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THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION

Victoria F. Sheehan
Commissioner

William Cass, P.E.
Assistant Commissioner

Bureau of Materials & Research
August 17, 2016

Her Excellency, Governor Margaret Wood Hassan
and the Honorable Council
State House
Concord, New Hampshire 03301

REQUESTED ACTION

Authorize the Department of Transportation to enter into a **sole source** Joint Funding Agreement with the U.S. Geological Survey (Vendor 175772) of Pembroke, NH for a total fee not to exceed $98,000 for a cooperative investigation on estimating the probability of iron fouling downstream of blasted rock fill sites across New Hampshire, effective upon Governor and Council approval or September 21, 2016, whichever is later, through September 30, 2018. 100% Federal Funds.

Funding is available as follows for FY 2017 and is contingent upon the availability and continued appropriation of funds in FY 2018 and FY 2019, as follows:

04-96-96-962015-3036	FY 2017	FY 2018	FY 2019
SPR Research Funds			
046-500464 General Consultants Non-Benefit	$40,335	$40,335	$17,330

EXPLANATION

The Department is collaborating with USGS to conduct a cooperative research study to estimate the probability of iron fouling downstream of blasted rock fill sites. The U.S. Geological Survey (USGS) is uniquely qualified to conduct this study because of their comprehensive knowledge of groundwater transport characteristics, groundwater geochemical investigations, and reputation for its unbiased, science-based approach to complex and sensitive issues. In addition, the Department's contribution of $98,000 will be matched with $71,880 of USGS funds through the Joint Funding Agreement. Finally, the USGS Pembroke office has successfully performed other studies for the Department in the past, including research related to determining sources of nitrate in wells near blasting sites in New Hampshire, bridge scour, investigations of flood magnitude and frequency, and development of the web-based New Hampshire StreamStats tool.

There have been recent issues with iron fouling downstream of blasted rock fill affecting water bodies and highway structures placed as part of road construction. Blasted rock is commonly used as a roadway fill material. Accumulations of hydrated iron (ferric) compounds with red-orange microbial deposits in drainage ways are a continuous maintenance challenge for NHDOT in stream crossings, culvert outlets, and other areas. There is a need to identify factors and potential processes that affect iron solubility associated with the use and placement of blasted rock in roadway construction.

The results of this study will help understand and predict iron fouling associated with blasted rock fill at construction sites; optimize decisions made on material placement during construction to avoid iron fouling; and develop guidance to select appropriate actions. Insight gained from this research project combined with existing information will develop mapping to show the probability of iron fouling and/or other prediction tools.

This Agreement has been approved by the Attorney General as to form and execution. Copies of the fully-executed Agreement are on file at the Secretary of State's Office and the Department of Administrative Services, and subsequent to Governor and Council approval will be on file at the Department of Transportation.

Your approval of this resolution is respectfully requested.

Sincerely,

Victoria F. Sheehan

Victoria F. Sheehan
Commissioner

Attachments

Form 9-1366
(April 2015)

U.S. DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

JOINT FUNDING AGREEMENT

Customer #:	6000000093
Agreement #:	16ENNH000000010
Project #:	LG40GJG
TIN #:	026000618
Fixed Cost Agreement	YES

FOR

WATER RESOURCES INVESTIGATIONS

THIS AGREEMENT is entered into as of the, 21st day of September, 2016 by the U.S. GEOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF THE INTERIOR, party of the first part, and the New Hampshire Department of Transportation, party of the second part.

1. The parties hereto agree that subject to availability of appropriations and in accordance with their respective authorities there shall be maintained in cooperation for a project designed to help understand and predict iron fouling associated with rock fill at roadway sites in New Hampshire. herein called the program. The USGS legal authority is 43 USC 36C; 43 USC 50; and 43 USC 50b.

