

Executive Summary

Project Title: Oil and Gas Sediment Control BMP Project

Project Start Date: July 1, 2007

Project Completion Date: August 15, 2012

Funding: Total Budget: \$8,397.79
 Total EPA Grant: \$3,550.29
 Total Match: \$4,847.50

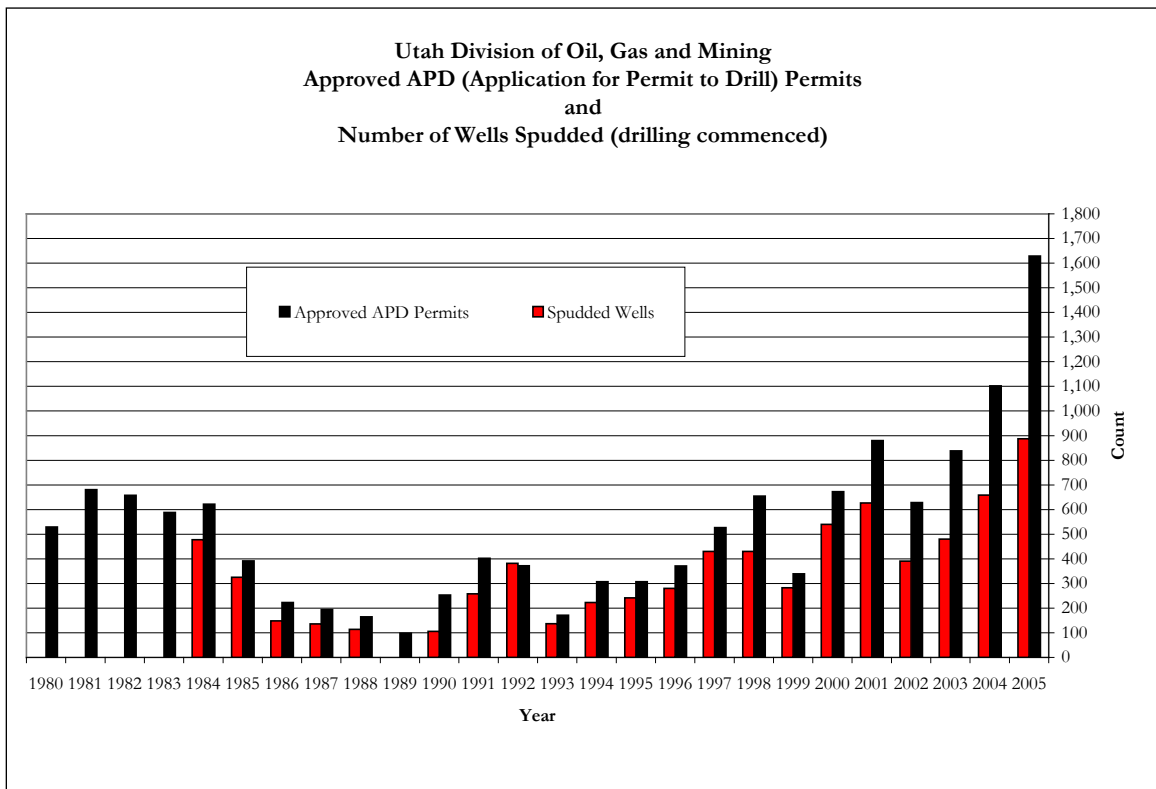
Summary of Accomplishments:

1. Held 1st Annual Oil and Gas Water Quality BMP Workshop on July 12, 2012. Workshop focused on UDWQ's Stormwater BMP practices and changes to the permitting process. Wyoming Stormwater Coordinator also talked how the Energy Industry is regulated by the WDEQ Stormwater Program. A post-workshop survey was conducted to determine if the workshop was effective at explaining the appropriate BMP needed for Energy Development.
2. Fifty Sediment Control BMP manuals were printed and distributed to public and industry stakeholders. They were used in part of the Stormwater Outreach and Education program.
3. Sixty hardhats with the Uintah Basin Watershed Council (UBWC) logo were handed out at the October 2012 Quarterly Uintah Basin Oil and Gas Collaborative meeting.

