

4.5 HAZARDOUS MATERIALS

Sources of hazardous materials are subject to the federal and state laws and regulations described in Chapter 3. These laws and regulations are designed to safeguard human health and safety and to protect other environmental resources. Enforcement of these laws and regulations would minimize risks associated with the use, storage, and disposal of hazardous materials, but with an increase in inherent risk associated with an increase in the amount of hazardous materials generated, used, transported, and stored. Decisions regarding the following resources and resource uses would have no adverse impact on hazardous materials, regardless of the alternative chosen:

- cultural and paleontological resources;
- fire resource actions;
- air quality;
- forage management, livestock grazing, and rangeland improvement;
- recreation;
- travel;
- vegetation, including woodland and riparian resources;
- visual resources; and
- wild horse and wildlife resources.

These issues and resources, as they pertain to hazardous materials, are not analyzed further.

4.5.1 Impacts Common to All Alternatives

4.5.1.1 Minerals

For all of the alternatives, BLM management goals include meeting local and national, non-renewable and renewable energy needs, and other public mineral needs, while ensuring a viable long-term mineral industry related to energy development. Management goals also include reasonable and necessary protections of other resources. Oil, natural gas, and other mineral exploration and development operations are users and producers of hazardous materials within the VPA, and these operators are responsible for understanding and complying with Environmental Protection Agency (EPA) regulations pertaining to hazardous materials.

Under all of the alternatives, approximately 188,500 acres of split-estate lands (lands involving Tribal surface overlying federal minerals) within the Hill Creek Extension of the Uintah and Ouray Indian Reservation would be available for minerals leasing. All potential mineral- and energy-related activities would be closely coordinated with the tribal government to ensure that their concerns were accommodated to the maximum extent possible under existing law and policy, and that Environmental Justice concerns were met.

For all of the alternatives, applicable safety measures would reduce the potential for hazardous materials contamination and releases associated with minerals development. All potentially hazardous chemicals in the VPA would be stored in accordance with state and federal guidelines. Personnel with emergency response training would periodically inspect areas containing chemicals. Standard operating procedures for oil and gas operators would include required measures that would be followed in the event of a chemical release in excess of reportable

quantities (as outlined in the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA] of 1990). Bureau of Land Management standard approval for oil and gas operations would require that the operators be subject to required coordination with and/or permitting from applicable local and state agencies, and otherwise conform to applicable state and federal laws and regulations when conducting activities involving the generation, storage, or transport of hazardous materials. Additionally, federal and state operating and reporting requirements include provisions for the cleanup and mitigation of chemical, product, or waste releases. Hazardous materials associated with oil, natural gas, and coal-bed methane (CBM) extraction are listed in Table 3.5.1 of the Hazardous Materials section in Chapter 3.

4.5.1.1.1 Pipelines

The installation of pipelines and supporting services for pipelines (e.g., compressor stations) would be necessary for oil and gas development. The companies installing and operating pipelines in the VPA are responsible for understanding and abiding by the applicable hazardous material laws and regulations. The Vernal Field Office would be responsible for inspecting and monitoring these operations to ensure that these companies are in compliance with all applicable laws and regulations.

4.5.1.1.2 Power lines

The installation of powerlines would be necessary for oil and gas development, and the polychlorinated biphenyls (PCBs) contained in power line transformers are classified as a hazardous material. The operators that install and maintain the powerlines are responsible for understanding and abiding by all applicable hazardous material laws and regulations.

4.5.1.1.3 Transportation

Minerals development activities would increase the instances of hazardous materials transportation. Transportation (e.g., trucking) companies are responsible for understanding and abiding by all applicable hazardous materials transportation laws and regulations.

4.5.1.1.4 Gas Flowline Leakage or Ruptures

The potential exists for gas flowline leakage or ruptures during natural gas extraction and processing. The U.S. Department of Transportation data indicate that an average of one rupture annually should be expected for every 5,000 miles of pipeline (Office of Pipeline Safety 1997). More than 50% of pipeline ruptures occur as a result of heavy equipment striking the pipeline. Such ruptures would potentially cause a fire or explosion if a spark or open flame ignited the natural gas escaping from the pipeline.

Pipeline design, materials, maintenance, and abandonment procedures are required to meet the standards set forth in U.S. Department of Transportation (DOT) regulations (49 CFR Part 192, Transportation of Natural Gas by Pipelines). Further construction specifications are recommended for safety and are available through the American Society of Mechanical Engineers (ASME-31.8) and the American Petroleum Institute (API Standard 1004).

