

A1. Title and Approval Sheet

Quality Assurance Project Plan for: St. Joseph County Conservation District

Title: Bug Brigade

Date: September 9, 2016

Version #2

Organization: St. Joseph County Conservation District

QAPP Prepared by: Carolyn Grace

Title: Administrator

Signature_____

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Approved _____	Returned for Modification _____
Signature of Reviewer _____	Date: _____

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A3. Distribution List

The following individuals will receive a copy of the QAPP:

- St. Joseph County Conservation District: Carolyn Grace, Administrator
- Shelby Glessner, Program Coordinator
- Denny Seltzer, Scientific Supervisor for Bug Brigade
- Michigan Clean Water Corps: Dr. Paul Steen

A4 1-4 Program Organization

1. Management Responsibilities:

Shelby Glessner, Program Coordinator, St. Joseph County Conservation District

Shelby is the contracted coordinator for the volunteer stream monitoring program and the primary person responsible for field activities. She will also assist the Administrator with management activities.

Responsibilities

- Implement a Quality Assurance Project Plan (QAPP)
- Assist Administrator with program acidity promotion and volunteer recruitment
- Assist, Coordinate and conduct volunteer stream monitoring training
- Coordinate and implement volunteer stream monitoring field data collection sessions
- Implement indoor macroinvertebrate identification sessions with Denny Seltzer
- Provide copies of all products and deliverables in hard and electronic form

Carolyn Grace, Administrator, St. Joseph County Conservation District 269-467-6336 ext 5,
carolyn.grace@mi.nacdnet.net

Responsibilities

- Provide administrative and budget oversight for the program
- QAPP implementation and oversight
- Assist with data entry and analysis
- Write quarterly financial reports
- Provide all products and deliverables in hard and electronic forms
- Assist with volunteer stream monitoring training session
- Assist with macroinvertebrate identification
- Coordinate and implement school sessions, and other groups for indoor identification
- Submit final report
- Submit release of claims statement

2. Field Responsibilities

Field sampling is performed by volunteers. Team Leaders and Collectors receiving training in field data collection methods by Program Coordinator and Administrator.

Team Leaders organize a stream monitoring strategy and delegate monitoring roles for each team. In the field, Team Leaders completely fill out data sheets, explain sampling of the site, time guidelines, collection directions and any other responsibilities. Pickers follow instructions from team leaders. Collectors sample all in-stream habitats and provide the pickers the samples to be identified. They will sort at the site picking out the macroinvertebrates from the sorting tray and ice trays, putting them in a collection jar, and preserving them in 70% ethanol for later identification.

3. Laboratory Responsibilities:

Denny Seltzer, Graduate student and longtime Macroinvertebrate identifier, has agreed to act as the Scientific Supervisor for the St. Joseph County Conservation District Volunteer Stream Monitoring Program. He will help the administrator with purchasing two microscopes and provide two other high powered microscopes of his own for sample identification. Volunteers, students and SJCCD staff will take part in collection and identification events. Any sample identification that cannot be completed during the scheduled time will be completed by Denny.

4. Corrective Action:

The Administrator and program coordinator are the primary persons responsible for initiating, developing, approving, implementing and reporting corrective actions concerning data quality.

A5. Problem Definition/Background

St. Joseph County Conservation District has an active River Clean up Crew that help maintain 25-32 miles of waterways in our county each summer. We have removed over 9 tons of trash over the course of five years, and have cleaned over 140 miles of river. Data about water quality now can be collected to investigate the usefulness of clean-up crew efforts.

This start up grant will allow the Conservation District and the lead volunteers, to get training with MiCorps and develop a monitoring plan. Obtaining strong partners from the community will also be part of this start up project. The volunteers, needed for this project, the district feels confident that piece of the puzzle is already in place with our River Clean up Crew.

