

# Klamath National Forest

## Best Management Practices

REGION 5

EVALUATION PROGRAM

WATER QUALITY

MONITORING REPORT

2014 Fiscal Year

Evaluation of Forest Service administered projects including timber sales, roads, grazing, recreation sites, fuels reduction, and in-channel construction.

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## KLAMATH NATIONAL FOREST

2014

### BEST MANAGEMENT PRACTICES (BMP)

#### Summary

Fiscal year 2014 was the twenty-third year of the Best Management Practices Evaluation Program (BMPEP) on the Klamath National Forest (Forest) and the Forest Service Pacific Southwest Region (Region). This program is designed to evaluate how well the Forest and the Region implement BMPs and how effectively the BMPs control water pollution from National Forest lands for activities including timber, engineering, range, recreation, minerals, and restoration.

In 2014 the Forest Service began the second year of implementation of the National BMP Program, which similar to the Region 5 program, integrates water resource protection into management activities occurring across the landscape but is conducted at the national level. The National Core BMPs are written in broad, non-prescriptive terms, focusing on “what to do”, not “how to do it”. Applicable State, and local requirements and BMP programs, FS regional guidance, and unit Land Management Plans provide the criteria for site-specific BMP prescriptions. National BMP monitoring began in 2013 as a part of a two-year phase-in process to full implementation. In 2014 the Klamath completed National BMP evaluations for Road Decommissioning, Prescribed Fire, Cable or Aerial Yarding Operations, Completed Aquatic Ecosystem Improvements, and Ground-based Skidding and Harvesting.

Also 2014 was the second year of performing retrospective evaluations which evaluate the effectiveness of BMP over a longer time span. Retrospective evaluations were performed at randomly selected sites where timber harvest, or engineering BMPEP evaluations were conducted in the past 3 to 5 years and where BMPs were rated effective.

The Forest’s BMPEP is composed of two sampling strategies. The first is the evaluation of randomly sampled sites, allocated by the Region. The second strategy is non-random monitoring, in which sites are selected based on management interest in specific ongoing projects. These sites are often evaluated concurrently (“real time”) and can be qualitative as well as quantitative. The Regional site evaluations followed protocols described in Investigating Water Quality in the Pacific Southwest Region: the BMPEP User’s Guide (USDA, Forest Service, 2002). National BMP monitoring evaluations followed National Core BMP Monitoring Technical Guide established by the Washington Office. Each protocol is designed to measure implementation and effectiveness of an activity category that includes from one to six related BMPs. Appendix A is a table that cross-walks each protocol/activity category alpha-numeric code with its name and the BMPs it is designed to monitor.

For the pool of sixty BMP evaluations allocated to the Klamath, twenty-four different protocols were used to evaluate a total of forty nine sites. There were eleven sites that were not completed. Three (one T03, one F25, and one Range-A) were due to fires. Three site re-visits (E08, E09, and E11) were due to the site not being fixed since the last BMP evaluation. Five (E13, E17, M27, V29, and Chem-B) were

due to no projects to evaluate. There were four sites evaluated for R31-OHV Trails but in the R5 Database there is no data entry set up for this form. Forty sites were evaluated as part of a randomly selected pool of Regional BMPs and entered into a database to determine BMP implementation and effectiveness trends across the Region. Four sites were re-visits. Most randomly sampled site evaluations require that 1 to 2 winters have passed prior to completing the field assessment. Also selected randomly are five national BMP sites that have over-wintered and four retrospective sites that have between 3 to 5 years since being evaluated.

BMP Implementation was evaluated to determine whether: (1) we did what we said we were going to do to protect water quality; and (2) project environmental documentation and/or contract/permit language was sufficient to ensure water quality protection. BMP effectiveness was evaluated to determine if water quality protection measures met objectives. The objective for meeting most evaluation criteria is keeping all sediment out of channels and near-channel areas. Sediment deposition presence, volume and proximity to the nearest watercourse were used to indicate level of effectiveness.

In 2014 randomly selected R5 BMPs were fully implemented at 83% and fully effective at 83% of sites evaluated. Four sites or approximately eleven percent were not rated. Three sites or approximately eight percent failed implementation. Two sites, approximately 6%, were rated "at-risk" and one site, approximately 3%, failed effectiveness. Table 1 summarizes the results of the BMP Random Site Evaluation Program for 1992 through 2014.

