

# Reclamation Manual

## Directives and Standards

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### SF<sub>6</sub> Emissions Reporting Protocol and Form

#### General

This protocol provides a template for reporting annual SF<sub>6</sub> emissions based on annual changes in the SF<sub>6</sub> inventory. Use of the protocol to complete the SF<sub>6</sub> Emissions Reporting Form requires the following data:

- SF<sub>6</sub> gas in inventory (storage not equipment) at the beginning of the fiscal year
- SF<sub>6</sub> gas in inventory (storage not equipment) at the end of the fiscal year
- SF<sub>6</sub> gas in inventory in equipment at the beginning of the fiscal year
- SF<sub>6</sub> gas in inventory in equipment at the end of the fiscal year
- SF<sub>6</sub> gas acquisitions during the fiscal year
- SF<sub>6</sub> gas disbursements during the fiscal year

Ensure that beginning-of-year inventory matches end-of-year inventory from the previous year.

Gas in inventory (storage not equipment) refers to SF<sub>6</sub> gas contained in storage cylinders, gas carts, and other storage containers. It does not refer to SF<sub>6</sub> gas held in operating equipment.

Gas acquisitions and disbursements refer to SF<sub>6</sub> gas placed in or removed from the stored inventory, respectively. Gas acquisitions also include SF<sub>6</sub> provided by equipment manufacturers with or inside new equipment.

Complete the SF<sub>6</sub> Emissions Reporting form to estimate annual emissions. Use the Comments box to describe the means used to obtain a specific quantitative value (e.g., measured, estimated using rough data, or other comments including perceived accuracy of the form entries). Add additional comment sheets if necessary.

#### Quality Assurance and Quality Control (QA/QC)

Ensure the following QA/QC methods are employed throughout the year:

- Ensure that cylinders returned to the gas supplier are consistently weighed on a scale that is certified to be accurate and precise to within 2 pounds of the scale's capacity and is periodically recalibrated per the manufacturer's specifications. Either measure residual gas (the amount of gas remaining in returned cylinders) or have the gas supplier measure it. If the gas supplier weighs the residual gas, obtain from the gas supplier a detailed monthly accounting, within +/- 2 pounds, of residual gas amounts in the cylinders returned to the gas supplier.

## Reclamation Manual

### Directives and Standards

---

- Ensure that cylinders weighed for the beginning and end of year inventory measurements are weighed on a scale that is certified to be accurate to within 2 pounds of the scale's capacity and is periodically recalibrated per the manufacturer's specifications. All scales used to measure quantities that are to be reported under section 98.306 must be calibrated using calibration procedures specified by the scale manufacturer. Calibration must be performed prior to the first reporting year. After the initial calibration, recalibration must be performed at the minimum frequency specified by the manufacturer.

**Reclamation Manual**  
Directives and Standards

**SF<sub>6</sub> Emissions Reporting Form**

<b>Date:</b>	<b>Office:</b> Bureau of Reclamation	<b>Contact:</b>
<b>Data</b>	<b>Amount (lbs)</b>	<b>Comments</b>
SF <sub>6</sub> gas in inventory (storage not equipment) at the beginning of the fiscal year (IB)		
SF <sub>6</sub> gas acquisitions during the fiscal year (P)		
Total capacity of SF <sub>6</sub> gas in equipment at the beginning of the fiscal year (CB)		
SF <sub>6</sub> gas in inventory (storage not equipment) at the end of the fiscal year (IE)		
SF <sub>6</sub> gas disbursements during the fiscal year (S)		
Total capacity of SF <sub>6</sub> gas in equipment at the end of the fiscal year (CE)		
Annual Emissions (IB – IE + P – S + CB – CE)		

IB = Quantity of SF<sub>6</sub> in storage at beginning of fiscal year

IE = Quantity of SF<sub>6</sub> gas in storage at end of fiscal year

P = Sum of all the SF<sub>6</sub> gas acquisitions

S = Sum of all the SF<sub>6</sub> gas disbursements

CB = Total capacity of SF<sub>6</sub> gas in equipment at beginning of fiscal year

CE = Total capacity of SF<sub>6</sub> gas in equipment at end of fiscal year

**Reference document:** Federal Greenhouse Gas Accounting and Reporting Guidance, Technical Support Document, October 6, 2010