

BWG and Biological Monitoring Activities under the Spring Valley Stipulation, 2006-2011.

	Activity	Date	Duration	Agency Representation and Participation	Topics
1	BWG/TRP/EC meeting	2006 12/18	n.a.	12 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 2 NPS. TRP member: 1 BLM. EC members: 1 SNWA, 1 NPS, 1 FWS. 1 DOI liaison.	Inviting NDOW and UDWR to participate on BWG; expert advice from outside organizations; determining sites to monitor based on likelihood of impacts and hydrologic and biologic significance; SNWA pump tests; available baseline data; monitoring opportunities on SNWA deeded lands; BWG and TRP collaboration
2	BWG working meeting (call)	2007 02/09	1 hour	n.a.	Letter of invitation to NDOW and UDWR to participate in BWG; topics and agenda for next meeting
3	Monitoring plan development/writing	2007 02/12 - 2009 02/18		14 contributors. BWG members & participants: 2 SNWA, 2 FWS, 2 BLM, 1 NPS, 1 BIA, 3 NDOW, 1 UDWR. Invited: 1 BIO-WEST, 1 KS2. Reviewed by BWG, agency scientists (SNWA, FWS, BLM, NPS, BIA, NDOW, UDWR), and EC.	Collaborative and iterative writing/review/revision process. Introduction/background; goals and objectives; CAP process; selection and description of groundwater-influenced ecosystems, species, sites, key ecological attributes, and indicators to monitor; TRP hydrologic monitoring; determining range of variation and unreasonable adverse effect; criteria for initiating BWG/TRP/EC consultation; adaptive framework and phased approach; sampling objectives, designs and protocols; gathering external data; discussion on ecological modeling; identification of potential research needs; data management, analysis and reporting; monitoring plan implementation and schedule; conceptual models.
4	BWG working meeting	2007 02/23	4 hours	14 attendees. BWG members & participants: 1 SNWA, 2 FWS, 2 BLM, 1 NPS, 1 BIA, 3 NDOW, 1 UDWR. EC member: 1 NPS. 1 BLM EIS liaison. 1 DOI liaison.	Review of Stipulated Agreement; NPS framework for developing inventory and monitoring programs; data and reports shared, ftp site created; monitoring plan writing/revision (outline and introduction/background); available baseline data; monitoring site selection
5	BWG working meeting	2007 03/29	7 hours	14 attendees. BWG members & participants: 1 SNWA, 2 FWS, 2 BLM, 1 NPS, 1 BIA, 3 NDOW, 1 UDWR. EC member: 1 FWS. 1 BLM EIS liaison. 1 DOI liaison.	Identification of experts across various ecological fields; landscape-level monitoring; monitoring plan writing/revision (introduction/background and objectives); identification of monitoring goals, including establishing baseline, determining trends and providing early warning; potential groundwater-influenced ecosystems, attributes and species to monitor; baseline data gathering
6	BWG planning meeting (call)	2007 04/19	1 hour	10 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 NPS, 1 BIA, 1 NDOW, 1 UDWR. EC: 2 FWS. 1 BLM EIS liaison.	Planning for potential expert workshop
7	BWG working meeting	2007 05/08	6 hours	12 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 NPS, 1 BIA, 2 BLM, 3 NDOW, 1 UDWR. 1 DOI liaison.	Overview of NSE Ruling on SNWA Spring Valley applications; monitoring plan writing/revision (introduction/background and objectives); sensitive species in IBMA; baseline data gathering; USGS Great Basin Integrated Landscape Monitoring Program
8	EC/BWG core team meeting (call)	2007 05/11	1 hour	n.a.	Updates and feedback; CAP workshop; BWG chairperson rotation; monitoring to meet both Stipulation and NSE requirements
9	BWG working meeting	2007 06/05	8 hours	15 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 BIA, 3 NDOW, 1 UDWR. EC member: 1 FWS. 1 BLM EIS liaison. 1 DOI liaison. Invited: 1 TNC, 1 NSE.	TNC presentation on CAP process; hydrologic and biologic monitoring site selection; biologic rationale and BWG recommendation to TRP re: piezometer sites; coupling spring monitoring with monitoring well network; monitoring plan writing/revision (introduction/background and objectives); BWG and TRP collaboration

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10	BWG/TRP working meeting (call)	2007 06/05	1 hour	16 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 BIA, 3 NDOW, 1 UDWR. TRP member: 1 NPS. EC member: 1 FWS. 1 BLM EIS liaison. 1 DOI liaison. Invited: 1 TNC, 1 NSE.	Monitoring site selection
