



U.S. Department of the Interior
Bureau of Land Management

Module 1 – Lesson 5

Conducting Undesirable Event Inspections





Picture This:
You receive a
call from an
operator
reporting a
200-bbl oil spill
on their lease...

...What do you do next.



LESSON OBJECTIVE

By the end of this lesson each student should be able to...

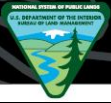
- **Given a notification of an undesirable event, conduct an undesirable event inspection in accordance with the applicable inspection form and regulatory guidance.**



LESSON ROUTE

- **General Knowledge of Undesirable Events**
- **Process for Addressing Undesirable Events**
 - Responding to an Event Notification
 - Entering Undesirable Events into AFMSS
 - Inspecting Undesirable Events
 - Completing a Form 3160-UE
 - Sampling, Remediation, & Reclamation





TOPIC 1: General Knowledge of Undesirable Events



Topic 1: General Knowledge of Undesirable Events

What are examples of reportable undesirable events?

- **Spills** (oil, produced water, toxic liquid, etc.)
- **Venting** (resulting from equipment failures)
- **Fire**
- **Blowout** (loss of control of any well)
- **Accident involving a fatality**





Topic 1: General Knowledge of Undesirable Events

Which regulation requires operators to report undesirable events to the BLM?

- NTL-3A

How does NTL-3A categorize undesirable events?

- Major Undesirable Events
- Other-Than Major Undesirable Events



Major Undesirable Events (NTL-3A)

- **Oil/Saltwater/Toxic* Liquid spills**
 - **≥100 barrels**
- **Venting resulting from equipment failures**
 - **≥500 MCF of gas**
- **Fire consuming the volumes above**
- **Any spill, vent, or fire within sensitive area**
 - **e.g., parks, recreation sites, wildlife refuges, lakes, streams, urban or suburban areas**
- **Accident involving a fatal injury**
- **Every well blowout**



**Liquids found on the NIOSH Pocket Guide to Chemical Hazards*



Other-Than-Major Undesirable Events (NTL-3A)

- **Oil/Saltwater/Toxic Liquid spills**
 - **≥ 10 barrels and < 100 barrels**
 - **≥ 100 barrels entirely within facility firewall**
- **Venting resulting from equipment failures**
 - **≥ 50 MCF and < 500 MCF of gas**
- **Fire consuming the volumes above**
- **Accident involving a major or life-threatening injury**





Topic 1: General Knowledge of Undesirable Events

Who does the operator notify of an undesirable event?



BLM – If event meets criteria in NTL-3A



EPA – If oil spill reaches (or has potential to reach) jurisdictional waters



BIA/Tribe – If event occurs on tribal trust land



State O&G Department – Each state has specific reporting requirements

EMERGENCIES



Report oil or
chemical spills at:
800-424-8802

[Learn more >](#)



Topic 1: General Knowledge of Undesirable Events

When is the lease operator supposed to report a **Major** undesirable event to the BLM field office?

Initial Notification:

- **Within 24 Hours**

1st Written Report:

- **Within 15 Days**

Interim Written Reports:

- **As Appropriate**

Final Written Report:

- **Once final containment and cleanup operations have been accomplished**





Topic 1: General Knowledge of Undesirable Events

When is the lease operator supposed to report an **Other-Than-Major** undesirable event to the BLM field office?

Initial Notification:

- **Within 15 Days**

1st Written Report:

- **Within 15 Days**

Interim Written Reports:

- **As Appropriate**

Final Written Report:

- **Once final containment and cleanup operations have been accomplished**





Topic 1: General Knowledge of Undesirable Events

Are operators required to report to the surface inspector any spills or discharges less than 10 bbl or 50 MCF in non-sensitive areas?

- No

“All volumes of oil spilled, gas vented, and all hydrocarbons consumed by fire or otherwise lost must be reported monthly on the Monthly Report of Operations (Form 9-329). The volume and value of such losses must also be reported in the Monthly Report of Sales and Royalty (Form 9-361).”

-NTL-3A, Section V



Topic 1: General Knowledge of Undesirable Events

Which regulation requires lease operators to control and clean-up any type/level of contaminant spill?

