


USPL	<i>Level 2 HITRA Procedure</i>	
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Level 2 Hazards Identification and Task Risk Assessment (HITRA) Procedure

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1. Purpose and Scope

- A Level 2 Hazard Identification and Task Risk Assessment (HITRA) is a structured process to identify the hazards and specify actions to mitigate these hazards for a work activity or task.
- The purpose of this document is to define when, how, and by whom a Level 2 HITRA is performed.
- The Permit to Work (PTW) Policy satisfies the requirements for performing and documenting a Level 1 HITRA. A Level 2 HITRA is a more structured, semi-quantitative assessment and is MANDATORY for certain tasks defined in the Task Risk Category Table (TRCT) on the PTW (see Section 3.7)
- A Level 2 HITRA can also be performed when BP Management or people involved with the planning and execution of work judge that there are hazards or complexities associated with a task that requires more than a Level 1 HITRA (PTW).
- This procedure is supplemental to and to be used in conjunction with the Permit to Work and Policies referenced in Section 7.

2. Roles and Responsibilities

2.1 The Leader of a Level 2 HITRA team

- 2.1.1** The leader of a Level 2 HITRA team shall be an Asset Operator, Asset Operator Designee or has been trained and certified in this procedure.
 - 2.1.1.1** The Level 2 HITRA leader shall instruct the team members in the Level 2 HITRA process and their roles.
- 2.1.2** Shall lead the team in performing a Level 2 Risk Assessment according to the process described in this document.
- 2.1.3** Shall verify the team understands the assessment process.
- 2.1.4** Shall verify that the assessment team includes personnel with the necessary knowledge and competence for the task and the equipment involved.
- 2.1.5** Shall verify that the Level 2 HITRA includes a job site visit by at least one member of the team prior to approval of the HITRA.
- 2.1.6** Shall allow all members of the Level 2 HITRA team the opportunity to contribute and verify that the details of the assessment are agreed to by all team members.
- 2.1.7** Shall verify that any hazards that were identified in projects, subject to the Capital Value Process or recorded on a Project Risk Register, are assessed in the Level 2 HITRA.
- 2.1.8** Shall verify that the details of the assessment are accurately recorded on the Level 2 HITRA form.

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2.1.9 Shall verify that the appropriate level of approval is obtained for the Level 2 HITRA (see section 8.9).

2.1.10 Shall request a subject matter expert to participate on the Level 2 HITRA team if additional input is required.

2.2 Level 2 HITRA Team Members

2.2.1 Should have relevant experience and / or functional expertise in the activity to be assessed (see Section 8.1).

2.2.2 Shall participate in the Level 2 HITRA process.

2.2.3 Shall assist in the identification of hazards and control measures to reduce the likelihood of an incident/accident occurring.

2.2.4 Shall validate agreement with the overall Level 2 HITRA before approval.

2.2.5 Shall include involvement from HSSE personnel.

2.3 Terminal Manager or O&M Team Leader

2.3.1 Shall review and approve the Level 2 HITRA for tasks that have a Residual Risk Ranking of Medium and the risks are determined to be reduced to ALARP (see Section 8.9).

2.4 District Operations Manager

2.4.1 Shall review and approve the Level 2 HITRA for tasks that have a Residual Risk Ranking of HIGH and the risks are determined to be reduced to ALARP (see Section 8.9).

2.5 All BP Employees and Contractors performing work for USPL

2.5.1 Shall participate in or review Level 2 HITRAs that cover the work they will be performing

2.5.2 Shall implement, adhere to and follow all the risk control measures identified in the HITRA.


2.6 Asset Operator / Asset Operator Designee

2.6.1 Shall serve or designate a trained and certified individual to serve as Level 2 HITRA Leader.

2.6.2 Shall review the Level 2 HITRA each day to verify that the scope covered on the Level 2 HITRA is appropriate, permits have been properly identified, and that it has been properly approved.