2. The following amounts shall be contributed to cover all of the cost of the necessary field and analytical work directly related to this program. 2(b) Includes In-Kind Services in the amount of $0.00

   (a) by the party of the first part during the period

Amount	Date	to	Date
$71,880.00	September 21, 2016		September 30, 2018

   (b) by the party of the second part during the period

Amount	Date	to	Date
$98,000.00	September 21, 2016		September 30, 2018

   (c) Contributions are provided by the party of the first part through other USGS regional or national programs, in the amount of:

   Description of the USGS regional/national program:

   (d) Additional or reduced amounts by each party during the above period or succeeding periods as may be determined by mutual agreement and set forth in an exchange of letters between the parties.

   (e) The performance period may be changed by mutual agreement and set forth in an exchange of letters between the parties.

3. The costs of this program may be paid by either party in conformity with the laws and regulations respectively governing each party.

4. The field and analytical work pertaining to this program shall be under the direction of or subject to periodic review by an authorized representative of the party of the first part.

5. The areas to be included in the program shall be determined by mutual agreement between the parties hereto or their authorized representatives. The methods employed in the field and office shall be those adopted by the party of the first part to insure the required standards of accuracy subject to modification by mutual agreement.

6. During the course of this program, all field and analytical work of either party pertaining to this program shall be open to the inspection of the other party, and if the work is not being carried on in a mutually satisfactory manner, either party may terminate this agreement upon 60 days written notice to the other party.

7. The original records resulting from this program will be deposited in the office of origin of those records. Upon request, copies of the original records will be provided to the office of the other party.

8. The maps, records, or reports resulting from this program shall be made available to the public as promptly as possible. The maps, records, or reports normally will be published by the party of the first part. However, the party of the second part reserves the right to publish the results of this program and, if already published by the party of the first part shall, upon request, be furnished by the party of the first part, at costs, impressions suitable for purposes of reproduction similar to that for which the original copy was prepared. The maps, records, or reports published by either party shall contain a statement of the cooperative relations between the parties.

9. USGS will issue billings utilizing Department of the Interior Bill for Collection (form DI-1040). Billing documents are to be rendered QUARTERLY. Payments of bills are due within 60 days after the billing date. If not paid by the due date, interest will be charged at the current Treasury rate for each 30 day period, or portion thereof, that the payment is delayed beyond the due date. (31 USC 3717; Comptroller General File B-212222, August 23, 1983).

	U.S. Geological Survey United States Department of the Interior		NH Department of Transportation
	USGS Point of Contact		**Customer Point of Contact**
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Signatures and Date

Signature:	Date: 8/17/16	Signature:	Date: 08/17/2016
Name:	Keith W. Robinson	Name:	Peter E. Stamnas
Title:	Director, New England Water Science Center	Title:	Director of Project Development
Signature:	Date: 8/26/16	Signature:	Date:
Name:	Dianne Martin	Name:	
Title:	Assistant Attorney General	Title:	

USGS

Predicting iron fouling associated with drainage from roadway sites constructed with rock fill in New Hampshire

U.S. Geological Survey, New England Water Science Center
New Hampshire-Vermont Office
August 1, 2016

Background and Introduction

The New Hampshire Department of Transportation (NHDOT) has determined that rock fill material placed in contact with wet areas adjacent to roadways can mobilize high concentrations of iron and cause iron fouling in surface water. Rock fill is commonly used as a roadway base and along roadways to channel and drain storm water. Accumulations of hydrated iron (ferric) oxide compounds with red-orange microbial deposits (collectively referred to as iron fouling) in drainage ways are a continuous maintenance challenge for NHDOT in stream crossings, culvert outlets, and other areas (Fowler and Minichiello, 1977). Naturally occurring bacteria commonly catalyze iron reactions and form a biofilm. The iron-associated water quality changes and microbial deposits can result in adverse impacts to aquatic organisms, water bodies, streambeds, and roadway structures.

Metasedimentary rocks with iron-rich biotite mica and (or) iron sulfide minerals, such as pyrite, are potential iron sources in New Hampshire groundwater (Moore, 2004). Individual geologic units at the State scale are associated with high iron concentrations in groundwater (Flanagan and others, 2014). However, iron has many mineralogical sources (Klein and Hurlbut, 1993) and mobilizing conditions (Smith, 2007). For example, iron can be mobilized under oxic, low pH conditions or under anoxic (reducing) conditions with a neutral or higher pH (Walter, 1997; Brown and others, 1999; Cravotta, 2015). Road salt use for deicing also may affect iron mobility (Mullaney and others, 2009).