- **43 CFR 3162.5-1(c)**

“...The operator shall exercise due diligence in taking necessary measures, subject to approval by the authorized officer, to control and remove pollutants and to extinguish fires...”



What is the surface inspector's responsibility for notifying the national office and state office of MUE's?

WO-IM-2019-020

“All Field Offices (FO) must submit an Initial Notification Report for all Major Undesirable Events (MUE) that occur on federally managed lands to the appropriate Headquarters Office (HQ) and State Office (SO) personnel as soon as practical, but no later than 24 hours after either the Bureau of Land Management (BLM) discovers the MUE or the operator or public notifies the BLM about the MUE.”



Topic 1: General Knowledge of Undesirable Events

Who is responsible for conducting an undesirable event inspection?

- **O&G Surface Inspector (typically)**
 - **On-lease or on-unit event**
- **Realty Specialist (typically)**
 - **Off-lease event**
 - **Event involving a ROW**

(Note: Events that occur off a lease and/or off a ROW are typically handled as a lands and realty “trespass” action.)



Topic 1: General Knowledge of Undesirable Events

When is an undesirable event inspection required?

- **All major spills, fires, accidents, and fatalities must be inspected***
-I&E Handbook H-3160-5, Section II(E)

***Note: Also includes MUE's on Fee/Fee/Fed situations to check avoidable vs. unavoidable.**





Topic 1: General Knowledge of Undesirable Events

What differentiates an undesirable event inspection from other types of compliance inspections?

- **Not required under I&E Strategy Goals, but they are included in the Inspection Matrix**
-I&E Handbook H-3160-5, Section II(E)
- **Unscheduled - An unplanned event triggers an inspection**
- **Sometimes involves an emergency**



Topic 1: General Knowledge of Undesirable Events

What is the purpose and importance of an undesirable event inspection?

- **To evaluate the undesirable event**
- **To evaluate any environmental damage**
- **To determine if sensitive resources were impacted**
- **To ensure appropriate public safety and environmental protections are implemented**
- **To ensure operator is implementing appropriate clean-up operations**





Topic 1: General Knowledge of Undesirable Events

What are the surface inspector's responsibilities in the occurrence of an undesirable event?

- **Ensure the operator has controlled the event or is attempting to control event**
- **Ensure general public health and safety protections have been implemented**
- **Ensure environmental protection measures have been implemented**
- **Ensure the operator has provided information compliant with NTL-3A**
- **Ensure appropriate remediation actions are taking place in a timely manner**



What regulations/guidance applies to undesirable event inspections?

- **NTL-3A (Reporting of Undesirable Events)**
- **H-3160-5 (BLM I&E Handbook)**
- **WO IM-2019-020 (Reporting MUE's to WO)**
- **WO IM-1999-061 (Bioremediation)**
- **2007 BLM-USFS Gold Book (pp 39-40)**
- **43 CFR 3162.5-1(c)**
- **43 CFR 3179.4 (avoidable vs. unavoidable)**

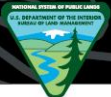


Topic 1: General Knowledge of Undesirable Events

Common mistakes surface inspectors make when conducting undesirable event inspections:

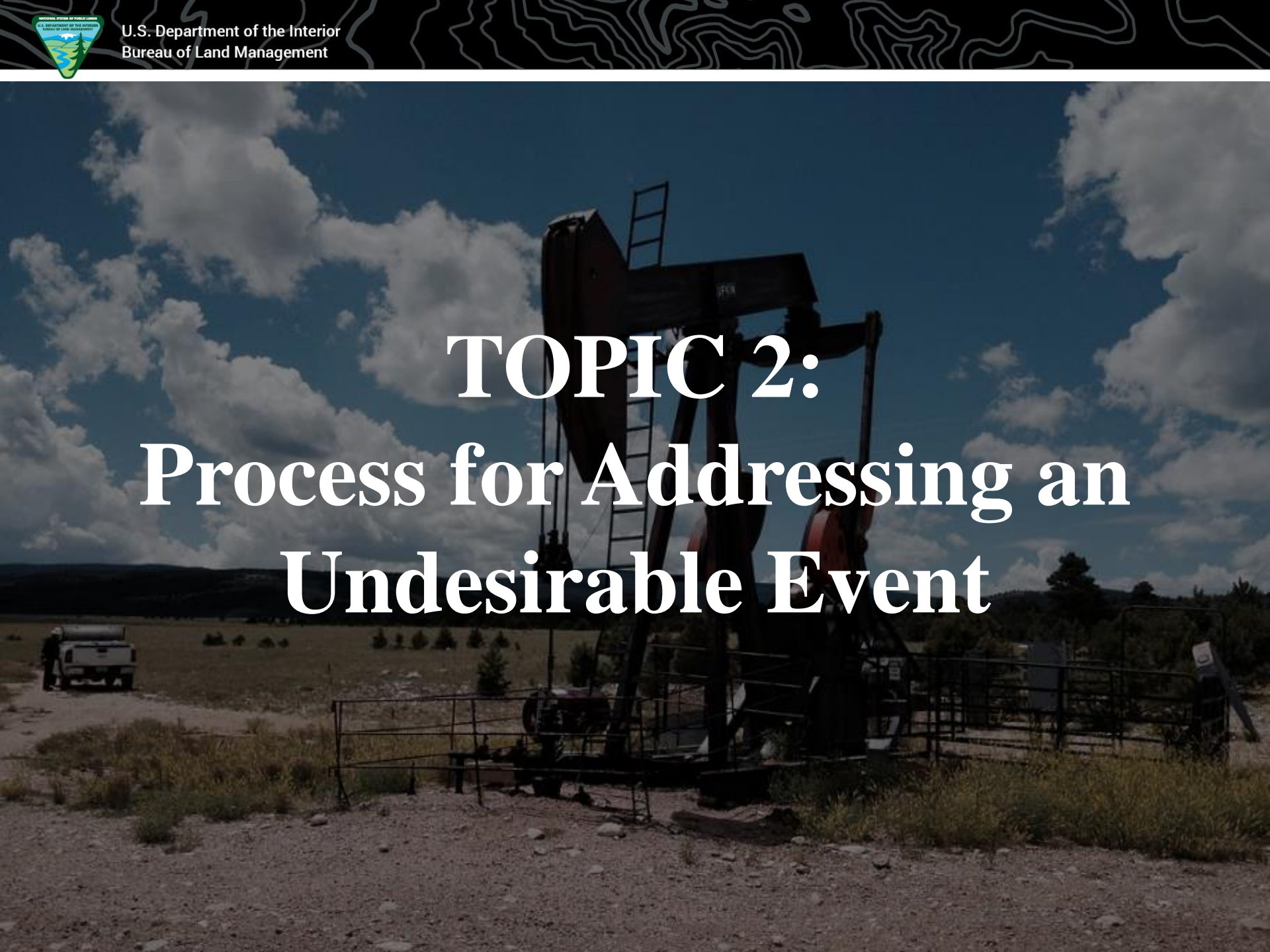
- **Not verifying compliance with NTL-3A**
 - Ensure all components of NTL-3A are complied with
- **Determining the barrels of spilled fluids**
 - Operator is required to report this; Inspector verifies if it is a reasonable calculation
 - Inspector should ask how operator calculated the amount
- **Coming in contact with contaminated soils**
 - i.e., picking up stained soil to smell fumes





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TOPIC 2: Process for Addressing an Undesirable Event





At 2:00 p.m., the phone rings at your desk.

It's an operator informing you that they have a wellhead releasing wellbore fluids uncontrollably into a dry wash that leads directly to a river. They are taking measures to control the event. You take a minute to grasp the gravity of the situation...

What are the steps to conducting inspections for undesirable events?



Topic 2: Conducting an Undesirable Event Inspection

The following steps should be performed when addressing undesirable events:

- Step 1 • Respond to an Undesirable Event Notification
- Step 2 • Record Undesirable Event Information
- Step 3 • Locate Undesirable Event
- Step 4 • Confirm Location Before and Upon Arrival
- Step 5 • Assess Safety of the Inspection Environment Upon Arrival
- Step 6 • Complete Form 3160-UE and Verify Event Report
- Step 7 • Take Photographs
- Step 8 • If a Spill, Work with Operator to Develop Sampling, Remediation, and Reclamation Plan



Topic 2: Conducting an Undesirable Event Inspection

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Topic 2: Conducting an Undesirable Event Inspection

Step 1: Respond to Undesirable Event Notification

What are different ways a surface inspector could be notified of an undesirable event?



