Application for Federal Ass	sistance SF-42	24		Version 02
*1. Type of Submission:	*2. Тур	e of Application	on * If Revision, select appropriate letter(s)	
Preapplication	🛛 New	1		
Application	🗌 Con	tinuation	*Other (Specify)	
Changed/Corrected Applicat	tion 🗌 Revis	sion		
3. Date Received:	4. Applican	t Identifier:		
5a. Federal Entity Identifier:			*5b. Federal Award Identifier:	
State Use Only:				
6. Date Received by State:		7. State Ap	plication Identifier:	
8. APPLICANT INFORMATION	1:			
*a. Legal Name: Belle Fourche	River Watershe	ed Partnership	þ	
*b. Employer/Taxpayer Identific 46-0307933	ation Number (E	EIN/TIN):	*c. Organizational DUNS: 621215123	
d. Address:				
*Street 1: <u>1837</u>	′ 5 th Avenue Sou	ıth		
Street 2:				
*City: <u>Belle</u>	Fourche			
County: <u>Butte</u>	e County		_	
*State: <u>Sout</u>	h Dakota			
Province:				
*Country: <u>USA</u>				
*Zip / Postal Code <u>5771</u>	7			
e. Organizational Unit:				
Department Name:			Division Name:	
f. Name and contact information	tion of person t	to be contact	ted on matters involving this application:	
Prefix: <u>Mr.</u>	*Fi	irst Name:]	Tim	
Middle Name:				
*Last Name: <u>Reich</u>				
Suffix:				
Title: Chairman				
Organizational Affiliation: Belle Fourche River Watershed	Partnership			
*Telephone Number: 605.892.	.9366		Fax Number: 605.892.6189	
*Email: timreich@rushmore.c	om			

	Expiration Date: 01/31/2009
Application for Federal Assistance SF-424	Version 02
*9. Type of Applicant 1: Select Applicant Type:	
N.Nonprofit w/o 501C3 IRS Status(Oth Than High Edu	
Type of Applicant 2: Select Applicant Type:	
Type of Applicant 3: Select Applicant Type:	
*Other (Specify)	
*10 Name of Federal Agency:	
Natural Resources Conservation Service	
11. Catalog of Federal Domestic Assistance Number:	
10.912	
CFDA Title:	
Conservation Innovation Grants Fiscal Year 2007 Announcement for Program Funding	
	_
*12 Funding Opportunity Number:	
10.912	
*Title:	
Conservation Innovation Grants	
13. Competition Identification Number:	
Title:	
14. Areas Affected by Project (Cities, Counties, States, etc.):	
Meade, Lawrence, and Butte Counties in the state of South Dakota	
*15. Descriptive Title of Applicant's Project:	
Online Irrigation Scheduling Consultant for the Belle Fourche Irrigation District	

				Expiration Date: 01/31/2009		
Application for	Federal Assistance SF-4	24		Version 02		
16. Congressiona	al Districts Of:					
*a. Applicant: Sou	ith Dakota		*b. Program/F	Project: South Dakota		
17. Proposed Pro	oject:					
*a. Start Date: 9-7	1-07	*b	. End Date: 9-1-10			
18. Estimated Fu	nding (\$):					
*a. Federal	600,000					
*b. Applicant	0					
*c. State	0					
*d. Local	0					
*e. Other						
*f. Program Incon *g. TOTAL						
g. TOTAL	1,100,000					
*19. Is Application	on Subject to Review By Sta	te Under Executive Order	12372 Process?			
🔲 a. This applica	ation was made available to th	he State under the Executiv	e Order 12372 Proce	ess for review on		
☐ b. Program is	subject to E.O. 12372 but has	s not been selected by the S	state for review.			
🛛 c. Program is	not covered by E. O. 12372					
*20. Is the Applic	cant Delinquent On Any Fed	leral Debt? (If "Yes", prov	vide explanation.)			
Yes	🛛 No					
herein are true, co with any resulting	mplete and accurate to the be	est of my knowledge. I also am aware that any false, fic	provide the required titious, or fraudulent	s** and (2) that the statements d assurances** and agree to comply statements or claims may subject		
** The list of certifi agency specific in:		n internet site where you ma	ay obtain this list, is o	contained in the announcement or		
Authorized Repre	esentative:					
Prefix:	Mr.	*First Name: Tim				
Middle Name:						
*Last Name:	Reich					
Suffix:						
*Title: Chairman						
*Telephone Numb	er: 605.892.9366		Fax Number: 605.8	892.6189		
* Email: timreich@rushmore.com						
* Email: timreich@						

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Standard Form 424 (Revised 10/2005) Prescribed by OMB Circular A-102

Application for Federal Assistance SF-424

Version 02

*Applicant Federal Debt Delinquency Explanation

The following should contain an explanation if the Applicant organization is delinquent of any Federal Debt.

INSTRUCTIONS FOR THE SF-424

Public reporting burden for this collection of information is estimated to average 60 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0043), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

This is a standard form (including the continuation sheet) required for use as a cover sheet for submission of preapplications and applications and related information under discretionary programs. Some of the items are required and some are optional at the discretion of the applicant or the Federal agency (agency). Required items are identified with an asterisk on the form and are specified in the instructions below. In addition to the instructions provided below, applicants must consult agency instructions to determine specific requirements.

