

Internal Review of Inspection and Enforcement of Natural Gas Operations

November 14, 2011

Goal: Improve the Department's statewide consistency when conducting site inspections at well sites in unconventional formations, enforcing DEP regulations and tracking compliance.

Process:

Utilizing eFACTS data, members of the review team tracked and evaluated inspection data and enforcement actions taken for Marcellus activities statewide from January 18, 2011 to June 24, 2011. Inspection records were examined to identify trends in the number of inspections completed, violations found, and the type of violation noted. The enforcement actions were examined to identify trends in the type of enforcement tool used (Field Order, NOV, COA, etc.), the number of violations per action, and the time from issuance of violation to final resolution.

The team also documented the existing inspection review procedure for the SW, NW and NC staff. This was done through both examining existing documents and by completing a joint inspection with inspection staff from all three regional offices and central office. In addition to noting regional differences in inspection procedures (i.e., methods of inspection, determination and notice of violations, and writing of reports), the team also documented that the regional inspection tracking procedure, such as the input of the inspection and violation entry into eFACTS, also varied.

Findings:

The data on inspection procedures, tracking procedures and final enforcement actions were gathered and the review team developed consistent, defensible and efficient procedures for inspections and the entry of the findings into the Department's data system, eFACTS.

Functionally, the employees responsible for the inspection of Oil and Gas sites are positioned in the three O&G Regions: Northwest (Meadville), Southwest (Pittsburgh), and the Eastern (Williamsport). Please see Attachment A - Oil and Gas Regions. Program direction is provided by our central office Bureau of Oil and Gas Management. The majority of drilling operations in unconventional formations are taking place in these regions.

Inspections

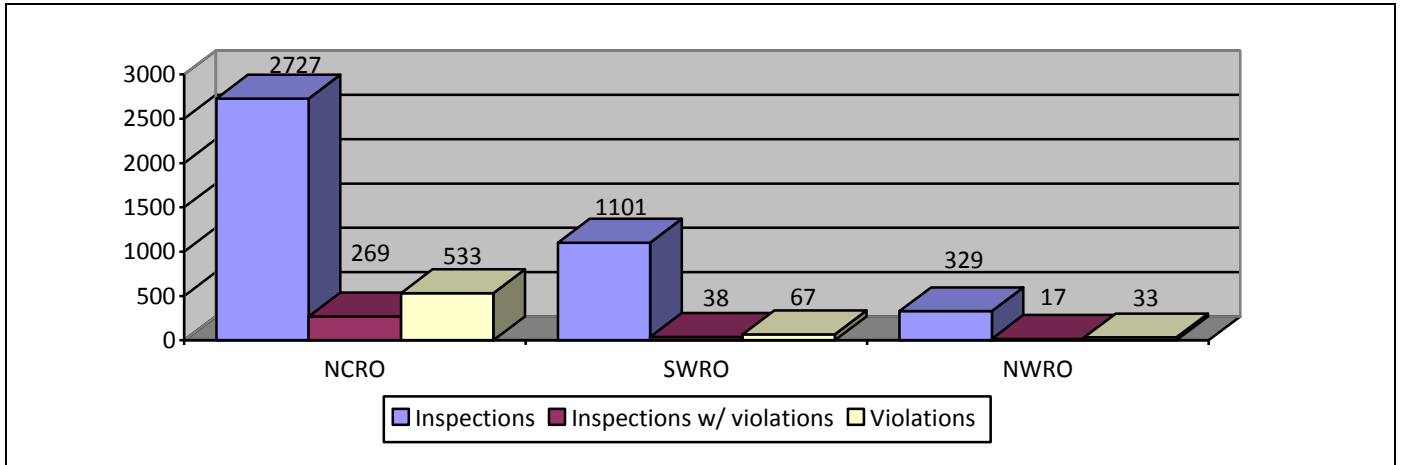
For the purpose of this project, the team examined Department records of inspections and enforcement actions taken over the period from January 18, 2011 to June 24, 2011. During that five month period, Water Quality Specialists performed 4,157 inspections of Marcellus Shale exploration and production sites.

