Report to the Governor:
Oil Pipeline Safety Review Council

I. Introduction and Purpose of the Council:

The Oil Pipeline Safety Review Council (Council) was established by Executive Order No. 10-2011, July 20, 2011 (Attachment A). It is comprised of the Directors of the Montana Department of Transportation, the Montana Department of Natural Resources and Conservation (DNRC), and the Montana Department of Environmental Quality (DEQ). The Council was directed to advise the Governor on the status of all oil pipelines running underneath Montana's rivers and streambeds. By verbal direction of the Governor, the charge was expanded to include pipelines carrying all commodities.

The Council divided its work into two components:

1) A review of all available information for each pipeline crossing to assess the risk of ruptures and leaks. This information could include pipeline age, thickness and corrosion, condition and operation of all shut off valves, the valve distances from the creeks or rivers, what products the pipelines are carrying, the pipeline diameters, and what pressures the pipeline products are under. The Council would endeavor to identify any critical information gaps that exist in the pipeline network within Montana, and
2) An assessment of the regulatory framework for pipelines and identification of any regulatory gaps that might exist.

The Council agreed to produce a final report that would include recommendations to prevent future failures.

A series of public meetings were held with presentations of what information was available, and what information needed to be requested from pipeline companies. Each meeting included information and pipeline safety management presentations from the federal Pipeline and Hazardous Material Safety Administration (PHMSA). Opportunities were made available for technical presentations regarding technologies available to detect leaks and to notify the public of pipeline failures.

II. Public Meetings of the Council

The following three public meetings were held by the Council:

August 3, 2011: The meeting opened with a welcome by Governor Schweitzer. There followed a discussion of the purposes of the Council. Richard Opper, Director of DEQ, was elected as Chair of the Council by his fellow members. The Council developed a work plan and assigned tasks to appropriate personnel. The meeting was then opened up for public comment.

November 15, 2011: The meeting focused on work status updates. Nat Carter with the Montana Department of Environmental Quality presented the MT Pipeline Safety

Map the state now can access that gives very specific information about all pipelines in the state and the locations of their crossings (Attachment B). This map is a Geographic Information System (GIS) based tool developed by the Council's Agency's, focusing on pipeline data maintained by the PHMSA National Pipeline Mapping System. Next, Chris Hoidal, with PHMSA, summarized the results of PHMSA's inspections of pipeline crossings over Montana's largest rivers. PHMSA is an agency under the U.S. Department of Transportation, and it has the responsibility of inspecting pipelines and ensuring their safety. There was a series of technical presentations on new technologies that could improve pipeline safety. The meeting ended with an opportunity for public comment.

February 8, 2012: The meeting began with a work status update that included a presentation by Chris Hoidal of the progress made on remediating "at risk" pipeline crossing sites. Next, representatives from the following agencies discussed their pipeline regulatory authorities:

- PHMSA
- The Montana Public Service Commission (PSC)
- The Montana Board of Oil and Gas
- The Montana Department of Environmental Quality, and
- The Montana Department of Transportation

There followed a technical presentation on new technologies for leak detection. The meeting ended with public comment.

All meeting minutes (Attachment C) and copies of the presentations are posted on DEQ's website at www.deq.mt.gov.

III. PHMSA Actions: PHMSA's staff spent the summer and fall inspecting Montana's major pipeline crossings. PHMSA's focus areas included: petroleum pipelines (crude oil and refined products), river crossings greater than 100 feet from high water mark to high water mark, located in Montana and rivers flowing into Montana, constructed with open-trench technology, exposed or lack of depth-of-cover, and river history.

PHMSA's request for information prompted operators to perform in-depth studies/analyses on all their major pipeline crossings. The "at-risk" sites identified by the studies are now being actively mitigated – either armored with rock or grout bags or re-drilled deeply under rivers (by Horizontal Directional Drilling or HDD). To date, the remedial actions that are completed or will be completed before this year's peak run off include the following:

- ExxonMobil
  - HDD completed: Yellowstone River (Laurel)
  - HDD completed: Rock Creek
  - HDD completed: Clark's Fork
- CHS
  - HDD completed Musselshell River
- ConocoPhillips

  - Depth-of-Cover surveys conducted for all major crossings
  - Belt Creek: added cover
  - Judith River: Grout bags/spring monitoring
  - HDD completed: Beauvais Creek
  - Coure d'Alene River: Grout bags/temporary repairs
  - Beaver Creek: Line lowered (Refrigerator Canyon & Winston)
  - HDD completed: Clark Fork of the Yellowstone River
  - East Gallatin River: Add motor-operator valve
  - Gallatin Valve upstream of the river near Manhattan fitted with powered, remotely controlled actuator
  - Seminoe Line near Lodge Grass, getting ready to directionally drill outside of an unstable slope at MP57 and MP66
  - Clark Fork of Yellowstone River; Greybull River; Musselshell River: conducted recent depth-of-cover surveys; no remedial actions planned
- Marathon (Wyoming)
  - Shoshone River; Wind River; Big Horn River: conducted recent depth-of-cover surveys; no remedial actions planned
- True (Bridger Pipeline)
  - Poplar River: Took out of service during flooding event
  - Yellowstone River and Poplar River: 2011 depth-of-cover surveys conducted and show adequate cover; no remedial actions planned