Item	Entry:	ltem	Entry:
1.	Type of Submission: (Required): Select one type of submission in accordance with agency instructions. Preapplication Application	10.	Name Of Federal Agency: (Required) Enter the name of the Federal agency from which assistance is being requested with this application.
	 Changed/Corrected Application – If requested by the agency, check if this submission is to change or correct a previously submitted application. Unless requested by the agency, applicants may not use this to submit changes after the closing date. 	11.	Catalog Of Federal Domestic Assistance Number/Title: Enter the Catalog of Federal Domestic Assistance number and title of the program under which assistance is requested, as found in the program announcement, if applicable.
2.	Type of Application: (Required) Select one type of application in accordance with agency instructions. New – An application that is being submitted to an agency for the first time.	12.	Funding Opportunity Number/Title: (Required) Enter the Funding Opportunity Number and title of the opportunity under which assistance is requested, as found in the program announcement.
	 Continuation - An extension for an additional funding/budget period for a project with a projected completion date. This can include renewals. Revision - Any change in the Federal Government's financial obligation or contingent liability from an existing obligation. If a 	13.	Competition Identification Number/Title: Enter the Competition Identification Number and title of the competition under which assistance is requested, if applicable.
	revision, enter the appropriate letter(s). More than one may be selected. If "Other" is selected, please specify in text box provided. A. Increase Award B. Decrease Award C. Increase Duration D. Decrease Duration E. Other (specify)	14.	Areas Affected By Project: List the areas or entities using the categories (e.g., cities, counties, states, etc.) specified in agency instructions. Use the continuation sheet to enter additional areas, if needed.
3.	Date Received: Leave this field blank. This date will be assigned by the Federal agency.	15.	Descriptive Title of Applicant's Project: (Required) Enter a brief descriptive title of the project. If appropriate, attach a map showing project location (e.g., construction or real
4.	Applicant Identifier: Enter the entity identifier assigned by the Federal agency, if any, or applicant's control number, if applicable.		property projects). For preapplications, attach a summary description of the project.
5a 5b.	Federal Entity Identifier: Enter the number assigned to your organization by the Federal Agency, if any. Federal Award Identifier: For new applications leave blank. For a continuation or revision to an existing award, enter the previously assigned Federal award identifier number. If a changed/corrected	16.	Congressional Districts Of: (Required) 16a. Enter the applicant's Congressional District, and 16b. Enter all District(s) affected by the program or project. Enter in the format: 2 characters State Abbreviation – 3 characters District Number, e.g., CA-005 for California 5 th district, CA-012 for California 12 th district, NC-103 for North Carolina's 103 th district.
6.	application, enter the Federal Identifier in accordance with agency instructions. Date Received by State: Leave this field blank. This date will be particulate the State if applicable.		 If all congressional districts in a state are affected, enter "all" for the district number, e.g., MD-all for all congressional districts in Maryland.
7.	assigned by the State, if applicable. State Application Identifier: Leave this field blank. This identifier will be assigned by the State, if applicable.		 If nationwide, i.e. all districts within all states are affected, enter US-all. If the program/project is outside the US, enter 00-000.
8.	Applicant Information: Enter the following in accordance with agency instructions:		 In the program project is outside the 0.5, enter 00-000.
	a. Legal Name: (Required): Enter the legal name of applicant that will undertake the assistance activity. This is the name that the organization has registered with the Central Contractor Registry. Information on registering with CCR may be obtained by visiting the Grants.gov website. b. Employer/Taxpayer Number (EIN/TIN): (Required): Enter the	17.	Proposed Project Start and End Dates: (Required) Enter the proposed start date and end date of the project.
	Employer or Taxpayer Identification Number (EIN or TIN) as assigned by the Internal Revenue Service. If your organization is not in the US, enter 44-4444444.	18.	Estimated Funding: (Required) Enter the amount requested or to be contributed during the first funding/budget period by each contributor. Value of in-kind contributions should be
	 c. Organizational DUNS: (Required) Enter the organization's DUNS or DUNS+4 number received from Dun and Bradstreet. Information on obtaining a DUNS number may be obtained by visiting the Grants.gov website. d. Address: Enter the complete address as follows: Street address (Line 		included on appropriate lines, as applicable. If the action will result in a dollar change to an existing award, indicate only the amount of the change. For decreases, enclose the amounts in parentheses.
	1 required), City (Required), County, State (Required, if country is US), Province, Country (Required), Zip/Postal Code (Required, if country is US). e. Organizational Unit: Enter the name of the primary organizational	19.	Is Application Subject to Review by State Under Executive Order 12372 Process? Applicants should contact the State Single Point of Contact (SPOC) for Federal Executive Order 12372 to determine whether the application is subject to the
	unit (and department or division, if applicable) that will undertake the		12012 to determine whether the application is subject to the