Introduction

Higher prices of worldwide oil result in increase production and exploration of domestic on-shore development in the United States. When oil prices increased in 2000, oil and gas exploration in the State of Utah escalated. According to the Utah Division of Oil, Gas, and Mining (DOGM) database that documents oil and gas leasing, drilling, and production in Utah, 37% of the total number (13,604) of APD (Application Permits to Drill) permits issued since 1980 were approved during the years 2001 to 2005 (see figure 1). As of July 15, 2006, 1,130 permits have been approved, more than the total number of permits approved in 2004. A boom period of exploration and development occurred during the years 1980 to 1985 due to the energy crisis that began in 1978. This current boom is much greater in magnitude and unless prices decrease or an alternative source of energy is proposed, exploration will continue well beyond the previous five-year boom period. The main difference between the 1980's and recent development is the Energy Policy Act of 2005 that mandates expedited development. One notable result of the Act included the amendment to the Clean Water Act's section 401(l)(2) that exempts oil and gas exploration, production, processing, treatment or transmission from obtaining an Environmental Protection Agency's (EPA) Stormwater permit for construction activities.

Figure 1. Number of APD Approved Permits and Spudded Wells (DOGM July 2006).



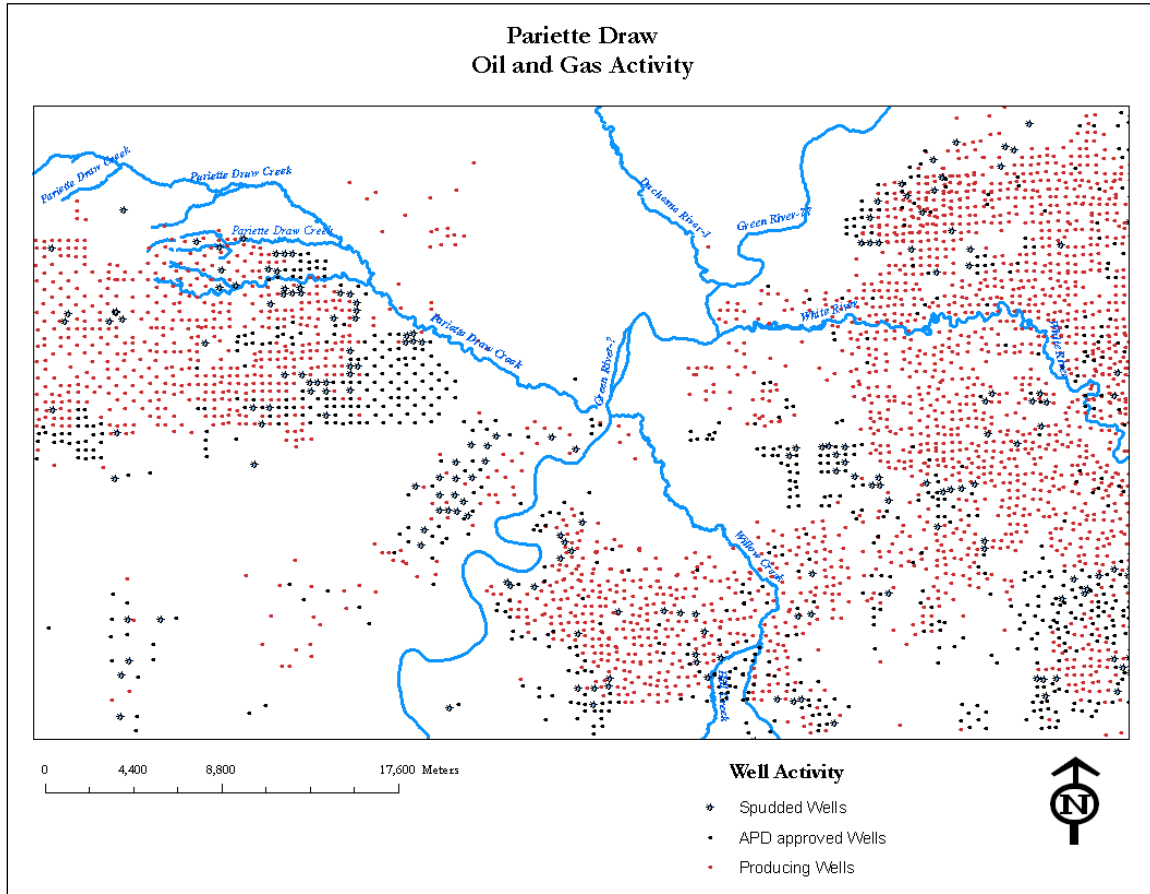
As part of the Clean Water Act Section 401(l)(2), the EPA established Phase II of the National Pollutant Discharge Elimination System (NPDES) program requiring a NPDES stormwater permit for construction activities that disturb one acre or more. Phase II was adopted in 1999 after recognizing the significant impact of construction activities to the nations' waters stating that "Stormwater runoff from sites where the ground can be disturbed, in particular construction sites, can deposit sediment in river, lakes and streams. Sediment, the primary environmental concern, clouds water, decreases photosynthetic activity, reduces the viability of aquatic plants and animals and ultimately destroys organisms and their habitats" Oil and gas construction activities include clearing, leveling, excavating and road building. As water flows over the site, it picks up pollutants. The pollutants of concern with oil and gas construction activities include high sediment loading, petrochemicals, construction chemicals, garbage and unregulated sewage. In addition, the loss of topsoil reduces or eliminates soil nutrients thus hampering reclamation efforts. As part of the stormwater permit, operators are required to plan and implement Best Management Practices (BMP's) designed to reduce sediment and erosion from the construction site.

