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

Module 1 – Lesson 4
Conducting Environmental/Surface Inspections

Lesson Objective

By the end of this lesson, you should be able to…

- Given a lease well or facility, conduct an environmental/surface inspection activity (*i.e., construction, drilling, interim reclamation, production, and abandonment*) in accordance with BLM policy and regulatory guidance.

Lesson Route

To meet our objective, we will cover the following:

1. General Knowledge of Environmental/Surface Inspections
2. Safety Protocols for Environmental/Surface Inspections
3. Process for Environmental/Surface Inspection Activities:

- Surface Construction
- Surface Drilling
- Interim Reclamation
- Surface Production
- Surface Abandonment

Topic 1

General Knowledge of Environmental/Surface Inspections

General Knowledge of Environmental/Surface Inspections

What is the purpose and importance of oil and gas surface compliance inspections?

- **To ensure the operator is conducting lease operations in a manner which protects the mineral resources, other natural resources, and environmental quality (*43 CFR 3162.5-1(a)*)**

- **To ensure operations comply with BLM-approved APDs and/or Sundry Notices**

General Knowledge of Environmental/Surface Inspections

Where does an inspector get their authority to conduct compliance inspections?

- **43 CFR 3161.3(a)**
  "The authorized officer shall establish procedures to ensure that each federal and Indian lease site which is producing or is expected to produce significant quantities of oil or gas in any year or which has a history of noncompliance with applicable provisions of law or regulations, lease terms, orders or directives shall be inspected at least once annually."

General Knowledge of Environmental/Surface Inspections

What are the responsibilities of the BLM?

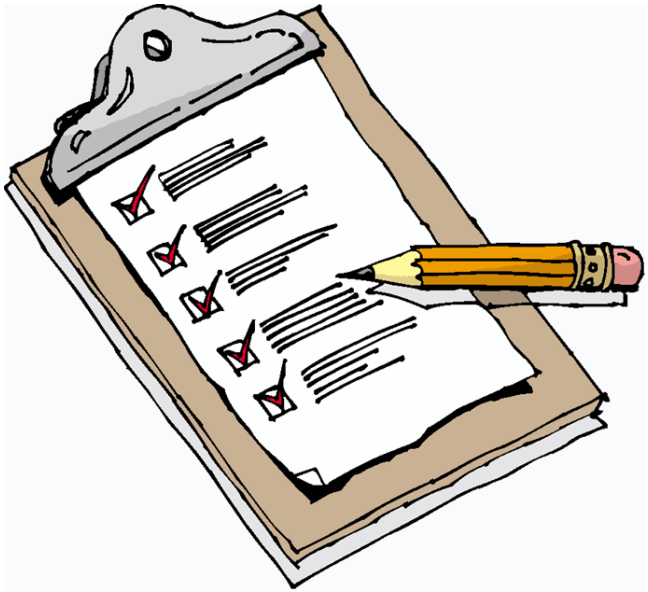
- **43 CFR 3161.2 - The authorized officer is authorized and directed to…**
  - Monitor operator proposals for drilling, development, or production of oil and gas;
  - Inspect and regulate the operations that are subject to the regulations in 43 CFR 3160;
  - Require compliance with lease terms, with the regulations in Title 43, and all other applicable regulations promulgated under the cited laws;
  - Require that all operations be conducted in a manner which:
    - Protects other natural resources,
    - Protects the environmental quality,
    - Protects life and property, and
    - Results in the maximum ultimate recovery of oil and gas with minimum waste and with minimum adverse effect on the ultimate recovery of other mineral resources.

General Knowledge of Environmental/Surface Inspections

What type of compliance inspections do oil and gas surface inspectors conduct?

- **Environmental/Surface Inspections**
  - **Surface Construction (SC)**
  - **Surface Drilling (SD)**
  - **Interim Reclamation (IR)**
  - **Surface Production (SP)**
  - **Surface Abandonment (SA)**
  - **Well Status (WS)**
  - **Health and Safety (HS)**

- **Undesirable Event Inspections***



Undesirable Event Inspections will be covered in the next lesson.

General Knowledge of Environmental/Surface Inspections

What are common mistakes that inspectors make with performing environmental/surface inspections?

- **Failing to navigate to target well locations**
- **Failing to conduct action research**
  - Lack of knowledge of lease stipulations, SUPO, COAs, sundries, etc.
- **Lack of thorough documentation**
- **Forget charging camera, GPS, or other devices**
- **Not spreading inspections throughout the year**
- **GAO audits:**
  - Using inconsistent old forms
  - Not showing if lease operations comply with the permit and COAs

Topic 2

Safety Protocols for Environmental/Surface Inspections

Safety Protocols for Environmental/Surface Inspections

What are safety protocols?

- **Procedures set in place to prevent loss of life and harm to people and minimize damage to property, operations, or the environment.**

- **Each BLM employee and supervisor must complete risk assessments and risk management worksheets for their position (H-1112-1).**

Safety Protocols for Environmental/Surface Inspections

What is the purpose and importance of safety protocols?

- **Reducing personal injuries, equipment damage, and tort claim costs, while maintaining or increasing the efficiency of BLM operations.**

Safety Protocols for Environmental/Surface Inspections

What are the BLM's responsibilities for safety protocols?

- **Providing workplaces, facilities, sites, and operations free from recognized physical or environmental conditions that are causing, or that have the potential to cause, harm to people or property.**
- **Complying with the OSHA standards applicable to the agency.**
- **Developing, implementing, and evaluating the safety and occupational health program in accordance with the requirements of Section 19 of the Occupational Safety and Health Act of 1970 (as amended), Executive Order 12196, and the basic program elements prescribed in H-1112-1.**
- **Acquiring, maintaining, and requiring the use of approved PPE, approved safety equipment, and other devices necessary to protect employees.**

Safety Protocols for Environmental/Surface Inspections

What are your supervisor's responsibilities for safety protocols?

- **Furnishing employees with places and conditions of employment free from recognized hazards that are causing or are likely to cause death or serious physical harm.**

- **Complete risk assessments with individual employees to evaluate hazards and control measures.**
  - **Risk Management Worksheets**

Safety Protocols for Environmental/Surface Inspections

What are employee responsibilities for safety protocols?

- **Employees must comply with the standards, rules, regulations, and orders issued by their agency in accordance with Section 19 of the Occupational Safety and Health Act and Executive Order 12196, where applicable to actions and conduct.**
- **Employees must use safety equipment, PPE, and other devices and procedures provided or directed by the agency and necessary for their protection.**
- **Employees have the right to report unsafe and unhealthful working conditions to appropriate officials without fear of reprisal.**
- **Annually review risk assessments and implement control measures within the Risk Management Worksheet.**

Safety Protocols for Environmental/Surface Inspections

What are common safety protocols for oil and gas surface inspectors?

- **Oil and Gas Operations**
  - No person shall work at an oil and gas site with known toxic/explosive gas concentrations without authorization, appropriate training, and PPE.
  - Oil and gas operators and service companies routinely conduct safety meetings at work sites and BLM employees should try to attend.

- **Confined Spaces**
  - Employees must not enter confined spaces unless they are authorized and have been trained to do so.
  - Examples: meter houses, production buildings, etc.

- **H2S Environments**
  - Employees who work in an H2S environment must follow standard safety practices to protect themselves against potential H2S hazards and exposures.
  - Safe work practices include:
    - Use of H2S detection devices (gas monitors)
    - Carrying escape packs
    - Completing annual H2S training
  - Leave the area if concentration of H2S is 10 ppm or greater

- **Flammable/Explosive Gas Environments**
  - Leave the work area immediately if the concentration of explosive/flammable gases equals or exceeds 10% of the Lower Explosive Level (LEL).

- **Toxic Fluids**
  - Avoid contact with toxic fluids or hazardous materials

Safety Protocols for Environmental/Surface Inspections

What guidance materials apply to safety protocols?

- 43 CFR 3162.5-3 Safety Precautions
- H-1112-1 Safety and Health Management Handbook
- H-1703-3 Natural Resource Damage Assessment and Resource Restoration
- WO IB 2013-099: Oil and Gas Operations – Safety for Field Specialists
- WO IM 2012-029: Policy for Wearing of Flame-Resistant Clothing in Oil and Gas Operations
- Risk Management Worksheets
  - Supervisor and the employee shall work together to develop a risk assessment that identifies job hazards and proper abatement procedures (H-1112-1).

Topic 3

Process for Environmental/Surface Inspections

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections

The steps to conduct inspections apply to the following environmental/surface inspection activities:

- Surface Construction (SC)
- Surface Drilling (SD)
- Interim Reclamation (IR)
- Surface Production (SP)
- Surface Abandonment (SA)

Process for Environmental/Surface Inspections

Conducting Surface Construction Inspections (ES-SC)

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SC)

Step 1

- **Locate Well Site**

How does an inspector know a well site is being constructed?

- Typically, field offices require the operator to notify the BLM several days prior to construction (*must be an APD COA*)

- If notification is not required by an APD COA, the inspector can:
  - Query wells in AFMSS with a status of “LOC”
  - Include a COA to notify inspector prior to construction on future APDs

Process for Environmental/Surface Inspections (ES-SC)

Step 1

- **Locate Well Site**

When should the inspector perform the ES-SC inspection?

During Construction Activities

- Ideal, since potential issues can be addressed on the spot
- **Example**: During topsoil salvaging, the inspector can remind the operator how much topsoil must be salvaged according to the APD.

Prior to Spudding

- Could be a follow-up ES-SC inspection to verify finished product, if first ES-SC inspection was conducted in the middle of construction activities
- See current Appendix 1 for H-3160-5

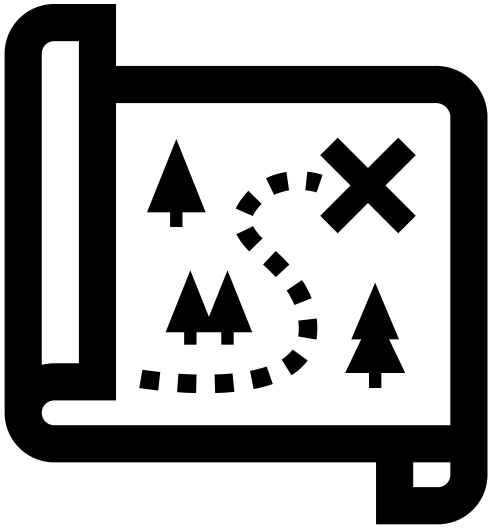
Process for Environmental/Surface Inspections (ES-SC)

Step 1

- **Locate Well Site**

What should the inspector do prior to traveling to conduct the inspection?

- Conduct action research
- Determine location of the construction activities
  - Use ArcMap, Google Earth, APD diagrams/maps, etc.
- Print necessary maps
- Collect proper PPE, supplies, and equipment
- Initiate proper check-out procedures (*e.g., in-out board*)



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SC)

Step 2

- **Confirm Location**

When an inspector arrives at a well site, how does the inspector confirm they are at the correct location?

- Compare:

Maps/Coordinates

APD Information

- Typically, well sites under construction do not have a well sign to verify.
- Check operator copy of APD, if COA required it to be onsite during construction.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SC)

Step 3

- **Consider Safety Protocols**

What are some examples of hazards that could be present during construction activities?

- **Heavy equipment operation (e.g., bulldozers, excavators, etc.)**
  - Inform the construction manager of your presence
  - Operator may require a reflective vest
- **Open excavations (e.g., well cellar, pipeline trench, etc.)**
  - Stay out of the excavations (confined space)
  - Stay back from the edge of excavations (collapse hazard)
- **Unstable soil and rock material**
- **Steep cut/fill slopes**

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SC)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What do surface inspectors verify during the inspection activity?

- **Dimensions and Location of Disturbance Areas**
  - Measure disturbance limits
  - Verify disturbance limits with APD or Sundry Notice
  - Verify location of topsoil stockpile
- **Topsoil Volume**
  - Measure and calculate topsoil volume
  - Verify topsoil volume with APD or Sundry Notice
- **Slope of Constructed Cuts and Fills**
  - Calculate slope ratio
  - Verify slope ratio with APD or Sundry Notice (*if present*)
- **Dimensions of Reserve Pit (*if present*)**
- **Placement of Erosion Control Features**
  - Verify location with APD or Sundry Notice maps/diagrams
- **Compliance with APD/Sundry Notice and associated COAs**

Process for Environmental/Surface Inspections (ES-SC)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What supplies or tools are needed for the inspection activity and verify compliance with the APD and/or Sundry Notices?

- **Measuring Device (measuring wheel, tape measure)**
  - Measure dimensions of pad, road, topsoil, etc.
- **GPS**
  - Map disturbance limits
- **Clinometer (measures degree and %)**
  - Determine the slope angle for cut/fills, topsoil piles, etc.
- **Camera**
  - Photograph inspection
  - Photograph issues/violations

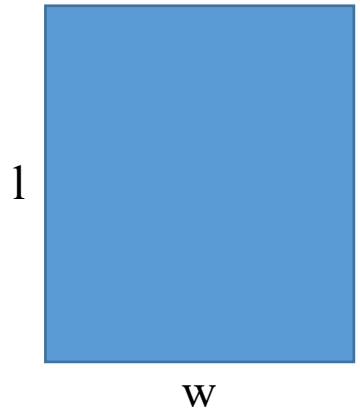
Process for Environmental/Surface Inspections (ES-SC)

Step 4

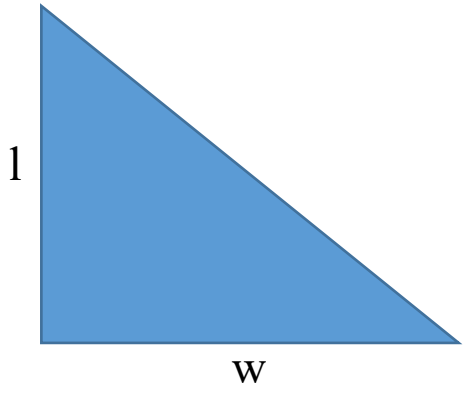
- **Inspect Well Site, Access Road, Facilities, etc.**

How does the inspector calculate area after measuring dimensions?

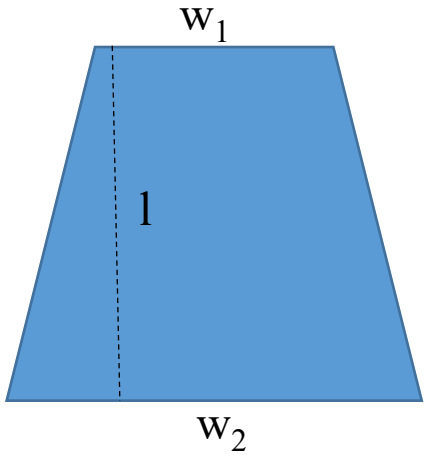
$A = l(w)$



$A = (l(w))1/2$



$A = 1/2(w_1 + w_2)l$



Converting Square Feet to Acres

Area in Acres = Square Feet ÷ 43,560 ft^2

Converting Acres to Square Feet

Area in Square Feet = Acres x 43,560 ft^2

Process for Environmental/Surface Inspections (ES-SC)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

How does the inspector calculate volume of topsoil to be salvaged if the APD does not specifically provide a volume?

Step 1: Convert Acres to Square Feet

Well Site Area = 6.7 x 43,560 ft^2
Well Site Area = 291,852 ft^2

Step 2: Determine Depth of Topsoil

The depth is usually proposed in the APD or a salvaging depth is required in a COA.
6 inches = 0.5 feet

Step 3: Calculate Volume

291,852 ft^2 x 0.5 ft = 145,926 ft^3
This volume of topsoil is required to be salvaged from the well site per COA.

Well Site
6.7 acres

APD COA:
Salvage 6 inches of topsoil from well site.

Process for Environmental/Surface Inspections (ES-SC)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

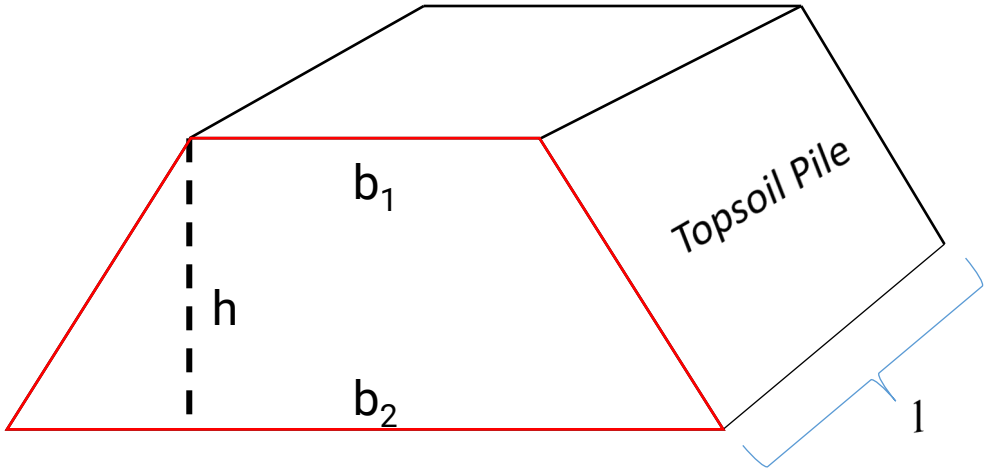
How does the inspector calculate topsoil volume?

$$V = Bl$$

V - Volume of Topsoil Pile
B - Area of Cross Section
l - Length of Topsoil Pile

$$B = 1/2(b_1 + b_2)h$$

b_1 - Top Width
b_2 - Bottom Width
h - Height



Process for Environmental/Surface Inspections (ES-SC)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

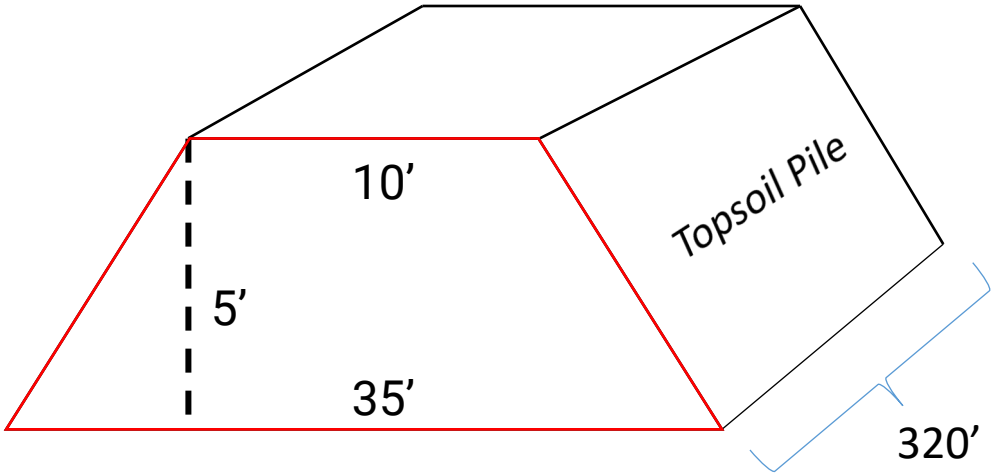
DEMONSTRATION: Calculating Topsoil Volume (V=Bl)

$$B=1/2(b_1+ b_2)h$$

B = ½(10 + 35) x 5
B = ½(45) x 5
B = 22.5 x 5
B = 112.5 ft^2

$$V=Bl$$

V = 112.5(320)
V = 36,000 ft^3



Converting Cubic Feet to Cubic Yards

V in cubic yards = cubic feet ÷ 27
V (yd^3) = 36,000 ÷ 27
V (yd^3) = 1,333.33 yd^3

Process for Environmental/Surface Inspections (ES-SC)

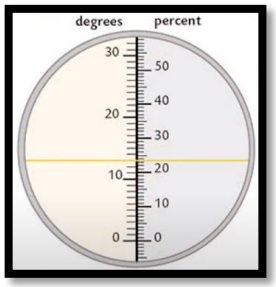
Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

How does an inspector use a clinometer to determine percent slope?