2.6.3 Shall verify that the identified risk control measures are implemented and communicated to the workforce.

2.6.4 Shall verify work monitoring occurs for work as specified on page 2 of the Level 2 HITRA form.

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3. Policy

- 3.1** Before beginning a Level 2 HITRA for Hot Work or Confined Space Entry that requires an Attendant, an assessment shall be conducted to identify any alternate means of performing work that does not require a Confined Space Entry or Hot Work.
- 3.2** A Level 2 HITRA shall be completed and approved prior to issuing a PTW for work tasks requiring a Level 2 HITRA. Refer to Section 3.7 or the TRCT for work types requiring a Level 2 HITRA in DRM.
- 3.3** The Leader of a Level 2 HITRA shall be trained and certified in this procedure.
- 3.4** The Level 2 HITRA Team shall consist of at least two people having knowledge and experience of the task and/or equipment to be used and the expertise to assess potential hazards of the covered tasks. (See Section 8.1).
- 3.5** A Level 2 HITRA is valid until the work covered by the Level 2 HITRA is completed. The Level 2 HITRA does not expire when a PTW expires.
- 3.6** A Level 2 HITRA shall be reviewed to verify no changes are necessary each time prior to the start of work shift.
- 3.7** A completed Level 2 HITRA shall be MANDATORY for work being executed as described in the PTW Task Risk Category Table (TRCT). The TRCT is a living document and a controlled copy is available in DRM for reference.
- 3.8** All Level 2 HITRAs shall be site specific.
- 3.9** A previously developed Level 2 HITRA can be used as a template but shall be reviewed and approved by a HITRA team per this procedure each time it is reused for a new job (see section 8.13).
Note: This team can be different than the team that previously developed the HITRA.
- 3.10** The Level 2 HITRA shall be reviewed by the Asset Operator / Asset Operator Designee each day to verify that the scope is appropriate, permits have been identified, and that it has been properly approved.
- 3.11** Field copies of Level 2 HITRAs shall be kept with the corresponding PTW.
- 3.12** One of the HITRA team members shall make a site visit to identify any site-specific hazards to be addressed in a new or previously developed HITRA. The job site visit should be conducted during the planning process.
- 3.13** Hazards associated with the covered tasks identified during the site inspection shall be incorporated into the Level 2 HITRA.
- 3.14** The Level 2 HITRA shall be kept together with the appropriate PTW on site and be readily accessible to all persons performing the work. For Confined Space

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Entry, the Level 2 HITRA shall be kept together with all the required forms that are posted at the job site.

3.15 For a Level 2 HITRA covering a scope of work lasting several days, the original may be reused each day or copies can be made for each separate day.

4. Prerequisites (General Requirements)

4.1 All BP employees serving in roles defined in this procedure shall be trained and competent for their assigned roles.

4.2 All contractors who perform work within the scope of this procedure shall understand their specific roles and responsibilities and the purpose and use of the Level 2 HITRA form.

Note: Refer to the USPL Control of Work Training and Competency Matrix for specific training requirements.

4.3 A PTW shall be prepared for the defined work scope. The PTW shall be used to identify, document, and communicate specific hazards of the job site that are not documented on the Level 2 Risk Assessment form.

5. Health, Safety, Security, Environment, Hazard Identification, and Risk Assessment / Mitigation

5.1 This document does not require sign off by users of the procedure.

6. Equipment and Forms Required

6.1 Level 2 Hazard Identification and Task Risk Assessment Form, shown in Appendix 4.

6.2 PTW Form

7. Supporting Documents / Related Procedures

7.1 USPL Control of Work Policy

7.2 Permit to Work Policy

7.3 Confined Space Entry Policy

7.4 Excavation Policy

7.5 Hot Work Policy


7.6 Lifting and Rigging Policy

7.7 Work at Heights Policy

7.8 Task Risk Category Table (TRCT)

7.9 USPL Standard Procedures Policy

7.10 USPL Work Management Process

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7.11 USPL PPE Matrix

7.12 Diving Specifications (USPL STP 78-215)

8. Procedure for conducting a new Level 2 HITRA

The objectives of the Level 2 HITRA are to:

- Assemble a team of persons with knowledge and expertise of the covered tasks. Where the expertise of the team members is not sufficient to complete the HITRA, the use of internal or external specialists is recommended.
- Identify and examine the hazards associated with the covered tasks and perform a risk assessment in a structured manner to identify credible potential emergencies.
- Identify and implement mitigations which will reduce risks to ALARP and receives the appropriate level of review and approval.


The procedure herein addresses each of these objectives. The process map shown in Appendix 3 is a representation of the procedure.

8.1 Forming the Level 2 HITRA Team

8.1.1 The Level 2 HITRA Team shall be made up of the following:

- A minimum of two people.
- Consist of people (BP employees, contractor workforce, or other external experts) having knowledge and experience of the task and/or equipment to be used and the expertise to assess potential hazards of the covered tasks. If the HITRA covers multiple work types, the HITRA team shall include people with knowledge and experience for each policy or procedure and associated tasks.
- At least one member of the team with knowledge and experience in the operation of equipment involved in the tasks who can devise a set of risk mitigation controls which will reduce risks to ALARP.
- At least one member of the team shall be a member from USPL operations if work is being conducted on a BP asset.
- At least one representative from the workforce, either BP employee or contractor, assigned to carry out the task being risk assessed. In circumstances where a member of the workforce who will be performing the work is not available, it is acceptable to have another person on the team who is knowledgeable in the task to be performed.

8.1.2 The Leader of the Level 2 HITRA Team should make arrangements for the team to work as a group (the preferred method is face-to-face but can utilize video or telephone

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conferencing). It is important that sufficient time is allocated to allow a thorough risk assessment to be performed.

8.2 Complete the Form Header

The Level 2 HITRA Leader in conjunction with the Level 2 HITRA Team members shall complete the following on the Level 2 Hazard Identification and Task Risk Assessment form (see form in Appendix 4):

Note: Appendix 4 is a blank Level 2 HITRA. Modifications to the form or new versions of the form may be created and used as long as they contain the minimum required elements as stated in the rest of Section 8 below.