4.5.1.1.5 Well Fires and Explosions

Well fires are rare but can occur under certain conditions, and a well fire could result from a blowout during drilling activities or from a gas leak during extraction operations. Conditions that would cause gas accumulation in a confined space, and ignition by a spark would likely produce a well fire. Even though these risks are low, oil and gas companies would typically have a

procedure within their Emergency Contingency Plan that would recommend calling a service company specializing in controlling and extinguishing well fires in the unlikely event of such a fire.

4.5.1.1.6 Human-caused Fires

Implementing the Utah Division of Oil, Gas and Mining (UDOGM) measures for surface fire hazards would reduce the risks of human-caused wildfires resulting from unsafe well control practices. Well sites would be kept free of vegetation and trash in order to minimize fire fuel in the vicinity of the well. The UDOGM Rule R649-3 *Drilling and Operating Practices* (from the Oil and Gas Conservation General Rules) requires trash control measures to minimize surface fire hazard risk.

4.5.1.1.7 Geologic Hazards

The potential risks associated with oil, gas, and CBM development include geologic hazards. These hazards include natural gas seepage, hydrogen sulfide (H₂S) releases, abnormally high gas pressure, seismic activity, and fires and explosions. The following sections describe these risks and the standard measures that would be required to minimize these risk factors.

4.5.1.1.7.1 Natural Gas Seepage

There are two potential avenues for natural gas to reach the ground surface. First, natural gas could migrate up the well bore annulus (the space between the drilling pipe and the bore hole). A cementing and casing program would be used to isolate or protect all geologic zones containing a fluid (gas or liquid) with the potential to migrate. Second, natural gas could seep through the natural fractures and faults of geologic formations, eventually venting when it reaches ground surface. The geologic setting would dictate the measures necessary to prevent natural fracture seepage.

4.5.1.1.7.2 Hydrogen Sulfide (H₂S)

The likelihood of a potential H₂S release (a byproduct of drilling, extraction, and processing) is monitored by H₂S detectors located near the drill holes. If H₂S gas was detected, an H₂S Emergency Contingency Plan should be available for implementation by the well operator.

4.5.1.1.7.3 Abnormal High Pressure

High pressures could be encountered when drilling. Blowout prevention equipment must be used to safely control any abnormally high pressures encountered. Onshore Oil and Gas Order No. 2 established the minimum equipment necessary to safely drilling and handling specific pressure situations. All wells drilled on federal mineral leases would abide by this Order. Wells drilled on private and state leases would have similar requirements administered by the Utah Division of Oil, Gas and Mining (UDOGM). Pressure equipment would be prescribed site-specifically during the Application for Permit to Drill (APD) approval process, and oil and gas companies would be required to maintain the equipment. The BLM and UDOGM would conduct inspections during drilling activities to verify compliance with these requirements.

4.5.1.1.7.4 Seismic Activity

Seismic risks in Utah are typically associated with the Wasatch Line, a north-south-trending system of earthquake faults. The effects of this seismically active area extend beyond Utah into Wyoming, Idaho, Nevada, and California. The effects are not as pronounced to the east of the

Wasatch Line (toward Vernal), but there is a system of four faults that trends east-west approximately 9 miles (15 km) north of the towns of Duchesne, Roosevelt, and Vernal. Earthquake epicenters of major historic quakes measuring four or greater on the Richter Scale have been recorded approximately 30 miles (50 km) west of Vernal and approximately 30 miles (50 km) southeast of Vernal along the Utah/Colorado border (Stokes 1986). Thus, although the risk is not high, a seismic risk does exist within the VPA.

Seismic activity could increase hazardous material risks. Seismic activity has the potential to cause rupturing of holding or evaporative ponds, and/or cause damage to storage facilities.

4.5.1.2 Abandoned Mine Land (AML)

The BLM recognizes the need to identify and address physical safety and environmental hazards at all AML sites on public lands. Abandoned mine land sites would be prioritized for remediation and closure, based on physical safety, watershed protection, and funding by other agencies. Abandoned mine lands would be considered in future recreation management area designations, land use planning, and all applicable use authorizations.

4.5.2 Alternative Impacts

4.5.2.1 Impacts of Minerals Decisions on Hazardous Materials

Increased minerals exploration and development would indirectly cause increases in hazardous materials risks. These impacts could be adverse and long-term.

4.5.2.1.1 Alternative A

4.5.2.1.1.1 Oil, Gas, and Coal-bed Methane (CBM)

Approximately 1,776,782 acres of BLM administered land within the VPA would be open to oil, gas, and CBM leasing with standard, timing limitation and/or controlled surface use stipulations. This represents a 17% increase in the total amount of acres available for leasing, compared to Alternative D – No Action.