11	BWG working meeting	2007 07/10	4 hours	13 attendees. BWG members & participants: 2 SNWA, 2 FWS, 2 BLM, 2 NPS, 1 BIA, 1 NDOW, 1 UDWR. 1 BLM EIS liaison. Invited: 1 NSE.	Potential indicators to monitor; use of historic data; monitoring site selection; strategy for developing the monitoring plan; TNC facilitation of the CAP process
12	BWG/TRP working meeting	2007 07/10	5 hours	22 attendees. BWG members & participants: 2 SNWA, 2 FWS, 2 BLM, 2 NPS, 1 BIA, 1 NDOW, 1 UDWR. TRP members & participants: 3 SNWA, 2 BLM, 1 NPS, 1 BIA. 1 BLM EIS liaison. Invited: 1 USFS, 2 NSE.	Likelihood of impacts of different spring locations; sites of hydrologic and biologic significance; monitoring site selection
13	BWG/TRP working meeting	2007 07/11	7 hours	22 attendees. BWG members & participants: 2 SNWA, 2 FWS, 2 BLM, 2 NPS, 1 BIA, 1 NDOW, 1 UDWR. TRP members & participants: 3 SNWA, 2 BLM, 1 NPS, 1 BIA. 1 BLM EIS liaison. Invited: 1 USFS, 2 NSE.	Field tour and evaluation of potential monitoring sites; selection of hydrologic and biologic monitoring sites
14	BWG/TRP working meeting (call)	2007 07/31	1 hour	27 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 2 NPS, 1 BIA, 3 NDOW, 1 UDWR. TRP members: 1 SNWA, 1 BLM, 1 NPS. Invited: 2 FWS, 2 SNWA, 2 NDOW, 2 TNC, 2 BIO-WEST, 1 GBBO, 1 NSE.	IBMA hydrogeology; potential effects of groundwater drawdown; TRP guidance re: spring locations most likely to be impacted by SNWA groundwater withdrawal; connecting hydrologic changes to biologic effects; hydrologic monitoring site selection
15	BWG working meeting	2007 07/31-08/02	21 hours	27 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 BIA, 2 NPS, 3 NDOW, 1 UDWR. TRP members: 1 SNWA, 1 BLM, 1 NPS. EC member: 1 FWS. Invited: 1 FWS, 2 NDOW, 2 SNWA, 2 TNC, 1 GBBO, 2 BIO-WEST, 1 NSE.	CAP Workshop: TNC presentation on CAP process; BIO-WEST presentation on lessons learned from Edwards Aquifer monitoring program; conceptual models; selection of groundwater-influenced ecosystems, sites, species, key ecological attributes and indicators to monitor based on likelihood of effects, conservation targets, and early warning indication of effects using CAP process; flow exceedance curve; indicator ratings; mitigation opportunities; defining unreasonable adverse effect and ecological thresholds
16	BWG/TRP/EC meeting	2007 08/02	4 hours	22 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 BIA, 2 NDOW, 1 UDWR. TRP members: 1 SNWA, 1 BLM, 1 NPS. EC members: 1 BIA, 2 FWS, 1 NPS, 2 BLM, 2 SNWA. 1 DOI liaison. Invited: 1 NSE.	Effectiveness of CAP process in developing the monitoring plan re: selecting groundwater-influenced ecosystems, species, sites, key ecological attributes and indicators to monitor and re: consensus-based decision making; TRP piezometer site selection; monitoring key representative areas; adaptive monitoring approach
17	BWG working meeting	2007 09/10-11	13 hours	13 attendees. BWG members & participants: 1 BIA, 2 FWS, 1 BLM, 1 SNWA, 1 NPS, 1 NDOW, 1 UDWR. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 GBBO, 2 TNC.	Selection of groundwater-influenced ecosystems, key ecological attributes and indicators to monitor using CAP process

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18	BWG working meeting	2007 10/10	8 hours	17 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 BIA, 1 NPS, 2 NDOW, 1 UDWR. 1 DOI liaison. 1 BLM EIS liaison. Invited: 1 GBBO, 2 BIO-WEST, 2 TNC.	Monitoring well locations; selection of groundwater-influenced ecosystems, sites, key ecological attributes and indicators to monitor using CAP process; Vegetation Dynamics writing/revision Tool (VDDT); ecological modeling; monitoring plan writing/revision (objectives); overview of TRP Carbonate Tour; likelihood of impacts to perennial streams originating in the mountain block; stream diversions down to the valley floor; USGS 2006 report on susceptibility of surface water in/near GBNP to groundwater withdrawal
19	BWG core team planning meeting (call)	2007 10/31	1 hour	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
20	EC/BWG core team meeting (call)	2007 11/06	1 hour	n.a.	Updates and feedback; status of monitoring plan; End-of-Year report
21	BWG working meeting	2007 11/06	7 hours	14 attendees. BWG members & participants: 1 BIA, 2 FWS, 1 BLM, 1 SNWA, 1 NPS, 1 NDOW, 1 UDWR. EC member: 1 FWS. 1 DOI liaison. Invited: 1 BIO-WEST, 1 KS2, 2 TNC.	KS2 presentation on lessons learned from Owens Valley monitoring program; SNPLMA proposals in IBMA re: spring/springsnail research (Sada/DRI) and TNC facilitation of Stipulation monitoring plan development; early warning indicators; reference sites; natural and acceptable variation; indicator ratings; monitoring site selection; TNC Spring Habitat Conservation Plan
