



## **Summary of Pinedale Anticline Chemical and Field Data 2013 February 7, 2014**

Monitoring on the New Fork River by the Sublette County Conservation District (SCCD) began in 2000 prior to any exploration or development in the Pinedale Anticline Project Area (PAPA). Three sites (NF4, NF19 and NF30) were established on the New Fork River in 2001 to monitor the effects of the PAPA. With increased activity in the PAPA additional sampling sites were established:

- NF40 - established in 2004 to monitor any effects of Sand Springs and Alkali Draws on the New Fork River.
- NF50 – established in 2007 downstream of the confluence of the East Fork River with the New Fork River.
- NF60 – established in 2007 upstream of the confluence of the East Fork River with the New Fork River.
- NF70 – established in 2007 downstream of the confluence of Pole Creek with the New Fork River.
- NF80 – established in 2008 to represent a control site upstream of PAPA activity. NF80 replaced NF01 which was the original control site on the upper New Fork River for the PAPA.
- NF90 – established in 2010 to represent a control site upstream of PAPA activity. NF90 replaced NF80 due to drilling activity west of Pinedale and upstream of the location of NF80. NF80 will continue as a surface water monitoring site for the PAPA.

Surface water samples are collected five (5) times per year (prior to spring runoff, during high water, after high water, in early fall and in late fall) at nine (9) of the Pinedale Anticline (PA) sites and these samples are analyzed at an Environmental Protection Agency (EPA) certified laboratory. Each sample is analyzed for the following parameters: Alkalinity, Bicarbonate, Calcium, Carbonate, Chloride, Magnesium, Nitrogen, (Nitrate + Nitrite as N), Phosphorus, Sodium, Sulfate, Hardness, Total Dissolved Solids (TDS), Total Suspended Solids (TSS) and Turbidity. The Anions, Cations and Anion/Cation balance are calculated at the laboratory for quality assurance of data. Each sample is analyzed for BTEX (Benzene, Ethylbenzene, m+p-Xylenes, methyl-tertbutyl ether, o-Xylene and Toluene), Gasoline Range Organics (GRO) and Diesel Range Organics (DRO). (Please Note: NF90 is above any PAPA related activity and as a result, samples are collected at this site are not analyzed for hydrocarbons). (Sublette County Conservation District Pinedale Anticline Chemical Data 2013)

Duplicate samples are collected every 10<sup>th</sup> sample to ensure analysis is accurately conducted by the laboratory. Blank samples (using distilled water) are sent with every 10<sup>th</sup> sample as another quality control/quality assurance measure. Temperature blanks prepared by the SCCD and the contract laboratory accompany every shipment of samples to ensure the samples remain under 4°C during transport to the laboratory.

Field data collected by Sublette County Conservation District staff include the following parameters: pH, Turbidity, Conductivity, Total Dissolved Solids (TDS), Temperature (C°) and Dissolved Oxygen (mg/L and %). Flows are measured when SCCD staff is able to safely do so. Photos are taken each time samples are collected and recorded in the field notebook along with equipment used, personnel sampling, etc. Duplicate meter readings are collected every 10th sample collected. (Sublette County Conservation District Pinedale Anticline Field Data 2013)

The Wyoming Department of Environmental Quality has established surface water quality standards for all streams in the state. No exceedances of these standards have been detected from the data collected by the SCCD from 2000-2013 at the PA surface water sampling sites.

<b><u>Parameter</u></b>	<b><u>Wyoming DEQ Water Quality Standard</u></b>
Alkalinity	None available
Bicarbonate	None available
Calcium	None available
Carbonate	None available
Chloride	Aquatic Life Chronic Value (EPA) 230,000 mg/l
Conductivity	None available
Dissolved oxygen	Minimum 4mg/l Class I & II Streams 6.6 mg/l – 9.0 mg/l *
Hardness	None available
Magnesium	None available
Nitrate	10 mg/l
pH	6.6 – 9.0
Phosphorus	≤ 1.0 mg/l (Streams not flowing directly into lakes or reservoirs)
Sulfate	None available
Temperature	None available
Total Dissolved Solids (TDS)	None available
Total Suspended Solids (TSS)	None available
Turbidity	In all cold water fisheries and/or drinking water supplies (Classes 1, 2AB, 2A and 2B), the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities which would result in a turbidity increase of more than ten (10) nephelometric turbidity units (NTUs).

Please note: Generally surface water quality standards are based upon fresh water fishery requirements for reproduction and juvenile and adult growth and survival.

**Non-detections** of all hydrocarbon parameters were observed for the data collected by the SCCD during the 2013 field season at the PA surface water sampling sites.

Macroinvertebrates (aquatic insects) are collected at all nine PA surface water sites once per year. Macroinvertebrate samples collected at each of these sites are sent to a contract laboratory for identification. SCCD staff collected eight samples at each site during the 2013 field season using eight individual Surber samplers. All data collected were sent to an aquatic ecologist for identification and analysis.

A biological assessment report with a projected publication date of March 31, 2014 has been prepared using the 2012 macroinvertebrate samples. Upon completion of the biological report, the SCCD will make it available to BLM for placement on the agency's website.

#### References

[http://deq.state.wy.us/wqd/watershed/surfacestandards/Downloads/Triennial/8-0464\\_Draft\\_%20Chapter\\_1.pdf](http://deq.state.wy.us/wqd/watershed/surfacestandards/Downloads/Triennial/8-0464_Draft_%20Chapter_1.pdf)

<http://www.epa.gov/waterscience/standards/>

[http://www.blm.gov/wy/st/en/field\\_offices/Pinedale/pawg/DataResults.html](http://www.blm.gov/wy/st/en/field_offices/Pinedale/pawg/DataResults.html)