

APPENDIXES

Appendix A-- Glossary of Terms
Appendix B-- Public Involvement
Appendix C-- Environmental Assessment
Appendix D-- Forest Management Unit Maps
Appendix E-- Best Management Practices
Appendix F-- Timber Cutting Policy

APPENDIX A

GLOSSARY OF TERMS

GLOSSARY OF TERMS

Indian land: means any tract in which any interest in the surface estate is owned by a tribe or individual Indian in trust or restricted status. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Trust land: means any tract, or interest therein, that the United States holds in trust status for the benefit of a tribe or individual Indian. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Reserved land: woodlands, archi/cultural sites, buffer zones, wetlands, recreational areas, etc.

Individually-owned land (Allotted land): means any tract, or interest therein, in which the surface estate is owned by an individual Indian in trust or restricted status. (CFR 25, Part 166, Subpart A, Sec. 163.4)

Indian landowner (Allotee): means a tribe or individual Indian who owns an interest in Indian land in trust or restricted status. (CFR 25, Part 166, Subpart A, Sec. 163.4)

Forest land: means an ecosystem at least one acre in size, including timberland and woodland, which: Is characterized by a more or less dense and extensive tree cover; contains, or once contained, at least ten percent tree crown cover, and is not developed or planned for exclusive non-forest resource use. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Forest products: means marketable products extracted from Indian forests, such as: Timber, timber products, including lumber, lath, crating, ties, bolts, logs, pulpwood, fuelwood, posts, poles, and split products; bark; Christmas trees, stays, branches, firewood, berries, mosses, pinyon nuts, roots, acorns, syrups, wild rice, mushrooms, and herbs; other marketable material; and gravel which is extracted from, and utilized on, Indian forest land. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Stumpage value: means the value of a forest product prior to extraction from Indian forest land. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Sustained yield: means the yield of forest products that a forest can produce continuously at a given intensity of management. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Trespass: means the removal of forest products from, or damaging forest products on, Indian forest land, except when authorized by law and applicable federal or tribal regulations. Trespass can include any damage to forest resources on Indian forest land resulting from activities under contracts or permits or from fire. (CFR 25, Part 163, Subpart A, Sec. 163.1)

Silviculture: the art of producing and tending a forest; the application of knowledge of silvics in the treatment of a forest; or the theory and practice of controlling forest establishment, composition, structure, and growth. (The Practice of Silviculture, Applied Forest Ecology, Ninth Edition.)

Silvics: the immediate foundation of silviculture in the natural sciences, which deals with the growth and development of single trees and other forest biota as well as of whole forest ecosystems. (The Practice of Silviculture, Applied Forest Ecology, Ninth Edition.)

Silvicultural purpose: to create and maintain the kind of forest that will best fulfill the objectives of the owner and the governing society. (The Practice of Silviculture, Applied Forest Ecology, Ninth Edition.)

Annual Allowable Cut (AAC): represents the maximum even-flow harvest level restricted only by the productivity of the forest, the extent of the commercial acreage, and the current inventory. (Northern Cheyenne Tribe FMP, March 1999.)

Indicated Allowable Cut (IAC): represents a biological maximum restricted only by the productivity of the forest, the extent of the commercial acreage, and the current inventory. (Forest Inventory Analysis for the Northern Cheyenne Reservation Montana, December 2007.)

Evenaged stand: trees are of one species and start together after the previous stand is removed. (The Practice of Silviculture, Applied Forest Ecology, Ninth Edition.)

Unevenaged stand: trees, or groups of trees, of different ages. (The Practice of Silviculture, Applied Forest Ecology, Ninth Edition.)

Site Index: is a numerical rating of site quality as it relates to the species being described. Site index is the average height in feet of dominants and codominants or dominants only of a designated (base) age. (Forester's Field Handbook, USDA, Forest Service, Northern Region.)

APPENDIX B

PUBLIC INVOLVEMENT

PUBLIC INVOLVEMENT

The following survey was developed by the interdisciplinary team to gain input from the public to help guide the forest management planning process. The survey was taken during August 2008 in conjunction with the Tribe's per capita payment process. The survey was also sent out to Tribal employees in conjunction with their payroll process in August 2008. A total of 363 surveys were compiled.

Please place an X next to the response which most accurately corresponds to your feelings about the subject. For additional comments, please use the back of this form. Thanks!

Results from Enrolled Northern Cheyenne Tribal Members. 363 Surveys. Written-in answers in quotes.

1. What do you feel are the most important uses for forested areas on the Northern Cheyenne Reservation? Please select what you believe should be the top 3 priorities for reservation forestry.

<u>44.1%</u> Tribal Income	<u>47.9%</u> Water Quality	<u>53.7%</u> Tribal Employment
<u>10.7%</u> Grazing	<u>7.2%</u> Erosion Control	<u>16.0%</u> Scenic Values
<u>12.4%</u> Logging	<u>24.2%</u> Cultural/Religious Use	<u>26.2%</u> Recreation
<u>34.4%</u> Wildlife Habitat	<u>16.3%</u> Fuel Wood	<u>0.6%</u> "Hunting"
<u>0.8%</u> "Log Homes"	<u>0.3%</u> "Proper Forest Management"	
<u>0.6%</u> "All the Above"	<u>0.3%</u> "For Wood"	<u>0.3%</u> "Forest Health"
<u>0.3%</u> "Fix My Cattleguard"	<u>0.3%</u> "Logs, posts & poles, furniture, hog fuel/co-gen"	
<u>0.3%</u> "Get rid of beau dike president"		<u>1.1%</u> Other (not specified)
<u>1.1%</u> Unanswered		

Comments:

"Maintain a healthy forest thru the use of thinning, logging, reduction of hazardous jackpot fuels."

"We need to develop our natural resources."

"Logging for lumber to make homes for Cheyennes. Saw mill should have been used to make homes for us Northern Chey."

"Forest restoration keeps diversity with wildlife, water, energy"

A respondent selecting Cultural/Religious Use for this question circled Religious for emphasis.

2. During the past year have you received income from forest management practices that occurred on the Northern Cheyenne Reservation?

19.3% Yes 78.0 % No 2.2% Unanswered 0.6% "I don't know"

If yes, from which of the following areas, check all that apply: (*Results are percentages of 70 respondents who answered Yes to the first part of this question.*)

<u>37.1%</u> Thinning/slash piling	<u>35.7%</u> BIA or Tribal Forestry	<u>40.0%</u> Planting
<u>17.1%</u> Woodcutting	<u>50.0%</u> Firefighting	<u>12.9%</u> Sale of Timber
<u>11.4%</u> Logging	<u>2.9%</u> "Grazing"	<u>1.4%</u> "Pine Cone Collection"
<u>1.4%</u> "Probably being secretly taken by the beau dike" (not specified)		<u>1.4%</u> Yes (not specified)

Comments:

"Where does this "income" go?"

"Had to get my own firewood"

3. Do you own an interest in an allotment?

32.5% Yes 38.0% No 27.8% Don't Know 1.7% Unanswered

Does the allotment have timber? (*Results are percentages of 118 respondents who answered Yes to the first part of this question.*)

61.0% Yes 14.4% No 22.0% Don't Know

If yes, do you want it managed for timber? (*Results are percentages of 26 respondents who answered Yes to the second part of this question.*)

44.4% Yes 29.2% No 15.3% No Opinion 16.7% Unanswered
1.4% "Don't understand"

Comments:

"When price goes up" *Comment from the owner of an allotment that has timber who wants management.*

"Logging for lumber to make homes for Cheyennes. Saw mill should have been used to make homes for us Northern Chey." *Comment from the owner of an allotment that has timber who wants management.*

4. Should timber sales be designed to promote big game habitat if this results in less revenue from the timber harvest?

52.9% Yes 20.7% No 23.4% No Opinion 3.0% Unanswered

Comments:

"No Timber Sales" *Comment from a respondent answering No to this question.*

5. Should timber sales be designed to promote water quality and quantity if this results in less revenue from the timber harvest?

68.6% Yes 11.6% No 19.0% No Opinion 0.8% Unanswered

Comments:

"Proper Forest Management" *Comment from a respondent answering Yes to this question.*

"Recreational reservoir." *Comment from a respondent answering Yes to this question.*

6. Should Forestry emphasize the improvement of cottonwood and aspen stands and other culturally important plants if this means not being able to prepare as many timber sales?

63.1% Yes 15.7% No 19.0% No Opinion 2.2% Unanswered

Comments:

"It is our Identity (Cheyenne)" *Comment from a respondent answering Yes to this question.*

"No Timber Sales." *Comment from a respondent who did not answer this question.*

"What?" *Comment from a respondent who did not answer this question.*

7. Is a reduction in forested area an acceptable trade-off for other activities such as energy development?

44.9% Yes 36.4% No 16.3% No Opinion 1.9% Unanswered
0.6% "Maybe"

Comments:

"That would benefit the whole Tribe" *Comment from a respondent answering Yes to this question.*

A respondent answering No to this question underscored No for emphasis.

"No energy development only wind & water (hydro)" *Comment from a respondent who did not answer this question.*

8. During an average year I use the forested areas for recreation, hunting or cultural/spiritual reasons for approximately:

25.9% 0 to 6 days 12.4% 2 weeks to 1 month 19.3% 1 to 2 weeks
39.1% more than 1 month 3.0% Unanswered 0.3% "For summer use only"

9. Should any of the following areas of the reservation be set aside as natural areas with limited or no management?

Badger Peak	<u>41.6%</u> Yes	<u>25.3%</u> No	Kelty Creek	<u>43.0%</u> Yes	<u>24.2%</u> No
Buffalo Pasture	<u>52.3%</u> Yes	<u>20.9%</u> No	Sarpy Mountains	<u>48.2%</u> Yes	<u>21.2%</u> No
Moreland Ranch	<u>38.8%</u> Yes	<u>27.0%</u> No	Lost Leg	<u>46.8%</u> Yes	<u>22.6%</u> No
Cultural Landscapes/Areas	<u>51.2%</u> Yes	<u>14.6%</u> No			
Other (unspecified)	<u>2.8%</u> Yes	<u>5.5%</u> No			
Other Yes responses:					
Greenleaf/Ice Wells		<u>0.3%</u>			
Fisher Butte		<u>0.3%</u>			
Crazy Head Springs		<u>1.1%</u>			
St. John's		<u>0.3%</u>			
Buffalo Jump		<u>0.3%</u>			
CC Camp Springs		<u>0.6%</u>			
Indian Coulee		<u>0.3%</u>			
Garfield Peak		<u>0.3%</u>			
Morning Star Drive		<u>0.3%</u>			
Kirby Area		<u>0.3%</u>			
"Muddy Creek Salvage"		<u>0.3%</u>			
"Some Springs/Sundance Areas"		<u>0.3%</u>			
"Along creeks, springs, river, higher elevations"		<u>0.3%</u>			
"Town"		<u>0.3%</u>			
"Everywhere/Whole Rez"		<u>0.6%</u>			
"Proper Forest Management"		<u>0.3%</u>			
"Leave it alone, live in it!"		<u>0.3%</u>			
"Not on my land"		<u>0.3%</u>			
"Not sure where located"		<u>0.3%</u>			
Unanswered		<u>10.2%</u>			

Comments:

"They need to be managed"

"This already happens"

"All natural areas should have recreational & visited areas but needs management"

"Reservation should be open to all Northern Cheyennes for their enjoyment"

"All that are overgrown."

10. Should the forest be managed for commercial timber harvesting?

45.7% Yes 34.4% No 18.7% No Opinion 0.8% Unanswered
0.3% "Maybe"

Comments:

"Limited Areas." *Comment from a respondent answering Yes to this question.*

"Proper Forest Management." *Comment from a respondent answering Yes to this question.*

"Very important both for healthy forest and employment!" *Comment from a respondent answering Yes to this question.*

"With a good plan." *Comment from a respondent answering Yes to this question.*

"Only if the profits benefit the people--helps pay for utilities for those that qualify." *Comment from a respondent answering Yes to this question.*

"Only in certain areas." *Comment from a respondent answering Yes to this question.*

"Log Homes First." *Comment from a respondent answering No to this question.*

"For making homes for the Northern Cheyennes." *Comment from a respondent answering No to this question.*

"No timber left to harvest" *Comment from a respondent who did not answer this question.*

11. Should the forest be managed for hazard fuel reduction (i.e. prescribed fire, precommercial thinning, fuel breaks etc...)?

68.6% Yes 17.4% No 14.0% No Opinion

Comments:

"Proper Forest Management" *Comment from a respondent answering Yes to this question.*

"Only with Best Practices according to ecological principles" *Comment from a respondent answering Yes to this question.*

12. What is the setting of your home?

58.4% In town or a sub-division/cluster

22.9% Isolated/Remote

0.3% "None"

16.8% Farm or Ranch

1.4% Unanswered

0.3% "Off the Reservation"

APPENDIX C

ENVIRONMENTAL ASSESSMENT

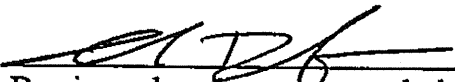
FINDING OF NO SIGNIFICANT IMPACT

For the
Forest Management Plan for 2009 to 2023
Northern Cheyenne Indian Reservation, Montana

After public review and comment, it has been determined that the Forest Management Plan for 2009 to 2023 will not significantly affect the quality of the human environment. Because the human environment will not be significantly affected, an Environmental Impact Statement is not necessary for this Plan. The proposed action is to conduct active forest management on the Northern Cheyenne Reservation forest including the harvest of an estimated 6.9 million board feet of forest products per year. All activities associated with this Plan have been addressed in the Forest Management Plan Environmental Assessment.

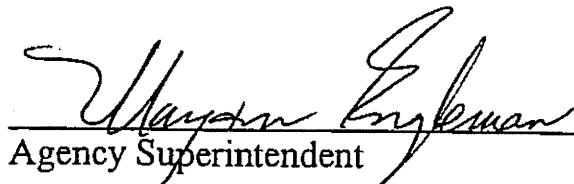
The reasons for this finding are as follows.

1. Surveys of archaeological and cultural resources will be conducted prior to any management action and recommended mitigation measures to avoid adverse impact to these resources will be implemented.
2. Location of habitat of threatened or endangered species has been identified action and recommended mitigation measures to avoid adverse impact to these species will be implemented.
3. An economic and silvicultural benefit will result from the harvest of timber, timber stand improvement, and fuel management measures on reservation lands. Job opportunities will be available to local tribal members and residents as a result of this action.
4. The action described in the Plan is in accordance with federal regulations and trust responsibilities concerning forest management and will cause no irreversible or irretrievable effects on the area.



Reviewed and recommended
Agency NEPA Coordinator

9/24/08
Date



Agency Superintendent

9-24-08
Date

ENVIRONMENTAL ASSESSMENT
FOR A
FOREST MANAGEMENT PLAN
FOR THE
NORTHERN CHEYENNE INDIAN RESERVATION
2009-2023

1. Purpose and Need for Action

1.1 Introduction

The Northern Cheyenne Agency Branch of Forestry proposes to implement a Forest Management Plan to provide direction and continuity to forest management activities on the Northern Cheyenne Reservation for the Fifteen-year period of 2009-2023. Forest management goals of the Northern Cheyenne Tribe as set forth by the Tribal Council include the following.

- To bring a greater proportion of the forest under management while mitigating environmental concerns and minimizing future resource loss to fire, insects, and disease.
- To generate income for the tribe and its members through the sale of timber.
- To provide employment opportunities for tribal members in all aspects of forest management operations.
- To promote environmental quality through the maintenance, improvement, and restoration of ecosystem processes to enhance a variety of forest uses including recreation, cultural and religious use, and water production.

The objectives of the forestry program are to proceed toward meeting the evolving needs of the tribe and the BIA's trust responsibility in an environmentally sound and sustainable manner. This will be done by implementing a wide range of forest management treatments designed to improve forest health, reduce threats to the forest, and to preserve the accomplishments of earlier management activities. Treatments will incorporate sound silvicultural principles and will include harvest of mature trees, thinning of overstocked stands, planting of understocked stands, and the reduction of hazardous fuel loadings through means of mechanical treatment and prescribed fire.

Maps for this assessment are included in appendix B and are numbered sequentially as they are referenced in the text. Map B-1 shows the location of the Northern Cheyenne Reservation.

The need for these actions has been identified in the Forest Management Plan, Fire Management Plan, and the Wildfire Hazard Assessment and Mitigation Plan.

1.2 Project Planning Area

The Reservation encompasses 444,735 acres of land in southeastern Montana. The area of forestland covers 155,066 acres (Map B-2). From 1983 to the present, approximately 35,000 acres of commercial forest have burned in a series of destructive wildfires and are now being restocked.

Forest land on the Reservation has been classified as scheduled managed or unscheduled managed. Scheduled managed forest lands are those available for carrying out management activities involving the commercial harvest of timber during the current planning period. Scheduled managed forest land comprises 87,452 acres of the Reservation land base. Unscheduled managed forest lands include lands which are not available for timber production during the current planning period. These include stands with low stocking levels or containing smaller sized trees, referred to as unscheduled managed forest lands. These stands comprise 28,044 acres of the reservation land base. There are a further 37,000 acres of unscheduled forest lands described as regenerating. These lands are typically stocked through tree planting following wildfires and stands consist of sub-merchantable trees. Another 2,570 acres of the reservation land base is described as woodlands, being primarily riparian hardwood forests with a minor component of upland aspen stands.

Resource concerns associated with potential forest management treatments include the potential for air quality degradation in surrounding areas; potential for visual impairment in surrounding areas; potential for soil erosion resulting from hydrophobic conditions caused by prescribed burning or forest management activities using heavy equipment, particularly road construction and use, and; potential for aesthetic consequences resulting from burned areas and timber harvest areas.

1.3 Proposed Action

The proposed action is to engage in active forest management of the Northern Cheyenne Reservation forest. Primary features of active management include preparation and marketing of logging units designed to harvest the equivalent of 6.9 million board feet (MMBF) of forest products from the reservation

forest annually; planting 1,500 acres of former forest land annually to promote regeneration following catastrophic wildfires; precommercial thinning of up to 5,000 acres of young overgrown timber stands annually; and a combination of mechanical and prescribed fire treatments to reduce hazardous fuel buildup on up to 3,000 acres annually. The goal of this management approach is to bring an increased proportion of the reservation forest into a regulated state. Management will focus on those areas that have received management activity in the past in order to not lose the benefits of previous activities and allowing the forest to revert to pre-managed conditions. Management will include activities emphasized at improving the protection of communities against wildfire; improving the extent and condition of plant communities important to cultural and religious use; enhancing recreational opportunities; and improving the production and quality of watersheds and protecting wetlands and riparian areas from degradation.

