries and deaths continue to occur each year.

Protect your workers and your company reputation by being diligent around potential and proven confined spaces. Use the POST documentation to assist in your site assessment and hazard analysis and to develop your site specific confined space entry plan, entry permit and emergency rescue procedure.

Enclosed Space Decision Making Flow Chart



** All documents must be kept for one year or for two of the most recent entries

*** For these questions consider enclosed spaces such as;

- STP sumps
- Tank excavations
- Manholes
- Car wash pits
- Crawl spaces under buildings
- Undocumented spaces

For all enclosed spaces test atmospheric quality continuously, or on a frequent basis. Measure and record readings of O_2, LEL, H_2S and CO with a calibrated instrument used by a competent person.

APPENDIX C

BARRICADING
REQUIREMENTS

POST Barricading Standard

As part of the POST rollout in 2010, a “Barricading Standard” was implemented as a mandatory minimum requirement for maintenance work area protection as well as when appropriate on construction sites (see below). This requirement is to help ensure that technicians are protected while working in high traffic areas.

Here is an overview of the specific barricading requirements along with photos showing proper implementation.

Stop Element
Use your service vehicle

Visibility–Use cones
Every 6 feet
28 inches high
Flagged

Isolation
Continuous barrier (poles or tape)

Safety Perimeter
6 feet from workplace
Speed bumps (optional)

Contractors use barricading walls and/or fencing for larger projects

APPENDIX D

LIST OF
FORMS & DOCUMENTS

POST - Documents

- Project Clearance Certificate
- Daily Safe Work Permit
- Daily & Weekly Safety Meeting
- Weekly Safety Meeting
- Job Safety Analysis (JSA)
- Near Miss Hazard Evaluation Report

Observation/Evaluation Documents
- Planned Job Observation (PJO)
- JSA Quality Assessment Evaluation

Confined Space Documents
- Atmospheric Testing Log
- Confined Space Entry Permit
- Recommended Confined Space Rescue Procedures
- Confined Space Checklist

Routine Maintenance
- Maintenance Safe Work Permit

Checklists
- Critical Lift Checklist
- Drilling & Borehole Excavations Checklist
- Electrical/Mechanical Isolation Checklist
- Excavation & Trench Entry Checklist
- Heavy Equipment Checklist
- Hot Work Checklist
- Integrity of Critical Systems Checklist
- Work at Heights Checklist

Forms and Documents available at **www.POSTtraining.ca**