Reducing conditions are common in older groundwater (Flanagan and others, 2012), which can dissolve and transport iron from aquifers, road fill, and stream bed material before becoming oxygenated in surface water and precipitating iron (figure 1). Also, independent redox microzones can form within the hyporehic zone of the streambed (Briggs and others, 2015) providing an alternative source of reducing water.

Under oxic conditions, sulfide minerals can dissolve and form acidic, iron-rich runoff, known as acid rock drainage (ARD), which is common at mine drainage sites (Zyl, 1993; Seal and others, 2010). ARD occurs in runoff from roadcuts (Cendrero and others, 1977; Ji and others, 2006; Bradley and others, 2015) and from blasted rock fill used for roadway construction (Huckabee and others, 1975; Orndorff and Daniels, 2004; Hammarstrom and others, 2005; Hindar and Nordstrom, 2015).

Collection of new data to characterize iron fouling, as well as statistical and geochemical modeling can improve our understanding of iron fouling potential. Models may provide some improvements of predicting where fouling is likely to occur.

Problem

Iron fouling affects water bodies and highway structures. Although iron geochemistry is well understood, investigations of iron fouling related to rock cuts and rock fill usage at roadway sites are rare and are mostly qualitative (Bradley and Worland, 2015). A study of iron fouling along roadways constructed with rock fill in New Hampshire (Fowler and Minichiello, 1977) included a site in Meredith, where biotite schist is a likely iron source to drainage water. Iron fouling occurs at other sites across the state, but no systematic research has been undertaken. NHDOT indicates that more quantitative research is needed to understand the occurrence and to help predict iron fouling.

Objectives and Scope

The project has the following specific objectives designed to help understand and predict iron fouling associated with rock fill at roadway sites in New Hampshire:

1. Characterize (a) the dimensions of rock fill, (b) rock chemistry, (c) rock fill discharge, (d) road cut and rock fill mineralogy, (e) hydrology and basin characteristics, and (f) general topography at roadway rock cut and fill sites in NH using existing and reconnaissance site-visit data.

2. Develop a regression model to assess regional characteristics related to iron fouling and to estimate the probability of iron fouling at sites across New Hampshire.

3. Develop geochemical models at three or more sites with active iron fouling to provide an understanding of processes and inform statistical models.

Relevance and Benefits

Collection and dissemination of the information will: (1) meet the broad USGS goal of providing information needed by State agencies for research on water resources of the Nation; (2) provide valuable information for characterizing water quality at rock fill sites; and (3) provide methods and procedures for assessment of other sites and regions with iron fouling from rock fill. The results of this study will advance the NHDOT goals of (1) predicting iron fouling at new sites, (2) Optimizing material placement during construction to prevent iron fouling, and (3) informing remedy selection by identifying geohydrologic and geochemical processes. Results from this study are expected to be transferable to sites with similar settings in other locations.

Predictions of where iron fouling may occur when rock fill is in contact with water and a quantitative assessment of driving mobility factors will help NHDOT in planning new construction projects and modifying existing drainages with iron fouling issues. Insight gained from this project combined with existing information in the form of geologic maps, and water level and water quality data will enable NHDOT to better predict where iron fouling could be a problem and develop remedial measures.

Approach

Sites where rock fill was used in roadway construction will be used to develop a dependent (response) variable database for regression modeling; sites will be characterized with regional independent (explanatory) variable data. The project will include field data collection and data collection from existing databases, archives, and published reports to support regression and geochemical modeling. The extent to which objectives 1 and 3 are emphasized in the study may vary depending on data availability and the initial results of each. It is planned that objectives 2 and 3 will be done simultaneously and iteratively throughout the project.