Broken down by region, the number of inspections are as follows:

- NCRO – 2727 total inspections
- SWRO – 1101 total inspections
- NWRO – 329 total inspections

During this same time period 324, or 7.79%, of those inspections resulted in on-site violations and are broken down by region as follows:

- NCRO – 269 (9.86%)
- SWRO – 38 (3.45%)
- NWRO – 17 (5.17%)



Of the overall inspections with violations noted, a total of 633 individual violations were found on-site. The five most often identified violations were related to the improper storage, transportation, processing or disposal of residual waste (83 violations), poor erosion and sediment controls (79 violations), lack of capacity in pits or tanks (55 violations), lack of pollution prevention measures (36 violations) and defective, insufficient or improper casings (36 violations).

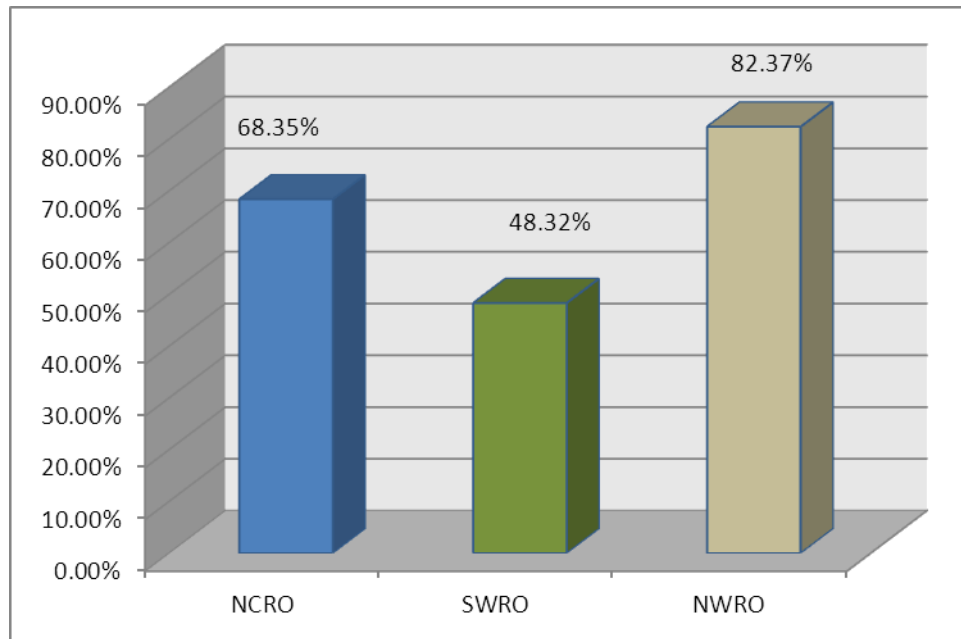
In observing the inspection process, it was noted that different inspection forms were utilized in different regions and there is variability in how violations are captured in our tracking system.

In addition to examining the data generated by inspections, the team took the additional step of conducting a joint inspection with participants from all three regional offices responsible for inspecting Marcellus Shale sites. Details of that inspection are provided later in the report.

Tracking

Upon completing an inspection, the Department requires that information be input into our eFACTS system for tracking purposes. Department policy for data input into eFACTS is that an inspection should be entered into the system within seven days. In addition, any violations noted must be closed within 14 days or escalated to an Notice of Violation (NOV) enforcement action.

% of Inspections Entered Within DEP Policy



We determined that 64.15% of inspections are adhering to the policy with inspection data being input into the system within 7 days.

Again, the observation regarding the number and frequency in which violations are noted and tracked by regional staff and how the violation records vary region by region is an important one.