While this is not a planned nor intended as a school and classroom program, we do plan to explore training a high school science teacher at a local high school to be a team leader and incorporate members of her biology class into the volunteer team. Many students participate in FFA and 4H in this county and have strong roots in the area with fishing, hunting and other outdoor activities. This will add an understanding of health of their waters and will serve to engage the youth to be part of a new and dedicated long term stewardship. St Joseph County located in Southwest Michigan has a total area of 520 square miles. We have the most miles of rivers, streams, and lakes than any other

surrounding county. With 152 miles of navigable rivers they are extensively used for recreation. Every five years Conservation Districts are required to survey the general population about resource concerns in their county. Results showed that 56% responded they had Watershed Concerns about water quality of our rivers.

The St Joseph County Conservation District has been instrumental in cleaning the rivers of debris for several years, and now we seek to lead the charge in the monitoring the waters we have specifically focused upon cleaning. The Volunteer Stream Monitoring Program (VSMP) will be a way to add a new level of focus to our community. We will educate and engage our regular crew and recruit a new more scientific minded crew to participate in gathering baseline data about our rivers in three of our sub watersheds within the St Joseph watershed.

Two watershed plans, Rocky and Portage Watershed plans, are over 10 years old and revisiting some of the macroinvertebrate sights that were listed in these reports will provide follow up information for possible revisions of these plans. The 2014 Prairie Watershed plan has recommendations for possible macroinvertebrate site collections.

The focus of the VSMP in St Joseph County will be within three sub watersheds of the St Joseph River Watershed. The Prairie River Watershed, the Rocky River Watershed and the Portage River Watershed.

The first river of focus will be in the Rocky River Watershed Management plan, is over 10 years old, and I think some of the areas of concern then need to have some follow up data which this project will supply. The second focus area will be in the Portage Watershed and finally using the recommendations of the Prairie River Watershed Management plan 2014, it will direct the last few site areas.

Primary Goals

- Outreach to and educate residence of St. Joseph County about water quality and the importance of healthy habitat and benthic macroinvertebrate populations in our local rivers and streams, by providing them an opportunity to become involved in the VSMP.
- Select site locations within the Portage River Watershed, Prairie River Watershed, and the Rocky River Watershed that will generate the data for our District as well as local agencies such as DEQ.
- Engage groups and individuals in hands-on water monitoring collection and identification of the bugs within the stream or river.
- Monitor stream health in three watersheds within St Joseph County. This will include comparison of water quality data from previous monitoring and new baseline water quality data for others.
- Recruit, train, and manage volunteers for futures monitoring efforts and work to establish a group to support a long term Volunteer Stream Monitoring Program.

- Develop a power point presentation to be used for the future which can be presented to the county commissioners, municipalities, schools, volunteers and at our District events.
- Work cooperatively with surrounding Conservation District's to monitor water bodies that cross county lines.

A6. Program Description

The primary objective of this program is to track long term changes in the stream health and water quality through an ever growing established volunteer monitoring program in the Rocky River, Prairie River and the Portage River watersheds. Twice each year, macroinvertebrate samples will be collected at the nine sampling locations within the three the three watersheds. The sampling events will take place once in the fall and once in the spring. Collections will be stored at the SJCCD office for identification within two weeks of the sample collection. Data will be entered and maintained in hard copy and electronic format at our office. Program reports will be completed and distributed to project partners. Sampling results will also be made available to the general public. It is the hope of the administrator that the residents of St. Joseph County will get involved in this program and become a long-term volunteer for not only this program, our river cleanup program and our Local food dinner.

A7. Data Quality Objectives

Precision/Accuracy: Rivers monitored in this project are assessed by examining aquatic macroinvertebrate community diversity. Quality control during field data collection, to guarantee precision and accuracy, is accomplished by the Administrator and project coordinator who accompanies teams to observe their collection techniques and note any divergence from protocols. In addition, key team members such as leaders and collectors must have attended at least one training event prior to the field collection event. Since this is a new program, the administrator and or coordinator will also perform independent side-by-side collection for duplicate samples at one of the sites monitored by each volunteer team. When the program expands the administrator or coordinator will accompany new teams during their first macroinvertebrate sampling event and collect duplicate samples.