22	BWG/TRP working meeting (call)	2007 11/09	1 hour	9 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NDOW. TRP members: 1 NPS, 1 SNWA. Invited: 1 USGS, 1 NSE.	Likelihood of impacts to perennial streams originating in the mountain block; stream diversions down to the valley floor
23	BWG core team planning meeting (call)	2007 12/05	1 hour	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
24	BWG working meeting	2007 12/13	7 hours	16 attendees. BWG members & participants: 1 BIA, 2 FWS, 1 BLM, 2 SNWA, 1 NDOW, 1 UDWR. 1 BLM EIS liaison. Invited: 1 SNWA, 1 NDOW, 1 BIO-WEST, 1 KS2, 1 GBBO, 2 TNC.	Criteria for and selection of sites, key ecological attributes and indicators to monitor; overview of BWG core team update to EC; peer review of draft monitoring plan; SNPLMA proposals in IBMA re: Bonneville cutthroat trout (NPS), spring/springsnail research (Sada/DRI), and TNC facilitation of Stipulation monitoring plan development
25	BWG core team planning meeting (call)	2008 01/08	1 hour	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
26	EC/BWG/TRP core team meeting (call)	2008 01/02	1 hour	n.a.	Updates and feedback; peer review of biological monitoring plan; BWG and TRP comments on SNPLMA proposals
27	BWG working meeting	2008 01/14-15	12 hours	16 attendees. BWG members & participants: 1 BIA, 2 FWS, 1 BLM, 2 SNWA, 1 NPS, 2 NDOW, 1 UDWR. 1 BLM EIS liaison. 1 DOI liaison. Invited: 2 BIO-WEST, 1 KS2, 1 TNC.	Conceptual ecological models; KS2 presentation on Ecological Dynamics Simulation Model (EDYS); peer review of draft monitoring plan; monitoring plan writing/revision (objectives); BWG End-of-Year report to EC; reference sites; direct and habitat-based monitoring; criteria for and selection of groundwater-influenced ecosystems, species, sites, key ecological attributes and indicators to monitor
28	BWG core team working meeting	2008 01/15	5 hours	6 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM. Invited: 1 BIO-WEST, 1 KS2.	Planning meeting with consultants; monitoring plan development
29	BWG core team planning meeting (call)	2008 02/28	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting

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30	BWG working meeting	2008 03/07	7 hours	17 attendees. BWG members & participants: 1 BIA, 2 FWS, 2 BLM, 2 SNWA, 1 NPS, 1 NDOW, 1 UDWR. TRP member: 1 SNWA (TRP update). 1 BLM EIS liaison. Invited: 1 BIO-WEST, 2 KS2, 1 GBBO, 1 TNC.	FWS 90-day finding on northern leopard frog; peer review of draft monitoring plan; TRP hydrologic monitoring network, gain/loss study of Big Spring Creek / Lake Creek, and piezometers; monitoring plan writing/revision (methodology); direct and habitat-based monitoring; GBBO expert advice re: bird and bird habitat monitoring
31	BWG core team planning meeting (call)	2008 03/20	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
32	BWG working meeting	2008 03/27-28	12 hours	16 attendees. BWG members & participants: 1 BIA, 2 FWS, 2 BLM, 2 SNWA, 2 NDOW, 1 UDWR. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 KS2, 2 TNC, 1 NSE.	BWG End-of-Year report to EC; monitoring plan writing/revision (framework, protocols, conceptual models); reference sites; prep for BWG/TRP joint meeting; selection of species, sites, key ecological attributes and indicators to monitor; direct and habitat-based monitoring
33	BWG core team working meeting	2008 03/28	5 hours	6 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM. Invited: 1 BIO-WEST, 1 KS2.	Monitoring plan writing/revision (framework and protocols)
34	BWG working meeting	2008 04/21-22	10 hours	14 attendees. BWG members & participants: 1 BIA, 2 FWS, 1 BLM, 1 SNWA, 1 NPS, 2 NDOW. 1 BLM EIS liaison. Invited: 2 BIO-WEST, 2 KS2, 1 TNC.	BWG End-of-Year report to EC; prep for BWG/TRP joint meeting; direct and habitat-based monitoring; criteria for nested targets; monitoring plan writing/revision (framework, protocols, conceptual models)