Objective 1, Site characterization with existing and new data: The U.S. Geological Survey (USGS) will work with the technical advisory group (TAG) with the assistance of maintenance managers from each NHDOT district to populate an iron fouling dependent variable field (persistent and pervasive, limited and isolated, or none) in a database of

roadway rock fill sites and verify fouling in the field. The feasibility of using remote sensing to identify iron fouling will also be assessed. Up to one hundred sites that are representative of the whole population will be selected in consultation with the TAG in a variety of settings from NHDOT's rock cut database (280 sites) (Fish and Lane, 2002) and more recent roadway construction records where rock was blasted and used as fill adjacent to drainage ways. Discharge water quality parameters measured during reconnaissance visits to sites where water has been in contact with rock fill will be documented. Ferrous and total iron will be measured in the field with a meter using a photometric analysis. The general hydrologic setting of each water-rock interaction site will be described, photographed, and located with global positioning system (GPS). A generalized potentiometric surface map will be developed using existing water level and topography data; groundwater gradients will be estimated for each site visited.

Independent variables for each roadway rock fill site will be populated as follows:

(a) Estimated geometry and volume of rock fill.

(b) Rock chemistry from litho-geochemical groupings (Robinson Jr and Kapo, 2003), streambed sediment (Robinson Jr and others, 2004) and soil chemistry (from U.S. Department of Agriculture's Natural Resources Conservation Soil Survey Geographic Database (SSURGO) data).

(c) Rock-fill discharge pH, dissolved oxygen, redox, specific conductance, and temperature, as well as ferrous and total iron.

(d) Roadcut and rock fill geology and mineralogy extracted from the state geologic map (Bennett and others, 2006)

(e) Hydrologic data including: distance to nearest water bodies, presence and distance to wetlands, groundwater flow position from a model derived from a 30-meter digital elevation models (DEM) (Richard Moore, written communication, 2015), hydrologic variable surrogates, such as instantaneous slope, curvature, re-entrants, and constrictions (from 30- and 250 meter DEM derivatives), drainage basin area, basin slope, area of wetlands, and selected flow statistics from USGS StreamStats (Olson, 2009) from the nearest stream site.

(f) Topography, slope, and hillslope positon from 30- and 250 meter DEMs.

Objective 2, Regression modeling: Regression modeling to estimate the probability of iron fouling will be used to test variables (from objective 1) that are expected to have a significant relationship to fouling. Statistical methods used to test independent variables that may be related to iron fouling will be similar to those used by the USGS to develop water quality and quantity probability maps in NH (Moore, 2004; Ayotte and others, 2012). Statistical modeling to identify controlling factors are common in hydrology with large and small data sets and can be potentially useful for water quality issues (Gardner and Vogel, 2005). Independent variables tested at rock fill sites will include bedrock geology (Bennett and others, 2006), litho-geochemical groupings (Robinson Jr. and others, 2003), streambed sediment (Robinson Jr and others, 2004) and soil chemistry, topographic features, volume of roadway rock fill, and hydrologic landscape and basin settings (Objective 1). If feasible, a map showing the probability of iron fouling will be produced. Geochemical modeling results (objective 3) will be used to help inform and (or) explain the regression results.

Objective 3, Geochemical surveys and modeling: A subset of three (or more) sites with active iron fouling will be selected from the sites that were visited in objective 1 for sampling and inverse geochemical modeling after consideration of sites identified in consultation with the technical advisory group. Sites located in quadrangles with detailed published petrography (mineral assemblage data) will be given a higher priority for selection. Geochemical modeling using PHREEQC (Parkhurst and Appelo, 2013) will help assess iron mobility and transport at the field sites. A parameter sensitivity analysis will help identify and rank important variables needed to predict iron mobilization, such as runoff, pH, and redox conditions.

Published data, field measurements, and lab results of samples will be used to provide input to three potential endmember stages of geochemical modeling in this project (precipitation, groundwater, and surface water) to determine the propensity for iron mobilization, movement, and fouling. This will help to develop an understanding of the processes driving the general predictions at new sites made with probability mapping.