	assistance activity, if applicable.			State intergovernmental review process. Select the
1 1	f. Name and contact information of	f person to be contacted on	1	appropriate box. If "a." is selected, enter the date the
	matters involving this application:	Enter the name (First and last name		application was submitted to the State
	required), organizational affiliation (if	affiliated with an organization other		
	than the applicant organization), telep number, and email address (Require matters related to this application.		20.	Is the Applicant Delinquent on any Federal Debt? (Required) Select the appropriate box. This question applies to the applicant organization, not the person who signs as the authorized representative. Categories of debt include delinquent audit disallowances, loans and taxes.
_			~ /	If yes, include an explanation on the continuation sheet.
9.	Type of Applicant: (Required)		21.	Authorized Representative: (Required) To be signed and
	Select up to three applicant type(s) in instructions.	accordance with agency		dated by the authorized representative of the applicant organization. Enter the name (First and last name required)
	A. State Government	M. Nonprofit with 501C3 IRS	{	title (Required), telephone number (Required), fax number,
	B. County Government	Status (Other than Institution		and email address (Required) of the person authorized to sign
	C. City or Township Government	of Higher Education)		for the applicant.
	D. Special District Government	N. Nonprofit without 501C3 IRS		A copy of the governing body's authorization for you to sign
	E. Regional Organization	Status (Other than Institution		this application as the official representative must be on file in
	F. U.S. Territory or Possession	of Higher Education)		the applicant's office. (Certain Federal agencies may require
	G. Independent School District	O. Private Institution of Higher		that this authorization be submitted as part of the application.)
	H. Public/State Controlled	Education		
	Institution of Higher Education	P. Individual		
	 Indian/Native American Tribal 	Q. For-Profit Organization		
	Government (Federally	(Other than Small Business)		
	Recognized)	R. Small Business		
	J. Indian/Native American Tribal	S. Hispanic-serving Institution		
	Government (Other than	T. Historically Black Colleges		
	Federally Recognized)	and Universities (HBCUs)		
	K. Indian/Native American	U. Tribally Controlled Colleges		
	Tribally Designated	and Universities (TCCUs)		
	Organization L. Public/Indian Housing	V. Alaska Native and Native Hawaiian Serving Institutions		
	Authority	W. Non-domestic (non-US)		
	Autionty	Entity		
		X. Other (specify)		
		star (specify)		

Project Summary Sheet

Project Title: Online Irrigation Scheduling Consultant for the Belle Fourche Irrigation District

Project Director: Mr. Tim Reich, Chairman, Belle Fourche River Watershed Partnership, 1837 5th Avenue South, Belle Fourche, SD 57717, *<timreich@rushmore.com>*.

Project Collaborators: Mr. Tim Reich, Butte County Conservation District; Mr. Clint Pitts, Belle Fourche Irrigation District (BFID); Mr. Dale Lundgren, Elk Creek Conservation District; Mr. Karl Jensen, Lawrence County Conservation District; Dr. Dennis Clarke, South Dakota Department of Environment and Natural Resources (DENR); Mr. Jeff Nettleton, U.S. Bureau of Reclamation (BOR); Mr. Steve Fairbairn, U.S. Fish and Wildlife Service (USFWS); Mr. Tom Quinn, Natural Resource Conservation Service (NRCS); Dr. Scott Kenner, South Dakota School of Mines & Technology (SDSM&T); and Dr. Hal Werner, South Dakota State University (SDSU).

Project Purpose: The purpose of this project is to provide producers with a reliable, simple means to monitor and schedule irrigations that will conserve water and reduce the amount of sediment-laden irrigation return flows that enter the Belle Fourche River.

Project Deliverables: The primary product is a Web-based irrigation scheduling calculator that can be accessed by all producers in the BFID. The calculator will plan irrigation applications based on crop, soil, and weather inputs. Specifically, individualized, secure, Web pages will be established for 20 cooperators' fields to provide feedback and guidance for the District-wide system. To support the online calculator, an extensive weather network will be established within the District. The network will include at least ten rainfall and three solar radiation, wind speed, temperature, and humidity monitoring sites.

Project Scope/Location: The BFID is a gravity-fed, canal-based system located in western South Dakota. The District serves over 480 individual producers who irrigate 57,183 acres.

Project Start and End Dates: September 2007–September 2010.

National Category: Natural Resource Category; Chesapeake Bay Category; or Technology Category (circle one)

Proposal Review Group: Water Quality-Livestock; Water Quality-Nonlivestock; Water Quantity; Soils; Atmospheric; Grazing Land and Forest Health; Energy; or Market-Based Approach (circle one)

The applicant has read and understands the responsibilities related to EQIP eligibility and payment limitations as outlined in Part III of this announcement. <u>X</u> Yes <u>No</u>

The applicant and any producers that will receive direct or indirect payments through this project are eligible to participate in the EQIP program. X Yes No

The applicant is requesting federal funds from other sources for the same or similar project. <u>Yes X</u> No

Total Cost of Project: \$1,100,000

Federal Funds Requested: \$ 500,000

Brief Project Summary: This project will develop and implement a Web-based, interactive irrigation scheduling calculator that is customized to each producer's crop, planting date, soil type, rainfall and irrigation amounts, and method of irrigation. The calculator will allow any producer with internet access to create a personalized Web page with irrigation information for a particular field. To accomplish this, an extensive real-time weather network will be implemented. This weather network will monitor rainfall and provide the inputs to calculate daily evapotranspiration (ET) using the American Society of Civil Engineers (ASCE) Penman method. Irrigation delivery amounts will be retrieved from an existing database and added to the rainfall estimates for that location to determine the daily increase in the soil water balance. Producers will be able to track the estimated soil water balance for their individual fields and obtain a recommended irrigation schedule. Readings from installed soil moisture instruments will be transmitted via an existing radio network and provide online as a means to track relative soil water changes throughout the irrigation season. Weekly ET values and rainfall will also be published in local print media.