- 8.2.1** Level 2 HITRA Title: Job Title – Asset Equipment – Facility/Location (e.g. Install new 8” nozzle – Tank 250 – Wood River Terminal).
- 8.2.2** Permit Type(s): (e.g. confined space, critical lift).


8.3 Identification of Permit Covered Tasks and Task Hazards

- 8.3.1** The team shall define tasks and hazards associated with covered work.
- 8.3.2** At least one member of the team shall visit the job site to see the physical layout of the area and potential job site hazards to be addressed in the Level 2 HITRA. Particular attention should be given to adjacent facility and equipment, process-related hazards, and any Simultaneous Operations (SIMOPS) activities taking place or planned to take place which can affect the activity under assessment.



Information/Note: Other local informational manuals or documents are available that may help identify task hazards or mitigations (if applicable).

- 8.3.3** The Leader of the Level 2 HITRA Team shall list each covered task on the form. Any additional tasks can be listed at the team’s discretion; however, all tasks listed shall be assessed in accordance with this procedure.
- 8.3.4** Once the members are all familiar with the covered tasks to be performed, the team shall list the known or potential hazards associated with each defined task. The Leader of the Level 2 HITRA team shall facilitate this group discussion. The following aspects of the tasks shall be considered when identifying hazards:

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- Characteristics of the facility and systems directly involved (e.g. pressure, noise, temperature, stability, voltage, H₂S, toxic chemicals, foam, wax, sludge)
- Sensitivity of the location within the facility or job site caused by proximity of other critical assets or systems, (e.g. Heating, Ventilation and Air Conditioning (HVAC) intakes, flare header, control room, Natural Gas Liquid (NGL) separator, risers, Emergency Shutdown Valve (ESDV), structural support members, tankage)
- Critical activities necessary to perform the task (e.g. lifting, draining fluid, inerting, isolation, flushing, entry into confined spaces, working at heights, transport of materials, equipment and wastes, use of power tools, hot work, grinding, bolting, use of cables and hoses)
- Possibility of interaction between simultaneous activities within the permit covered task or other unrelated tasks taking place nearby (SIMOPS)
 - If there is a SIMOPS issue and the work cannot be rescheduled, hazards introduced from the SIMOPS shall be assessed on the Level 2 HITRA form

8.3.5 The Leader of the Level 2 HITRA team shall make sure that each team member is given adequate opportunity to express their views.

8.3.6 The Leader of the Level 2 HITRA team may designate another team member to document hazards on the Level 2 HITRA form.

8.3.7 Hazards identified at the time of the job which are not associated with the permit covered tasks such as environmental factors (i.e. weather) that change from day to day shall be evaluated by the ATW process or can be added to the field copy of the HITRA form if a Level 2 assessment is warranted by the workforce (see 8.12).

8.3.8 Hazards that are listed and addressed on the Level 2 HITRA Form are not required to be included on the ATW form.

8.3.9 Hazards that are listed and addressed on associated permits are not required to be included on the Level 2 HITRA Form.


8.3.10 Hazards identified in the Capital Value Process as outlined in the USPL Engineered Modifications / Small Project Policy (USPL-PEM-001-001) should be reviewed for inclusion on the Level 2 HITRA Form.

8.4 Identification of Hazard Effects

8.4.1 Each hazard shall be evaluated to determine the Hazard Effect and appropriate Hazard Effect level (D, E, F, G, H) using Figure 1 - Hazard Effect Table.

8.4.2 Consideration should also be given to the possibility of cumulative effects from the interaction of several different hazards.

This initial identification of hazard effects shall be done with the assumption that there are no control measures or mitigations in place except for the normal PPE required by the PPE Matrix. The evaluation of hazard effects with control measures and mitigations in place shall be done during the determination of residual risk.




Information/Note: The initial assessment of risk shall be determined on the basis that no specific control measures exist except for the normal PPE required by the PPE matrix and:

- The worst reasonably credible severity of the hazard effects, should anything go wrong.
- The probability of the hazard being realized and resulting in the specified hazard effect

This is in order that the full risk potential may be recognized. The effectiveness of the assessment depends entirely on the team's ability to identify and evaluate all known hazards associated with the task.