35	BWG/TRP working meeting	2008 04/22	3 hours	26 attendees. BWG members & participants: 1 BIA, 2 FWS, 1 BLM, 1 SNWA, 1 NPS, 2 NDOW. TRP members: 2 SNWA, 2 BLM, 1 NPS, 1 FWS, 1 BIA. EC member: 1 SNWA. 1 BLM EIS liaison. Invited: 2 BIO-WEST, 2 KS2, 1 TNC, 1 SNWA, 2 USGS, 1 NSE.	BWG presentation on goals/responsibilities, approach and monitoring sites; BWG/TRP coordination; TRP update on hydrologic monitoring plan and activities; likelihood of impacts to perennial streams originating in the mountain block; interbasin monitoring zone; water sources and potential groundwater flow paths to southern Snake Valley/Big Springs complex; USGS SNPLMA study on connectivity between Spring and Snake Valley aquifers, regional carbonate aquifer, and surface waters; Water sources for Yelland Playa in Spring Valley
36	EC/BWG core team meeting (call)	2008 05/07	1 hour	n.a.	Updates and feedback; BWG End-of-Year report; peer review of monitoring plan; status of monitoring plan; BWG presentation to EC and EC review of monitoring plan; BWG/TRP coordination; adaptive approach to monitoring and management; monitoring site selection; private land access
37	BWG working meeting	2008 05/19-21	24 hours	14 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 BIA, 2 NDOW, 1 UDWR. 1 BLM EIS liaison. 1 DOI liaison. Invited: 1 BIO-WEST, 1 KS2, 1 TNC.	Selection of nested targets; selection of sites and indicators to monitor; peer review of draft monitoring plan; monitoring plan writing/revision (framework, protocols); BIO-WEST presentation and recommendations re: sampling techniques for springs and aquatic species in Spring Valley, and lessons learned from 2004-2006 ecological evaluation in 102 springs in southeastern Nevada; KS2 presentation and recommendation re: vegetation sampling techniques; BWG/TRP coordination;
38	BWG core team planning meeting (call)	2008 06/11	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
39	BWG working meeting	2008 06/18-19	15 hours	13 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 BIA, 2 NDOW, 1 UDWR. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 KS2.	BWG/TRP coordination; Stipulation data Exchange website; monitoring plan writing/revision (introduction/background, objectives, protocols, data management/analysis/reporting, plan implementation/schedule, conceptual models); ecological modeling; ecological thresholds; BLM presentation on integrating the monitoring plan into the EIS

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40	BWG/TRP working meeting (call)	2008 06/19	1 hour	18 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 BIA, 2 NDOW, 1 UDWR. TRP members: 1 SNWA, 1 NPS, 1 FWS. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 KS2, 2 NSE.	Water quality sampling; protocols; monitoring site selection
41	EC/BWG core team meeting (call)	2008 07/02	1 hour	n.a.	Updates and feedback
42	BWG core team planning meeting (call)	2008 07/17	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
43	BWG working meeting	2008 07/22-24	27 hours	n.a.	Final review of monitoring plan (draft 1); field protocols; springsnail sampling design
44	BWG core team working meeting (call)	2008 08/06	1 hour	2 attendees. BWG members: 1 SNWA, 1 FWS.	Prep for presentations to EIS Natural Resources Group and EC on draft biological monitoring plan
45	BWG core team working meeting (call)	2008 08/11	4 hours	3 attendees. BWG members: 2 SNWA, 1 FWS.	Prep for presentation to EIS Natural Resources Group on draft biological monitoring plan
46	BWG working meeting	2008 08/13	4 hours	11 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 BIA, 1 UDWR. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 KS2, 1 FWS BRT.	Internal agency review (SNWA, FWS, BLM, BIA, NPS, NDOW, UDWR) of the draft monitoring plan; prep for presentation of draft biological monitoring plan to EC
47	BWG/TRP/EC meeting	2008 08/13	4 hours	25 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 BIA, 1 UDWR. TRP members: 1 SNWA, 1 FWS, 1 NPS, 2 BLM. EC members: 2 SNWA, 1 FWS, 1 BLM, 1 NPS, 1 BIA. 1 BLM EIS liaison. 1 DOI liaison. Invited: 1 BIO-WEST, 1 KS2, 1 FWS BRT, 2 NSE.	BWG presentation of draft biological monitoring plan (goals and objectives, adaptive framework, phased approach, CAP process, criteria for and selected groundwater-influenced ecosystems/sites/species/key ecological attributes/indicators, direct and habitat-based monitoring, and plan implementation); defining acceptable range of variation and unreasonable adverse effect; determining baselines, trends, relationships and effects; early warning indicators; peer review; ecological modeling; BWG/TRP/EC coordination
48	BWG core team working meeting (call)	2008 10/02	4 hours	3 attendees. BWG members: 1 SNWA, 1 FWS. 1 BLM EIS liaison.	Review of EC and internal agency comments on draft Plan