**Table 1. R5 BMP Random Site Evaluation Program from 1992 through 2013**

Monitoring Years	Total # of Sites Monitored	Sites Meeting BMP Evaluation Criteria			
		Implementation		Effectiveness	
		% Rated Minor departure*	% Rated Fully Successful	% Rated At-risk*	% Rated Fully Successful
1992	53	N/A	55%	N/A	81%
1993	77	N/A	79%	N/A	94%
1994	52	N/A	75%	N/A	89%
1995	77	N/A	83%	N/A	96%
1996	57	N/A	84%	N/A	98%
1997	60	N/A	100%	N/A	98%
1998	54	N/A	65%	N/A	98%

<b>Table 1 Cont'd. BMP Random Site Evaluation Program from 1992 through 2012</b>					
<b>Monitoring Years</b>	<b>Total # of Sites Monitored</b>	<b>Sites Meeting BMP Evaluation Criteria</b>			
		<b>Implementation</b>		<b>Effectiveness</b>	
		<b>% Rated Minor departure*</b>	<b>% Rated Fully Successful</b>	<b>% Rated At-risk*</b>	<b>% Rated Fully Successful</b>
1999	38	N/A	66%	N/A	89%
2000	45	N/A	89%	N/A	96%
2001	64	N/A	88%	N/A	95%
2002	53	N/A	92%	N/A	96%
2003	51	N/A	80%	N/A	90%
2004	53	N/A	94%	N/A	100%
2005	48	N/A	96%	N/A	98%
2006	45	N/A	93%	N/A	100%
2007	57	N/A	98%	N/A	96%
2008	50	N/A	78%	N/A	92%
2009	63	N/A	97%	N/A	98%
2010	59	0%	100%	5%	88%
2011	60	7%	85%	3%	92%
2012	61	5%	92%	8%	87%
2013	41	0%	90%	7%	88%
2014	36	0%	83%	6%	83%

\*2010 was the first year the "Minor departure" and "At-risk" categories were added

## **2014 BMP MONITORING REPORT**

### **Randomly Selected Sites and Follow-up Monitoring**

On-site evaluations are the core of the BMP Evaluation Program. Such evaluations are necessary to meet the requirements of a Management Agency Agreement between the Region and the State of California. There are 30 different evaluation procedures designed to assess a specific practice or set of closely related practices. Though the evaluation criteria vary based on the management activity, the evaluation process is similar amongst activities. The Regional Office annually assigns the type and number of management activities to be evaluated on each Forest. The specific sites for each evaluated management activity are randomly selected from Forest project pools. When BMP failures occur, corrective actions are taken and documented. Statistical analyses are periodically performed from the collective Regional data, and annual reports of Region wide BMP implementation and effectiveness are presented to the State and Regional water boards. The criteria for sample pool development are regionally standardized by activity type and described in the BMPEP User's Guide.

In 2014 the Forest Service began the second year of implementation of the National BMP Program, which similar to the Region 5 program, integrates water resource protection into management activities occurring across the landscape but is conducted at the national level. In 2014 the Klamath completed National BMP evaluations for Road Decommissioning, Prescribed Fire, Cable or Aerial Yarding Operations, Completed Aquatic Ecosystem Improvements, and Ground-based Skidding and Harvesting.

Also 2014 was the second year of performing retrospective evaluations which evaluate the effectiveness of BMP over a longer time span. In 2014 the Klamath completed retrospective evaluations where Skid Trails, Landings, In-Channel Construction Practices and Road Decommissioning BMPEP evaluations were conducted in the past 3 to 5 years and where BMPs were rated effective.

Follow-up monitoring is also conducted for any sites that were not rated as fully effective the previous year. This monitoring evaluates the success of corrective actions that were implemented the previous year.

BMP monitoring strives for an interdisciplinary evaluation of projects and actively involves project proponents and watershed personnel. This interdisciplinary effort provides direct feedback to the project proponent on how well the BMP was implemented and allows for adaptive management on future project designs. Soil scientist Joe Blanchard, Hydrologists Adam Dresser, Verna Yin, and Greg Bousfield, Geologist Angie Bell, Range Conservationist Stephanie McMorris, and Fish Biologists Brian Thomas and Maija Meneks conducted the 2014 BMP evaluations.