2. Alternatives Including the Proposed Action

This chapter describes the proposed alternatives for timber harvest on Northern Cheyenne Reservation forestlands for the years 2009-2023. This chapter also summarizes the environmental consequences of the three alternatives considered in the environmental assessment. The purpose of this chapter is to clearly define the differences between the alternatives.

A Fire Management Plan for the Northern Cheyenne reservation was completed in June 1999. That plan outlines the fire management measures that may be implemented on the reservation. Full suppression of all wildfires in the forested portions of the Northern Cheyenne Reservation is a common component of all alternatives and therefore, employment levels for suppression would be the same under each alternative.

Alternative 1: No Action (Custodial Management)

The no action alternative would involve engaging in no management activity on the reservation forest during the 15 year management period. This alternative would not permit the proposed action to be implemented and would require neither the preparation of nor the approval of a Forest Management Plan.

By Bureau of Indian Affairs Policy, only six (6) actions are allowed for Agencies operating without a current approved Forest Management Plan. Those actions are:

- Preparation of a Forest Management Plan (25 CFR 163.11)
- Emergency sale of timber on allotted lands held in trust (25 CFR 163.14(b)).
- Free use cutting without permit (25 CFR 163.27).

Fire management measures (25 CFR 163.28(a), (b), and (c)).

This includes suppression, prevention and soil stabilization.

Trespass protection and prosecution (25 CFR 163.29).

Insect and disease control (25 CFR 163.31(b)).

This alternative would produce no outputs. No forest products would be produced, and no acres would be treated for reforestation, timber stand improvement, or fuel reduction.

Employment would be limited to a small forestry staff to investigate timber trespass cases and prepare timber sales to salvage fire- and insect-damaged stands of mature timber. This would result in approximately two and one half worker-years annually.

Alternative 2: Sustained Yield Harvest (harvest 6.9 million board feet (mmbf) per year).

Harvest 6.9 mmbf of commercial forest products per year. This level of harvest has been arrived at through analysis of the continuous forest inventory plot data collected in 2005 and 2006 and is supported by the Northern Cheyenne Tribal Council as the proposed action.

This alternative would result in the harvest of 103.5 mmbf of timber during the next 15 years, and all 87,452 acres of scheduled, managed forest land would be treated during the planning period. Silvicultural treatments would leave a residual volume of approximately 12% of the merchantable timber currently available in trees left to provide a seed source for the new forest. Timber volumes for the next planning cycle would come from those forest lands classified as unscheduled managed or regenerating during the current planning cycle as well as second entry silvicultural treatments into areas slated for treatment in the current planning period.

Non-timber outputs of this alternative include planting 1,500 acres of former forest land annually to promote regeneration following catastrophic wildfires; precommercial thinning of up to 5,000 acres of young overgrown timber stands annually; and a combination of mechanical and prescribed fire treatments to reduce hazardous fuel buildup on up to 3,000 acres annually.

This alternative would provide for the implementation of the proposed Forest Management Plan. This alternative would include harvest of some of the stands within identified compartments as detailed in Table 1 which is the proposed Fifteen Year Harvest Schedule.

Funding would be allocated to manage timber sales, and to continue forest development activities such as thinning and planting. Slash resulting from

timber management activities would be disposed of by piling using tractors equipped with brush blades, and burning the piles under specified conditions to insure complete containment or through shredding slash using mechanical masticators or similar equipment. In stands with unusual fuel or reforestation conditions planting site preparation and slash disposal methods would be prescribed to meet the specifically identified needs. Hazardous Fuels Reduction Program funding could be used to clean up heavy loadings of unmerchantable timber.

This alternative would incorporate a yearly review of timber harvesting practices and new federal and tribal regulations. Only forest land classified as scheduled managed lands would be harvested with this alternative. There are some lands that have seasonal or other restrictions; these lands would be considered for harvest within the confines of the particular restriction. Those restrictions are listed as mitigation measures at the end of this chapter.

Outputs would be 6.9 mmbf of saw logs, firewood, chips and other commercial forest products per year. Sales would require resource damage mitigation measures listed in this chapter be followed.

Forest development, which includes non-commercial forest stand improvement projects and reforestation, would be carried out as needed or as funding is available. There is currently a backlog of 69,852 acres of thinning and 21,056 acres of planting on the Northern Cheyenne Reservation. This would result in a move toward more intensive forest management throughout the forested portions of the Northern Cheyenne Reservation.

The new road construction and improvement of existing roads under this alternative would be the least needed to implement any of the action alternatives. Exact locations and distances will be analyzed in project-specific NEPA documents developed by an ID team for individual timber sales. The mitigation measures listed in this EA will be the overriding requirements for all forestry activities during the planning period.

Employment would include forestry staff and fuels staff to deal with timber sales, resultant slash and forest development activities. This would result in approximately 28 worker years annually.

Alternative 3: Accelerated Harvest (harvest 10 mmbf per year).

This alternative would result in 150 mmbf of timber harvested over the next 15 years on approximately 103,000 acres if all commercial timber is removed from all of the acres. This alternative would include harvest of most of the stands within identified compartments as detailed in Table 1

which is the Fifteen Year Harvest Schedule. Additional stands would need to be added to meet this harvest level near the end of the planning period. The focus of this alternative is upon harvesting older stands before they degrade so as to capture the value of these stands. The level of harvest proposed in this alternative is not sustainable and subsequent forest management planning periods will be subject to reduced harvest level if this alternative is adopted.

Outputs would be 10 mmbf of saw logs, firewood, chips and other commercial forest products per year. Sales would require resource damage mitigation measures listed in this chapter be followed.

Non-timber outputs of this alternative include planting 3,000 acres of former forest land annually to promote regeneration following catastrophic wildfires; precommercial thinning of up to 10,000 acres of young overgrown timber stands annually; and a combination of mechanical and prescribed fire treatments to reduce hazardous fuel buildup on up to 6,000 acres annually. Under this alternative forest development and reforestation may not be able to keep pace with the demand as more acres would need these treatments and funding and personnel may or may not be sufficient.

The new road construction and improvement of existing roads under this alternative would be about one and one-half times that needed to implement alternative 2. Exact locations and distances would be analyzed in project-specific NEPA documents developed for individual sales.

Employment would be approximately 46 worker years annually as increased personnel would be needed for increased timber sale activity and forest development. Assuming that personnel would be increased equally among BIA, Tribal, and contract workers, this alternative would require a doubling of the number of personnel and budget allocation for the current BIA program.

TABLE 1: Harvest Schedule by Compartment

Year	Compartment Number	Compartment Name
2009	2-03	St. John's
2009	5-03	Eagle Feathers
2009	5-06	Thompson Creek
2010	2-18	Moreland
2010	1-01	Bigback
2010	1-02	Yellowfox
2010	1-04	Sawmill
2011	1-34	Bull Snake
2011	1-35	Alderson Creek
2011	3-02	Ridge Walker
2011	3-03	Buster
2011	3-15	Juddy Creek
2011	5-13	Kirby
2012	1-30	Coal Creek
2012	5-14	Dry Creek
2013	1-05	Whiteman
2013	1-29	Burns
2013	1-46	Hollowood
2014	1-32	White Buffalo
2014	1-33	Horn Creek
2014	1-51	Brady
2014	3-21	Bixby Ranch
2015	5-10	Small
2015	5-12	Skunk Creek
2016	1-27	Soldier Gulch
2016	3-04	Powell Creek
2016	3-05	Shavehead Creek
2016	3-16	Sweet Medicine
2016	3-17	Black Canyon
2016	3-19	Church Creek
2017	5-07	Busby Creek
2017	5-08	Birdseye Spring
2018	3-13	Lame Deer
2018	3-18	Calls First
2018	3-20	Longjaw Creek
2019	1-21	South Stebbins
2019	1-22	Walking Horse
2019	1-47	Cowboy
2019	2-16	Pawnee Creek
2020	2-05	Canyon Spring
2020	2-06	B. Heart Spring
2020	2-07	Elliot Spring
2020	2-09	Clubfoot Creek
2020	4-13	Jimtown
2021	1-44	Logging Creek
2021	5-04	Getaway
2021	5-05	Dahle

2022	1-38	Leroy
2022	2-08	Lost leg
2022	2-11	Tie Creek
2022	2-13	Juniper
2023	1-31	Broken Jaw
2023	2-12	Longroach
2023	5-09	Pine Creek

Mitigation Measures Common to the Action Alternatives

STREAMSIDE MANAGEMENT ZONES

Best Management Practices developed by the State of Montana will be used to guide management activities around streams until reservation-specific Best Management Practices are developed and adopted by the Northern Cheyenne Tribe. State Best Management Practices restrict road building in the immediate vicinity of streams and allow for limited harvest of timber. Tribal Environmental Protection staff members will be engaged to review proposed projects and forestry staff will address all concerns raised as a result of these reviews.

AESTHETIC BUFFER ZONES

Buffer zones are to be left around the reservation's developed recreation areas and high traffic areas along the visual corridors surrounding the paved highways throughout the reservation.

SEASONAL CLOSURES FOR SPRING BREAKUP

Soils in southeastern Montana are highly prone to compaction and rutting during the wet periods of the spring and warmer periods throughout the winter. Even minor amounts of traffic can cause serious road damage. The timing of spring breakup and other periods of possible road and soil damage are impossible to predict. Management activities will be restricted on an as-needed basis when ground conditions require it.

MITIGATION FOR CULTURAL RESOURCES

All management activities will be subject to review by the Tribal Historic Preservation Office (THPO). THPO will recommend measures to mitigate or avoid impacts on important cultural and historical resources throughout the reservation.

3. Affected Environment

Description of the Project Area

The 444,735 acre Northern Cheyenne Reservation is situated in the open, rolling country of southeastern Montana. Much of the reservation consists of dry, open rangeland, with smaller areas of irrigated farmland confined to bottomland. The local economy is largely agriculturally-based, although logging and tourism also contribute. In all, less than 35 percent of the land is forested. At its widest part, the reservation extends about 36

miles from east to west and 23 miles from north to south. The Tongue River forms the east border, and the neighboring Crow Reservation lands, the west border. The largest town is Lame Deer, situated at the junction of State Highways 212 and 39. Both BIA and Tribal Administrative offices are headquartered there.

3.1 Air

The entire Northern Cheyenne Indian Reservation is a re-designated Class I Air Shed. Preservation and protection of the pristine air quality is a very important and vital concern to the Northern Cheyenne Tribe.

The Northern Cheyenne Air Quality Division monitors air pollution from sources on and off the reservation. The town of Lame Deer is a PM10 non-attainment area. This means that the air quality has violated the National Ambient Air Quality Standards. The main source of this problem is re-entrained road dust. This is being addressed through dust abatement activities such as improved curbs and gutters on the streets, new paving of dirt roads, and application of magnesium chloride on the highways during the winter months. These activities for pollution control are improving the air quality in Lame Deer.

The Northern Cheyenne Air Quality Division works with the BIA Forestry Department when it comes to issues related to prescribed burning. For instance, when Forestry plans to burn slash piles they check the atmospheric conditions and wind directions for the day of the burn. When conditions look right for burning, Forestry checks with the Air Quality Division and the Air Quality Administrator then checks the National Weather Service website and approves the burn if conditions are right and doesn't approve if conditions are not right for burning. This arrangement works out well for both departments and to date there have been no problems with prescribed fires.

When logging activities take place, especially in the dry season (summer and fall), re-entrained road dust issues arise. The traffic from logging trucks going in and out of the logging areas quickly breaks down the dirt and clays that make up the road material. This translates into dust that is blown into the ambient air that causes health and visibility issues. This dust is particulate matter (PM) that is very fine and causes lung irritation and impairment, especially for the young, the old, and people that already have lung problems. The restricted visibility causes restricted areas so that you can not see for more than a few hundred feet. Visibility is a major component of Class I air shed status and reduced visibility from particulate matter compromises that status.

There are ways to address dust abatement so that it limits PM and visibility effects on the reservation during logging activities. Roads can be watered down with water trucks and/or magnesium chloride can be applied. Also, low speed limits can be posted and enforced to limit dust emissions.

3.2 Water

There are 182 miles of perennial and 1,908 miles of intermittent stream in the forested portion of the Reservation. Water quality and production were discussed in detail in a report made by the Tribe to the Bureau of Land Management as part of that agency's work to amend the Powder River and Billings Area Resource Management Plans to address large-scale development of coal-bed methane resources in southeastern Montana.

3.3 Soil

The forest soils on the Northern Cheyenne Reservation are formed from weakly consolidated red sandstones, infertile shales, and porcellanite of the Fort Union and Wasatch Formations. These soils are typically silty and clayey with moderate to strong horizon development. Clayey soils are both relatively impermeable and very pliable when wet. Accordingly, clayey soils are highly susceptible to compaction from crawler tractors and rubber-tired skidders. When saturated, roads constructed on these clayey soils can quickly deteriorate into a slick gumbo that is all but impassible. Once dry, usually by mid-summer, the same roadbeds form a thick layer of fine dust.

3.4 Vegetation

Forest Land

Three broad forest types are present on the Northern Cheyenne reservation. The dominant forest type is comprised of pure ponderosa pine stands which occur throughout the Reservation. Upland aspen stands are a minor component and not abundant enough to justify commercial exploitation, though these stands are important to Northern Cheyenne cultural practices. Riparian woodlands are the third forest type and are confined to areas along perennial and intermittent stream courses throughout the reservation.

The ponderosa pine stands growing on the reservation represent the arid edge of this species' range in Montana. Extreme temperatures, thin soils, and periodic drought together combine to limit tree growth. The forest is almost exclusively ponderosa pine yet there is a considerable amount of

variety throughout, depending on moisture availability. Ponderosa pine forms dense stands on cool exposures and in steep draws and more open, irregular stands on dry benches and warm exposures. Along broad ridges and the upland plateau, the forest is intermingled with frequent grassland parks. The 155,066 acres of stocked and non-stocked ponderosa pine forestland contain a total volume of 305.03 million board-feet averaging 3,488 board-feet per acre on the 87,452 scheduled managed forest land acres.

Aspen stands are found throughout the reservation, primarily along stream courses and steep-walled draws. Stands are typically small, less than 30 acres in size. The condition of aspen stands has been expressed as an issue of concern by Northern Cheyenne Tribal members as the species is used in certain cultural and religious practices. The primary concern is the limited availability of aspen trees of a certain size. Many of the stands found on the reservation are either young stands of sapling size or smaller or old stands of large trees that are in various stages of degradation. There is also often considerable ingrowth of ponderosa pine among the aspen that diminishes the amount of aspen available through shading.

Riparian stands are dominated by cottonwood (*Populus* spp.) trees, particularly in locations along perennial streams and rivers. Green ash (*Fraxinus pennsylvanica*) and box elder (*Acer negundo*) are less prominent in these stands. Understory species include choke cherry (*Prunus virginiana*), hawthorn (*Crataegus* spp.), plum (*Prunus* spp.), and willow (*Salix* spp.). Composition of the understory in riparian stands plays a strong role in the quality and quantity of water within the stream. In many areas stream quality is degraded through poorly regulated grazing practices such that willow species are all but absent.

Agricultural Land

Predominant agricultural crops consist of grass hay, alfalfa hay and seed, and corn for silage and grain. A pumping project, the Tongue River Irrigation Project, was established in the early 1900s. This would eventually serve 1,380 acres of reservation land. Irrigated lands along the west side of the Tongue River include 14 Indian irrigation units.

Historically there were a number of small diversions along Rosebud Creek, such as the Government Ditch south of Busby. Currently on the reservation, 11,799 acres are dry-farmed and 1,794 acres are irrigated. A study conducted by HKM Engineering Inc., of Billings, Montana in 1976 estimated that the reservation had the potential of 21,160 acres as irrigable by gravity or sprinkler systems. There are presently two sprinkler systems present on Rosebud Creek within the reservation.

Rangeland

Grazing represents the predominant land use, with approximately 90% of the reservation land area suitable for this purpose. There are approximately 218,000 acres of rangeland, as well as another 155,066 acres of forested land treated essentially as rangeland. There is an estimated grazing capacity of 81,000 Animal Units per Month (AUM). These are managed via 103 range units, varying in size from 40 to 20,000 acres. Range units are not sufficiently fenced resulting in overuse of riparian areas. Grazing occurs in open unwooded areas as well as scheduled managed and unscheduled managed forest land areas. Usually this consists of cow-calf pairing which turn out in April and May (calving season) and round up in October and November. Most animals stay on the reservation all year round. Approximately 430,409 acres of the reservation are leased for range units, farming or homesites. There are currently 129 farm pasture leases amounting to roughly 18,099 acres (NRCE, 2002). The utilization of lotic wetlands by cattle grazing has proven problematic in terms of creating poor riparian conditions. Non-point source pollution as a result of overgrazing of lotic wetland areas causes an increase in sediment transport in the stream, as well as destabilization of streambanks, and loss of vegetation within streamside corridors.

3.5 Wildlife

The US Fish and Wildlife Service (USFWS) was contacted by letter dated August 27, 2007 to request a list of Threatened or Endangered species that occur within the proposed project area. The USFWS, as indicated in a letter dated September 14, 2007, does not anticipate the occurrence of any federally listed threatened, endangered, candidate or proposed species in the proposed project area.

In early 2008 the black footed ferret was reintroduced to the sagebrush flats west of Ashland on the eastern part of the reservation. Eight ferrets were released initially with a second release of more animals planned for the fall of 2008. Black footed ferrets are on the Endangered Species List and all management activities on the reservation must include measures to mitigate any impact on the ferret population.