49	BWG core team working meeting	2008 10/03	2 hours	3 attendees. BWG members: 1 SNWA, 1 FWS. 1 BLM EIS liaison.	Review of EC and internal agency comments on draft Plan
50	BWG core team planning meeting (call)	2008 10/06	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
51	BWG working meeting	2008 10/08-09	17 hours	n.a.	Review of EC and internal agency comments on draft monitoring plan
52	EC/BWG core team meeting (call)	2008 10/21	1 hour	n.a.	Updates and feedback; EC review of monitoring plan; monitoring plan revisions; private land access
53	BWG core team planning meeting (call)	2008 10/21	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
54	BWG core team working meeting	2008 10/20-21	14 hours	2 attendees. BWG members: 1 SNWA, 1 FWS.	Revision of draft monitoring plan
55	BWG working meeting	2008 11/03-04	17 hours	n.a.	Revision of draft monitoring plan; monitoring site selection; review of NSE comments on draft Plan; overview of BWG core team update to EC
56	BWG core team working meeting	2008 11/18-20	26 hours	2 attendees. BWG members: 1 SNWA, 1 FWS.	Revision of draft monitoring plan

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57	BWG working meeting	2008 12/03-04	12 hours	9 attendees. BWG members & participants: 2 SNWA, 1 FWS, 1 BLM, 1 NPS, 1 NDOW. Invited: 1 BIO-WEST, 1 KS2, 1 TNC.	Poster abstract on biological monitoring plan for Nevada Water Rights Association (NWRA) conference; revision of draft monitoring plan; defining acceptable ranges of variation and ecological thresholds; springsnail and vegetation sampling methodology
58	BWG core team working meeting	2008 12/12	11 hours	3 attendees. BWG members: 1 SNWA, 1 FWS. Invited: 1 TNC.	Conceptual model diagrams of groundwater-influenced ecosystem drivers and stressors.
59	EC/BWG core team meeting (call)	2008 12/16	1 hour	n.a.	Updates and feedback; private land access; BWG/TRP/EC presentation to White Pine County Advisory Board and White Pine County Commission on the biological and hydrologic monitoring plans
60	BWG core team working meeting (call)	2008 12/22	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS. Invited: 1 TNC.	Conceptual model diagrams of groundwater-influenced ecosystem drivers and stressors.
61	BWG core team working meeting (call)	2009 01/06	2 hours	3 attendees. BWG members: 1 SNWA, 1 FWS. Invited: 1 TNC.	Conceptual model diagrams of groundwater-influenced ecosystem drivers and stressors.
62	EC/BWG core team meeting (call)	2009 01/07	1 hour	n.a.	Updates and feedback; EC review of monitoring plan; monitoring plan revisions; private land access; BWG/TRP/EC presentation to White Pine County Advisory Board and White Pine County Commission on the biological and hydrologic monitoring plans
63	BWG core team planning meeting (call)	2009 01/15	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
64	EC/BWG core team meeting (call)	2009 01/21	1 hour	n.a.	Updates and feedback; BWG/TRP/EC presentation to White Pine County Advisory Board and White Pine County Commission on the biological and hydrologic monitoring plans
65	BWG working meeting	2009 01/21-22	16 hours	11 attendees. BWG members & participants: 1 SNWA, 1 FWS, 1 BLM, 1 BIA, 1 UDWR. 1 BLM EIS liaison. Invited: 1 FWS BRT, 1 BIO-WEST, 1 KS2, 2 TNC.	Conceptual model diagrams of groundwater-influenced ecosystem drivers and stressors; private land access; poster for NWRA conference on biological monitoring plan; vegetation transect establishment; prep for presentation of monitoring plan to White Pine County; overview of BWG core team update to EC
66	BWG presentation	2009 02/03	2 hours	1 attendee. BWG member: 1 FWS.	BWG poster presentation at the 2009 NWRA conference on the biological monitoring plan
67	BWG/TRP/EC presentation	2009 02/17	2 hours	8 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM. TRP members: 1 SNWA, 1 BLM. EC: 1 SNWA. Invited: 1 NSE.	BWG/TRP/EC presentation to the White Pine County Advisory Board on the biological and hydrologic monitoring plans
68	BWG/TRP/DOI presentation	2009 02/25	2 hours	7 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM. TRP members: 1 SNWA, 1 BLM. EC member: 1 SNWA. 1 DOI liaison.	BWG/TRP/DOI presentation at the White Pine County Commission Meeting on the biological and hydrologic monitoring plans
69	Completion of monitoring plan	2009 02/19			Transmittal of Biological Monitoring Plan for the Spring Valley Stipulation (BWG, 2009) to BWG members and participants, EC and NSE.