Given the magnitude of recent oil and gas development, the construction of well pads and roads can potentially contribute to significant sedimentation into Utah's waters. An example of heightened oil and gas development in Utah can be seen near the Pariette Draw, which is listed on the 303(d) list as impaired for Total Dissolved Solids, Boron and Selenium, and at Willow Creek which is impaired for Total Dissolved Solids (see figure 2). Pariette Draw and Willow Creek are tributaries to the Green River which is the main tributary to the Colorado River system. TMDL studies of the Pariette Draw were approved by EPA in 2010. Willow Creek was removed from the 303(d) list due to recent data no longer shows impairment.

Though the CWA has been amended to exempt all Oil and Gas exploration, production, and processing from Stormwater Pollution Prevention Plans (SWPPP), the amendment states that "this action also encourages voluntary application of best management practices for oil and gas field activities and operations to minimize the discharge of pollutants in storm water runoff and protect water quality." In 2012 the Utah Division of Water Quality (UDWQ) also requires a SWPPP for any new road construction activity. UDOGM permits the actual oil pads for the energy industry. These agencies are working together to reduce redundancy in permitting the Oil and Gas Industry. It was the intent of this project to facilitate the application of voluntary best management practices by oil and gas producers through information and education.

The BMP manual and workshop focused on the target audience of producers, contractors, laborers, equipment operators and others involved with the daily placement, installation, and maintenance of erosion and sediment controls. Information was disseminated at the Uintah Basin Oil and Gas Collaborative Group meetings, federal and state agencies, and local communities. An email campaign announced the workshop date and stressed the importance of material to targeted audience. The workshop was held on July 12, 2012 in Vernal where the majority of the energy development is occurring.

Figure 2. Oil and Gas Development in the Pariette Draw and Willow Creek Watersheds.



Project Description

The primary goal of this project is to provide guidance and demonstrate the implementation of silt and erosion controls as related to oil and gas development activities. Laminated field guides and UBWC hardhats were distributed to the target audience at the Uintah Basin Oil and Gas Collaborative Group meeting in October 2012 and by UDWQ's Stormwater Section outreach activities in 2012. This project provided baseline information describing silt and erosion control implementation through the workshop, manual, and post-workshop survey.

Objective 1: Create a field guide and workshop curriculum to demonstrate sediment and erosion controls for oil and gas development. Establish first contact with those involved with the implementation, installation and maintenance of these controls.

