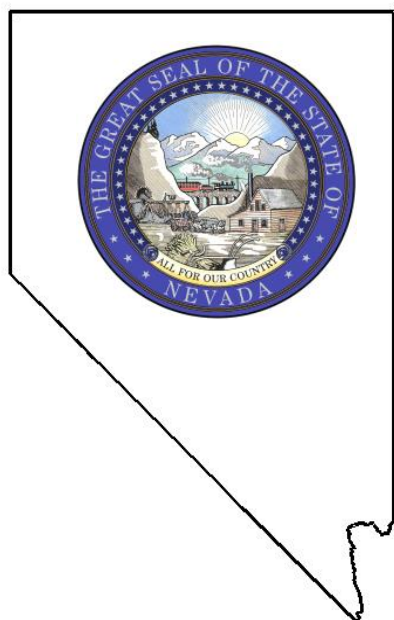


STATE OF NEVADA

Performance Audit

Commission on Mineral Resources
Division of Minerals

2013



Legislative Auditor
Carson City, Nevada

Audit Highlights



Highlights of performance audit report on the Division of Minerals issued on January 7, 2014. Legislative Auditor report # LA14-12.

Background

The Division of Minerals, a part of the Commission on Mineral Resources, is responsible for administering programs and activities to promote, advance, and protect mining and the development and production of petroleum and geothermal resources in Nevada. The Division's offices are located in Carson City and Las Vegas. As of June 30, 2013, the Division had 11 full-time employees. The Division is funded primarily from fees paid by the mining industry. In fiscal year 2013, mining claim fees collected totaled about \$2.1 million. Fees collected from the oil, gas, and geothermal industries amounted to about \$173,000. Division expenditures totaled approximately \$2.5 million in fiscal year 2013.

The Division's responsibilities include permitting, inspecting, and monitoring all oil, gas, and geothermal drilling activities on both public and private lands in Nevada. In addition, the Division's Abandoned Mines Program was established in 1987. Program activities include identifying dangerous mines sites, ranking the sites according to the degree of danger, and notifying responsible parties of their obligation to secure dangerous conditions. The Division is responsible for securing abandoned mines where no responsible party can be found.

Purpose of Audit

The purpose of this audit was to evaluate the Division's efforts to: (1) monitor oil, gas, and geothermal drilling operations for compliance with regulatory requirements; and (2) secure abandoned mines by notifying responsible parties.

This audit focused on the Division's activities from July 1, 2010, through June 30, 2013.

Audit Recommendations

This audit report contains three recommendations to improve monitoring of oil, gas, and geothermal operations. In addition, one recommendation was made to improve efforts to secure abandoned mines by notifying responsible parties.

The Division accepted the four recommendations.

Recommendation Status

The Division's 60-day plan for corrective action is due on April 3, 2014. In addition, the six-month report on the status of audit recommendations is due on October 3, 2014.

Division of Minerals

Commission on Mineral Resources

Summary

The Division can enhance its monitoring of oil and geothermal drilling operations in the State. Specifically, by performing periodic inspections of operations, it can obtain greater assurance that these operations are complying with requirements in regulations adopted by the Commission on Mineral Resources. The regulations are intended to ensure safety, protect the environment, and minimize the waste of natural resources. Furthermore, the Division needs to witness geothermal pressure tests to ensure geothermal operators perform the test in accordance with regulations adopted by the Commission. The tests are intended to ensure well safety equipment is working effectively to minimize the risk of a blowout incident.

The Division's efforts to secure abandoned mines by notifying responsible parties have been effective. In the past 3 years, hundreds of mines have been secured through the Division identifying and informing parties of abandoned mines that the parties were responsible for securing. However, the Division can enhance the results of its efforts by following up when responsible parties do not provide evidence that abandoned mines have been secured. Follow-up should include notifying counties of responsible parties that have failed to secure the abandoned mines. Improved follow-up may prevent physical harm to persons or animals from occurring at hazardous abandoned mines.

Key Findings

The Division has not established an inspection process to help ensure oil and geothermal operations are meeting regulatory requirements. Although the Division reviews an entity's operating plans for compliance with the regulations before approving drilling permits, inspections are not regularly performed. Inspections would provide greater assurance that an entity is complying with requirements related to the construction, operation, and abandonment of wells. Management indicated wells are visited on an exception basis if problems arise, but the inspections are not sufficiently documented. Near the end of the audit, the Division began taking steps to establish an inspection process. Currently, there are 430 geothermal-related wells and 111 oil-related wells in Nevada. About 40% (181 of 430) of the geothermal-related wells and almost all (107 of 111) of the oil-related wells are on federally-managed land. The Bureau of Land Management (BLM) is responsible for regulating wells on federal lands. However, the Division also has oversight responsibility since it issues operating permits for wells on federal lands. (page 6)

The Division did not witness safety tests performed at geothermal well operations. Regulations adopted by the Commission require the Division to witness the testing of blowout prevention equipment immediately after it is installed at a well site. We randomly selected 10 safety tests and found none were witnessed by Division personnel. This problem was noted in the last audit of the Division. (page 8)