III. Council Conclusions and Recommendations:

A. Available Information: Thanks to a cooperative agreement with PHMSA, Montana's Agencies have access to a great deal of information about the existing pipelines in and through the state as maintained by PHMSA's National Pipeline Mapping System (NPMS) via a cooperative effort through pipeline operator submissions. Each Agency on the Council signed a data sharing agreement with the NPMS allowing them access to all the NPMS pipeline data in the state. Through a cooperative Agency GIS effort, an interactive map, the MT Pipeline Safety Map, was created with many layers of information to help Council members better understand the breadth of pipelines throughout MT and crossing it's waterways. The map provides the following information on each pipeline segment obtained via the NPMS:

- Operator
- Operator ID
- System Name
- Subsystem Name
- Diameter
- Commodity
- Commodity Alternatives
- Commodity State
- Interstate Transmission

- Low Stress
- Service Status
- Location Accuracy
- Date Added to NPMS
- Date NPMS last updated

The Council's MT Pipeline Safety Map allows us to see all the pipelines in the state alongside a myriad of information, including aerial photos, topographic maps, property boundaries, and ownership, as well as locations of environmental interest like monitoring stations and wells. The map is interactive and allows the user to zoom in and out and pan around at their leisure.

In addition to the information currently available through the MT Pipeline Safety Map, PHMSA has surveyed each pipeline operator to gather additional data and we are working with PHMSA to obtain as much as possible. PHMSA has requested the operators provide the following information for each pipeline crossing Montana's navigable waters greater than 100 ft in length.
Survey information provided by Conoco Philips, CHS, Kinder Morgan, Marathon, and True pipeline operators:

- River Crossing
  - River Name
  - Pipeline Size
  - Pipeline Name
- Location
  - County
  - Nearest Town
- Depth of Cover Surveys
  - Date
  - Depth
- MLV Alignment Sheets (Remotely actuated valves?)
  - Upstream and/or downstream of crossing
- Worst Case Discharge
  - Units of bbbls
- Integrity Threats Reports/Studies
- Analysis Used for Remedial Actions (stream flow, depth-of-cover)
- Outside 3rd Party Consultants Used in Analysis
- Remedial Actions taken in 2011
- Short-term Remedial Action Schedule
- Long-term Remedial Action Schedule
- Procedures to Monitor During Flooding
- Operator Priority for Remediation
- PHMSA Added Comments

While the state knew little about the overall complex underground network of pipelines in Montana prior to the formation of the Council, the Council along with great efforts by PHMSA, has helped the state assemble data and understand the pipeline infrastructure and how to maintain its safety in Montana.

RECOMMENDATION #1: DEQ should maintain an agreement with PHMSA and the NPMS to keep the MT Pipeline Safety Map data current and available to the Council Agencies by submitting information on remedial actions, pipeline inspections, returned surveys, and safety and easement information. Support PHMSA in its efforts to expand its current NPMS system with more information.

B. Regulatory Framework: The state has various programs for some type of pipeline regulation; however, the PSC is the only state agency with direct regulatory authority over any pipelines (intrastate gas lines). All other safety related authority rests with the PHMSA and preempts state regulation of safety factors. PHMSA conducts all the pipeline safety inspections, not only in Montana, but in almost all states. The problem is that PHMSA is a relatively small, certainly understaffed federal agency. PHMSA devoted a lot of resources to Montana following the break of the Silvertip Pipeline in the Yellowstone River in July 2011. It inspected about 100 river crossings of 100 feet or more and some of the nearby smaller crossings. It discovered several "at risk" areas, and is overseeing the companies' efforts to correct the problem crossings. Still, PHMSA could only inspect the major river crossings in Montana, and smaller creek crossings that are narrow or have intermittent flows, were not addressed.

RECOMMENDATION # 2: Support adequate funding for PHMSA and the PSC for their work to oversee pipeline safety.

RECOMMENDATION # 3: Support all reasonable efforts to require pipeline companies to have state of the art leak detection systems in place.

RECOMMENDATION # 4: Support all reasonable efforts to require emergency plans that allow the fastest possible valve shut off for stopping the flow of pipeline contents in case of a rupture.

RECOMMENDATION # 5: Support local government and PSC efforts to obtain and operate notification systems for citizens to be informed as soon as possible when ruptures occur.

RECOMMENDATION # 6: Support DNRC and DEQ in reviewing and implementing land use licensing and easement applications for river crossings, and in requiring safety and environmental measures to protect the banks and channels of the rivers.