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2010 Innovations Awards Application

Deadline: March 1, 2010

ID # (assigned by CSG): **10-S-08MO**

Please provide the following information, adding space as necessary:

State: Missouri

Assign Program Category (applicant): Environmental Protection (Use list at end of application)

1. Program Name
Computer Automated Field Services Program
2. Administering Agency
Missouri Department of Natural Resources, Division of Environmental Quality, Land Reclamation Program
3. Contact Person (Name and Title)
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9. Please provide a two-sentence description of the program.
The Computer Automated Field Services Program consists of a laptop computer, Microsoft Office Software, ArcGIS software, a GPS unit, and an Inkjet Printer. These items combined provide the components required to perform tasks aiding the inspector in producing reports, maps, and permit forms out in the field.

10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on March 1, 2010 to be considered.
July 2007 - Initiation of the Field Notebook Computer Field Services Program development.

11. Why was the program created?

To increase customer service provided in the field. The Computer Automated Field Services Program aids the inspector in producing reports, maps, and permit forms out in the field. This has increased efficiencies in inspection report writing, delivery of the inspection report to mine operators, completing needed permit forms, and producing accurate maps.

What problem[s] or issue[s] was it designed to address?

Before implementation of the program, several issues were present.

In addressing inspections, the inspectors would write notes in a field note book during an inspection. The inspector would return to the office and draft the report. The draft was passed to support staff for final preparation. Support staff returned the finalized report for inspector concurrence and signature. The inspector returned the signed report to support staff for copies, mail out and filing. Due to the back and forth report process, the mine operator would not receive the report for approximately twenty days after the inspection.

Another factor was the quality of the maps received within the Land Reclamation Program. Due to the lack of quality mapping programs, maps were not to scale and were not accurate. Occasionally, locating a mine site was difficult due to past mapping practices.

A third factor is the completion of permitting forms. Permit forms have been and still can be filled out by an operator. However, many times the forms are filled out incorrectly or the operator is uncertain as to what is required. There are instances when during an inspection it is discovered that additional permitting paperwork is required. Before copies of the paperwork had to be carried by inspectors or mailed to the operator at a later date. If changes were made in the forms, there was the additional risk of using an out of date form if the inspector had made copies and carried them.

12. Describe the specific activities and operations of the program in chronological order.

July 2007 - Initiation of the Field Notebook Computer Field Services Program development - choice of computers for field use. This involved researching a variety of different computers that are dependable in the field. 2007 also involved development of the Computer Generated Inspection Report. The inspection report has check mark boxes that can be marked for different compliance/non-compliance activities along with associated rules and regulations. If an item is marked as non-compliance, a box is available to write in additional comments.

January 2008- Best computer choices along with printers request sent to Information Technology Services Division.

June 2008 - Computer generated inspection report format finalized. The reports were finalized on desk top computers. Inspectors began utilizing them shortly after this date.

November 2008 - Two lap tops along with two printers are provided to Land Reclamation Program inspection staff from Information Technology Services for testing out in the field. Shortly after testing and working out a few bugs, the inspection staff really liked the ease, efficiency and reliability of the laptops.

May 2009 - Entire inspection staff are provided with laptops. The inspection staff also does a lot of in-office paperwork (permitting, enforcement, bond releases and commission memorandums), so the laptops replaced their desktop computer; hence no government waste of having two different computers per staff member.

13. Why is the program a new and creative approach or method?

Since 1972 until November 2008, inspectors in Land Reclamation did not rely on the computer except for a minimum amount required. This effort has reduced the amount of time spent on a project by utilizing 21st century technology to its fullest potential while not reducing customer service by one iota; in fact this effort generally increase a better professional image of the Missouri Department of Natural Resources. Staff has brought together the past requirements of the program and merged it with current technology and continues to look for additional avenues in which to increase customer service and program efficiency and accuracy.