Recent efforts by the Division to secure abandoned mines by notifying responsible parties have been effective. Based on our testing of Division records, responsible parties secured 642 hazards (abandoned mines) in the last 3 years after the Division notified them of their responsibility. This occurred because the Division researched county records to determine who was responsible for securing the abandoned mines it investigated. When the research identified a responsible party, the Division notified the party of their responsibility to secure the dangerous condition. Parties were notified about the specific hazards on their claims, timeframes for taking action, documentation that had to be provided upon securing the hazard, and contact information for assistance. Pursuant to NAC 513.380, dangerous conditions had to be secured within 60 to 180 days depending on the danger rating assigned by the Division. The actual number of mines secured may be higher than found through examining Division records. Management indicated that based on its experience, some responsible parties secure mines, but fail to provide documentation to the Division. (page 11)

From our testing of Division records, we found the Division did not perform sufficient follow-up when responsible parties failed to adequately respond upon notification of their responsibility to secure abandoned mines. From the hazards that remained unsecured after the Division notified the responsible parties, we randomly selected 40 hazards and reviewed agency records for documentation of follow-up efforts. Our test found that after the initial notification, the Division did not follow up with the responsible party for all 40 hazards. Counties are authorized by state law to take enforcement action against responsible parties failing to secure abandoned mines. (page 12)

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**Legislative Commission
Legislative Building
Carson City, Nevada**

This report contains the findings, conclusions, and recommendations from our performance audit of the Division of Minerals. This audit was conducted pursuant to the ongoing program of the Legislative Auditor as authorized by the Legislative Commission. The purpose of legislative audits is to improve state government by providing the Legislature, state officials, and Nevada citizens with independent and reliable information about the operations of state agencies, programs, activities, and functions.

This report includes four recommendations to improve the Division's efforts to monitor oil, gas, and geothermal operations and to secure abandoned mines. We are available to discuss these recommendations or any other items in the report with any legislative committees, individual legislators, or other state officials.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Paul V. Townsend".

Paul V. Townsend, CPA
Legislative Auditor

December 2, 2013
Carson City, Nevada

Division of Minerals

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Introduction

Background

The Division of Minerals, a part of the Commission on Mineral Resources, is responsible for administering programs and activities to promote, advance, and protect mining and the development and production of petroleum and geothermal resources in Nevada. The Commission on Mineral Resources is responsible for advising the Governor and Legislature on mineral-related issues. It is comprised of:

- (a) two persons who are familiar with large-scale mining;
- (b) one person who is familiar with the production of oil and gas;
- (c) one person who is familiar with exploration for and development of minerals;
- (d) one person who is familiar with the situations unique to small-scale mining and prospecting;
- (e) one person who is familiar with the development of geothermal resources; and
- (f) one member to represent the general public.

The Governor appoints the seven members of the Commission to 4-year terms. The Commission also adopts the regulations administered by the Division.

The Division's mission is to conduct activities to further the responsible development and production of the state's mineral resources to benefit and promote the welfare of the people of Nevada. The Division of Minerals administers the following programs:

Abandoned Mine Lands (AML) Program – Provides for public safety by identifying and ranking dangerous conditions at mines that are no longer operating, notifying parties of their responsibility

to secure abandoned mines, and by securing dangerous orphaned mines (mines without a known responsible party). The program also educates the public to recognize and avoid hazardous abandoned mines.

Oil, Gas, and Geothermal Program – Responsibilities include permitting, inspecting, and monitoring all oil, gas, and geothermal drilling activities on both public and private lands in Nevada. Staff also monitors the production of oil, gas, and geothermal resources to ensure proper management and conservation.

Bond Pool Program – Provides reclamation bonds for those mining operators that cannot obtain a bond from commercial means. The participants in the pool pay a deposit and semi-annual or annual premiums thereafter.

Education Program – Promotes the minerals industry and the importance of mineral resources. The Division has developed educational materials for grade levels K-12, co-sponsors semiannual education workshops, and performs numerous classroom presentations.

Mining Program – Compiles annual data on all active mines in Nevada and maintains the state's mine registry. Information concerning mining operations and production is available to the public through a yearly publication.

Staffing and Budget

The Division's offices are located in Carson City and Las Vegas. As of June 30, 2013, the Division had 11 full-time employees. In addition, 8 summer interns were assigned to the AML Program. The Division is funded primarily from fees paid by the mining industry. In fiscal year 2013, mining claim fees collected totaled about \$2.1 million. Fees collected from the oil, gas, and geothermal industries amounted to about \$173,000. Division expenditures totaled approximately \$2.5 million in fiscal year 2013. Exhibit 1 shows the Division's funding and expenditures for fiscal year 2013.

Funding and Expenditures Fiscal Year 2013

Exhibit 1

Funding	
Beginning Cash	\$1,126,549
Mining Fees	2,084,680
Geothermal Fees	135,425
Transfer From Bond Pool	102,426
Other Revenue ⁽¹⁾	70,402
Oil and Gas Fees	37,956
Interest	4,016
Total Funding Available	\$3,561,454
Expenditures	
Personnel	\$ 974,493
Special Projects ⁽²⁾	929,402
Abandoned Mines	369,164
Operating	101,815
Miscellaneous ⁽³⁾	59,106
Travel	39,821
Las Vegas Office	33,029
Information Services	16,836
Total Expenditures	\$2,523,666
Reserve Balance	\$1,037,788

Source: State accounting system.