Techniques reviewed at training events and in the field will 1. Include a vigorous and thorough collecting style, 2. Will include all habitats and be thorough in each habitat diversity. 3. The picking style must be thoroughly picked through all materials collected and all sizes and types picked. 4. Must ensure a variety and or diverse and abundant samples of organisms. 5 The transfer of the collected macroinvertebrates from the net to the jars will be properly handled and labeled correctly.

Side by side sampling results by administrator are compared with volunteer team results to determine if there is a strong divergence between measures of stream quality index (SQI) and total diversity (TD). If either score varies using an 80% threshold, then follow up is carried out where the project administrator reviews methods with team members and encourages attending another training.

The accuracy of specimen identification is dependent upon the ability of the experts aiding in the indoor identification session. Because of the inexperience of the entire team, Denny Stelzer, will verify all identifications for the first three collection events. This will allow for the administrator, coordinator and any volunteer to gain experience in identification without affecting accuracy. With training by Denny to the administrator they will review at least one sampling at each river identified and if more than 10% of specimens were misidentified, then Denny will once again be the expert reviewing the sample.

A given site's stream quality index (SQI) score or total diversity (TD) measure across macroinvertebrate taxa will be noted as "preliminary" until three fall samplings and three spring samplings have been collected.

MiCorps staff Dr. Paul Steen conducted a side by side in August 15, 2016 at Canoe Park in Centreville, Mi. No issues were found with the Bug Brigade's macroinvertebrate collection procedures and the program was considered to be compliant with MiCorps standards.

Bias: Sites will be sampled by different teams at least once every three years to examine the effects of bias in individual collection styles. A relative percentage difference (RPD) calculation between the new measure and the mean of past measures should be less than 40% for both SDI and D. Sites meeting this data quality objective will be evaluated by the administrator using the proper formula. If the sample falls outside this range, then administrator will conduct a more thorough investigation to determine which team or individual is likely at fault. The coordinator will accompany teams to observe their collection techniques and note any divergence from protocols. The program coordinator may also perform an independent collection or duplicate sample no less than a week after the team's original collection. It is also possible that the program coordinator can conclude that all sampling was valid and the discrepancy between samples is due to natural variations such as changing over time or unrepresentative sampling conditions.

Completeness: A measure of the amount of valid data actually obtained versus the amount expected to be obtained as a specified in the original sampling design. It is usually expresses as a percentage. For example, if 100 samples were scheduled but volunteers samples only 90 times due to bad weather the completeness record would be 90%.

Following a quality assurance review of all collected and analyzed data, data completeness is assessed by dividing the number of measurements judges valid by the number of the total measurements performed. The data quality objective for completeness for each parameter for each sampling is 90%. If the program does not meet this standard, the Program Coordinator

will consult with MiCorps staff to determine the main causes of data invalidation and develop a course of action to improve the completeness of future sampling.

Representativeness: Study sites are selected to represent the full variety of stream habitat types available. Each site will be sampled and documented to ensure a thorough sampling of all of the organisms inhabiting the site. Resulting data from the monitoring program will be used to represent the ecological conditions of the contributing watershed. Since limited resources are available to allow the program to cover each watershed in its entirety, some areas will not initially be represented. Additional sampling sites will be added as volunteers allow and staff is acquired.

Comparability: Comparability represents how well data from one river or study site can be compared to data from another. To ensure data comparability, all volunteers participating in the monitoring program will follow the same sampling methods and use the same units of reporting. The methods for sampling and reporting are based on MiCorps standards that are taught at macroinvertebrate trainings. The administrator and program coordinator will train volunteers to follow those same methods to ensure comparability of monitoring results among other MiCorps programs. To the extent possible, the monitoring of all study sites will be completed in a two day period and certainly within a two-week time frame.