An increase in the total number of acres available for oil and gas development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in the short-term and long-term adverse impacts due to presence hazardous materials would be less than 14% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

4.5.2.1.1.2 Special Tar Sand Areas

Approximately 252,665 acres would be administratively available for tar sand leasing with standard, timing limitation and/or controlled surface use stipulations. This represents a 16% increase in the total acreage available for tar sand leasing, compared to Alternative D – No Action.

Assuming that this increase in available acreage under Alternative A was equivalent to an increase in actual mining, then there would be an increase in the potential adverse impacts associated with hazardous materials used for vehicle and equipment operation.

4.5.2.1.1.3 Gilsonite and Phosphate

Approximately 172 miles would be open for prospecting, leasing, and development of Gilsonite. (Additional, new veins located via field study or prospecting [not shown on Figure 15] would

also be available if they are within Open category lands) (See Table 4.8.1). This represents a 3% increase in the total acreage open for prospecting, leasing, and developing Gilsonite, compared to Alternative D – No Action. An increase in the total linear miles available for Gilsonite development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in long-term adverse impacts due to the presence of hazardous materials would be less than 3% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

Approximately 87,724 acres would be Open for prospecting, leasing, and development of phosphate within areas known to contain phosphate deposits. This represents a 4% increase in the total acreage open for prospecting, leasing and developing phosphate, compared to Alternative D – No Action . An increase in the total acreage available for phosphate development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in long-term adverse impacts due to the presence of hazardous materials would be less than 4% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

4.5.2.1.1.4 Oil Shale

Within the known oil shale leasing areas, 298,629 acres would be Open for leasing if regulations providing for such were promulgated. This represents a 3% increase in the total acreage open for oil shale leasing, compared to Alternative D – No Action. An increase in the total acreage available for oil shale development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in adverse impacts due to the presence of hazardous materials would be less than 3% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

4.5.2.1.1.5 Mineral Materials

Approximately 415,395 acres would be Open for mineral materials development. This represents a 7% increase in the total number of acres available for development of mineral materials, compared to Alternative D – No Action. An increase in the total acreage available for minerals development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in adverse impacts due to the presence of hazardous materials is less than 7% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

4.5.2.1.2 Alternative B

4.5.2.1.2.1 Oil, Gas, and Coal-bed Methane (CBM)

Approximately 1,819,397 acres of land would be administratively available for oil, gas, and CBM leasing with standard, timing limitation and/or controlled surface use stipulations. This represents an 18% increase in the total acreage available for leasing and potential number of wells, compared to Alternative D – No Action.

An increase by 18% of the total number of acres available for oil and gas development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials, with impacts similar to those described under Alternative A.

4.5.2.1.2.2 Special Tar Sand Areas

Approximately 259,662 acres would be administratively available for tar sand leasing under Standard Stipulations or Timing and Controlled Surface Use, which represents a 19% increase in the total acreage available for tar sand leasing, compared to Alternative D – No Action . A 19% increase in available tar sands acres would have impacts similar to those described for Alternative A.

4.5.2.1.2.3 Gilsonite and Phosphate

Approximately 172 miles would be open for prospecting, leasing, and development of Gilsonite. (Additional, new veins located via field study or prospecting [not shown on Figure 16] would also be available if they are within Open category lands). This represents a 3% increase in the total linear miles open for Gilsonite prospecting, leasing, and developing, compared to Alternative D – No Action, with impacts similar to those described under Alternative A.

Approximately 87,724 acres would be Open for prospecting, leasing, and development of phosphate resources. This 4% increase in the number of available acres, when compared to Alternative D – No Action, would have impacts similar to those described under Alternative A.

4.5.2.1.2.4 Oil Shale

Within the known oil shale leasing areas, 305,736 acres would be Open for leasing if regulations providing for such were promulgated. This represents a 5% increase in the total acreage Open for oil shale leasing, compared to Alternative D – No Action. The increase in open acres would have impacts similar to those described under Alternative A.

4.5.2.1.2.5 Mineral Materials

Approximately 432,953 acres would be Open for mineral material development. This would be a 12% increase in the total acreage available for development of mineral materials, compared to Alternative D - No Action. The impacts would be similar to those described under Alternative A.

4.5.2.1.3 Alternative C

4.5.2.1.3.1 Oil, Gas, and Coal-bed Methane (CBM)

Approximately 1,627,085 acres of land would be administratively available for oil, gas, and CBM leasing under Standard Stipulations or Timing and Controlled Surface Use. This represents a 6% increase in the total acreage available for leasing and potential number of wells, compared to Alternative D – No Action. The impacts of a 6% increase in the number of available acres would be similar to those described under Alternative A.