Figure 1 - Hazards Effect (HE) Table

Hazard Effect Level	Health and Safety	Environment	Privilege to Operate	Equipment Damage, Business Value Lost
D	Multiple Fatalities	>1000 bbl (fluids) > 10,000 lb (Flammable Gases) > 200,000 lb (Flammable Liquids) > 200,000 lb (gas/vapors/solids)	Public outrage Regional or prolonged media coverage or severe national coverage Actual or threatened loss of License to Operate for Asset Likely to lead to change of regulations	\$100m - \$0.5 billion
E	Fatal Injury Permanent Disability	100 < 1000 bbl (fluids) 1000 < 10,000 lb (Flammable Gases) 20,000 < 200,000 lb (Flammable Liquids) 20,000 < 200,000 lb (gas/vapors/solids)	Localized or limited "interest group" outrage Significant enforcement action against Asset	\$5m - \$100m

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F	DAFWC Hospitalization Temporary Disability	1 < 100 bbl (fluids) 100 < 1000 lb (Flammable Gases) 2000 < 20,000 lb (Flammable Liquids) 4000 < 20,000 lb (gas/vapors/solids)	Prolonged local media attention	\$500k - \$5m
G	No DAFWC No Hospitalization OSHA Recordable	0.1 < 1 bbl (fluids) 10 < 100 lb (Flammable Gases) 200 < 2,000 lb (Flammable Liquids) 400 < 4000 lb (gas/vapors/solids)	Short term local media coverage Fines or other penalties to Asset	\$50k - \$500k
H	Simple First Aid	< 0.1 bbl (fluids) <10 lb (Flammable Gases) <200 lb (Flammable Liquids) <400 lb (other hazardous vapors/solids)	Short term complaints from neighbors	<\$50k

8.5 Determination of Probabilities and Initial Risk Level

For each identified Hazard Effect and associated Hazard Effect Level, the Probability (1 – 5) of the Hazard Effect happening shall be selected from Figure 2 Hazard Effect – Probability Matrix.

The following guidelines should be used for assigning probabilities:

- | | | |
|---|-----------------|--|
| 5 | Very Likely | The hazard effect will almost certainly occur |
| 4 | Likely | There is a good chance the hazard effect will occur |
| 3 | Somewhat Likely | There is a small chance the hazard effect will occur |
| 2 | Unlikely | It would be remotely possible for the hazard effect to occur |
| 1 | Very Unlikely | The hazard effect will almost certainly not occur |

Assignment of probabilities for initial and residual risk assessments shall be by consensus of the assessment team. The team should consider any site, district, region, USPL, BP, contractor or industry reference information available along with the combined experience of the team or any internal/external experts consulted. Examples of reference information that can be utilized are as follows:

- Previous executions of same or similar job

- BP Incident databases and reports
- BP Near miss databases and reports
- Contractor vetting database (e.g. ISNetworld)
- API or other industry safety incident data
- Workforce experience with this scope of work
- Previous risk assessments

The initial Risk Level shall be determined from Figure 2 and the risk level represents the product of the Hazard Effect Level and the Probability of the Hazard Effect being realized. The risk levels are: Low (L), Medium (M), High (H), and Very High (VH).

Figure 2 - Hazard Effect vs. Probability Risk Matrix

		Probability				
		1	2	3	4	5
IMPACT LEVEL		Very Unlikely	Unlikely	Somewhat Likely	Likely	Very Likely
Hazard Effect	D	6	8	10	11	12
	E	5	7	9	10	11 VH
	F	4	6	8	9 H	10
	G	3	5	7 M	8	9
	H	2	4 L	6	7	8



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Figure 3 – Approval Level Matrix

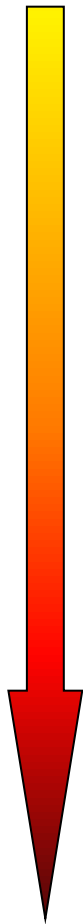
Residual Risk Level		Minimum Level of Approval
Very High (VH)	10 to 12	Unacceptable Risk
High (H)	8 to 9	District Operations Manager
Medium (M)	6 to 7	Terminal Manager / O&M Team Leader
Low (L)	1 to 5	Level 2 HITRA Leader

8.6 Identification of Control Measures and Mitigations

- 8.6.1** While identifying control measures and mitigations for hazards, consideration should be given to the following:
- task
 - people involved
 - tools, equipment, PPE, and materials to be used
 - working environment
- 8.6.2** The team shall work through the list of hazards to specify the methods needed to control each of their associated risks. Control measures over and above the normal PPE as required by the PPE Matrix shall be recorded as the team considers control measures necessary to achieve ALARP. The Hazard Effect - Probability Risk Matrix should be used as a guide for this purpose. The hierarchy of controls discussed below should be used as a guide so that a full range of options are considered.
- 8.6.3** When specifying Risk Control Measures, any associated hazards associated with controls to be implemented shall be identified and addressed in the assessment.
- 8.6.4** The hierarchy of controls is a sequence of options which offer a number of ways to approach the hazard control process. One representation of this hierarchy can be summarized and illustrated as follows:

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Most Effective



Eliminate the hazard

Eliminate a hazard and completely eliminate the associated risk, i.e., conduct task else where, conduct the task during facility turn-a-rounds

If a hazard cannot be eliminated, continue to substitution:

Substitute the hazard with a lesser risk

Substitute something else (a substance, process, or practice) that has less potential to cause harm

If the hazard cannot be eliminated or substituted, continue to engineering controls:

Engineering controls

Use engineering controls to remove a hazard or place a barrier between the workforce and the hazard

If the hazard cannot be mitigated with engineering controls, continue to isolation methods:

Isolate the hazard

Contain the work environment or work process to interrupt the path between the workforce and the risk, e.g., insert blind flange, guards or barriers, set up temporary or permanent enclosures

If isolation methods are not feasible, use administrative controls:

Administrative controls


Reduce the risk by through training assuring competency of the workforce, the use of specialist personnel, changing rosters, close supervision, establish policies/standards or procedures such as permit policies

If this is not practical, then:

Personal protection equipment

When you can't reduce the risk in any other way, use personal protective equipment (e.g. gloves, goggles,) as a last resort

Least Effective

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8.7 Determination of Residual Risk




Information/Note: The Residual Hazard Effect generally remains the same as the Initial Hazard Effect when mitigations such as PPE, administrative controls, and isolation are put in place, e.g. hearing protection mitigates a noise hazard but the initial and residual hazard effect of noise are the same. The Residual Hazard Effect may change from the Initial Hazard Effect when engineering, substitution and elimination mitigations are used, e.g. an initial hazard effect for electrical shock mitigated with a lockout can be eliminated as a residual hazard effect.

- 8.7.1** The team shall work to re-evaluate the hazard assuming that the identified control measures and mitigations are in place by repeating the process of determining the Hazard Effects, Hazard Effect Levels, Probabilities, and Risk Levels.
- 8.7.2** Once the team has reached agreement that the risks are considered to be As Low As Reasonably Practical (ALARP), the Hazard Effect Level, Probability, and Risk Level shall be recorded on the Level 2 HITRA form in the residual risk columns and “Y” for “yes” entered in ALARP column.
- 8.7.3** After the residual risk level for each identified hazard has been recorded, the highest risk level shall determine the minimum level of approval for the Level 2 HITRA based on Figure 3 - Approval Level Matrix.
- 8.7.4** If the Residual Risk Level is in the Very High zone (10 - 12), the risk is unacceptable and the task cannot be performed without the implementation of further, more rigorous risk control measures to reduce the Risk Level to a lower level



Information/Note: When evaluating Residual Risk, consideration should also be given to the possibility of cumulative effects from the interaction of several different hazards.

- 8.7.5** If the team concludes they need additional team members to assist in the HITRA, the task shall be suspended. The HITRA Leader shall then request the participation by a subject matter expert as a team member.
- 8.7.6** As a final check, the team should ask itself the following questions about the proposed task:
 - Was the hierarchy of risk control measures (Section 8.6) followed?

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- Have all necessary risk control measures been identified?
- Is there a need for engineering change to eliminate or reduce risk?
- Is there a need to shutdown the facility in order to perform the work?
- Is the residual risk acceptable?

8.7.7 If the team determines that the residual risks are ALARP for the tasks to be performed, the team members shall sign the Level 2 Risk Assessment form indicating their completion of the Level 2 HITRA.

8.8 Specification of Work Monitoring Requirements


Even though all work is to be monitored by the Performing Authority, if special monitoring over and above the norm is required, the Level 2 HITRA Team shall

- Determine the requirements (if any) for additional monitoring for the execution of the tasks.
- Specify the frequency of additional monitoring, e.g., once per hour or monitoring at specific critical phases or job tasks.
- Document the additional monitoring requirements on the Level 2 HITRA form.

8.9 Approval of Level 2 HITRA

Refer to Figure 3 – Approval Level Matrix in Section 8.5. (Written approval required which can be by signature, fax, email, or electronic signature).

- 8.9.1** If the highest Residual Risk Level is Low, the Leader of the Level 2 HITRA team shall approve the Level 2 HITRA.
- 8.9.2** If the highest Residual Risk Level is Medium, the Leader of the Level 2 HITRA team shall submit the Level 2 Risk Assessment form to the appropriate Terminal Manager or O&M Team Leader for approval.
- 8.9.3** If the highest Residual Risk Level is High, the Leader of the Level 2 HITRA team shall submit the Level 2 Risk Assessment form to the District Operations Manager for approval using proper protocol with the Terminal Manager/O&M Team Leader and District Operations Manager if applicable.
- 8.9.4** If the approver accepts the level of risk, he/she shall approve the Level 2 Risk Assessment in writing to the Leader of the Level 2 HITRA team.
- 8.9.5** If the approver does not accept the level of risk, he/she shall work with the Level 2 HITRA team and other appropriate personnel to either change the tasks or modify equipment to reduce the Residual Risk Level.

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8.9.6 After approval of the Level 2 Risk Assessment, the Leader of the Level 2 HITRA team shall either make the completed Level 2 Risk Assessment form available to the Asset Operator or follow District procedures to file the HITRA for future use.

8.10 Implementation of Control Measures

The AO / AOD shall verify that the identified risk control measures are implemented and communicated to the workforce.

