

## **Foreword**

This Standard Operating Procedure is the internal policy of the Land Quality Division of the Wyoming Department of Environmental Quality covering the topic of evaluating soil replacement practices during compliance inspections. Staff shall make not significant deviations from this policy without the prior approval of the District Supervisor and the Administrator.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 2005.

---

Richard A. Chancellor  
Administrator, Land Quality Division

---

---

## **COAL STANDARD OPERATING PROCEDURE (SOP) NO. 5.2**

### **Land Quality Division**

**SUBJECT: Compliance Assessment Methods And Records For Soil Replacement Performance Standards And Associated Permit Commitments During Land Quality Division Compliance Inspections**

**Coal**  
**Standard Operating Procedure No. 5.2**

**Table of Contents**

	<u>Page Number</u>
I. Introduction .....	1
A. Applicable LQD Coal Rules And Regulations (R&R) .....	1
B. Potentially Applicable Permit Commitments.....	1
C. Working Definitions For Soil Replacement Compliance Assessment.....	2
II. Soil Replacement Compliance Assessment Methods And Records .....	2
A. Introduction.....	2
B. LQD Inspector Information Needs.....	3
C. Field Compliance Assessment Methods .....	3
1. Observe Edge(s) Of Soil Replacement Unit(s).....	3
2. Excavate Observation Holes On Soil Replacement Unit(s) .....	4
3. Observe Graduated Lathe (Or Stakes) On Soil Replacement Units .....	4
D. Records For Compliance Assessments .....	4
E. Resolution Of Compliance Issues Associated With Soil Replacement.....	5
III. Annual Report Soil Replacement Verification Process .....	5

## I. Introduction

This SOP outlines methods which a Land Quality Division (LQD) Inspector may use to make opportunistic field compliance assessment of soil replacement performance standards and associated permit commitments during designated monthly, quarterly or annual inspections. This field compliance assessment is separate from the soil replacement depth verification process included within the annual report review. The annual report soil verification process is intended to satisfy one of the bond release performance elements found in Guideline 20. This field compliance assessment is an on-the-ground performance evaluation and, although separate, it supports the annual report verification process.

It is not necessary for each inspector during every inspection to conduct a field compliance assessment of the operator's soil replacement activities. However, inspectors should inspect enough of the soil replacement activities each year to form a judgment that the operator has good soil replacement practices. Obviously, operators with poor practices or when problems are identified more intense field compliance is necessary.

### A. Applicable LQD Coal Rules And Regulations (R&R)

The primary performance standards which the Inspector shall address in the soil replacement compliance assessment are:

#### 1. Chapter 4, Sections 2(c)(v)(A) through (D) which state:

“Soil, subsoil, and/or an approved soil substitute shall be redistributed in a manner that:

- (A) Achieves an approximate uniform, stable thickness consistent with the approved permit and the approved postmining land uses, contours and surface water drainage system;
- (B) Prevents compaction which would inhibit water infiltration and plant growth;
- (C) Protects the soil from wind and water erosion before and after it is seeded until vegetation has become adequately established; and
- (D) Conserves soil moisture and promotes revegetation.”

### B. Potentially Applicable Permit Commitments

The Inspector should consider each applicable commitment in the soil replacement compliance assessment.

1. The approved soil replacement depth commitment and/or the range of depths associated with the target depth.
2. Any commitment for different soil replacement depths (including zero soil replacement over suitable backfill) on different backfill units.
3. Any approved soil substitutes per Chapter 4, Sections 2(c)(ix) and (x).
4. All backfill surface treatments (e.g., ripping) per Chapter 4, Section 2(c)(iv).

#### C. Working Definitions For Soil Replacement Compliance Assessment

1. “Opportunistic” means that Inspectors should execute one of the described methods when the Inspector knows of, or is made aware of, soil replacement activity which is occurring during, and/or has been completed shortly before, the inspection.
2. “Soil”, as used in the remainder of this SOP, means the mixture of salvaged subsoil and topsoil which is usually respread on suitable, rough grade backfill. LQD Coal R&R Chapter 4, Section 2(c)(i)(A) allows mixing of subsoil and topsoil when salvaging those resources. Most coal permits do not commit to separate salvage of subsoil and topsoil, resulting in a mixture of subsoil and topsoil as defined in LQD Coal R&R Chapter 1.
3. “Compliance assessment” means an appraisal of the permittee’s fulfillment of specific performance standards and associated permit commitments, conducted during a LQD monthly, quarterly or annual inspection.
4. “Soil replacement unit” means a defined area backfilled to approved rough grade which was (or is being) soiled to approved depth.

## II. Soil Replacement Compliance Assessment Methods And Records

### A. Introduction

This section outlines specific field methods which an Inspector may use to complete a compliance assessment.

The Inspector retains the primary responsibility:

- to choose the appropriate compliance assessment method, and
- to choose the appropriate detail for each compliance assessment on each soil replacement unit.