A8. Special Training/Certifications

Carolyn Grace, administrator and Shelby Glessner, program coordinator, have received MiCorps training in June 2016. Shelby and Carolyn have attended several mock collection, and identification events. They will share coordinating and training of team leaders along with Denny Seltzer. Team leaders will be trained prior to their initial sampling events. All team leaders will be required to attend program training at least once every other or every three years. Other volunteers including the pickers and collectors will be offered training prior to or the day of the sampling event.

Training of Team Leaders and Collectors:

- The training covers program goals and objectives
- Macroinvertebrate collection methods
- Filling out field data sheets
- Safety issues and waivers
- Quality assurance practices.

Training will be held at the Conservation District prior to each field event if the volunteer group changes.

A spreadsheet will be utilized by the project coordinator that lists all volunteers that have received training as well as the date and a brief explanation of their ability.

After the training at the Conservation District the participants will visit a stream to practice assessing physical habitat characteristics, sampling of macroinvertebrates and familiarity with

identification to the order level. The program coordinator will maintain the database for the trained volunteers.

B1 Study Design and Methods

The benthic macroinvertebrate community in the Rocky River watershed was previously sampled in the Rocky River watershed management plan. This river has 3 sites to be sampled. The data will be used by the SJCCD when updating the 2006 management plan.

The benthic macroinvertebrate community in the Portage River watershed has been identified by the NRCS lead personnel in the SJCCD, and the Drain Commissioners office as a non-point source pollution problem. There are 3 sites to be monitored on the Portage River.

Finally the three sites on the Prairie River were chosen from the Prairie River Watershed management plan. The Branch county Conservation District identified several sites in that plan to be monitored. However, due to time, these were not completed. This study will not only use the data for this program but will share the data with the Branch District to be added to the 2016 Watershed management plan.

All nine sites will be monitored twice per year, once in May or June and again in October, and following the stream monitoring protocol, for the two year project. The nine sites are all major sub-watersheds to the St. Joseph River. A diverse representation of land types and uses are included in the sites, from a wetland and forested area, to agricultural and residential uses.

The nine study site locations are as follows:

Sight 1: Rocky River at Bent Rd. This is the first accessible site at which the Rocky River flows into St. Joseph County from Cass County. It was chose due to three small tributaries flowing in to this section which have had livestock and *E.coli* concerns. According to the 2006 Rocky River Watershed management plan this area was fair. The data collected will be compared to the older data on hand.

Site 2: Rocky River at Null Rd. Flowerfield Township downstream of the Flowerfield and Spring Creek but before it joins into the St. Joseph River. This site received a good rating and the administrator would like to compare data from the previous data collected in 2006.

Site 3: Memory Isle Park. Downtown Three Rivers. Section 18 at the intersection of the Rocky River, Portage River and St. Joseph River. A comparison to the Rocky Watershed Management plan will be conducted as it was in poor condition at the 2006 collected data.

Site 4: Portage River at Silver Street Bridge. A quarter mile downriver from the mouth of Portage Lake
Concerns have been raised by the homeowner's about this site as many recreational canoe and kayakers enter the river at this point.

Site 5: Portage River at Parkville Rd. The SJCCD has been placed on the DNR removal for the current dam at the Parkville Rd Bridge. This site will be tested over the three years to see macroinvertebrate population before during and after removal of the dam.

Site 6: Portage River at Hoffman Bridge. Section 17 in the city of Three Rivers. Levels of *E.coli* have been detected. City manager would like to have this site monitored for further data

Site 7: Prairie River at Deer Park Rd. This site was chosen because of the location and availability and proximity to the school and Conservation District for training purposes. Also it is directly inside the county line from Branch. The Prairie Watershed Management Plan (PRWMP) identified this as a priority but could not be sampled due to completion of the plan before crew could sample. The data collected will be added to the Prairie River Watershed management plan as needed.

Site 8: Prairie River at Hackman Road. Section 7 in Burr Oak Township. This is an area of concern identified by the PRWMP and the drain commissioner as it contains a great deal of sediment.