⁽¹⁾ Federal grants, publication sales, and medallion royalty income.

⁽²⁾ Including \$838,957 to UNR's School of Earth Sciences and Engineering.

⁽³⁾ Assessments for State Cost Allocation Plan, Purchasing Division, and Attorney General's Office.

Geothermal and Oil Production in Nevada

Nevada's electrical generation capacity from its geothermal plants is second only to California. In 2012, there were 21 geothermal-producing plants that sold approximately 2.4 million megawatt hours of electricity (this is enough to power 219,000 typical homes for one year). There are 430 geothermal-related wells in the State, including production, observational, injection, and thermal gradient wells. The plants are concentrated in the northern part of the State among seven counties. Geothermal heat is used for a variety of commercial, domestic, and public applications in Nevada. Schools in Elko County and homes in Lincoln and Washoe Counties are examples of public and private facilities

using this renewable energy resource. See Appendix A for a breakdown of geothermal production by county from 2008 to 2012.

The exploration and production of oil in Nevada is concentrated within three counties: Nye, Eureka, and Elko. In 2012, there were 12 oil-producing fields that produced about 368,000 barrels (42 gallons per barrel) worth \$33.5 million. There are 111 oil-related wells in the state. See Appendix B for a breakdown of oil production by county from 2008 to 2012. Natural gas has not been produced in Nevada since calendar year 2007.

Under NRS 534A.060 an entity must apply for a permit to drill a geothermal well and NRS 522.050 requires an entity to apply for a permit from the Division to drill an oil or gas well in the State. A permit is issued once the Division determines the plan of operations complies with applicable laws and regulations.

The Commission on Mineral Resources has adopted regulations concerning oil, gas, and geothermal operations in Chapters 522 and 534A of the Nevada Administrative Code. These regulations include numerous requirements related to the construction, operation, and abandonment of oil, gas, and geothermal wells. The regulations are intended to ensure worker safety, protect the environment, and minimize waste of natural resources.

Overview of the Abandoned Mines Program

The Abandoned Mines Program was established in 1987 to protect the public and animals from dangerous conditions¹ at mines that are no longer operating (abandoned mines) in accordance with the requirements of NRS 513.094. The Program was created in response to a number of fatal and nonfatal incidents at abandoned mines. It is primarily funded by an annual fee of \$2.50 per claim upon all mining claims filed with a county. Program activities include identifying dangerous mine sites, ranking the sites according to the degree of danger, and notifying responsible parties of their obligation to secure dangerous

¹ Under NAC 513.230, a dangerous condition means a condition resulting from mining practices that took place at a mine that is no longer operating or its associated works that could reasonably be expected to cause substantial physical harm to persons or animals.

conditions. The Division is responsible for securing abandoned mines where no responsible party can be found.

From inception of the program in 1987 to October 2013, the Division has identified and ranked 17,729 hazardous abandoned mines and secured 14,107. The hazard ranking of an abandoned mine is determined under NAC 513.340, and is based on its proximity to an occupied structure or a public road and the degree of danger. The acceptable methods for securing abandoned mines are specified in NAC 513.390 and range from installing a barricade made of wood, metal or plastic, to backfilling so that no void spaces remain.

Scope and Objectives

This audit is part of the ongoing program of the Legislative Auditor as authorized by the Legislative Commission, and was made pursuant to the provisions of NRS 218G.010 to 218G.350. The Legislative Auditor conducts audits as part of the Legislature's oversight responsibility for public programs. The purpose of legislative audits is to improve state government by providing the Legislature, state officials, and Nevada citizens with independent and reliable information about the operations of state agencies, programs, activities, and functions.

This audit focused on the Division's activities from July 1, 2010, through June 30, 2013. Our audit objectives were to:

- Evaluate the Division's efforts to monitor oil, gas, and geothermal drilling operations for compliance with regulatory requirements.
- Evaluate the Division's efforts to secure abandoned mines by notifying responsible parties.

Monitoring of Oil and Geothermal Drilling Operations Can Be Enhanced

The Division can enhance its monitoring of oil and geothermal drilling operations in the State. Specifically, by performing periodic inspections of operations, it can obtain greater assurance that these operations are complying with requirements in regulations adopted by the Commission on Mineral Resources. The regulations are intended to ensure safety, protect the environment, and minimize the waste of natural resources. Furthermore, the Division needs to witness geothermal pressure tests to ensure geothermal operators perform the test in accordance with regulations adopted by the Commission. The tests are intended to ensure that well safety equipment is working effectively to minimize the risk of a blowout² incident.

Inspection Process Has Not Been Established

The Division has not established an inspection process to help ensure oil and geothermal operations are meeting regulatory requirements. Although the Division reviews an entity's operating plans for compliance with the regulations before approving drilling permits, inspections are not regularly performed. Inspections would provide greater assurance that an entity is complying with requirements related to the construction, operation, and abandonment of wells. Management indicated wells are visited on an exception basis if problems arise, but the inspections are not sufficiently documented. Near the end of the audit, the Division began taking steps to establish an inspection process.