Violations

As noted previously, 633 violations were noted during the inspections conducted during the period of the study. Of these, only 29.5% of the violations were closed within 14 days or escalated to an NOV enforcement action. Regionally, the percentages of violations closed or escalated to an NOV within 14 days are:

- NCRO – 23.45%
- SWRO - 56.72%
- NWRO – 72.73%

The Department also has a policy to ensure that enforcement actions are taken within a reasonable timeframe. That policy states that an NOV must be closed within 180 days or escalated to a higher level enforcement action. To examine the NOV policy, the team looked at DEP actions over 12 months, from July 1, 2010 to June 24, 2011. During that time period, the Department issued 189 NOV's, of which 64.5% were handled within the timeframe established by policy. Regionally, the break down for those outside of the established timeframe is as follows:

- NCRO - 42.4%
- SWRO – 18%
- NWRO - 30%

In closing the violations, the Department utilized three types of enforcement actions: Notice of Violation (NOV), Consent Order and Agreement (COA) and Consent Assessment of Civil Penalty (CACP). In total, NOV's were utilized a majority of the time (163 times), with CACP second (42 times), and finally COA (11 times).

Joint Inspection

On May 19, 2011, the Bureau of Oil and Gas conducted a regional well site inspection exercise for Water Quality Specialist Supervisors from all three Oil & Gas Regions. The exercise was held at a site in northern Centre County. Bureau of Oil and Gas Management's Mineral Resources Program Specialist spent many hours reviewing and inspecting locations for this activity before selecting this site. The purpose of this field exercise was to evaluate the methods and procedures used during oil and gas related site inspections in order to develop a uniform Surface Activities Inspection Report document that will provide uniformity for inspections and allow for consistent issuance of NOV's statewide.

Prior to conducting the inspection, the participants gathered for several hours to add initial comments and suggestions to the inspection format to streamline the next day's field exercise.

The work site visited consisted of three well pads in different phases of construction or completion (under construction, constructed and active drilling). The work site also had a rock borrow pit, a centralized impoundment area and wetland encroachments. Additionally, the entire work area was surface mined and reclaimed twenty-five years ago. As mentioned previously, the site was carefully selected because site features allowed the group to inspect most situations that could be potentially encountered during field inspections at one location.

Participants conducted a joint inspection of the entire site. After inspecting a station as a group, each individual's opinion was solicited and a group discussion followed. This interactive group discussion resulted in a robust conversation that provided the inspection-specific information the group was designed to produce. Extra care was taken to ensure that each Oil and Gas Region had a chance to comment on every issue. Some of the consistent questions that were asked at each station were, "Are there any violations?"; "Is there a need for a permit, waiver or other Departmental approval?"; "If there are violations, how would you address the situation?"; "Is this worthy of an NOV?"; "Can it be easily captured on the draft checklist/inspection form?"; "What improvements can be made to the checklist/inspection form?".

The stations visited, in order, were the Site Entrance, Rock Borrow Pit, Wetland Road Crossing, Well Pad # 2, Well Pad # 1, Stream Crossing, Centralized Impoundment Area and Well Pad # 3. Interlaced between all the stations were extensive examples of Erosion and Sediment (E&S) Control Systems. Numerous violations were noted throughout the site, including the following:

- Inadequate erosion and sediment (E&S) controls at various locations
- Failure to maintain Best Management Practices (BMPs)
- Improper installation of BMPs

- Failure to obtain a 105 General Permit for a wetland encroachment
- Failure to follow the E&S plan for the stream crossing
- Clean Streams Law Violations for allowing the transportation of sediment into the Waters of the Commonwealth (wetland & intermittent stream)
- Failure to obtain an OG-57 waiver for building a well site closer than 100 feet to a body of water
- Sediment being transported beyond the limit of disturbance
- Lack of two feet of freeboard in the drill cutting pits

During each station discussion, there was general consensus on what issues and violations were present at each location. The following regional differences were noted in the process of this inspection:

- The manner in which violations are memorialized and issued to the operators
- The manner in which violations are cited in eFACTS
- The inspection form utilized by staff.