## B. LQD Inspector Information Needs

In order to conduct any one of the soil replacement compliance assessment methods, the LQD Inspector should have knowledge of the following:

1. Approved replacement depth commitment for each soil replacement unit.
2. All approved permit commitments for treatment of the backfill surface prior to soil replacement.
3. The ability to distinguish rough graded backfill material from the replacement soil. For example, texture, color or organic matter content can be used to make this distinction.

## C. Field Compliance Assessment Methods

The Inspector shall choose one or a combination of the following three methods to observe and document soil replacement during assigned compliance inspections. The inspector should consider that the Administrator accepts that there is no minimum or maximum number of observations required to assess compliance.

1. Observe Edge(s) Of Soil Replacement Unit(s)
  - a. The Inspector chooses the number of observations made along each available edge of a soil replacement unit based on the inspectors comfort level as influenced by the following considerations:
    - 1) The observed uniformity of the depth of soil replaced within the unit. Generally, the more uniform the replacement, the fewer the number of necessary observation points.
    - 2) The observed variation in backfill topography. The criteria for this decision include upland vs. bottomland vs. ridge top, the length and percent of slope runs and the sharpness of transitions between upland and bottomland. Generally, the more uniform (and flatter) the backfill topography, the fewer the number of necessary observation points.
    - 3) The Inspector's knowledge of the precision of the soil replacement equipment and equipment operators to control replacement depth.

- 4) The total acres estimated for the replacement unit. Generally, the more acreage (and the longer the length of the edges), the larger the number of necessary observation points.
- 5) The presence of other useful devices such as survey lathe with depth markings.
  - b. The Inspector makes some estimate of the apparent replacement depths along the edges of a soil replacement unit. This observation can be done by actual measurements or by visual estimates.

2. Excavate Observation Holes On Soil Replacement Unit(s)

This method entails either hand-excavating or augering (hand or powered) holes by which the Inspector observes and records the apparent depth of the replaced soil. In most areas, the LQD Inspector will excavate the observation holes, because the LQD Administrator holds that the LQD cannot require the permittee to excavate holes nor provide equipment to excavate observation holes unless it is to resolve compliance (NOV) concerns. However, the operator may be asked for assistance as necessary to complete the observations during the inspection.

- a. The Inspector chooses the number of observation holes using the same criteria listed in section II.C.1.a. above. One observation hole every 20 acres is an example of the number of observations that has been used to assess the soil replacement depth.

3. Observe Graduated Lathe (Or Stakes) On Soil Replacement Units

This method entails the Inspector recording observations at lathes systematically implanted on the soil replacement unit, usually where topsoil replacement is actively occurring. In most cases, the permittee will set and graduate the lathe as a standard component of their internal soil replacement control practices. The LQD Administrator holds that the LQD cannot require the permittee to set lathes strictly for LQD's compliance assessments.

The Inspector's preliminary discussion with the permittee can ensure that lathe remain in place for purposes of a soil replacement compliance assessment.

D. Records for Compliance Assessments

Soil replacement and associated compliance assessments will be written as a specific component of the normal inspection report. The inspection report should:

1. Briefly summarize and discuss the quantitative depth data for each observed soil replacement unit.
2. Make a clear conclusion (positive or negative statement) of compliance assessment for:
  - a. Adequate soil replacement depth according to approved permit commitments.
  - b. Adequate backfill treatment practice(s) according to approved permit commitments.

#### E. Resolution Of Compliance Issues Associated With Soil Replacement

If the Inspector identifies a situation or practice which does not appear to meet performance standards and/or permit commitments, the Inspector should ensure s/he has adequate documentation of the issue before leaving the mine site. At the earliest convenience upon return to the District office, the Inspector should outline the compliance issue to the District Supervisor and mutually resolve whether formal enforcement action, Notice of Violation, etc., is appropriate. This resolution of the prospective compliance issue and whether formal enforcement action will be executed carries a high priority. The resolution should be completed in a very timely manner.

In this effort, the permit approved topsoil replacement depth should be considered a realistic goal, not a finite, unvarying threshold. All field practices conducted by the operator should be conducted in a manner designed to achieve the replacement goal. However, since topsoil depth uniformity may not be completely desirable from an ecological perspective, some variability outside the normal operational range of plus or minus six inches, is acceptable. In no situation should the operational variability impair the operator's ability to achieve the long term calculated topsoil replacement depth for the entire permit area. In other words, consistently replacing too little or too much topsoil over a given topsoil replacement unit is a compliance issue.

### III. Annual Report Soil Replacement Verification Process

The soil replacement compliance assessment outlined in this SOP differs from and is made separately from the soil replacement verification process which is outlined in the 2005 revision to the Format for Coal Annual Reports. The Annual Report soil replacement verification process requires actual soil volumes replaced and the actual replacement acreage for all soil replacement completed during the Annual Report period.