After raising questions to the Division about the lack of inspections, management initially indicated that documentation of visits could be found in activity reports to management. However, our review of activity reports from July 2010 through June 2013

² Under NAC 534A.031, a blowout means an uncontrolled escape of fluids and gases from a geothermal well.

noted only seven instances where Division personnel reported a well site visit. Furthermore, the reports only included brief comments and indicated very little, if any, information about which requirements were checked, the results, and whether corrective action was needed. To confirm the lack of inspections, we also reviewed 20 randomly selected well files (10 geothermal and 10 oil) and found no documentation of inspections by the Division. Currently, there are 430 geothermal-related wells and 111 oil-related wells in Nevada. About 40% (181 of 430) of the geothermal-related wells and almost all (107 of 111) of the oil-related wells are on federally-managed land. The Bureau of Land Management (BLM) is responsible for regulating wells on federal lands. However, the Division also has oversight responsibility since it issues operating permits for wells on federal lands.

From our review of the Division's activity reports, we noted there was an incident in December 2011 after a well blew out causing an oil leak that covered about 4 to 5 acres. Division personnel indicated that fortunately the crew was not present when the blowout occurred. The blowout was believed to have been caused by a mechanical equipment failure and the well was under control 4 to 5 days after the blowout. The Division also indicated there was an incident in 2010 that caused a temporary uncontrolled flow of geothermal fluid and steam, but no other harm. Although it is not known whether inspections would have detected problems at these wells, inspections provide an opportunity to identify potential problems before any damage is done.

Inspections Help Ensure Requirements Are Being Met

Standard regulatory practices for a permitting agency include inspecting regulated entities to ensure they are following applicable requirements. The Division is responsible for ensuring operators comply with requirements in its regulations and permit conditions, even though other state and federal agencies provide oversight of aspects of oil, gas, and geothermal operations under their authority. For example, oil and gas operations on federal land require a permit from the BLM. BLM personnel told us they inspect operations on a 3-year cycle.

Furthermore, the Division has a cooperative agreement with the Nevada Division of Environmental Protection (NDEP) to share inspection reports of oil, gas, and geothermal operations that are required to obtain an NDEP permit in some cases. However, the agencies have not provided reports to each other in recent years. Inspection reports performed by NDEP and the BLM could be helpful to the Division of Minerals in deciding when to inspect oil and geothermal wells for compliance with its regulatory requirements.

Since we brought this issue to the Division's attention, it has developed a checklist of requirements to review on inspections and a schedule of wells to inspect. In addition, as of October 2013, the Division indicated about 120 wells have been inspected.

Well Blowout Prevention Tests Were Not Witnessed

The Division did not witness safety tests performed at geothermal well operations. Regulations adopted by the Commission require the Division to witness the testing of blowout prevention equipment immediately after it is installed at a well site. This problem was noted in the last audit of the Division.

During our audit period, 67 geothermal wells were drilled that required the Division to witness the testing of blowout prevention equipment. We randomly selected 10 tests and found that none were witnessed by Division personnel. Nevertheless, in 6 of 10 tests, Division files contained reports from operators that provided reasonable assurance that pressure tests had been performed. In the other four tests, there was insufficient documentation to provide assurance that operators had performed the tests. For example, in one instance, the Division just had an e-mail from the operator stating that the test results were good.

Requirement for Witnessing the Blowout Prevention Tests

The Commission on Mineral Resources adopted a regulation under NAC 534A.270 that requires geothermal well operators to take certain steps to keep wells under control and operating safely at all times. This includes the installation of equipment during the drilling process for the prevention of a blowout. Under this regulation, the equipment must be tested under pressure and the Division must witness the tests.

According to Division personnel, it is not always feasible to witness these tests. Consequently, the Division accepts documentation such as electronic test results and other types of reports from the operators in lieu of witnessing the test. However, the regulations do not provide for alternative ways for Division personnel to verify operators performed this safety test, such as review of electronic test results or other forms of self-reporting. The Division has recently begun the process of amending the regulation to allow alternative ways for Division personnel to verify the tests were performed.

Prior Audit Found Tests Were Not Witnessed

In the prior audit of the Division in 2006, we found the Division had not witnessed well pressure tests. During the audit follow-up process, the Division represented it was witnessing the tests and was in the process of amending the regulation. It indicated the proposed amendment would eliminate the need for Division personnel to witness the tests and instead allow for the submission of electronic data to demonstrate tests were conducted. However, the regulation was not amended.

After we brought this to management's attention at the start of the current audit, the Division took the matter to the Commission on Mineral Resources. At a meeting in May 2013, the Commission voted to begin the process of amending the regulation to allow Division personnel to obtain assurance that operators conducted the well pressure tests through ways other than witnessing it. The proposed changes to the regulation have not been finalized as of the end of the audit.

Recommendations

1. Develop and implement a risk-based approach to determine the nature, extent, and timing of inspections performed on oil, gas, and geothermal operations.
2. Document inspections of oil, gas, and geothermal operations to indicate what requirements were checked, the inspection results, and any corrective action needed; and communicate this information to well operators.

3. Obtain credible evidence, in accordance with state regulations, that documents geothermal well blowout prevention tests were performed by operators.