### **Methods**

Data collection methods are specific for each BMP activity group and are described in the BMPEP User's Guide (USDA, Forest Service, 2002). National BMP monitoring evaluations followed National Core BMP Monitoring Technical Guide established by the Washington Office. Data gathered for each BMP are used to answer specific questions on BMP evaluation forms. Management activities (e.g. timber projects, roads, prescribed fire, tractor piling) to be evaluated must: 1) be implemented under a NEPA decision;

2) adhere to contract requirements; and 3) have been completed at least one but not more than 3 winters prior to evaluation. In-channel construction BMP evaluations (E-13) are conducted during the activity and immediately after completion.

The timber, silvicultural, and engineering project sample pools were developed from a list of timber sales, vegetation management, and storm-proofing projects completed the previous year. The prescribed fire sample pool was developed from a list of completed prescribed fire projects. The recreation sample pool included all known developed and dispersed recreation sites on the Forest. The grazing sample pool was a list of active grazing allotments on the Forest. OHV trails were selected from a list of Forest Service roads and trails open to OHV riding.

### Randomly Sampled Site Results for R5 BMPs

Thirty-five sites were sampled from within twenty two 6th field watersheds on the Forest (Table 2). The following is a breakdown of the type of activities sampled on timber, engineering, range, recreation, minerals, grazing, and restoration projects:

**Table 2. Summary of 2014 Regional BMP Implementation and Effectiveness**

Form	Project/Site	Implementation	Effectiveness	6 <sup>th</sup> Field Watershed
T01	Point Two Unit 25	Implemented	Effective	Scott Bar-Scott River
T01	Roo Unit 7B	Implemented	Effective	Lower EF Scott River
T02	Point Two Stewardship Unit 24	Implemented	Effective	Scott Bar-Scott River
T02	Trolley Stewardship Unit 5	Implemented	Effective	Whaleback-Sheep Rock
T02	Larch Multi-Product Unit 21	Implemented	Effective	Garner Mountain-Long Prairie
T03	Point Two Stewardship Unit 26	Implemented	Effective	Scott Bar-Scott River
T04	Point Two Stewardship Unit 24	Implemented	Effective	Scott Bar-Scott River
T04	Larch Multi-Product Unit 21	Implemented	Effective	Garner Mountain-Long Prairie
T04	Trolley Stewardship Unit 5	Implemented	Effective	Whaleback-Sheep Rock
T05	Little Grizzly Stewardship	Implemented	At Risk	South Fork Scott River
T07	Thompson Unit 3	Implemented	Effective	Garner Mountain-Long Prairie
E08	Seiad Rd Rehab 48N20	Not Implemented	Effective	Seiad Creek
E09	Seiad Road Rehab 48N20 M.P. 4.77	Not Implemented	Not Effective	Seiad Creek
E10	Last Canyon 43N45B	Implemented	Effective	Canyon Creek
E10	Mill Luther Phase I 17N37B	Implemented	Effective	Lower Indian Creek

