Monitoring and Compliance

Introduction

Students will understand:

- Why monitor for compliance,
- Elements of a monitoring plan,
- Examples to consider when developing a monitoring strategy.

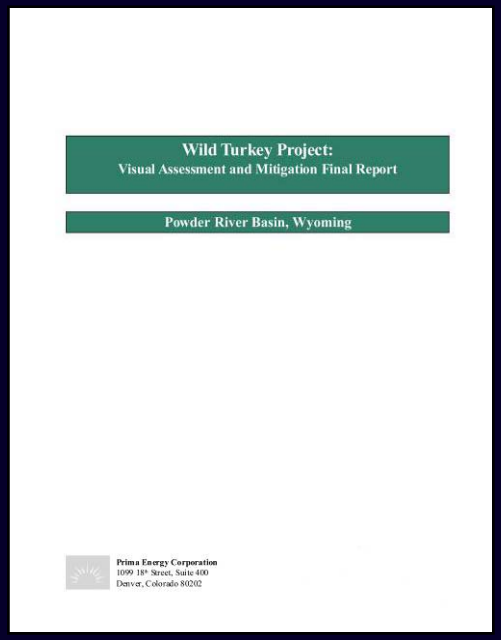
Introduction

Monitor? Why? What for?

- Compliance Monitoring – Did they do what was required?
- Effectiveness Monitoring - Did it work?
- Validation Monitoring – Did we ask them to do the right thing?
- Adaptive Management – If it did not work, what changes should we make now or in the future?

Introduction

Mitigation Plans should include a monitoring section


Wild Turkey Project:
Visual Assessment and Mitigation Final Report

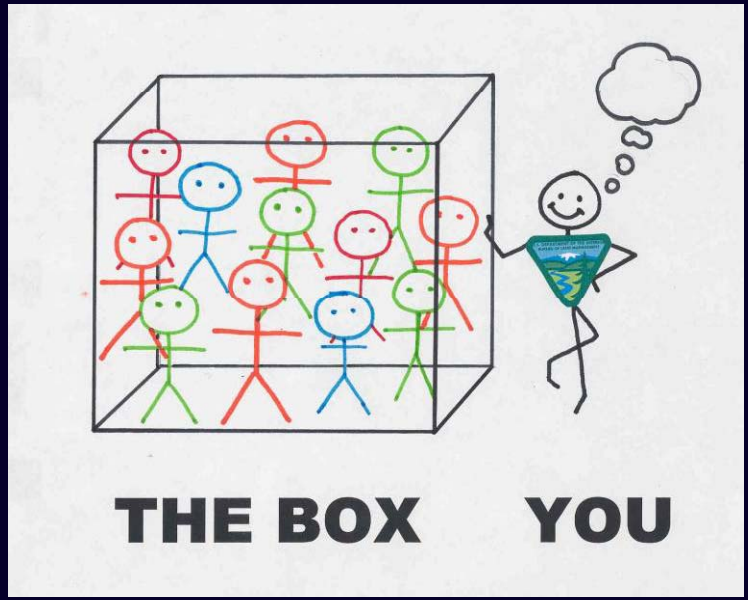
Powder River Basin, Wyoming

Prima Energy Corporation
1099 18th Street, Suite 400
Denver, Colorado 80202

- Sets conditions and monitoring methods
- Clarifies performance standards
- How compliance will be quantified/ measured
- Outlines corrective actions
- Establishes a clear understanding of expectations during implementation – a road map to success

Responsibilities

There is no standard template for monitoring and compliance strategy



Responsibilities

BLM proposed activity –

- BLM is responsible for development of the plan
- Coordinate among the resource specialists
- Document procedures agreed to and document finding during progress site visits

Responsibilities

Industry Proposed Activity – Proponent's responsibility

- Industry proponent develops monitoring plan
- Compliance/ monitoring strategy should be a chapter in the project's VRM plan
- As with the VRM plan, the C/M strategy needs to be based on sound design and mitigation planning principles.
- Critical review ensuring implementation
- Incorporate into the Conditions of Approval
- Document procedures during project implementation

Responsibilities

Industry proposed activity – BLM responsibilities

- Assess the plan – is it credible?
- Have the tools necessary to monitor been provided in the plan? – If not?
- Make sure the C/M strategy is a part of the COA
- Making sure the proponent is implementing the monitoring strategy
- A regularly schedule report should be a part of the plan – has it been submitted?