At the conclusion of the field exercise, a discussion was held among the participants on actions that can be taken to obtain the goal of consistent inspection report writing, citation of violations and NOV issuance.

Recommendations:

Phase I:

- **Draft a Water Quality Specialists specific Surface Activities Inspection Report** that would incorporate a checklist to serve as a visual cue to prompt Specialists to inspect specific areas of interest but that is flexible enough to serve as a multi-purpose inspection form. The second part of the form is a “Remarks” page that serves to record special notes on site conditions and information to support actions recommended. Included in the Inspection Report package will be a page of instructions specifying how each section of the inspection form is to be utilized. Currently the regions are using different inspection forms. All regions will begin utilizing this form, which will increase consistency in inspections. (See Attachment B)
- **Develop training for Water Quality Specialists.** The field manual will be used as a training document during the initial training of new Water Quality Specialists and for refresher training of seasoned Water Quality Specialists. This manual and training should be reviewed at least once a year to determine if revisions are necessary.
- **Update a written eFACTS Violation Codes List** with definitions for each citation, including instructions on when and how they are to be entered into eFACTS. Instructions on consistent use of eFACTS should be included in the field manual. In addition, a refresher training course may be needed related to eFACTS for all staff expected to utilize the system.
- **Provide training and schedule biannual meetings** for the Oil and Gas program staff to ensure adequate dissemination of Central Office policies and direction. The Field staff would also submit agenda items to discuss with Central Office staff. The meeting would also allow the Field staff to discuss unique situations

with their peers so they can gather potential solutions from those who may have experienced similar scenarios.

- **All violations at a site should be entered into eFACTS as one (1) single incident and should be tied to an active well site or the most active or most recently active well on a well pad of multiple wells.** What this means is that even though there may be multiple related violations identified under an incident, only one violation should be entered into eFACTS. The remaining related violations can be noted and addressed in the administrative tab under the inspection record. Distinctly different incidents in violation that are also occurring at the site should be cited in eFACTS too, and again using only one violation citation for all of the violations related to that distinct incident. This will be the sole process used statewide to record Oil and Gas related incidences and violations in eFACTS. This guidance will be included in the Oil and Gas field manual described above.
- **Improve input screens of eFACTS** to make it more user friendly and/or develop a way to take the information entered on the inspection form and load it into eFACTS.
- **Data should be entered by technical staff in the program** and not clerical staff. This will improve the quality and consistency of the data within the system.

Phase II:

- **Continue to monitor our process.** The review team will continue to track the enforcement actions taken over the time period of the project to determine the length of time from issuance of enforcement action to final resolution. The findings of this evaluation will be provided to the Executive Team for review. In addition, a joint inspection should be completed with the Oil and Gas inspectors and, if necessary, a single inspection form should be developed.
- **Ensure consistency remains and implementation of recommendations.** Beginning three months after implementation of the steps above, a small group of the review team will again track enforcement actions for a period of one month. Those enforcement actions will be evaluated for consistency across regions.
- **Annually review the program.** BOGM's three field Mineral Resources Program Specialists will continue to monitor site inspection related activities annually to assure there is statewide consistency when conducting natural gas exploration and production site inspections, NOV processing, compliance tracking and enforcement actions by DEP field staff.

Phase III:

- **Seek to add Compliance Specialists to Oil and Gas Program in each region.** Adding these staff should improve compliance with Department policies for eFACTS entry and the closing of violations and will allow for inspection staff to focus on inspections rather than enforcement.