2.0 PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND. The Belle Fourche River Watershed Partnership (BFRWP) has taken a proactive approach to conserving water and enhancing water quality within the Watershed. The BFRWP completed a water-quality assessment study during 2003 which led to development of six total suspended solids (TSS) Total Maximum Daily Load (TMDL) for two water bodies: the Belle Fourche River (five) and Horse Creek (one). The TMDL was approved by the U.S. Environmental Protection Agency (EPA) in 2005. The 2006 South Dakota *Integrated Report for Surface Water Quality Assessment* lists nine impaired stream segments in the Belle Fourche River Watershed.

The water-quality assessment study determined that a 41-percent reduction of the TSS load entering Horse Creek and a 55-percent reduction in Belle Fourche River was required to meet the water-quality standard. It was hypothesized that the reduction can be achieved through the implementation of Best Management Practices (BMPs), including irrigation scheduling and efficient irrigation application and transport. Specifically, the study predicted that reducing the nonused irrigation water entering the system by 12,000 acre/feet during the summer months, along with riparian improvement projects, would bring the TSS concentrations below the 158 mg/L standard.

The Belle Fourche Irrigation District (BFID) is located within the Belle Fourche River Watershed and serves 57,183 acres. Recurring droughts often limit the amount of water available for irrigation in the District. Research has documented how scientific irrigation water management (IWM) can improve water conservation and productivity. In the Steele et al. study, savings of 30 percent of the seasonal irrigation depths were achieved using IWM versus grower practices. Scientific IWM considers factors such as soil water-holding capacity, crop water use, and allowable depletions necessary to apply the optimum amount of water needed for crop production.

When water is limited, IWM allows the best use of irrigation water by applying water during the most critical crop growth periods. Studies on corn in North Dakota, Kansas, and Nebraska have shown deficit irrigation can save water with minimal yield reduction. Melvin et al. stated, however, that "the deficit irrigation strategy is the most challenging to manage." Thus it is critical to use scientific irrigation scheduling to achieve the greatest productivity with the available water.

Shearer and Vomocil found that adoption of scientific irrigation scheduling was well accepted by growers but the practice was not sustained once technical support was reduced. Leib et al. determined that the number of irrigators using scientific irrigation scheduling, even with the availability of consultants for technical support, may have been as low as 18 percent as of 1998. Technical service providers in many parts of the country provide IWM assistance but serve a relatively small number of growers. Dr. Hal Werner, consultant available to the project, has conducted extension educational efforts on IWM for over 30 years, including writing the first extension bulletin on "checkbook irrigation scheduling." His experience indicates that use of scientific irrigation scheduling will be limited unless user-friendly methods are available to the producer. Dr. Werner is currently leading a project to fully automate the operation and management of center pivot irrigation.

Presently, irrigation scheduling for most farmers relies largely on past practice. Even though it is generally accepted that scientific scheduling can increase water efficiency, scientific input is minimal due to constraints of training, experience, time, and other resources. This is in spite of the fact that tools are now widely available for scientific irrigation scheduling, including evapotranspiration (ET) information and stand-alone scheduling software. Many locations publish ET and crop water use information on the Web; however, an interactive Web-based irrigation scheduler that requires minimal input and effort from the producer is not available at this time.

Mr. Jared Oswald, consultant to the project, has developed the software logic and framework that would be implemented by this project. The software includes the ASCE Penman and adapted crop coefficients. The software model considers on-site ET, rainfall, irrigation amount, soil water capacity, soil water balances, and forecasted ET to plan irrigation amounts and timing. An SDSU graduate student is using crop production models to develop best irrigation practices when water availability is limited.

Over the last few years, the BFRWP has received several grants to help plan and implement the BMPs recommended to bring the Belle Fourche River into compliance for TSS. Over \$2.56 million has been committed from several federal organizations, including the NRCS, EPA, USFWS, and the BOR. An additional \$2.86 million is being contributed to the project from producers, the BFRWP, and the BFID cash and in-kind match.

The budget for this Conservation Innovation Grant (CIG) project is shown in Table 1. The match will be provided by the producers through the cash and in-kind dollars spent on installing seven center pivot irrigation systems within the BFID. At the end of the grant, all equipment will be retained by the cooperating producers or the BFID.

2.2 PROJECT OBJECTIVES. The project goal is to provide producers with an improved method to schedule irrigation applications that will conserve water and improve water quality in the Belle Fourche River Watershed. The goal will be achieved by the following objectives:

3

- Develop and implement an interactive online irrigation scheduler for irrigation producers in the BFID.
- Select 20 Environmental Quality Incentives Program- (EQIP-) eligible irrigation cooperators to participate in intensive IWM to provide feedback and guidance for the online scheduler pilot.
- Conduct an outreach program targeted at irrigation producers to achieve the water conservation and TSS reduction goals for the Belle Fourche River and tributaries.

 Table 1. Budget Table for the Online Irrigation Scheduler CIG Grant Project

Project Budget							
	Nonfederal						
Contractual	401,600						
SDSU Student Labor	21,000						
Supplies – Rain Gages, Flow Meters, Weather Stations, and Soil Moisture Stations	42,000						
BFRWP - Administrative	35,400						
Producer Cash		300,000					
Producer In-Kind		200,000					
EPA 319	100,000						
Total Other Implementation Fund	\$600,000	\$500,000					

This project will complement several other projects and activities currently ongoing in the Watershed. An EPA Section 319 funded project is converting several surface-irrigated fields to sprinkler irrigation. The project is expected to reduce the nonused irrigation water discharged to the adjacent waterways by 3,500 acre-feet annually (30 percent of the 12,000 acre-feet reduction goal stated in the original TMDL study). A South Dakota NRCS CIG project is implementing

IWM automation for center pivots. The BFRWP has also applied for an EPA Targeted Watersheds Grant that would include a study of irrigation method efficiencies within the BFID.