Efforts to Secure Abandoned Mines Have Been Effective, But Can Be Improved

The Division's efforts to secure abandoned mines by notifying responsible parties have been effective. In the past 3 years, hundreds of mines have been secured through the Division identifying and informing parties of abandoned mines that the parties were responsible for securing. However, the Division can enhance the results of its efforts by following up when responsible parties do not provide evidence that abandoned mines have been secured. Follow-up should include notifying counties of responsible parties that have failed to secure the abandoned mines. Improved follow-up may prevent physical harm to persons or animals from occurring at hazardous abandoned mines.

Notifying Parties Has Resulted in Hazards Being Secured

Based on our testing of Division records, responsible parties secured 642 hazards (abandoned mines) in the last 3 years after the Division notified them of their responsibility. This occurred because the Division researched county records to determine who was responsible for securing the abandoned mines it investigated. When the research identified a responsible party, the Division notified the party of their responsibility to secure the dangerous condition. Parties were notified about the specific hazards on their claims, timeframes for taking action, documentation that had to be provided upon securing the hazard, and contact information for assistance. Pursuant to NAC 513.380, dangerous conditions had to be secured within 60 to 180 days depending on the danger rating assigned by the Division.

The actual number of mines secured may be higher than found through examining Division records. Management indicated that based on its experience, some responsible parties secure mines, but fail to provide documentation to the Division. The securing of

Follow-Up Needed When Parties Fail to Secure Hazards

the mine is not reflected in agency records until Division personnel are provided documentation or staff is able to verify it while investigating nearby mines.

From our testing of Division records, we found the Division did not perform sufficient follow-up when responsible parties failed to adequately respond upon notification of their responsibility to secure abandoned mines. From the hazards that remained unsecured after the Division notified the responsible parties, we randomly selected 40 (10 for each hazardous category-high, moderate, low, and minimal) and reviewed agency records for documentation of follow-up efforts. Our sample was selected from a total of 318 parties that did not provide documentation that hazards were secured.

Our testing found that after the initial notification, the Division did not follow up with the responsible party for all 40 hazards.

Specifically, we found:

- For 25 of 40 hazards, the responsible party did not respond to the Division's notification, yet the Division did not conduct any additional follow-up in accordance with their procedures.
- For 13 of the 40 hazards, the responsible party replied to the notification indicating it planned to secure the hazard and would provide documentation to the Division upon securing the hazard. However, the Division did not follow up when the party failed to provide evidence that it secured the hazard.
- Finally, for two hazards, the responsible party's response to the Division indicated it was awaiting clearance from another agency before securing the hazard; however, the Division did not follow up after considerable time had passed.

Counties Authorized to Take Enforcement Action

State laws provide counties with enforcement action to be taken against parties failing to fulfill their responsibility to secure abandoned mines. Specifically, NRS 455.030(1) requires the county commissioners to transmit the information received from the Division about uncooperative responsible parties to the sheriff or the constable of the township where the condition exists. NRS

455.030(2) requires the sheriff or constable to serve a notice upon each person identified as owner or otherwise responsible. Finally, under NRS 455.040, if the responsible party cannot show to the court that the mine has been secured, judgment can be entered for double the amount required to abate the condition and a \$250 fine per violation.

Furthermore, Division procedures indicate that if no response is received from responsible parties within 65 days of mailing of a notification packet, the appropriate county will be notified of their duty to initiate enforcement actions. Further, the Division indicates it will notify counties of non-responsive parties in its annual report on the abandoned mine program, and also in its letter notifying a responsible party of their responsibility to secure abandoned mines.

In the past, the Division notified counties when there was a lack of cooperation from the responsible party. It is not known when this practice stopped. Nevertheless, current management agrees it can utilize its database containing information about abandoned mines to identify when follow-up is needed, with follow-up focusing on parties that are responsible for hazards with the highest risk first.

Recommendation

4. Establish a follow-up process to ensure that parties notified of their responsibility to secure abandoned mines do so, including referral to county officials so that enforcement action can be taken when appropriate.

Appendix A

Annual Geothermal Production by County 2008 to 2012

		<u>Annual Geothermal Production (megawatt hours)</u>					
	Plant	2008	2009	2010	2011	2012	Total by Plant
Churchill	Dixie Valley	384,442	426,342	427,839	474,035	477,541	2,190,199
	Stillwater	36,096	79,442	133,137	155,434	151,697	555,806
	Desert Peak	78,896	95,966	111,086	108,879	98,218	493,045
	Salt Wells	0	72,186	112,673	112,179	105,676	402,714
	Brady Hot Springs	79,968	83,128	75,696	71,184	66,790	376,766
	Soda Lake 2	54,700	41,230	60,898	62,397	55,419	274,644
	Soda Lake 1	5,777	17,760	7,599	9,572	9,001	49,709
	Subtotal	639,879	816,054	928,928	993,680	964,342	4,342,883
Washoe	Steamboat Hills	53,102	74,720	78,276	75,787	144,756	426,641
	Galena 3	154,933	184,238	179,623	174,251	159,373	852,418
	Galena 1	175,477	159,972	165,471	163,041	151,494	815,455
	Steamboat 3	80,791	112,890	110,394	110,452	91,612	506,139
	Steamboat 2	60,870	105,103	105,239	80,614	81,994	433,820
	Galena 2	79,342	83,232	79,744	88,483	66,914	397,715
	San Emidio	0	16,546	21,662	19,429	30,045	87,682
	Empire	19,761	0	0	0	0	19,761
	Steamboat 1A	226	7,540	10,444	5,736	1,050	24,996
	Subtotal	624,502	744,241	750,853	717,793	727,238	3,564,627
Humboldt	Blue Mountain	0	64,220	267,453	285,357	257,190	874,220
	Subtotal	0	64,220	267,453	285,357	257,190	874,220
Lander	Beowave	111,811	111,043	108,171	115,941	102,404	549,370
	McGinnes	0	0	0	0	161,059	161,059
	Subtotal	111,811	111,043	108,171	115,941	263,463	710,429
Elko	Tuscarora	0	0	0	8,152	130,248	138,400
	Subtotal	0	0	0	8,152	130,248	138,400
Pershing	Jersey Valley	0	0	776	46,001	56,942	103,719
	Subtotal	0	0	776	46,001	56,942	103,719
Lyon	Wabuska	7,019	5,444	4,850	6,558	10,345	34,216
	Subtotal	7,019	5,444	4,850	6,558	10,345	34,216
Total		1,383,211	1,741,002	2,061,031	2,173,482	2,409,768	9,768,494