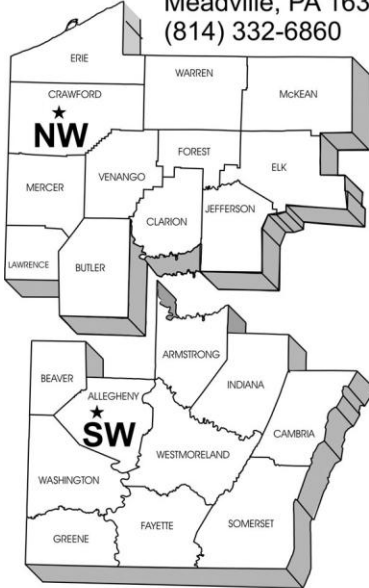
- **Improve the information available to industry regarding compliance.** An enhanced focus on compliance assistance, including detailed fact sheets and guidance documents as well as staff time, should be a focal point moving forward.
- **Compile Field Manual for Oil and Gas Staff** that details proper policies and protocol on how to conduct each of the various types of inspections with which they are tasked. Copies of all Departmental policies, guidance documents and fact sheets that pertain to their job duties should be included in the manual. The manual should be a living document and be updated continuously as new policies and procedures are developed.
- **Provide standard equipment such as laptops and printers for field staff to input the inspection and violation information when the site visit is completed.** All written official NOV documents should be issued from the Regional Oil and Gas Program and not directly delivered or issued in the field.

Attachment A

Oil and Gas Regions

★ Northwest Region

230 Chestnut Street
Meadville, PA 16335-3481
(814) 332-6860



★ Eastern Region

208 West Third Street
Williamsport, PA 17701-6448
(570) 321-6550



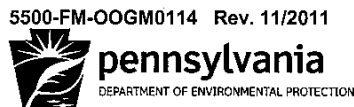
★ Southwest Region

400 Waterfront Drive
Pittsburgh, PA 15222-4745
(412) 442-4024

● Central Office

Bureau of Oil and Gas Management
PO Box 8765
Harrisburg, PA 17105-8765
(717) 772-2199

Attachment B



COMMONWEALTH OF PENNSYLVANIA
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY	Inspection Record #
Complaint Record #	Enforcement Record #