8.11 Workforce Acceptance

The workforce shall sign the PTW form to verify they understand the scope of work, hazards identified and associated control measures.

8.12 Additional Hazards and Changes to HITRA

8.12.1 Additional Hazards Identified

For additional hazards identified after approval, a Level 2 HITRA Leader shall document the hazards on page 3 of the HITRA form in the section titled "Changes and Additional Hazards and/or Risk Control Measures". The additional hazards shall be evaluated and approved in accordance with this procedure.

8.12.2 Changes to Level 2 HITRA

For changes to page 1 or 2 of the HITRA form after approval, a Level 2 HITRA Leader shall document the changes on the form and the changes shall be evaluated and approved in accordance with this procedure. Changes can include additional tasks, control measures, monitoring requirements or general comments identified after the original HITRA was approved.

8.12.3 Approval Signatures

Approval signatures for changes and additions shall be on page 3.


8.13 Use of a Previously Developed Level 2 HITRA

A previously developed Level 2 HITRA that is stored as an electronic file can be printed and used as a template for development of a current up-to-date HITRA. The development and completion of the HITRA shall be in accordance with this procedure (see section 3.9).

8.13.1 Electronic Level 2 HITRAs that are associated with SPs shall be referenced in the SP using the HITRA title and also linked to the electronic file.


8.14 Revision of a Level 2 HITRA

8.14.1 The HITRA Leader shall request a revision to the electronic version of the HITRA to incorporate changes and additions made to the field copy when the changes and additions are expected to be present each time the job is performed.

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8.14.1.1 If changes are not typically expected to be present each time the job is performed, the electronic version of the HITRA does not need to be revised.


End of Procedure

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Appendices

Appendix 1 - Definitions

As Low As Reasonably Practical (ALARP)	Based on the judgment and experience of the Level 2 HITRA Team, the risk is at the lowest level that can be achieved as reasonably practical.
Asset Operator	A BP employee who is responsible for the operation of the asset where work is being performed. The Asset Operator shall be accountable for the asset equipment being in a safe condition for the scope of work to be performed. The Asset Operator or an Asset Operator Designee (if used) is responsible for completing the ATW form and monitoring the work to verify ATW conditions are being met.
Asset Operator Designee	A BP employee or contractor individual who is authorized by the Asset Operator and approved by the DOM to issue the ATW and / or permits on behalf of the Asset Operator.
Credible Hazard	Reasonable and believable A source of potential danger that may lead to injury to people or the environment
Job Site	Within visual proximity of the work being performed.
Level 2 Hazards Identification and Task Risk Assessment (HITRA)	A structured process to identify hazards and specify actions to mitigate these hazards for a permitted work activity or task
Risk	The product of the probability that an identified hazard will occur times the consequences of the occurring hazard
Risk Control Measure	A control is a precautionary measure taken to prevent or reduce risk
Shall	Shall is used where a provision is mandatory.
Should	Should is used where a provision is preferred.
Simultaneous Operations (SIMOPS)	Separate activities including product movement or work tasks that have the potential to impact each other.
Task	An activity that forms part of the work scope – e.g. for the removal of a valve the following tasks may be identified: isolate the valve, verify system is drained and depressurized, remove insulation, break containment, remove the valve.

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USPL


US Pipelines and Logistics

Work scope

The term used to describe the total/overall scope of work activity – e.g. Replace a valve.

Workforce

Any BP employee or contractor who is engaged in performing work on behalf of USPL.

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Appendix 2 - Hazards Identification Guide

This appendix is expanded from the BP Sources of Energy which are:

- Biological
- Body Mechanics
- Chemical
- Electrical
- Gravity
- Mechanical
- Noise
- Pressure
- Radiation
- Thermal

A - Hazards associated with plant and equipment

Category	Type of Harm	Examples of Hazards
Mechanical	Trapping (crushing, pressing, drawing in and shearing injuries)	Two moving parts, or one moving part and a fixed surface Conveyor belt and drive V belt and pulley Power press Guillotine Scissors Stapler Using hammer Hoist, crane
	Impact (includes puncture) / Mobile equipment	Something that may strike or stab someone or can be struck against Moving vehicle, machine, ship, aircraft – including propellers and turbines Drill, lathe Pendulum Crane hook or load
	Contact (Cutting, friction or abrasion)	Something sharp or with a rough surface Knife, chisel, saw Fan blade Circular saw blade Sanding belt Abrasive wheel Hover mower blade
	Entanglement (rotating parts)	Drill chuck and bit Power take-off shaft Pipe threading machine Abrasive wheel
	Ejection (of work piece or part of tool)	Cartridge tool Hammer and chisel