70	Database development and live export	2009 03/02 - 2011 06/06	270 person-days	SNWA.	Development of secure database to ensure integrity, transparency, traceability, storage, security, and distribution. Development of live export to serve up-to-date data to Stipulation Parties.
71	Biological data collection	2009 03/12-05/28	40 person-days	SNWA. UDWR assist.	Northern leopard frog surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation

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72	BWG working meeting (call)	2009 03/19	2 hours	10 attendees. BWG members & participants: 2 SNWA, 1 FWS, 1 BLM, 1 NPS, 1 NDOW. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 KS2, 1 TNC.	Monitoring plan implementation; wildlife permits and private land access; vegetation transect design and establishment; database development
73	Vegetation transect establishment	2009 03/26-07/08	150 person-days	SNWA, KS2. BWG review.	KS2 design of long-term vegetation transects in spring, wetland, meadow and rocky mountain juniper (swamp cedar) sampling areas. Transects designed to cross aquatic areas and ecotones using vegetation community maps produced by KS2 and BIO-WEST for SNWA. SNWA establishment of permanent markers. GIS support.
74	BWG core team planning meeting (call)	2009 04/22	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM.	Topics and agenda for next meeting
75	BWG working meeting (call)	2009 04/23	2 hours	9 attendees. BWG members & participants: 1 SNWA, 1 FWS, 1 BLM, 1 NPS, 1 NDOW, 1 UDWR. 1 BLM EIS liaison. Invited: 1 BIO-WEST, 1 KS2.	Data collection schedule; wildlife permits and private land access; northern leopard frog survey protocols and update; single vs multiple observer methods for frog egg mass survey; vegetation transect establishment
76	EC/BWG core team meeting (call)	2009 05/06	1 hour	n.a.	Updates and feedback; White Pine County Commission letter of inquiry re: hydrologic and biologic monitoring plans; ecological modeling; data sharing
77	Biological data collection	2009 05/01-28	107 person-days	SNWA, BIO-WEST. NDOW assist.	Aquatic wildlife and habitat surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
78	Biological data management	2009 06/01-09/30	130 person-days	SNWA. KS2 (vegetation). BWG review.	Data entry and QA/QC for 2009 spring and summer surveys. Data shared with BWG members and participants. Development and implementation of work flow process to ensure integrity, transparency, traceability, storage, security, and distribution. GIS support.
79	BWG core team working meeting	2009 06/22	2 hours	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Goals, objectives and presenters of upcoming Ecological Modeling Workshop
80	EC/BWG core team meeting (call)	2009 06/23	1 hour	n.a.	Updates and feedback; White Pine County Commission letter of inquiry re: hydrologic and biologic monitoring plans; ecological modeling; data sharing.
81	Biological data collection	2009 06/30-08/10	16 person-days	KS2. SNWA, FWS assist.	Vegetation surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
82	BWG core team working meeting (call)	2009 07/09	2 hours	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Goals, objectives and presenters of upcoming Ecological Modeling Workshop
83	BWG core team working meeting (call)	2009 07/15	2 hours	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Goals, objectives and presenters of upcoming Ecological Modeling Workshop
84	Biological data collection	2009 07/23&30	4 person-days	NDOW, FWS, SNWA.	Shoshone Ponds fish surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
85	Biological data collection	2009 08/04-19	20 person-days	SNWA. KS2, FWS assist.	Valley-floor rocky mountain juniper (swamp cedar) surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
86	BWG core team working meeting	2009 08/19	1 hour	4 attendees. BWG members: 2 SNWA, 1 FWS, 1 BLM.	Goals, objectives and presenters of upcoming Ecological Modeling Workshop
87	Biological data collection	2009 09/01-25	107 person-days	SNWA, BIO-WEST. NDOW, FWS assist.	Aquatic wildlife and habitat surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation

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	Activity	Date	Duration	Agency Representation and Participation	Topics
88	Biological data management	2009 10/01-01//29	90 person-days	SNWA. BWG review.	Data entry and QA/QC for 2009 fall surveys. Data shared with BWG members and participants. Continued implementation of work flow process to ensure integrity, transparency, traceability, storage, security, and distribution. GIS support.
