

Category	Number	Action Item	Next step	Status	Sort	Person	Completion date
BIOLOGY	1	CDMO and BMP will work together to revise Module 8.8 forms and supply this to operators in .xls format (spreadsheet) to aid in higher quality data as well as standardization. Include a means to identify grouted stream segments. This will also encourage electronic submission of data.	Posted to elibrary.	Completed	PCA	Hamlin & Shuler	Complete
BIOLOGY	2	Store biological data for each TBS in a place that is easily accessible, either on paper or CDs in the permit filed, labeled "Biological Data".	Undertaken by DMO	Completed	DMO		Complete
BIOLOGY	4	Generate a 3-yr letter to operators reminding them of their obligations to collect biological data and include a schedule to be met unless the operator can demonstrate there will be justifiable delays.	BUMIS trigger.	Completed	BMP	Shuler	Complete
Wetlands	5	Segregate wetlands data in the permit file to make retrieval easier.	Undertaken by DMO	Completed	DMO		Complete
Wetlands	8	Address the issue regarding 1:1 wetland replacement with staff. Encourage operators to design restorations to replace wetlands as they were previously.	Not typically problem. Make module change with justification. Include in TGD changes.	Completed	Operators		Complete
BUMIS	9	CDMO and BMP will work together to enhance BUMIS for affected streams by adding a specific "streams" input screen to collect the appropriate information and store it in a central location. Included in the modification will be a field representing length of stream grouted and use of the 5 digit WRDS stream codes.	In process. Draft screens being tested, working out glitches.	Completed	BMP	Shuler	Complete
BUMIS	10	Unique identifiers are now required on six-month mine maps. Follow through with this practice.	Completed. Operators complying.	Completed	DMO	Shuler	Complete
BUMIS	15	Revise Module 22 of the permit application to clarify identification of feature types.	Not needed. Operators already providing this	Completed	BMP	Shuler	Complete
Data Issues	19	Consider more frequent sampling of streams during key times to allow for a better assessment of flow loss. Discuss this with the operators including use of automatic recording equipment.	Considered. TGD changes incorporated. Auto equipment is not feasible due to many points, connectivity and need for other visual measurements anyway.	Completed	DMO	Hamlin	Complete
Data Issues	22	Assess if additional info is needed in hillslope areas.	Completed. No changes needed.	Completed	DMO		Complete
Data Issues	23	Add checkbox for pre/post mining to biological data form.	Not needed. Use the date provided to determine pre/post.	Completed	BMP		Complete
DEP Process	27	Examine the information provided on augmentation wells to assess if this is currently adequate. Consider augmentation wells in the impacts to aquifers. Operators should be informed about reporting all water withdrawals to DEP. (Refer to Chapter 110 regulations and <a href="http://www.pawaterplan.dep.state.pa.us/StateWaterPlan/WaterUse/WaterUse.aspx">http://www.pawaterplan.dep.state.pa.us/StateWaterPlan/WaterUse/WaterUse.aspx</a> )	"Augmentation" tab created in the stream section of BUMIS. Water Use section is aware that reporting is an issue for stream augmentation use. Enforcement is beyond the scope of this report.	Completed	BMP	Plazek/Shuler	Complete

DEP Process	28	Consider better handling of application module information updates in the permit file so that changes from previous versions are evident.	Transition to e-permitting.	Completed	DMO		Complete
DEP Process	29	Consider improvements in how permit information and reports are stored and accessed. Encourage electronic submittal from operators. Scan paper data and store electronically. Files should be labeled appropriately and include sub-files that are labeled with the particular data type. If the data is stored electronically, it should be in a central location (server) and a note should be placed in the permit file indicating which data is stored electronically.	Discussed with Bureau. Changes to be implemented eventually, e-permitting transition.	Completed	DMO		Complete
DEP Process	31	Examine how to improve integration of permit document information with GIS.	Moving to e-permitting eventually.	Completed	DMO	Hamlin/Shuler	Complete
DEP Process	33	Track data submissions to ensure they are submitted in a timely manner possibly through use of eFACTs self-monitoring screen as a tracking tool. Follow through with notices of violation, if delinquent.	Discussed with Bureau. Changes to be implemented eventually, e-DMR transition.	Completed	DMO		Complete
DEP Process	35	Compile stream loss info in real time to save effort for 5 year trigger and formal documentation of process. This can be part of the SOP regarding undermined stream assessment to be developed (Recommendation #30).	Wrapped into #30	Completed	DMO	Hamlin	Complete
Policy	36	Pursue remedies to have operators supply ALL data they are recording, not just the minimum requirements.	Worked into draft Streams TGD.	Completed	Operators		Complete
Policy	37	Examine if a checklist or training for consulting biologists is necessary to ensure quality collecting techniques and that recommended procedures are followed.	To be proposed to Bureau directors after proposed changes to Appendices A & B are completed. See #3 and 38	Completed	DMO	Plazek	Complete
Future Report	39	Follow up on Brush Run (after the study period).	Company has submitted final report. Check with CalDMO for status of review.	Completed	DMO	Shuler	Complete
Future Report	41	Consider the timing for the next report to allow for the submission and preparation of all data (six-month mine maps) for that 5 year period.	On schedule.	Completed	BMP	Shuler	Complete
Wetlands	6	Evaluate multiple delineations of wetlands during initial assessment. Have discussion with operators to examine the issue.	Module change in draft.	Completed	Operators		End 2016
Wetlands	7	Add to Module 8.12 a comment regarding when grouping of wetlands in the delineation phase is or is not appropriate.	In draft, under review.	Completed	BMP	Shuler	End 2016
General	44	Require increased cooperation between CDMO and BMP to make changes to forms, modules, policies and procedures. Specifically, examine the CHIA procedure.	CHIA process changes underway. Will address several issues brought up by the citizens in the public meetings. Other form changes will follow from CHIA format changes as needed.	Completed	BMP	Hill/Shuler/Greenfield	End 2016
BUMIS	11	Design a standard operating procedure (SOP) for input of BUMIS data. Examine staff ability to do this, emphasize quality control. Consider a mining specialist for this task.	Revise BUMIS manual for data entry to include procedure for entering stream data. SOP was not needed.	Completed	BMP	Shuler/Plazek	2017