**Table 2 Cont'd. Summary of 2014 Regional BMP Implementation and Effectiveness**

Form	Project/Site	Implementation	Effectiveness	6th Field Watershed
E10	Last Canyon 43N45B	Implemented	Effective	Canyon Creek
E11	Seiad Creek Road Rehab M.P. 4.77	Not Implemented	At Risk	Seiad Creek
E13	Sugar Ck Watershed Improvements 41N14 M.P. 3.84	Implemented	Effective	South Fork Scott River
E16	Roo TS Road 2H03	Not Rated	Not Rated	Lower EF Scott River
E16	Roo TS Road Road 40N08	Not Rated	Not Rated	Lower EF Scott River
E16	Repete TS Road 38N27	Implemented	Effective	Crawford Creek-SF Salmon River
E16	Biosphere TS Road 45N10A	Implemented	Effective	Upper Butte Creek
E20	Road 40N51	Implemented	Effective	Little NF Salmon
F25	Garner Ranch Rx Burn	Implemented	Effective	Lower Butte Creek
F25	LSR Jackpot Burn Unit 10	Implemented	Effective	Meiss Lake
G24	Carter Meadow	Implemented	Effective	EF South Fork Salmon River
G24	Shackleford	Implemented	Effective	Shackleford Creek
G24	Boulder Creek	Implemented	Effective	Boulder Creek-Scott River
M26	BS & M Mine	Implemented	Not Rated	Humbug Creek
R22	Carter Group Site	Implemented	Effective	EF South Fork Salmon River
R22	Hotelling CG	Implemented	Effective	Methodist Creek-South Fork Salmon River
R22	Persido Bar River Access	Implemented	Effective	Ti Creek-Klamath River
R30	Dillon Creek River Access	Implemented	Effective	Copper Creek-Dillon Creek
R30	Etna-Mill Trailhead	Implemented	Effective	Etna Creek
R30	Shackleford II	Implemented	Effective	Shackleford Creek
V28	Lodgepole Station Piling	Not Rated	Effective	Shovel Creek

***Timber Activities***

Timber Activities that were sampled fell into the following activity groups:

Streamside Management Zones (T01), Skid Trails (T02), Suspended Yarding (T03), and Landings (T04), Timber Administration (T05), and Meadow Protection (T07). Eleven sites were sampled on two districts and ten passed implementation and effectiveness. One site fell into the At Risk category.

### ***Road and Engineering Activities***

The following activity groups were sampled: Road surfacing, drainage and protection (E08), Stream Crossings (E09), Road Decommissioning (E10), Control of Side cast Materials (E11), In-channel Construction Practices (E13), Temporary Roads (E14), Water Source Development (E16), and Protection of Roads (E20). A total of 12 engineering sites were evaluated on four districts. Three sites failed implementation, two were not rated, one site fell into the “at-risk” category and one failed effectiveness.

#### **E08- Road Surface, Drainage, and slope Protection: Not Implemented.**

##### **Seiad Road Rehab 48N20**

Activity generated materials were sidecasting onto fillslopes, including: sediment, rock, culverts and slash.

#### **E09 – Stream Crossings**

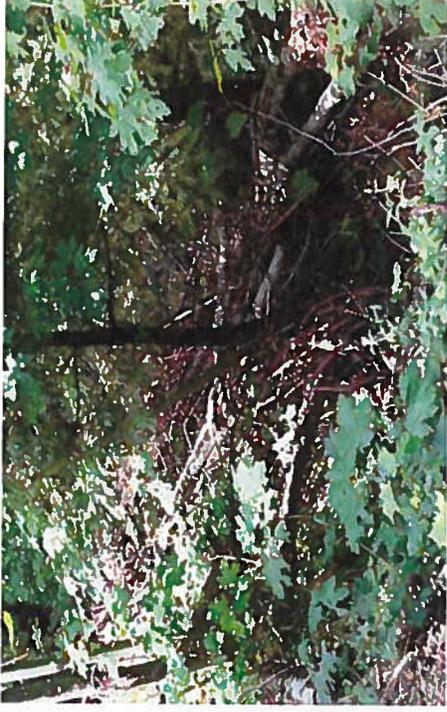
##### **Seiad Road Rehab 48N20 M.P. 4.77: Not Implemented and Not Effective**

Activity generated materials were sidecasted on fillslopes; including sediement, rock, slash and old culverts.

The steepness of the road grade at the crossing results in a very shallow Type L rolling dip; if the 108” culvert fails the stream could flow over the dip and down road approximately 100’ to a deeper rolling dip that would divert stream back into channel. This has less than a 1% chance of occurring in a given year due to 100 year culvert and would be diverted back into the channel as noted above.

#### **E11-Control of sidecast material: Not Implemented and At Risk**

##### **Seiad Road Rehab MP 4.77**



Sidecasting of activity generated materials, including sediment, rock, vegetation and old culverts, occurred along the entire survey length within the SMZ. Engineering plans did not address sidecasting or disposal areas and BMPs in the project file to limit sidecasting were not followed. The BMP checklist stated that no sidecasting of activities generated materials was allowed. This BMP was either not enforced or included in contract provisions. The amount of sidecasted vegetation is creating a fuel hazard along the roadway that may significantly impact water quality due to wildfire, and this material should be removed and piled at a nearby staging area.