89	BWG/EC workshop	2009 10/29	8 hours	32 attendees. BWG members & participants: 2 SNWA, 2 FWS, 2 BLM, 1 BIA, 2 NPS, 2 NDOW, 1 UDWR. TRP members: 1 SNWA, 1 FWS. EC members: 2 SNWA, 3 FWS, 1 BLM. 1 BLM EIS liaison. Invited: 1 FWS BRT, 1 FWS, 2 TNC. Presenters: 1 ACOE, 1 DOI, 1 SNWA, 1 ESSA, 1 UNM, 1 KS2, 1 independent consultant.	Ecological Modeling Workshop: Presentations by T. Starfield (independent consultant; using models effectively for monitoring and management); J. Watrus (SNWA; CCRP groundwater flow model); L. Frid (ESSA; state and transition models, Vegetation Dynamics Development Tool [VDDT]); M. Stone and D. Sada (U. New Mexico/DRI; species-specific habitat evaluation models, Rio Grande Silvery Minnow restoration project); T. McLendon (KS2; mechanistic models, EDYS model); and D. Price (Army Corps of Engineers [ACOE]; ecological models used by ACOE re: water management); biological and hydrologic model coupling; rapid prototype modeling
90	Data analysis and annual report writing	2009 11/02 - 2010 03/29	200 person-days	SNWA. KS2 (vegetation). BWG review.	Major 2009 activities; survey methods; summary statistics and statistical tests; results; anticipated 2010 activities.
91	EC/BWG core team meeting (call)	2009 12/02	1 hour	n.a.	Updates and feedback; Ecological Modeling Workshop
92	BWG annual meeting	2010 01/11-12	13 hours	n.a.	SNWA presentations and BWG discussion re: 2009 biological data collection, results and interpretation, data QA-QC/integrity/transparency, and database development; sampling method revisions
93	BWG/TRP/EC annual meeting	2010 03/03	n.a.	n.a.	2009/2010 accomplishments; data QA-QC/integrity/transparency, and database development; sampling method revisions
94	Biological data collection	2010 03/09-04/21	40 person-days	SNWA. FWS, NPS, UDWR assist.	Northern leopard frog surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
95	Completion of annual report	2010 03/30			Transmittal of Spring Valley Stipulation Biological Monitoring Plan 2009 Annual Report (SNWA, 2010) to BWG members and participants, EC and NSE.
96	Biological data collection	2010 05/03-20	104 person-days	SNWA, BIO-WEST. FWS assist.	Aquatic wildlife and habitat surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
97	Biological data management	2010 06/01-09/30	105 person-days	SNWA. KS2 (vegetation). BWG review.	Data entry and QA/QC for 2010 spring and summer surveys. Data shared with BWG members and participants. Continued implementation of work flow process to ensure integrity, transparency, traceability, storage, security, and distribution. GIS support.
98	Biological data collection	2010 06/28-08/13	20 person-days	KS2. SNWA, FWS assist.	Vegetation surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
99	BWG/BRT working meeting (call)	2010 06/29	1 hour	8 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 NDOW, 1 UDWR.	Annual reporting procedures; goals of annual meetings; expectations and plans re: BWG/BRT analyses/interpretations and documentation;
100	EC/BWG core team meeting (call)	2010 07/07	1 hour	n.a.	Updates and feedback; reporting procedures
101	Biological data collection	2010 08/03-17	20 person-days	SNWA.	Valley-floor rocky mountain juniper (swamp cedar) surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
102	Biological data collection	2010 08/05&11	4 person-days	NDOW, SNWA.	Shoshone Ponds fish surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation

BWG and Biological Monitoring Activities under the Spring Valley Stipulation, 2006-2011.

	Activity	Date	Duration	Agency Representation and Participation	Topics
103	BWG core team planning meeting (call)	2010 08/09	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 NPS.	Topics and agenda for next meeting
104	BWG working meeting (call)	2010 08/16	1 hour	9 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 NPS, 2 NDOW, 1 UDWR.	Plans for BWG monitoring plan evaluation and rapid prototype modeling; springsnail protocol; statistical protocols; 2011 data collection
105	Biological data collection	2010 08/30-09/22	104 person-days	SNWA, BIO-WEST. NDOW, FWS, BIA, NPS assist.	Aquatic wildlife and habitat surveys conducted in accordance with the Biological Monitoring Plan for the Spring Valley Stipulation
106	Biological data management	2010 09/27-01//27	75 person-days	SNWA. BWG review.	Data entry and QA/QC for 2010 fall surveys. Data shared with BWG members and participants. Continued implementation of work flow process to ensure integrity, transparency, traceability, storage, security, and distribution. GIS support.