In the first half of 2009 all 337 of the Non-coal inspection reports were issued on an average of two (2) days. Just for comparative purposes, in 2002 and 2004 it use to take seasoned inspectors over sixteen (16) days to issue an inspection report. This also means that the time saving technique allows the inspector to get back out in the field faster to conduct additional inspections. Again for comparative purposes in 2006, the Non-coal Unit conducted only 100 inspections for the entire year. In 2009, the Non-coal unit conducted a total of 628 site inspections.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)
Initially, five laptop computers were purchased at a cost of \$1400.00 each. Five mobile printers were purchased at a cost of \$216.00 each. Four computer stands for vehicles were purchased at a cost of \$100.00 each. The total cost of start-up was \$8480.00 which equates to \$1696.00 per inspector that was equipped. There was no need to acquire any additional staff, staff was already in place. The software for the implementation of the program was already in place, so no additional software was needed. Some equipment, such as hand held GPS units are also a large part of the process but were also previously acquired, so there was no additional cost.
15. What are the program's annual operational costs?
There annual cost to the program is minimal. The costs incurred throughout the year include replacement cartridges for the printers. The cartridges cost approximately \$29.00 (per black) and \$32.00(per color) and each inspector replaces the each of the cartridges in their printer approximately twice a year. For five inspectors this cost equals \$610.00 per year. The main equipment was a one time cost and additional costs occur only when equipment is broken or needs replacement. So far we have only had to replace one printer at a cost of \$216.00. The program actually is a cost-savings to the state as employee time and state resources are utilized more effectively by completing a greater number of permit activities and inspections with the same amount of resources.
16. How is the program funded?
Information Technology Services Division owns the laptops and the Department of Natural Resources places funds from individual programs to help fund Information Technology Services Division. Training resources utilized are funded by the Land Reclamation Program.
17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.
No
18. What equipment, technology and software are used to operate and administer this program?
When out in the field, the laptops are placed on stands that were installed in our unit's vehicles. There are also mobile printers that can be mounted and connected to the laptops for printing when in the field. Laptop computers and Microsoft Office programs are used to implement the inspection report checklist and permitting forms. ArcGIS software is utilized for spatial data information. We also connect hand-held GPS devices to the laptops and feed that data into an ArcGIS program that is installed on all of the computers. Inspectors use this to accurately mark mine sites, the mine entrances, the mine plan long term and permitted boundaries, and any problematic areas noted during the inspection. Also, at times locating areas to be inspected can be difficult because of the remoteness of the sites, using the GIS setup has nearly eliminated the problem of difficult to find sites.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

The entire piece originated in Missouri. Bits and pieces have originated in different organizations and also within the Missouri Department of Natural Resources. For example, the Office of Surface Mining showed us how to use laptops or similar devices "tablets" to help on the GIS portion of the program. Missouri Department of Natural Resources, Regional offices also used tablets to take notes, and then those notes were downloaded to a hard drive, once the inspector returned to the office. As far as I know, and at least in the Missouri Department of Natural Resources, the full scale of writing and printing reports out in the field has not been done by any other program in the department, although possibly in other states. The idea for mobile computer services also came from Missouri State Highway Patrol. Officers can issue a speeding or other traffic violation from the patrol car.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

We rarely work with other states, as there is no federal oversight of Industrial Mineral Mining. I will state however, we do attend training programs offered by the Office of Surface Mining, where other states attend the training session. I recall that the laptops were taken to a training session and other states were impressed with the idea.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

Yes. All Non-coal inspectors are currently using the Computer Automated Field Services Program in the field and it has increased the efficiency of the unit greatly. There are still two of five inspectors that are training to use the GIS and mapping applications.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

The program is positive in regards to effectiveness include the time savings and accurateness of the information. Examples include: Increased time in inspection report writing and delivery. In the past, inspectors would spend two days in the field doing inspections and the next week in the office writing the reports. By the time the reports actually were received by the operator it may be two weeks or more after the inspection.