**E16 – Water Source Development: Not Rated**

**Roo TS Road 2H03**

As per discussion with Brent Greenbalgh (TSA) This site was not used nor required for adjacent units during harvest activities.

**E16 – Water Source Development: Not Rated**

As per discussion with Sally Gay (TSA) This site was not used nor required for nearby harvest activities. Water used for dust abatement was brought in by contractor from outside project area.

### *Recreation Activities*

Two activity groups were evaluated: Developed Recreation (R22), and Dispersed Recreation (R30). A total of five sites were sampled on three districts. All recreation sites were evaluated as implemented and effective.

### *Grazing*

One Activity Group, Range Management (G24) was evaluated at three separate range allotments on two districts. All range allotments were rated as fully implemented and effective.

### *Fire and Fuels Activities*

Prescribed Fire (F25) and Vegetation Management (V28) were evaluated at three sites on two districts. One site was listed as not rated and effective and the other two sites were rated as implemented and effective.

### *Mining*

Mining Operations (M26) were evaluated were evaluated at one site on one district. This site was rated as fully implemented but page two is missing so the effectiveness rating is unknown.

### **Randomly Sampled Site Results for National BMPs**

Five sites were evaluated for National BMPs in 2014. One Ground-Based Skidding and Harvesting (Veg A), one Use of Prescribed Fire (Fire A), one Cable or Aerial Yarding (Veg B), one Completed Aquatic Ecosystem Improvements (AqEco B), and one Completed Road Decommissioning (Road F) were evaluated. The Little Grizzly Project Unit 37 was rated as fully implemented and fully effective. The Deep Rx Burn, Block 6 Compartment 2 was rated as fully implemented and effective. The Point Two Stewardship Project was rated as fully implemented and effective. The Kegg Meadow Riparian Habitat Restoration Project was rated as fully implemented and effective. The Last Canyon Stormproofing Project road 44N24 decommission was rated as fully implemented and effective.

**Table 3. Summary of 2014 National BMP Implementation and Effectiveness**

<b>Form</b>	<b>Project/Site</b>	<b>Implementation</b>	<b>Effectiveness</b>	<b>6<sup>th</sup> Field Watershed</b>
Veg A	Little Grizzly Project Unit 37	Implemented	Effective	South Fork Scott River
Fire A	Deep Rx Burn, Block 6 Compartment 2	Implemented	Effective	South Fork Scott River
Veg B	Point Two Stewardship Project	Implemented	Effective	Boulder Creek-Scott River
AqEco B	Kegg Meadow Riparian Habitat Restoration Project	Implemented	Effective	Lower Butte Creek
Road F	Last Canyon Stormproofing Project road 44N24 decommissioning	Implemented	Effective	Kelsey Creek

**Randomly Sampled Site Results for Retrospective BMPs**

Four sites were evaluated for long-term BMP effectiveness after four or five years since BMPs were rated effective. Three sites were still rated as effective. One site is rated at risk. These results shown the long term effectiveness of BMPs for a variety of activity groups.

**Table 4. Summary of 2014 Retrospective BMP Effectiveness**

Form	Project/Site	Year of First Evaluation	Effectiveness	6 <sup>th</sup> Field Watershed
T02	Rattler Unit 31A	2009	Effective	Upper Indian Creek
T04	Colstine Stewardship Unit 504	2008	Effective	East Fork Cottonwood Creek
E13	Upper West Branch Fish Passage	2008	At Risk	Upper Indian Creek
E10	Sharp Mt TS road 44N02.1	2009	Effective	Badger Basin

**E13 – Implemented and At Risk**

**Upper West Branch Fish Passage FS Road 48**

Bridge construction required a temporary bypass road upstream resulting in approximately 100’ of disturbed channel from top of the bypass road down through the bridge to the lower end of the project. Some fill material was left on flood plain from the bypass road. Alder is beginning to grow adjacent to the channel with dense grass and shrubs on floodplain and sideslopes. The site is recovering but it will not fully recover for a decade or more.