Site 9: Prairie River at Findley Road crossing. The apparent runoff from local farmers was identified in the PRWMP and no data was collected to support the questions raised by them.

Timeline:

For each sampling site event that is not completed in a single day, monitoring by volunteers will be completed within the two week period. If a site is temporarily inaccessible, for example by high water, the monitoring time may be extended for an additional two weeks. If that may occur the program coordinator will make other arrangements for site testing.

The physical characteristics of the sites will be monitored once every year during the project in the summer.

Sampling the Macroinvertebrate Community

Collections will be taken from each habitat type present at the site within a specified period of time, including under rocks, riffles, large debris, leaf packs, submerged vegetation undercut banks, and depositional areas using D-frame kick nets.

Collection times:

1 volunteer collector= 30 minutes per site

2 volunteer collectors= 40 minutes, 20 per person

The trained team leader will record the location, samples in each habitat type. The volunteer collector will collect and transfer the material and water from the net into the buckets. The pickers will transfer material from buckets to trays and pick out samples of all macroinvertebrates from the trays and place them into the jars that contain 70% ethanol for later identification.

During the collection, the collector will provide information to leader in response to any questions on the data sheet that review all habitats to be sampled. Volunteers on land will be runners to assist in transporting buckets from collectors to other team members to minimize the amount of time a collector spends walking to the bank and not collecting. If enough volunteers, the team leader will instruct other team members in detecting and picking bugs in the sorting trays, including looking under the debris in trays to ensure all macros were picked in placed into the jars.

Potential sources of variability such as weather, stream flow, season, and site characteristics will be noted for each event and discussed in the study results. There are places on the data sheet to record unusual procedures or accidents, such as losing part of the collection by spilling. Any variations in procedures will be explained on the MiCorps data sheet found in Appendix B, pages 18-19.

While at each of the sites, all invertebrate sample jar will have a label written in pencil, starting date, location, name of collector, and number of jars containing the collection from this site, which is placed inside the jar. The data sheet also states the number of jars containing the collection from each site.

The team leader is responsible for labeling and securely closing the jars and is responsible for returning all jars and equipment. Upon returning to the Conservation District, the program coordinator receives the collections which are then checked for labels, the data sheets are checked for completeness and for correct information on the number of jars containing the collection from each site, the jars are placed together secured by a rubber band or into a zip lock bag, placed in a box and stored in the office until they are examined and counted on the identification day within two weeks of collection.

Sample tags and labels are attached to this plan, as well as other forms needed.

Data sheets from the collection event are used during the identification event, after which they remain on file. At the time of identification, the sample identifier checks the data sheet and jars to ensure that all jars, and only the jars, from that collection are present prior to emptying them into a whit tray for sorting. If any specimens are separated from the pan during id, a site label accompanies them.

For identification, volunteers sort all individual from a single jar into look-alike groups, and then are joined by the identification expert who confirms the sorting and provides identification of the taxa present. When identification of a sample is complete, the entire collection will be placed in a single jar of fresh ethanol with a ply-seal cap and printed label inside the jar and stored at the SJCCD office indefinitely. The label will include the date, location of the collection and who was responsible for the storing of the sample. The 70% ethanol will be changed in the jars every few years.

Habitat Assessment

A habitat assessment will be completed in the fall during a two week period once every 2 years. A descriptive procedure is provided to the administrator, project coordinator or volunteer to

guide them through the process. Photos will be used to document areas of erosion, degradation or concern. Monitoring procedures and methods will follow the MiCorps guidelines. Data sheet attached, Appendix C.

Equipment for stream habitat assessments include a nylon tape measure and a wooden measuring stick, both marked in feet and tenths of feet. A camera will be used to take photos of habitat conditions and a pencil sketch of the sampling site will be included on the data sheet.