SURFACE ACTIVITIES INSPECTION REPORT

DEP Office		Permit or Reg. #												
Address		Permit or Reg. #												
		Project #												
Oper. Name		Farm Name & Well #												
Address		County												
		Municipality												
Responsible Official/Phone		Latitude:	° ' " N											
Other Info.		Longitude:	° ' " W											
Inspection Code:	<input type="checkbox"/> RTNC – Routine Complete Inspection	<input type="checkbox"/> BDREL – Bond Release	<input type="checkbox"/> RDSPR – Road Spreading											
	<input type="checkbox"/> CEI – Compliance Evaluation	<input type="checkbox"/> FLWUP – Follow-Up	<input type="checkbox"/> RESTR – Site Restoration											
	<input type="checkbox"/> COMPL – Complaint Inspection	<input type="checkbox"/> INCDT – Spill Incident	<input type="checkbox"/>											
Facility: <input type="checkbox"/> Single-Well Pad <input type="checkbox"/> Multi-Well Pad <input type="checkbox"/> Pipeline <input type="checkbox"/> Centralized Impoundment-Waste <input type="checkbox"/> Storage Facility <input type="checkbox"/> _____														
Stream Class/Watershed: Special Protection? _____ Type: _____ Fishery Type: _____														
Permits/Auth: <input type="checkbox"/> General Permit: Type _____ <input type="checkbox"/> ESCGP _____ <input type="checkbox"/> Joint <input type="checkbox"/> C.I. <input type="checkbox"/> OG-57 <input type="checkbox"/> _____														
Site Phase: <input type="checkbox"/> Pre-construction <input type="checkbox"/> Construction <input type="checkbox"/> Drill/Alt <input type="checkbox"/> Restored/Prod <input type="checkbox"/> Abandoned <input type="checkbox"/> Plugging <input type="checkbox"/> _____														
Well Type: <input type="checkbox"/> Conventional <input type="checkbox"/> Unconventional Shale: <input type="checkbox"/> CBM <input type="checkbox"/> Oil <input type="checkbox"/> Conservation <input type="checkbox"/>														
O&G General	Section	I	R	V	Restorations	Section	I	R	V	Encroachments (cont'd.)	Section	I	R	V
Site ID Sign	201(g)OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Well site restored in 9 months	206 OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pipeline Installed <25 ft. BMP's approved.	*105.314	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Drilling Permit on site	201(a)OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	30 Day restoration/ well not drilled	*78.65(2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Waste Control and Disposal				
Well Tag	201(h)OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PCSM completed and implemented	102.8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		Control Residual Waste	*78.54	<input type="checkbox"/>	<input type="checkbox"/>
Drilling w/in 200' of a Bldg. or W.S.	205(a)OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Control & Disposal Plan	*78.55	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Earth Disturb. w/in 100' of S.W. or W.L.	205(b)OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pit lining, contain, 2 ft freeboard	*78.56	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Spill/Release	Section	I	R	V	Production Fluids control & storage	*78.57	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Water Supply	Section	I	R	V	Pollutional discharge	401CSL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Discharge Requirements	*78.60	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Protection of Water Supply	*78.51/208 OGA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Pollution prevention measure	402CSL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disposal of drill cuttings	*78.61	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24 hr Complaint Notification	*78.51(h)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Point Source Pollution	301/307CSL	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Disposal of residual wastes/sampling	*78.62	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Notify DEP, mitigate, prevent spill	*91.33	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Land Farming	*78.63	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Contain Pollutants	*91.34	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Oil Tank Containment	*78.64	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E&S	Section	I	R	V			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Residual Waste	SWMA 301	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E&S Plan On-site	*102.4(b)(8)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Encroachments	Section	I	R	V					
E&S Plan Adequate	*102.4(b)(5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Permits Obtained	*105.11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Minimize E&S	*102.4(b)(1)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Copy of Permit on-site Construction	*105.42(d)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
ESC GP Obtained	*102.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Operate or Maintain Project	*105.51	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Special Protection	*102.6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	E&S Measures in Place/ Maintained	*105.46	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Notice of Termination	*102.7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Work Performed to Specifications	*105.44	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other	Section	I	R	V
BMP's Designed, Imp, and Maintained	*102.11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Temporary Site Stabilization	*102.22(b)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

I= Inspected R= Remarks V= Violation * 25 Pa. Code § OGA= Oil & Gas Act SWMA= Solid Waste Management Act CSL= Clean Streams Law

Compliance Assistance	Code	Code	Inspection Results	Code	Photos Attached <input type="checkbox"/>
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Attachment C

Participants

Executive Team: Dana Aunkst (lead), John Hines, Jeff Logan, Alisa Harris, Dave Raphael and Scott Perry.

Review Team: Marcus Kohl (lead), Hayley Book, Ann Roda, Laura Henry, Dan Lapato, Shamus Malone, Jim Knudson, Kelly Burch, Alan Eichler, Jennifer Means, Dave Engle, Steve Brokenshire, Kirk Elkin, Jim Kline, Geoff Ayers, Bruce Jankura, Doug Welsh, Mike Arch, Donna Duffy, Andrew Gaul, and Julie Snyder.

Field Exercise Participants:

Regional Oil and Gas Program: Mike O'Donnell - WQSS, East Region Scranton, David Engle - WQSS, East Region Williamsport, Chad Meyer - WQSS, Northwest Region Knox, Scott Lux - WQSS, Northwest Region Meadville, Vince Yantko - WQSS, Southwest Region California, Ed Ritzer - WQSS, Southwest Region Greensburg.

Central Office BOGM: Shamus Malone – EPM, Stephen Brokenshire - MRPS, Scranton, Jim Kline - MRPS, Ebensburg, Kirk Elkin - MRPS, Knox.