➢ **Holding the Clinometer**

- Keep both eyes open when using a clinometer.
- Use one eye to look through the eye piece at the scales in the clinometer while the other eye sights alongside the clinometer housing.
  - An optical illusion is created, and the horizontal sighting line will appear to project to the side of the clinometer housing.
- Place this sighting line on your target and read the scale in percent (%).



Scales in Clinometer

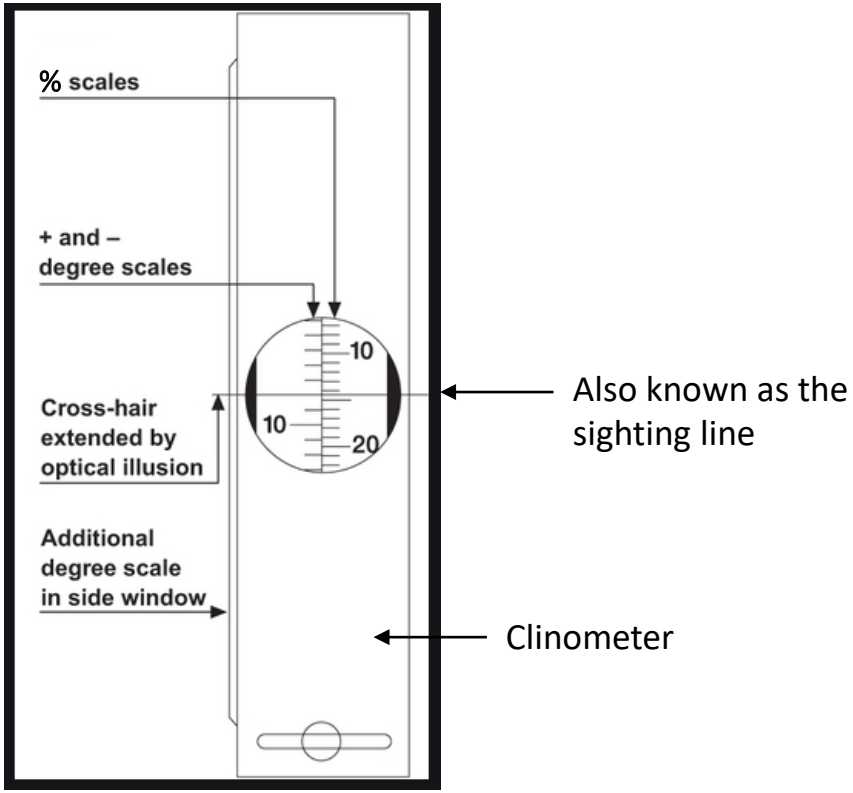
Process for Environmental/Surface Inspections (ES-SC)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

How does an inspector use a clinometer to determine percent slope?

➢ Clinometer Components



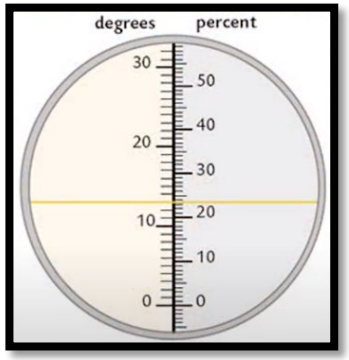
Process for Environmental/Surface Inspections (ES-SC)

Step 4

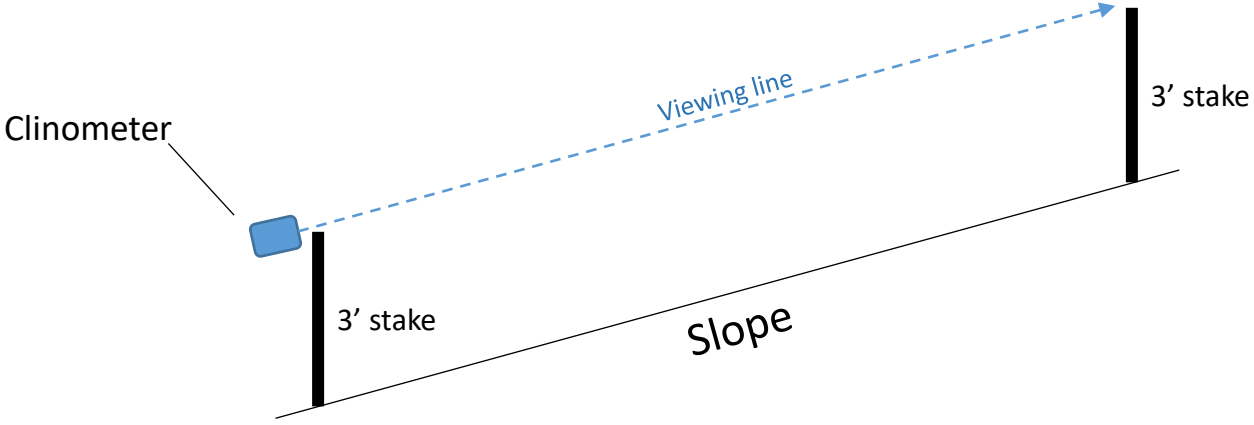
- **Inspect Well Site, Access Road, Facilities, etc.**

How does an inspector use a clinometer to determine percent slope?

- **Scale**
  - Tilt the clinometer up until the "%" sign is visible on one side of the scale (*that side of the scale is the % readings; the other side will be degree readings*)
- **Target**
  - The height of the clinometer and the target must be the same
  - A target can be a flagging on a tree, stake, or person



Approximately 24% Slope



*Note: You can take a reading from the top or bottom of the slope

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

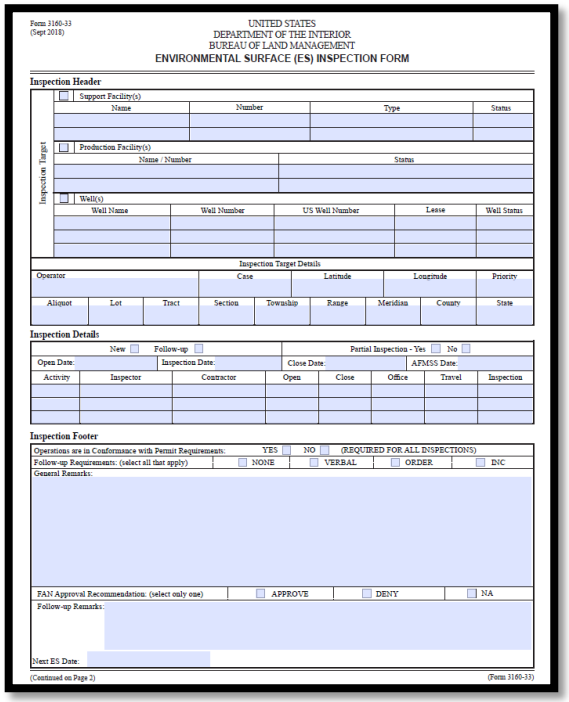
Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

During the inspection, which BLM form must be used to record aspects of the environmental/surface inspection?

➢ **Form 3160-33**



Form 3160-33
(Sept 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ENVIRONMENTAL SURFACE (ES) INSPECTION FORM

Inspection Header

Inspection Target

☐ Support Facility(s)

Name	Number	Type	Status

☐ Production Facility(s)

Name / Number	Status

☐ Well(s)

Well Name	Well Number	US Well Number	Lease	Well Status

Inspection Target Details

Operator	Case	Latitude	Longitude	Priority

Aliquot	Lot	Tract	Section	Township	Range	Meridian	County	State

Inspection Details

New ☐ Follow-up ☐ Partial Inspection - Yes ☐ No ☐

Open Date: Inspection Date: Close Date: AFMSS Date:

Activity	Inspector	Contractor	Open	Close	Office	Travel	Inspection

Inspection Footer

Operations are in Conformance with Permit Requirements: YES ☐ NO ☐ (REQUIRED FOR ALL INSPECTIONS)

Follow-up Requirements: (select all that apply) ☐ NONE ☐ VERBAL ☐ ORDER ☐ INC

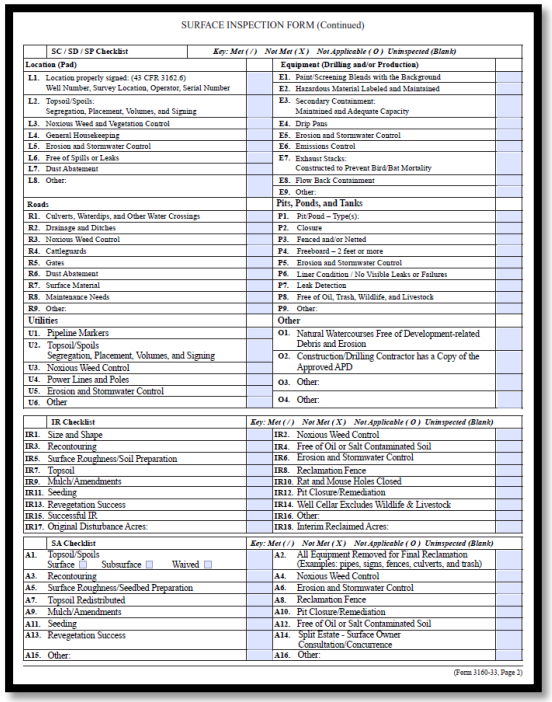
General Remarks:

FAN Approval Recommendation: (select only one) ☐ APPROVE ☐ DENY ☐ NA

Follow-up Remarks:

Next ES Date:

(Continued on Page 2) (Form 3160-33)



SURFACE INSPECTION FORM (Continued)

SC / SD / SP Checklist	Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)		
Location (Pad)		**Equipment (Drilling and/or Production)**	
L1. Location properly signed: (43 CFR 3162.6) Well Number, Survey Location, Operator, Serial Number		E1. Paint/Screening Blends with the Background	
		E2. Hazardous Material Labeled and Maintained	
L2. Topsoil/Spoils: Segregation, Placement, Volumes, and Signing		E3. Secondary Containment: Maintained and Adequate Capacity	
L3. Noxious Weed and Vegetation Control		E4. Drip Pans	
L4. General Housekeeping		E5. Erosion and Stormwater Control	
L5. Erosion and Stormwater Control		E6. Emissions Control	
L6. Free of Spills or Leaks		E7. Exhaust Stacks: Constructed to Prevent Bird/Bat Mortality	
L7. Dust Abatement			
L8. Other:		E8. Flow Back Containment	
		E9. Other:	
Roads		**Pits, Ponds, and Tanks**	
R1. Culverts, Waterdips, and Other Water Crossings		P1. Pit/Pond – Type(s):	
R2. Drainage and Ditches		P2. Closure	
R3. Noxious Weed Control		P3. Fenced and/or Netted	
R4. Cattleguards		P4. Freeboard – 2 feet or more	
R5. Gates		P5. Erosion and Stormwater Control	
R6. Dust Abatement		P6. Liner Condition / No Visible Leaks or Failures	
R7. Surface Material		P7. Leak Detection	
R8. Maintenance Needs		P8. Free of Oil, Trash, Wildlife, and Livestock	
R9. Other:		P9. Other:	
Utilities		**Other**	
U1. Pipeline Markers		O1. Natural Watercourses Free of Development-related Debris and Erosion	
U2. Topsoil/Spoils Segregation, Placement, Volumes, and Signing		O2. Construction/Drilling Contractor has a Copy of the Approved APD	
U3. Noxious Weed Control			
U4. Power Lines and Poles		O3. Other:	
U5. Erosion and Stormwater Control			
U6. Other		O4. Other:	

IR Checklist	Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)		
IR1. Size and Shape		IR2. Noxious Weed Control	
IR3. Recontouring		IR4. Free of Oil or Salt Contaminated Soil	
IR5. Surface Roughness/Soil Preparation		IR6. Erosion and Stormwater Control	
IR7. Topsoil		IR8. Reclamation Fence	
IR9. Mulch/Amendments		IR10. Rat and Mouse Holes Closed	
IR11. Seeding		IR12. Pit Closure/Remediation	
IR13. Revegetation Success		IR14. Well Cellar Excludes Wildlife & Livestock	
IR15. Successful IR		IR16. Other:	
IR17. Original Disturbance Acres:		IR18. Interim Reclaimed Acres:	

SA Checklist	Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)		
A1. Topsoil/Spoils Surface ☐ Subsurface ☐ Waived ☐		A2. All Equipment Removed for Final Reclamation (Examples: pipes, signs, fences, culverts, and trash)	
A3. Recontouring		A4. Noxious Weed Control	
A5. Surface Roughness/Seedbed Preparation		A6. Erosion and Stormwater Control	
A7. Topsoil Redistributed		A8. Reclamation Fence	
A9. Mulch/Amendments		A10. Pit Closure/Remediation	
A11. Seeding		A12. Free of Oil or Salt Contaminated Soil	
A13. Revegetation Success		A14. Split Estate - Surface Owner Consultation/Concurrence	
A15. Other:		A16. Other:	

(Form 3160-33, Page 2)

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

Which sections of Form 3160-33 must be completed for the ES-SC inspection?

- **Inspection Header**
  - Well or Facility Information and Location
- **Inspection Details**
  - Activity Details (dates, hours, etc.)
- **Inspection Footer**
  - Conformance with Permit (required)
  - Enforcement Actions
  - Inspection Remarks
- **SC, SD, and SP Checklist Section**
  - Location (Pad)
  - Roads
  - Utilities
  - Pits, Ponds, and Tanks
  - Other

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Form 3160-33
(Sept 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ENVIRONMENTAL SURFACE (ES) INSPECTION FORM

Inspection Header

Inspection Target

☐ Support Facility(s)

Name	Number	Type	Status

☐ Production Facility(s)

Name / Number	Status

☐ Well(s)

Well Name	Well Number	US Well Number	Lease	Well Status
Hawk Federal	24-5	0506708773	COC017455	PGW

Inspection Target Details

Operator	Case	Latitude	Longitude	Priority
Anderson Natural Resources Inc.	NA	37.172704	-107.755215	H

Aliquot	Lot	Tract	Section	Township	Range	Meridian	County	State
NWNE	-	-	27	34N	7W	NMP	La Plata	CO

Input Well or Facility Information

Input Well or Facility Location Data

Filled-Out Example

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Select an Inspection Category

For Inspection by Support Facility option (*Do not use for By Well or By Production Facility*)

Inspection Details

New ☑ Follow-up ☐				Partial Inspection - Yes ☐ No ☐			
Open Date: 10/08/2020		Inspection Date: 10/22/2020		Close Date: 10/23/2020		AFMSS Date: 10/23/2020	
Activity	Inspector	Contractor	Open	Close	Office	Travel	Inspection
SC	J. Doe	-	10/08/2020	10/23/2020	1.6	0.7	0.3

Fill in Activity Details

Filled-Out Example

**The "Inspection Details" section is similar to AFMSS entries.*

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Mark whether or not operations are in compliance with the requirements associated with the APD or Sundry Notices

Mark whether or not any enforcement actions will be issued

Inspection Footer

Operations are in Conformance with Permit Requirements:	YES ☐	NO ☑	(REQUIRED FOR ALL INSPECTIONS)	
Follow-up Requirements: (select all that apply)	☐ NONE	☐ VERBAL	☐ ORDER	☑ INC

General Remarks:

Arrived on-location after completion of well pad and access road construction.
The well site was measured to be 350' x 400' in size, which complies with APD.
No topsoil stockpile was found - well site layout shows a 30' x 400' topsoil stockpile planned for the north side of the pad.
-Plan to issue an INC for not complying with the APD.
Disturbance limits were measured with a GPS - complies with APD.
A reserve pit was constructed on the south side of the well site (100' x 60' x 10' deep) - complies with APD
Reserve pit is fenced off to prevent livestock entry, and liner has been installed.
Access road driving surface is about 14' wide and total width remains within 30' - complies with APD

FAN Approval Recommendation: (select only one)	☐ APPROVE	☐ DENY	☐ NA

Follow-up Remarks:

Next ES Date:

Filled-Out Example

Include general inspection notes pertinent to the ES-SC inspection. Clarify important items from the checklist on the back of the form.

Use this section for a follow-up inspection.

You can enter the next ES inspection date here.

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Location (Pad)	
L1. Location properly signed: (43 CFR 3162.6) Well Number, Survey Location, Operator, Serial Number	/
L2. Topsoil/Spoils: Segregation, Placement, Volumes, and Signing	x
L3. Noxious Weed and Vegetation Control	O
L4. General Housekeeping	/
L5. Erosion and Stormwater Control	/
L6. Free of Spills or Leaks	/
L7. Dust Abatement	/
L8. Other:	O

Filled-Out Example

L1. Does the well have identification? Well signs are usually installed after drilling, when an actual wellhead is present.

L2. Was topsoil or other soils salvaged, stockpiled, and signed in the correct location and with the correct amount as required by the approved APD and COAs?

L3. Are invasive vegetation and noxious weeds being controlled? This line item is typically for SP inspections, unless the well site has been sitting out there for awhile before being drilled.

L4. Is the site being maintained in a workmanlike manner free of loose trash?

L5. Did the operator install erosion or stormwater controls as required in the approved APD and COAs. If the site has been sitting for awhile, are there any erosion issues?

L6. Is the site free of oil, toxic fluid, or produced water spills?

L7. Has the operator implemented dust abatement measures as required by the approved APD and COAs? Examples: graveled surface, water application, etc.

L8. Include any other aspects of construction that need mentioned here.

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Roads	
R1. Culverts, Waterdips, and Other Water Crossings	O
R2. Drainage and Ditches	/
R3. Noxious Weed Control	O
R4. Cattleguards	O
R5. Gates	O
R6. Dust Abatement	/
R7. Surface Material	/
R8. Maintenance Needs	/
R9. Other:	O

Filled-Out Example

R1. Were culverts, waterdips, and other water crossings constructed in accordance with the approved APD and COAs?

R2. Was the road constructed with appropriate drainage and with roadside ditches as required by the approved APD and COAs?

R3. Are invasive vegetation and noxious weeds being controlled? This line item is typically for SP inspections, unless the road has been sitting out there for awhile before drilling operations.

R4. Were cattleguards installed adequately as required by the approved APD and COAs?

R5. Were gates installed adequately as required by the approved APD and COAs?

R6. Has the operator implemented dust abatement measures as required by the approved APD and COAs? Examples: graveled surface, water application, etc.

R7. Has the operator installed surface material in accordance with the approved APD and COAs?

R8. Is the road being maintained, if the road has been sitting for awhile before drilling operations?

R9. Include any other aspects of road construction that need mentioned here.

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Pits, Ponds, and Tanks		
P1.	Pit/Pond – Type(s): Reserve pit	/
P2.	Closure	O
P3.	Fenced and/or Netted	/
P4.	Freeboard – 2 feet or more	
P5.	Erosion and Stormwater Control	/
P6.	Liner Condition / No Visible Leaks or Failures	/
P7.	Leak Detection	/
P8.	Free of Oil, Trash, Wildlife, and Livestock	/
P9.	Other:	O

Filled-Out Example

P1. Were pits or ponds constructed in accordance with the approved APD and COAs? Include the type of pit or pond (e.g., reserve pit, frac pond, frac tank, etc.).

P2. This item involves closure of pit or if pit was not constructed.