Picture was taken after the first winter post-construction in 2010, looking downstream at the bridge crossing of the West Branch of Indian Creek. Site had excessive disturbance due to temporary bypass road that was created due to the road being a scenic byway.



Picture was taken after the fifth winter post-construction in 2014, looking downstream at the bridge crossing of the West Branch of Indian Creek. Temporary bypass road alignment has vigorous grass and shrub growth, including alder growing on restored stream channel.



Picture taken from bridge looking upstream further illustrates five years of vegetative recovery on the temporary bypass road. Vegetation is greater than waist height with alder trees up to 10 feet tall growing along the stream bank. Planting of alder and other trees post-project would have accelerated site recovery.

### Results of Follow-up Evaluations

Follow-up monitoring was conducted in 2014 at two sites that were not rated as fully effective in 2013. The table below lists the sites with less than fully effective rating in 2012 and corrective actions or recommendations. Each site was rated as effective after corrective actions were taken.

**Table 5. Summary of follow-up monitoring in 2014**

Form	Project/Site	Corrective Actions Taken in 2013	Notes from 2014 Evaluations	2013 Effectiveness
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E09	Last Canyon 44N45A	Road was resurfaced with gravel and slope armored with courser gravel than was applied in 2012	Crossing repair is stable. Application of courser gravel is effective.	At Risk
E14	Railroad bend TS Unit 25	Temp road blocked with boulders. Water bar re-constructed.	The water bar re-construction is stable. No sediment to intermittent stream channel at crossing.	At Risk

**Last Canyon 44N45A, E09 stream crossings: At Risk for Effectiveness**

This was the second time gully erosion occurred at this rolling dip location. This problem has caused minor impacts at the stream reach by contributing less than 3 cu yds of gravel and fine sediment to the fill slope and stream channel. Klamath Engineers were made aware of the gully in 2012 and aggregate was re-applied at this site. After the gully reformed in 2013 it was determined that a coarser aggregate was needed to prevent gully formation. Instead of using ¾ inch minus, 1 ½ inch minus aggregate was brought in to resurface the rolling dip. This coarser material fixed the erosion problem at this site.



Picture 8. Gully across a rolling dip on 44N45A

**Rail Road Bend TS unit 25, E14-Temporary roads: Not Implemented and At Risk for BMP effectiveness**

A waterbar that was constructed on one of the approaches to the stream crossing had been driven over causing it to fail. Rills have formed on the road surface resulting in <3 cu yds of sediment being delivered into the intermittent stream channel. This has a minor impact on water quality as this intermittent

stream eventually flows into Butte Creek. The temporary road was not blocked or barracked as prescribed in the timber sale contract and the EA

According to the Timber Sale Administrator, the temporary road had been unblocked to allow access into an adjacent unit currently being treated under the Moby Timber Sale. The rilling occurred during a spring thunderstorm while operations on Moby were active. The temporary road was re-waterbarred and blocked after operations on the Moby were complete in the fall. This eliminated the sediment delivery into the intermittent stream channel.



**Picture 4. A waterbar that had been driven over on a temporary road**



**Picture 5. The waterbar was reconstructed and the temporary road was blocked**

### **Summary of Non-Random Sampling Evaluations**

In addition to the random sample sites and follow-up monitoring, projects are selected that are of management interest with regard to timely water quality protection implementation. Evaluation of non-randomly selected sites can be accomplished while the project is actively operating and is often called “concurrent” BMP monitoring. Feedback is immediate and remedial action can be taken. However, comprehensive assessment of BMP effectiveness is not possible since there has not been a post-project winter season to test the protection measures. In addition to the BMPEP, contract compliance monitoring is done concurrently, and assesses BMP implementation along with other project resource protection measures.

### **Non-Randomly Sampled Site (“Concurrent”) Monitoring**

Data collection was similar to that used for randomly sampled sites; however, some data may be more qualitative than those collected using the strict Regional protocol. Often the same forms are used. Data

are stored in a Forest database but are not entered into the regional database or numerically scored. Narrative reports often present or supplement the evaluation.

One site was selected for concurrent monitoring because the activities and their proximity to watercourses pose a potentially high risk for sediment discharge.