2.3 PROJECT METHODS. This innovative project will bring together several activities to improve irrigation water management within the BFID. The District has begun implementation of real-time water delivery information through radio monitoring and control of the canal flow-measuring structures and check gates. Using the network of automatic weather stations and rain gages installed during this project, rainfall amounts will be collected and ET values will be calculated using the ASCE Penman and adapted crop coefficients. This information will be available to producers in the District through the internet and other media.

Producers will be able to establish site-specific irrigation scheduling for each crop and irrigated field on their farm. Once they select the location of their fields and input the crop, the database system will retrieve estimated ET, rainfall depths using the rainfall network, and irrigation depths using the online irrigation water delivery information. The producers will have the option of inputting actual rainfall and irrigation amounts when those are measured on site. The online irrigation consultant will calculate crop water use and soil water balances for each field. Projections of future conditions and crop water use will allow the producer to plan irrigations and water deliveries.

To field test the irrigation water management system, at least 20 producers will be selected to participate in a pilot program offering intensive irrigation water management. These producers will be trained to use an online database system that will retrieve field maps, NRCS soil information, weather, and crop coefficients for those fields. The online irrigation scheduling calculator will calculate ET and soil water balances for each soil in the field based on the rainfall network and water delivery information. The cooperators will have technical assistance from the

project staff to set up their profile and interpret the online management along with assistance in installing soil moisture instruments and flow meters. While the online scheduling system will be intuitive and easy to use, the 20 cooperators will provide feedback to improve the user interface during development. Additionally, plans are to have online guidance for the producers related to management options that are best practices when drought limits irrigation water that is available.

Several aspects of this project make it innovative. First, this is a District-wide irrigation scheduling project that will be linked with an existing real-time water delivery and record system. The record system, along with the extensive rainfall and weather network installed under this project, will be used to calculate a water balance for the entire District and estimate the reduction in return flows that result from the implementation of the irrigation BMPs. Second, the irrigation scheduling software that is individualized for a specific field and crop is the first of its kind to integrate weather, ET, soil moisture, and irrigation water delivery data into one online package. Finally, the online irrigation consultant software will be provided to producers on an individualized, password-protected Web page. Online help and assistance will offer an easy, user-friendly interface that will encourage irrigator participation.

2.4 LOCATION AND SIZE OF THE PROJECT AREA. The BFID, located within the Belle Fourche River Watershed in western South Dakota, northeast of the Black Hills, supplies water to over 57,000 irrigated acres (Figure 1). Supply, distribution, and drainage systems serving the irrigated lands consist of 94 miles of irrigation canals, 450 miles of irrigation laterals, and 232 miles of drains. Typical irrigated farms in the BFID are small to medium size (100–300 acres) and are family owned. Alfalfa and hay production accounts for about 65 percent of crop production, with small grains and corn accounting for most of the remainder of crops produced. Irrigation methods are almost entirely surface irrigation.



Figure 1. Location of the BFID Within the Belle Fourche River Watershed.

2.5 PRODUCER PARTICIPATION. More than 480 producers are served by the BFID. An estimated 400 of those producers are EQIP eligible. All of the producers will have access to the District-wide irrigation scheduling calculator. Twenty EQIP eligible producers who have internet access will be chosen for the pilot project. Producers in the pilot segment of the project will receive individualized assistance and be trained to use the online irrigation scheduling consultant along with assistance in installing and using soil moisture sensors. The primary function of the producers in the pilot program will be to provide feedback and guidance on functionality of the online irrigation consultant.

2.6 PROJECT ACTION PLAN AND TIMELINE. The timeline for each task in the project is shown in Figure 2.

				2007			2008			200)9		2	2010	
ID	Task Name	Duration S	start	1 2	3	4	1 2	2 3	4	1	2	3 4	4 [·]	1 2	23
1 (Conservation Innovation Grant	36 months	Sep-07							ļ.			Ļ		
2 F	Project Planning	8 months	Sep-07												
3	-Order Monitoring Equipment	1 month	Sep-07												
4	-Develop Database	1 month	Sep-07												
5	-Develop Irrigation Scheduling Calculator	3 months	Oct-07												
6	-Develop Web Pages	2 months	Jan-08												
7	-Identify Cooperating Producers	6 months	Oct-07												
8	-Performance Test Web Site	2 months	Mar-08												
9 F	Project Implementation	28 months	May-08							ļ			į		
10	-Install Monitoring Equipment	1 month	May-08												
11	-First Summer Implementation	4 months	Jun-08												
12	-First Summer Calibration	6 months	Oct-08				l								
13	-Second Summer Implementation	4 months	Jun-09												
14	-Second Summer Calibration	6 months	Oct-09												
15	-Third Summer Implementation	4 months	Jun-10												
16 F	Public Outreach	30 months	Mar-08												
17 F	Financial Status Report	35 months	Oct-07												
18 F	Final Report	2 months	Aug-10							1					

Figure 2. Project Schedule.

