



## 1.0 ACTIVITY DESCRIPTION

- 1.1 The purpose of a Job Safety Analysis (JSA) program is to mitigate or eliminate hazards associated with performing specific job tasks. The JSA program safely manages worker exposure to job-site hazards by providing a process and tool to identify, evaluate, discuss, mitigate, and document potential hazards and appropriate control measures. JSAs are vital to an organization's overall safety program because they encourage operational prioritization of safety, integrate safety as part of the work task for high risk and/or novel activities, and encourage safety communication at the crew level.
- 1.2 The purpose of this document is to describe guidelines for the preparation and communication of task-specific JSAs. Although a JSA (sometimes called a Field Level Hazard Analysis [FLHA]), a Job Hazard Analysis (JHA), Site-Specific Safety Plans (SSSP), and Toolbox Talks are all jobsite safety-related tools, each plays a different role. For these guidelines, the following definitions will be used:
  - 1.2.1 Job Safety Analysis (JSA) – JSAs are prepared for a specific work activity that will be performed. JSAs are performed to identify hazards (real and potential) that are, or may be, present at the specific work location under current environmental conditions (weather, external impacts, etc.) and to prescribe the appropriate mitigation of the identified potential hazard(s), before commencing a work activity. JSAs should be updated when activities or conditions (weather, soil conditions, etc.) change during performance of the task.
  - 1.2.2 Field Level Hazard Analysis (FLHA) – FLHAs are basically the same as JSAs.
  - 1.2.3 Job Hazard Analysis (JHA) – A JHA is a document that identifies the general hazards of and mitigation measures for common construction activities or tasks, such as excavation, stringing pipe, lowering-in, welding, tie-ins, bending, etc.
  - 1.2.4 Site-Specific Safety Plan (SSSP) – An SSSP is a document that is developed for each specific project, identifying its safety hazards and how to mitigate them. A SSSP can be important source material for creating JSAs.
  - 1.2.5 Toolbox Talks – Toolbox talks are utilized for a wide variety of topics (e.g., safety, task review, environmental, land owner considerations, etc.). Toolbox talks are particularly useful when discussing safety to review “good catches” or incidents that have happened within a company or they can be lessons learned that have been shared in our industry (e.g., refer to the INGAA Foundation Lessons Learned Database).
- 1.3 The basic JSA described in this document is most often prepared by the Crew Leader or Foreman (or other personnel as assigned or designated by the Foreman), with ACTIVE input and participation from the crew members, and used to stimulate substantive conversation regarding task steps or sequencing, specific hazards, and the corresponding control measures.



- 1.4 The guidelines in this document are not meant to supersede or replace regulatory requirements, nor are they intended to be all-inclusive of the applicable contractor/owner company safety protocols or regulatory requirements. Instead, these guidelines are intended to support and complement existing requirements.

## 2.0 HAZARD ASSESSMENT

- 2.1 Hazard assessments are performed as part of the JHA (routine activities) or the JSA (site-specific) development process.
- 2.2 Hazard assessments should be performed to identify potential hazards associated with work activities commonly performed on natural gas pipeline construction projects. Hazards may be ranked based on risk (e.g., probability multiplied by severity).

## 3.0 ROLES AND RESPONSIBILITIES

### 3.1 Management Responsibilities *(includes all personnel with a supervisory role)*

#### Project Management Responsibilities

- 3.1.1 Provide the mechanism for adequate training of all applicable personnel to identify hazards associated with the tasks they may perform and to designate the appropriate control measures.
- 3.1.2 Empower applicable personnel with the ability to mitigate, or make recommendations on appropriate control measures for site-specific hazards and potential hazards.
- 3.1.3 Verify that applicable employees are trained in the JSA process.
- 3.1.4 Confirm that Frontline Supervisors are trained on communication of JSAs.
- 3.1.5 Actively participate in and support the JSA process/activity while visiting a site/project (where applicable).
- 3.1.6 Perform objective assessments on the quality of JSAs preparation and communication, specifically but not limited to the effectiveness of Frontline Supervisor preparation and communication of JSAs. Provide recommendations and support to continuously improve their effectiveness (where applicable).
- 3.1.7 Stop Work Authority/Responsibility – Immediately stop and correct perceived unsafe or hazardous activities.