*In future, operators could notify BLM through AFMSS 2



Topic 2: Conducting an Undesirable Event Inspection

Step 1: Respond to Undesirable Event Notification

What is the purpose and importance to responding to the initial undesirable event notification?

- **Ensure you have all the necessary information to perform an undesirable event inspection.**
- **Informing the operator of the designated BLM point-of-contact.**
- **Determine if the event is within BLM's jurisdiction or if NTL-3A applies.**



Step 1: Respond to Undesirable Event Notification

How does the surface inspector determine if the event is BLM jurisdiction?

- **Compare event location to land ownership data**
- **Use ArcGIS or other BLM maps**

How does the surface inspector determine if the operator must follow NTL-3A reporting requirement?

- **If event is on lease or within a unit**
- **Meets criteria in NTL-3A**



Step 1: Respond to Undesirable Event Notification

If the event occurred on BLM-managed land, but off-lease, what does the inspector do?

- **Coordinate with the realty specialist and hazmat coordinator**
- **Determine who will lead the project**
 - If spill occurred from a ROW, the realty specialist may be the event project lead
 - If event occurred outside of a ROW, the event may be handled as a trespass
- **NTL-3A requirements do not apply for off-lease undesirable events**



Topic 2: Conducting an Undesirable Event Inspection

Step 1: Respond to Undesirable Event Notification

What are good questions to ask the operator after/during the initial notification, but before performing the undesirable event inspection?

- **Where is the event located?**
- **What is the operator's name and number?**
- **Has the spill source been controlled?**
- **Does the operator know the cause of the event?**
- **Have any liquids been recovered?**
- **Did the spill leave the pad; how far off pad?**
- **Did the spill reach any water bodies or can it?**
- **Is there dangers in the field I should be aware of?**
- **What is the initial plan of action?**
- **Have other agencies been contacted?**
- **Ask questions related to information from NTL-3A.**



Topic 2: Conducting an Undesirable Event Inspection

Step 1: Respond to Undesirable Event Notification

In the initial 24-hour notification for a major undesirable event, is the operator required to provide BLM with all the information listed out in NTL-3A?

- **No - but we need the location, what has occurred, and other pertinent information to conduct an inspection.**

In the written report due on the 15th day following a reportable undesirable event, is the operator required to provide the BLM with all the information listed out in NTL-3A?

- **No - some information may not be known (e.g., clean-up).**
- **Use common sense and reasonableness.**



Topic 2: Conducting an Undesirable Event Inspection

Step 1: Respond to Undesirable Event Notification

Which report should contain all the information required by NTL-3A?

➤ **Final Written Report**

When is the final written report required to be submitted to the BLM?

➤ **Once containment and clean-up is finished**





Topic 2: Conducting an Undesirable Event Inspection

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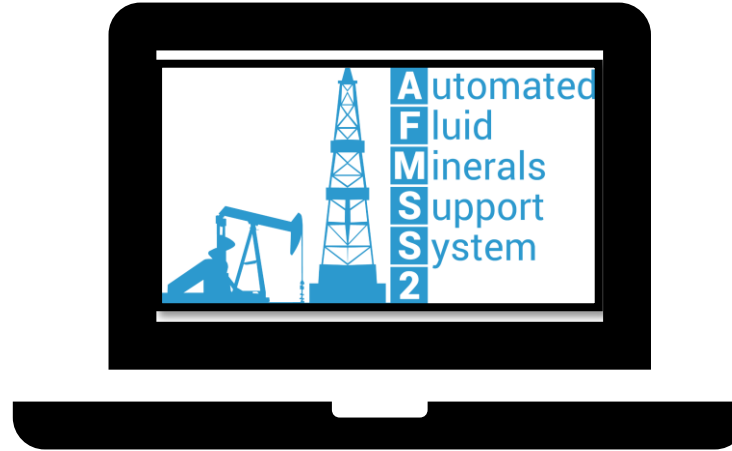


Topic 2: Conducting an Undesirable Event Inspection

Step 2: Enter Undesirable Event Information into AFMSS

Where does the surface inspector record the undesirable event information electronically?