**E13: In-Channel Construction Practices**

BMP implementation for a culvert replacement on FS road 41N14, MP 3.84 as part of the Sugar Creek Watershed Improvement Project was evaluated on July 30, 2014. This work was accomplished using BMPs to protect the stream channel, road surface, the drainage structures, and the fill slopes. No BMP problems were noted.

The following are notes taken by Maija Meneks (Fish Biologist) during her evaluation of the project.

Arrived at 0830. Channel was already excavated and pipe set, with water diverted. No turbidity below the project site. Substrate looks similar to what was observed pre-project.

Initial backfill over culvert completed at 0945. Water returned to culvert.

Upon rewatering of culvert, turbidity plume >300 feet downstream. Most of turbidity gone within 15 minutes.

Occasional increases in turbidity below project site as backfill continues, but not to extent as during initial rewatering. The turbidity increases are occurring due to shifting roadbed and settling of the pipe. It does not persist when no actual backfilling or shifting of dirt occurs. Water mostly clears in about 15 minutes; and back to near normal clarity in about 30 minutes.

Removed earthen dam upstream of culvert at 1310. Another big turbidity plume occurred. In about 15 minutes, there was still some turbidity but it is much reduced. Some fines have been deposited below culvert (primarily from watering/dewatering operations) in pools, but are not present in riffles or runs. The noticeable deposits are less than 50' from the site. By 1400, water is largely clear.

**Photos:**

P1 – Pipe aligned in subgrade; point of water diversion

Klamath National Forest 2014 BMPEP Report



P2 – Backfilling



P3 – Rewatering



P4 – Outlet turbidity immediately upon rewatering



P5 – Downstream turbidity upon rewatering



P6 – Water largely cleared, 15 minutes post-rewatering

Klamath National Forest 2014 BMPEP Report



P7 – Dam removed



Klamath National Forest 2014 BMPEP Report

P8 – Turbidity at 15 minutes after dam removal



P9 – Turbidity at 40 minutes post-removal, downstream of culvert



## **Adaptive Management Discussion**

### **Practices That Are Working Well**

Most of the activities evaluated in 2014 met BMP compliance and were effective at controlling nonpoint pollution. These included all timber sale activities; minerals management activities, fire and fuels activities, and most recreation sites. For activities where Best Management Practices were fully implemented and effective, no modifications are recommend for future projects.

The follow-up work to address problems with BMP effectiveness at the Railroad Bend Sale and Last Canyon Stormproofing have been successful in protecting water quality. BMP issues remain at other sites evaluated in 2014 but Information collected through BMP monitoring is being used to design current projects including the Hotelling Gulch Restoration/Fish Passage Project.

### **Practices That Can Be Improved**

Storm proofing projects, and erosion control on temporary roads can be improved through adaptive management and implementation of NEPA projects. In all cases where sites were rated as less than full effective, corrective actions were taken if necessary, and follow-up monitoring will occur in 2015. Table

6 lists the evaluations with less than fully effective rating in 2014, corrective actions taken, and notes for 2015 follow-up monitoring.

**Table 6. Corrective Actions Taken and Follow-up Monitoring for 2014 BMPEP Report**

Form	Project/Site	Implementation	Effectiveness	Corrective Action Taken in 2014	Notes for 2015 Evaluations
T05	Little Grizzly Stewardship Unit 37	Implemented	At Risk	None.	Check if waterbars are effective.
E09	Seiad Road Rehab 48N20 M.P. 4.77	Not Implemented	Not Effective	Klamath Road Crew Will remove sidecast from the crossing	Check on maintenance work
E11	Seiad Creek Road Rehab M.P. 4.77	Not Implemented	At Risk	Klamath Road Crew Will remove sidecast from this site	Check on maintenance work

## References

USDA, Forest Service, 2002, Investigating Water Quality in the Pacific Southwest Region: the Best Management Practice Evaluation Program (BMPEP) User's Guide, USDA, Forest Service, Pacific Southwest Region.