The reservation is home to a large variety of wildlife. Species common to the mountain ranges and prairie of south central Montana occur on the reservation. Mammal species include; mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), black bear (*Euarctos americanus*), elk (*Cervus canadensis*), coyote (*Canis latrans*), cougar (*Felis concolor*), bobcat (*Lynx rufus*), pronghorn antelope (*Antilocapra americana*), fox (*Vulpes* sp.), porcupine (*Erethizon dorsatum*), cottontail

rabbit (*Sylvilagus* sp.) and black-tailed prairie dog (*Cynomys ludovicianus*). Numerous other small mammal species also occur on the reservation.

There are numerous species of resident and migratory birds that occur on the reservation. Game birds such as rough grouse (*Bonasa umbellus*), sharp-tailed grouse (*Pedioecetes phasianellus*), turkey (*Meleagris gallopavo*), and ring-necked pheasant (*Phasianus colchicus*) are present. Waterfowl species include: Canada geese (*Branta canadensis*), mallard (*Anas platyrhynchos*), redhead (*Aythya americana*), American widgeon (*Mareca americana*) and lesser scaup (*Aythya affinis*). There are many species of shorebirds present, such as herons, rails, and a variety of smaller species. There are many species of songbirds and woodpeckers throughout the reservation. A variety of raptors are commonly seen, such as golden eagles (*Aquila chrysaetos*), bald eagles (*Haliaeetus leucocephalus*), goshawk (*Accipiter gentilis*), kestrel (*Falco americana*), red-tailed hawk (*Buteo jamaicensis*), Northern harrier (*Circus cyaneus*), ferruginous hawk (*Buteo ragalis*), great gray owl (*Strix nebulosa*), great horned owl (*Bubo virginianus*) and screech owl (*Otus asia*).

3.6 Cultural or Historical Resources

Cultural resources on the Northern Cheyenne Reservation include a wide range of sites and properties. The term is commonly used to refer to a variety of physical remnants of past human activity that range from prehistoric artifacts to more recent structures and buildings. However, the term also includes plants, animals and geographic areas that are culturally important to the tribe, many of which may contain no tangible evidence of human modification or use.

Numerous cultural resource surveys have been conducted on the reservation for a variety of range, timber, housing and energy related projects. A review of the BIA database shows that these surveys have identified over 900 archaeological, historical and cultural sites. Avoidance has always been the primary strategy of mitigating the potential damages to cultural resources, and as a result, few sites have been formally evaluated for their eligibility to the National Register of Historic Places.

Archaeological and Historical Sites

Known archaeological site types on the reservation include stone feature sites such as stone circles, cairns and rock alignments, as well as surface artifact concentrations (lithic scatters), buried camps and bison kills. The time range for these sites extends from nearly 10,000 B.P. (Before Present) to early contact.

The landscape and geological deposits have a profound effect on the nature and placement of archaeological sites. Of particular interest on the Northern Cheyenne Reservation, as well as for southeast Montana in general, are deposits of porcellanite. Porcellanite is shale that has been metamorphosed by natural coal burns, resulting in a fine-grained stone that served as a primary raw material for prehistoric tool makers. Consequently, many archaeological sites contain this material, and many prehistoric quarries and workshops are located where high-quality deposits of porcellanite are exposed. Of the 900 sites recorded on Northern Cheyenne over 50% are prehistoric camps and workshops with porcellanite as the dominant material.

Sandstone and scoria outcrops are also common throughout the reservation. Many sandstone outcrops offer flat smooth surfaces for the creation of rock art that range from prehistoric carvings to twentieth century graffiti. Many of the sandstone and scoria outcrops include sheltered areas and have been used both prehistorically and historically for shelter and the placement of graves. Additionally, the stone from these outcrops has been used in constructing a variety of stone features (i.e. cairns, circles and miscellaneous structures). Stone feature sites compose over 13% of all sites recorded on the Northern Cheyenne Reservation. While bison kills, food processing sites, and rock art sites are also known to occur on the reservation, these three site types are fewer in number and represent less than 3% of the overall recorded sites.

Sites dating to the historic period include a variety of buildings and structures, as well as surface depressions, where the structures have been previously removed. Most post-date the establishment of the reservation. These include residences and other commercial properties, as well as structures and facilities associated with the farming, ranching and mining activities. These sites represent over 10% of all sites recorded on the reservation.

Cultural Sites

Cultural sites on the Northern Cheyenne include a variety of tangible and intangible resources. Many of the prehistoric sites are culturally important to tribal members, and are therefore not only important for their scientific value, but also for their traditional historic value. Some rock art sites, and some stone features (cairns and medicine wheels) continue to have religious and cultural value.

Many tribal members continue to actively pursue traditional religious practices on the reservation, and approximately 25% of recorded sites in the BIA database are related to these ceremonial activities. They not only

include larger structures, such as Sundance lodges, but also small personal sites, such as fasting structures, sweat lodges, cloth offerings, and graves. Isolated graves occur in a relatively high frequency on Northern Cheyenne, and tend to be located in secluded areas.

Water, mineral, plant and animal resources are important to the Northern Cheyenne both culturally, and religiously. While these resources are tangible, they are often considered as intangible cultural resources because they have no obvious manmade modifications, and their importance may not be readily apparent to outsiders. Many springs have spiritual importance and spirits or spirit beings associated with them. Some of the important springs can be readily identified when cloth offerings are associated with them, but many have no such tangible manmade intrusions.

Cheyenne ceremonial practitioners regard water as part of the overall cosmology of life. On one hand, the great serpent "menehe" guards and protects the springs and waterways and could potentially bring harm and suffering to those who do not follow proper protocol. On the other, great care, respect, and spirituality is given to these sacred sites. Subsequently, during certain times of the day, waterways and springs are held with the highest respect and carefully negotiated as one makes his or her way near water.

Plants and animals have traditional cultural uses in ceremonies, as medicines and as traditional foods. Mineral deposits throughout the reservation area contain a variety of paints, which are collected and used for ceremonial purposes. Important plant species include sages, grasses, willows and junipers. Deer and antelope are not only an important food resource, but many of their parts are used in ceremonies. Animals such as the badger also have spiritual value. The badger is the all-knowing one of the underworld. Badgers are held with high respect and are part of ceremonial activities. Eagles and other raptors have always been considered important to the Northern Cheyenne, and have considerable spiritual value.

Many Northern Cheyenne traditional religious practices are personal and private, and timbered tracts on the reservation often offer the seclusion needed to perform some ceremonies. Many of these sites are not formally recorded because they leave little or no tangible evidence, and because knowledgeable tribal members do not discuss these sites out of respect for the sites and their practitioners. Consequently, many cultural and religious sites in the timbered areas remain confidential.

Because of timber harvests, many cultural or religious sites may be affected since the practitioners do not leave much physical evidence of the

cultural or religious activity. This creates a dilemma of identifying areas of cultural and/or religious significance and determining measures to protect such sites, if in fact someone has intimate knowledge of the site.

3.7 Recreation

The reservation has few developed recreation sites. These include picnic areas at Ice Wells and Morning Star View, and campgrounds at Crazy Head Springs, Lost Leg Lake, and Conservation Corp Camp. Virtually the entire reservation land area is used by various individuals for outdoor recreation. Popular activities include hunting, fishing, camping, berry picking, herb/medicine gathering, and passive aesthetic enjoyment.

3.8 Fire

Southeastern Montana is situated in an arid Continental climate that includes high summer temperatures and low amounts of precipitation, most of which occurs in the winter as snow. Seasonal development of vegetation growth features a drying out of the abundant spring growth of annual and perennial plants in response to increasing temperatures and reduced amounts of precipitation. This curing process typically takes place in the latter half of June such that by early July the vegetation is dry and volatile until the advent of fall rains, usually in mid-September. Weather patterns during this period typically consist of ridges of high pressure with southerly winds that produce very hot, dry weather, alternating with frontal movements that feature little or no precipitation while producing significant amounts of lightning. The area typically experiences numerous wildfires during the spring and summer months, with primary sources of ignition being human sources, lightning, and burning exposed coal seams.

Vegetation in the area has developed and adapted to this fire regime of short interval, low and mixed fire severity in such a way that healthy functioning of ecosystem processes depends on periodic wildfire. Benefits of these fires include the reduction of fuel loadings that help to reduce the severity of fires; release of nutrients from dead woody material; reduction in the competition for scarce resources, particularly water, through mortality of plants having lesser resistance to fire; and improvement of seedbed conditions that favor regeneration success.

For nearly 100 years the reservation land area has been impacted by an aggressive fire suppression policy. This policy has been aimed at protecting communities and improvements and maintaining the potential value of the timber resource. The effect of this policy has been the exclusion of fire from a system largely dependent on fire for its healthy

functioning. As a result of this many forested areas have an unnatural buildup of dead woody material, areas of excessive stocking, and an abundance of weak and unhealthy trees. Recent years have seen a re-invigoration of the use of prescribed fire as a management tool, but this can only be done safely in certain areas following various degrees of site preparation and often cannot be applied in areas near communities or isolated residences. Fuel reduction through mechanical treatments is applied to areas where the application of prescribed fire is not feasible, but these treatments are often deemed to be excessively costly and labor intensive. Because of this, mechanical fuel reduction treatments affect limited areas. Fire frequency is naturally high in the reservation area, and the past 25 years have witnessed an increase in the severity and extent of wildfires. This has led to a considerable reduction in forested area across the reservation, and tribal members have expressed concern about this loss and the potential for future losses of forested areas.

3.9 Employment and Revenue

As stated previously, forestry has traditionally been a small but important part of the reservation economy. Forestry-related jobs employing members of the local community include logging, tree planting, precommercial thinning, firefighting, implementing fuel management projects, and rehabilitation of lands affected by management activities such as timber harvest and fire suppression.

The Northern Cheyenne Tribe has historically derived considerable revenue from the sale of forest products, with some estimates indicating half or more of the tribe's annual budget coming from stumpage paid on timber sales. Since the shutdown of the Tongue River Lumber Company sawmill in Ashland in 2000, revenues from timber sales have dwindled. Additionally, the sharp decline in the timber market since 2006 along with sharp increases in fuel prices during the same period has resulted in dramatically lower prices being paid for stumpage on timber sales. Current revenue streams from timber sales are minor and seemingly insignificant when compared with those of a decade ago.

4. Environmental Consequences

This chapter describes the probable effects caused by implementation of each particular alternative and assumes all mitigation measures stated in the alternatives section would be implemented. This chapter is organized by resource so that impacts from each alternative appear under the discussion of that resource. Resources are discussed in the order that they appear in the Affected Environment Chapter.

4.1: Air Quality:

4.1.1: Alternative 1: No Action (Custodial Management)

Under this alternative there would be significant short term impacts on air quality from large wildfires. Large wildfires would be expected to increase because of continuous fuel buildups in overmature timber stands and stands that are increasing in density. None of the minor short term impacts from dust generated by road construction and log hauling would occur.

4.1.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

Air quality impacts from this alternative would be less than those expected under Alternative 1 because of the increased management resulting in less fuels and a reduced risk of catastrophic wildfire. Minor impacts from dust generated by road construction and log hauling would occur. Dust abatement activities, such as applying water and/or magnesium chloride to the dirt roads and lowering speed limits to 15 miles per hour would minimize air quality impacts. This alternative has greater potential to prevent destruction of forests by wildfire than alternative 1, but less potential than alternative 3.

4.1.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

Effects on air quality under this alternative would be minor and more short term than those associated with alternatives 1 and 2 because this alternative would have the greatest amount of fuel reduction. Greatest impacts would result from seasonal burning of slash piles and other prescribed fires. The amount of woody material burned in prescribed fires is a very small fraction of what is consumed in a large wildfire. Impacts on air quality from dust generated by road construction and log hauling would be about one and one half times those of alternative 2. Under all dry conditions air quality impacts would be mitigated by requiring water and/or magnesium chloride and lowering speed limits to 15 miles per hour on all roads directly and indirectly related to logging activities. This alternative has the greatest potential of all alternatives to prevent large wildfires.

4.2: Water Quality

4.2.1: Alternative 1: No Action (Custodial Management)

This alternative would have virtually no impact on water quality except that it does not reduce the risk of large wildfires. If a large wildfire was followed within a year by heavy rain or snow the result would be nitrate pollution and siltation of streams and lakes from ash and soil particles moving off the burned slopes and roads. The impacts from a major fire are greater than those from scheduled timber harvesting because more acres and more timber

volume is involved, all vegetation is removed and soils are less permeable to water due to heat damage.

4.2.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

The risk of pollution and siltation of streams by major wildfire would be reduced to some extent under this alternative. However, forest harvesting involves some risk of siltation to streams primarily from road construction. Most of the risk of siltation can be eliminated with good road location and construction practices. Any siltation from harvest activities under this alternative would be minor and short term.

4.2.3: Alternative 3: Accelerated Harvest (10 mmbf per Year)

The risk of major wildfire and its potential impacts to water quality would be reduced by more under this alternative than either of the other alternatives. However, the risk of siltation of streams due primarily to the road construction associated with accessing the timber would be higher than with alternatives 1 and 2 because more area would be harvested under this alternative. Any siltation from harvest activities under this alternative would be minor and short term with the specified mitigation measures written into sale contracts.

4.3: Soil

4.3.1: Alternative 1: No Action (Custodial Management)

This alternative would have virtually no impact on soil productivity, erosion or displacement except that it does nothing to reduce the risk of large wildfires. Existing roads and trails would remain in their current condition. No new roads, skid trails, or landings would be built. No existing roads would be scheduled for closure. Some soil erosion may occur from existing roads and trails and this could have minor impacts on soil productivity if there are areas which are currently eroding. However, if a wildfire of several hundred acres or more in size were followed within a year by heavy rain or snow the result would be mass wasting of ash and soil from the burned area. The impacts from a major fire are greater than those from scheduled timber harvesting because more acres and more timber volume is involved, all vegetation is removed and soil structure may be compromised from heat damage.

4.3.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

The risk of major wildfire would be reduced more under this alternative. However, the risk of soil erosion and displacement from harvested areas would be higher than with Alternative 1 because areas would be accessed for harvest under this alternative. Any soil erosion or loss of soil productivity from harvest activities under this alternative would be minor with specified mitigation measures written into sale contracts.

4.3.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

The risk of significant soil erosion, displacement and damage due to major wildfire would be reduced by more under this alternative than under either of the other alternatives. However, the risk of soil erosion and minor displacement due primarily to the road construction associated with accessing the timber would be higher than with the other two alternatives because more area would be harvested under this alternative. Any soil erosion from harvest activities under this alternative would be minor with the specified mitigation measures written into sale contracts.

4.4: Vegetation

4.4.1: Alternative 1: No Action (Custodial Management)

This alternative would result in accumulation of vegetation in forested areas that would increase the severity, extent, and duration of wildfires. Over the long term this would cause a decrease in the forested area on the reservation with the more marginal timber sites converting to grasses and shrubs. Seral plant species would be favored, and site production would decline due to impacts on soil and water noted above. There would be some increase in areas of noxious weed infestation from fire suppression activities.

4.4.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

This alternative would result in treated areas being opened up to allow more sunlight on the forest floor, causing an increase in grasses and forbs. This would increase the quality of wildlife habitat as well as increasing the quantity and quality of forage for livestock grazing. In addition, reduction of tree cover would make more rainfall available to remaining trees and other vegetation, increasing the growth of residual vegetation following harvest activities. The potential for wildfires would be decreased compared with the no action alternative due to lighter fuel loadings, particularly if precommercial thinning and fuels treatments keep pace with timber harvests. Increased traffic in the forest from individuals carrying out management activities would result in an increase in areas of infestation of noxious weeds, although this

might be comparable to the increase that would occur under the no-action alternative.

4.4.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

This alternative would open up an even greater portion of the forested area on the reservation. The level of harvest would in many cases result in a minimal number of trees being retained as a seed source, and this could cause problems in regenerating the forest due to increased growth by competing vegetation. Wildlife habitat quality would be compromised due to the removal of sheltering cover and the need to conduct harvests in areas that would not be disturbed in the other alternatives. Further reduction of tree cover would increase the availability of forage for livestock grazing and also result in an increase of water production from springs and streams, improving the range environment. Wildfire potential would be reduced more than in the other two alternatives due to the increase in area of timber harvests, which would in effect reduce the fuel loadings on a larger portion of the reservation land base. The potential for spread of noxious weed infestations would be greater than in either of the other two alternatives due to the increase in traffic in the forested areas and the increased likelihood of equipment disturbing existing infestations of undesirable plants.

4.5: Wildlife

4.5.1: Alternative 1: No Action (Custodial Management)

Impacts to wildlife species and their habitat would be negligible over the short term. As the productivity of the forested areas declines the habitat for some species will also decline. Species that require more open forest stands would be negatively affected as stands continue to close. If a high intensity wildfire occurred, the area would become unsuitable for species that require mid or late seral habitats. Also, reestablishment of some habitat types would be very slow after high intensity wildfire. None of the negative effects from new roads or disturbance during logging activities would occur.

4.5.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

Wildlife species would be displaced for short periods of time during timber sales and fuels treatments. This impact would be localized in the immediate vicinity of the particular project. Beneficial impacts would be realized from the reduced risk of high intensity wildfire and the opening up of some forest stands which would result in increased ungulate forage in the forest understory. This increased forage is best utilized in close proximity (one-quarter mile) of hiding cover. Uneven aged management that is proposed in this alternative is deficient in horizontal diversity but the multi-storied crowns provide vertical diversity that is beneficial to many bird species.

Researchers at the Starkey Experimental Forest in Oregon have found that open roads strongly influenced elk use of otherwise available habitat. Elk response was affected by traffic rates, amount of cover near roads and type of road. When elk got farther from roads they were more influenced by other factors such as forage conditions (USDA, 2006). New roads would need to be built to harvest the timber and this would have a negative effect on any elk that may be in these areas. This effect could be partially mitigated by closing unneeded roads after project implementation.

4.5.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

Impacts to wildlife from Alternative 3 would be similar in nature and about one and one half times greater than those in Alternative 2.

4.6: Cultural and Historical

4.6.1: Alternative 1: No Action (Custodial Management)

This alternative would generally have a minimal impact on cultural and historical resources except for that which would occur during fire suppression operations. This alternative is expected to produce an increase in the number, extent, and severity of wildfires, which would cause a corresponding increase in wildfire suppression activity. This activity usually involves ground disturbance from hand crews or dozers digging containment lines, which would increase the likelihood of disturbing cultural and historical resources. Mitigating possible impacts of suppression activity would require the completion of cultural resource surveys prior to the activity. Cultural resource surveys are usually not conducted during fire suppression operations due to the emergency nature of these situations. Only those sites that were well marked or otherwise well known could be avoided during fire suppression activities.