➤ **AFMSS 2**



When does the surface inspector stop inputting event information into AFMSS 2?

- **After final written report is submitted and event is closed**



Topic 2: Conducting an Undesirable Event Inspection

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Topic 2: Conducting an Undesirable Event Inspection

Step 3: Locate Undesirable Event

What location information does the inspector need to locate the undesirable event?

Event on Well Site

- **Well Name**
- **Well Location**
- **API Number**

Event off Well Site

- **GPS Coordinates**
- **Directions**
- **Map**



Topic 2: Conducting an Undesirable Event Inspection

Step 3: Locate Undesirable Event

When given an event location, what should you verify?

- **On-Lease or On-Unit Event**
 - **Is it Split-Estate or Public Land**
 - **Events don't always occur at a well site**
- **Off-Lease Event**

Fee/Fee/Fed	Operators are required to report, and BLM may need to verify loss of product due to undesirable event.
Within Right-of-Way	Realty Specialist may be responsible for inspection (NTL-3A does not apply)
Outside Right-of-Way	Trespass situation (NTL-3A does not apply)



Topic 2: Conducting an Undesirable Event Inspection

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Topic 2: Conducting an Undesirable Event Inspection

Step 4: Confirm Location Before and Upon Arrival

If the event occurred at a well site, how can the inspector verify they are at the correct location?

➤ **Verify well sign**



If the event occurred off a well site, how can the inspector verify they are at the correct location?

➤ **Verify directions, coordinates, and/or maps**



Topic 2: Conducting an Undesirable Event Inspection

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Topic 1: General Knowledge of Undesirable Events

Step 5: Assess Safety of the Inspection Environment Upon Arrival

What are potential hazards with an undesirable event?

- **Irritation of the skin with contact.**
- **Inhalation of oil droplets/oily particles put into the air during clean-up operations can be irritating to the eyes, nose, throat, and lungs.**
- **Inhalation of toxic volatile hydrocarbon components, such as benzene.**
 - **Evaporation that occurs during the first 24 to 48 hours after the spill greatly reduces inhalation hazards from the toxic volatile components.**
- **Potential H₂S hazard**
- **Heavy equipment and emergency vehicles**



**When in doubt about the safety
of an activity, stop what you are doing!**



Be sure you are safe before continuing.



Topic 2: Conducting an Undesirable Event Inspection

Step 5: Assess Safety of the Inspection Environment Upon Arrival

Do you see, hear, or smell any hazards?

- Talk to the site manager about hazards.
- Are there H₂S signs or warnings?
- Are there open excavations?
- Is there a flammable or toxic hazard?
- Stay upwind of contaminants.

Are there construction equipment in operation?

- Ensure equipment operators know you are present.

Ensure you have the proper PPE.



Topic 2: Conducting an Undesirable Event Inspection

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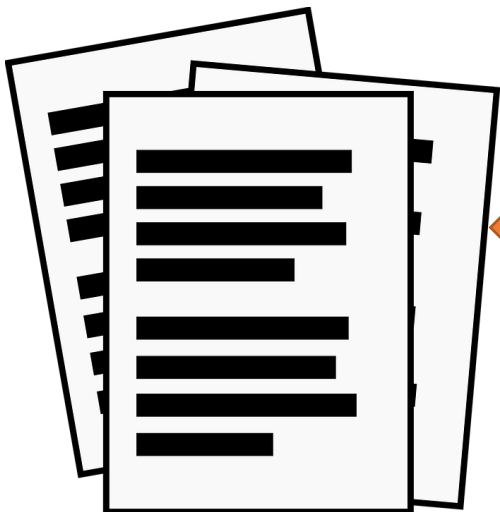


Topic 2: Conducting an Undesirable Event Inspection

Step 6: Complete Form 3160-UE and Verify Event Report

Verify the operator's event report to the event in the field.

Operator's Event Report





Topic 2: Conducting an Undesirable Event Inspection

Step 6: Complete Form 3160-UE and Verify Event Report

During your NU inspection, what are you assessing?