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Category	Type of Harm	Examples of Hazards
		Abrasive wheel Abrasive blasting
Electrical	Shock/burn/fire/ Explosion Ignition sources	Electricity above 50v DC electricity, especially batteries(Hydrogen gas) when charging Static Batteries
Pressure	Release of energy (Explosion/injection/ implosion)	Compressed air Compressed gas Process fluid Steam Vacuum Hydraulic system Hydro Blasting
Stored energy	Flying objects / Electrical / Hydraulic / pneumatic systems	Springs under tension Springs under compression Turbine variable inlet guide vanes Conveyor tension weight Counterweight
Gravity	Struck by Falling objects	Overhead work areas / platforms Work in attics Closet storage Items mounted or stored on ceilings or on walls High rack storage areas (warehouse) Hoist platform cage Load carried by crane Raised tipper lorry body
Thermal	Burns / fires / scalds / frostbite	Hot surface Portable or fixed heater Welding flame/arc Refrigerant Steam Process fluid, heat transfer medium
Radiation Ionizing radiation	Burns, cancer, sunburn, melanoma, skin cancer	X Rays α or β radiation Neutrons Ultra violet Naturally occurring radio active materials (NORM)
Non ionizing radiation	Burns	Micro wave Radio frequency Laser Infra red
Noise	Hearing loss, tinnitus.	Noise > 85 dB(A) continuous Noise > 105 dB impact
Vibration	Vibration white finger, whole body effects	Pneumatic drill Driving mobile plant Using Jackhammer
Stability	Crushing	Inadequate crane base Fork lift truck on slope

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Category	Type of Harm	Examples of Hazards
		Machine not bolted down Mobile scaffold too high Scaffold not tied
Overload/ Defective due to mechanical failure	Crushing	Crane overload Chain sling Eye bolt overload Scaffold overload Hopper overload Structure overload, esp. extreme weather
FIRE/EXPLOSION Combustion	Burns	Timber stack Paper store Grease Plastic foam
Increased Combustion	Burns	Oxygen enrichment
Flammable substances (inc. Highly and Extremely Flammable) See also explosive below	Burns	Petrol, diesel, avgas Crude oil, natural gas LPG LNG Hydrogen Carbon Monoxide
Oxidizing substance	Burns	Organic peroxide, other oxidizing agents Potassium permanganate Nitric acid Commercial explosive Detonators
Gas explosions	Burns, structural failure	Flammable gas or liquid above its flash point in a confined space Similar in a congested area Sudden failure of pressure system containing flammable liquid (BLEVE)
Dust explosions	Burns, structural failure	Wood dust Sulfur dust Coal dust Flour Aluminum powder
HEALTH HAZARDS Corrosive/Irritating materials	Skin, Eyes, Noise and Respiratory track effects	Sulfuric acid, other acids – esp. hydrofluoric Caustic soda, other alkalis Ammonia, chlorine
Sensitizing materials and Particulates	Sensitization, Fibrosis and cancers of the Lungs irritation/injury to eyes.	Asbestos fibers Silica dust Wood dust Iron dust
Vapors	Acute and chronic effects on health	Benzene Toluene Acetone Some solvents
Fumes	Acute and chronic effects on	Lead fume

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Category	Type of Harm	Examples of Hazards
	health (local and systemic effects)	Rubber fume Asphalt fume
Gases	Acute and chronic effects on health and death	Carbon monoxide Hydrogen sulfide Sulfur dioxide
Mists	Acute and chronic effects on health	Oil mist, cutting fluids Printing ink mist Detergents Aerosols
Asphyxiates	Acute and chronic effects on health and death	Nitrogen Carbon monoxide Smoke Argon
Health hazard by ingestion	Burns to upper alimentary tract	Corrosive liquids
	Poisoning	Toxins All harmful aerosols Polluted water Contaminated food and drink
Hazards by contact	Cuts, abrasions	Rough timber Concrete blocks
	Burns, Frostbite Also structural failure	Molten metal Frozen food Cryogenic gases
ENVIRONMENTAL HAZARDS Biological / Hazardous waste storage and disposal	Sewage systems / Groundwater / Soil pollution/bio hazardous waste and sharps/influenza/malaria	Crude/Condensate & product sea & road transportation and storage Storage of hazardous sludge/material in pits NORM waste (scales, sludge) Infectious and non-infectious diseases, parasites
Human Factors/Fatigue	Injuries, illness	Shift work Work patterns Driving Poor ergonomically designed plant Control/Alarm systems Procedures


B - Hazards associated with materials and substances

Category	Type of Harm	Examples of Hazards
FIRE/EXPLOSION Combustion	Burns	Timber stack Paper sore Grease Plastic foam
Increased Combustion	Burns	Oxygen enrichment
Flammable substances (inc. Highly and Extremely Flammable) See also explosive below	Burns	Petrol, diesel, avgas Crude oil, natural gas LPG LNG Hydrogen Carbon Monoxide
Oxidizing substance	Burns	Organic peroxide, other oxidizing agents