Task 1

Hire a local construction contractor familiar with Oil and Gas Best Management Practices to develop the field guides, the workshop curriculum and lead the workshops.

Output: UDOGM, UDWQ Watershed Protection Section, and UDWQ Stormwater Section collaborated and decided the workshop curriculum and field guide content.

Total Cost = \$275 319 = \$0 Match = \$275 (In-kind)

Task 2

Hire a graphic designer to construct the field guides

Output: Used UDOT Erosion and Sediment Control Field Guide

Total Cost = \$0 319 = \$0 Match = \$0

Task 3

Print 50 copies of the field guides

Output: 50 laminated and spiral-bounded field guides

Total Cost = \$1,482.26 319 = \$1,482.26 Match = \$0

Objective 2: Use the materials developed in Objective 1, to set and execute the workshop/field tour and disseminate the field guides.

Task 4

Post the field guide, workshop date, workshop information and a link to the RAPPS document on the DOGM and DWQ websites

Output: Did not post workshop information on websites

Cost: N/A

Task 5

Develop, print, distribute and mail fliers alerting the targeted audience of the workshop/field tour date.

Output: Created flier advertising workshop. Emailed it to UDOGM's Uintah Basin Oil and Gas Collaborative Workgroup (UBOGCW) (over 200 stakeholders).

Total Cost = \$27.50 319 = \$0 Match = \$27.50 (In-kind)

Task 6

Hold the workshop at a convention hall or classroom in Vernal, Utah.

Hire a bus to transport participants to on-site activities.

Provide refreshments and lunch.

Output: Held the Oil and Gas Water Quality Workshop in Vernal on July 12th. Approximately 70 people attended the workshop. The field trip aspect was deemed unnecessary at this point in time. Breakfast and Dutch-oven lunch was provided for participants.

Total Cost = \$5,837.68 319 = \$1,375.18 Match = \$4,462.50 (In-kind)

Task 7

Disseminate field guides

Output: UDWQ's Stormwater Section personnel handed out field guides at the October 2012 UBOGCW meeting.

Total Cost = \$55.00 319 = \$0 Match = \$55.00 (In-kind)

Objective 3: Evaluate the project with pre and post workshop surveys. Foster the contacts made through the workshop and distribution of the field guides. Submit semi-annual, annual and final project reports pursuant to section 319 grant requirements.

Task 8

Develop a pre and post workshop survey that assesses the operators' perception of erosion control practices, including the current level of interest, believed cost and time commitment and knowledge.

Output: No pre-workshop survey was administered. A post-workshop survey was developed by UDWQ's Stormwater and Watershed Protection Section using Survey Monkey.

Total Cost = \$27.50 319 = \$0 Match = \$27.50 (In-kind)

Task 9

Collect and compile evaluation surveys.

Continue outreach activities where possible.

Output: Post-workshop Evaluation (Table 2). Create 60 Uintah Basin Watershed Council (UBWC) hardhats that meet the Energy Industry safety standards. Hand them out at the UBOGCG and UBWC meetings.

Total Cost = \$692.85 319 = \$692.85 Match = \$0

Task 10

Prepare and submit semi-annual, annual and final project reports pursuant to section 319 grant requirements.

Output: Reports

Total Cost = \$0 319 = \$0 Match = \$0

Overall Project Cost= \$8,397.79 319= \$3,550.29 Match= \$4,847.50

Figure 3. Field Guide for Energy Industry.