**Appendix A. BMP Evaluation Procedure Names and Descriptions**

<i>Procedure #</i>	<i>Region 5 Procedure Name (BMPs Monitored)</i>
T01	Streamside Management Zones (BMP 1.8, 1.19, 1.22)
T02	Skid trails (BMP 1.10, 1.17)
T03	Suspended yarding (BMP 1.11)
T04	Landings (BMP 1.12, 1.16)
T05	Timber sale administration (BMP 1.13, 1.20, 1.25)
T06	Special erosion control and revegetation (BMP 1.14, 1.15)
T07	Meadow protection (BMP 1.18, 1.22, 5.3)
E08	Road surface, drainage and slope protection (BMP 2.2, 2.3, 2.4, 2.13)
E09	Stream crossings (BMP 2.8, 2.13)
E10	Road Decommissioning (BMP 2.7, 2.13)
E11	Control of side cast material (BMP 2.3, 2.4, 2.13)
E12	Servicing and refueling (BMP 2.5, 2.11)
E13	In-channel construction practices (BMP 2.3, 2.8, 2.13)
E14	Temporary roads (BMP 2.1, 2.7, 2.8)
E15	Rip rap composition (BMP 2.3, 2.8)
E16	Water source development (BMP 2.5)
E17	Snow removal (BMP 2.9)
E18	Pioneer road construction (BMP 2.3, 2.13)
E19	Restoration of borrow pits and quarries (BMP 2.3, 2.8, 2.12)
E20	Management of roads during wet periods (BMP 2.3, 2.4, 2.5, 2.9, 2.13)
R22	Developed recreation sites (BMP 4.3, 4, 5, 6,9, 10)
R23	Location of stock facilities in wilderness (BMP 4.11)
G24	Range management (BMP 8.1, 8.2, 8.3)
F25	Prescribed fire (BMP 6.3)

**Appendix A Cont'd. BMP Evaluation Procedure Names and Descriptions**

<i><b>Procedure #</b></i>	<i><b>Region 5 Procedure Name (BMPs Monitored)</b></i>
M26	Mining operations (Locatable minerals) (BMP 3.1, 3.2)
M27	Common variety minerals (BMP 3.3)
V28	Vegetation manipulation (BMP 5.1, 5.2, 5.5, 5.7)
V29	Revegetation of surface disturbed areas (BMP 5.4)
R30	Dispersed Recreation Sites (BMP 4.5, 4.6, 4.10)
R31	OHV Trails (BMP 4.7.1 to 4.7.9)

<i><b>Procedure #</b></i>	<i><b>National Procedure Name (BMPs Monitored)</b></i>
Vegetation A	Ground Based Skidding and Harvesting (BMPs Veg-1, Veg-2, Veg-3, Veg-4, Veg-6, Veg-7, Fac-6)
Vegetation B	Cable or Aerial Yarding (BMPs Veg-1, Veg-2, Veg-5, Veg-6, Veg-7, Fac-6)
Road F	Completed Road Decommissioning (BMPs Road-1, Road-2, Road-6, Road-7, Fac-2)
Fire A	Use of Prescribed Fire (BMPs Fire-1, Fire-2)
AqEco B	Completed Aquatic Ecosystem Improvements (BMPs AqEco-1, AqEco-2, AqEco-3, AqEco-4)

## Appendix B. Comparison of Evaluation Accomplishments with Target for KNF

Evaluations were accomplished for a total of 50 sites, using 25 protocols to assess timber, engineering, recreation, grazing, and minerals management. The Regional Office set the Klamath's target at 60 sites using 31 protocols.

Activity	KNF Targets	KNF Accomplishments
T01	2	2
T02	3	3
T03	2	1
T04	3	3
T05	1	1
T06	0	0
T07	1	1
E08	2	1
E09	3	2*
E10	2	2
E11	2	1
E12	0	0
E13	3	2
E14	1	1*
E15	0	0
E16	4	4
E17	1	0
E18	1	0
E19	0	0
E20	1	1
R22	2	3**
R23	0	0
R30	2	3**
G24	3	2
F25	3	2
M26	1	1
M27	1	0
V28	1	1
V29	1	0
R31	4	4

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<b>Retrospective</b>	4	4
<b>National BMP</b>	7	5
<b>Totals</b>	60	50

\*Included in the total are 2013 sites re-visited in 2014 for follow-up effectiveness monitoring

\*\*Included in the total is one site completed by Six Rivers NF for Ukonom RD (part of KNF).