



1 Reduce Emissions During Drilling

- Use Reduced Emissions Completions (RECs), aka Green Completions to capture gas produced during well completions that is otherwise vented or flared. Electricity needed.



2 Reduce Emissions During Production

- Minimize venting and/or use closed loop process where possible during "blow downs."
- Convert engines to lean-burn. Maintain and run all engines to be the most fuel efficient.
- Tighten connections and replace packing to minimize leaks and fugitive emissions.
- Use and maintain proper hatches, seals, and valves to minimize air emissions.
- Reduce emissions of unburned hydrocarbons by routing emissions to flare or combustor or routing dehydrator still emissions to first stage compression.
- Lower glycol circulation rate to avoid over-dehydrating.



3 Conserve Water

- Utilize on-site water treatment facilities, such as a 3-phase (liquids, condensate, and gas) separator on the flowback fluid to filter out heavy particulates so water can be reused.
- Use carefully planned well completions.



4 Less Toxic Materials

- Substitute organic additives, polymers, or biodegradable additives for oil-based mud to reduce toxicity.
- Lubricate with mineral oil and lubra-beads instead of diesel oil.

TOP TEN BMPs

for Oil & Gas Industry Operators

For more information on Pollution Prevention and Oil and Gas BMPs, contact:

Utah Department of Environmental Quality

BizHelp.utah.gov

Environmental Hotline: 1-800-458-0145



5 Reuse Resources

- Recover and reuse weighting materials and drilling fluids. Waste drilling mud can be reused at other locations for spudding or plugging and abandoning operations.



6 High Efficiency Equipment

- Replace high bleed valves with compressed air, electric valves, or low bleed valves.



7 Monitoring & Maintenance

- Implement a Directed Inspection and Maintenance program to identify fugitive gas leaks from leaking compressors, valves, connectors, seals, and open-ended lines using infrared cameras, organic vapor analyzers, soap solutions, and ultrasonic leak detectors; and measurement devices.
- Perform regular maintenance aimed at reducing emissions from compressor engines and pneumatic devices (e.g. field survey of controllers, tune controllers to minimize bleed, re-evaluate need for pneumatic positioners, repair/replace air set regulators, and reduce regulated gas supply pressure minimum).



8 Dust & Tailpipe Emissions

- Apply water or chemical treatment, such as magnesium chloride, calcium chloride, lignin sulfonate, or asphalt emulsion.
- Restrict vehicle speeds to 10 mph.
- Cover or reclaim excavated or inactive storage piles after activity ceases.
- Wash equipment and reclaim excavation faces.



9 System Design

- If on-site or central water treatment facility is not feasible, use a V-shaped pit instead of rectangular pit to reduce waste and water consumption.



10 Construction & Reclamation

- Use diversion dikes, containment diking, and curbing to reduce exposure of storm water runoff to cuttings and other waste storage areas.
- Segregate stormwater drainage from liquid storage, loading/unloading facilities, and operations areas from unimpacted areas.
- Use sediment traps, swales, and mulching during construction activities to reduce loss of sediment and contamination of runoff.
- Accelerate reclamation of site.
- Reclaim disturbances.

Check List

Pollution Prevention

Pollution Prevention & the Oil & Gas Industry

Are you involved in oil and gas projects? If so, this poster and checklist is for YOU to help prevent pollution during drilling and production, through processing and storage, to transmission and distribution. Many oil and gas companies are adopting Best Management Practices (BMPs) as an important part of their pollution prevention program to help them cut their air emissions, reduce water use, control erosion, and reduce the amount of hazardous waste that they generate.

Pollution Prevention (P2) is about reducing the amount of any hazardous substance, pollutant, or contaminant released into the environment in order to reduce the hazards to public health and the environment. Pollution Prevention is also about preserving resources through wise use.

The BMPs within this brochure need to be judged on a case-by-case basis, taking into account the conditions, operations, and limitations of each facility. The best time to begin identifying BMPs is before a project begins. Many of these BMPs can help you comply with regulations that are required by law.



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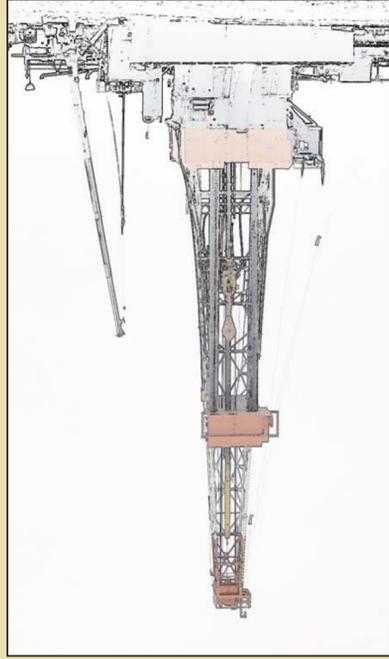
Environmental

BEST MANAGEMENT PRACTICES

for Oil and Gas Industry Operators



A Checklist Of Actions That Oil And Gas Operators Can Take To Reduce Waste And Air Emissions



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High Efficiency Equipment

- ❑ Replace high bleed valves with compressed air, electric valves, or low bleed valves.

Monitoring & Maintenance

- ❑ Implement a Directed Inspection and Maintenance program to identify and repair fugitive gas leaks from leaking compressors, valves, connectors, seals, and open-ended lines using infrared cameras, organic vapor analyzers, soap solutions, and ultrasonic leak detectors.
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