2.7 PROJECT MANAGEMENT. The project will be managed by the BFRWP. The four voting Board of Directors include the Butte, Lawrence, and Elk Creek Conservation Districts, and the BFID. The board, which meets six times per year, actively involves 20 stakeholder groups in BFRWP-sponsored projects. Administrative support is provided by the conservation districts. The President of the BFWRP is Mr. Tim Reich. Mr. Reich has served for a number of years as Second and First Vice President of the National Association of Conservation Districts. Technical support for the project is provided by consultants and the SDSM&T and SDSU. Dr. Hal Werner, Dr. Scott Kenner, Dr. Dan Hoyer, Mr. Dale Atkinson, Mr. Jared Oswald, and graduate students are available consultants for the project. Dr. Kenner has a Ph.D. in civil engineering from the University of Florida, and Dr. Hoyer has a Ph.D. in civil engineering from the University of SDSM&T. Dr. Werner has a Ph.D. in agricultural engineering from the University of Minnesota.

2.8 BENEFITS/RESULTS EXPECTED AND TRANSFERABILITY. It is expected that water conservation and improved water quality in the Belle Fourche River and adjacent streams

will be the direct results of this project. As such, producers within the BFID are the beneficiaries. The irrigation scheduling calculator is part of a comprehensive technology thrust within the BFID. The irrigation scheduling system will be Web based and available through the BFID Web site *<http://respec.com/bfid>*. Over the next 3 years, efforts funded under another project will allow the producer to log on to the Web site and determine their water allocations for the year, how much water has been delivered, and how much water is remaining. The irrigation schedule calculator will be another module within this same system. The concepts and software developed during this project will be easily transferable to other producers and irrigation districts throughout the region and nation.

The irrigation scheduling calculator will provide the irrigation management planning and record keeping requirements for IWM under the EQIP program. The online calculator will assist producers with the daily decision making for irrigation timing and amount. Producers will also be provided with resources for monitoring soil moisture and improving irrigation efficiency.

Conserving water through IWM best management practices will provide the greatest savings of water for the project and reduce unused return flow, especially during periods of drought. Results of the before-and-after irrigation water use comparisons for the 20 pilot project cooperators will be provided to other irrigators through meetings, tours, field days, online reports, and publications. Since the online calculator approach is easily transferable to other irrigators, outreach activities will target irrigators and other stakeholders in the BFID and surrounding areas. Throughout this project, information and training will be provided to irrigators that plan to use the online scheduler. Success in the project will be used to showcase the water savings and water-quality improvements to stakeholders. **2.9 PROJECT EVALUATION.** The online irrigation scheduling project will be evaluated by comparing historical water deliveries before the project to those after. The reduction realized by the 20 pilot cooperators will be used to estimate the potential water savings and design an outreach program for implementation throughout the District. The Web site will be monitored to track the number of scheduling pages created and other visits to document the effectiveness of the project. A survey of the participants in outreach programs will serve to show changes in irrigation practices and understanding of IWM principles.

Ongoing water-quality monitoring will document water-quality changes in the Belle Fourche River and adjoining tributaries. A mass water balance will be used to model the effects of the implementation of irrigation scheduling on a District-wide scale. The practices installed to reduce the amount of nonused water discharged to the waterways in the irrigation districts are also expected to be detectable at the USGS' Belle Fourche River sites located near Sturgis and Elm Springs as well as at the Horse Creek site above Vale. Turbidity, specific conductance, temperature, and pH will be measured on a continuous basis at Horse Creek above Vale to determine water-quality improvements resulting from nonused water reduction activities and BMPs implemented in the Horse Creek Watershed.

The DENR Surface Water Quality Program has 21 monitoring stations located in the Watershed. Comparisons over time will be performed using applicable sites to measure the large-scale changes in water quantity and quality.

2.10 ENVIRONMENTAL IMPACTS. There are no negative environmental impacts anticipated as a result of full project implementation. Improved irrigation efficiencies and reduction in nonused water entering the waterways is expected to reduce the concentrations of TSS as discussed above.

3.0 BUDGET INFORMATION

Budget information is included on Form 424A on the following pages.

BUDGET INFORMATION - Non-Construction Programs

		SECTION A - BUDG	ET SUMMARY					
Grant Program Catalog of Fe Function Domestic Assi		ated Unobligated Funds		New or Revised Budget				
or Activity Number (a) (b)		l Non-Fede (d)	eral Federal (e)					
1.	\$	\$	\$	\$	(g) \$			
2.								
3.								
4.								
5. Totals	\$	\$	\$	\$	\$			
		SECTION B - BUDGE	T CATEGORIES					
6. Object Class Categories			GRAM, FUNCTION OR ACTIVIT		Total			
	(1) \$	(2) \$	(3)	(4) \$	(5) \$			
a. Personnel	Ψ	Ψ	Ψ	Ψ	Ψ			
b. Fringe Benefits								
c. Travel								
d. Equipment								
e. Supplies								
f. Contractual								
g. Construction								
h. Other								
i. Total Direct Charges (sum of 6	Sa-6h)							
j. Indirect Charges								
k. TOTALS (sum of 6i and 6j)	\$	\$	\$	\$	\$			
7. Program Income	\$	\$	\$	\$	\$			