- **Size/Area of event**
 - *GPS the spill perimeter or path*
- **Type of area impacted**
 - *Ephemeral drainage*
 - *T&E species habitat*
- **Type of impact**
 - *Oil coating plants and saturating soil*
- **Will other agencies need to be contacted?**
 - *USACE, EPA, BIA, etc.*
- **Will archeology or wildlife surveys be needed for clean-up in non-emergencies?**



Topic 2: Conducting an Undesirable Event Inspection

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Topic 2: Conducting an Undesirable Event Inspection

Step 7: Take Photographs

Tips for taking photographs:

- **Take enough photos** (*you can delete later*)
- **Include reference points in photos**
 - Landmarks
 - Equipment
- **Use objects for scale**
 - Ruler
 - Hat
 - Production Equipment
- **Have adequate descriptions for each photo**



Topic 2: Conducting an Undesirable Event Inspection

Step 7: Take Photographs

EXAMPLE PHOTO:



Photo 5: Potential leak discovered on west side of 400-bbl storage tank; Saturated soil extending 3.5 feet west of tank; Notebook is 12" long



Topic 2: Conducting an Undesirable Event Inspection

Step 7: Take Photographs

EXAMPLE PHOTO:





Topic 2: Conducting an Undesirable Event Inspection

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Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

When should the BLM require sampling?

- To delineate a spill
 - Horizontal extent
 - Linear spills
 - (e.g., *Spills down an ephemeral drainage*)
 - Vertical extent
 - Prolonged saturation in the soil
 - (e.g., *Tank leak*)
- To confirm contaminants were removed/remediated
 - (e.g., *For an oil spill, operator could remove the visible contaminants first, then take confirmation soil samples to verify contaminant removal*)
- To determine if clean-up is necessary
 - Some produced water in areas is not too saline



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

How do hydrocarbons impact soil and plants?

- Impacts soil structure by coating soil aggregates
- Impacts soil water holding capacity
- Reduces water infiltration
- Obstructs air and water movement in soil matrix
- Reduces ion exchange on soil aggregates
- Direct toxicity to plants

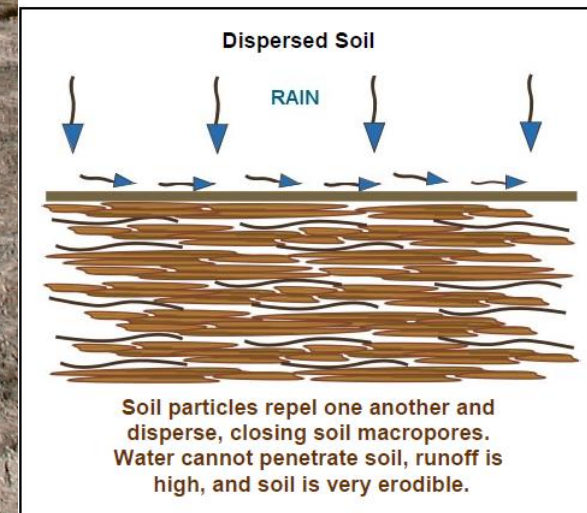
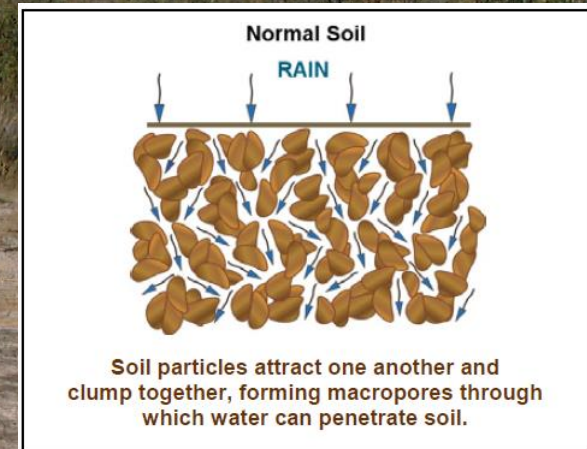


Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

How do salts (from produced water) impact soil and plants?

- Soil particle dispersion
 - Loss of soil structure
 - Reduced nutrient transfer
 - Reduced water and air movement
 - Reduced bioactivity
 - Increased water run-off and erosion
- Chloride toxicity (kills plants)
- Osmotic potential reduces the plant's ability to up-take water
- Ionic balance of the soil solution is impacted
 - Reduces nutrient absorption





Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

What clean-up standards do the BLM use?