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Category	Type of Harm	Examples of Hazards
		Potassium permanganate Nitric acid Commercial explosive Detonators
Gas explosions	Burns, structural failure	Flammable gas or liquid above its flash point in a confined space Similar in a congested area Sudden failure of pressure system containing flammable liquid (BLEVE)
Dust explosions	Burns, structural failure	Wood dust Sulfur dust Coal dust Flour Aluminum powder
HEALTH HAZARDS Corrosive/Irritating materials	Skin, esp. eye, effects Also lung effects	Sulfuric acid, other acids – esp. hydrofluoric Caustic soda, other alkalis Ammonia, chlorine
Particles	Lung effects	Asbestos fibers Silica dust Wood dust Iron dust
Vapors	Acute and chronic effects on health	Benzene Toluene Acetone Some solvents
Fumes	Acute and chronic effects on health (local and systemic effects)	Lead fume Rubber fume Asphalt fume
Gases	Acute and chronic effects on health	Carbon monoxide Hydrogen sulfide Sulfur dioxide
Mists	Acute and chronic effects on health	Oil mist, cutting fluids Printing ink mist Detergents Aerosols
Asphyxiates	Acute and chronic effects on health	Nitrogen Carbon dioxide Argon
Health hazard by ingestion	Burns to upper alimentary tract	Toxic, harmful, corrosive and irritant liquids
	Poisoning	All harmful aerosols Polluted water Contaminated food and drink
Hazards by contact	Cuts, abrasions	Rough timber Concrete blocks
	Burns, Frostbite Also structural failure	Molten metal Frozen food Cryogenic gases
ENVIRONMENTAL HAZARDS Biological / Hazardous waste storage and disposal	Sewage systems / Groundwater / Soil pollution	Crude/Condensate & product sea & road transportation and storage Storage of hazardous sludge/material in pits NORM waste (scales, sludge)


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C - Hazards associated with the place of work

Category	Type of Harm	Examples of Hazards
Pedestrian Access	Tripping, slipping	Damaged floors Trailing cables Oil, grease spills Water on floors Debris Wet grass Sloping surface Uneven steps Changes in floor levels
Pedestrian Access	Vehicle collision	Poorly defined or un-segregated access routes – car parks, loading areas, docks, warehouses.
Work at heights	Falls	Fragile roof Edge of roof Work on ladder Erecting scaffold Hole in floor
Obstructions	Striking against	Low headroom Sharp projections
Stacking/Storing	Falling materials	High stacks Insecure stacks Inadequate or overloaded racking Stacking at heights Damaged racking
Work over/near liquids, dusts.	Fall into a substance, drowning, poisoning, suffocation.	Tank Reservoir Sump Sewer Work over water / containment pits / ponds
Emergencies	Trapping in fire	Locked exits Obstructed egress Long exit route Lone working at height (crane, tower.)

D - Hazards associated with methods of work

Category	Type of Harm	Example of Hazard
Manual Handling	musculoskeletal disorders and injury, (hernia, back	Lifting / Lowering Twisting Climbing Carrying Pushing / Pulling Hot / Cold loads Rough loads Live loads – persons
Repetitive movements	Work related upper limb disorders	Keyboard work Using screwdriver Using hammer and chisel Bricklaying Repetitive and forceful work

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Posture	Work related upper limb disorders, back disorders and injury, deep vein thrombosis.	Seated work Work above head height Work at floor level Awkward and confining postures, constriction of lower limbs and lack of movement
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E - Hazards associated with the working environment

Category	Type of Harm	Example of Hazard
Light (NB: Also increases risk of contact to other hazards)	Eye strain, arc eye and cataracts	Glare, reflections Poor lighting Stroboscopic effect Arc welding Lasers Molten metal UV radiation
Temperature	Heat / hyperthermia, cold / hypothermia stresses	Work in near/above furnace, boiler, or oven Hot weather Heat index Cold room or freezer Outdoor work Cold weather Wind chill factor Work in rain, snow.
Confined spaces	Asphyxiation, explosion, poisoning, claustrophobia.	Work in tank Chimney stack Pit, sewer Basement Unventilated room Vessel Excavation
Pollution/Poor air quality	"Sick Building Syndrome", headache, rhinitis, sore eyes, nausea, tiredness.	Fumes Odors Second hand tobacco smoke
Flora / Vector-Borne and Zoonotic Diseases	Skin irritations / bites	Poison oak / poison ivy Reptiles poisonous and non-poisonous Small and large mammals Insects such as mosquitoes

F - Hazards associated with work organization

Category	Type of Harm	Example of Hazard
All workers	Injuries and ill health to employees by contractors	Work above or near others Use of harmful substances Welding
	Injuries and ill health to contractors' by employees	Process fumes Services (e.g. underground electricity cables) Stored hazardous materials

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Organization of work/management	Stress	Work/demand overload or under-load (and monotonous work) Lack of control over job Lack of support Poor work relationships Lack of role clarity Change
Work in public area	Injuries and ill health of public	Trailing cables Traffic/ Plant / Rig /Ship movement Road transport Work above public Drilling, storage, production near dwelling area



Appendix 3 - Level 2 HITRA Process Map