	SECTION	C - NON-FEDERAL R	ESOURCES			
(a) Grant Program		(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS	
8.	\$	\$	\$	\$		
9.						
10.						
11.						
12. TOTAL (sum of lines 8-11)		\$	\$	\$	\$	
	SECTION	D - FORECASTED CA	ASH NEEDS			
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	
13. Federal	\$	\$	\$	\$	\$	
14. Non-Federal						
15. TOTAL (sum of lines 13 and 14)	\$	\$	\$	\$	\$	
SECTION E - BUD	GET ESTIMATES OF	FEDERAL FUNDS NE	EDED FOR BALANCE	OF THE PROJECT		
(a) Grant Program				G PERIODS (Years)		
		(b) First	(c) Second	(d) Third	(e) Fourth	
16.		\$	\$	\$	\$	
17.						
18.						
19.						
20. TOTAL (sum of lines 16-19)	\$	\$	\$			
	SECTION F	- OTHER BUDGET IN	FORMATION			
21. Direct Charges:		22. Indired	et Charges:			
23. Remarks:						

INSTRUCTIONS FOR THE SF-424A

Public reporting burden for this collection of information is estimated to average 180 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0044), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

General Instructions

This form is designed so that application can be made for funds from one or more grant programs. In preparing the budget, adhere to any existing Federal grantor agency guidelines which prescribe how and whether budgeted amounts should be separately shown for different functions or activities within the program. For some programs, grantor agencies may require budgets to be separately shown by function or activity. For other programs, grantor agencies may require a breakdown by function or activity. Sections A, B, C, and D should include budget estimates for the whole project except when applying for assistance which requires Federal authorization in annual or other funding period increments. In the latter case, Sections A, B, C, and D should provide the budget for the first budget period (usually a year) and Section E should present the need for Federal assistance in the subsequent budget periods. All applications should contain a breakdown by the object class categories shown in Lines a-k of Section B.

Section A. Budget Summary Lines 1-4 Columns (a) and (b)

For applications pertaining to a *single* Federal grant program (Federal Domestic Assistance Catalog number) and *not requiring* a functional or activity breakdown, enter on Line 1 under Column (a) the Catalog program title and the Catalog number in Column (b).

For applications pertaining to a *single* program *requiring* budget amounts by multiple functions or activities, enter the name of each activity or function on each line in Column (a), and enter the Catalog number in Column (b). For applications pertaining to multiple programs where none of the programs require a breakdown by function or activity, enter the Catalog program title on each line in *Column* (a) and the respective Catalog number on each line in Column (b).

For applications pertaining to *multiple* programs where one or more programs *require* a breakdown by function or activity, prepare a separate sheet for each program requiring the breakdown. Additional sheets should be used when one form does not provide adequate space for all breakdown of data required. However, when more than one sheet is used, the first page should provide the summary totals by programs.

Lines 1-4, Columns (c) through (g)

For new applications, leave Column (c) and (d) blank. For each line entry in Columns (a) and (b), enter in Columns (e), (f), and (g) the appropriate amounts of funds needed to support the project for the first funding period (usually a year).

For continuing grant program applications, submit these forms before the end of each funding period as required by the grantor agency. Enter in Columns (c) and (d) the estimated amounts of funds which will remain unobligated at the end of the grant funding period only if the Federal grantor agency instructions provide for this. Otherwise, leave these columns blank. Enter in columns (e) and (f) the amounts of funds needed for the upcoming period. The amount(s) in Column (g) should be the sum of amounts in Columns (e) and (f).

For supplemental grants and changes to existing grants, do not use Columns (c) and (d). Enter in Column (e) the amount of the increase or decrease of Federal funds and enter in Column (f) the amount of the increase or decrease of non-Federal funds. In Column (g) enter the new total budgeted amount (Federal and non-Federal) which includes the total previous authorized budgeted amounts plus or minus, as appropriate, the amounts shown in Columns (e) and (f). The amount(s) in Column (g) should not equal the sum of amounts in Columns (e) and (f).

Line 5 - Show the totals for all columns used.

Section B Budget Categories

In the column headings (1) through (4), enter the titles of the same programs, functions, and activities shown on Lines 1-4, Column (a), Section A. When additional sheets are prepared for Section A, provide similar column headings on each sheet. For each program, function or activity, fill in the total requirements for funds (both Federal and non-Federal) by object class categories.

Line 6a-i - Show the totals of Lines 6a to 6h in each column.

Line 6j - Show the amount of indirect cost.

Line 6k - Enter the total of amounts on Lines 6i and 6j. For all applications for new grants and continuation grants the total amount in column (5), Line 6k, should be the same as the total amount shown in Section A, Column (g), Line 5. For supplemental grants and changes to grants, the total amount of the increase or decrease as shown in Columns (1)-(4), Line 6k should be the same as the sum of the amounts in Section A, Columns (e) and (f) on Line 5.

Line 7 - Enter the estimated amount of income, if any, expected to be generated from this project. Do not add or subtract this amount from the total project amount, Show under the program

INSTRUCTIONS FOR THE SF-424A (continued)

narrative statement the nature and source of income. The estimated amount of program income may be considered by the Federal grantor agency in determining the total amount of the grant.

Section C. Non-Federal Resources

Lines 8-11 Enter amounts of non-Federal resources that will be used on the grant. If in-kind contributions are included, provide a brief explanation on a separate sheet.

Column (a) - Enter the program titles identical to Column (a), Section A. A breakdown by function or activity is not necessary.