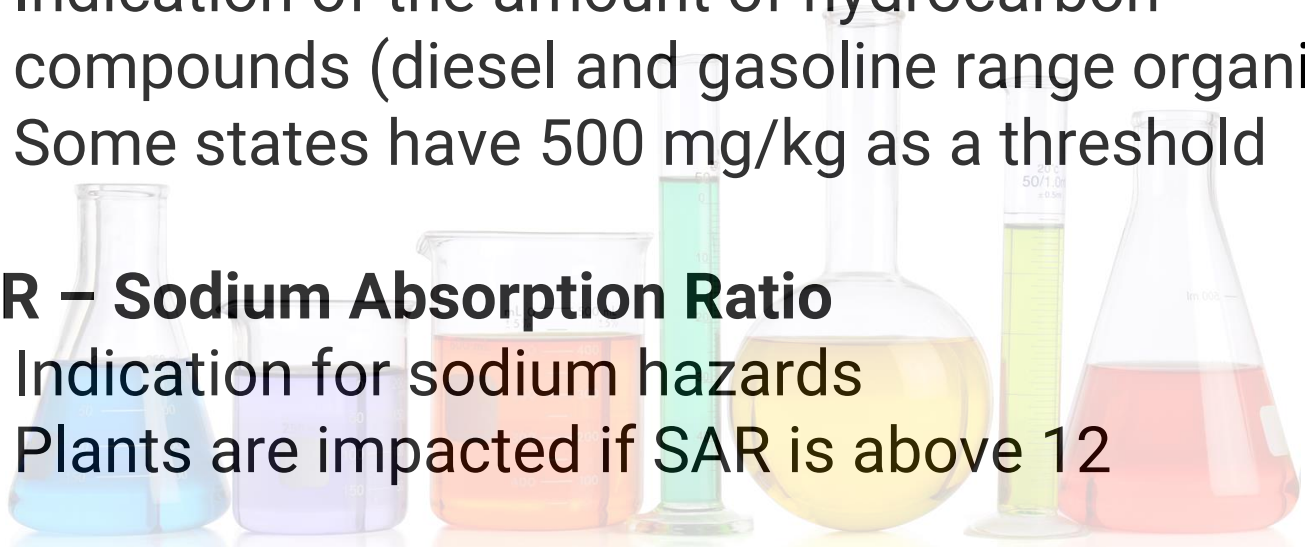
- BLM typically relies on EPA standards, which is typically delegated to states or tribes.
 - Provides thresholds for concentration levels of contaminants
 - Usually have both water and soil standards
 - Standards typically include:
 - TPH (total petroleum hydrocarbons)
 - SAR (sodium absorption ratio)
 - EC (electrical conductivity)
 - pH
 - BTEX (benzene, toluene, ethylbenzene, xylenes)
 - and more...



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

Common to Sample for:

- 
- A collection of laboratory glassware including beakers, flasks, and a graduated cylinder, each containing a different colored liquid (blue, purple, orange, green, yellow, light green, pink).
- **TPH – Total Petroleum Hydrocarbons**
 - Indication of the amount of hydrocarbon compounds (diesel and gasoline range organics)
 - Some states have 500 mg/kg as a threshold
 - **SAR – Sodium Absorption Ratio**
 - Indication for sodium hazards
 - Plants are impacted if SAR is above 12
 - **EC – Electrical Conductivity/Specific Conductance**
 - Amount of inorganic ions dissolved in water
 - Plants are impacted if EC is above 4 mmhos/cm



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

Common to Sample for:

- **Background Sample**
 - Comparison purposes

Example:

- Some native soils are naturally saline
- Some native soils may have naturally high heavy metals



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

What is the purpose and importance of a sampling plan?

- **The plan clarifies expectations**
- **Helps guide clean-up efforts**

When is a sampling plan needed?

- **Large spills – detailed sampling plan likely needed**
- **Small spills – provide operator with sampling expectations**

How is a sampling plan submitted to BLM?

- **Sundry Notice – Notice of Intent**
 - Plan can include remediation plan



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

What information is expected in the sampling plan?