4.6.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

Adopting active forest management would reduce the threat of wildfires significantly, but timber harvest activities including road construction and reclamation and the operation of equipment in mechanized harvesting would increase the possibility of disturbing cultural and historical resources. Most disturbances could be limited through pre-harvest surveys. The standard method of protecting archaeological, historical and cultural sites is avoidance. Any sites identified during inventories will be recorded on maps and a 100 foot buffer will be placed around each site. Prior to timber harvesting, the buffer areas will be clearly flagged in the field and timber harvesting crews will be advised to avoid flagged areas.

Some accidental disturbance of sites may occur during harvest operations. If personnel conducting timber harvesting and other forest management operations fail to avoid the designated sites, trespass penalties will be applied. If designated sites are damaged, criminal or civil damages may also be assessed under the Archaeological Resources Protection Act.

4.6.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

This alternative would reduce the threat of wildfires even more than the other two, but the increase in harvest activity would increase the likelihood of disturbance more than the other alternatives. While surveys would identify most resources for avoidance, the number of occurrences of accidental disturbance of sites would be higher due to the increase in activity.

4.7: Recreation

4.7.1: Alternative 1: No Action (Custodial Management)

Due to the increase in frequency, intensity, and extent of wildfires, recreational opportunities in the forest would be reduced in those areas affected by fires and suppression operations. Increased vegetation throughout the forest would reduce the quality of recreation experiences in those areas due to stand closure, reduction in wildlife habitat quality, and decline of plants used for food or for ceremonial purposes.

4.7.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

This alternative would reduce the threat of wildfire and maintain forest stands in their natural open character, maintaining wildlife habitat and populations of plants used for food or for ceremonial purposes. Logging units would be closed for recreation during harvest activities, but these closures would be of limited duration and the post-harvest forest would offer improved recreation experiences.

4.7.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

This alternative would reduce the threat of wildfire further than the other two alternatives and would thereby reduce the negative impact of wildfire on recreational activities. A greater area of the forest would be treated than in the sustained yield harvest alternative, causing more forest lands to be converted to a more open character. The increase in harvest area would reduce the diversity among forest stands, with a greater portion of the reservation forest being given a post-harvest character, and this could have a negative impact on recreation experiences.

4.8 Fire

4.8.1: Alternative 1: No Action (Custodial Management)

This alternative is expected to result in an increase in the frequency and severity of wildfires due to the continued growth of vegetation in forested areas combined with no mechanism for removing previous growth through timber harvests and fuels reduction treatments. This would ultimately result in an accelerated reduction of forest area as compared with the reduction in area that has occurred over the past 30 years due to wildfire. In addition, the elimination of fuels treatment in wildland-urban interface areas would increase the likelihood of homes and other improvements being lost to wildfire.

4.8.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

This alternative is expected to result in a decrease in the severity of wildfires due to the reduction and removal of fuel in managed areas. This alternative might also result in an increase in the frequency of wildfire occurrence due to increased human traffic in forested areas by those individuals carrying out management activities and the public at large. This can be partially mitigated by ensuring safe work practices such as limiting off-road driving and using power tools equipped with spark arresters during management activities and through effective closure of roads at the conclusion of management activity within a given area. This alternative would also provide for better protection of communities through fuels treatments in wildland-urban interface areas.

4.8.3: Alternative 3: Accelerated Harvest (10.0 mmbf per year)

This alternative is expected to result in a decrease in the severity of wildfires due to the reduction and removal of fuel in managed areas. The reduction in severity would be over a greater area than in Alternative 2 due to a greater area of the forest being treated through timber harvest and other management activities. This alternative might also result in an increase in the frequency of wildfire occurrence due to increased human traffic in forested areas by those individuals carrying out management activities and the public at large. This can be partially mitigated by ensuring safe work practices such as limiting off-road driving and using power tools equipped with spark arresters during management activities and through effective closure of roads at the conclusion of management activity within a given area. The increase of human-caused fire starts would be greater than in Alternative 2 due to the increased numbers of individuals carrying out management activity and the greater area of the forest being treated. The threat of structure loss in wildland-urban interface areas would be reduced relative to the other alternatives due to the need to carry out timber harvest activities in more areas, including closer to communities. The necessity of conducting harvest operations closer to

communities would diminish the aesthetic value of the forest in these areas during and immediately following harvest operations.

4.9: Employment and Revenue

4.9.1: Alternative 1: No Action (Custodial Management)

This alternative would result in an increase of employment of casual hire firefighters in response to the expected increase in wildfire frequency. Employment in logging, precommercial thinning, and tree planting would be virtually eliminated. There would be no revenue from the sale of forest products except for minor amounts from salvage sales of fire- and insect-killed timber from allotted lands.

4.9.2: Alternative 2: Sustained Yield Harvest (6.9 mmbf per year)

A sustained yield harvest would provide employment comparable to current levels in areas of forestry, logging, precommercial thinning, and tree planting. Revenue from timber sales would depend on market conditions, but would be available to the Northern Cheyenne Tribe as well as to individual allotment owners. Specific revenue amounts are difficult to predict due to the volatile nature of forest product markets.

4.9.3: Alternative 3: Accelerated Harvest (10 mmbf per year)

This alternative would result in increased employment in all aspects of forest management activity. Revenue streams would be greater than in the other alternatives if purchasers for timber sales could be found.

IV. Participating BIA and Tribal Staff

Matt Anderson, Forest Manager, Northern Cheyenne Agency, BIA
Terry Spang Sr., Tribal Forestry Director, Northern Cheyenne Tribe
Frank Rollefson, Rangeland Program Manager, Northern Cheyenne Agency, BIA

Mike Bearcomesout, Fuels Specialist, Northern Cheyenne Agency, BIA
Allen Clubfoot, Natural Resources Director Northern Cheyenne Tribe
Conrad Fisher, Tribal Historic Preservation Office Director, Northern Cheyenne Tribe

Jay Littlewolf, Air Quality Administrator, Northern Cheyenne Tribe
Alec Sandcrane, Water Production Specialist, Northern Cheyenne Tribe
Joe Walksalong Jr., Water Quality Specialist, Northern Cheyenne Tribe
Patricia Ramos, Water Quality Specialist, Northern Cheyenne Tribe
Shanny Spang Gion, Coalbed Methane Coordinator, Northern Cheyenne Tribe
Gordon Jackson, Supervisory Forester, Rocky Mountain Regional Office, BIA
Mike LeBrun, Timber Sale Forester, Rocky Mountain Regional Office, BIA

Don Kasten, Quality Control Forester, Rocky Mountain Regional Office, BIA
Mike Caprata, GIS Specialist, Rocky Mountain Regional Office, BIA
Fred Taylor, Natural Resource Specialist, Rocky Mountain Regional Office,
BIA
Bruce Card, Forest Development Forester, Rocky Mountain Regional Office,
BIA
Tom Corbin, Fire Management Officer, Rocky Mountain Regional Office,
BIA
Robert LaPlant, Assistant Fire Management Officer, Rocky Mountain
Regional Office, BIA
Bob Roberts, Fuels Specialist, Rocky Mountain Regional Office, BIA
Jarvis Gust, Wildlife Biologist, Rocky Mountain Regional Office, BIA
Larry Beneker, Soil Conservationist, Rocky Mountain Regional Office, BIA
Allan Hanley, Supervisory Rangeland Management Specialist, Rocky
Mountain Regional Office, BIA
Dan Rasmussen, Assistant Fuels Specialist, Rocky Mountain Regional Office,
BIA
Marv Keller, Archaeologist, Rocky Mountain Regional Office, BIA

APPENDIX D

FOREST MAP UNITS

APPENDIX E

FORESTRY BEST MANAGEMENT PRACTICES

FORESTRY BEST MANAGEMENT PRACTICES.

The following definitions and rules are the tribal best management practices (BMP's) for Northern Cheyenne forested lands within the exterior boundaries of the Northern Cheyenne Reservation. These BMP's have been produced in an effort to establish rules and regulations pertaining to activities on tribal lands (all lands within the exterior boundaries of the reservation) by federal, tribal and private parties. All activities on forested lands within the reservation are subject audit by the tribe. If non-compliance with regulations is objectively determined, then regulatory action by means of fines, reclamation and/or mitigation will be issued.

Prepared by Desi Rollefson.

I. Definitions

- A. Channel: A geomorphic feature capable of conducting flow from various water sources. A channel bed formed by the presence of running water is a standard characteristic. These bed materials may consist of silt, sand, gravel, bedrock, vegetation, or a combination of these or other materials. Visible channel banks are a characteristic.
- B. Dry/woody draws: Depressions in topography that conduct flow on a seasonal basis. Although a definable channel may not be visible, they perform wetland functions as a result of the greater presence of water as opposed to surrounding uplands. Examples include *Pinus ponderosa*/*Cornus stolonifera* (Ponderosa pine/ Red-osier Dogwood) habitat types. Other hydrophytic vegetation may also be present, IE Green Ash or Box Elder. Soils may have higher moisture content than surrounding uplands. May be considered a Scrub-Shrub Wetland.
- C. Hazardous or Toxic Materials: Substances that are dangerous to handle or dispose of. Potential environmental contaminants include, but are not limited to, petroleum products, pesticides, herbicides, chemicals, and biological wastes.
- D. High water mark: The location on a water bank where the water level reaches during seasonal peak flow.
- E. Other body of water (OBW): These include all aquatic related resources exclusive of wetlands and streams. These include lakes, ponds, canals, and irrigation and drainage systems.

F. Stream: A natural waterway, with definite bed and banks, which conducts water flow on a perennial or intermittent basis. Defined as first to third class.

1. Class 1 Stream: A stream, or reach of stream, which maintains flow for at least six months of the year. A definable channel and high water mark are present. These streams may be perennial or intermittent.
2. Class 2 Stream: A stream, or reach of stream, which maintains flow on annually, but not necessarily for six months. A definable channel is present. These streams are typically intermittent.
3. Class 3 Stream: A stream that normally has surface flow less than six months of the year. This may or may not flow on an annual basis. A definable channel is present and stream width is not more than 3 feet, measured from opposing high water marks. Typically ephemeral.

G. Streamside Management Zone (SMZ): A zone of variable width located on both sides of a stream, wetland or OBW.

1. Class 1 Stream SMZ: A 100 foot buffer zone on both sides of a stream as measured from the high water marks of both sides of the stream banks.
 - a. When a stream braids, or has multiple channels, a SMZ is measured from the high water mark of the outer most channels.
 - b. If riparian vegetation extends beyond the 100' buffer zone, then the SMZ is extended 25' beyond the outside perimeter of the riparian vegetation.
 - c. If wetlands or OBW border or are within the SMZ, the SMZ width is extended 50' beyond the outside perimeter of the wetland or OBW, or 25' beyond the perimeter of the riparian vegetation, whichever is greater.
2. Class 2 Stream SMZ: A 100' buffer zone on both sides of a stream as measured from the high water marks of both side of the stream.
 - a. If the stream braids, or has multiple channels, the SMZ is measured from the high water mark of the outermost channels.

- b. If riparian vegetation extends beyond the 100' buffer zone, then the SMZ is extended 25' beyond the outside perimeter of the riparian vegetation.
 - c. If wetlands or OBW border or are within the SMZ, the SMZ width is extended 50' beyond the outside perimeter of the wetland or OBW, or 25' beyond the perimeter of the riparian vegetation, whichever is greater.
- 3. **Class 3 Stream SMZ:** A 50' buffer zone on both sides of a stream as measured from the high water marks of both sides of the stream.
 - a. If the stream braids, or has multiple channels, the SMZ is measured from the high water mark of the outermost channels.
 - b. If riparian vegetation extends beyond the 100' buffer zone, then the SMZ is extended 25' beyond the outside perimeter of the riparian vegetation.
 - c. If wetlands or OBW border or are within the SMZ, the SMZ width is extended 50' beyond the outside perimeter of the wetland or OBW, or 25' beyond the perimeter of the riparian vegetation, whichever is greater.
- 4. **Wetlands or OBW SMZ:** A 50' buffer zone surrounding the wetland or OBW.
 - a. If riparian vegetation extends beyond the 50' buffer zone, then the SMZ is extended 25' beyond the outside perimeter of the riparian vegetation.

H. Riparian Vegetation:

I.

- 1. **Riparian:** adj. Of, on, or relating to the banks of a natural course of water (Latin *riparius*, from *ripa*, bank).
- 2. **Riparian Plant Association:** A plant community representative of the latest successional stage attainable on a specific, hydrologically influenced surface.
- 3. **Riparian Wetlands (Lotic Wetlands):** Wetlands associated with running water systems found along rivers,

streams, and drainage ways. Such wetlands contain a defined channel and floodplain. The channel is an open conduit, which periodically, or continuously, carries flowing water, dissolved and suspended material. Beaver ponds, seeps, springs, and wet meadows on the floodplain of, or associated with, a river or stream are part of the riparian wetland.

4. **Riparian or Wetland Ecosystem:** The ecosystem located between aquatic and terrestrial environments. Identified by hydric soil characteristics and riparian or wetland plant species that requires or tolerates free water conditions of varying duration.
 5. **Riparian or Wetland Species:** Plant species occurring within the riparian or wetland zone. Obligate riparian or wetland species require the environmental conditions associated with the riparian or wetland zone. Facultative riparian or wetland species are tolerant of these environmental conditions, but also occur in uplands.
 6. **Riparian Zone:** A geographically delineated portion of the riparian ecosystem based on management concerns.
- I. **Wetlands:** Areas that under normal circumstances have hydrophytic vegetation, hydric soils, and wetland hydrology. This includes bogs, fens (groundwater wetlands), carrs (shrub wetlands), marshes, and lowlands covered with shallow and sometimes ephemeral or intermittent waters. Wetlands also include potholes, sloughs, wet meadows, riparian zones, overflow areas, and shallow lakes and ponds having submerged. Permanent waters of streams and water deeper than 3 meters in lakes and reservoirs are not considered wetlands.
1. **Still Water Wetlands (Lentic Wetlands):** Wetlands occurring in basins and lack a defined channel and floodplain. Included are permanent (IE perennial) or intermittent bodies of water such as lakes, reservoirs, potholes, marshes ponds, and stock ponds.

Other examples include fens, bogs, wet meadows, and seeps not associated with a defined channel.

2. Scrub-Shrub Wetland:

A *class* of wetland habitat which includes areas dominated by woody vegetation less than 6 meters (20 feet) tall. It may include true shrubs, young trees, or trees and shrubs that are small or stunted because of environmental conditions.

J. Seep: Groundwater discharge areas. In general, seeps have less flow than a spring.

K. Spring: Groundwater discharge areas. In general, springs are considered to have more flow than seeps.

II. Roads

A. Planning and Location:

1. Minimize the number of roads in a watershed through comprehensive road planning. Use existing roads where practical, unless use of such roads will cause or aggravate an erosion problem.
2. Locate roads to fit natural topography and avoid grades greater than 8%, drainage bottoms and topography where large cut slopes will be required.
3. Locate roads on stable soil and geologic materials. This includes well-drained soils and rock formations that dip into slope.
 - a. Avoid wet areas, including saturated or unstable toe slopes, wetlands, riparian areas, and other bodies of water.
4. Locate roads outside of a SMZ when roads run parallel to stream channels.
5. Minimize the number of stream crossings and choose stable stream crossing sites perpendicular to stream channels.

6. Locate roads to provide access to log landing areas that will minimize soil disturbance.
7. Avoid placing roads in areas suspected to have shallow subsurface drainage that may be intercepted during road construction.

B. Design:

1. Design roads to balance cuts and fills or use full bench construction where stable fill construction material is not available.
2. Vary road grades to reduce concentrated flow in road drainage ditches, culverts and on fill slopes and road surfaces.
3. Design stream crossings for passage of fish, minimum impact to water quality and passage of the 50-year peak discharge event.

C. Drainage from Road Surface:

1. Provide adequate drainage from the surface of all permanent and temporary roads by using out-sloped or crowned roads or rolling dips.
2. Space road drainage features so peak flow on a road surface or drainage ditch will not exceed the capacity of the individual drainage facilities.
3. Out-sloped roads are appropriate when fill slopes are stable, road drainage will not flow directly into stream channels and safety concerns can be met. Road surfaces should not be out-sloped greater than 35%.
4. Properly constructed rolling dips will drain concentrated runoff from a road surface. Construct rolling dips deep enough into subgrade so traffic will not obliterate them.
5. Skew ditch relief culverts 20-30 degrees toward the inflow from the ditch to improve inlet efficiency. At minimum, use 18" culverts and 3' catch basins. Protect the upstream end of the cross-drain culverts from plugging.
6. Install ditch relief culverts at the gradient of the original ground slope. Armor inlets and outlets with rock or other energy dissipaters.

7. Cross drains, culverts, water bars, rolling dips and other drainage structures should not discharge onto erodible soils, unstable fill materials or into SMZ's where adequate sediment filtration will not occur.

D. Construction:

1. Road construction in the SMZ is prohibited except when necessary to cross a stream or wetland.
2. Keep slope stabilization, erosion control, and drainage work current with road construction activities.
3. Ensure that road drainage features are fully functional prior to seasonal run-off and ensure that road sections are not left in an unstable condition over winter.
4. Stabilize erodible, expose soils by seeding or other suitable means prior to seasonal run-off.
5. At toe of fill slopes within an SMZ, pile slash in a row parallel to a road.
6. Reseed fill slopes with plant species removed or impacted.
7. Construct cut and fill slopes to avoid slope instability.
8. Do not incorporate large woody debris into fill portion of a road project.
9. Minimize sediment production from borrow areas by designing for stable slopes, controlling drainage and reseeding.

E. Maintenance:

1. During advance maintenance work, reconstruct only to extent necessary to provide adequate drainage and safety.
2. Avoid disturbing stable road surfaces.
3. Do not disturb roadside vegetation more than required to safely serve traffic needs.
4. Minimize road maintenance related activities when soils appear excessively wet.