P3. Were fencing and/or netting installed in accordance with the approved APD and COAs?

P4. This item is typically completed during drilling operations.

P5. Was the pit/pond constructed to prevent erosion or stormwater issues as approved in APD and COAs?

P6. Is the liner free of visible tears, failures, or leaks?

P7. Has the operator installed leak detection in accordance with the approved APD and COAs?

P8. Is the pit/pond free of oil, trash, wildlife, and/or livestock?

P9. Include any other aspects of pit/pond construction that need mentioned here.

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Utilities	
U1. Pipeline Markers	O
U2. Topsoil/Spoils Segregation, Placement, Volumes, and Signing	/
U3. Noxious Weed Control	O
U4. Power Lines and Poles	O
U5. Erosion and Stormwater Control	O
U6. Other	O

Filled-Out Example

U1. This line item applies after installation of the pipeline. Were location markers installed?

U2. Was topsoil or other soils salvaged, stockpiled, and signed in the correct location and with the correct amount as required by the approved APD and COAs?

U3. Are invasive vegetation and noxious weeds being controlled? This line item is typically for SP inspections.

U4. Were power lines and poles installed in accordance with the approved APD and COAs?

U5. Was the utility line constructed to prevent erosion or stormwater issues as approved in APD and COAs?

U6. Include any other aspects of utility line construction that need mentioned here.

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SC

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Other	
O1. Natural Watercourses Free of Development-related Debris and Erosion	/
O2. Construction/Drilling Contractor has a Copy of the Approved APD	/
O3. Other:	O
O4. Other:	O

Filled-Out Example

O1. Determine if channels are free of development related obstructions (e.g., spoils, etc.) and erosion resulting from development activities.

O2. Determine if the construction contractor has a copy of the approved APD and COAs as required by the approved APD and COAs.

O3. Describe any issues or concerns not addressed as part of other checklist items.

O4. Describe any issues or concerns not addressed as part of other checklist items.

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

Where can an inspector find information on completing the BLM Form 3160-33?

➢ **Review Form 3160-33 ES Inspection USER GUIDE**

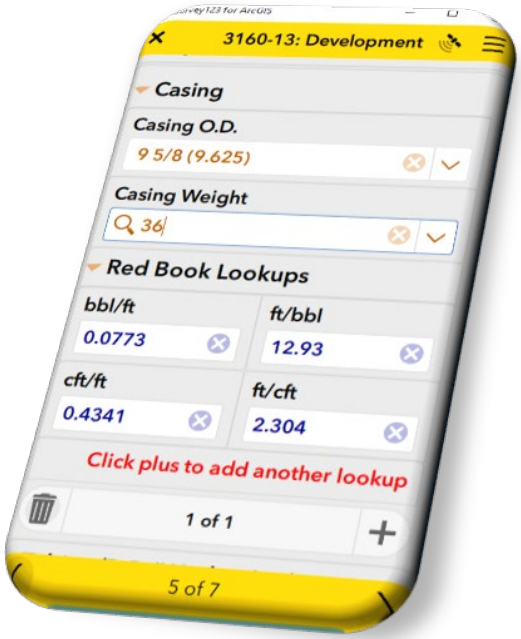
Process for Environmental/Surface Inspections (ES-SC)

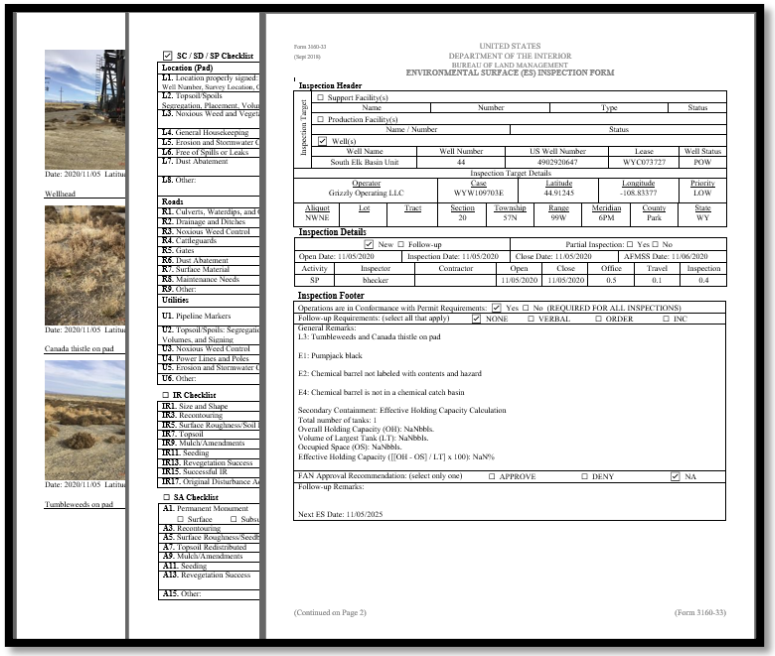
Step 5

- **Complete Inspection Form**

During the inspection, can the BLM form be completed digitally?

- **Yes, inspectors can use the Survey123 application on their phone or tablet**
- **Survey123 is part of BLM's MobileApp project**





Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

MobileApp Background and Authorization

June 2017	• BLM initiates MobileApp project
January 2018	• MobileApp project separated from AFMSS 2 Project • Vernal Field Office (VFO) started using Survey123 for ES inspections
December 2018	• AFMSS 2 Project adopted the VFO endeavor as a proof of concept for MobileApp (approval by Mike Nedd, BLM Operations Deputy Director)
July 2019	• First ES Inspection Form published for inspectors • Moved MobileApp from proof of concept to a pilot project
August 2020	• Headquarters office informs field offices that the ES Inspection Form on the MobileApp is also official and available for use
September 2020	• 4,400 inspections have been created using MobileApp by 25 inspectors in 7 states

Process for Environmental/Surface Inspections (ES-SC)

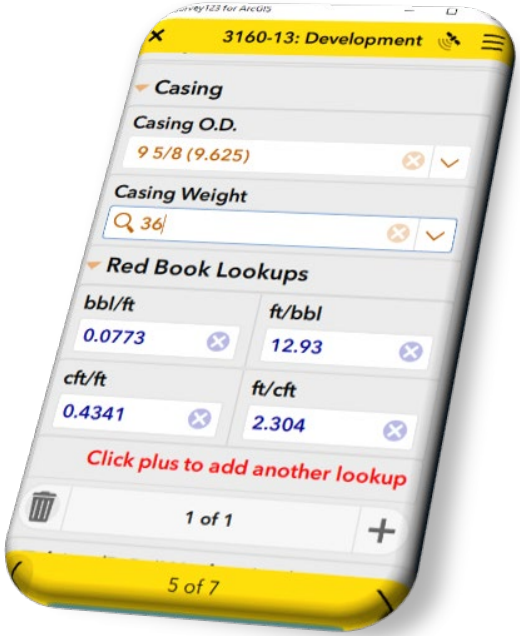
Step 5

- **Complete Inspection Form**

MobileApp Workflow

- **Survey123 in the MobileApp Project is a form centric solution part of our Enterprise Geographic Information System (EGIS)**

- **MobileApp is a job aid or tool to help inspectors complete the form more efficiently**



Process for Environmental/Surface Inspections (ES-SC)

Step 5
- **Complete Inspection Form**

What is the process for using the MobileApp?

Step 1
- **Once your account is established in EGIS, log in and download the needed inspection form(s).**

Step 2
- **Prefill your inspection form with any information you may need from your action research (i.e., well info, photos of APD diagrams, etc.).**

Step 3
- **Once in the field, open the inspection form in Survey123; update your geo-location and fill out the inspection checklist.**

Step 4
- **Once you have collected and recorded all necessary data, submit digital inspections within the app.**

Step 5
- **Generate inspection forms (with photos) in EGIS and print for the official well file.**

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

Tips for each step in the process when using the MobileApp:

Step 1 – Downloading Inspection Forms

- **Inspector needs an account with EGIS and download Survey123 app on phone or tablet**

Step 2 – Prefill Inspection Forms

- **During action research, you can prefill your digital inspection form with well information, COAs you need to verify, photos of plats, or past compliance issues.**
- **Save the inspection as a draft so you can access later when in the field.**

Step 3 – Completing Form in the Field

- **Pictures can be taken with the Survey123 photo tool, including captions.**
- **Photographs are watermarked with photo date and location.**

Step 4 – Submitting the Digital Inspection

- Submitting **your digital inspection in Survey123 can be done in the field if you have a data connection or it can be saved for later, such as when you are back in the office and connected to the wifi network.**
- **Sometimes you may want to delay submitting until later, such as when verifying compliance.**

Step 5 – Generating Inspection Form

- **Once your digital inspection has been submitted, you will receive an email notification with a link to your inspection; simply follow the link and generate your inspection form.**
- **Remarks can be copied and pasted into AFMSS. The digital inspection form can be uploaded into AFMSS for the record.**
- **Print the generated inspection forms with photos for your official well files.**

Process for Environmental/Surface Inspections (ES-SC)

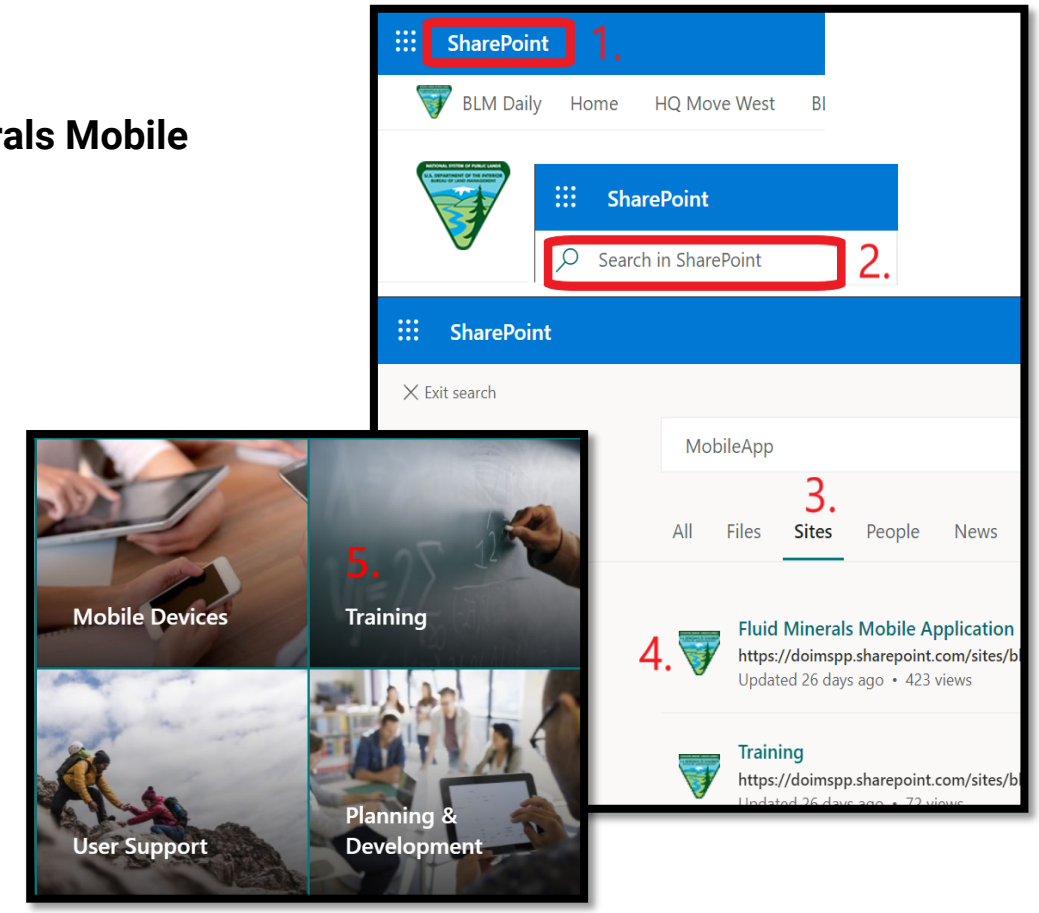
Step 5

- **Complete Inspection Form**

MobileApp Training

- **Training is available on the Fluid Minerals Mobile Application SharePoint site**
- **Find the site by following this process:**

1. Click the SharePoint link on the BLM Daily page: https://doimspp.sharepoint.com/sites/blm-portal
2. Where it reads, "Search in SharePoint," enter "MobileApp"
3. Select Sites
4. Select Fluid Minerals Mobile Application from the list
5. Once on the site, select "Training"



https://doimspp.sharepoint.com/sites/blm-oc-sb/afmss-mobile/SitePages/Home.aspx

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

MobileApp Support

Check Training/User Support Pages of the MobileApp Sharepoint Site

General Support: Submit a Help Desk Ticket

Emergencies: Contact MobileApp Team Lead (Nick Day)

Process for Environmental/Surface Inspections (ES-SC)

Step 5

- **Complete Inspection Form**

MobileApp (Survey123) Benefits

Georeferenced Maps

- Capable of showing your location on a digital map

Calculation Tools

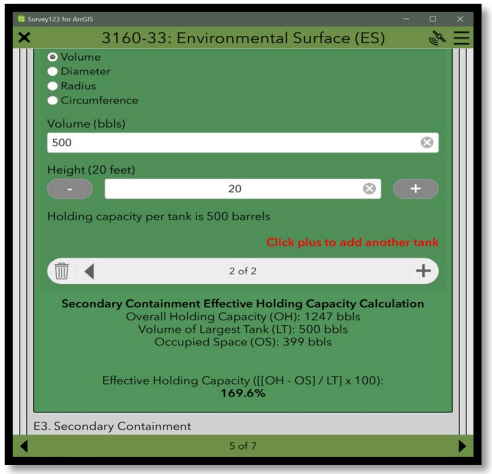
- Topsoil volume calculator
- Secondary containment capacity calculator

Photographs

- Photographs are watermarked with the date and coordinates
- Captions can be added to the photos in the field during the inspection
- Photographs (with captions and location) are printed along with the inspection form

Voice to Text

- Inspector has the option to type entries into text boxes in the inspection form, or use the “microphone” icon in the phone or tablet’s digital keyboard to speak entries into text boxes for faster entries



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

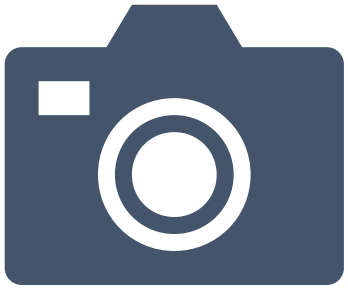
Process for Environmental/Surface Inspections (ES-SC)

Step 6

- **Take Photographs**

What should the inspector know about taking photographs?

- **Photograph important aspects of the inspection:**
  - Areas of the constructed well pad, road, etc.
  - Edge of constructed well pad
  - Topsoil stockpile
  - Cut/Fill slopes
  - Well cellar (if present)
  - Stormwater management features/devices
    - Ditches, berms, culverts, etc.
  - Violations or Problems



Process for Environmental/Surface Inspections (ES-SC)

Step 6

- **Take Photographs**

Examples:

Rock Rundown constructed off SE corner of well pad;
Silt fence installed below fill slope of well pad

Topsoil stockpile located on east side of well site;
Three-foot berm on east edge of well site

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

How does an inspector verify compliance?

- **Confirm compliance with APD and COAs**
- **Confirm compliance with lease stipulations and any sundry notices**
- **Compare measurements, calculations, and GPS-mapped disturbances to the APD diagrams**
  - Determine if an adequate amount of topsoil was salvaged and stockpiled
  - Determine if slopes are in compliance with the APD

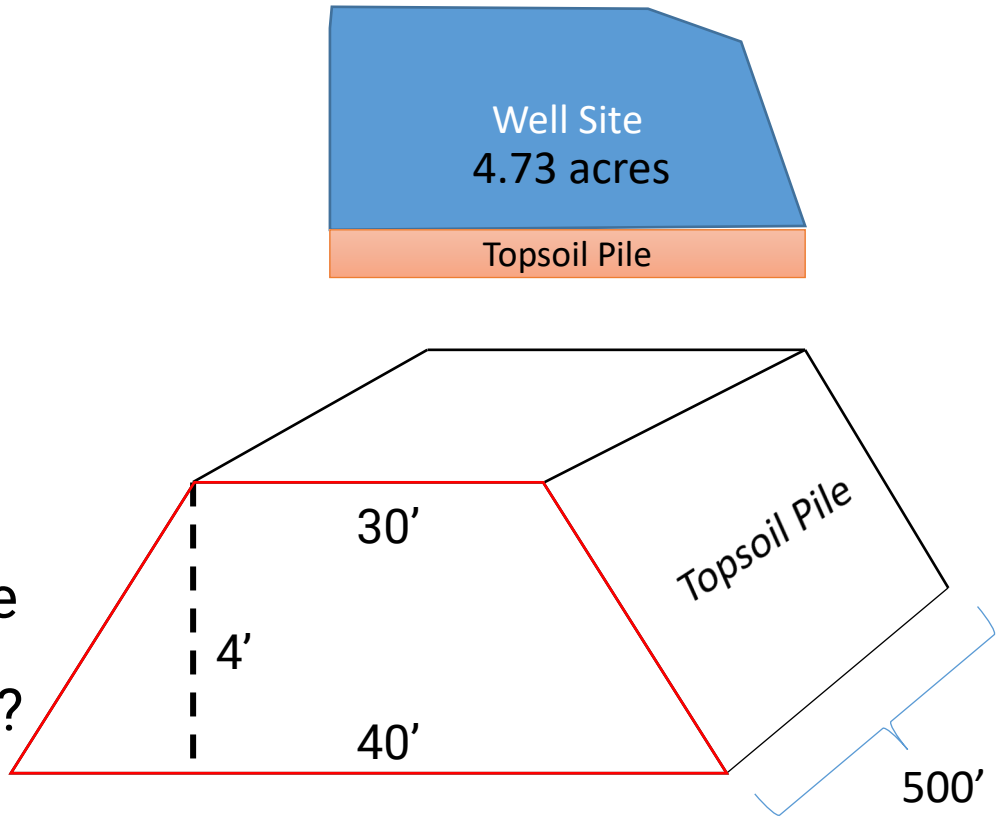
Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Verifying Adequate Topsoil Salvaging

During your ES-SC inspection, let's say you used a GPS to measure the area of the well site to be 4.73 acres, which matches the APD well site layout. You also take some measurements of the topsoil stockpile. You verify with the APD that 6 inches of topsoil would be stripped from the well site and stockpiled on the south side of the well site. Was enough topsoil salvaged?