Surface water, pore water (push point sampler), and/or groundwater samples will be collected for the (1) field analysis of water quality parameters, total and ferrous iron, and (2) lab analysis of, major and trace elements, nutrients, TOC, δ^2H & $\delta^{18}O$ of H_2O and $\delta^{34}S$ & $\delta_{18}O$ of SO_4^{2-}. Samples will be analyzed in the field and at USGS labs, data will be stored in the National Water Information System (NWIS), (U.S. Geological Survey, 2014a, b, c).

The NHDOT will complete exploratory borings on selected fill areas to confirm the presence of rock fill. Rock chip samples from new drill holes developed by NHDOT for this study and roadway rock cut lithology will be analyzed for whole rock chemistry using a portable XRF (X-ray fluorescence (Groover and Izbicki, 2016)) if feasible. Completion records for new boreholes developed by NHDOT for this study will be entered into USGS Ground-Water Site-Inventory (GWSI) System.

Table 1. Proposed number of samples for the study:

Work plan Element	Objective 1		Objective 3		
Sample type	Field parameters	Field Fe species	Major ion	Isotope	Rock (XRF)
Equipment blank		2	1		
Field blank		2	1		
Replicate	10	10	2		
Environmental	100	100	15	6	30
Field reference sample		1	1		

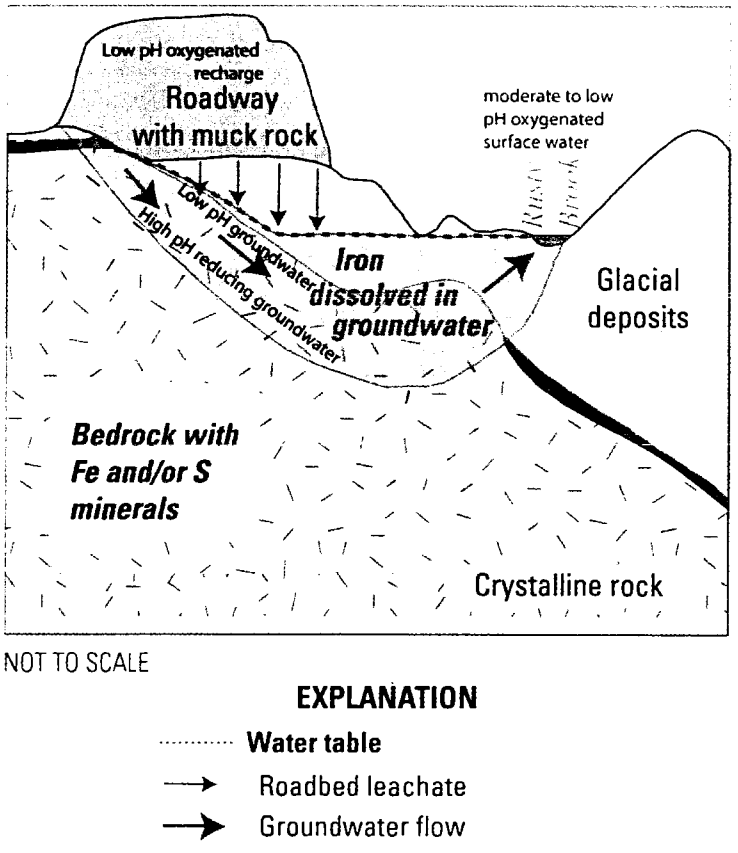

Figure 1. Conceptual model of iron transport and distribution of pH and redox conditions at a hypothetical roadway site (modified from (Warner and Ayotte, 2015).

Quality Assurance and Quality Control

The conduct and reporting of the study results will be in accordance with USGS Fundamental Science Practices. USGS New England Water Science Center quality-assurance plans will be followed for groundwater, surface-water, and water-quality activities. Hydrochemical data used in the study will be quality assured and approved in accordance with USGS protocols (U.S. Geological Survey, variously dated). The number of environmental and quality control samples is outlined in table 1. Field blanks and sample replicates will be collected for approximately 2 and 10 percent of the samples respectively. Chemical analysis will be performed by the USGS National Water Quality Lab or an approved contract lab. Geochemical modeling will be documented and archived according to Office of Water Quality Technical Memorandum 2015.2.