107	BWG core team planning meeting (call)	2010 10/05	1 hour	4 attendees. BWG members: 1 SNWA, 1 FWS, 1 NPS, 1 BLM.	Topics and agenda for next meeting
108	BWG working meeting	2010 10/26-27	12 hours	9 attendees. BWG members & participants: 1 SNWA, 2 FWS, 2 BLM, 2 NPS, 1 NDOW, 1 UDWR.	Goals/objectives/process of BWG monitoring plan evaluation; linking monitoring and management; rapid prototype modeling brainstorming (objectives, audiences, questions); water velocity and springsnail sampling techniques; update on TRP data collection (piezometers, flumes, water chemistry); Shoshone Ponds management; NDOW study proposal on Pahrump poolfish genetics; FWS update on ESA petitions and listings; timeline of data collection/studies/BWG monitoring plan revision
109	Monitoring plan evaluation	2010 12/06 - present		10 contributors. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NPS, 2 NDOW, 1 UDWR. Expert advice: 1 BIO-WEST, 1 DRI.	BWG evaluation of the monitoring plan in accordance with the monitoring plan and adaptive framework. Evaluation of 2009-2010 data, early warning indicators, sampling objectives, sampling designs, indicator ratings, indicator relationships, ranges of variation, conceptual models, and linking monitoring and management.
110	Data analysis and annual report writing	2010 11/01 - 2011 03/29	200 person-days	SNWA. KS2 (vegetation). BWG review.	Major 2009 activities; survey methods; summary statistics and statistical tests; results; anticipated 2010 activities.
111	BWG working meeting (call)	2010 12/13	1 hour	5 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NPS.	EC comments on BWG timeline of data collection/studies/BWG monitoring plan revision; BWG monitoring plan evaluation progress
112	BWG core team planning meeting (call)	2011 02/23	1 hour	4 attendees. BWG members: 1 SNWA, 1 FWS, 1 NPS, 1 BLM.	Topics and agenda for next meeting
113	EC/BWG core team meeting (call)	2011 03/02	1 hour	n.a.	Updates and feedback; timeline of data collection/studies/BWG monitoring plan revision
114	BWG annual meeting	2011 03/09-10	14 hours	13 attendees. BWG members & participants: 2 SNWA, 2 FWS, 1 BLM, 1 NPS, 2 NDOW, 1 UDWR. TRP member: 1 SNWA (TRP update). Invited: 2 SNWA, 1 NDOW.	Hydrologic monitoring activities; Shoshone Ponds wells and monitoring; review of draft annual report; SNWA presentations and BWG discussion re: 2010 biological data collection, results and interpretation; reporting procedures; sampling method revisions; BWG monitoring plan evaluation re: fish surveys (objectives, early warning indicators, indicator ratings, variation and trend, linking monitoring and management); rapid prototype modeling; timeline of data collection/studies/BWG monitoring plan revision; statistical objectives and resources
115	BWG working meeting (call)	2011 03/29	2 hours	4 attendees. BWG members: 1 SNWA, 1 FWS, 1 BLM, 1 NPS.	Prep for presentation to the EC on BWG activities, BWG monitoring plan evaluation, and timeline of data collection/studies/BWG monitoring plan revision

BWG and Biological Monitoring Activities under the Spring Valley Stipulation, 2006-2011.

	Activity	Date	Duration	Agency Representation and Participation	Topics
116	Completion of annual report	2011 03/30			Transmittal of Spring Valley Stipulation Biological Monitoring Plan 2010 Annual Report (SNWA, 2011) to BWG members and participants, EC and NSE.
117	BWG/EC annual meeting	2011 03/30	2 hours	14 attendees. BWG members: 3 SNWA, 1 FWS, 1 BLM, 1 NPS. EC members: 1 BIA, 2 SNWA, 1 FWS, 2 BLM, 2 NPS.	2010/2011 accomplishments; goals and process of BWG monitoring plan evaluation and revision; timeline of data collection/studies/BWG monitoring plan revision; 2011 SNWA field efforts in support of the Stipulation; using science to make recommendations of unreasonable adverse effects to the EC; BWG/TRP coordination; rapid prototype modeling
118	BWG core team planning meeting (call)	2011 05/31	1 hour	3 attendees. BWG members: 1 SNWA, 1 FWS, 1 NPS.	Topics and agenda for next meeting
119	BWG working meeting	2011 06/07-08	13 hours	7 attendees. BWG members & participants: 1 SNWA, 2 FWS, 1 BLM, 1 NPS, 1 NDOW, 1 UDWR.	2011 SNWA field efforts in support of the Stipulation; BWG monitoring plan evaluation re: fish, physical habitat and springsnail surveys (objectives, sampling design, scale, early warning indicators, indicator ratings, indicator relationships, linking abiotic and biotic data, conceptual models, variation and trend, targeted monitoring, linking monitoring and management); BWG/TRP coordination
120	BWG working meeting	2011 08/16-17	7 hours	To be determined.	Agenda: BWG monitoring plan evaluation re: fish, physical habitat, springsnail, rocky mountain juniper (swamp cedar), and water quality surveys; BWG/TRP coordination
121	BWG/TRP working meeting	2011 08/17	3 hours	To be determined.	Agenda: Coordination of hydrologic and biologic data collection