Process for Environmental/Surface Inspections (ES-SC)

Step 7

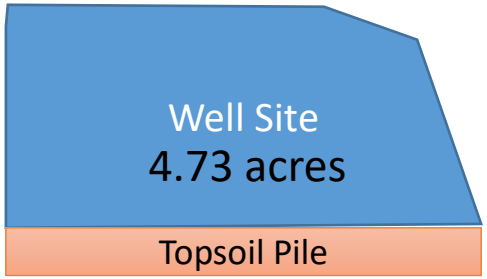
- **Verify Compliance**

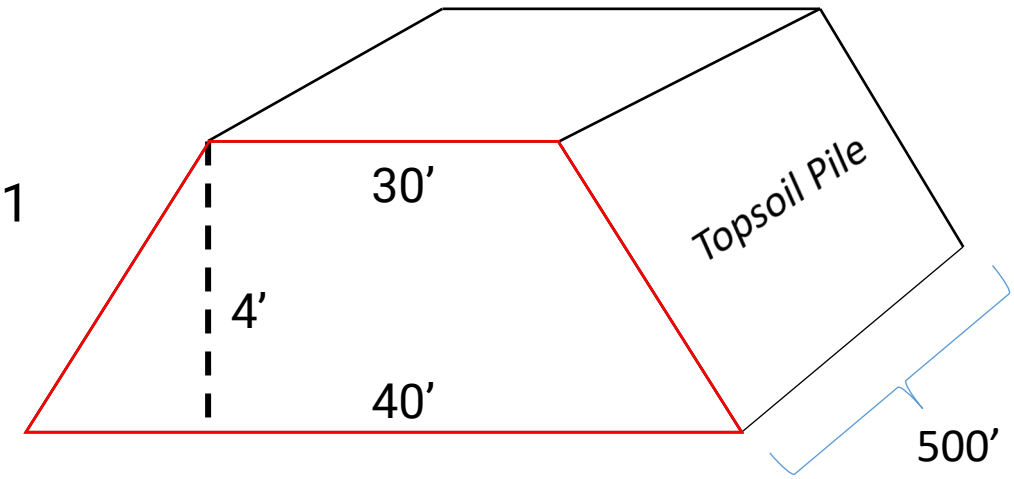
DEMONSTRATION: Verifying Adequate Topsoil Salvaging

Step 1:
Determine the volume of topsoil that must be salvaged from the well site.

Step 2:
Calculate the volume of the topsoil stockpile.

Step 3:
Compare the volume from Step 1 to the volume from Step 2 to determine if the operations comply with the APD.





Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Verifying Adequate Topsoil Salvaging

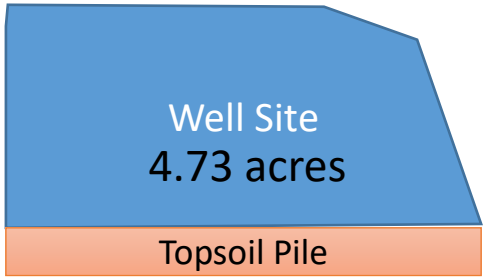
Step 1:

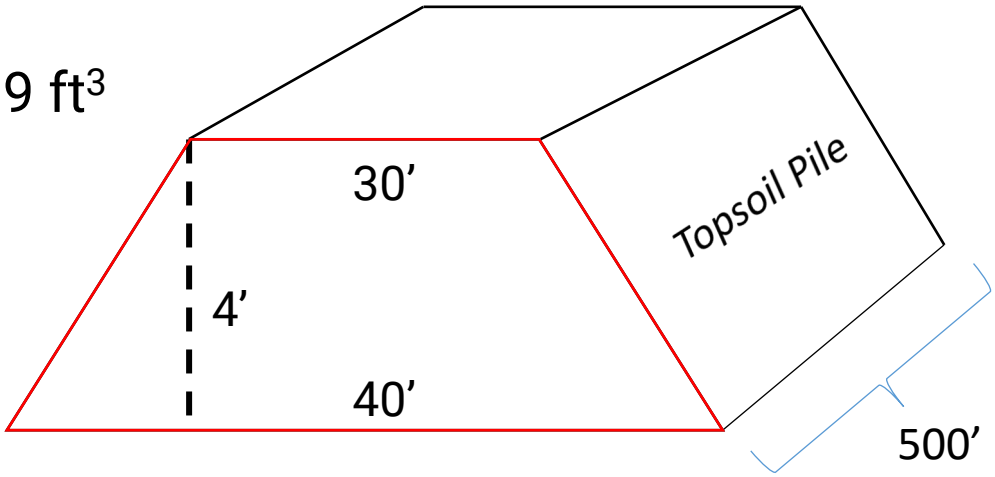
Convert Acres to Square Feet:
4.73 x 43,560 = 206,511.8 ft^2

6 inches (0.5 ft) of topsoil salvaging

206,511.8 ft^2 x 0.5 ft = 103,255.9 ft^3

103,255.9 cubic feet of topsoil must be salvaged from the well site to comply with APD.





Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Verifying Adequate Topsoil Salvaging

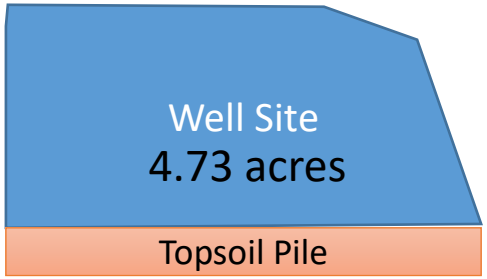
Step 2:

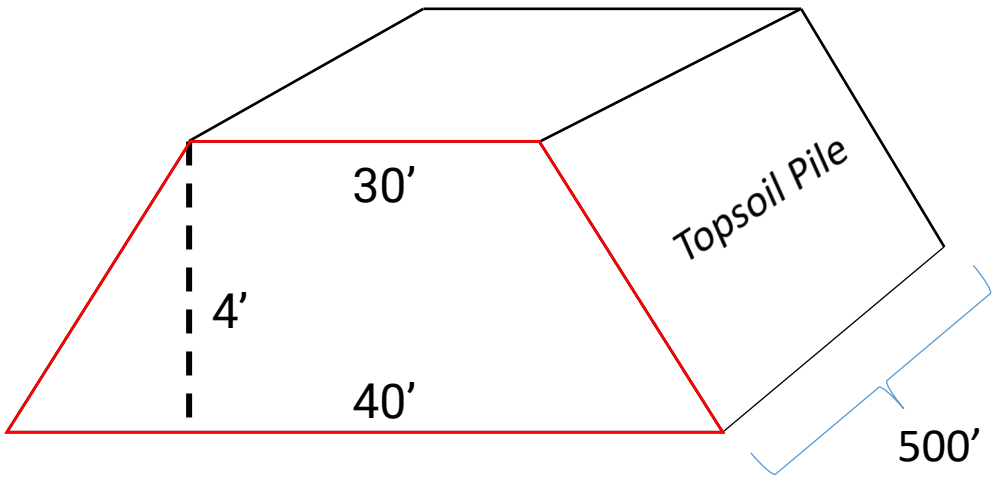
$$B=1/2(b_1+ b_2)h$$

$B = ½(30 + 40) \times 4$
$B = ½(70) \times 4$
$B = 35 \times 4$
$B = 140\ ft^2$

$$V=Bl$$

$V = 140(500)$
$V = 70{,}000\ ft^3$





Process for Environmental/Surface Inspections (ES-SC)

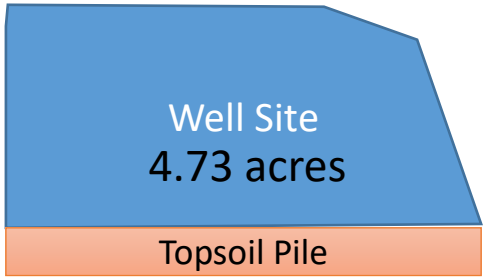
Step 7

- **Verify Compliance**

DEMONSTRATION: Verifying Adequate Topsoil Salvaging

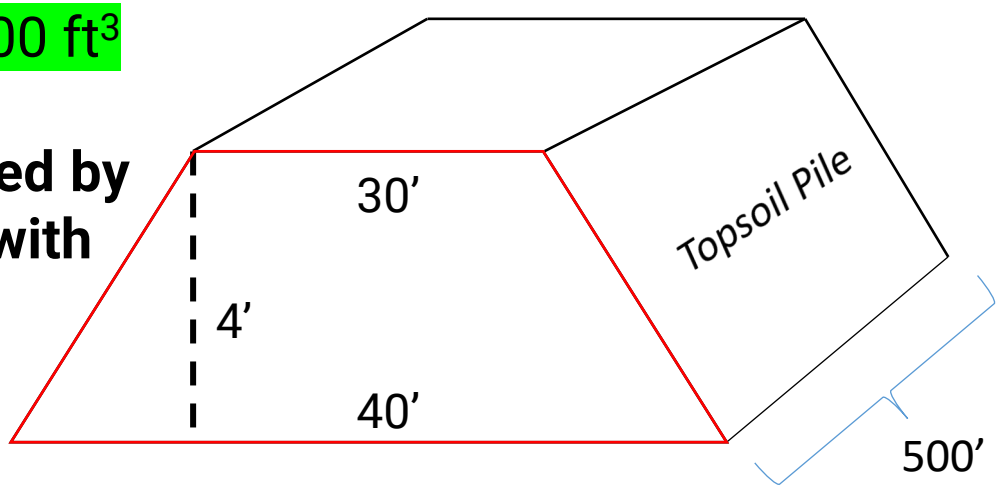
Step 3:

Topsoil volume that the operator should have salvaged from the well site: 103,255.9 ft^3



Topsoil stockpile volume: 70,000 ft^3

The volume of topsoil stockpiled by the operator does not comply with the approved APD.



Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

How does the inspector verify the operator constructed the site with an approved cut/fill slope ratio or percent slope?

- **Step 1: Determine the approved slope ratio or percent**
  - Either:
    - Calculate ratio or percent from well site layout; or
    - Statement in APD or COAs that slopes will be a certain ratio (*e.g., cuts/fills no steeper than a 3:1 slope*)
- **Step 2: Determine the actual percent slope constructed**
  - Use Clinometer
- **Step 3: Compare Step 1 and Step 2 results**

Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

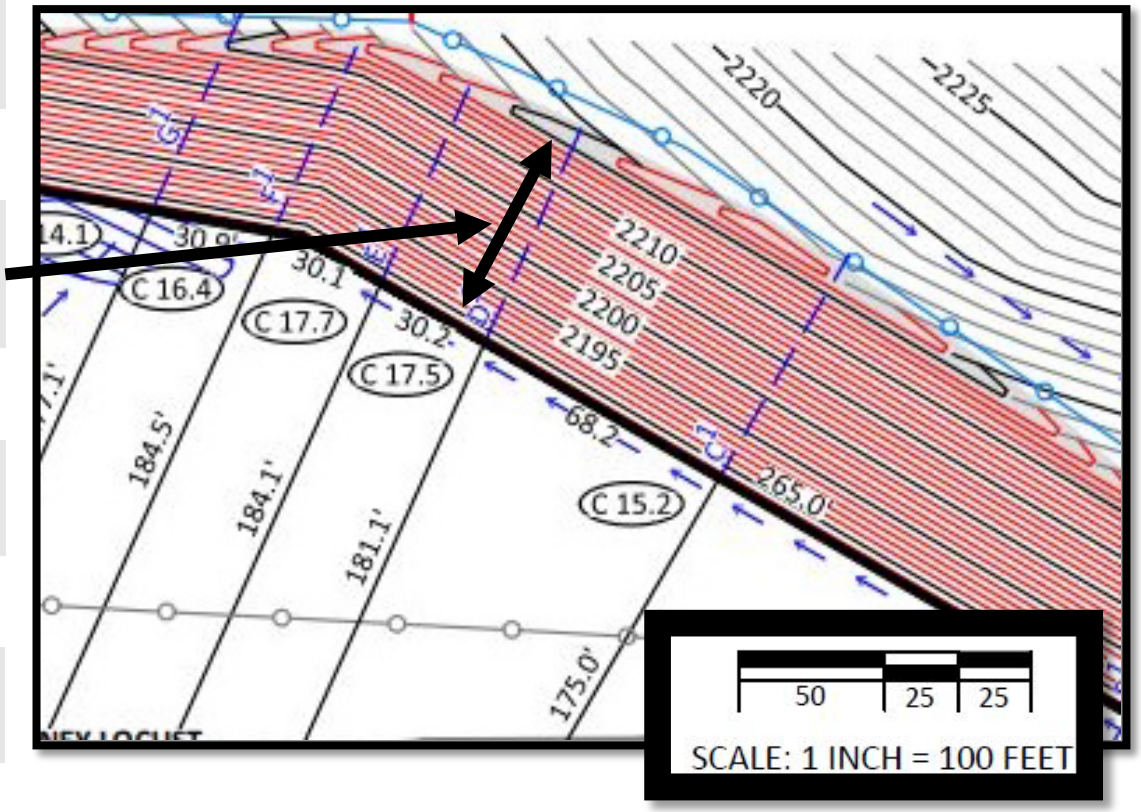
DEMONSTRATION: Calculating slope ratio or percent slope from well site layout

1) Use a ruler to measure horizontal distance of slope on well site layout.

2) Distance from the 2215' to the 2190' elevation contour line is measured at ¾".

3) Using the scale, ¾ inches = 75 feet

4) 2215' elevation minus 2190' elevation = 25 feet



Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Calculating slope ratio from well site layout

Slope Ratio is presented as H:V

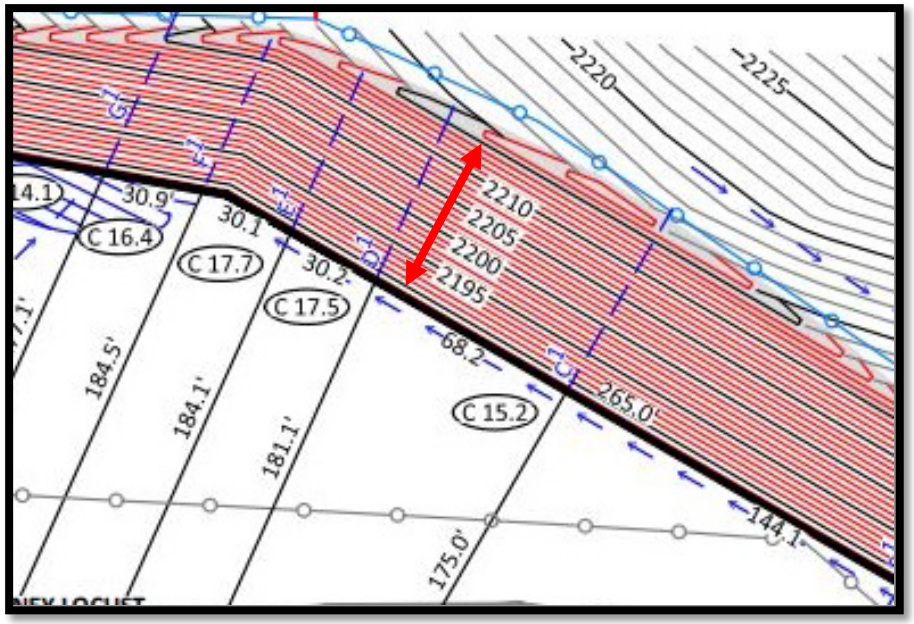
- H = Horizontal Distance
- V = Vertical Distance

Slope Ratio for Demonstration

- H = 75 feet
- V = 25 feet

Slope Ratio for Demonstration

- Slope Ratio = 75:25
- Slope Ratio = 3:1



Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Calculating slope ratio from well site layout

Example without simple whole numbers:

Slope Ratio is presented as H:V

- H = Horizontal Distance
- V = Vertical Distance

Slope Ratio for Demonstration

- H = 70 feet
- V = 25 feet

Slope Ratio for Demonstration

- Slope Ratio = 70:25
- Slope Ratio = 14:5
- Slope Ratio = 14/5 = 2.8
- Slope Ratio = 2.8:1

Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Calculating percent slope from well site layout

Percent slope calculation: Rise/Run

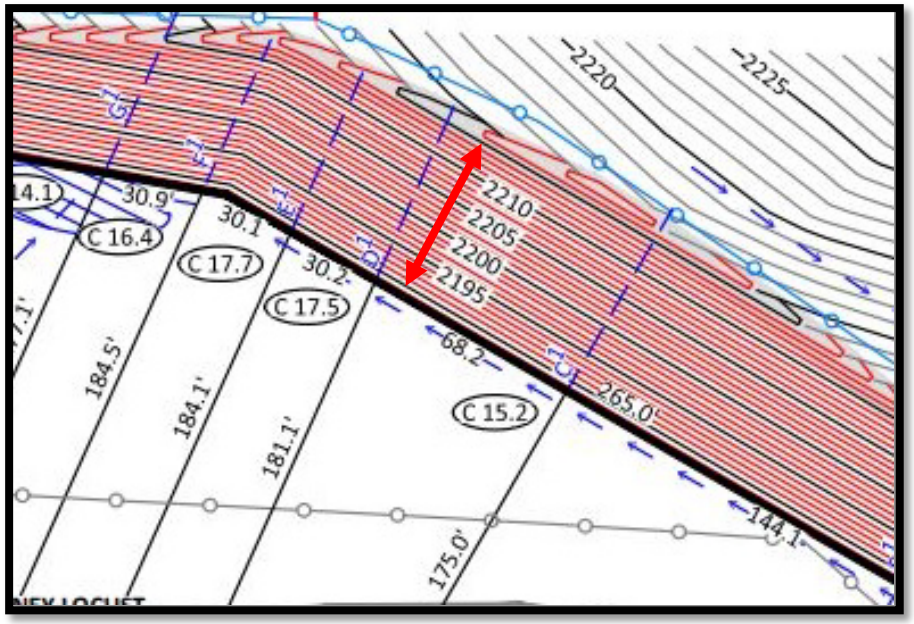
- Run = Horizontal Distance
- Rise = Vertical Distance

Slope Ratio for Demonstration

- Run = 75 feet
- Rise = 25 feet

Percent Slope for Demonstration

- % Slope = Rise/Run x 100
- % Slope = 25/75 x 100
- % Slope = 0.33 x 100
- % Slope = 33%



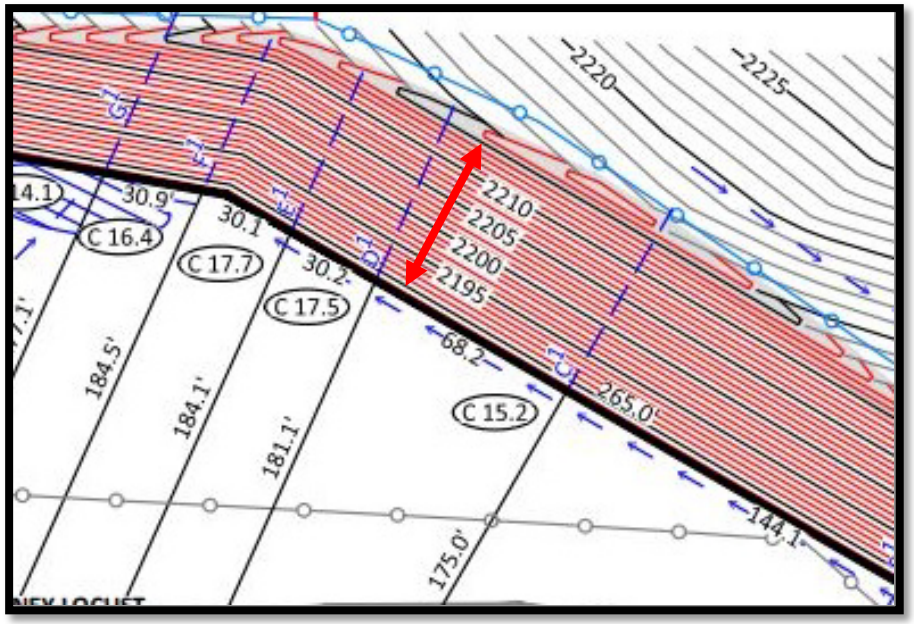
Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

DEMONSTRATION: Compare Proposed Slope to Actual Slope

If the APD well site layout depicted that cut and fill slopes would have a 3:1 slope ratio and you used a clinometer to determine the constructed slope to be 45%, did the operator comply with the APD?



No, because:

- APD = 3:1
- APD = 1-foot vertical distance
  3-foot horizontal distance
- % Slope = 1’/3’ x 100 = 33%
- APD = 33% or 3:1
- 45% is steeper than 33%

Process for Environmental/Surface Inspections (ES-SC)

Step 7

- **Verify Compliance**

What should the inspector consider when verifying compliance with these types of calculations?