Products

A report describing the results will be published as a USGS Scientific Investigations Report or a journal article, it is to include a map showing the probability of iron fouling or/and other fouling prediction tools. Quarterly internal progress reports will be provided to NHDOT by the USGS. Communication of interim project results will be made to the TAG when needed. Geospatial output datasets and associated metadata created or compiled for this study will be documented, archived, and made available.

Project Timeline

The proposed study will be conducted over three Federal fiscal years (October 1 to September 30). A detailed timeline for the project is provided in the table below, assuming a start date of September 1, 2016.

Table 2. Proposed timeline for the study.

Work plan Element	FY16	FY17				FY18			
	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept	Oct-Dec	Jan-Mar	Apr-June	July-Sept
Project planning	x								
Data collection	x	x		x					
Database construction	x	x	x	x	x				
Modeling			x	x	x	x			
Data analysis					x	x	x		
Internal reviews		x		x		x			
Data and model archive								x	
Report							x	x	x

Project Staffing, Costs, and Funding

Work required to meet the objectives will be carried out by a hydrologist, a geographical information system specialist, a geochemical modeler, and a research hydrologist from the USGS. These USGS staff will collaborate with NHDOT. Project costs are summarized below. We propose that 58% of the project funding be provided by NHDOT, and 42% from the USGS Cooperative Water Program.

Table 3. Estimated summary of costs.

Element	Project Cost Federal FY16 (NHDOT FY17)	Project Cost Federal FY17	Project Cost Federal FY18	Total Project Cost
Total Project	**$29,930**	$109,300	$30,650	**$169,880**
USGS share	**$11,560**	$47,000	$13,320	**$71,880**
NHDOT share	**$18,370**	$62,300	$17,330	**$98,000**

References:

Ayotte, J.D., Cahillane, M., Hayes, L., and Robinson, K.W., 2012, Estimated probability of arsenic in groundwater from bedrock aquifers in New Hampshire, 2011 U.S. Geological Survey Scientific Investigation Report 2012-5156, 36 p. [Report].*http://pubs.er.usgs.gov/publication/sir20125156*

Bennett, D.S., Lyons, J.B., Wittkop, C.A., and Dicken, C.L., 2006, Bedrock Geologic Map of New Hampshire, a Digital Representation of Lyons and Others 1997 Map and Ancillary Files U.S. Geological Survey Data Series Report 215 [Report].*http://pubs.er.usgs.gov/publication/ds215*

Bradley, M.W., Worland, S., and Byl, T., 2015, Conceptual models of the formation of acid-rock drainage at road cuts in Tennessee, *in* Tennessee Water Resources Symposium, Montgomery Bell State Park, Burns, Tennessee, Tennessee Section of the American Water Resources Association.

Briggs, M.A., Day-Lewis, F.D., Zarnetske, J.P., and Harvey, J.W., 2015, A physical explanation for the development of redox microzones in hyporheic flow: Geophysical Research Letters, v. 42, no. 11, p. 4402-4410.*http://dx.doi.org/10.1002/2015GL064200*

Brown, C.J., Walter, D.A., and Colabufo, S., 1999, Iron in the aquifer system of Suffolk County, New York, 1990-98 U.S. Geological Survey Water-Resources Investigations Report 99-4126 [Report].*http://pubs.er.usgs.gov/publication/wri994126*

Cendrero, A., Anton, R., and De Omenaca, J.S., 1977, Geochemistry of bedrock; its effect on the planting and maintenance of roadcuts along the Bilbao—Behobia motorway (Northern

Spain): Landscape Planning, v. 4, p. 173-183.*http://www.sciencedirect.com/science/article/pii/0304392477900168*

Cravotta, C.A., 2015, Monitoring, field experiments, and geochemical modeling of Fe(II) oxidation kinetics in a stream dominated by net-alkaline coal-mine drainage, Pennsylvania, USA: Applied Geochemistry, v. 62, p. 96-107.*http://www.sciencedirect.com/science/article/pii/S0883292715000402*

Fish, M., and Lane, R., 2002, GIS and the New Hampshire Rock Cut Management System, 15 p.