DEP Process	32	Use the USGS stream study when completed to make procedural changes to the program. Make the conclusions of this study public.	In process. About half complete. Data collection and analysis continues into 2017 with projected end date of 3rd quarter 2017.	In process	BMP	Shuler	2018
General	45	Review Module 8 for general improvements.	Revisions in draft. Full rewrite pending.	In process	BMP	Shuler	2018
Data Issues	18	Develop written standards for monitoring data collection and submission.	Refer to regs, modules, DEP sampling guides, eDMR will solve submission issue. Submission checklist coversheet already exists.	Near Future	BMP	Greenfield	2018
Data Issues	26	Develop written standards for six-month mine maps.	Discussion with DMOs to be initiated by BMP. Contact Matt in California DMO.	Near Future	BMP	Plazek	2018
Policy	38	Review the streams policy TGD 563-2000-655 to assess changes that need to be made.	<b>Pending next meeting of stream group, possible hold until USGS study completed.</b>	On hold	BMP	Hill	2018
BUMIS	12	Revise data collection forms (including biological data) for operators to insure that the needed information is collected upfront (lat/long, land effects). Conduct an information meeting with operators and inspection staff to emphasize importance of location data.	Revise operator input sheet. Sheet for streams/structures/water supplies.	Ongoing	BMP	Shuler	2018
Data Issues	17	Standardize HMR. DEP should not continue to accept individually designed forms from operators. Naming conventions and abbreviations used are to be explained. Points are to be uniquely labeled with accurate lat/long. The CDMO will encourage operators to submit in electronic spreadsheet format to a dedicated email account. Files should be stored on a server for easy access.	Actions have been taken. eDMR process will affect this item as more clients register.	Ongoing	PCA	Shuler	2018
Data Issues	20	Pursue eDMR process to collect HMR data. Implement as soon as possible.	Finalizing online access	Ongoing	BMP	Allen	2018
Data Issues	21	Determine what data is needed to best assess streams potentially affected by mining. Produce a public explanation of the determination. Does frequency and reporting of stream flow data need to be revised?	Part of policy workgroup discussion and stream study results which are on hold or pending.	Ongoing	BMP	Whiteash	2018
Data Issues	24	Address missing and mistaken (monitoring) data submitted. Develop SOP for reviewing and promptly flagging bad data from operators and addressing it for correction. Train staff on this issue.	Identify who receives monitoring data by type, what happens to it. QA/QC process, prelim screening. Volume issue. See # 17	Ongoing	DMO	Shuler	2018
Data Issues	25	Encourage use of spreadsheets from operators to track stream flow to keep up to date on potential problems and recovery progress.	Form 8.4A could be used by compliance staff to track this information rather than operators using the form to submit the info. Inform DMO.	Ongoing	PCA	Hamlin	2018
DEP Process	34	Regularly assess successful and unsuccessful stream mitigation projects. Share information via articles or presentations to staff and public that evaluate existing and new techniques.	Write up BMP findings. Stream inspections constant. Report resolved vs outstanding issues.	Ongoing	BMP	Hill	
BUMIS	13	Assess BUMIS to identify what enhancements (in addition to the stream screen as given in #9) can be made and plan to coordinate action on changes. (Examples: land effects, feature types, unresolved structure effects, interim resolution/current status)	To be addressed after initial screens created	Ongoing	BMP	Shuler	2018
BUMIS	16	Fix multiple BUMIS designations for recovered stream resolution final status, or clarify the various terms used if definitions are different.	Create drop down menu with 10-12 designations. Address in the SOP for BUMIS input. #11	Ongoing	BMP	Shuler	2018

DEP Process	30	Develop SOP for tracking and investigating stream impacts, augmentation rates, dates, stream section locations. CDMO and BMP should develop a plan for review of problem cases of stream effects. Consider findings of stream assessment review project between CDMO and BMP. Determine if further research on assessing stream impacts should be considered and, if so, identify the research questions and how the questions will be investigated. (see #1 & 25 for tools) [Include former #35 - Compile stream loss info in real time to save effort for 5 year trigger and formal documentation of process.]	Integrated with TGD change. Framework for Streamflow Recovery/Restoration Reports drafted. Add forms and templates. SSA stream logs standardized.	Ongoing but pending stream study results	BMP	Whiteash	2018
BIOLOGY	3	Transition to December-May as index period as requested. This requires a change to the stream policy document and a transition plan for compliance.	Plan is to remove the biology protocol from the Stream Policy.Part of Stream policy workgroup	Set for next report	BMP	Hill	
Future Report	43	Provide researchers with a clear explanation of what BUMIS is, what data is collected, and what is not included in the database.	This will be completed prior to the beginning of the Act 54 Report (May 2107)	Set for next report	BMP	Shuler	
Future Report	42	Plan for regular quarterly meetings with the researchers to answer any questions and address problems as they come up.	To be handled by BMP in next report. A meeting schedule will included with the University contract.	Set for next report	BMP	Shuler	
BUMIS	14	Replace BUMIS (long-term).	No current plans to replace BUMIS.	Long term	BMP		
Future Report	40	Consider research into evaluating the effects of longwall mining on stream water quality. This can also be a separate contract with USGS.	Discussed with UGSS at tech transfer meeting August 2016.	Long term	BMP		