Column (b) - Enter the contribution to be made by the applicant.

Column (c) - Enter the amount of the State's cash and in-kind contribution if the applicant is not a State or State agency. Applicants which are a State or State agencies should leave this column blank.

Column (d) - Enter the amount of cash and in-kind contributions to be made from all other sources.

Column (e) - Enter totals of Columns (b), (c), and (d).

Line 12 - Enter the total for each of Columns (b)-(e). The amount in Column (e) should be equal to the amount on Line 5, Column (f), Section A.

Section D. Forecasted Cash Needs

Line 13 - Enter the amount of cash needed by quarter from the grantor agency during the first year.

Line 14 - Enter the amount of cash from all other sources needed by quarter during the first year.

Line 15 - Enter the totals of amounts on Lines 13 and 14.

Section E. Budget Estimates of Federal Funds Needed for Balance of the Project

Lines 16-19 - Enter in Column (a) the same grant program titles shown in Column (a), Section A. A breakdown by function or activity is not necessary. For new applications and continuation grant applications, enter in the proper columns amounts of Federal funds which will be needed to complete the program or project over the succeeding funding periods (usually in years). This section need not be completed for revisions (amendments, changes, or supplements) to funds for the current year of existing grants.

If more than four lines are needed to list the program titles, submit additional schedules as necessary.

Line 20 - Enter the total for each of the Columns (b)-(e). When additional schedules are prepared for this Section, annotate accordingly and show the overall totals on this line.

Section F. Other Budget Information

Line 21 - Use this space to explain amounts for individual direct object class cost categories that may appear to be out of the ordinary or to explain the details as required by the Federal grantor agency.

Line 22 - Enter the type of indirect rate (provisional, predetermined, final or fixed) that will be in effect during the funding period, the estimated amount of the base to which the rate is applied, and the total indirect expense.

Line 23 - Provide any other explanations or comments deemed necessary.

4.0 DECLARATION OF BEGINNING FARMER OR RANCHER OR LIMITED RESOURCE FARMER OR RANCHER, OR INDIAN TRIBE

The BFRWP does not wish to compete in the 10 percent set-aside funding pool.

5.0 DECLARATION OF EQIP ELIGIBILITY

Declaration of EQIP eligibility is provided on the following page.



BELLE FOURCHE RIVER WATERSHED PARTNERSHIP

Belle Fourche Office 1837 5th Avenue, South Belle Fourche, SD 57717-2086 (605) 892-3368 – Ext. 3

February 1, 2007

Grants and Agreements Team Leader Natural Resources Conservation Service 14th and Independence Ave., S.W. Room 5222-S Washington, D.C. 20250

Dear Sirs:

One requirement of the Natural Resources Conservation Service (NRCS) Conservation Innovation Grant is declaration of Environmental Quality Incentives Program (EQIP) eligibility from the applicants. Thus with my signature, I declare to the best of my knowledge, that a significant majority of the producers within the Belle Fourche Irrigation District and surrounding area are eligible for funding under the above-mentioned program.

Sincerely, Tim Reich President

TR:llf Enclosure

6.0 STATE CONSERVATIONIST LETTER OF REVIEW

A copy of the cover letter that shows the proposal was sent to the appropriate State Conservationist is provided on the following page.



Belle Fourche Office 1837 5th Avenue, South Belle Fourche, SD 57717-2086 (605) 892-3368 – Ext. 3

January 26, 2007

Janet L. Oertly Federal Building, Room 203 200 Fourth Street SW Huron, SD 57350

Dear Ms. Oertly:

The Belle Fourche River Watershed Partnership (BFRWP) is a 501c3 non-profit group with several conservation districts along with Belle Fourche Irrigation District of South Dakota as voting members. The Partnership has developed a total maximum daily load (TMDL) assessment, which has been approved by the EPA, for total suspended solids and from that a tenyear plan was developed and is currently being implemented. Implementation projects to reduce total suspended solids are improved irrigation efficiency within the Belle Fourche Irrigation District, improved irrigation efficiency by farmers, and grazing management.

The BFRWP is applying for a federal Conservation Innovation Grant (CIG) through the NRCS. Funds from this grant will be used to implement an online irrigation scheduling calculator for the producers in the Belle Fourche Irrigation District. To fulfill the requirements of the proposal, the state conservationist must review it for "potential duplication of efforts, ethics concerns, consistency with overall EQIP objectives, and the expected benefits to EQIP implementation in their state(s). You will find the proposal and budget attached to this document for review. Let us know if you have any questions or concerns.

Sincerely,

Tim Reich Chairman

7.0 CERTIFICATIONS

A signed SF 424B-Assurances, Non-construction Programs is included on the following pages.

ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.

NOTE: Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

- Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
- 2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
- 3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
- 4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
- Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
- Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to:

 (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352)
 which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation

Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee-3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.

- 7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
- 8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

- Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
- 10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
- 11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).

- 12 Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
- 13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
- Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
- 15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
- 16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
- 17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
- Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.

* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	• TITLE
it off	Chairman
* APPLICANT ORGANIZATION	* DATE SUBMITTED
B.F.R.W.P.	Completed on submission to Grants.gov

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8.0 DUNS NUMBER

The BFRWP Dun and Bradstreet (D&B) numbers is 621215123.

9.0 REQUIRED CCR REGISTRATION

The BFRWP has completed the Central Contractor Registry (CCR).