Source: Division records.

Appendix B

Annual Oil Production by County 2008 to 2012

		Annual Oil Production (barrels)					Total by Field
	Producing Field	2008	2009	2010	2011	2012	
Nye	Trap Springs	196,089	181,320	175,352	166,415	156,991	876,167
	Grant Canyon	56,247	60,036	68,927	77,683	58,897	321,790
	Eagle Springs	58,683	53,851	57,394	58,900	44,422	273,250
	Kate Springs	36,863	38,347	33,825	32,719	30,833	172,587
	Ghost Ranch	23,615	24,011	21,630	18,605	17,022	104,883
	Bacon Flat	7,968	7,764	7,427	6,358	5,690	35,207
	Sand Dune	10,467	9,883	3,687	2,483	2,656	29,176
	San Spring	2,407	1,419	1,493	1,404	1,498	8,221
	Currant	108	111	109	119	159	606
	Duck Water	120	120	118	115	117	590
	Subtotal	392,567	376,862	369,962	364,801	318,285	1,822,477
Eureka	Blackburn	43,600	77,730	57,260	43,198	38,004	259,792
	Tomera	0	0	0	0	11,705	11,705
	North Willow Creek	56	0	0	0	0	56
	Subtotal	43,656	77,730	57,260	43,198	49,709	271,553
Elko	Toana Draw	48	0	0	0	0	48
	Subtotal	48	0	0	0	0	48
	Total	436,271	454,592	427,222	407,999	367,994	2,094,078

Source: Division records.

Appendix C

Audit Methodology

To gain an understanding of the Division of Minerals, we interviewed staff and reviewed statutes, regulations, and policies and procedures significant to the Division's operations. We also reviewed financial information, prior audit reports, budgets, legislative committee minutes, and other information describing the Division's operations. Furthermore, we documented and assessed the adequacy of the Division's internal controls over the monitoring of oil, gas, and geothermal drilling operations and the securing of abandoned mines by notifying responsible parties.

To evaluate the Division's efforts to monitor oil, gas, and geothermal drilling operations for compliance with regulatory requirements, we interviewed Division management and staff to gain an understanding of the inspection process. We obtained a permit listing of all oil and geothermal wells. We tested the completeness of the listing by randomly selecting 10 oil and 10 geothermal files and tracing to the listing.

Next, we filtered the oil and geothermal listing to only show permits approved during the audit period. From this listing, we verified the accuracy of each listing by randomly selecting 10 oil and 10 geothermal well files and verifying key information was accurately recorded on the listing. We then selected 20 well files and reviewed the files for a drilling plan, evidence of plan review for regulatory requirements, permit approval, and documentation of Division inspections. We also reviewed the weekly activity reports for evidence of well inspections or visits. Furthermore, we interviewed Bureau of Land Management representatives to understand their process for documenting inspections of oil, gas, and geothermal operations and the frequency of inspections.

To determine if blowout prevention tests were witnessed by Division personnel, we sorted the geothermal well listings to

identify wells with an initial drill date during the audit period. From this population we randomly selected 10 geothermal well files for testing. We reviewed Division records for evidence of blowout prevention tests and to determine whether the tests were witnessed by Division personnel. If tests were not witnessed by Division personnel, we reviewed the type of assurance received by the Division. Further, we discussed with Division management the procedures performed by the Division in lieu of witnessing the blowout prevention test.

To evaluate the Division's efforts to secure abandoned mines by notifying responsible parties, we obtained a download of mines from the Abandoned Mine Lands (AML) database as of June 30, 2013. We verified the completeness of the data by randomly selecting 25 hazard inventory sheets, which are used by the Division to document the identification and risk ranking of a mine, and then tracing the mine from the inventory sheet to the database. We then separated the data into two sections, mines with a known responsible party and mines with no responsible party. We verified the mines with a responsible party by randomly selecting 50 hazards for testing. For each mine, we verified the following information from the hazard inventory sheet was correctly recorded in the database: responsible party, date responsible party was notified, date mine was secured and risk rank. We also verified the accuracy of the mines with no responsible party (according to the database) by randomly selecting 10 mines and confirming from the hazard inventory sheet that no responsible party was identified.