#### Frontline Supervisor Responsibilities

- 3.1.8 Review the more general JHAs that are applicable to the work/project.



- 3.1.9 Assess and evaluate applicable on-site personnel to ensure that they understand the JSA process.
- 3.1.10 Prepare comprehensive and detailed JSAs.
- 3.1.11 Encourage crew involvement in preparation of JSAs.
- 3.1.12 Communicate the JSA before the scheduled tasks are performed.
- 3.1.13 Conduct appropriate reviews and revisions to JSAs and communicate changes to pertinent field personnel.
- 3.1.14 Stop Work Authority/Responsibility – Immediately stop and correct perceived unsafe or hazardous activities.

### **3.2 Health & Safety (H&S) Professional Responsibilities**

- 3.2.1 Provide technical support for preparation and communication of JSA guidelines.
- 3.2.2 Develop, coordinate, conduct and/or approve JSA training.
- 3.2.3 Evaluate the effectiveness of the JSA program and make recommendations for improvement (when necessary).
- 3.2.4 Review completed JSAs to evaluate thoroughness and/or the appropriate level of communication and control measures/mitigations.
- 3.2.5 Stop Work Authority/Responsibility – Immediately stop, report, and correct perceived unsafe or hazardous activities.
- 3.2.6 Actively participate in and support the JSA process/activity while visiting a site/project (where applicable).

### **3.3 Employee Responsibilities**

- 3.3.1 Follow the procedures described in these guidelines.
- 3.3.2 Complete the JSA-related training associated with job assignments and responsibilities.
- 3.3.3 Participate in the development and communication of JSAs, as applicable to assigned tasks and job responsibilities.
- 3.3.4 Report to the Supervisor any recognized hazard that cannot be immediately corrected.
- 3.3.5 Review JSAs when conditions change (e.g., weather, scope of the task, nearby activity), and make appropriate changes to potential hazards and/or control measures.



3.3.6 Immediately stop and correct perceived and actual unsafe or hazardous activities.

## 4.0 EQUIPMENT AND SUPPLIES

Not Applicable

## 5.0 HAZARD MITIGATION

### 5.1 Creating a JSA

5.1.1 There are three basic steps in preparing a JSA:

1. Identify the job, task, and steps.
2. Identify real and potential hazards or potential incidents that may be associated with each task and step.
  - Reference general JHAs pertinent to the task/work activity and/or the SSSP.
  - Consider potential impacts from site-specific conditions (weather conditions, ground surface slope, landscape, other nearby activities, etc.).
3. Describe mitigation and control measures applicable to the potential hazards identified in Step 2.

### 5.2 JSA Format and Content

5.2.1 The JSA form lists common hazards identified that can be reviewed and checked with the crew. The form should also provide blank areas that can be used to add any site-specific hazards and mitigations of those hazards.

5.2.2 The form should include space for all individuals to sign after each review.

5.2.3 Examples of information the JSA form could include, but are not limited to:

- Identification of task(s) to be performed, associated potential hazards, and corresponding mitigations required to perform the task safely;
- Person responsible for each task;
- Work location (site address or equivalent);
- Current weather;
- Identification of short-service employees;
- Proper PPE;
- Required permits (e.g., hot work, lock-out/tag-out);
- Muster point;



- Warnings/alerts – How to communicate in the event of an emergency;
- Emergency contact information/Names of First Aid CPR trained personnel;
- “Competent Person(s)”;
- Signature of Owner/Operator Representative; and
- Security concerns or considerations.

5.2.4 Refer to Appendix A for example JSA forms.

### 5.3 Identifying Hazards and Control Measures

5.3.1 A JSA is an important tool in the effort to identify hazards and outline effective mitigation or controls. To improve the effectiveness of identification and control efforts, the following suggestions are offered:

- It is important for JSA authors/facilitators to consider adjacent activities. JSAs can be too focused on the tasks they are scoped for, overlooking nearby hazards that could have an impact on the immediate task.
- Scanning the worksite for energy sources (potential energy, mechanical energy, thermal energy, etc.) has been a technique demonstrated to improve hazard identification effectiveness.
- It is more helpful to be specific than general when identifying hazards. For example, broadly citing “trip hazards” is not as effective as citing the “trip hazards from the cable trays in the Northeast corner of the site.”
- Finally, JSAs are most valuable when they focus on substance over form. When done in a way in which the quality of the conversation is held to more importance than the format of the written, JSAs, encourage vital scenario-building, brainstorming and high engagement among field staff.