- **Amount of samples**
- **Location of samples**
 - *Vertical and/or horizontal delineation*
 - *Operator should provide map of sample locations*
 - *Background samples are recommended (comparison)*
- **Type of samples**
 - *Composite vs. Discrete*
- **Who will collect samples**
 - *Operator vs. 3rd Party Contractor*
 - *If operators collects – ensure proper procedures occur*
- **What will be analyzed**
 - *e.g., TPH, EC, SAR, BTEX, etc.*
- **What are the thresholds that would require clean-up**
- **Operator needs to clarify what actions will occur if thresholds are exceeded**
 - *Additional remediation and confirmation sampling*



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

Sample Collection

- **If BLM is witnessing soil sample collection, the samples should be:**
 - **Collected in clean containers (or bags)**
 - *TPH samples need to be in glass jars with no head-space*
 - *Operators can acquire containers from the lab*
 - **Free of large debris (i.e., rocks, twigs, etc.)**
 - **Clean with no cross contamination**
 - *e.g., sample soil that has not touched tools like shovels, trowels, etc.*
 - **Mixed thoroughly (for composite samples)**
 - **Clearly labeled**
 - **Stored in a cooler for transport**

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Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

How should sample results be submitted to the inspector?

➤ Sundry Notice

How should sample results be presented in the Sundry?

➤ Lab Report

- **Avoid accepting a summary report of the results, unless it accompanies the full lab report**





Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

Reviewing Sample Results

- **Ensure all agreed-upon constituents were analyzed**
- **Compare results to the standards**
 - You may need to convert units for comparison
 - Example: Lab may present results in umhos/cm (micrometer), but the state standards are in mmhos/cm (millimeter)
- **Ensure samples were received by the lab appropriately**
 - Proper containers used
 - Proper transport of samples (in cooler)
- **Review chain of custody**
- **Review the sample location map and photos**



Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

Why is a Remediation Plan important?

- **Sets the expectations for the event clean-up**

Remediation Plans

- **Plan should be submitted via Sundry Notice - NOI**
- **Plan should include:**
 - Schedule, disturbance areas, staging areas, etc.
 - Confirmation sampling plan
- **Removal vs. Onsite Remediation (*WO-IM-1999-061*)**
 - Site specific determination
 - Removal may occur before first sampling
- **Plan should include reclamation efforts**
 - Backfilling, seeding, monitoring, etc.




Topic 2: Conducting an Undesirable Event Inspection

Step 8: Work with Operator to Develop Sampling, Remediation, and Reclamation Plan

When should the surface inspector be present during implementation of these plans?

- **Surface Inspectors are encouraged to be present during these phases of remediation*:**
 - sampling
 - excavation
 - clean-up
 - reclamation efforts
- **Re-inspect site during reclamation stage**



*unless situation/environment exceeds parameters for safety protocols



Topic 2: Conducting an Undesirable Event Inspection

We covered the following steps when addressing undesirable events:

- Step 1** • Respond to an Undesirable Event Notification
- Step 2** • Record Undesirable Event Information
- Step 3** • Locate Undesirable Event
- Step 4** • Confirm Location Before and Upon Arrival
- Step 5** • Assess Safety of the Inspection Environment Upon Arrival
- Step 6** • Complete Form 3160-UE and Verify Event Report
- Step 7** • Take Photographs
- Step 8** • If a Spill, Work with Operator to Develop Sampling, Remediation, and Reclamation Plan



CONCLUSION



LESSON OBJECTIVE

Each student should be able to...

- **Given a notification of an undesirable event, conduct an undesirable event inspection in accordance with the applicable inspection form and regulatory guidance.**



BLM Mission:

To sustain the health, diversity, and productivity
of the public lands for the use and enjoyment
of present and future generations.

It's our duty.



U.S. Department of the Interior
Bureau of Land Management

Module 1 – Lesson 5

Conducting Undesirable Event Inspections

A photograph showing a large, green, cylindrical water tank in a dry, arid landscape. A significant amount of dark, muddy water has spilled from the base of the tank onto the surrounding reddish-brown soil. A person wearing a red hard hat is visible near the tank. A green metal barrel is also present near the spill. The background shows a hilly area with sparse green vegetation under a clear sky.

END