Next, from the population of mines with a responsible party we sorted the data into the following: mines with no notification date or a date outside the audit scope and mines with a notification date between July 1, 2010 and June 30, 2013. For the mines with no notification date or a date outside the audit scope, we isolated the mines classified as not secured and randomly selected 20 mines to determine why the responsible party was not notified. From the listing of mines with a notification date during the audit period, we determined the number of mines secured in the last 3 years after the Division notified parties of their responsibility.

Finally, to determine why abandoned mines were not secured after a responsible party was notified, we randomly selected 40 mines for testing from the listing of unsecured mines with a notification date during the audit period. Ten mines were selected from each risk rank (high, moderate, low, and minimal). We reviewed Division records and worked with Division staff to determine the accuracy of the responsible party information and whether the Division performed appropriate follow-up on the progress of the securing after the notification was sent.

Our audit work was conducted from March to October 2013. We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

In accordance with NRS 218G.230, we furnished a copy of our preliminary report to the Acting Administrator of the Division of Minerals. On November 8, 2013, we met with agency officials to discuss the results of the audit and requested a written response to the preliminary report. That response is contained in Appendix D which begins on page 19.

Contributors to this report included:

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Appendix D

Response From the Division of Minerals



BRIAN SANDOVAL
Governor

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RICHARD PERRY
Administrator

November 25, 2013

Paul Townsend, Legislative Auditor
Legislative Counsel Bureau
401 S. Carson Street
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Dear Mr. Townsend:

Pursuant to NRS 218G.230, this letter shall serve as a written statement of explanation to the audit report on the Commission on Mineral Resources, Division of Minerals as presented to the Division on November 14, 2013. Also attached to this letter is the "Division of Minerals, Response to Audit Recommendations" page indicating the Division accepts the four audit recommendations.

The Division's written statement of explanation is as follows:

- 1. Develop and implement a risk-based approach to determine the nature, extent, and timing of inspections performed on oil, gas and geothermal operations.**
 - a. The Division is the sole permitting authority for oil, gas and geothermal drilling operations on private (fee) land in Nevada. On public lands the Bureau of Land Management (BLM) is the federal government's delegated authority for regulating all oil, gas, and geothermal operations.
 - b. Over 95% of the oil-related wells and over 40% of the geothermal-related wells in Nevada are on public land.
 - c. While there is no statutory mandate to conduct inspections under NRS 522 (Oil and Gas) or NRS 534A (Geothermal), the Division has conducted inspections on a by-exception basis, wherein operations which were proposed to be conducted, or were being conducted, outside normal industry standards received additional scrutiny and oversight.
 - d. The Division currently has one dedicated oil, gas, and geothermal program manager. A Memorandum of Understanding (MOU) between the Division and the BLM allows either agency to request assistance in the inspection of drilling operations and well site conditions, but precludes any on-site enforcement by the assisting agency.
 - e. In response to the legislative audit team's concern regarding this by-exception approach, a new inspection program was promptly initiated by the Division.

- f. The initial phase of the program is to physically inspect all oil, gas and geothermal wells in Nevada in order to collect baseline data and photographs to document current well status and identify any conditions requiring remediation.
- g. To date, 97% of all the oil-related wells and 15% of all the geothermal wells have been inspected under this new program since September. By the end of December 2013, it is anticipated that the percentages will be 100% and 60%, respectively. The initial well inspection phase is expected to be completed by the end of Q1 2014.
- h. Phase two of the inspection program will be the development of a risk assessment methodology for the establishment of inspection frequency. Parameters may include:
 - i. type of well (Oil – production, injection, disposal, and water; Geothermal – production, injection, observation, commercial),
 - ii. well location (fee vs. federal land),
 - iii. history of well (any prior remedial actions required),
 - iv. history and responsiveness of operator,
 - v. general condition of well pad and access road (housekeeping)
 - vi. proximity to the public or surface waters
 - vii. prior inspection date and results of any BLM inspection

2. Document inspections of oil, gas, and geothermal operations to indicate what requirements were checked, the inspection results, and any corrective action needed; and communicate this information to well operators.

- a. While prior, by-exception, inspections were not adequately documented, findings requiring remedial action were always promptly reported to the operator and subsequently addressed.
- b. Neither of the incidents mentioned in the audit report would have been prevented through any visual inspection process.
- c. As mentioned in the response to item #1 above, a new inspection program was initiated by the Division to address the LCB audit team's concerns and provide the necessary documentation of the inspection process.
- d. To date, 97% of all the oil-related wells and 15% of all the geothermal wells have been inspected under this new program since September. By the end of December 2013, it is anticipated that the percentages will be 100% and 60%, respectively. The initial well inspection phase is expected to be completed by the end of Q1 2014.
- e. Currently, inspections are being documented in three ways: written field inspection reports, geo-tagged photographs, and letters to the operators.
- f. Oil-related well inspections currently include: field name (if a production field), well name, well location, if well on fee or federal land, current status of well, year well was completed, last inspection date, signage presence, condition of pad, wellhead condition, notation of any leaks, condition of tank battery if present; and any geo-tagged photographs of the wellhead and associated infrastructure.
- g. Geothermal-related well inspections currently include: field name (if a production field), well name, well location, if well on fee or federal land, current status of well, year well was completed, last inspection date, signage present,

condition of pad, wellhead condition, notation of any leaks, condition of reserve pit if present and any geo-tagged photographs of wellhead or associated infrastructure.