5.3.2 Refer to the applicable JHAs and SSSP as the starting point to identify and mitigate potential hazards of each activity. Then expand or customize the JSA to incorporate actions or considerations based on site-specific conditions.

5.3.3 Once the task-related jobsite hazards are identified, designate control measures per the hierarchy of hazard control (i.e., elimination, substitution, engineered controls, administrative controls, PPE).

### 5.4 JSA Communication and Presentation

5.4.1 Effective JSAs are a process that integrates safety and health principles into a particular task. JSAs are more than a form.

5.4.2 The keys to success of the JSA process are twofold: 1) careful planning; and 2) effective communication via crew involvement.



- 5.4.3 Include the entire crew assigned to a job activity in the JSA process to ensure all employees conducting a task understand the hazards and how to mitigate them.
- The JSA should be communicated verbally and in detail with all crew personnel onsite, and then subsequently to any/all other individuals who visit or perform work on that site, before engaging in the work activity.
  - Encourage the field personnel to openly discuss the JSA. By giving applicable field personnel a way to participate in safety decisions, their engagement can lead to improved hazard awareness and understanding of safe work practices.
  - Frontline Supervisors should encourage the crew to actively participate. Asking questions and seeking input from crew members helps to create an environment where the entire crew is actively engaged in the JSA process.
- 5.4.4 Front-line supervision (Crew Leaders or Foremen) are the key individuals responsible for the success of crew safety, compliance, quality and production. Therefore, they should have the ability to communicate and engage their crew in developing, communicating and executing safe work plans. The ability of the Crew Leader to perform this task well will define the success of the program.
- 5.4.5 After the Crew Leader explains in detail the task that is to be performed, encourage team members to point out the potential hazards and their proposed mitigation or control measures. This encourages crew engagement and communication.
- 5.4.6 Be mindful of the primary language(s) of the field personnel. Training, presentations, daily communications, forms, handouts, etc. need to be communicated so that all field personnel understand.
- 5.4.7 During the JSA discussion, give field personnel an opportunity to share examples of good catches, near misses, etc. to learn from experience and prevent potential reoccurrence.

## 5.5 JSA Reviews

- 5.5.1 The JSA MUST be reviewed by all personnel entering the active work area, including but not limited to, field personnel, contractor management, owner company representatives, inspection staff, vendors, guests/visitors onsite, etc.
- 5.5.2 The initial review shall take place prior to the start of any work task.
- 5.5.3 A recommended Best Management Practice (BMP) is to review the JSA again after any break or interruption (e.g., weather, stop work, conditional change, lunch etc.)  $\geq$  30 minutes.



5.5.4 Reviews should also take place any time conditions or work activities change, for example:

- If the equipment sustains damage;
- After a safety related incident (e.g., injury, accident, or near miss);
- When the job is altered; or
- Upon identification of a new hazard(s).

## 5.6 JSA Documentation and Recordkeeping

5.6.1 All JSAs should be signed by all applicable crew members and visitors.

5.6.2 All JSAs should be turned in on a daily basis.

5.6.3 Remember “If it’s not documented, it didn’t happen.”

## 6.0 TRAINING

6.1 All employees should receive awareness training on the JSA process.

6.2 Contractor's employees and/or on-site employees must have appropriate training and qualifications to identify hazards and understand the information presented in a JSA.

## 7.0 REFERENCES

Intentionally left blank.

## 8.0 HISTORY OF REVISIONS

Number	Date	Description
0	June 16, 2017	Initial publication of this INGAA Construction Safety Consensus Guidelines document.



# Construction Safety Consensus Guidelines

The INGAA Foundation, Inc.