5. Grade road surfaces only as often as necessary to maintain a stable running surface and to retain original drainage features.
6. Do not berm road material on either side of road perimeter.
7. Maintain drainage features through periodic inspection and maintenance, including cleaning rolling dips and cross drains, repairing ditches and clearing debris from culverts.
8. Do not remove established vegetation when grading roads or cleaning ditches, or cut the toe of cut slopes.
9. Provide breaks in snow berm to allow for drainage during winter activities.
10. Haul excess road materials removed by maintenance operations to stable sites away from SMZ's.

F. Road Closure and Abandonment:

1. Stabilize cut and fill slopes, borrow areas and other road-related features.
2. Remove cross drainage and ditch relief culverts and provide for permanent run-off control on abandoned roads.
3. Reseed all road surfaces cut and fill slopes, log decking areas and borrow areas with plant species that were removed or impacted.
4. When culverts and bridges are retained, provide for long term maintenance.
5. If culverts and bridges are removed, reconstruct stream crossing to a stable configuration.
6. Physically block access to area with rock boulders and/ or large berms or trenches. Do not use wood structures or fallen trees.

G. Dust Abatement:

1. Climatological considerations:
 - a. Potential cease of activity, if dust level exceeds reservation standards (see pm-10, Class 1 Air Quality).
 - b. Visibility criteria determination of suitable dust levels.

III. Stream Crossings:

A. Design:

1. Design stream crossings for adequate passage of fish, minimum impact on water quality and to handle peak run-off and floodwaters.
2. Locate stream crossings perpendicular (at right angles) to the main channel.
3. Use culverts with a minimum diameter of 18" for permanent stream crossings and cross drains.
4. Adjust road grade to reduce the concentration of water carried by road drainage structures toward stream crossings.
5. Direct road drainage away from streams and stream crossing sites.
6. Bridges are generally preferable to culverts and shall be installed in suitable sites.

B. Installation:

1. Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures.
 - a. Do not place erodible material into stream channels.
 - b. Remove stockpiled material from high water zones.
 - c. Locate temporary construction bypass roads to minimize disturbance.
2. If using culverts to cross small streams, install those culverts to conform to the natural streambed and slope on all perennial and intermittent streams.
 - a. Place culverts slightly below normal stream grade to avoid culvert outfall barriers.
 - b. Do not alter stream channels upstream from culverts, unless unavoidable.
3. Install culverts to prevent erosion of fill. Compact fill material to prevent seepage and potential failure.

4. Armor the inlet and outlet with the rock or other suitable material.
5. If possible, install culverts during low flow.
6. Use 1-foot minimum cover for culverts 18-36" in diameter, and a cover of one-third diameter for larger culverts to prevent crushing by traffic.

IV. Streamside Management Zone:

A. General Guidelines

1. Avoid mechanical activities within SMZ's, aside from roads which cross-streams or approved temporary crossings.
2. Always directionally fell trees to the outside of the SMZ.
3. Do not broadcast burn in a SMZ.
4. When applying a treatment in a SMZ, minimize disturbance to deciduous trees and shrubs.
5. Use whole tree skidding methods in a SMZ.
6. Silver cultural treatments in a SMZ should be done during frozen or dry weather conditions.
7. If operations occur adjacent to a SMZ, clearly mark the SMZ boundary to avoid operation in a SMZ.
8. Do not handle, store, apply or dispose of hazardous or toxic materials in a SMZ.

B. Equipment operation in SMZ's:

1. Operation of wheeled or tracked equipment is prohibited in the SMZ.
 - a. Exceptions: (only under ALL of the following conditions)
 - i. Only under winter conditions may wheeled or tracked equipment be operated in a SMZ.
 - ii. Equipment remains 50' from the ordinary high water mark.
 - iii. Shrubs and submerchantable trees are protected.

2. Do not operate equipment on stream banks or wetlands.

C. Timber Harvesting in SMZ's:

1. Clearcutting is prohibited in a SMZ.
2. Class 1 Streams:
 - a. Retain at least 50% of trees greater than or equal to 8" DBH on each side of the stream or 10 trees per 100' segment, whichever is greater.
3. Class 2 Streams:
 - a. Retain at least 50% of trees greater than or equal to 8" DBH on each side of the stream or 10 trees per 100' segment, whichever is greater.
4. Class 3 Streams:
 - a. Retain at least 25% of trees greater than or equal 8" DBH on each side of the stream or 5 trees per 100' segment, whichever is greater.
5. Wetlands:
 - a. Retain at least 50% of trees greater than or equal to 8" DBH surrounding the wetland.
6. Dry/Woody Draws:
 - a. Do not bulldoze or skid in the center of the drainage.
 - b. Apply harvest prescriptions that maintain at least 30% of total shrub and tree canopy.
 - c. Limit mechanically disturbing activities to frozen and dry weather conditions.
 - d. Water bar and seed skid trails that run parallel to dry draws with plant species removed or impacted.
 - e. Avoid concentrations of slash which, when burned, will produce bare soils and inhibit normal revegetation of the site.

- f. If, during saturated soil conditions, shallow subsurface drainage is intercepted and brought to the surface, restore the subsurface drainage pattern.

V. Timber Harvesting

A. Harvest Design:

1. Where feasible, avoid locating even-aged units directly adjacent to a SMZ. Try to apply selection harvest prescriptions.
2. Avoid planning even-aged harvest units on opposite sides of a SMZ. Stagger units on opposite sides of SMZ.
3. Design harvest units to minimize windthrow inside a SMZ.
4. Design and locate skid trails and skidding operations to minimize soil disturbance. Consider erosion control potential and possible alternative yarding systems prior to planning tractor skidding on steep or unstable slopes.
5. Avoid locating log decking and landing areas where skidding across drainage bottoms will be required.

B. Additional Harvesting Activities:

1. Favor bank edge trees for protection and shading of stream channels and banks.
2. Favor trees leaning toward the streams since they are likely to provide large woody debris to the stream channel.
3. Maintain a diversity of tree species and size classes that are representative of the pre-harvest stand.
4. Protect and retain submerchantable trees and shrubs to the fullest extent possible.
5. Tractor skid only when compaction, displacement and erosion will be minimal.
6. Do not skid with blade down.
7. For each landing, skid trail, fire trail or borrow area provide a drainage system to control the dispersal of water and to prevent soil displacement.

8. Do not use switchback ("goback") skid trails.
9. If natural revegetation is inadequate to prevent soil displacement, apply seed and construct water bars or other structures on skid trails, landings, fire trails and borrow areas.
10. Drainage features should be installed or reconstructed upon completion of seasonal operations. Roads should be re-seeded with species lost as needed and berms on road perimeters should be removed at this time.
11. Trees that impede proper road maintenance should be removed during harvest operations.

B. Slash Treatment and Site Preparation:

1. Use brush blades on dozers when piling slash.
 - a. Avoid use of dozers with angle blades.
 - b. Site preparation equipment producing irregular surfaces is preferred.
2. Scarify the soil only to the extent necessary to meet the reforestation objective of the site.
3. Carry out brush piling and scarification when soils are frozen or dry enough to minimize soil compaction or displacement.
4. Stabilize or reclaim landings and temporary roads upon completion of use.
5. Avoid heavy slash piling and burning in swales and dry draws.
6. Keep slash out of water bodies by removing limbs and tops well above stream high water mark.

VI. Winter Harvesting.

A. Harvest Planning:

1. Consider snow-road construction and winter harvesting when logging in sensitive areas including wet meadows, areas with high water tables, SMZ's, wetlands or other bodies of water.
2. Conduct winter logging operations when the ground is frozen or snow cover is adequate to minimize site disturbance. If conditions change and erosion hazard increases, suspend operations.

B. Road Construction and Harvesting Considerations:

1. During cold weather, plow snow cover off roadway to facilitate freezing of road grade prior to hauling.
2. Before logging mark existing culvert locations. During and after logging, make sure that all culverts and drainage ditches are open and functional.
3. Construct snow roads of compacted snow for single entry harvests and temporary roads in sensitive areas.
4. Designate, or mark, all stream courses prior to snowfall.
5. Do not use stream channel as a roadway or skid trail except at designated crossings.
6. Avoid steep areas where skid trails may be subject to erosion the next spring. Return the following season and build erosion controls on any skid trails that have soil displacement.

VII. Hazardous Substances.

A. General Guidelines:

1. Know and comply with regulations governing the storage, handling, application and disposal of hazardous materials.
2. Do not transport, handle, store, load, apply or dispose of any hazardous substance or fertilizer in such a manner as to pollute water supplies or water ways or cause damage to land, humans, plants and animals.
3. Develop a contingency plan for hazardous substances spills, including cleanup procedures and notification to appropriate tribal staff.

VIII. Site-specificity

A. Guidelines:

1. All site activity and operations must be based on site specific determinations.
2. Avoid general BMP application.
 - a. Be site-specific in BMP application.

IX. Burning.

A. Prescribed Burning:

1. Climatological events dictate burning conditions.
 - a. Moisture conditions must be favorable for controlled burning.
2. Uncontrolled fire in range unit designated for fall or winter grazing.
 - a. Permittee must be compensated for grazing resource loss (AUM's).

Coordination between prescribed burning and Tongue River Watershed Conservation Plan (4-pasture rest rotation system) required.

STANDARD ALTERNATIVE SYSTEMS

The secondary treatment systems addressed in this section are variations of the conventional absorption field. Standard alternative systems are designed to overcome some of the limitations of conventional absorption systems. A detailed design of the system will be required before the department will issue a permit. Design criteria shall conform to the minimum design criteria set forth in this section. Standard alternative systems included the following:

- a. Shallow capped absorption fields
- b. Waste segregation systems
- c. Deep absorption systems
- d. Sand lines absorption fields
- e. Cut systems
- f. Dosed systems
- g. Sloped absorption fields
- h. Alternating absorption fields

Shallow capped absorption field

This system is very similar to a conventional absorption field with the exception of absorption trench depth. The main purpose of shallow capped absorption fields are to maintain four (4) foot separation between high groundwater, bedrock or limiting layer and/or to increase the separation distance to increase subsurface treatment in porous soils.

Limitation – Shallow capped absorption fields shall not be installed when:

- a. Soils have a percolation rate less than three (3) min/inch or greater than six (6) min/inch,
- b. Slopes are greater than 15%,
- c. High groundwater, bedrock, or any other limiting layer is within sixty (60) inches of the ground surface.

Design – Shallow capped absorption fields shall meet all the following design requirements:

- a. Absorption trenches shall be twelve (12) to eighteen (18) inches deep,
- b. The backfill shall be tapered from the edge of the absorption trench wall with a 3 horizontal to 1 vertical or lesser slope.

Waste segregation systems

This system consists of dry disposal of human waste such as various chemical and incinerator type systems with separate disposal for gray water. However, regardless of the type for dry disposal system used, the gray water must be disposed of by primary and secondary treatment.

Limitation –

- a. Waste segregation systems generally will only be considered for recreational type dwelling which receive seasonal use,
- b. If the waste segregation system is proposed for structures other than recreational type dwellings, the system will be permitted only after being approved through the tribal water administrator.

Design – Due to the production of grey water, waste segregation systems shall meet all the following design requirements:

- a. A 40% reduction will be allowed in calculating septic tank size and absorption area,
- b. Technical factory literature of the type of system proposed will be required for review by the department.

Operation – A written plan of maintenance and final disposal of humus must be approved.

Deep absorption fields

An absorption field with trenches exceeding thirty-six (36) inches in depth from the natural ground surface shall be considered a deep absorption field. This type of system may be considered where the depth to suitable soil is too great to permit the installation of a conventional absorption field due to the presence of a limiting layer more than two (2) feet in depth which overlies suitable soils of sufficient thickness.

Limitation – Deep absorption fields shall not be installed when:

- a. The limiting layer is greater than forty-eight (48) inches below the surface of the ground,
- b. The soils below the limiting layer have a percolation rate less than five (5) min/inch or greater than sixty (60) min/inch,
- c. Slopes are greater than 15%,
- d. High groundwater, bedrock, or any other limiting layer is within eighty-four (84) inches of the ground surface.

Design – Deep absorption fields shall meet the following design requirements:

- a. Absorption trenches shall be excavated to a minimum of twelve (12) inches into suitable soil. At no time shall the depth of the absorption trench be greater than sixty (60) feet.
- b. The excavation shall be backfilled with a clean, washed, medium size sand to within thirty-six (36) inches of the ground surface,
- c. The minimum required absorption area shall be determined by the percolation rate of the soil below the limiting layer.

Sand lined absorption fields

Sand lined absorption fields will be considered when soils are determined to be a poor filter medium or when percolation tests show results faster than 3 min/inch. The

department may require sand lined absorption fields when groundwater is susceptible to wastewater contamination.

Limitation – Sand lined absorption fields shall not be installed when:

- a. Slopes are greater than 15%,
- b. High groundwater, bedrock, or other limiting layer is within sixty-six (66) inches of the ground surface.

Design – Sand lined absorption fields shall meet all the following design requirements:

- a. Trenches shall be excavated to a depth to provide for the placement of a minimum of eighteen (18) inches of washed fine to medium sand (ASTM C-33 concrete sand with less than 4% passing the 100 sieve) on the bottom of the excavation,
- b. Trenches shall be excavated to a width of fiftyfour (54) inches. Sand, as specified above, shall line the side-walls of the trench to twelve (12) inches above the top of the fill sand. These sand side-walls shall be fifteen (15) inches thick at the base and nine (9) inches thick at the top. This will give a 2 to 1 slope on the side-wall.
- c. The sand shall be lined with a porous plastic filter fabric upon which the drainrock shall be placed,
- d. The minimum required absorption area shall be determined by the typical percolation rate of fine sand.

Cut Systems

This system may be utilized when the natural slope of the site is within 15% to 25%. The upper soil layers may be removed to modify the slope of the site.

Limitation –

- a. Cut systems shall not be installed when natural slopes are greater than 25%,
- b. The limitations of the particular absorption system proposed to be installed I the cut area shall apply.

Design –

- a. Cut areas shall be physically completed for both the absorption field and the 100% replacement area prior to approval,
- b. The slope across the absorption field site shall be uniform slope of less than 5%,
- c. The design requirements of the particular absorption system proposed to be installed in the cut area shall apply.

Dosed System

Dosing an absorption system more equally distributes effluent throughout the system. Dosed systems have been shown to lengthen the "life" of an absorption system and are encouraged for all systems. Dosed systems have also been shown to increase the biological treatment of effluent in the absorption system. For this reason, the department may require this system in marginal site conditions. Dosing shall be required when the

required absorption area is between 1,000 to 1,500 square feet unless the alternating absorption field is used.

Limitation –

- a. Dosed absorption systems shall not be installed when the absorption area required is greater than 1,500 square feet,
- b. The limitations of the particular absorption system proposed to be dosed shall apply.

Design – The design requirements of the particular absorption system proposed to be dosed shall have the following apply:

- a. The effluent leaving the septic tank shall empty into a water-tight, reinforced concrete dose chamber. The dose chamber shall be sized so that there is, at minimum, enough capacity between the level at which the pump turns on and the high level alarm to store $\frac{1}{2}$ the estimated volume of wastewater produced per day,
- b. Access to the dose chamber shall not be located more than eight (8) inches below the finished grade of the ground surface,
- c. Dosing shall be accomplished by either pumps or siphons. The specifications of the dosing mechanism shall be submitted,
- d. If the dosing mechanism is a pump, the pump shall be explosion proof or the pump must remain submersed at all times
- e. If the dosing mechanism is a pump, an audio and/or visual high level alarm must be installed in the dose chamber,
- f. If the dosing mechanism is a siphon, a cycle counter must be installed in the dose chamber,
- g. All wiring inside the dose chamber shall be protected from corrosive sewer gases,
- h. The volume of each dose is dependent on the soil type in which the absorption field will be installed. The dose volume shall be calculated using the equation $DV = GDP / DPD$ is the dose volume in gallons, GDP is the estimated volume of wastewater produced per day in gallons, and DPD is the number of doses per day. (see Table 1)

Table 1

Dosing Requirements

Soils Percolation Rate (min/inch)	Number of Doses/Day
3 to 10	3
11 to 25	2
26 to 60	1

- i. The absorption trenches may be thirty-six (36) inches wide,
- j. the distribution lines shall be laid level.

Operation – Dosing frequency shall periodically be checked and recorded by the owner.
An annual inspection of the pumping chamber is recommended.

Sloped absorption fields

This type of system shall include any absorption system proposed to be installed on natural slopes between 14% to 25%.

Limitations –

- a. The limitations of the particular absorption system proposed to be installed on a slope of between 15% to 25% shall apply,
- b. Sloped absorption fields shall not be permitted if the design report indicates the site is not suitable.

Design – The design requirements of the particular absorption system proposed to be installed on a slope of between 15% to 25% shall apply. In addition to this, a report from a qualified individual shall be prepared and submitted to the department. The report shall include, but not be limited to,:

- a. The qualifications (academics background, experience, etc..) of the individual,
- b. The possibility of slope failure due to additional fluid entering the soil calculated in terms of a factor of safety,
- c. Information on slope failures that have occurred in or near the area if available,
- d. The possibility of effluent surfacing based on expected hydraulic loading, the soil profile, the ground slope and any other pertinent information,
- e. The distance(s) to, classification(s) of, and characteristic(s) of the nearest receive water(s) that may receive flow if the effluent surfaces,
- f. Direction of ground water flow beneath the proposed absorption system,
- g. The distance to property lines, escarpments, and springs, streams, wells, ponds, or other hydrologic features located within a 500 foot radius of the proposed absorption system that may be influenced by the effluent,
- h. The performance of any absorption systems in the operating area.

Alternating absorption fields

This system consists of dividing the absorption field into two separate fields to allow alternate use of individual fields. The “resting” of the fields allows the clogging mat to biodegrade and can extend the life of the absorption system. This type of system is useful in soils with slow percolation rates.

Limitations – Alternating absorption fields shall not be installed when:

- a. Soils have a percolation rate less than five (5) min/inch or greater than ninety (90) min/inch,
- b. Slopes are greater than 15%,
- c. Bedrock or any other limiting layer is within sixty-six (66) inches of the ground surface,
- d. High groundwater is within ninety (90) inches of the ground surface,

- e. Absorption area required is greater than 1,500 square feet.