➢ **Calculations are estimations**

- If results are close to permit requirements, consider if operations are in compliance, since measurements and associated calculations were close approximations.
- e.g., *topsoil stockpiles are not perfect trapezoidal prisms*

Process for Environmental/Surface Inspections

Conducting Surface Drilling Inspections (ES-SD)

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SD)

Step 1

- **Locate Well Site**

How does an inspector know a well site is being drilled?

- If notification is not required by an APD COA, the inspector can:
  - Query wells in AFMSS 2 with a status of “DRG” or “DSI”
  - Set up a system in your office, where active drilling locations are listed in real time on a board or on a shared file on the office network
  - Ask PET’s to inform surface inspectors of active drilling operations

Process for Environmental/Surface Inspections (ES-SD)

Step 1

- **Locate Well Site**

When should the inspector perform the ES-SD inspection?

During Actual Drilling Activities

- Ideal, since potential issues or violations can be addressed on the spot
- Until more experienced, the surface inspector can coordinate with an experienced NRS or PET to inspect the drill site

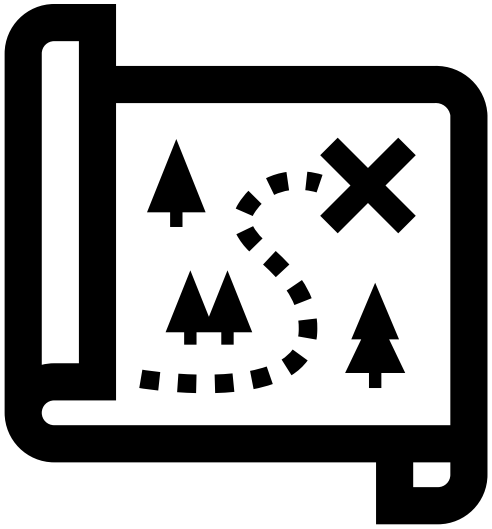
Process for Environmental/Surface Inspections (ES-SD)

Step 1

- **Locate Well Site**

What should the inspector do prior to traveling to conduct the inspection?

- Conduct action research
- Determine location of the drilling activities
  - Use ArcMap, Google Earth, APD diagrams/maps, etc.
- Print necessary maps
- Collect proper PPE, supplies, and equipment
- Initiate proper check-out procedures (*e.g., in-out board*)



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SD)

Step 2

- **Confirm Location**

When an inspector arrives at a well site, how does the inspector confirm they are at the correct location?

- Compare:

Maps/Coordinates

APD Information

- Sometimes, well sites with drilling activity have a well sign to verify.
- Per Onshore Order No. 1, the approved APD/COAs must be on drill site.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SD)

Step 3

- **Consider Safety Protocols**

What are some examples of hazards that could be present during drilling activities?

- **Heavy equipment operation (e.g., drill rig, forklift, etc.)**
  - Inform the company representative/site manager of your presence
  - Inspector may be required to watch a short safety training video
  - Inspector may have to present H2S training certification
  - Operator may require a reflective vest
- **Moving equipment (e.g., drill rig, etc.)**
- **Potential gas releases**
- **Potential fire hazards**
- **Potential spills of contaminants**
- **Slick surfaces (e.g., containment liners)**
- **Trip and fall hazards**

Process for Environmental/Surface Inspections (ES-SD)

Step 3

- **Consider Safety Protocols**

What does the inspector do if the drill site manager tells the inspector the site is unsafe to inspect?

- **Have the site manager provide clear rationale**
- **After acquiring rationale and depending on the situation, the inspector can either:**
  - Contact their BLM supervisor immediately
  - Contact a PET to evaluate rationale
  - Ask the site manager if the inspector can be escorted around site

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SD)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What do surface inspectors check during the inspection activity?

- **Copy of the APD and COAs on Location**
  - A copy of the approved APD and any COAs must be available for review at the drill site (Onshore Order No. 1, Section IV)
- **Spills and Leaks**
  - Have operator stop active leaks
  - Soil stains are a common occurrence during drilling
  - Determine if immediate clean-up or containment is necessary
    - Evaluate risk to environment, continued activities, etc.
- **Secondary Containments**
  - Measure and calculate holding capacity*
  - Verify holding capacity with APD or Sundry Notice requirements
- **Staging Areas and/or Water Storage Areas (e.g., frac ponds)**
- **Reserve Pit (if present)**
  - Freeboard, maintenance, fencing, etc.
- **Maintenance of Stormwater Management Features**
- **Disturbances**
  - Ensure activities are contained within approved disturbance limits (e.g., road, pad, staging areas, etc.)
- **Compliance with APD/Sundry Notice and associated COAs**

*Process for calculating holding capacity in ES-SP section of this presentation

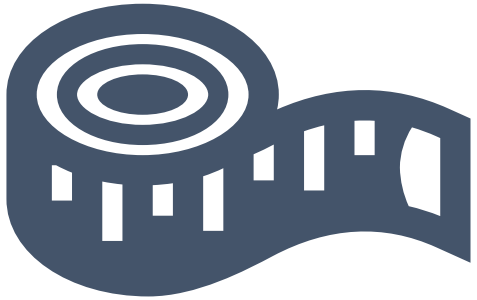
Process for Environmental/Surface Inspections (ES-SD)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What supplies or tools are needed for the inspection activity and to verify compliance with the APD and/or Sundry Notices?

- **Measuring Device (measuring wheel, tape measure)**
  - Measure containments or disturbances
- **GPS**
  - Map disturbance limits
- **Camera**
  - Photograph inspection
  - Photograph issues/violations



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

Which sections of Form 3160-33 must be completed for the ES-SD inspection?

- **Inspection Header**
  - Well or Facility Information and Location
- **Inspection Details**
  - Activity Details (dates, hours, etc.)
- **Inspection Footer**
  - Conformance with Permit (required)
  - Enforcement Actions
  - Inspection Remarks
- **SC, SD, and SP Checklist Section**
  - Location (Pad)
  - Equipment
  - Roads
  - Pits, Ponds, and Tanks
  - Utilities
  - Other

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Form 3160-33
(Sept 2018)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

ENVIRONMENTAL SURFACE (ES) INSPECTION FORM

Inspection Header

Inspection Target

☐ Support Facility(s)

Name	Number	Type	Status

☐ Production Facility(s)

Name / Number	Status

☐ Well(s)

Well Name	Well Number	US Well Number	Lease	Well Status
Hawk Federal	24-5	0506708773	COC017455	PGW

Inspection Target Details

Operator	Case	Latitude	Longitude	Priority
Anderson Natural Resources Inc.	NA	37.172704	-107.755215	H

Aliquot	Lot	Tract	Section	Township	Range	Meridian	County	State
NWNE	-	-	27	34N	7W	NMP	La Plata	CO

Input Well or Facility Information

Input Well or Facility Location Data

Filled-Out Example

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Select an Inspection Category

Select if Partial Inspection (*partial inspections are rare*)

Inspection Details

New ☑ Follow-up ☐			Partial Inspection - Yes ☐ No ☑				
Open Date: 11/17/2020		Inspection Date: 11/18/2020	Close Date: 11/18/2020		AFMSS Date: 11/18/2020		
Activity	Inspector	Contractor	Open	Close	Office	Travel	Inspection
SD	J. Doe	-	11/17	11/18	1.1	0.7	0.5

Filled-Out Example

Fill in Activity Details

**The "Inspection Details" section is similar to AFMSS entries.*

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Mark whether or not operations are in compliance with the requirements associated with the APD or Sundry Notices

Inspection Footer

Operations are in Conformance with Permit Requirements:	YES ☑	NO ☐	(REQUIRED FOR ALL INSPECTIONS)	
Follow-up Requirements: (select all that apply)	☑ NONE	☐ VERBAL	☐ ORDER	☐ INC

General Remarks:

Arrived on location during drilling activities.
After checking-in with the company man, toured drill site - no leaks or spills were found.
Closed-loop system was being utilized as permitted in APD.
All other waste was properly contained.
Brine storage tanks and fuel tanks were within adequate lined secondary containment as permitted in APD - No tears or damage to liner.
Activities have remained within the permitted surface disturbance area.
No issues were found.

FAN Approval Recommendation: (select only one)	☐ APPROVE	☐ DENY	☐ NA

Follow-up Remarks:

Next ES Date:

Mark whether or not any enforcement actions will be issued

Include general inspection notes pertinent to the ES-SD inspection. Clarify important items from the checklist on the back of the form.

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Location (Pad)	
L1. Location properly signed: (43 CFR 3162.6) Well Number, Survey Location, Operator, Serial Number	/
L2. Topsoil/Spoils: Segregation, Placement, Volumes, and Signing	
L3. Noxious Weed and Vegetation Control	/
L4. General Housekeeping	/
L5. Erosion and Stormwater Control	/
L6. Free of Spills or Leaks	/
L7. Dust Abatement	/
L8. Other:	O

Filled-Out Example

L1. Does the well have identification? Well signs are usually installed after drilling, when an actual wellhead is present.

L2. This item is completed for an ES-SC inspection.

L3. Are invasive vegetation and noxious weeds being controlled? This line item is typically for SP inspections, unless the well site has been sitting out there for a while before being drilled.

L4. Is the site being maintained in a workmanlike manner free of loose trash?

L5. Are stormwater controls being maintained? Are there any erosion issues?

L6. Is the soil free of oil, toxic fluid, or produced water spills?

L7. Has the operator implemented dust abatement measures as required by the approved APD and COAs? Examples: water application during heavy activity, etc.

L8. Include any other aspects of drilling that need mentioned here.

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Equipment (Drilling and/or Production)	
E1. Paint/Screening Blends with the Background	O
E2. Hazardous Material Labeled and Maintained	/
E3. Secondary Containment: Maintained and Adequate Capacity	/
E4. Drip Pans	/
E5. Erosion and Stormwater Control	/
E6. Emissions Control	/
E7. Exhaust Stacks: Constructed to Prevent Bird/Bat Mortality	O
E8. Flow Back Containment	O
E9. Other:	O

Filled-Out Example

E1. This item is typically completed for an ES-SP inspection, unless APD COAs cover visual issues during drilling.

E2. Do chemical tanks have labels and are maintained?

E3. Do fuel and non-freshwater storage tanks have secondary containment as required by the APD and COAs?

E4. Have drip pans been installed at hose connection points as required by the APD and COAs?

E5. Are stormwater controls being maintained? Are there any erosion issues?

E6. Have emission controls been implemented as required by the APD and COAs (e.g., Tier 2 drilling rig, flare, etc.)?

E7. This item is typically completed for an ES-SP inspection

E8. Ensure tanks, ponds, pits or other containers are of sufficient volume to contain anticipated volumes.

E9. Include any other aspects of drilling that need mentioned here.

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Roads	
R1. Culverts, Waterdips, and Other Water Crossings	O
R2. Drainage and Ditches	/
R3. Noxious Weed Control	O
R4. Cattleguards	O
R5. Gates	O
R6. Dust Abatement	/
R7. Surface Material	/
R8. Maintenance Needs	/
R9. Other:	O

Filled-Out Example

R1. Are culverts, water dips, and other water crossings being maintained in proper functioning condition?

R2. Are road drainage and roadside ditches being maintained?

R3. Are invasive vegetation and noxious weeds being controlled? This line item is typically for SP inspections, unless the road has been sitting out there for a while before drilling operations.

R4. Are cattleguards being maintained?

R5. Are gates being maintained?

R6. Has the operator implemented dust abatement measures as required by the approved APD and COAs? Examples: water application, etc.

R7. Has the operator-maintained road surfacing material in accordance with the approved APD and COAs?

R8. Is the road in general being maintained?

R9. Include any other aspects of road maintenance that need mentioned here.

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Pits, Ponds, and Tanks		
P1.	Pit/Pond – Type(s): Reserve pit	/
P2.	Closure	O
P3.	Fenced and/or Netted	/
P4.	Freeboard – 2 feet or more	/
P5.	Erosion and Stormwater Control	/
P6.	Liner Condition / No Visible Leaks or Failures	/
P7.	Leak Detection	/
P8.	Free of Oil, Trash, Wildlife, and Livestock	/
P9.	Other:	O

Filled-Out Example

P1. Are pits or ponds being used and maintained in accordance with the approved APD and COAs? Include the type of pit or pond (e.g., reserve pit, frac pond, frac tank, etc.).

P2. This item involves closure and not maintenance.

P3. Where fencing and/or netting installed and maintained in accordance with the approved APD and COAs?

P4. Determine if required two feet of freeboard is maintained and the pit appears to be able to accommodate unexpected fluids.

P5. Was the pit/pond constructed to prevent erosion or stormwater issues as approved in APD and COAs?

P6. Assess erosion and sedimentation to ensure the pit/pond/tank is not being filled with excessive sediments or being undermined by erosion. Determine if erosion control features are present, installed properly, and effective.

P7. Has the operator installed leak detection in accordance with the approved APD and COAs?

P8. Is the pit/pond free of oil, trash, wildlife, and/or livestock?

P9. Include any other aspects of pit/pond that need mentioned here.

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Utilities	
U1. Pipeline Markers	O
U2. Topsoil/Spoils Segregation, Placement, Volumes, and Signing	/
U3. Noxious Weed Control	O
U4. Power Lines and Poles	O
U5. Erosion and Stormwater Control	O
U6. Other	O

Filled-Out Example

This “Utilities” section is typically completed with the ES-SC or ES-SP inspection. Procedures for completing this section of Form 3160-33 can be found in those sections of this presentation.

Process for Environmental/Surface Inspections (ES-SD)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SD

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Other	
O1. Natural Watercourses Free of Development-related Debris and Erosion	/
O2. Construction/Drilling Contractor has a Copy of the Approved APD	/
O3. Other:	O
O4. Other:	O

Filled-Out Example

O1. Determine if channels are free of development related obstructions (e.g., drilling equipment, etc.) and erosion resulting from development activities.

O2. Determine if the drilling contractor has a copy of the approved APD and COAs as required by Onshore Order No. 1.

O3. Describe any issues or concerns not addressed as part of other checklist items.

O4. Describe any issues or concerns not addressed as part of other checklist items.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

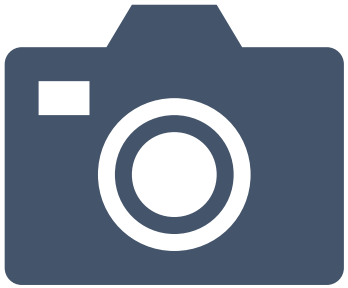
Process for Environmental/Surface Inspections (ES-SD)

Step 6

- **Take Photographs**

What should the inspector know about taking photographs?

- **Photograph important aspects of the inspection:**
  - Components of the drilling operation
    - *Waste handling and containment*
    - *Drilling fluid and cuttings areas*
    - *Reserve pit (if present)*
  - Containment structures
  - Special APD or COA aspects
    - *(e.g., berm pad during drilling)*
  - Violations or Problems



Process for Environmental/Surface Inspections (ES-SD)

Step 6

- **Take Photographs**

Examples:

Active leak of produced water on NE corner of well pad

Produced water tanks and chemicals within lined containment; Empty chemical container in foreground

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SD)

Step 7

- **Verify Compliance**

How does an inspector verify compliance?

- **Confirm compliance with APD and COAs**
- **Confirm compliance with lease stipulations and any sundry notices**
- **Compare measurements, calculations, and GPS-mapped disturbances to the APD diagrams**
  - Determine if the holding capacity for secondary containment structures are adequate*.

**Note: Calculating holding capacity will be covered in the ES-SP section of this presentation.*

Process for Environmental/Surface Inspections

Conducting Interim Reclamation Inspections (ES-IR)

Process for Environmental/Surface Inspections (ES-IR)

What is the purpose and importance of interim reclamation?

- During the life of the development, all disturbed areas not needed for active support of production operations should undergo “interim” reclamation in order to minimize the environmental impacts of development on other resources and uses.

- The purpose of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat and forage loss, visual impact, and weed infestation during the life of the well or facilities.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-IR)

Step 1

- **Locate Well Site**

How does an inspector know when to perform an interim reclamation inspection?

- Query wells in AFMSS 2 that have been drilled and completed in the last 6 to 12 months
- Keep a cuff record of wells that have been drilled in the last 6 to 12 months

Process for Environmental/Surface Inspections (ES-IR)

Step 1

- **Locate Well Site**

When should the inspector perform the ES-IR inspection?

6 to 12 months after the completion date of the well

- **Ensure to check the APD or Sundries for extensions to this deadline**
- **APDs for multi-well pads may have a proposed schedule to complete interim reclamation**
  - e.g., Given the proposed drilling schedule in the MDP, the operator will complete interim reclamation 6 months after the last well on the pad is completed for production. If the schedule changes, the operator will submit a Sundry Notice NOI to update the reclamation plan schedule.

Periodically after IR earthwork has been completed

- **Inspection associated with vegetation monitoring and success of revegetation (also code EM-IR if you are monitoring revegetation)**

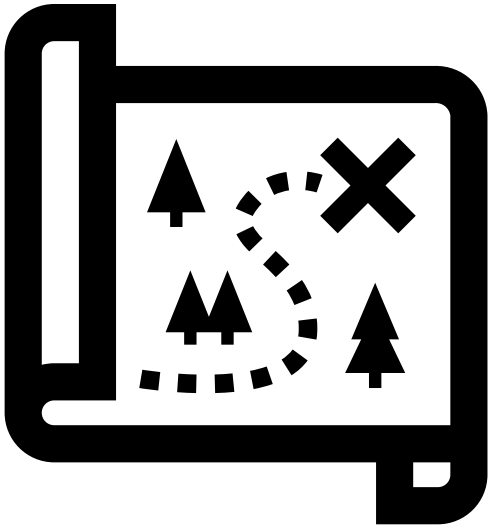
Process for Environmental/Surface Inspections (ES-IR)

Step 1

- **Locate Well Site**

What should the inspector do prior to traveling to conduct the inspection?

- Conduct action research
- Determine location of the well
  - Use AFMSS, ArcMap, Google Earth, APD diagrams/maps, etc.
- Print necessary maps
- Collect proper PPE, supplies, and equipment
- Initiate proper check-out procedures (*e.g., in-out board*)



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-IR)

Step 2

- **Confirm Location**

When an inspector arrives at a well site, how does the inspector confirm they are at the correct location?

- Verify location with the well identification sign
- Sign must include:
  - Name of the Operator
  - Lease Serial Number
  - Well Number (i.e., Well Name)
  - Surveyed Location
    - Qtr-Qtr, Section, Township, & Range or
    - Other Authorized Officer-Approved Survey Designation
      - (e.g., Longitude and Latitude)

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-IR)

Step 3

- **Consider Safety Protocols**

What are some examples of hazards that could be present during an interim reclamation inspection?

- **Heavy equipment operation (e.g., bulldozer, tractor, etc.)**
  - Inform the company representative/site manager of your presence
  - Operator may require a reflective vest
- **Nearby oil and gas well site**
  - Moving equipment (e.g., pumping unit, etc.)
  - Potential gas releases
  - Potential fire hazards
  - Potential spills of contaminants
- **Trip and fall hazards**
- **Loose soil and rocks**
- **Steep slopes**
- **Biological hazards (e.g., snakes, thorns, etc.)**

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-IR)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What do surface inspectors check during the initial ES-IR inspection (6 months after the well's completion date)?