B2. Instrument/Equipment Testing, inspection and Maintenance

In the week prior to the monitoring event, the Administrator and program coordinator will check all equipment carefully. Supplies for each team will be put in a 5 gallon pail to include 2 smaller buckets, 2 nets, 2 plastic sorting trays, 3 tweezers, 2 eye droppers, one or two squirt bottles, an ice cube tray, clip board with pencil attached, datasheets for each site, a map, and pre-labeled jars with alcohol. A first aid kit will be given to the Team leader. All equipment will be stored at the St. Joseph County Conservation District storage closet.

- **D-frame nets:** inspected before and after sampling to look for any defects or tears. All nets hosed down after each use and before storing.
- **Collection jars:** All jars will be opened and closed to ensure tight fit. Fresh ethanol will be provided for each sampling team prior to collection event. Damaged jars will be disposed of and new purchased.
- **Forceps/tweezers:** will be cleaned and inspected to make sure the tips still are able to be used to pick bugs.
- **Sorting Trays:** inspected and washed to ensure ready to be used.
- **Buckets, ice cube trays and squirt bottles:** inspected for cracks and leaks.
- **Magnifiers/Scopes:** Will be cleaned and inspected to make sure they function properly
- **Waders and Life Jackets:** Waders and life jackets will be available to volunteers for collection events. They will be inspected for leaks and washed before storing.
- **First aid kit:** Each will contain a bandages, gauze tape and supplies for low risk injury.

B3 Inspection/Acceptance for Supplies and Consumables

- **D-frame nets:** Nets to be replaced when damaged or program grows and more are needed. 6 purchased June 2016
- **Collection jars:** 36 4oz jars and 24 2oz jars purchased June 2016, resupply when needed.
- **Forceps/tweezers:** 36 purchased June 2016. Replacements will be ordered when no longer functioning.
- **Ethanol:** Purchased jug June 2016, replace when all consumed.
- **Sorting Trays:** 12 trays purchased June 2016. Replace as needed.
- **Buckets, ice cube trays and squirt bottles:** Obtained June 2016 replace on a needed basis.

- **Waders and Life Jackets:** will be kept in the storage shed next to the SJCCD office and repurchased when needed
 - **First aid kit:** will be checked after each event to be restocked if needed.
- Prior to event all data sheets will be printed and put onto the clip board for sampling event. All labels and any other material needed put into buckets for easy transportation.

B4. Non-direct Measurements

This section is not applicable to our project

B5: Data Management

Macroinvertebrate and habitat assessment data will be entered by either the Administrator or program coordinator to the MiCorps excel workbook for long-term storage. After each of the sampling events, all new data will be entered into the MiCorps data exchange system. Data sheets will be filed at the St. Joseph County Conservation District office for five years. After each event, any photographs and digital files will be stored on the SJCCD server and on a flash drive.

The final data will be shared on the SJCCD web page for others to view and get excited about joining the next round of sampling events.

C1. Assessments and Response Actions

Annual events schedule for Stream Monitoring

Volunteer recruitment: Year round, but mostly the month or two before the fall and spring sampling events. District administrator and program coordinator will do this along with lead team members asking friends and family to participate.

Volunteer Training event: Twice yearly 1-3 weeks prior to fall and spring sampling events. Administrator can add additional events when necessary.

Fall Field Macroinvertebrates Sampling: First week of October by the administrator, program coordinator and volunteers

Spring Field Macroinvertebrate sampling: Last week in March or First week April by the administrator, program coordinator and volunteers.

Indoor Identification events: 1-2 weeks after fall and spring sampling events. Administrator and Denny, along with volunteers if possible.

Data quality assessments will be conducted by the Administrator after every filed sampling which is twice annually (October and March) and after sample identification, also twice annually (October and April).

The Project manager and lead volunteers will conduct in-Field quality assurance, and the administrator will conduct the assessment of data sheets after the event.

The Administrator will closely monitor indoor identification events for quality assurance and assess all data prior to final entry into the MiCorps Data Exchange Network. Corrective actions will be the responsibility of the Project Coordinator and the Administrator with the Lead volunteers. Positive assessments or corrective actions will be reported to program volunteers by the Administrator or the Program Coordinator. In the event of corrective actions, they will be reported to MiCorps in quarterly progress reports.