4.5.2.1.3.2 Special Tar Sand Areas

Approximately 239,096 acres would be administratively available for tar sand leasing under Standard Stipulations and Timing and Controlled Surface Use. This would be a 10% increase in the total acreage available for tar sand leasing, compared to Alternative D – No Action, with impacts similar to those described under Alternative A.

4.5.2.1.3.3 Gilsonite and Phosphate

The number of miles Open for Gilsonite leasing and the impacts would be the same as for Alternative A.

Approximately 63,571 acres would be Open for phosphate development. This represents a 25% decrease in the total acreage Open for prospecting, leasing, and developing phosphate, compared to Alternative D – No Action. If this decrease in available acreage were equivalent to a decrease in actual mining, then there would be a decrease in the potential impacts associated with hazardous materials used for vehicle and equipment operations.

4.5.2.1.3.4 Oil Shale

Within the known oil shale leasing areas, 292,453 acres would be Open for leasing if regulations providing for such were promulgated. This represents a 0.6% increase in the total acreage Open for oil shale leasing, compared to Alternative D – No Action. An increase in the total number of acres available for oil shale development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in impacts due to hazardous materials would be less than 0.6% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

4.5.2.1.3.5 Mineral Materials

Approximately 388,699 acres would be Open for mineral material development. This represents a 0.3% increase in the total acreage available for development of mineral materials, compared to Alternative D – No Action. An increase in the total number of acres available for mineral materials development would increase the use, generation, storage, transportation, and/or disposal of hazardous materials. However, the increase in impacts due to hazardous materials would be less than 0.3% because the use, generation, storage, transportation, and/or disposal of associated hazardous materials would be consistently regulated.

4.5.2.1.4 Alternative D – No Action

4.5.2.1.4.1 Oil, Gas, and Coal-bed Methane (CBM)

Approximately 1,536,030 acres of land would be available on BLM administered land for oil, gas and CBM leasing under Standard Stipulations and Timing and Controlled Surface Use within the VPA. The impacts of hazardous materials from oil, gas, and CBM exploration and development activities would continue at current levels, with hazardous materials risks at levels similar to present conditions.

4.5.2.1.4.2 Special Tar Sand Areas

Approximately 116,208 acres would be available for future tar sand development under Standard Stipulations. Approximately 101,279 acres would be administratively available under Timing and Controlled Surface Use Stipulations. The impacts of hazardous materials from tar sand development activities would continue at current levels, with hazardous materials risks at levels similar to present conditions.

4.5.2.1.4.3 Gilsonite and Phosphate

Approximately 168 miles would be Open for prospecting, leasing, and development of Gilsonite resources. Approximately 84,600 acres would be Open for development of phosphate resources. The potential impacts of hazardous materials from Gilsonite and phosphate mining would continue at current levels, with hazardous materials risks at levels similar to present conditions.

4.5.2.1.4.4 Oil Shale

Within the known oil shale lease area, 290,740 acres would be Open for leasing, with potential impacts and risks from hazardous materials within the VPA at current levels.

4.5.2.1.4.5 Mineral Materials

Approximately 387,700 acres would be Open for mineral materials development, with potential impacts and risks from hazardous materials within the VPA at current levels.

4.5.2.2 Summary

Minerals management decisions made under Alternative B would have the highest hazardous material potential impacts in the VPA when compared to Alternative D – No Action. Minerals management decisions made under Alternative A would have the second highest potential impacts, followed by Alternative C. Alternative D – No Action would have the lowest hazardous materials potential impacts of all the alternatives.

4.5.3 Mitigation Measures

Using signs to identify the location of underground pipelines would help to reduce the incidence of ruptures caused by the impact of heavy equipment.

No additional mitigation would be required to reduce hazardous materials impacts. Hazardous material risks would be low, as it is assumed that hazardous materials users and producers would be in compliance with existing federal and state laws and regulations pertaining to hazardous materials use, storage, transportation, and disposal.

4.5.4 Unavoidable Adverse Impacts

Hazardous material risks would increase during minerals exploration and development, with unavoidable adverse impacts that would include the potential for H₂S releases, abnormally high pressure during drilling, seismic activity, gas flowline leakage or rupture, well fires, and explosions. Hazardous materials risks and impacts would increase due to the disruption of minerals operations by these events and the subsequent potential release of hazardous materials into the environment.

Unavoidable adverse impacts would be caused by the increase in personnel time required to monitor and be prepared to respond to hazardous materials releases when hazardous materials are being used.

4.5.5 Short-term Uses Versus Long-term Productivity

There would be no loss in either short-term uses or long-term productivity as they relate to hazardous materials.

4.5.6 Irreversible and Irretrievable Impacts

There are no irreversible or irretrievable impacts to hazardous materials impacts prevention for any of the alternatives.