- **Completion of Interim Reclamation Earthwork**
  - Determine if earthwork was completed within 6 months of completion date
- **Size and Shape of Interim Reclamation**
  - Measure or GPS downsized production pad
  - Measure and/or GPS interim reclamation areas
  - Verify compliance with interim reclamation layout
- **Compliance with Interim Reclamation Plan in APD**
  - Recontouring
  - Topsoil redistribution
  - Soil preparation
  - Seeding
  - Mulching
  - Stormwater management features
- **Pit Closure (if present)**
- **Rat/Mouse**
- **Well Cellar**
- **Compliance with other APD/COA requirements**

Process for Environmental/Surface Inspections (ES-IR)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What do surface inspectors check during the subsequent, monitoring-type ES-IR/EM-IR inspections?

- **Stormwater Management**
  - Adequacy of implemented features
  - Presence of erosion issues
- **Invasive Species/Noxious Weeds**
  - Presence
  - Evidence of control (e.g., wilting, limited number of plants, etc.)
- **Presence of Contaminated Soil**
  - (e.g., barren soil with white residue, hydrocarbon stains, etc.)
- **Revegetation Success**
  - Perform vegetation survey to determine if revegetation of desired perennial species was successful
- **Compliance with other APD/COA requirements**

Process for Environmental/Surface Inspections (ES-IR)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What supplies or tools are needed for the inspection activity and to verify compliance with the APD and/or Sundry Notices?

- **Measuring Device (measuring wheel, tape measure)**
  - Measure production pad, IR areas, disturbance limits
- **GPS**
  - Map production pad, IR areas, disturbance limits
- **Clinometer**
  - Determine if recontoured slopes comply with APD
- **Rod or Pin**
  - Helps complete vegetation surveys
- **State's Noxious Weed List**
- **Camera**
  - Photograph inspection
  - Photograph issues/violations

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-IR)

Step 5

- **Complete Inspection Form**

Which sections of Form 3160-33 must be completed for the ES-IR inspection?

- **Inspection Header**
  - Well or Facility Information and Location
- **Inspection Details**
  - Activity Details (dates, hours, etc.)
- **Inspection Footer**
  - Conformance with Permit (required)
  - Enforcement Actions
  - Inspection Remarks
- **IR Checklist**

Process for Environmental/Surface Inspections (ES-IR)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-IR

- **Fill out the following sections of the form in the same manner as the ES-SC and ES-SD inspections:**
  - Inspection Header
  - Inspection Details
  - Inspection Footer
    - Remarks should pertain interim reclamation
- **Filling out the IR Checklist will be covered next**.

Process for Environmental/Surface Inspections (ES-IR)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-IR

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

IR1.	Size and Shape	/
IR3.	Recontouring	/
IR5.	Surface Roughness/Soil Preparation	/
IR7.	Topsoil	/
IR9.	Mulch/Amendments	O
IR11.	Seeding	/
IR13.	Revegetation Success	X
IR15.	Successful IR	X
IR17.	Original Disturbance Acres: 5.6 acres	

Filled-Out Example

IR1. Evaluate whether the spatial extent of interim reclamation matches the approved plat and plan.

IR3. Determine whether interim reclamation matches the approved plat and plan with optimal recontouring.

IR5. Determine if the soils have been properly prepared for planting (i.e., decompacted for seeding).

IR7. Was topsoil utilized in accordance with the approved APD and COAs?

IR9. Was mulch/amendments utilized in accordance with the approved APD and COAs?

IR11. Determine if seeding occurred in accordance with the approved APD and COAs.

IR13. Determine if interim reclamation has resulted in a desirable plant community or to APD or RMP standards.

IR15. Determine if all required conditions are met to declare the IR successful.

IR17. Input the acres disturbed prior to IR.

Process for Environmental/Surface Inspections (ES-IR)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-IR

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

IR2.	Noxious Weed Control	/
IR4.	Free of Oil or Salt Contaminated Soil	/
IR6.	Erosion and Stormwater Control	/
IR8.	Reclamation Fence	O
IR10.	Rat and Mouse Holes Closed	/
IR12.	Pit Closure/Remediation	O
IR14.	Well Cellar Excludes Wildlife & Livestock	/
IR16.	Other:	O
IR18.	Interim Reclaimed Acres: 1.2 acres	

Filled-Out Example

IR2. Determine if any weeds exist and control measures are adequate.

IR4. Are there signs of contaminated soil within the IR areas.

IR6. Determine if erosion control features from the APD are present, installed properly, and effective.

IR8. Determine if fencing was installed to protect reclamation as required by the APD or COAs.

IR10. Determine if the rat/mouse holes are reclaimed to adequately prevent human, livestock or wildlife injury or entrapment.

IR12. Evaluate the closure of pits in compliance with the approved permit.

IR14. Determine if the well cellar is properly covered to adequately prevent human, livestock or wildlife injury or entrapment.

IR16. Describe any interim reclamation issues or concerns not addressed as part of other checklist items.

IR18. Input the acres reclaimed for IR.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

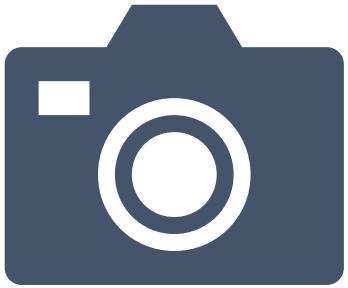
Process for Environmental/Surface Inspections (ES-IR)

Step 6

- **Take Photographs**

What should the inspector know about taking photographs?

- **Photograph important aspects of the inspection:**
  - Downsized Production Pad
  - Recontoured Slopes
  - Topsoil Utilization or Storage
  - Seeding/Mulching
  - Stormwater Management Features
  - Revegetation
  - Problems or Violations



Process for Environmental/Surface Inspections (ES-IR)

Step 6

- **Take Photographs**

Examples:

Revegetation of perennial species on north side of well site; Musk thistle also prevalent in the interim reclamation area

West side of well site seeded and mulched for interim reclamation; Stormwater management outflow off west side of well site

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

How does an inspector verify compliance?

- **Confirm compliance with APD and COAs**
- **Confirm compliance with lease stipulations and any sundry notices**
- **Compare measurements, calculations, and GPS-mapped disturbances to the APD diagrams**
  - Determine if the measured interim reclamation complies with the approved APD IR diagram and IR plan.
  - Determine if the revegetation is adequate.*

**Note: Determining revegetation success will be covered in the ES-SA section of this presentation.*

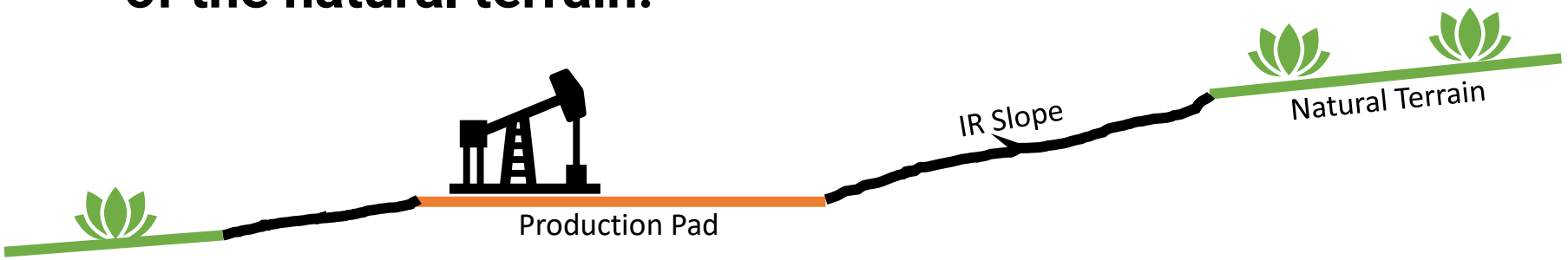
Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

How does an inspector determine if recontouring is adequate?

- **Verify the requirements in the APD or COAs**
  - (e.g., slopes will be no steeper than 3:1, slopes will blend with surrounding topography, etc.)
- **Determine if the outside edges of the interim reclamation blend into the natural slopes**
- **Typical recontoured slopes should have a gradual grade from the edge of the production pad to the edge of the natural terrain:**



Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

EXAMPLE: Adequate Interim Reclamation Recontouring

Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

How does an inspector determine if soil preparation is adequate?

- **Verify the requirements in the APD or COAs**
- **Determine if compacted areas have been recontoured and/or ripped and disked**
  - Seeding should not occur on compacted soils

Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

How does an inspector determine if appropriate seeding occurred?

- **Verify the requirements in the APD or COAs**
  - APD or COAs typically provide a seed mixture
  - APD or COAs may state that the operator must provide the seed tags to the BLM
- **Look for evidence of seeds or drill-seeder rows**
- **Contact the operator**

This Photo

Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

How does an inspector determine if appropriate mulching occurred?

- **Verify the requirements in the APD or COAs**
  - APD or COAs typically state that certified weed-free mulch must be used
- **Evidence of weed-free mulch:**
  - Colored twine or galvanized wire (e.g., straw, hay, etc.)
  - Tags
- **Look for straw mulch adequately covering reclaimed areas**

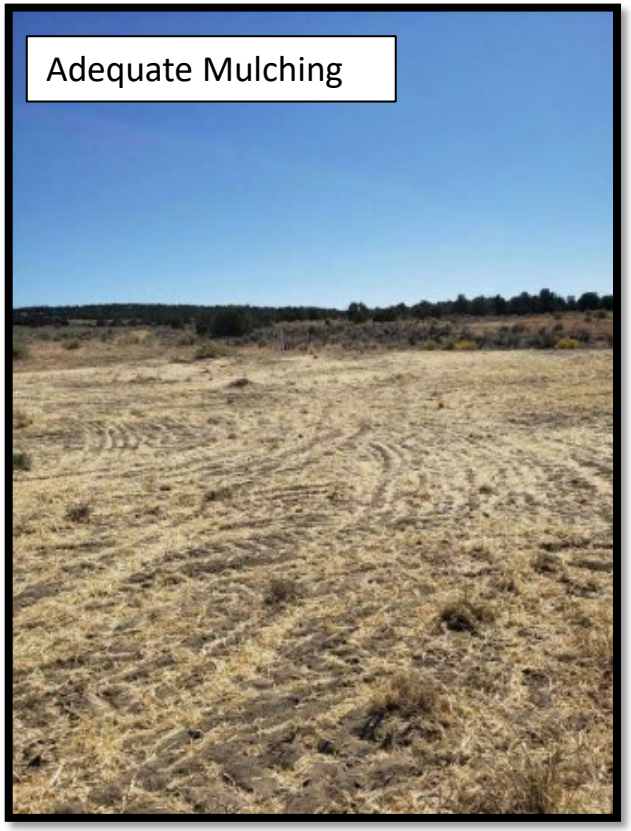
Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

EXAMPLE: Mulching

Orange/Blue twine in SW Colorado means weed-free mulch



Process for Environmental/Surface Inspections (ES-IR)

Step 7

- **Verify Compliance**

When does an inspector verify if revegetation is adequate?

- **Depends on your climate**
- **Coordinate with your range specialist, botanist, etc. to determine an appropriate time to check**
- **Typically, 3-5 years**

How does an inspector verify if revegetation is adequate?

- **Complete vegetation survey during an EM-IR to determine if revegetation is successful***

**Note: Determining revegetation success will be covered in the ES-SA section of this presentation.*

Process for Environmental/Surface Inspections

Conducting Surface Production Inspections (ES-SP)

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

Step 1

- **Locate Well Site**

When does an inspector perform an ES-SP inspection?

- After the well has been completed for production
- Prior to plugging operations
- This inspection can be conducted on a producing, shut-in, temporarily abandoned, or service well and/or facility (*H-3160-5, pg. 4 of Appendix 1*)

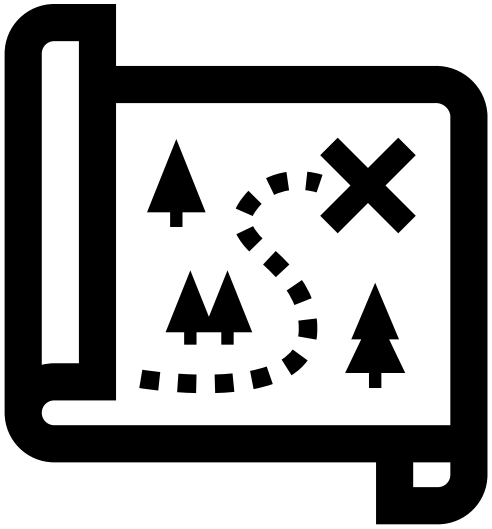
Process for Environmental/Surface Inspections (ES-SP)

Step 1

- **Locate Well Site**

What should the inspector do prior to traveling to conduct the inspection?

- Conduct action research
- Determine location of the well
  - Use AFMSS, ArcMap, Google Earth, APD diagrams/maps, etc.
- Print necessary maps
- Collect proper PPE, supplies, and equipment
- Initiate proper check-out procedures (*e.g., in-out board*)



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

Step 1
- **Locate Well Site**

Step 2
- **Confirm Location**

Step 3
- **Consider Safety Protocols**

Step 4
- **Inspect Well Site, Access Road, Facilities, etc.**

Step 5
- **Complete Inspection Form**

Step 6
- **Take Photographs**

Step 7
- **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

Step 2

- **Confirm Location**

When an inspector arrives at a well site, how does the inspector confirm they are at the correct location?

- Verify location with the well identification sign
- Sign must include:
  - Name of the Operator
  - Lease Serial Number
  - Well Number (i.e., Well Name)
  - Surveyed Location
    - Qtr-Qtr, Section, Township, & Range
      or
    - Other Authorized Officer-Approved Survey Designation
      - (e.g., Longitude and Latitude)

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

Step 3

- **Consider Safety Protocols**

What are some examples of hazards that could be present during a surface production inspection?

- **Heavy equipment operation (e.g., haul trucks, tractors, etc.)**
  - Avoid large vehicles or work areas
- **Moving equipment (e.g., pumping unit, etc.)**
- **Potential gas releases**
- **Potential fire hazards**
- **Potential spills of contaminants**
- **Trip and fall hazards**
- **Wildlife hazards (e.g., snakes, etc.)**

Process for Environmental/Surface Inspections (ES-SP)

Step 3

- **Consider Safety Protocols**

Under which circumstances should the inspector avoid being on a well location to perform an ES-SP inspection?

- **Workover Operations**
  - Revisit the site when workover operations are concluded
- **Triggered Gas Alarms (H_2S)**
  - Avoid a site when alarms are activated at the site and contact the operator if possible

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What do surface inspectors check during the inspection activity?

- **Placement of Production Facilities**
  - Compare facilities to the APD's production facility diagram
- **Color of Production Facilities**
  - Use BLM's Color Chart to compare the facilities paint color to the approved color in the APD or COAs
- **Secondary Containment Structures**
  - Measure the containment structures
  - Determine adequacy in the event of a spill or APD/COA requirement
- **Catchment Basins for Non-Freshwater Vessels (e.g., engine oil barrel)**
  - Determine if appropriate wildlife protections are in place
- **Avian Screening on Exhaust Stacks (e.g., separators, tanks, etc.)**
- **Stormwater Control Features and Erosion Issues**
- **Presence of Leaks or Spills**
- **Placement and Maintenance of Pits**
- **Compliance with APD, COAs, and Sundry Notices**

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What supplies or tools are needed for the inspection activity and to verify compliance with the APD and/or Sundry Notices?

- **Measuring Device (measuring wheel, tape measure, stadia rod)**
  - Measure secondary containment structures
  - Measure height of facilities (e.g., VRM COA)
- **GPS**
  - Map secondary containment structures
- **Sound Meter**
  - Measure noise levels (if necessary)
- **Clinometer**
  - Measure height of facilities (e.g., VRM COA)
- **BLM Color Chart**
  - Compare to color of facilities
- **Camera**
  - Photograph inspection
  - Photograph issues/violations

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 1: Measure and calculate overall volume of secondary containment

Step 2: Measure and calculate displaced volumes

Step 3: Calculate effective holding capacity of secondary containment

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 1: Measure and calculate overall volume of secondary containment

- **Vertical containment walls:**
  - **Calculate volume by multiplying area (A) and height (h) of containment**
    - **FORMULA: V = A(h)**
  - **Measuring area of containment:**
    - **Rectangular structure**
      - **Area (A) = length (l) x width (w)**
      - **A = l x w**
    - **Circular structure**
      - **Use circumference (C) to find area or GPS the area**
      - **$A = \pi[C/(2\pi)]^2$**
  - **Measure lowest height of containment (*i.e., this is where fluids would exit containment*)**

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

DEMONSTRATION: Calculating Overall Volume of Containment (Vertical Containment Walls)

$A = \pi[C/(2\pi)]^2$ **h = 3 ft**

$A = \pi[140'/(2\pi)]^2$

$A = \pi[140/(6.283)]^2$

$A = \pi[22.282]^2$

$A = \pi[496.488]$

$A = 1{,}560\ ft^2$

V = A(h)

V = 1560(3)

V = 4,680 cubic feet

Circumference: 140 feet

Containment Wall Height: 3 feet

Process for Environmental/Surface Inspections (ES-SP)

Step 4

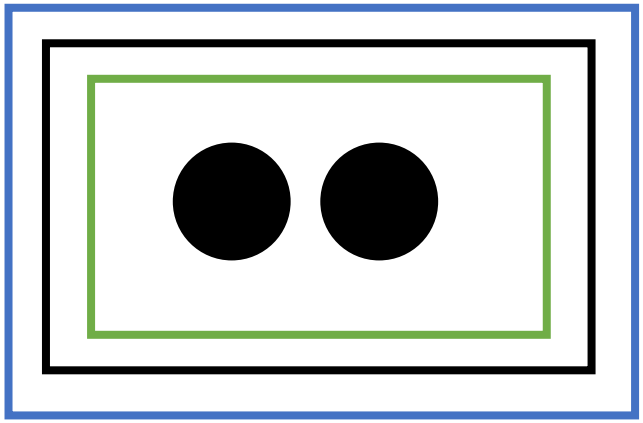
- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 1: Measure and calculate overall volume of secondary containment

- **Earthen berm walls:**
  - **Calculate volume**
    - **(V_1) multiplying area and height of containment for top of berm**
    - **(V_2) multiplying area and height of containment for interior bottom edge of berm**
    - **Determine average volume capacity by dividing the two volumes by two (2)**

Formula: Average Volume = (V_1+V_2)/2



Green Line: Interior Bottom Edge of Berm
Black Line: Top of Berm
Blue Line: Exterior Bottom Edge of Berm

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

DEMONSTRATION: Calculating Overall Volume of Containment (Earthen Containment Walls)

$V_1 = (L \times w)h$

$V_1 = (30 \times 50)3$

$V_1 = (1{,}500)3$

$V_1 = 4{,}500$

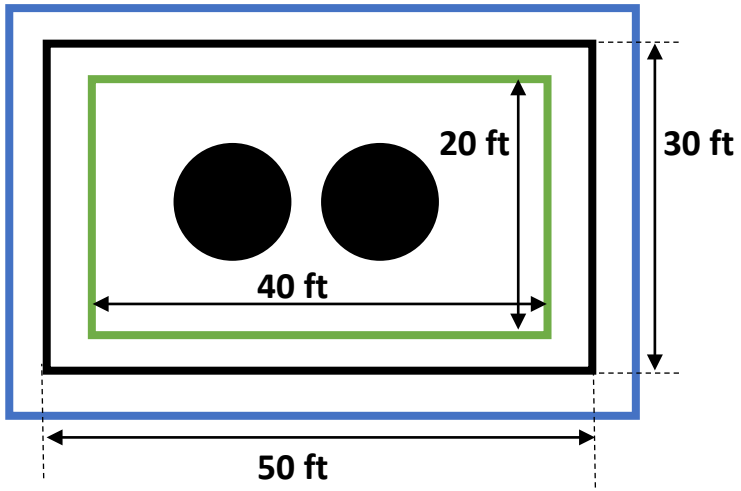
$V_2 = (L \times w)h$

$V_2 = (20 \times 40)3$

$V_2 = (800)3$

$V_2 = 2{,}400$

Berm Height (h) = 3 ft



Average V = $(V_1+V_2)/2$

Avg. V = (4,500 + 2,400)/2

Avg. V = (6,900)/2

Avg. V = 3,450 cubic feet

Process for Environmental/Surface Inspections (ES-SP)