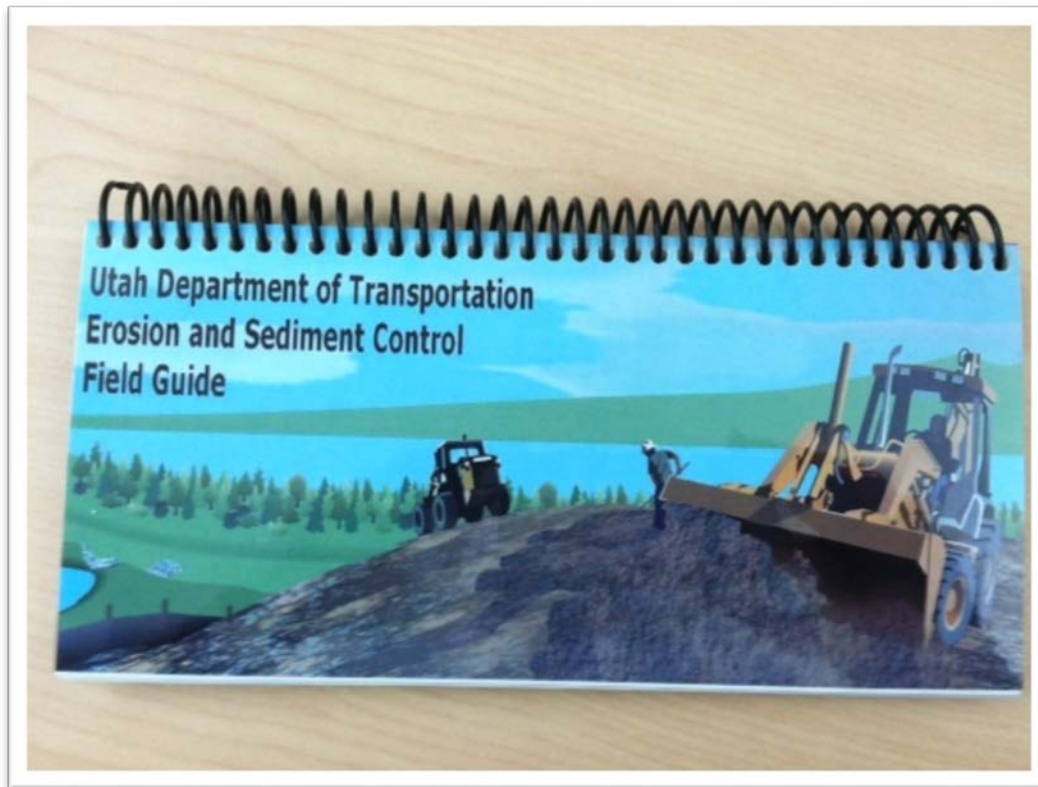


Figure 4. UBWC Hardhat.



Figure 5. Oil and Gas Water Quality BMP Workshop Flyer.



Oil and Gas Water Quality BMP Workshop



FREE ADMISSION
July 12th
11:30 AM – 2:30 PM*
UBATC, Vernal
*After Uintah Basin Oil & Gas
Collaborative Meeting
Lunch Included



WE ALL LIVE DOWNSTREAM

Milestone Table

Table 1. Milestone Table.

Objective	Task	Output	Complete Date
Objective 1: Create field guide and workshop curriculum	Task 1: Hire contractor to develop field guides, curriculum, & lead workshop	UDOGM & UDWQ Staff decided on workshop and field guide content	June 2012
	Task 2: Hire graphic designer to construct field guides	Used UDOT Erosion and Sediment Control Field Guide	August 2012
	Task 3: Print field guides	Printed 50 laminated and spiral-bounded field guides	August 2012
Objective 2: Conduct Oil & Gas Workshop	Task 4: Post workshop info on websites	Did not post workshop information on websites	N/A
	Task 5: Print & distribute workshop fliers	Emailed it to UBOGCW	June 2012
	Task 6: Hold workshop in Vernal. Hire bus for field trip. Provide lunch.	Held workshop at UBATC in Vernal. DWQ and WY Stormwater Coordinators gave presentations. Field trip deemed unnecessary at this time. Breakfast & Dutch-oven lunch provided for 70 participants.	July 12, 2012
	Task 7: Disseminate field guides	UDWQ Staff handed out field guides at UBOGCW meeting.	October 2012
Objective 3: Evaluate workshop with survey. Submit required reports to UDWQ and EPA.	Task 8: Conduct pre and post-workshop survey	Post-workshop survey written by Stormwater Section was conducted to participants.	August 2012
	Task 9: Evaluate surveys. Continue O/E activities.	UDWQ Staff compiled and evaluated survey (Table 2). Sixty UBWC hardhats were created and met Industry safety standards.	October 2012
	Task 10: Write up annual and final report	Reported on progress annually to EPA and UDWQ.	Yearly