Responsibilities

Follow up monitoring and compliance takes time and costs.

But a failed plan is more costly to correct.

Qualifications

Should there be qualifications required for VRM designer/ planner?

How much monitoring?

Keep the level of effort in scale with the project.

- small
- simple
- easy access

How much monitoring?

Keep the level of effort in scale with the project.

- large scale
- long term presence

How much monitoring?

Keep the level of effort in scale with the project.

- Cumulative impacts
- Special sensitivities

How much monitoring?

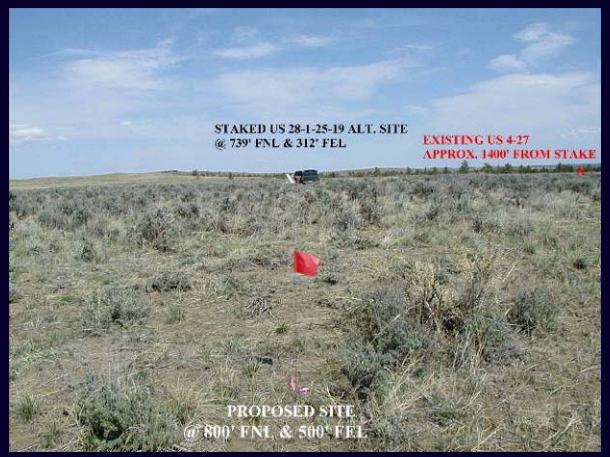
Keep the level of effort in scale with the project.

- large scale
- linear extension over many miles
- complex
- many jurisdictions

Tracking progress

Site visits with comprehensive image library of project at various stages:

- Pre-application site visit
- Site improvement survey
- Construction
- Post construction
- Reclamation
- Post reclamation



Measuring for compliance

There should be a nexus between the construction plans and the monitoring strategy:

Delineating and fencing disturbance limits:

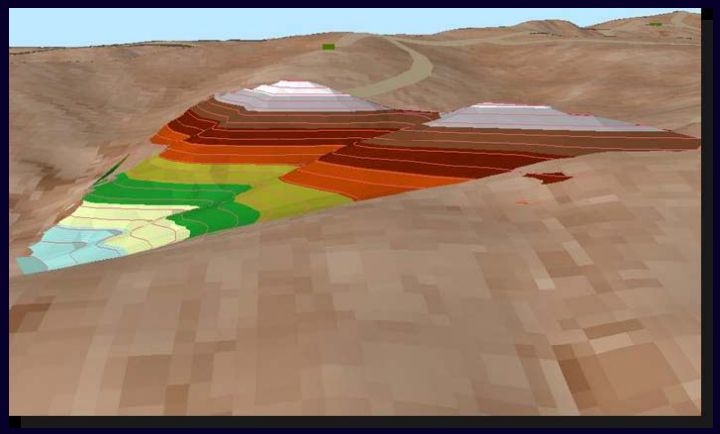
Monitor fence condition

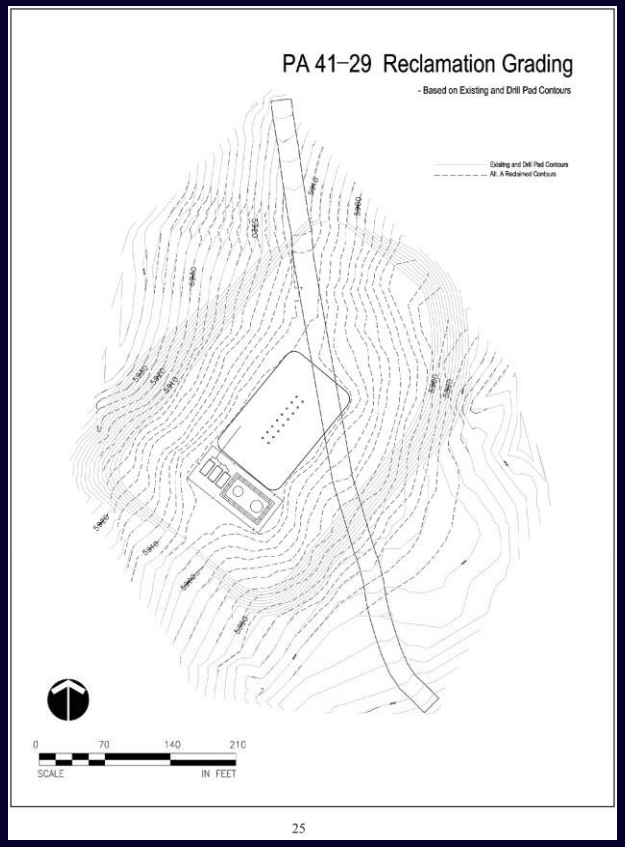
Measuring for compliance

There should be a nexus between the construction plans and the monitoring strategy:

Earthwork:

- Visual review
- Survey grading/quantities
- Topsoil spec, depth, testing



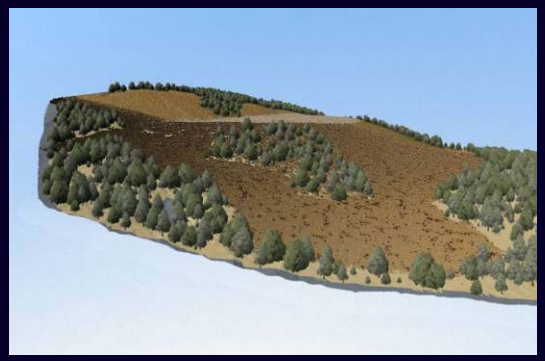


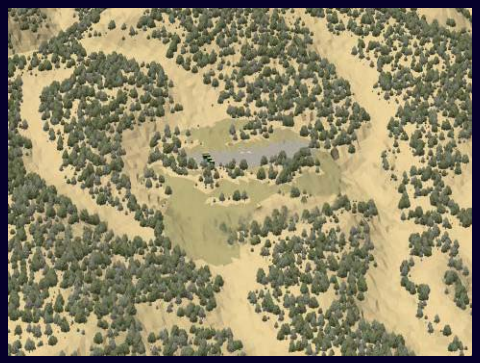
Measuring for compliance

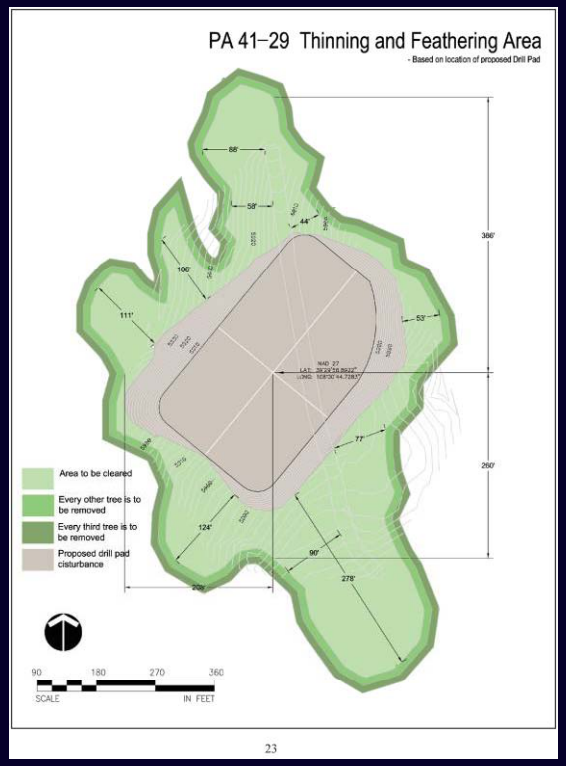
There should be a nexus between the construction plans and the monitoring strategy:

Vegetation Management:

- field stake, flag veg removals
- survey finished grading
- tree counts
- acres cleared/stems per acre







Measuring for compliance

There should be a nexus between the construction plans and the monitoring strategy:

Revegetation:

- **Topsoil spec/sampling/testing**
- **Seedmix list/seed tags/purity/germination test – PLS**
- **Seeding application – drill/ broadcast/ hydro-seed**
- **Plantings – proper installation/ proper count**
- **Maintenance schedule – weeds/ watering/ replacement**
- **Vegetation survey – % composition - cover**

Appendix C

SEED MIX			
COMMON NAME	SCIENTIFIC NAME	VARIETY	POUNDS of PLS/ACRE
Indian ricegrass	*Achnatherum hymenoides*	*Paloma*	1.5
Fringed Sage	*Artemisia frigida*		0.25
Prairie Sage	*Artemisia ludoviciana*		0.25
Wyoming big sagebrush	*Artemisia tridentata ssp. wyomingensis*		1
Fourwing saltbrush	*Atriplex canescens*	*Rincon*	1.5
Shadscale saltbrush	*Atriplex confertifolia*		1.5
Sideoats Grama	*Bouteloua curtipendula*	*Vaughn or Niner*	1.5
Winterfat	*Ceratoides lanata*		0.5
Thickspike Wheatgrass	*Elymus lanceolatus*	*Critana*	1.5
Galleta grass	*Hilaria jamesii*	*Viva*	1
Western wheatgrass	*Pascopyrum smithii*	*Arriba*	2
Sandberg bluegrass	*Poa secunda*		0.5
Bluebunch wheatgrass	*Pseudoroegneria spicata*	*P-7*	1.5
Scarlet globemallow	*Sphaeralcea coccinea*		0.25
Alkali Sacaton	*Sporobolus airoides*	*Salado*	0.25

Measuring for compliance

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Measuring for compliance

How long?

Defined in plan:

- Will vary from project to project and mitigation actions:
  - Seeded revegetation – 1 to 2 years
  - Planted revegetation – maybe up to 5 years

- If compliant before monitoring duration is complete

- If non-compliant at monitoring completion

Measuring for compliance

Tools:

•Quantify the VRM mitigation implementation using the design plans, rather than simple qualification of anticipated results.

Measuring for compliance

Tools:

•Use the information produced during design/planning phase during monitoring period

- GPS/GIS/ AutoCadd/ Photoshop interface
- Photo simulations
- 3-D terrain models of proposed grading
- Construction plans
- As-built plans

Measuring for compliance

Tools:

•The dangers of relying solely on photos. Just because it looks good - does this mean that the design elements and mitigation measures were adequate? If not, explain why.

- Create mitigation monitoring points
- Same as Key Observation Points (KOP)
- Different that KOPs.
- Photo documentation points - should be taken from same location and established before construction begins. Should be identified in monitoring plan.

Measuring for compliance

Who Can Help

•Consult with others in your office or area that have monitoring experience, such as

- **natural resource specialist,**
- **fluid minerals experts,**
- **range conservationist,**
- **biologist**
- **lands and realty staff**

Measuring for compliance

Other Tips

- Work with proponents early on and throughout the monitoring process. Avoid surprises.
- Hold a preconstruction meeting
- Tips on documentation – photos, GIS, others?
- Develop a listing of best management practices that fit the soils, geology, vegetation in the area

Level of Mitigation Effort Rating Chart	Low	Medium	High
VMP-1A: Topsoil stripping and replacement		X	
VMP-1B: Surface texture		X	
VMP-2: Facility Color	X		
VMP-3A: Cuts and Fills - Top/Toe of Slope Rounding and Contouring			X
VMP-3B: Road Edge Contouring		X	
VMP-3C: Bedrock Excavation			X
VMP-4A: Vegetation Preservation – Preservation and facility placement relative to existing vegetation	X		
VMP-4B: Vegetative Screening – Medium Level of Effort		X	
VMP-4C: Vegetation Feathering	X		
VMP-4D: Revegetation		X	
VMP-5A: Minor Relocation	X		
VMP-5B: Major Relocation			X