C2. Data Review, Verification, and Validation

Project volunteers and team leaders will be trained in proper field and laboratory procedures by the Administrator and the program coordinator of MiCorps staff to ensure that quality assurance protocols are followed in the field. The administrator will review all field data sheets for completeness within the week of sampling. The Project Coordinator will accompany teams in the field to perform side-by-side sampling and verify the quality of work by the volunteer teams. The Administrator, with the help of Denny Stelzer, will verify all order-level identifications and perform all family-level identifications for at least the first year of the program. Details of this process is included in A7.

If deviation from the QAPP is noted at any point in the sampling or data management process, the affected samples will be flagged in the database and will not be used for stream assessment of comparisons.

As noted in A7, all data will be considered preliminary until three years of monitoring have been completed at a site. Any checklists, forms and calculations will be attached to data forms.

C3. Reconciliation with Data Quality Objectives

The following data quality objectives will be assessed during different phases of the program.

Equipment Quality Control:

1. All field sampling gear for each team is gathered and inspected. This includes nets, trays, buckets, forceps, eye dropper, ice cube trays, squirt bottles and containers.
2. Containers will be pre-labeled with sampling data written in pencil. The River name and site name will be listed. Containers will be filled half way with ethanol. Containers will be divided between buckets for each site.
3. Data sheets. Each team will have a clipboard and pencils. Data sheets will be pre-labeled with information and placed in the bucket to be taken to the correct site.

All equipment will be returned, checked over, cleaned and stored after each sampling event.

Field Procedures Quality Control

1. Each team will have one trained leader and or collector.
2. The team leader is to inspect bucket for all materials and data sheets.
3. Team leaders will monitor collection at each site for collecting style which follows information stated previously
4. 300 ft. of stream length will be sampled

5. Sampling should last at least 30-40 min of total collection time.
6. Roughly 100 organisms should be collected at each site, with an emphasis on collecting diversity versus quantity
7. Replicate macroinvertebrate sampling must be performed during side-by-side field data collection when a new volunteer monitoring team starts monitoring and then every 3 years thereafter. The program coordinator or Administrator or qualified expert will accompany the team and collect bug data to compare diversity indices with those of the team and thus verify quality control in collection techniques and thoroughness.
8. Before leaving a site, the team leaders will assure that the data sheet has been filled out, notes were taken and difficulties or other observations, sample containers are sealed and have proper labeling, equipment rinsed and all other materials are picked up.

Indoor Sorting and Identification quality control

1. All jars with macroinvertebrates must be checked by Administrator upon receipt from volunteer team to assure that they are labeled and properly fastened.
2. Field data sheets used by volunteers must be checked for completeness and to verify that the correct number of containers from the site is indicated on the form
3. Prior to identification, datasheets and containers checked before opening containers to begin identification
4. If any specimens are separated from the tray during sorting an identification tag must be with it.
5. All samples must be checked and verified by a qualified expert.
6. Following identification all specimens from the sample site will be stored in 70% ethanol in containers and label included in the container that includes all relevant information. (River, sample site, and event date)

Data Analysis Quality Control

1. Field data sheets must be reviewed for errors upon receipt by project coordinator or administrator. To minimize errors before they are entered in the MiCorps Data Exchange
2. Calculations for diversity indices will be verified by administrator to minimize errors.
3. Data entered in the computer must be reviewed by comparing hard copy to spreadsheets with field data sheets.

C4. Reporting

Throughout the duration of the program, quality control reports are included with quarterly project reports that are submitted to MiCorps. Quality control reports provide information regarding problems or issues arising in quality control of the project. This could include, but not limited to, deviation from quality control methods outlined in this document relating to field data collection procedures, indoor identification, data input, diversity calculations and statistical analyses. Administrator of the SJCCD generates annual reports for sharing results of

the program with volunteers, special interest groups, local community governments and other relevant state agencies. Data and reports are made available through the St., Joseph County Conservation web page.