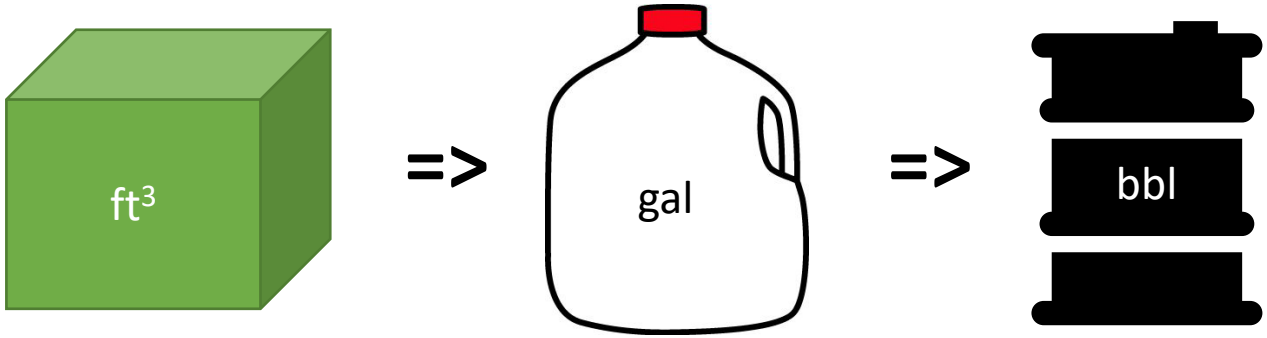
Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 1: Measure and calculate overall volume of secondary containment

- **Convert cubic feet to gallons:**
  - **7.48 gallons are in 1 cubic feet**
- **Convert gallons to barrels:**
  - **42 gallons are in 1 barrel***



**Oil and Produced Water*

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

DEMONSTRATION: Converting Cubic Feet to Barrels

V = 4,680 cubic feet

$V_{(gal)}$ = cubic feet(7.48)
$V_{(gal)}$ = 4,680 ft^3(7.48)
$V_{(gal)}$ = <u>35,006</u> gallons

$V_{(bbl)}$ = gallons/42
$V_{(bbl)}$ = 35,006/42
$V_{(bbl)}$ = <u>834</u> barrels

4,680 ft^3 = 35,006 gal = 834 bbl

<u>Circumference</u>: 140 feet
<u>Containment Wall Height</u>: 3 feet

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

DEMONSTRATION: Converting Cubic Feet to Barrels

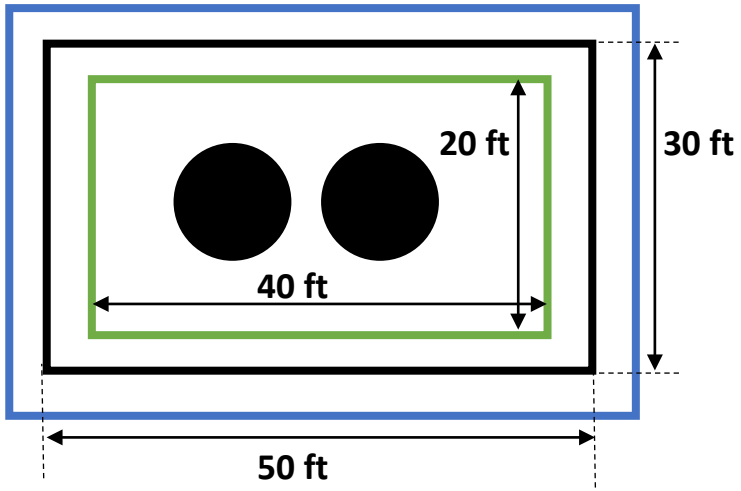
Avg. V = 3,450 cubic feet

$V_{(gal)}$ = cubic feet(7.48)
$V_{(gal)}$ = 3,450 ft^3(7.48)
$V_{(gal)}$ = 25,806 gallons

$V_{(bbl)}$ = gallons/42
$V_{(bbl)}$ = 25,806/42
$V_{(bbl)}$ = 614 barrels

3,450 ft^3 = 25,806 gal = 614 bbl

Berm Height (h) = 3 ft



Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 2: Measure and calculate displaced volumes

- Displaced volumes for other tanks/structures:
  - Volumes displaced is calculated by finding the volume of the tanks or structures by using the height of the secondary containment.
  - Add up all the displaced volumes from multiple tanks/structures.

  - **EXAMPLES**:
    - If only one tank resides within the containment, then there are no other displaced volumes.
    - If two tanks reside within the containment, then calculate the volume displaced by the other smaller tank.
    - If three tanks reside within the containment, then calculate the volumes displaced by the other two smaller tanks.

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 2: Measure and calculate displaced volumes

- **Volume of a cylinder (tank):**
  - **FORMULA: $V = \pi r^2 h$**
    - **r = radius**
    - **h = height of containment**

- **Typically, tank diameters can be found on a placard on back of tank (divide the diameter by 2 to get the radius)**

- **Calculate volume of other structures in the containment**
  - **(e.g., buildings, smaller tanks, etc.)**

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

DEMONSTRATION: Calculating Displaced Volumes ($V_{(d)}$)

$$V_{(d)} = A(h)$$

$V_{(d)} = \pi r^2 h$
$V_{(d)} = \pi(7.75^2)3$
$V_{(d)} = \pi(60.1)3$
$V_{(d)} = (188.7)3$
$V_{(d)} = 566\ ft^3$

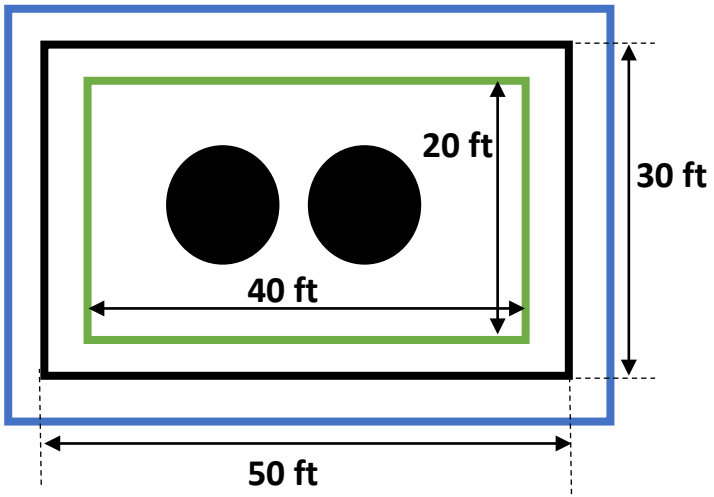
Convert to Gallons

$V_{(d)} = 566(7.48)$
$V_{(d)} = 4{,}233.68\ gal$

Convert to Barrels

$V_{(d)} = 4{,}233.68/42$
$V_{(d)} = 101$ bbl Displaced

Berm Height (h) = 3 ft



Two 400 bbl tanks (15.5' wide)

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What does a surface inspector need to measure and calculate to determine if a secondary containment structure is adequate?

Step 3: Calculate effective holding capacity of secondary containment

- **Basically, the effective holding capacity is the volume that the secondary containment structure can hold in the event of a spill, considering other facilities in the secondary containment structure.**

- **FORMULA:** $V_{(EHC)} = V_{(O)} - V_{(d)}$

$V_{(EHC)}$ = Effecting holding capacity (volume)
$V_{(O)}$ = Overall volume of secondary containment
$V_{(d)}$ = Total volume displaced by tanks or structures

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

DEMONSTRATION: Calculating Effective Holding Capacity

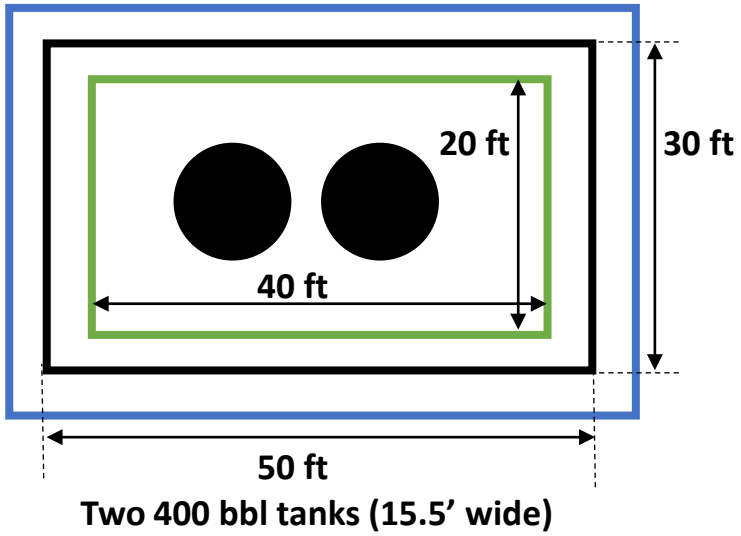
$$V_{(EHC)} = V_{(O)} - V_{(d)}$$

$V_{(EHC)}$ = 614 bbl – 101 bbl

$V_{(EHC)}$ = 513 bbl

The effective holding capacity of this secondary containment structure is approximately 513 barrels.

Berm Height (h) = 3 ft



Two 400 bbl tanks (15.5’ wide)

Overall Secondary Containment Volume: 614 bbl
Displaced Volume: One tank = 101 bbl

Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

How does an inspector use a clinometer to calculate height of a structure or facility?

- **Using the Clinometer**
  - Stand any convenient horizontal baseline distance from a structure in which you can see both the top and bottom of the structure.
  - Remain at the same elevation as the structure.
  - Then sight the top of the of the object for the top % reading and the bottom of the object for the bottom % reading.
  - Use the following formula:
    - (% Reading to Top) + (% Reading to Bottom) = Total % Height then
    - (Total % Height) x (Horizontal Baseline Distance) = Height

**Note: Treat all clinometer readings as positive numbers*

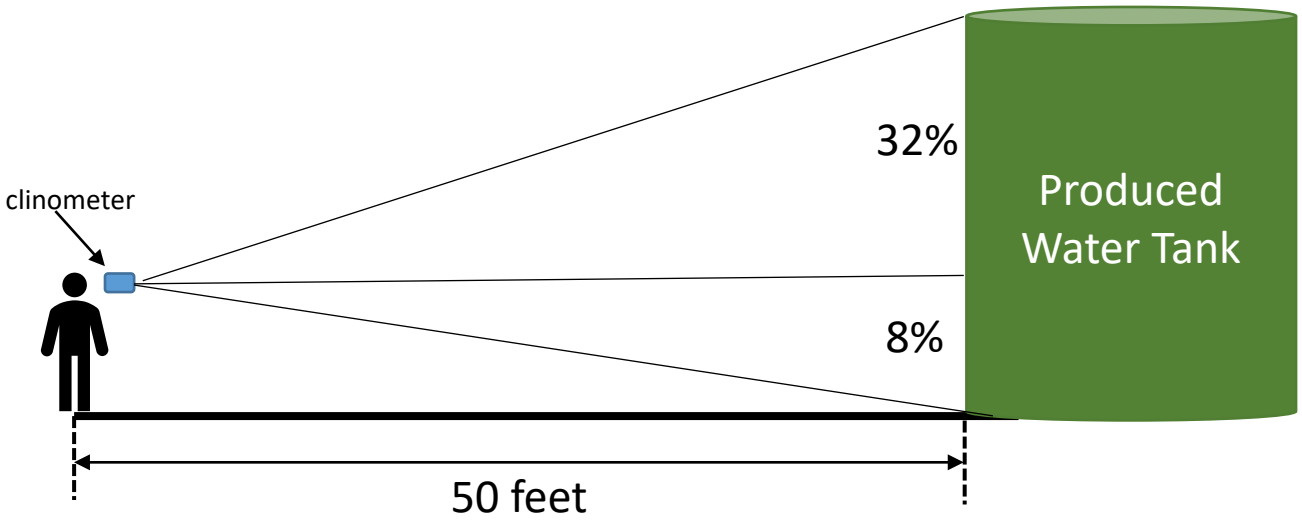
Process for Environmental/Surface Inspections (ES-SP)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

How does an inspector use a clinometer to calculate height of a structure or facility?

➢ **Using the Formula: Height = $\left(\frac{X + Y}{100}\right)D$**



Legend:
X = % Reading to Top of Tank
Y = % Reading to Bottom of Tank*
D = Baseline Distance to Tank

Formula:
Height = [(X+Y)/100]D
Height = [(32% + 8%)/100]50’
Height = [(40%)/100]50’
Height = 0.40 x 50’
Height = 20 feet

**Note: Treat all clinometer readings as positive numbers*

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

Which sections of Form 3160-33 must be completed for the ES-SP inspection?

- **Inspection Header**
  - Well or Facility Information and Location
- **Inspection Details**
  - Activity Details (dates, hours, etc.)
- **Inspection Footer**
  - Conformance with Permit (required)
  - Enforcement Actions
  - Inspection Remarks
- **SC, SD, and SP Checklist**
  - Location (Pad)
  - Roads
  - Utilities
  - Pits, Ponds, and Tanks
  - Other

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

- **Fill out the following sections of the form in the same manner as the ES-SC and ES-SD inspections:**
  - Inspection Header
  - Inspection Details
  - Inspection Footer
    - Remarks should pertain production operations
- **Filling out the checklist on the back of the form will be covered next.**

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

L1.	Location properly signed: (43 CFR 3162.6) Well Number, Survey Location, Operator, Serial Number	X
L2.	Topsoil/Spoils: Segregation, Placement, Volumes, and Signing	O
L3.	Noxious Weed and Vegetation Control	/
L4.	General Housekeeping	/
L5.	Erosion and Stormwater Control	/
L6.	Free of Spills or Leaks	/
L7.	Dust Abatement	/
L8.	Other:	O

Filled-Out Example

L1. Determine if the well sign is installed in a conspicuous place and legible with accurate information compliant with 43 CFR 3162.6.

L2. This line items is more pertinent to the ES-SC inspection.

L3. Determine if any invasive species or noxious weeds exist and control measures are adequate.

L4. Is the site being maintained in a workmanlike manner free of loose trash or unused production equipment?

L5. Did the operator install erosion or stormwater controls as required in the approved APD and COAs. Are there any erosion issues?

L6. Is the site free of oil, toxic fluid, or produced water spills?

L7. Has the operator implemented dust abatement measures as required by the approved APD and COAs? Examples: graveled surface, water application, etc.

L8. Describe any pad issues or concerns not addressed as part of other checklist items.

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Equipment (Drilling and/or Production)	
E1. Paint/Screening Blends with the Background	/
E2. Hazardous Material Labeled and Maintained	/
E3. Secondary Containment: Maintained and Adequate Capacity	X
E4. Drip Pans	/
E5. Erosion and Stormwater Control	/
E6. Emissions Control	/
E7. Exhaust Stacks: Constructed to Prevent Bird/Bat Mortality	/
E8. Flow Back Containment	O
E9. Other:	O

Filled-Out Example

E1. Determine if the paint color of above-ground facilities (not subject to special safety requirements) complies with the approved APD and COAs.

E2. Do chemical tanks have labels and are maintained?

E3. Calculate secondary containment capacity and estimate if the capacity is adequate to hold a release from the largest tank (check the approved APD and COAs).

E4. Determine the adequacy of implemented techniques for excluding wildlife entry into catchment basins for chemicals or fuel vessels (i.e., netting, enclosed, etc.)

E5. Are stormwater controls being maintained? Are there any erosion issues?

E6. Have emission controls been implemented as required by the APD and COAs (e.g., combuster, VRU, flare, mufflers, etc.)?

E7. Is there adequate wildlife protections for exhaust stacks?

E8. This line item is typically associated with the ES-SD inspection.

E9. Include any other aspects of production that need mentioned here.

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Roads	
R1. Culverts, Waterdips, and Other Water Crossings	/
R2. Drainage and Ditches	/
R3. Noxious Weed Control	X
R4. Cattleguards	/
R5. Gates	O
R6. Dust Abatement	/
R7. Surface Material	/
R8. Maintenance Needs	/
R9. Other:	O

Filled-Out Example

R1. Are culverts, waterdips, and other water crossings being maintained in proper functioning condition?

R2. Are road drainage and roadside ditches being maintained?

R3. Determine if any invasive species or noxious weeds exist and control measures are adequate.

R4. Are cattleguards being maintained adequately?

R5. Are gates being maintained adequately?

R6. Has the operator implemented dust abatement measures as required by the approved APD and COAs? Examples: graveled surface, etc.

R7. Has the operator maintained road surfacing material in accordance with the approved APD and COAs?

R8. Is the road, in general, being maintained?

R9. Include any other aspects of road maintenance that need mentioned here.

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Pits, Ponds, and Tanks		
P1.	Pit/Pond – Type(s): Production Disposal Pit	/
P2.	Closure	O
P3.	Fenced and/or Netted	/
P4.	Freeboard – 2 feet or more	/
P5.	Erosion and Stormwater Control	/
P6.	Liner Condition / No Visible Leaks or Failures	/
P7.	Leak Detection	/
P8.	Free of Oil, Trash, Wildlife, and Livestock	X
P9.	Other:	O

Filled-Out Example

P1. Were pits or ponds constructed in accordance with the approved APD and COAs? Include the type of pit or pond (e.g., disposal pit, etc.).

P2. Evaluate the closure of the pit in accordance with OO7 and the approved APD and COAs.

P3. Where fencing and/or netting installed and maintained in accordance with regulation and the approved APD and COAs?

P4. Determine if required two feet of freeboard is maintained and the pit appears to be able to accommodate unexpected fluids.

P5. Was the pit/pond constructed to prevent erosion or stormwater issues as approved in APD and COAs?

P6. Is the liner free of visible tears, failures, or leaks?

P7. Has the operator installed leak detection in accordance with the approved APD and COAs?

P8. Is the pit/pond free of oil, trash, wildlife, and/or livestock?

P9. Include any other aspects of the pit/pond that need mentioned here.

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Utilities	
U1. Pipeline Markers	/
U2. Topsoil/Spoils Segregation, Placement, Volumes, and Signing	O
U3. Noxious Weed Control	/
U4. Power Lines and Poles	O
U5. Erosion and Stormwater Control	/
U6. Other Above-ground apparatuses not painted	X

Filled-Out Example

U1. Determine if pipeline markers have been installed as required in the APD and COAs.

U2. This line item is typically for the ES-SC inspection.

U3. Determine if any invasive species or noxious weeds exist and control measures are adequate.

U4. Were power lines and poles installed in accordance with the approved APD and COAs?

U5. Determine if erosion control features are present, maintained, and effective.

U6. Include any other aspects of the utility line(s) that need mentioned here.

Process for Environmental/Surface Inspections (ES-SP)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SP

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

Other	
O1. Natural Watercourses Free of Development-related Debris and Erosion	/
O2. Construction/Drilling Contractor has a Copy of the Approved APD	O
O3. Other:	O
O4. Other:	O

Filled-Out Example

O1. Determine if channels are free of development related obstructions (e.g., spoils, etc.) and erosion resulting from development activities.