Monitoring

A post-workshop survey was distributed after the workshop, surveying the participants to the effectiveness of the workshop. The surveys will be developed by UDWQ TMDL and Stormwater Sections. The survey sampled the knowledge participants have regarding the material presented. Questions included audience perceptions of erosion control practices such as current level of interest and believed cost and time commitment. The workshop was deemed successful judged by the number of participants (over 70) and so annual information workshops are scheduled for the Uintah Basin.

Survey and Survey Results

Table 2. Post Oil and Gas Water Quality Workshop Survey and Results.

Question	Correct Response	Survey Results
<p>What is the most common pollutant found in runoff from construction activities?</p> <p>Suspended solids/Sediment Metals Paper products Pesticides</p>	Suspended solids/Sediment	100% correct
<p>Why is a Stormwater Pollution Prevention Plan (SWPPP) needed?</p>	Comments only.	<ul style="list-style-type: none"> ▪ So special interest groups like trout and ducks unlimited can have something to cry about and so current government employees can guarantee themselves a job ▪ State rule ▪ Because the State requires it (apparently? not clear really) ▪ assist with analyst ▪ law ▪ In most of the oilfield it is not needed ▪ To prevent pollutants going into water bodies below disturbed areas. ▪ Principally to prevent erosion of soils and siltation of watercourses. ▪ To plan for a response and

		<p>actions needed in the event that a construction activity is affected by a storm surge, and/or an undesirable event.</p> <ul style="list-style-type: none"> ■ To ensure BMPs are being adhered to.
<p>A SWPPP is needed whenever an acre or more of land is cleared/disturbed or anytime there is a spill of reportable quantities. What information is needed to obtain a SWPPP?</p> <p>Identification of Pollution Prevention Team Facility description/Site map Identification of potential pollutant sources Best Management Practices (BMPs) Monitoring and sampling procedures Spill prevention and response plan All the above</p>	<p>All the above</p>	<p>9% Spill prevention and response plan</p> <p>91% All the above</p>
<p>Can you identify one or more examples of effective BMPs for controlling erosion and sediment?</p> <p>Preserve and stabilize drainages Protect sensitive areas Perimeter control Sediment basins and traps Stabilized vehicle access Phase soil disturbance activities Protect steep slopes Protect stormwater conveyance Minimize and protect stockpiles Stabilize exposed surfaces Dust and vehicle tracking</p>	<p>All the above</p>	<p>9% Preserve and stabilize drainages</p> <p>9% Protect steep slopes</p> <p>82% All the above</p>

control All the above		
Why is it important to know whether your facility or construction activity discharges stormwater to a water body listed as impaired or has a Total Maximum Daily Load (TMDL) limit? To document that your activity does or does not include the pollutant impairing the waterbody. To incorporate the appropriate BMPs to prevent exposure of the pollutants causing the impairment and to protect water quality. To ensure that no endangered plants or animals will be affected by the construction activity.	Both the following are correct: To document that your activity does or does not include the pollutant impairing the waterbody. To incorporate the appropriate BMPs to prevent exposure of the pollutants causing the impairment and to protect water quality.	27% To document that your activity does or does not include the pollutant impairing the waterbody. 82% To incorporate the appropriate BMPs to prevent exposure of the pollutants causing the impairment and to protect water quality. 27% To ensure that no endangered plants or animals will be affected by the construction activity.
Rank the order for the course of action required if a spill occurs. Immediately take action to contain the spill and minimize off site impacts Follow through with any environmental remediation required until spill is cleaned up Promptly report the spill to the appropriate State and Federal agencies	Immediately take action to contain the spill and minimize off site impacts Promptly report the spill to the appropriate State and Federal agencies Follow through with any environmental remediation required until spill is cleaned up	73% 1 st step correct 46% 2 nd step correct 73% 3 rd step correct
What additional information would you like on appropriate	Comments only	<ul style="list-style-type: none"> • None • A good website to explain it all and to make permitting easy.