Design – Alternating absorption fields shall meet all the following design requirements:

- a. Alternating absorption fields shall consist of two absorption fields containing equal absorption area. Each field shall contain 75% to 100% of the total required area for a single field depending on the soil types.
- b. Alternating from one field to another shall be accomplished with the use of a diversion valve.
- c. Separation from high groundwater shall be seventy-two (72) inches.
- d. A 100% replacement area will still be required unless this is waived by the department.

**Operation – A record of absorption field alternation shall be kept by the owner.
Alternation shall be on an annual basis.**

APPENDIX F

TIMBER CUTTING POLICY

CY90
NORTHERN CHEYENNE TRIBE
TIMBER POLICY STATEMENT

A. GENERAL RULES AND REGULATIONS CONCERNING ALL TIMBER CUTTING COVERED BY PERMIT.

1. All permits will be issued in accordance with applicable regulations of 25 CFR 163 Subchapter H, Forestry and instructions of 53 BLAM, Supplement 3 and Supplement 4. In case of conflict of any part of this Policy Statement with the above regulations, the above regulations shall govern.
2. All individuals or organizations qualifying for timber cutting permits are required to obtain the appropriate approved permits prior to utilizing any forest products.
3. All regulations on the permit form and any additional requirements issued by the forest officer will be followed at all times by the permittee.
4. The permittee is defined as the holder of a permit and any individual employed by the permittee.
5. Each permit shall have an ending date and permit number for accounting purposes. The requirements of a permit must be completed to the satisfaction of the issuing officer before another permit can be issued to the permittee.
6. Permits are subject to closure due to road conditions and fire danger as determined by the Superintendent.
7. If the permittee damages any roads, bridges, culverts, ditches, fences, or other improvements in the permit area, or used as access to the permit area he/she will repair them to their original condition to the satisfaction of the Superintendent.
8. The permit area will be kept clear of all litter and garbage.
9. Free Use Permits can be obtained at Northern Cheyenne Tribal Forestry or the BIA, Branch of Forestry. All paid permits will be issued by the BIA, Branch of Forestry.
10. Permits shall not be transferrable from the Permittee to another individual without official approval.
11. Timber to be cut under permits shall be marked or designated in such manner to insure cutting under sound forest management practices, and will normally be confined to salvage of damaged or dead timber and thinning of overstocked stands, to the greatest possible extent.

12. No permit shall be issued for the cutting of timber in a designated recreation area, ceremonial grounds, or other similar location unless approved by the Superintendent.

13. All policies and values contained in this document shall remain in effect until modified by the Tribal Council.

14. The Bureau of Indian Affairs, and Northern Cheyenne Tribe will not be liable for any actions by the Permittee while operating under a permit. When operating under a permit where the area is not designated by the Superintendent, the permittee will be responsible to recognize land ownership boundaries.

15. Felled material and debris shall be removed from all roadways.

16. The holder of any permit must have the permit in his possession at all times when cutting or hauling permit material.

17. The following people may revoke a timber cutting permit for any violation: Bureau of Indian Affairs Law and Order Officers, Bureau of Indian Affairs Criminal Officer, Bureau of Indian Affairs Forestry Personnel, or Tribal Forestry Personnel.

18. All slash will be lopped to within 24 inches of the ground.

19. All individuals found in violation of the permit policies will have all forest products in their possession confiscated.

B. FREE USE PERMITS

1. Free Use Permits May be Issued to:

- a. Enrolled adult members of the Northern Cheyenne Tribe
- b. Spouses of enrolled adult members of the Northern Cheyenne Tribe
- c. Legal guardians or foster parents of minors enrolled in the Northern Cheyenne Tribe.
- d. Reservation, educational, and missionary groups where use of the timber will benefit the Reservation and members of the Tribe.

2. Timber cut under this authority shall be for the permittees own use and shall not be sold or exchanged for other goods or services.

3. The volume of timber cut under free use permits in any one calendar year by any individual shall not exceed 10,000 board feet measures or its equivalent volume in other forest products (i.e. 20 cords of firewood).

4. If a permittee shall refuse to comply with the permit regulations and thereby cause damage to the Reservation forests, the Permittee shall be required to pay for the timber cut under the

free use permit at the current schedule paid for like timber.

5. In lieu of B.3 above, individuals authorized under B.1 may receive a one time free use permit for 20,000 board feet of timber for the sole purpose of building a home. Individuals will be required to prove that all timber cut under this permit is utilized only for that individual's or family home building.

C. PAID PERMITS

1. All individuals who do not qualify under B.1 above are required to obtain a paid permit or contract for the harvest of any forest products.

2. All forest products harvested for commercial sale require a paid permit or contract.

3. The stumpage value, for paid permits, which may be cut in any one year by an individual shall not exceed \$10,000.00 or the maximum value as delegated to the Northern Cheyenne Agency Superintendent.

4. Stumpage payments will be made in advance of the approval of all permits.

5. The President of the Tribal Council of the Northern Cheyenne Tribe is authorized and directed to execute all properly drawn permits in excess of \$500.00 for the sale of forest products issued in accordance with the policies herein for and on behalf of the Northern Cheyenne Tribal Council.

6. Permits for less than \$500.00 may be issued by BIA Forestry on behalf of the Northern Cheyenne Tribal Council.

7. Permits for allotted lands must be approved by a majority ownership of the Allotment(s).

8. The Approving Officer may modify or extend the permit in writing upon request of the permittee, on or before the completion date shown on the permit, if it is in the Tribe's best interest.

9. A \$10.00 minimum is required for all fuelwood permits.

10. All non-members paid permits for firewood will require truck tickets for hauling. Except for commercial fuelwood operators, Fridays and Saturdays will be the only hauling days.

D. STUMPAGE RATES

1. PONDEROSA PINE SAWLOGS

a. Standing Green The current average contract price in effect. If no

contract is effective then rates will be set by accepted bidding procedures with a \$12.50/MBF minimum rate.

- b. Other than Standing Green . . . Negotiated rate with \$6/MBF minimum rate.

PULPWOOD

- a. Rates shall be negotiated.

3. Fuel Wood (Dead Ponderosa Pine Only) \$3.00/cord
4. Fence Posts Maximum length 8'6" \$.10/post
5. Corral Poles 8'7" to 20' in length \$.25/pole
6. House Logs Current per MBF rate in effect.
7. Christmas Trees \$1.00/tree

E. Ordinance No. 6(71), Litter Law, shall apply to A (8), and section 17, Trespass, of the Northern Cheyenne Law & Order Code, shall apply, where applicable, to B.1(b), (c), and (d).

F. Ordinance No. 24(83), Northern Cheyenne Cultural Resource Protection Ordinance shall apply.

Environmental Justice

Guidance Under the National Environmental Policy Act



Council on Environmental Quality

Front cover photograph of John Heinz National Wildlife Refuge at Tinicum
by John and Karen Hollingsworth

Front cover photograph of school bus and children by Sam Kittner.

ENVIRONMENTAL JUSTICE

Guidance Under the National Environmental Policy Act



**Council on Environmental Quality
Executive Office of the President
Old Executive Office Building, Room 360
Washington, D.C. 20502
(202)395-5750
<http://www.whitehouse.gov/CEQ/>
December 10, 1997**

Table of Contents

I. Introduction	1
II. Executive Order 12898 and the Presidential Memorandum	3
III. Executive Order 12898 and NEPA	7
<i>A. NEPA Generally</i>	7
<i>B. Principles for Considering Environmental Justice under NEPA</i>	8
1. General Principles	8
2. Additional Considerations	9
<i>C. Considering Environmental Justice in Specific Phases of the NEPA Process</i>	10
1. Scoping	10
2. Public Participation	13
3. Determining the Affected Environment	14
4. Analysis	14
5. Alternatives	15
6. Record of Decision	15
7. Mitigation	16
<i>D. Where No EIS or EA is Prepared</i>	16
IV. Regulatory Changes	19
V. Effect of this Guidance	21
Appendix: Guidance for Agencies on Key Terms in Executive Order 12898	23

I.

Introduction

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,"¹ provides that "each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations." The Executive Order makes clear that its provisions apply fully to programs involving Native Americans.

In the memorandum to heads of departments and agencies that accompanied Executive Order 12898, the President specifically recognized the importance of procedures under the National Environmental Policy Act (NEPA)² for identifying and addressing environmental justice concerns. The memorandum states that "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by [NEPA]." The memorandum particularly emphasizes the importance of NEPA's public participation process, directing that "each Federal agency shall provide opportunities for community input in the NEPA process." Agencies are further directed to "identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices."

The Council on Environmental Quality (CEQ) has oversight of the Federal government's compliance with Executive Order 12898 and NEPA.³ CEQ, in consultation with EPA and other affected agencies, has developed this guidance to further assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed. To the extent practicable and permitted by law, agencies may supplement this guidance with more specific procedures tailored to particular programs or activities of an individual department, agency, or office.

¹ 59 Fed. Reg. 7629 (1994).

² 42 U.S.C. §4321 *et seq.*

³ Certain oversight functions in the Executive Order are delegated to the Deputy Assistant to the President for Environmental Policy. Following the merger of the White House Office on Environmental Policy with CEQ, the Chair of CEQ assumed those functions. The Environmental Protection Agency (EPA) has lead responsibility for implementation of the Executive Order as Chair of the Interagency Working Group (IWG) on Environmental Justice.

II.

Executive Order 12898 and the Presidential Memorandum

In addition to the general directive in Executive Order 12898 that each agency identify and address, as appropriate, "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations,"⁴ there are several provisions of the Executive Order and a number of supporting documents to which agencies should refer when identifying and addressing environmental justice concerns in the NEPA process.

First, the Executive Order itself contains particular emphasis on four issues that are pertinent to the NEPA process:

- The Executive Order requires the development of agency-specific environmental justice strategies.⁵ Thus, agencies have developed and should periodically revise their strategies providing guidance concerning the types of programs, policies, and activities that may, or historically have, raised environmental justice concerns at the particular agency. These guidances may suggest possible approaches to addressing such concerns in the agency's NEPA analyses, as appropriate.
- The Executive Order recognizes the importance of research, data collection, and analysis, particularly with respect to multiple and cumulative exposures to environmental hazards for low-income populations, minority populations, and Indian tribes.⁶ Thus, data on these exposure issues should be incorporated into NEPA analyses as appropriate.⁷
- The Executive Order provides for agencies to collect, maintain, and analyze information on patterns of subsistence consumption of fish, vegetation, or wildlife.⁸ Where an agency action may affect fish, vegetation, or wildlife, that agency action may

⁴ Executive Order No. 12898, 59 Fed. Reg. at 7630 (Section 1-101).

⁵ *Id.* at 7630 (Section 1-103).

⁶ *Id.* at 7631 (Section 3-3).

⁷ For further information on considering cumulative effects, see Considering Cumulative Effects Under The National Environmental Policy Act (Council on Environmental Quality, Executive Office of the President, Jan. 1997)

⁸ *Id.* at 7631 (Section 4-401).

also affect subsistence patterns of consumption and indicate the potential for disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, and Indian tribes.

- The Executive Order requires agencies to work to ensure effective public participation and access to information.⁹ Thus, within its NEPA process and through other appropriate mechanisms, each Federal agency shall, "wherever practicable and appropriate, translate crucial public documents, notices and hearings, relating to human health or the environment for limited English speaking populations." In addition, each agency should work to "ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public."¹⁰

Second, the memorandum accompanying the Executive Order identifies four important ways to consider environmental justice under NEPA.

- Each Federal agency should analyze the environmental effects, including human health, economic, and social effects of Federal actions, including effects on minority populations, low-income populations, and Indian tribes, when such analysis is required by NEPA.¹¹

- Mitigation measures identified as part of an environmental assessment (EA), a finding of no significant impact (FONSI), an environmental impact statement (EIS), or a record of decision (ROD), should, whenever feasible, address significant and adverse environmental effects of proposed federal actions on minority populations, low-income populations, and Indian tribes.¹²

- Each Federal agency must provide opportunities for effective community participation in the NEPA process, including identifying potential effects and mitigation measures in consultation with affected communities and improving the accessibility of public meetings, crucial documents, and notices.¹³

- Review of NEPA compliance (such as EPA's review under § 309 of the Clean Air Act)

⁹ *Id.* at 7632 (Section 5-5).

¹⁰ *Id.* at 7632 (Section 5-5).

¹¹ Memorandum from the President to the Heads of Departments and Agencies. Comprehensive Presidential Documents No. 279. (Feb. 11, 1994).

¹² *Id.*

¹³ *Id.*

must ensure that the lead agency preparing NEPA analyses and documentation has appropriately analyzed environmental effects on minority populations, low-income populations, or Indian tribes, including human health, social, and economic effects.¹⁴

Third, the Interagency Working Group (IWG), established by the Executive Order to implement the order's requirements, has developed guidance on key terms in the Executive Order. The guidance, reproduced as Appendix A, reflects a general consensus based on Federal agencies' experience and understanding of the issues presented. Agencies should apply the guidance with flexibility, and may consider its terms a point of departure rather than conclusive direction in applying the terms of the Executive Order.

¹⁴ *Id.*

III.

Executive Order 12898 and NEPA

A. *NEPA Generally*

NEPA's fundamental policy is to "encourage productive and enjoyable harmony between man and his environment."¹⁵ In the statute, Congress "recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment."¹⁶ The following goals, set forth in NEPA, make clear that attainment of environmental justice is wholly consistent with the purposes and policies of NEPA¹⁷:

- to "assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings"¹⁸;
- to "attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences",¹⁹
- to "preserve important historic, cultural, and natural aspects of our natural heritage, and maintain, wherever possible, an environment which supports diversity and variety of individual choice"²⁰; and
- to "achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities."²¹

These goals are promoted through the requirement that all agencies of the Federal government shall include in every recommendation or report on proposals for legislation and other

¹⁵ 42 U.S.C. § 4321.

¹⁶ 42 U.S.C. § 4331(c).

¹⁷ 42 U.S.C. § 4331(b).

¹⁸ 42 U.S.C. § 4331(b)(2).

¹⁹ 42 U.S.C. § 4331(b)(3).

²⁰ 42 U.S.C. § 4331(b)(4).

²¹ 42 U.S.C. § 4331(b)(5).

major Federal actions significantly affecting the quality of the human environment, a "detailed statement by the responsible official" on: the environmental impacts of the proposed action; adverse environmental effects that cannot be avoided should the proposal be implemented; alternatives to the proposed action; the relationship between local, short-term uses of man's environment and long-term productivity; and any irreversible or irretrievable commitments of resources involved in the proposed action itself.²²

Preparation of an EA may precede preparation of an EIS, to determine whether a proposed action may "significantly affect" the quality of the human environment. The EA either will support a finding of no significant impact (FONSI), or will document the need for an EIS. Agency procedure at each step of this process should be guided by the agency's own NEPA regulations and by the CEQ regulations found at 40 C.F.R. Parts 1500-1508.

B. Principles for Considering Environmental Justice under NEPA

Environmental justice issues may arise at any step of the NEPA process and agencies should consider these issues at each and every step of the process, as appropriate. Environmental justice issues encompass a broad range of impacts covered by NEPA, including impacts on the natural or physical environment and interrelated social, cultural and economic effects.²³ In preparing an EIS or an EA, agencies must consider both impacts on the natural or physical environment and related social, cultural, and economic impacts.²⁴ Environmental justice concerns may arise from impacts on the natural and physical environment, such as human health or ecological impacts on minority populations, low-income populations, and Indian tribes, or from related social or economic impacts.

1. General Principles

Agencies should recognize that the question of whether agency action raises environmental justice issues is highly sensitive to the history or circumstances of a particular community or population, the particular type of environmental or human health impact, and the nature of the proposed action itself. There is not a standard formula for how environmental justice issues should be identified or addressed. However, the following six principles provide general guidance.

²² 42 U.S.C. § 4332(c).

²³ The CEQ implementing regulations define "effects" or "impacts" to include "ecological...aesthetic, historic, cultural, economic, social or health, whether direct, indirect or cumulative." 40 C.F.R. 1508.8.

²⁴ 40 C.F.R. 1508.14.

-
-
- Agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present in the area affected by the proposed action, and if so whether there may be disproportionately high and adverse human health or environmental effects on minority populations, low-income populations, or Indian tribes.
 - Agencies should consider relevant public health data and industry data concerning the potential for multiple or cumulative exposure to human health or environmental hazards in the affected population and historical patterns of exposure to environmental hazards, to the extent such information is reasonably available. For example, data may suggest there are disproportionately high and adverse human health or environmental effects on a minority population, low-income population, or Indian tribe from the agency action. Agencies should consider these multiple, or cumulative effects, even if certain effects are not within the control or subject to the discretion of the agency proposing the action.
 - Agencies should recognize the interrelated cultural, social, occupational, historical, or economic factors that may amplify the natural and physical environmental effects of the proposed agency action. These factors should include the physical sensitivity of the community or population to particular impacts; the effect of any disruption on the community structure associated with the proposed action; and the nature and degree of impact on the physical and social structure of the community.
 - Agencies should develop effective public participation strategies. Agencies should, as appropriate, acknowledge and seek to overcome linguistic, cultural, institutional, geographic, and other barriers to meaningful participation, and should incorporate active outreach to affected groups.
 - Agencies should assure meaningful community representation in the process. Agencies should be aware of the diverse constituencies within any particular community when they seek community representation and should endeavor to have complete representation of the community as a whole. Agencies also should be aware that community participation must occur as early as possible if it is to be meaningful.
 - Agencies should seek tribal representation in the process in a manner that is consistent with the government-to-government relationship between the United States and tribal governments, the federal government's trust responsibility to federally-recognized tribes, and any treaty rights.

2. Additional Considerations

The preceding principles must be applied in light of these further considerations that are

pertinent to any analysis of environmental justice under NEPA.