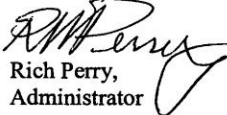
- h. Copies of the field inspection reports are sent to the operators noting any corrective actions required. Copies of the reports and accompanying photographs for all inspections conducted on federal land are sent to the BLM.
 - i. To date, of the 180 wells inspected, only ten signage issues (six on fee, four on federal) and one minor water drip at a shut-in oil well (federal) have been noted.
 - j. The Division will modify its current database to archive inspection results, track corrective action notification and remediation efforts, and allow for the querying of risk assessment parameters to guide future inspections and their frequency.
- 3. Obtain credible evidence, in accordance with state regulations, that documents geothermal well blowout prevention tests were performed by operators.**
- a. The current regulation, NAC 534A.270, requiring that the blowout prevention (BOP) tests “must be witnessed” dates back to 1985 and does not account for technological advances or the presence of an authorized representative which can be utilized to assure that successful tests were performed by the operators.
 - b. Drilling operators in Nevada utilize numerous American Petroleum Institute (API) standards, including API Standard RP-53 (Recommended Practice for Blowout Equipment), which states:
 - i. The results of all BOP equipment pressure and function tests shall be documented and include, as a minimum, the testing sequence, the low and high test pressures, the duration of each test, and the results of the respective component tests.
 - ii. Pressure tests shall be performed with a pressure chart recorder or equivalent data acquisition system and signed by pump operator, contractor's tool pusher, and operating company representative.
 - c. The level of sophistication of modern drilling rigs has advanced to the point that all operation parameters and functions are automatically recorded and often transmitted in real-time.
 - d. The installation and testing of BOP equipment can occur at any time, day or night, making it difficult for the Division to physically witness each and every test. When physical presence is not practical, the Division has accepted the test results via electronic means (e.g. fax or email) for review.
 - e. The MOU between the Division and the BLM, in place since 2006, provides for the coordination for oil, gas, and geothermal operations and inspections by eliminating duplication of effort and maximizing human and fiscal resources.
 - f. The Division proposed amending the language in NAC 534A.270 to allow for assistance from the BLM in witnessing the BOP tests and allow for other methods to receive the test data which assure that the operator has performed the tests satisfactorily.
 - g. On May 3, 2013, the Commission on Minerals approved draft language to amend NAC 524A.270 (3) to read: Immediately after installation, the casing and equipment for the prevention of a blowout must be tested under pressure. These tests must be witnessed *or otherwise assured* by the Division *or an authorized*

representative before the guide shoe is drilled out of the casing. The Division must be given reasonable notice of any such test. If necessary, conductor pipe must be equipped with annular blowout equipment which is hydraulically activated from a remote control station.

- h. The draft language will be included with other language proposed for modification as part of a larger review and update to both NAC 534A (Geothermal) and NAC 522 (Oil and Gas) and be submitted to LCB in January, 2014.
 - i. Until the amended language is officially adopted, it is the intent of the Division to physically witness as many BOP tests at geothermal operations as is practical.
- 4. Establish a follow-up process to ensure that parties notified of their responsibility to secure abandoned mines do so, including referral to county officials so that enforcement action can be taken when appropriate.**
- a. During the three year audit scope period of July 1, 2010 to June 30, 2013, the Division experienced two manager changes to the abandoned mine lands (AML) program which negatively impacted the continuity of certain program elements.
 - b. The audit findings revealed that the current AML (MS-Access) database does not adequately capture and document all of the interactions between the Division and responsible parties over the course of the notification process.
 - c. The database will be re-structured to include a notification history component, to include: date and type of communication (both to and from the responsible party/owner) and corresponding notes.
 - d. The Division will continue to implement a mass notification process (for unsecured hazards); this will occur during the months of April and November.
 - e. On a monthly basis, the database will be queried for owners who have not responded within six months, or have failed to submit documentation of their securing efforts within six months from their last communication date. From this query, reminder letters will be issued and the appropriate county commission will be copied as part of the letter. This will provide the counties with the necessary information to proceed with enforcement action, if desired, under NRS 455.030 and 455.040.

This completes the Division's written statement of explanation to the audit report.

Sincerely,


Rich Perry,
Administrator

cc: Commission on Mineral Resources

Division of Minerals' Response to Audit Recommendations

<u>Recommendations</u>	<u>Accepted</u>	<u>Rejected</u>
1. Develop and implement a risk-based approach to determine the nature, extent, and timing of inspections performed on oil, gas, and geothermal operations.....	<u> X </u>	<u> </u>
2. Document inspections of oil, gas, and geothermal operations to indicate what requirements were checked, the inspection results, and any corrective action needed; and communicate this information to well operators	<u> X </u>	<u> </u>
3. Obtain credible evidence, in accordance with state regulations, that documents geothermal well blowout prevention tests were performed by operators.....	<u> X </u>	<u> </u>
4. Establish a follow-up process to ensure that parties notified of their responsibility to secure abandoned mines do so, including referral to county officials so that enforcement action can be taken when appropriate	<u> X </u>	<u> </u>
TOTALS	<u> 4 </u>	<u> 0 </u>