# Job Safety Analysis

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## Appendix A – Example JSA Forms

### JOB SAFETY ANALYSIS WORK SHEET

Tasks to be performed/critical steps to be taken (Check all that apply to job)	Potential Hazard (Check all that apply to tasks/steps from column 1)	Recommended Safe Job Procedures (Check all protective measures that apply to hazards identified in column 2)
<input type="checkbox"/> Driving	<input type="checkbox"/> Traffic hazards (vehicular & pedestrian)	<input type="checkbox"/> Designate a person for a specific task such as confined space attendant, fire watch, etc.
<input type="checkbox"/> Working	<input type="checkbox"/> Working on rough/challenging/uneven terrain	<input type="checkbox"/> Hold a pre job meeting with all involved
<input type="checkbox"/> Manual Digging	<input type="checkbox"/> Exposure to loud noise	<input type="checkbox"/> Utilize one call and pot-holes/light existing utilities BEFORE excavating
<input type="checkbox"/> Mechanical Digging	<input type="checkbox"/> Overhead Utilities / Underground Utilities	<input type="checkbox"/> Inspect excavations & complete report
<input type="checkbox"/> Manual Lifting	<input type="checkbox"/> Suspended Loads / Swinging Loads	<input type="checkbox"/> Barricade or mark areas of excavation
<input type="checkbox"/> Mechanical Lifting (Crane)	<input type="checkbox"/> Heavy Object Back Injuries	<input type="checkbox"/> Reduce speed and drive defensively
<input type="checkbox"/> Welding/Cutting/Grinding	<input type="checkbox"/> Heavy Lifting Equipment	<input type="checkbox"/> Use of additional PPE (face shield, goggles, chaps etc.)
<input type="checkbox"/> Hauling Equipment/Materials	<input type="checkbox"/> Heavy Earthmoving Equipment	<input type="checkbox"/> Inspection and color coding of electrical tools
<input type="checkbox"/> Setting/Moving Timbers/Mats	<input type="checkbox"/> Trenches/Excavations (Equipment/collapse)	<input type="checkbox"/> Inspect tools for signs of excessive wear/damage & replace if necessary
<input type="checkbox"/> Coating	<input type="checkbox"/> Asphyxiation / confined space hazards	<input type="checkbox"/> Stay clear of x-ray operations
<input type="checkbox"/> Sandblasting	<input type="checkbox"/> Slips, trips & falls - rough/slippery working surfaces	<input type="checkbox"/> Install portable lighting in dark areas
<input type="checkbox"/> Rigging	<input type="checkbox"/> Possible hit/run/crushed by moving trucks or equipment	<input type="checkbox"/> Use bug spray or other means of pest control
<input type="checkbox"/> Line-ups	<input type="checkbox"/> Slings, Cables, Chains could break/fall	<input type="checkbox"/> Store cylinders upright, secured with the caps on and transport properly
<input type="checkbox"/> Etch/engraving	<input type="checkbox"/> Exposure to gamma emitting sources & x-ray abrasions	<input type="checkbox"/> Identify and avoid poisonous plants
<input type="checkbox"/> Climbing to highest/over levels	<input type="checkbox"/> Abrasive materials (eye injuries/skin abrasions)	<input type="checkbox"/> Use proper lifting techniques (lift with legs)
<input type="checkbox"/> Backfilling	<input type="checkbox"/> Multiple pinch/crush points	<input type="checkbox"/> Stay clear of equipment when in operation
<input type="checkbox"/> Set up traffic control / flagging ops	<input type="checkbox"/> Compressed Gases	<input type="checkbox"/> Never stand/walk between two pieces of working equipment
<input type="checkbox"/> Cell Phone use	<input type="checkbox"/> Heat Stress/Hypothermia (Hot/Cold weather)	<input type="checkbox"/> Stay a minimum of 10 ft. from power lines
<input type="checkbox"/> Use of ladders	<input type="checkbox"/> Unidentifiable Weather	<input type="checkbox"/> Test the atmospheres for hazards