O2. This line item is typically for the ES-SC inspection.

O3. Describe any issues or concerns not addressed as part of other checklist items.

O4. Describe any issues or concerns not addressed as part of other checklist items.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

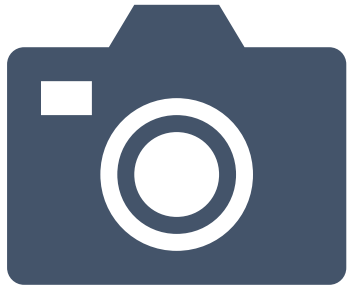
Step 6

- **Take Photographs**

What should the inspector know about taking photographs?

➢ **Photograph important aspects of the inspection:**

- Wellhead and Pumping Unit
- Production Facilities
  - Storage Tanks (Aboveground and Below-Grade)
  - Separators
  - Dehydrators
  - Compressors
  - Other Facilities
- Other Vessels
  - (e.g., chemical barrels, engine oil barrels, etc.)
- Secondary Containments/Catchment Basins
- Production Pits (if present)
- Utility Lines
- Stormwater Management Features
- Problems or Violations



Process for Environmental/Surface Inspections (ES-SP)

Step 6

- **Take Photographs**

Examples:

Wellhead with adequate cover over cellar;
Chemical tank with adequate catchment

Tank battery within adequate containment structure;
All facilities painted Covert Green (complies w/ APD)

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SP)

Step 7

- **Verify Compliance**

How does an inspector verify compliance?

- **Confirm compliance with APD and COAs**
- **Confirm compliance with lease stipulations and any sundry notices**
- **Compare measurements, calculations, and GPS-mapped disturbances to the APD diagrams**
  - Determine if the holding capacity for secondary containment structures are adequate.
  - Determine if the height of facilities is compliant with the permit requirements (e.g., VRM COA).
  - Use the BLM Color Chart to determine if the paint color of the above-ground facilities matches the required coloration within the APD, Sundry Notices, or COAs.

Process for Environmental/Surface Inspections (ES-SP)

Step 7

- **Verify Compliance**

How does a surface inspector determine if a secondary containment structure is adequate?

Step 1: Compare the volume of the largest tank in the secondary containment structure to the effective holding capacity of the secondary containment structure.

Step 2: Determine if effective holding capacity is adequate to hold a catastrophic spill from the largest tank.

Step 3: Determine if effective holding capacity complies with APD, Sundry Notices, or COAs.

Process for Environmental/Surface Inspections (ES-SP)

Step 7

- **Verify Compliance**

Step 1: Compare the volume of the largest tank in the secondary containment structure to the effective holding capacity of the secondary containment structure.

Largest Tank	**500 bbls**
Effective Holding Capacity	**565 bbls**

Formula: [(Effective Holding Capacity)/(Largest Tank)] x 100

(565/500) x 100
(1.13) x 100
113%

CONCLUSION: The secondary containment is sized to contain approximately 113% of the volume of the largest tank within the secondary containment.

Process for Environmental/Surface Inspections (ES-SP)

Step 7

- **Verify Compliance**

Step 2: Determine if effective holding capacity is adequate to hold a catastrophic spill from the largest tank.

- **If the secondary containment is sized to contain approximately 113% of the volume of the largest tank within the secondary containment, is this adequate to hold a potential catastrophic spill?**
  - As a rule of thumb, the secondary containment structure should have sufficient volume to contain, at a minimum, the content of the largest storage tank within the secondary containment and sufficient freeboard to contain precipitation, unless more stringent requirements are provided in the approved APD, Sundry Notices, or COAs (BLM Gold Book).
  - If no such requirements exists in the approved APD, Sundry Notices, or COAs, then the secondary containment could be deemed adequate if the secondary containment contains over 100% of the volume of the largest tank (depending on your local climate).

Process for Environmental/Surface Inspections (ES-SP)

Step 7

- **Verify Compliance**

Step 3: Determine if effective holding capacity complies with APD, Sundry Notices, or COAs.

- **Verify that the calculated effective holding capacity complies with the approved APD, Sundry Notices, or COAs.**
  - Typically, recent APD COAs contain a requirement that secondary containments must be sized to hold a certain percent (e.g., 110%, 150%, etc.) of the largest tank volume.

Process for Environmental/Surface Inspections

Conducting Surface Abandonment Inspections (ES-SA)

Process for Environmental/Surface Inspections (ES-SA)

What is the purpose and importance of final reclamation?

- The purpose and importance of final reclamation is to return the land to a condition approximating that which existed prior to disturbance.
- This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats.
- To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SA)

Step 1

- **Locate Well Site**

When should the inspector perform the ES-SA inspection?

6 to 12 months after the completion of well plugging

- Ensure to check the APD or Sundries for extensions to this deadline

Periodically after final reclamation has been completed

- Inspection associated with vegetation monitoring and success of revegetation (also code EM-FR if you are monitoring revegetation)

Once an operator submits a Final Abandonment Notice (FAN)

- The operator submits a FAN when they believe final reclamation is complete and request that the location be released from liability
- The FAN is either approved or denied based on the inspection results

Process for Environmental/Surface Inspections (ES-SA)

Step 1

- **Locate Well Site**

How does an inspector know a well has been plugged or reclaimed?

- Typically, field offices require the operator to notify the BLM several days prior to reclamation (*must be an APD COA*)

- Some field offices request an onsite prior to reclamation to discuss BLM expectations and permit requirements.
  - After onsite, BLM may request that a revised reclamation plan be submitted through a Sundry Notice.

- If notification is not required by an APD COA, the inspector can:
  - Coordinate with office PET's so that surface inspectors can be informed of wells being plugged
  - Query wells in AFMSS with a status of "ABD"
  - Query wells in AFMSS or OBIEE that have a Subsequent Report of Plug and Abandon submitted during a certain time frame
  - Include a COA to notify inspector prior to reclamation on future APDs

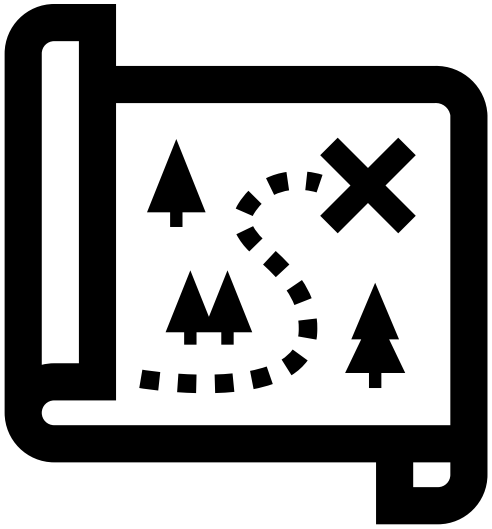
Process for Environmental/Surface Inspections (ES-SA)

Step 1

- **Locate Well Site**

What should the inspector do prior to traveling to conduct the inspection?

- Conduct action research
- Determine location of the well
  - Use AFMSS, ArcMap, Google Earth, APD diagrams/maps, etc.
- Print necessary maps
- Collect proper PPE, supplies, and equipment
- Initiate proper check-out procedures (*e.g., in-out board*)



Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SA)

Step 2

- **Confirm Location**

When an inspector arrives at a well site, how does the inspector confirm they are at the correct location?

- Verify location with the above ground surface monument (if present)
  - The surface monument must have the same information as a well sign:
    - Operator name
    - Lease number
    - Well name and number
    - Surveyed location
- If the permanent well marker is located below ground, verify your location using GPS coordinates and maps.

Above-ground Surface Monument

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SA)

Step 3

- **Consider Safety Protocols**

What are some examples of hazards that could be present during a surface abandonment inspection?

- **Heavy equipment operation (e.g., bulldozer, tractor, etc.) if inspection is conducted during reclamation activities**
  - Inform the company representative/site manager of your presence
  - Operator may require a reflective vest
- **Possible nearby oil and gas well site**
  - Moving equipment (e.g., pumping unit, etc.)
  - Potential gas releases
  - Potential fire hazards
  - Potential spills of contaminants
- **Trip and fall hazards**
- **Loose soil and rocks**
- **Steep slopes**
- **Biological hazards (e.g., snakes, thorns, etc.)**

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SA)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What do surface inspectors check during the inspection activity?

- **Completion of Surface Abandonment Earthwork**
  - Determine if earthwork was completed within 6 months of plug date
- **Area Disturbed for Final Reclamation**
  - Measure or GPS final reclaimed pad
  - Verify compliance with original disturbance size and shape
- **Compliance with Final Reclamation Plan in APD**
  - Recontouring
  - Reconstructed drainages
  - Topsoil redistribution
  - Soil preparation
  - Seeding
  - Mulching/soil amendments
- **Stormwater Control Features and Erosion Issues**
- **Presence of Contaminated Soil**
- **Pit Closure/Remediation (if present)**
- **Revegetation Success**
- **Noxious Weed/Invasive Species Monitoring**

Process for Environmental/Surface Inspections (ES-SA)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What supplies or tools are needed for the inspection activity and to verify compliance with the APD and/or Sundry Notices?

- **Measuring Device (measuring wheel, tape measure)**
  - Measure the final reclaimed pad
- **GPS**
  - Map the final reclaimed pad
- **Clinometer**
  - Determine if recontoured slopes comply with APD
- **Rod or Stake**
  - Helps complete vegetation surveys
- **Vegetation Monitoring Forms**
  - Consult with your office to determine which monitoring forms to use
- **Camera**
  - Photograph inspection
  - Photograph problems/violations

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SA)

Step 5

- **Complete Inspection Form**

Which sections of Form 3160-33 must be completed for the ES-SA inspection?

- **Inspection Header**
  - Well or Facility Information and Location
- **Inspection Details**
  - Activity Details (dates, hours, etc.)
- **Inspection Footer**
  - Conformance with Permit (required)
  - Enforcement Actions
  - Inspection Remarks
- **SA Checklist**

Process for Environmental/Surface Inspections (ES-SA)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SA

- **Fill out the following sections of the form in the same manner as the ES-SP and ES-IR inspections:**
  - Inspection Header
  - Inspection Details
  - Inspection Footer
- **Filling out specific portions of the Inspection Footer and SA Checklist will be covered next.**

Process for Environmental/Surface Inspections (ES-SA)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SA

Inspection Footer

Operations are in Conformance with Permit Requirements:	YES ☐	NO ☐	(REQUIRED FOR ALL INSPECTIONS)	
Follow-up Requirements: (select all that apply)	☐ NONE	☐ VERBAL	☐ ORDER	☐ INC
General Remarks:				
FAN Approval Recommendation: (select only one)	☐ APPROVE	☐ DENY	☐ NA	
Follow-up Remarks:				
Next ES Date:				

Include general inspection notes pertinent to the ES-SA inspection. Clarify important items from the checklist on the back of the form.

Required for all ES-SA inspections, with or without a FAN. This indicates if the site has met reclamation standards.

Process for Environmental/Surface Inspections (ES-SA)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SA

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

A1.	Permanent Monument Surface ☑ Subsurface ☐ Waived ☐	/
A3.	Recontouring	/
A5.	Surface Roughness/Seedbed Preparation	/
A7.	Topsoil Redistributed	/
A9.	Mulch/Amendments	/
A11.	Seeding	/
A13.	Revegetation Success	
A15.	Other:	O

Filled-Out Example

A1. Determine if dry-hole monument is present and/or required.

A3. Determine whether final reclamation matches the approved reclamation plan with optimal recontouring.

A5. Determine if the soils were properly prepared for planting (i.e., decompacted, gravel removed).

A7. Determine if topsoil was redistributed properly and not mixed with spoils materials or subsoils. Check for adequate distribution and coverage.

A9. Determine if mulch and/or amendments were applied per the reclamation plan.

A11. Determine if seeding is consistent with the reclamation plan.

A13. Determine if final reclamation has resulted in a desirable plant community or compliant with approved APD or RMP standards.

A15. Describe any issues or concerns not addressed as part of other checklist items.

Process for Environmental/Surface Inspections (ES-SA)

Step 5

- **Complete Inspection Form**

DEMONSTRATION: How to fill out Form 3160-33 for ES-SA

Key: Met (/) Not Met (X) Not Applicable (O) Uninspected (Blank)

A2.	All Equipment Removed for Final Reclamation (Examples: pipes, signs, fences, culverts, and trash)	/
A4.	Noxious Weed Control	X
A6.	Erosion and Stormwater Control	/
A8.	Reclamation Fence	O
A10.	Pit Closure/Remediation	O
A12.	Free of Oil or Salt Contaminated Soil	/
A14.	Split Estate - Surface Owner Consultation/Concurrence	O
A16.	Other: Boulders placed across access road	/

A2. Determine if all equipment has been removed or allowed to remain in place. Determine if all trash and debris has been removed.

A4. Determine if any weeds exist and control measures are adequate. Ensure PUPs are being submitted in accordance with office practices.

A6. Determine if erosion control features from the approved plan are present, installed properly, and effective. Determine if any of the structures need removal before approval of a FAN.

A8. Determine if fencing was required to protect reclamation and removed before approval of a FAN.

A10. Evaluate the closure of pits in compliance with the approved permit, including reclamation plan. Evaluate any required soil testing and soil remediation plans.

A12. Identify soils affected by hydrocarbons or hazardous substances and determine if unauthorized wastes and salt-contaminated soils are present. Soil testing and remediation may be required if adverse effects to final reclamation are found.

A14. Determine surface owner and if written consultation or concurrence is required. Note if surface owner or representative is present during inspection.

A16. Describe any issues or concerns not addressed as part of other checklist items.

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

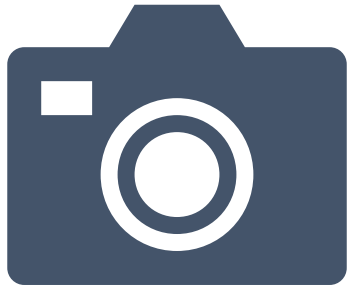
Process for Environmental/Surface Inspections (ES-SA)

Step 6

- **Take Photographs**

What should the inspector know about taking photographs?

- **Photograph important aspects of the inspection:**
  - Areas of the reclaimed well pad, road, etc.
  - Recontoured slopes
  - Noxious weeds (if present)
  - Revegetation
  - Vegetation monitoring transect lines
  - Area outside of the disturbance to compare vegetation composition
  - Special APD or COA aspects
    - *(e.g., erosion control features, barriers across reclaimed access road, reclamation fence)*
  - Violations or Problems



Process for Environmental/Surface Inspections (ES-SA)

Step 6

- **Take Photographs**

Examples:

Facing northeast; Halogeton (state listed noxious weed) on NE corner of reclaimed well site

Boulders blocking reclaimed access road; COA requirement

Process for Environmental/Surface Inspections

Steps to conduct environmental/surface inspections:

- Step 1 • **Locate Well Site**
- Step 2 • **Confirm Location**
- Step 3 • **Consider Safety Protocols**
- Step 4 • **Inspect Well Site, Access Road, Facilities, etc.**
- Step 5 • **Complete Inspection Form**
- Step 6 • **Take Photographs**
- Step 7 • **Verify Compliance**

Process for Environmental/Surface Inspections (ES-SA)

Step 7

- **Verify Compliance**

How does an inspector verify compliance?

- **Confirm compliance with APD and COAs**
- **Confirm compliance with lease stipulations and any sundry notices**
- **Compare measurements, survey results, and GPS-mapped disturbances to the APD diagrams**
  - Determine if the reclaimed area matches the original permitted disturbance
  - Determine if the revegetation is adequate

Process for Environmental/Surface Inspections (ES-SA)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

How does the inspector determine if recontouring is adequate?

- **Typically, the recontoured surface should resemble the native topography that existed prior to disturbance**
  - Verify requirements with the approved permits

How does the inspector determine if reconstructed drainages are adequate?

- **Reconstructed drainages should reconnect previously disturbed watercourses or ephemeral drainages**
  - Permanent erosion control features may need to be implemented
    - e.g., rock check dams, meandering path, etc.

Process for Environmental/Surface Inspections (ES-SA)

Step 7

- **Verify Compliance**

How does an inspector determine if revegetation is adequate?

- **Complete a vegetation survey**
- **Compare vegetation survey results to:**
  - APD, Sundry Notice, and COA requirements
  - Field Office RMP standards

How does an inspector determine if revegetation is adequate if there are no required standards in the permits or RMP?

- **Using the survey results and inspection, determine if the site has an established, self-sustaining, vigorous, diverse, native plant community, with a density sufficient to:**
  - Control erosion
  - Control invasion by non-native plants
  - Reestablished wildlife habitat or forage production

Process for Environmental/Surface Inspections (ES-SA)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

What are some different survey methods an inspector can use to determine if revegetation is adequate?

Survey Method	General Description	Vegetation Attributes Monitored
Daubenmire	Method consists of systematically placing a 20- x 50-cm quadrat frame along a tape on permanently located transects.	Canopy Cover (CC) Frequency Composition by CC
Line-Intercept	Method consists of horizontal, linear measurements of plant intercepts along the course of a line (tape).	Foliar Cover Basal Cover Composition by Cover
Point-Intercept	Method consists of employing a sighting device or pin/point frame along a set of transects to arrive at an estimate of cover.	Foliar Cover Basal Cover Composition by Cover
Step-Point	Method involves making observations along a transect at specified intervals, using a pin to record cover “hits.”	Foliar Cover Basal Cover Composition by Cover

Process for Environmental/Surface Inspections (ES-SA)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

Which survey method is most commonly used by inspectors?

- **Typically, the <u>Step-Point Method</u> is utilized**
  - Measures both basal cover and foliar cover
    - Basal cover only limits adequate comparison
  - Survey is less time-consuming
  - Calculations are less time-consuming

Why is it important to perform a vegetation monitoring survey?

- **Physical data (survey forms) showing revegetation status**
- **Important to compare results of revegetation in reclaimed areas to:**
  - Nearby, undisturbed, representative areas
  - Requirements/Standards in approved permits or RMP

Process for Environmental/Surface Inspections (ES-SA)

Step 4

- **Inspect Well Site, Access Road, Facilities, etc.**

Watch: Vegetation Monitoring Video Tutorial

Process for Environmental/Surface Inspections (ES-SA)

Step 7

- **Verify Compliance**

How does the inspection impact the process for the FAN?

- **If final reclamation <u>meets</u> BLM and permit standards:**
  - Approve FAN
    - Operator is released from further reclamation responsibilities for the well and associated infrastructure
- **If final reclamation <u>does not meet</u> BLM and/or permit standards:**
  - Deny FAN
    - Include rationale for denial (*e.g., revegetation is not adequate*)
    - If warranted, follow up denial with an enforcement action to correct any issues (*e.g., treat Russian knapweed until eradicated from site*)

Process for Environmental/Surface Inspections (ES-SA)

Step 7

- **Verify Compliance**

What does an inspector do if the site has adequate reclamation, but a FAN has not been submitted?

➢ **Contact operator to submit a FAN**

CONCLUSION

Lesson Objective

Now, you should be able to…

- Given a lease well or facility, conduct an environmental/surface inspection activity (*i.e., construction, drilling, interim reclamation, production, and abandonment*) in accordance with BLM policy and regulatory guidance.

Lesson Route

To meet our objective, we covered the following:

1. General Knowledge of Environmental/Surface Inspections
2. Safety Protocols for Environmental/Surface Inspections
3. Process for Environmental/Surface Inspection Activities:
   - Surface Construction
   - Surface Drilling
   - Interim Reclamation
   - Surface Production
   - Surface Abandonment

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

Module 1 – Lesson 4
Conducting Environmental/Surface Inspections