- The Executive Order does not change the prevailing legal thresholds and statutory interpretations under NEPA and existing case law. For example, for an EIS to be required, there must be a sufficient impact on the physical or natural environment to be "significant" within the meaning of NEPA. Agency consideration of impacts on low-income populations, minority populations, or Indian tribes may lead to the identification of disproportionately high and adverse human health or environmental effects that are significant and that otherwise would be overlooked.²⁵
- Under NEPA, the identification of a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe does not preclude a proposed agency action from going forward, nor does it necessarily compel a conclusion that a proposed action is environmentally unsatisfactory. Rather, the identification of such an effect should heighten agency attention to alternatives (including alternative sites), mitigation strategies, monitoring needs, and preferences expressed by the affected community or population.
- Neither the Executive Order nor this guidance prescribes any specific format for examining environmental justice, such as designating a specific chapter or section in an EIS or EA on environmental justice issues. Agencies should integrate analyses of environmental justice concerns in an appropriate manner so as to be clear, concise, and comprehensible within the general format suggested by 40 C.F.R. § 1502.10.

C. Considering Environmental Justice in Specific Phases of the NEPA Process

While appropriate consideration of environmental justice issues is highly dependent upon the particular facts and circumstances of the proposed action, the affected environment, and the affected populations, there are opportunities and strategies that are useful at particular stages of the NEPA process.

1. Scoping

During the scoping process, an agency should preliminarily determine whether

²⁵ Title VI of the Civil Rights Act of 1964, U.S.C. 2000d *et seq.*, and agency implementing regulations, prohibit recipients of federal financial assistance from taking actions that discriminate on the basis of race, sex, color, national origin, or religion. If an agency is aware that a recipient of federal funds may be taking action that is causing a racially discriminatory impact, the agency should consider using Title VI as a means to prevent or eliminate that discrimination.

an area potentially affected by a proposed agency action may include low-income populations, minority populations, or Indian tribes, and seek input accordingly. When the scoping process is used to develop an EIS or EA, an agency should seek input from low income populations, minority populations, or Indian tribes as early in the process as information becomes available.²⁶ Any such determination, as well as the basis for the determination, should be more substantively addressed in the appropriate NEPA documents and communicated as appropriate during the NEPA process.

If an agency identifies any potentially affected minority populations, low-income populations, or Indian tribes, the agency should develop a strategy for effective public involvement in the agency's determination of the scope of the NEPA analysis. Customary agency practices for notifying the public of a proposed action and subsequent scoping and public events may be enhanced through better use of local resources, community and other nongovernmental organizations, and locally targeted media.

Agencies should consider enhancing their outreach through the following means:

- | | |
|---|---|
| • Religious organizations (e.g., churches, temples, ministerial associations); | • Rural cooperatives; |
| • Newspapers, radio and other media, particularly media targeted to low-income populations, minority populations, or Indian tribes; | • Business and trade organizations; |
| • Civic associations; | • Community and social service organizations; |
| • Minority business associations; | • Universities, colleges, vocational and other schools; |
| • Environmental and environmental justice organizations; | • Labor organizations; |
| • Legal aid providers; | • Civil rights organizations; |
| • Homeowners', tenants', and neighborhood watch groups; | • Local schools and libraries; |
| • Federal, state, local, and tribal governments; | • Senior citizens' groups; |
| | • Public health agencies and clinics; and |
| | • The Internet and other electronic media . |

²⁶ For more information on scoping, see Memorandum from Nicolas C. Yost, Scoping Guidance (Council on Environmental Quality, Executive Office of the President, April 30, 1981).

The participation of diverse groups in the scoping process is necessary for full consideration of the potential environmental impacts of a proposed agency action and any alternatives. By discussing and informing the public of the emerging issues related to the proposed action, agencies may reduce misunderstandings, build cooperative working relationships, educate the public and decisionmakers, and avoid potential conflicts. Agencies should recognize that the identity of the relevant "public" may evolve during the process and may include different constituencies or groups of individuals at different stages of the NEPA process. This may also be the appropriate juncture to begin government-to-government consultation with affected Indian tribes and to seek their participation as cooperating agencies. For this participation to be meaningful, the public should have access to enough information so that it is well informed and can provide constructive input.

The following information may help inform the public during the scoping process:

- A description of the proposed action;
- An outline of the anticipated schedule for completing the NEPA process, with key milestones;
- An initial list of alternatives (including alternative sites, if possible) and potential impacts;
- An initial list of other existing or proposed actions, Federal and non-Federal, that may have cumulative impacts;
- Maps, drawings, and any other appropriate material or references;
- An agency point of contact;
- Timely notice of locations where comments will be received or public meetings held;
- Any telephone number or locations where further information can be obtained;
- Examples of past public comments on similar agency actions.

Thorough scoping is the foundation for the analytical process and provides an early opportunity for the public to participate in the design of alternatives for achieving the goals and objectives of the proposed agency action.

2. Public Participation

Early and meaningful public participation in the federal agency decision making process is a paramount goal of NEPA. CEQ's regulations require agencies to make diligent efforts to involve the public throughout the NEPA process. Participation of low-income populations, minority populations, or tribal populations may require adaptive or innovative approaches to overcome linguistic, institutional, cultural, economic, historical, or other potential barriers to effective participation in the decision-making processes of Federal agencies under customary NEPA procedures. These barriers may range from agency failure to provide translation of documents to the scheduling of meetings at times and in places that are not convenient to working families.

The following steps may be considered, as appropriate, in developing an innovative strategy for effective public participation:

- Coordination with individuals, institutions, or organizations in the affected community to educate the public about potential health and environmental impacts and enhance public involvement;
- Translation of major documents (or summaries thereof), provision of translators at meetings, or other efforts as appropriate to ensure that limited-English speakers potentially affected by a proposed action have an understanding of the proposed action and its potential impacts;
- Provision of opportunities for limited-English speaking members of the affected public to provide comments throughout the NEPA process;
- Provision of opportunities for public participation through means other than written communication, such as personal interviews or use of audio or video recording devices to capture oral comments;
- Use of periodic newsletters or summaries to provide updates on the NEPA process to keep the public informed;
- Use of different meeting sizes or formats, or variation on the type and number of media used, so that communications are tailored to the particular community or population;
- Circulation or creation of specialized materials that reflect the concerns and sensitivities of particular populations such as information about risks specific to subsistence consumers of fish, vegetation, or wildlife;
- Use of locations and facilities that are local, convenient, and accessible to the disabled, low-income and minority communities, and Indian tribes; and
- Assistance to hearing-impaired or sight-impaired individuals.

3. Determining the Affected Environment

In order to determine whether a proposed action is likely to have disproportionately high and adverse human health or environmental effects on low-income populations, minority populations, or Indian tribes, agencies should identify a geographic scale for which they will obtain demographic information on the potential impact area. Agencies may use demographic data available from the Bureau of the Census (BOC) to identify the composition of the potentially affected population. Geographic distribution by race, ethnicity, and income, as well as a delineation of tribal lands and resources, should be examined. Census data are available in published formats, and on CD-ROM available through the BOC. This data also is available from a number of local, college, and university libraries, and the World Wide Web. Agencies may also find that Federal, tribal, state and local health, environmental, and economic agencies have useful demographic information and studies, such as the Landview II system, which is used by the BOC to assist in utilizing data from a geographic information system (GIS). Landview II has proven to be a low-cost, readily available means of graphically accessing environmental justice data. These approaches already should be incorporated into current NEPA compliance.

Agencies should recognize that the impacts within minority populations, low-income populations, or Indian tribes may be different from impacts on the general population due to a community's distinct cultural practices. For example, data on different patterns of living, such as subsistence fish, vegetation, or wildlife consumption and the use of well water in rural communities may be relevant to the analysis. Where a proposed agency action would not cause any adverse environmental impacts, and therefore would not cause any disproportionately high and adverse human health or environmental impacts, specific demographic analysis may not be warranted. Where environments of Indian tribes may be affected, agencies must consider pertinent treaty, statutory, or executive order rights and consult with tribal governments in a manner consistent with the government-to-government relationship.

4. Analysis

When a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe has been identified, agencies should analyze how environmental and health effects are distributed within the affected community. Displaying available data spatially, through a GIS, can provide the agency and the public with an effective visualization of the distribution of health and environmental impacts among demographic populations. This type of data should be analyzed in light of any additional qualitative or quantitative information gathered through the public participation process.

Where a potential environmental justice issue has been identified by an agency, the agency should state clearly in the EIS or EA whether, in light of all of the facts and circumstances, a disproportionately high and adverse human health or environmental impact on minority populations, low-income populations, or Indian tribe is likely to result from the proposed action and any alternatives. This statement should be supported by sufficient information for the public to understand the rationale for the conclusion. The underlying analysis should be presented as concisely as possible, using language that is understandable to the public and that minimizes use of acronyms or jargon.

5. Alternatives

Agencies should encourage the members of the communities that may suffer a disproportionately high and adverse human health or environmental effect from a proposed agency action to help develop and comment on possible alternatives to the proposed agency action as early as possible in the process.

Where an EIS is prepared, CEQ regulations require agencies to identify an environmentally preferable alternative in the record of decision (ROD).²⁷ When the agency has identified a disproportionately high and adverse human health or environmental effect on low-income populations, minority populations, or Indian tribes from either the proposed action or alternatives, the distribution as well as the magnitude of the disproportionate impacts in these communities should be a factor in determining the environmentally preferable alternative. In weighing this factor, the agency should consider the views it has received from the affected communities, and the magnitude of environmental impacts associated with alternatives that have a less disproportionate and adverse effect on low-income populations, minority populations, or Indian tribes.

6. Record of Decision

When an agency reaches a decision on an action for which an EIS was prepared, a public record of decision (ROD) must be prepared that provides information on the alternatives considered and the factors weighed in the decision-making process. Disproportionately high and adverse human health or environmental effects on a low-income population, minority population, or Indian tribe should be among those factors explicitly discussed in the ROD, and should also be addressed in any discussion of whether all practicable means to avoid or minimize environmental and other interrelated effects were adopted. Where relevant, the agency should discuss how these issues are addressed

²⁷ 40 C.F.R. § 1505.2(b)

in any monitoring and enforcement program summarized in the ROD.²⁸

Dissemination of the information in the ROD may provide an effective means to inform the public of the extent to which environmental justice concerns were considered in the decision-making process, and where appropriate, whether the agency intends to mitigate any disproportionately high and adverse human health or environmental effects within the constraints of NEPA and other existing laws. In addition to translating crucial portions of the EIS where appropriate, agencies should provide translation, where practicable and appropriate, of the ROD in non-technical, plain language for limited-English speakers. Agencies should also consider translating documents into languages other than English where appropriate and practical.

7. Mitigation

Mitigation measures include steps to avoid, mitigate, minimize, rectify, reduce, or eliminate the impact associated with a proposed agency action.²⁹ Throughout the process of public participation, agencies should elicit the views of the affected populations on measures to mitigate a disproportionately high and adverse human health or environmental effect on a low-income population, minority population, or Indian tribe and should carefully consider community views in developing and implementing mitigation strategies. Mitigation measures identified in an EIS or developed as part of a FONSI should reflect the needs and preferences of affected low-income populations, minority populations, or Indian tribes to the extent practicable.

D. Where no EIS or EA is prepared

There are certain circumstances in which the policies of NEPA apply, and a disproportionately high and adverse human health or environmental impact on low-income populations, minority populations, or Indian tribes may exist, but where the specific statutory requirement to prepare an EIS or EA does not apply. These circumstances may arise because of an exemption from the requirement, a categorical exclusion of specific activities by regulation, or a claim by an agency that another environmental statute establishes the “functional equivalent” of an EIS or EA. For example, neither an EIS nor an EA is prepared for certain hazardous waste facility permits.

In circumstances in which an EIS or EA will not be prepared and a disproportionately high and adverse human health or environmental impact on low-income

²⁸ See 40 C.F.R. § 1505.2(c).

²⁹ See 40 C.F.R. § 1508.20.

populations, minority populations, or Indian tribes may exist, agencies should augment their procedures as appropriate to ensure that the otherwise applicable process or procedure for a federal action addresses environmental justice concerns. Agencies should ensure that the goals for public participation outlined in this guidance are satisfied to the fullest extent possible. Agencies also should fully develop and consider alternatives to the proposed action whenever possible, as would be required by NEPA.

IV.

Regulatory Changes

Consistent with the obligation of all agencies to promote consideration of environmental justice under NEPA and in all of their programs and activities, agencies that promulgate or revise regulations, policies, and guidances under NEPA or under any other statutory scheme should consult with CEQ and EPA to ensure that the principles and approaches presented in this guidance are fully incorporated into any new or revised regulations, policies, and guidances.

V.

Effect of this Guidance

Agencies should apply, and comply with, this guidance prospectively. If an agency has made substantial investments in NEPA compliance, or public participation with respect to a particular agency action, prior to issuance of this guidance, the agency should ensure that application of this guidance does not result in additional delays or costs of compliance.

This guidance is intended to improve the internal management of the Executive Branch with respect to environmental justice under NEPA. The guidance interprets NEPA as implemented through the CEQ regulations in light of Executive Order 12898. It does not create any rights, benefits, or trust obligations, either substantive or procedural, enforceable by any person, or entity in any court against the United States, its agencies, its officers, or any other person.

APPENDIX A

GUIDANCE FOR FEDERAL AGENCIES ON KEY TERMS IN EXECUTIVE ORDER 12898

INTRODUCTION

Pursuant to Executive Order 12898 on Environmental Justice, Federal agencies are to make the achievement of environmental justice part of their mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations, low-income populations, and Indian tribes and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, and enforcement of Federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin, or income. To that end, set forth below is guidance for Federal agencies on key terms contained in Executive Order 12898.

This guidance is intended only to improve the internal management of the Executive Branch. It shall not be deemed to create any right, benefit, or trust obligation, either substantive or procedural, enforceable by any person, or entity in any court against the United States, its agencies, its officers, or any other person. Consequently, neither this Guidance nor the deliberative processes or products resulting from the implementation of this Guidance shall be treated as establishing standards or criteria that constitute any basis for review of the actions of the Executive Branch. Compliance with this Guidance shall not be justiciable in any proceeding for judicial review of Agency action.

TEXT OF EXECUTIVE ORDER 12898,
"FEDERAL ACTIONS TO ADDRESS ENVIRONMENTAL JUSTICE IN
MINORITY POPULATIONS AND LOW-INCOME POPULATIONS,"
ANNOTATED
WITH PROPOSED GUIDANCE ON TERMS IN THE EXECUTIVE ORDER³⁰

Section 1-1. IMPLEMENTATION.

1-101. *Agency Responsibilities.* To the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review, each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories and possessions, the District of Columbia, the Commonwealth of Puerto Rico, and the Commonwealth of the Marianas Islands.

Low-income population: Low-income populations in an affected area should be identified with the annual statistical poverty thresholds from the Bureau of the Census' Current Population Reports, Series P-60 on Income and Poverty. In identifying low-income populations, agencies may consider as a community either a group of individuals living in geographic proximity to one another, or a set of individuals (such as migrant workers or Native Americans), where either type of group experiences common conditions of environmental exposure or effect.

Minority: Individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic.

Minority population: Minority populations should be identified where either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis. In identifying minority communities, agencies may consider as a community either a group of individuals living in

³⁰ Executive Order provisions are in standard font. Guidance is in **bold** font.

geographic proximity to one another, or a geographically dispersed/transient set of individuals (such as migrant workers or Native American), where either type of group experiences common conditions of environmental exposure or effect. The selection of the appropriate unit of geographic analysis may be a governing body's jurisdiction, a neighborhood, census tract, or other similar unit that is to be chosen so as to not artificially dilute or inflate the affected minority population. A minority population also exists if there is more than one minority group present and the minority percentage, as calculated by aggregating all minority persons, meets one of the above-stated thresholds.

Disproportionately high and adverse human health effects: When determining whether human health effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:

- (a) Whether the health effects, which may be measured in risks and rates, are significant (as employed by NEPA), or above generally accepted norms. Adverse health effects may include bodily impairment, infirmity, illness, or death; and
- (b) Whether the risk or rate of hazard exposure by a minority population, low-income population, or Indian tribe to an environmental hazard is significant (as employed by NEPA) and appreciably exceeds or is likely to appreciably exceed the risk or rate to the general population or other appropriate comparison group; and
- (c) Whether health effects occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

Disproportionately high and adverse environmental effects: When determining whether environmental effects are disproportionately high and adverse, agencies are to consider the following three factors to the extent practicable:

- (a) Whether there is or will be an impact on the natural or physical environment that significantly (as employed by NEPA) and adversely affects a minority population, low-income population, or Indian tribe. Such effects may include ecological, cultural, human health, economic, or social impacts on minority communities, low-income communities, or Indian tribes when those impacts are interrelated to impacts on the natural or physical environment; and

(b) Whether environmental effects are significant (as employed by NEPA) and are or may be having an adverse impact on minority populations, low-income populations, or Indian tribes that appreciably exceeds or is likely to appreciably exceed those on the general population or other appropriate comparison group; and

(c) Whether the environmental effects occur or would occur in a minority population, low-income population, or Indian tribe affected by cumulative or multiple adverse exposures from environmental hazards.

1-102. Creation of an Interagency Working Group on Environmental Justice. (a) Within 3 months of the date of this order, the Administrator of the Environmental Protection Agency ("Administrator") or the Administrator's designee shall convene an interagency Federal Working Group on Environmental Justice ("Working Group"). The Working Group shall comprise the heads of the following executive agencies and offices, or their designees: (a) Department of Defense; (b) Department of Health and Human Services; (c) Department of Housing and Urban Development; (d) Department of Labor; (e) Department of Agriculture; (f) Department of Transportation; (g) Department of Justice; (h) Department of the Interior; (I) Department of Commerce; (j) Department of Energy; (k) Environmental Protection Agency; (l) Office of Management and Budget; (m) Office of Science and Technology Policy; (n) Office of the Deputy Assistant to the President for Environmental Policy; (o) Office of the Assistant to the President for Domestic Policy; (p) National Economic Council; (q) Council of Economic Advisers; and (r) such other Government officials as the President may designate. The Working Group shall report to the President through the Deputy Assistant to the President for Environmental Policy and the Assistant to the President for Domestic Policy.