<input type="checkbox"/> Road Crossing	<input type="checkbox"/> Lightning/Rain/Snow/Icy conditions)	<input type="checkbox"/> Fastback arrestors must be in place
<input type="checkbox"/> Loading/Offloading equipment/materials	<input type="checkbox"/> Falls from an upper level	<input type="checkbox"/> Ensure proper ventilation
<input type="checkbox"/> Installing shoring/franch box	<input type="checkbox"/> Without proper communication drill string can turn inadvertently causing pinched by struck by operator of the equipment before approaching	<input type="checkbox"/> Wear sunscreen and appropriate clothing
<input type="checkbox"/> Break connections apart to install or remove rods or tooling	<input type="checkbox"/> Poisonous plants (Contact Dermatitis)	<input type="checkbox"/> Never fill with the teeth of buckets
<input type="checkbox"/> Pumping	<input type="checkbox"/> Blow or damaged heads could cause shock or property damage	<input type="checkbox"/> Visually inspect the leads as they are being run out
<input type="checkbox"/> Lowering-in product	<input type="checkbox"/> Unrevenue/secure or bulky loads	<input type="checkbox"/> Ensure spill kit is readily available
<input type="checkbox"/> Retooling	<input type="checkbox"/> Environmental release/spill	<input type="checkbox"/> Ensure hoses are properly connected and whip-checks are in place
<input type="checkbox"/> Boring/Directional Drilling	<input type="checkbox"/> Overloading equipment - equipment failure	<input type="checkbox"/> Inspect wear points on hoses/SPE and replace damaged/down sections
<input type="checkbox"/> Pipe Entry	<input type="checkbox"/> Welding, cutting, burning tools (Fire Hazard)	<input type="checkbox"/> Ensure fall protection (lock-off/guard rail/and rails) are in place
<input type="checkbox"/> Hydraulic product line	<input type="checkbox"/> Chemical Burn/Thermal Burn	<input type="checkbox"/> Erect barricades and ensure personnel are kept clear of test area
<input type="checkbox"/> Changing out hydraulic components	<input type="checkbox"/> Rotating tooling, pinched by, struck by extinguishers on site and in vehicles	<input type="checkbox"/> Do not place hands in the box or on the end of the drill stem/string
<input type="checkbox"/> Making wire connections	<input type="checkbox"/> Grinding tools - Flying Sparks and Debris	<input type="checkbox"/> Communicate with the railroad and ensure flagger protection is provided if necessary - don't work within 25 feet without flagger protection!
<input type="checkbox"/> Pre-heating	<input type="checkbox"/> Cuts / Abrasions	<input type="checkbox"/> Stop work and take cover in inclement weather
<input type="checkbox"/> X-Raying	<input type="checkbox"/> Electrical Shock/Hazards / induced Voltage	<input type="checkbox"/>
<input type="checkbox"/> Punging (line/s)	<input type="checkbox"/> Safety Latch on rigging inoperable/missing	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/> Working near live railroad tracks (train traffic)	<input type="checkbox"/>
<input type="checkbox"/>	<input type="checkbox"/> Accidental ignition when not in use	<input type="checkbox"/>

### TAILGATE SAFETY MEETING MINUTES

Date: \_\_\_\_\_ Job # \_\_\_\_\_ Location: \_\_\_\_\_  
 Company: \_\_\_\_\_ Foreman/Supervisor: \_\_\_\_\_  
 First Aid Personnel: \_\_\_\_\_ Name \_\_\_\_\_ Address \_\_\_\_\_ Phone # \_\_\_\_\_

NEAREST CLINIC: \_\_\_\_\_  
 CLOSEST MAJOR INTERSECTION: \_\_\_\_\_  
**FOR LIFE THREATENING INJURIES OR EMERGENCIES - DIAL 911**

# In Crew: \_\_\_\_\_ # Attending: \_\_\_\_\_ Current Weather: \_\_\_\_\_  
 Competent Person(s) (if applicable): \_\_\_\_\_  
 Who Will Transport Injured Personnel? \_\_\_\_\_  
 Work To Be Performed: \_\_\_\_\_

Topics Discussed: \_\_\_\_\_

Potential Site Hazards: \_\_\_\_\_

Safety Recommendations: \_\_\_\_\_

Attendance (use additional paper if necessary)	Print	Sign	Print	Sign