When the operator received the report they may not remember what the issues were, if any, or what was talked about during the inspection. The person that accompanied the inspector during the inspection may not even see the report that was mailed. The report may be received in the mail and filed before the person responsible to repair problems ever saw it.

Now inspectors complete the checklist while at the site. If the operator has any questions or if there are problems, they can be addressed at that time and the inspectors know that the person responsible for repairs or other actions knows what is expected.

With the GIS mapping, inspectors can work with the operators to define boundaries accurately, that way there are no questions of where mining can take place from us or the operator. Inspectors can also identify problem areas on the map provided with the inspection report, so there is no mistake on where a problem area is located. This is a great help for follow up inspections or inspections by a different inspector. An inspector has the map with the location marked and simply has to go to that location. There is no guesswork in the location of the problem area. This is by far more accurate than past practices.

Another positive issue is with the program set up as the Land Reclamation Program does, we do not have to rely on internet or other web services that are not available in remote areas of the state. The information is carried on the hard drive of the computers.

One downfall is when an inspector's laptop encounters computer issues. For example, if an inspector is having issues with the Microsoft office package installed, his/her computer may be unavailable to take in the field.

The biggest problem that we are currently experiencing is that dust may be getting into the serial ports and other connection portals/drive slots and making the computer run slower. When we first started looking at computers we informed the Information Technology Division, that we drive down very dusty rock/gravel

roads that are out in the country. The first computer system that we recommended was a Dell Rugged laptop (much cheaper, yet same or better performance as a Panasonic Toughbook). However our Information Technology folks were not familiar with the Rugged Laptop so, they told us that the Dell Latitude, is something that they are familiar working on and should be just as good. We do believe that dust is getting into the computer after just one-year's worth of work.

Also the screen when outdoors in sunlight is difficult to read. I have had to hold cardboard to help block the sunlight, to make the screen readable.

23. How has the program grown and/or changed since its inception?

The program is continually being added to or changed to make it more accurate and efficient. With most applications of this nature it is difficult to determine exactly what is needed until you use a prototype. The longer this prototype is in use; more items are added or defined to make it more complete. We are always looking for opportunity improvements to the system. The mapping we used at the beginning was rudimentary and now we are doing some complicated and very accurate mapping that also makes our data more accurate and efficient.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

Information Technology Services Division will need to be convinced that the laptops are needed. Questions concerning the type and/or brand needed will have to be proved. Once proved the program may not have the funding or may not allow the purchase of the laptops requested. Questions concerning the replacement of a desktop with a laptop will have to be addressed in addition to the age of the individual's current computer and where that program stands regarding replacement of their computers.

Upper management may also have issues in the implementation of this type of a program. If some of the software utilized by the program is not the standard state software, it could require upper level management approval.

General issues such as equipment being stolen and exposure of the computers or other electronic devices being subject to extreme temperatures and weather must be addressed.

Any computerized form, checklist, map project, etc., must be decided on, created, and tested. The items in this computer automated field services program were designed specifically for the Land Reclamation Program by Land Reclamation Program staff.

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2010 Innovations Awards Application Program Categories and Subcategories

Use these as guidelines to determine the appropriate Program Category for your state's submission and list that program category on page one of this application. Choose only one.

Infrastructure and Economic Development

- Business/Commerce
- Economic Development
- Transportation

Government Operations and Technology

- Administration
- Elections
- Information Systems
- Public Information
- Revenue
- Telecommunications

Health & Human Services

- Aging
- Children & Families
- Health Services
- Housing
- Human Services

Human Resources/Education

- Education
- Labor
- Management
- Personnel
- Training and Development
- Workforce Development

Natural Resources

- Agriculture
- Energy
- Environment
- Environmental Protection
- Natural Resources
- Parks & Recreation
- Water Resources

Public Safety/Corrections

- Corrections
- Courts
- Criminal Justice
- Drugs
- Emergency Management
- Public Safety

Save in .doc or rtf. Return completed application electronically to innovations@csg.org or mail to:

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This application is also available at www.csg.org.