(b) The Working Group shall:

(1) provide guidance to Federal agencies on criteria for identifying disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

(2) coordinate with, provide guidance to, and serve as a clearinghouse for, each Federal agency as it develops an environmental justice strategy as required by section 1-103 of this order, in order to ensure that the administration, interpretation and enforcement of programs, activities and policies are undertaken in a consistent manner;

(3) assist in coordinating research by, and stimulating cooperation among, the Environmental Protection Agency, the Department of Health and Human Services, the

Department of Housing and Urban Development, and other agencies conducting research or other activities in accordance with section 3-3 of this order;

- (4) assist in coordinating data collection, required by this order;
- (5) examine existing data and studies on environmental justice;
- (6) hold public meetings as required in section 5-502(d) of this order; and
- (7) develop interagency model projects on environmental justice that evidence cooperation among Federal agencies.

1-103. *Development of Agency Strategies.*

(a) Except as provided in section 6-605 of this order, each Federal agency shall develop an agency-wide environmental justice strategy, as set forth in subsections (b)-(e) of this section that identifies and addresses disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The environmental justice strategy shall list programs, policies, planning and public participation processes, enforcement, and/or rulemakings related to human health or the environment that should be revised to, at a minimum: (1) promote enforcement of all health and environmental statutes in areas with minority populations and low-income populations; (2) ensure greater public participation; (3) improve research and data collection relating to the health of and environment of minority populations and low-income populations; and (4) identify differential patterns of consumption of natural resources among minority populations and low-income populations. In addition, the environmental justice strategy shall include, where appropriate, a timetable for undertaking identified revisions and consideration of economic and social implications of the revisions.

Differential patterns of consumption of natural resources: The term "differential patterns of consumption of natural resources" relates to subsistence and differential patterns of subsistence, and means differences in rates and/or patterns of fish, water, vegetation and/or wildlife consumption among minority populations, low-income populations, or Indian tribes, as compared to the general population.

(b) Within 4 months of the date of this order, each Federal agency shall identify an internal administrative process for developing its environmental justice strategy, and shall inform this Working Group of the process.

(c) Within 6 months of the date of this order, each Federal agency shall provide the Working Group with an outline of its proposed environmental justice strategy.

(d) Within 10 months of the date of this order, each Federal agency shall provide the Working Group with its proposed environmental justice strategy.

(e) Within 12 months of the date of this order, each Federal agency shall finalize its environmental justice strategy and provide a copy and written description of its strategy to the Working Group. During the 12 month period from the date of this order, each Federal agency, as part of its environmental justice strategy, shall identify several specific projects that can be promptly undertaken to address particular concerns identified during the development of the proposed environmental justice strategy, and a schedule for implementing those projects.

(f) Within 24 months of the date of this order, each Federal agency shall report to the Working Group on its progress in implementing its agency-wide environmental justice strategy.

(g) Federal agencies shall provide additional periodic reports to the Working Group as requested by the Working Group.

1-104. *Reports to the President.* Within 14 months of the date of this order, the Working Group shall submit to the President, through the Office of the Deputy Assistant to the President for Environmental Policy and the Office of the Assistant to the President for Domestic Policy, a report that describes the implementation of this order, and includes the final environmental justice strategies described in section 1-103(e) of this order.

Sec. 2-2. FEDERAL AGENCY RESPONSIBILITIES FOR FEDERAL PROGRAMS.

Each Federal agency shall conduct its programs, policies, and activities that substantially affect human health or the environment, in a manner that ensures that such programs, policies, and activities do not have the effect of excluding persons (including populations) from participation in, denying persons (including populations) the benefits of, or subjecting persons (including populations) to discrimination under, such programs, policies, and activities, because of their race, color, or national origin.

Sec. 3-3. RESEARCH, DATA COLLECTION, AND ANALYSIS.

3-301. *Human Health and Environmental Research and Analysis.*

(a) Environmental human health research, whenever practicable and appropriate, shall include diverse segments of the population in epidemiological and clinical studies, including segments at high risk from environmental hazards, such as minority populations, low-income populations and workers who may be exposed to substantial environmental hazards.

Environmental hazard and substantial environmental hazard: For purposes of research, data collection, and analysis under Section 3-3 of the Executive Order, the term "environmental hazard" means a chemical, biological, physical or radiological agent, situation or source that has the potential for deleterious effects to the environment and/or human health. Among the factors that may be important in defining a substantial environmental hazard are: the likelihood, seriousness, and magnitude of the impact.

(b) Environmental human health analyses, whenever practical and appropriate, shall identify multiple and cumulative exposures.

Environmental Exposure: For purposes of research, data collection, and analysis under Section 3-3 of the Executive Order, the term "environmental exposure" means contact with a chemical (e.g., asbestos, radon), biological (e.g., Legionella), physical (e.g., noise), or radiological agent.

Multiple Environmental Exposure: For purposes of research, data collection, and analysis under Section 3-3 of the Executive Order, the term "multiple environmental exposure" means exposure to any combination of two or more chemical, biological, physical or radiological agents (or two or more agents from two or more of these categories) from single or multiple sources that have the potential for deleterious effects to the environment and/or human health.

Cumulative Environmental Exposure: For purposes of research, data collection, and analysis under Section 3-3 of the Executive Order, the term "cumulative environmental exposure" means exposure to one or more chemical, biological, physical, or radiological agents across environmental media (e.g., air, water, soil) from single or multiple sources, over time in one or more locations, that have the potential for deleterious effects to the environment and/or human health.

(c) Federal agencies shall provide minority populations and low-income populations the opportunity to comment on the development and design of research strategies undertaken pursuant to this order.

3-302. *Human Health and Environmental Data Collection and Analysis.* To the extent permitted by existing law, including the Privacy Act, as amended (5 U.S.C. § 552a):

(a) each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information assessing and comparing environmental and human health risks borne by populations identified by race, national origin, or income. To the extent practical and appropriate, Federal agencies shall use this information to determine whether their programs, policies, and activities have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations;

(b) In connection with the development and implementation of agency strategies in section 1-103 of this order, each Federal agency, whenever practicable and appropriate, shall collect, maintain and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding facilities or sites expected to have a substantial environmental, human health, or economic effect on the surrounding populations, when such facilities or sites become the subject of a substantial Federal environmental administrative or judicial action. Such information shall be made available to the public unless prohibited by law; and

Federal environmental administrative or judicial action includes any administrative enforcement action, civil enforcement action, or criminal enforcement action initiated by, or permitting or licensing determination undertaken by, a Federal agency to enforce or execute a Federal law intended, in whole or in part, to protect human health or the environment.

(c) Each Federal agency, whenever practicable and appropriate, shall collect, maintain, and analyze information on the race, national origin, income level, and other readily accessible and appropriate information for areas surrounding Federal facilities that are: (1) subject to the reporting requirements under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. section 11001-11050 as mandated in Executive Order No. 12856; and (2) expected to have a substantial environmental, human health, or economic effect on surrounding populations. Such information shall be made available to the public, unless prohibited by law.

(d) In carrying out the responsibilities in this section, each Federal agency, whenever practicable and appropriate, shall share information and eliminate unnecessary duplication of efforts through the use of existing data systems and cooperative agreements among Federal agencies and with State, local, and tribal governments.

Sec. 4-4. SUBSISTENCE CONSUMPTION OF FISH AND WILDLIFE.

4-401. *Consumption Patterns.* In order to assist in identifying the need for ensuring protection of populations with differential patterns of subsistence consumption of fish and wildlife, Federal agencies, whenever practicable and appropriate, shall collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. Federal agencies shall communicate to the public the risks of those consumption patterns.

Subsistence consumption of fish and wildlife: Dependence by a minority population, low-income population, Indian tribe or subgroup of such populations on indigenous fish, vegetation and/or wildlife, as the principal portion of their diet.

Differential patterns of subsistence consumption: Differences in rates and/or patterns of subsistence consumption by minority populations, low-income populations, and Indian tribes as compared to rates and patterns of consumption of the general population.

4-402. *Guidance.* Federal agencies, whenever practicable and appropriate, shall work in a coordinated manner to publish guidance reflecting the latest scientific information available concerning methods for evaluating the human health risks associated with the consumption of pollutant-bearing fish or wildlife. Agencies shall consider such guidance in developing their policies and rules.

Sec. 5-5. PUBLIC PARTICIPATION AND ACCESS TO INFORMATION.

(a) The public may submit recommendations to Federal agencies relating to the incorporation of environmental justice principles into Federal agency programs or policies. Each Federal agency shall convey such recommendations to the Working Group.

(b) Each Federal agency may, whenever practicable and appropriate, translate crucial public documents, notices, and hearings relating to human health or the environment for limited English speaking populations.

(c) Each Federal agency shall work to ensure that public documents, notices, and hearings relating to human health or the environment are concise, understandable, and readily accessible to the public.

(d) The Working Group shall hold public meetings, as appropriate, for the purpose of fact-finding, receiving public comments, and conducting inquiries concerning environmental justice. The Working Group shall prepare for public review a summary of the comments and recommendations discussed at the public meetings.

Sec. 6-6. GENERAL PROVISIONS.

6-601. *Responsibility for Agency Implementation.* The head of each Federal agency shall be responsible for ensuring compliance with this order. Each Federal agency shall conduct internal reviews and take such other steps as may be necessary to monitor compliance with this order.

6-602. *Executive Order No. 12250.* This Executive order is intended to supplement but not supersede Executive Order No. 12250, which requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving Federal financial assistance. Nothing herein shall limit the effect or mandate of Executive Order No. 12250.

6-603. *Executive Order No. 12875.* This Executive order is not intended to limit the effect or mandate of Executive Order No. 12875.

6-604. *Scope.* For purposes of this order, Federal agency means any agency on the Working Group, and such other agencies as may be designated by the President, that conducts any Federal program or activity that substantially affects human health or the environment. Independent agencies are requested to comply with the provisions of this order.

6-605. *Petitions for Exemptions.* The head of a Federal agency may petition the President for an exemption from the requirements of this order on the grounds that all or some of the petitioning agency's programs or activities should not be subject to the requirements of this order.

6-606. *Native American Programs.* Each Federal agency responsibility set forth under this order shall apply equally to Native American programs. In addition, the Department of the Interior, in coordination with the Working Group, and, after consultation with tribal leaders, shall coordinate steps to be taken pursuant to this order that address Federally-recognized Indian Tribes.

Native American programs: Native American programs include those Federal programs designed to serve Indian Tribes or individual Indians, recognizing that such programs are to be guided, as appropriate, by the government-to-government relationship, the Federal trust responsibility, and the role of tribes as governments within the Federal system.

6-607. *Costs.* Unless otherwise provided by law, Federal agencies shall assume the financial costs of complying with this order.

6-608. *General.* Federal agencies shall implement this order consistent with, and to the extent permitted by, existing law.

6-609. *Judicial Review.* This order is intended only to improve the internal management of the executive branch and is not intended to, nor does it create any right, benefit, or trust responsibility, substantive or procedural, enforceable at law or equity by a party against the United States, its agencies, its officers, or any person. This order shall not be construed to create any right to judicial review involving the compliance or noncompliance of the United States, its agencies, its officers, or any other person with this order.



Surface Transportation Board
Washington, D.C. 20423-0001

Joshua Osborne-Klein
Ziontz Chestnut, Attorneys at Law
2101 Fourth Avenue, Suite 1230
Seattle, Washington 98121

September 10, 2015

Re: FOIA Request No. 15-056 ("Super Trial" Studies)

Dear Mr. Osborne-Klein,

This letter responds to your FOIA Request for certain records related to the "Super Trial" and subsequent evaluations of coal-dust suppressants in the Powder River Basin. More specifically, as per your email of August 17, 2015, we have focused our search on those records that concern the efficacy of various mitigation measures to reduce coal dust emissions and estimates of unmitigated coal dust emissions from the proposed Tongue River Railroad project. We are partially granting your request. We are withholding certain information as exempt from release, as described below. It is my understanding that you are not, at this time, requesting drafts of Board decisions that may be withheld under Exemption 5, but that you reserve the right to request these in the future. This has made our response to your request quicker and more efficient.

In response to your FOIA request, the Board located the following responsive records:

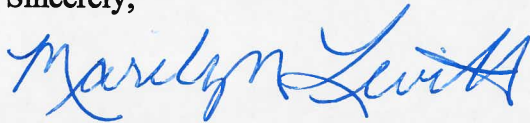
- two records that we are releasing subject to redactions under FOIA Exemption 5.
- 76 records that we are withholding in full under Exemption 5.
- 18 records that we are withholding in full under Exemption 4.

We have discussed with STB staff why there are no additional records that could be identified and released in response to your request. Staff explained that the STB did not itself perform any tests on the efficacy of the various types of mitigation measures that might be available to reduce coal dust emissions. Rather, STB staff analyzed and weighed the evidence that was provided by the parties to its proceedings involving coal dust. For this reason, the factual information that you seek can be found in the party's pleadings, which are for the most part publicly available, and the agency's internal documents are primarily predecisional and deliberative.

We expect to release the responsive records to you next week, consistent with the list above.

You may appeal to the Chairman of the Surface Transportation Board, within 30 days after receiving the records our decision to withhold certain records in whole or in part under Exemptions 4 and 5. 5 U.S.C. §552(a)(6)(A)(i); 49 C.F.R. §1001.3. Any appeal should be addressed to Chairman Daniel Elliott, 395 E Street, S.W., Washington DC 20423 and may be faxed ((202)245-0452) or emailed to Chairman.Staff@stb.dot.gov.

Sincerely,



Marilyn Levitt
FOIA/Privacy Officer
Office of the General Counsel
Surface Transportation Board
395 E Street, SW
Washington, D.C. 20423-0001
Phone: (202) 245-0269; Fax: (202) 245-0460
FOIA.Privacy@stb.dot.gov

ZIONTZ CHESTNUT
ATTORNEYS AT LAW

RICHARD M. BERLEY
MARC D. SLONIM
BRIAN W. CHESTNUT
BRIAN C. GRUBER
JOSHUA OSBORNE-KLEIN
BETH A. BALDWIN

FOURTH AND BLANCHARD BUILDING
2101 FOURTH AVENUE, SUITE 1230
SEATTLE, WASHINGTON 98121-2331
TELEPHONE: (206) 448-1230
FAX: (206) 448-0962
WWW.ZIONTZCHESTNUT.COM

September 15, 2015

Marilyn Levitt
FOIA/Privacy Officer
Office of the General Counsel
Surface Transportation Board
395 E Street SW
Washington, D.C. 20423-0001
FOIA.Privacy@stb.dot.gov

Sent by U.S. mail and email.

Re: FOIA Request 15-056

Dear Ms. Levitt,

On behalf of the Northern Cheyenne Tribe, I provide this letter in response to your letter of September 10, 2015. In that letter, you indicated that the STB is partially granting the Tribe's pending FOIA request for records relating to "the efficacy of various mitigation measures to reduce coal dust emissions and estimates of unmitigated coal dust emissions from the proposed Tongue River Railroad project." In particular, the STB is releasing "two records . . . subject to redactions under FOIA Exemption 5," while it is withholding 76 records under Exemption 5 and an additional 18 under Exemption 4.

The Tribe believes that the STB's failure to disclose the requested information in full interferes with the public's ability to fully assess the adequacy of the air quality analysis in the Tongue River Railroad Draft Environmental Impact Statement. The Tribe also believes that the STB has taken an unduly broad interpretation of the FOIA exemptions in order to justify the withholding of responsive records. Accordingly, the Tribe requests that the STB provide it with a Vaughn Index that correlates each withheld document (or portion thereof) with a specific FOIA exemption and the agency's basis for nondisclosure, and provide sufficient additional details to enable the Tribe to assess the merits of the claimed exemptions.

In addition, to the extent the STB believes that responsive information may be contained in records that are already available to the public, the Tribe requests that you assist it in identifying the precise locations of such records.

Please call me at (206) 448-1230 if you have any questions regarding this letter or the Tribe's request.

Sincerely,

ZIONTZ CHESTNUT

A handwritten signature in black ink, appearing to read 'JOK' or similar, written in a cursive style.

Joshua Osborne-Klein

Attorney for the Northern Cheyenne Tribe

**TRIBAL COUNCIL OF THE NORTHERN CHEYENNE TRIBE
NORTHERN CHEYENNE INDIAN RESERVATION
LAME DEER, MONTANA**

RESOLUTION NO. DOI-191 (2015)

A RESOLUTION OF THE NORTHERN CHEYENNE TRIBAL COUNCIL SUPPORTING THE OPPOSITION TO THE PROPOSED TONGUE RIVER RAILROAD PROJECT AND ITS PROPOSED ALTERNATIVES TO ESTABLISH AND CREATE A RAILROAD LINE FROM EITHER MILES CITY, MONTANA TO ASHLAND, MONTANA OR FROM COLSTRIP, MONTANA TO ASHLAND, MONTANA.

WHEREAS; the Northern Cheyenne Tribal Council is the governing body of the Northern Cheyenne Indian Reservation pursuant to the Amended Constitution and Bylaws as approved by the Secretary of the Interior on May 31, 1996; and

WHEREAS; the Northern Cheyenne Tribal Council possesses and exercises a broad array of governmental powers including the following powers: power to protect Tribal lands, interests in land, minerals, gas, oil, and other tribal assets; power to cultivate and preserve tribal culture and ceremonies; and

WHEREAS; THE Northern Cheyenne have a rich and colorful history in southeastern Montana and consider it as part of their ancestral lands; and

WHEREAS; a railroad line has been proposed called the Tongue River Railroad Project that with proposed routes either from Miles City Montana to Ashland Montana or from Colstrip Montana to Ashland Montana; and

WHEREAS; the Surface Transportation Board has the responsibility for determining a permit for this undertaking; and

WHEREAS; a Draft Environmental Impact Statement (EIS) has been completed and comments from the general public are currently being collected by Surface Transportation Board; and

WHEREAS; Surface Transportation Board has the responsibility to ensure that all adverse effects including cultural resources, environmental resources such as aquifers, plants, animals, air, water, human environment and others under federal laws are considered in the proposed federal undertaking; and

WHEREAS; the Northern Cheyenne tribe and other tribes, with ancestral ties to the area have consulted with the Surface Transportation Board in the last several years on cultural and environmental impacts in the area of potential effect; and

WHEREAS; the Surface Transportation Board has not consulted with the traditional leaders of the Northern Cheyenne therefore the ceremonial and cultural aspect of cultural resource issues are incomplete; and