<p>BMPs needed in the energy development industry?</p>		<ul style="list-style-type: none"> • Effectiveness • Typical drawings of structures and readily available materials that work well in the Uinta Basin drainages. • A clear outline of the permitting process and some thought put into it so it does not overlap or undermine existing requirements by other agencies.
<p>Would you like a follow-up workshop?</p>	<p>Comment only.</p>	<ul style="list-style-type: none"> • No • No, not unless you change it before and include a field trip to cooperative oil/gas operator who has a road/pad near surface water with something to show us (proper permit, proper BMPs) • No! Unless there is a free lunch! ☺ • Yes, by review any data • Perhaps, if several representatives case studies could be presented • Every 2 years • Yes. Please take into considerations the concerns and suggestions of industry when developing a permit program. Please do not burden industry with unnecessary or ineffective regulation. Training and education go further than a permit. Perhaps education should be a part of the construction contractor's licensing process or a part of their required hours for re-licensing.
<p>Do you feel compliance with the stormwater permit requirements will cause difficulties? If so, what are they?</p>	<p>Comment only.</p>	<ul style="list-style-type: none"> • No – just more hoops to jump through • Yes, if the State does not do it right. I don't think it is really necessary except for a tiny minority of cases near surface water. Don't trust the State to coordinate and do this right. A new regulation that does not really do much is never a good thing. • Yes. I don't think the State (DWQ I guess is the agency?) is ready for this. How will operators get their permits, and where will that happen in the overall permitting process? We need a one-stop shop, with DOGM being the gateway. We SHOULD NOT have to go to multiple State agencies for permitting! It will slow the process down and inadvertently cause non-compliance. Let DOGM be in

		<p>charge of this or forget it.</p> <ul style="list-style-type: none"> • Regulations • If companies already have to comply with these requirements with BLM or SITLA when they first put in their applications why do they need to repeat this process? • Requirements either have to be very broad to cover all potential situations or very prescriptive to deal with site specific circumstances. The former is preferred however this approach relies on knowledgeable operators to implement the most appropriate BMP's. • The permit requirements could be tied to distance from the construction site to active bodies of water (rivers, lakes, etc.) • Yes. There are existing avenues for the requirements of this permit to be implemented. Requiring a permit is pointless if there is no training on requirements, on site evaluations, and enforcement capabilities.
Do you have any unanswered questions?	Comment only.	<ul style="list-style-type: none"> • Why was there not a field trip as advertised? • What happened to the field trip? The lunch was great, but the workshop itself was not that useful to me.

Funding

Funding Sources

Source	Amount	Percent
EPA 319	\$3,550.29	42%
Match: UDOGM + UDWQ+ Oil/Gas Industry Personnel	\$4,847.50	58%
Total	\$8,397.79	100%

Funding Table

Objective	Task	Source	Amount
Objective 1: Create field guide and workshop curriculum	Task 1: Hire contractor to develop field guides, curriculum, & lead workshop	In-kind Match (10 people for 2 hours at \$27.50/hour)	\$275
	Task 2: Hire graphic designer to construct field guides	N/A	
	Task 3: Print field guides	319	\$1,482.26
Objective 2: Conduct Oil & Gas Workshop	Task 4: Post workshop info on websites	N/A	
	Task 5: Print & distribute workshop fliers	In-kind Match	\$27.50
	Task 6: Hold workshop in Vernal. Hire bus for field trip. Provide lunch.	319 + In-kind Match	\$5,837.68
	Task 7: Disseminate field guides	In-kind Match	\$55.00
Objective 3: Evaluate workshop with survey. Submit required reports to UDWQ and EPA.	Task 8: Conduct pre and post-workshop survey	In-kind Match	\$27.50
	Task 9: Evaluate surveys. Continue O/E activities.	319	\$692.85
	Task 10: Write up annual and final report	N/A	
Total			\$8,397.79