Flanagan, S.M., Ayotte, J.D., and Robinson, G.R., 2012, Quality of Water from Crystalline Rock Aquifers in New England, New Jersey, and New York, 1995-2007 US Geological Survey Scientific Investigations Report 2011-5220, 104 p.*http://pubs.usgs.gov/sir/2011/5220*

Flanagan, S.M., Belaval, M., and Ayotte, J.D., 2014, Arsenic, iron, lead, manganese, and uranium concentrations in private bedrock wells in southeastern New Hampshire, 2012-2013 US Geological Survey Fact Sheet 2014-3042, 6 p. [Report].*http://pubs.er.usgs.gov/publication/fs20143042*

Fowler, B.K., and Minichiello, J.A., 1977, Experimental Feature on Iron Contamination: New Hampshire Department of Public Works and Highways, 48 p. [Final Research Report]

Gardner, K.K., and Vogel, R.M., 2005, Predicting ground water nitrate concentration from land use: Ground Water, v. 43, no. 3, p. 343-352.*http://dx.doi.org/10.1111/j.1745-6584.2005.0031.x*

Groover, K., and Izbicki, J., 2016, Elemental analysis using a handheld X-Ray fluorescence spectrometer, U.S. Geological Survey Fact Sheet 2016-3043, 2 p. [Report].*http://pubs.er.usgs.gov/publication/fs20163043*

Hammarstrom, J.M., Brady, K., and Cravotta Iii, C.A., 2005, Acid-rock drainage at Skytop, Centre County, Pennsylvania, 2004 Open-File Report 2005-1148.*http://pubs.er.usgs.gov/publication/ofr20051148*

Hindar, A., and Nordstrom, D.K., 2015, Effects and quantification of acid runoff from sulfide-bearing rock deposited during construction of Highway E18, Norway: Applied Geochemistry, v. 62, p. 150-163.*http://www.sciencedirect.com/science/article/pii/S0883292714001437*

Huckabee, J.W., Goodyear, C.P., and Jones, R.D., 1975, Acid Rock in the Great Smokies: Unanticipated Impact on Aquatic Biota of Road Construction in Regions of Sulfide Mineralization: Transactions of the American Fisheries Society, v. 104, no. 4, p. 677-684.*http://dx.doi.org/10.1577/1548-8659(1975)104<677:ARITGS>2.0.CO;2*

Ji, S.W., Cheong, Y.W., Yim, G.J., and Bhattacharya, J., 2006, ARD generation and corrosion potential of exposed roadside rockmass at Boeun and Mujoo, South Korea:

Environmental Geology, v. 52, no. 6, p. 1033-1043.*http://dx.doi.org/10.1007/s00254-006-0543-3*

Klein, C., and Hurlbut, C.S., 1993, Manual of Mineralogy (Twenty First ed.): United States of America, John Wiley and Sons, Inc., 681 p.

Moore, R.B., 2004, Quality of Water in the Fractured-Bedrock Aquifer of New Hampshire, U.S. Geological Survey Scientific Investigations Report 2004-5093, 30 p. *http://pubs.water.usgs.gov/sir20045093/*

Mullaney, J.R., Lorenz, D.L., and Arntson, A.D., 2009, Chloride in Groundwater and Surface Water in Areas Underlain by the Glacial Aquifer System, Northern United States: U.S. Geological Survey U.S. Geological Survey Scientific Investigations Report 2009-5086, 43 p.*http://pubs.usgs.gov/sir/2009/5086/*

Olson, S.A., 2009, Estimation of Flood Discharges at Selected Recurrence Intervals for Streams in New Hampshire, U.S. Geological Survey Scientific Investigations Report 2008-5206, 57 p. *http://pubs.er.usgs.gov/publication/sir20085206*

Orndorff, Z.W., and Daniels, W.L., 2004, Evaluation of acid-producing sulfidic materials in Virginia highway corridors: Environmental Geology, v. 46, no. 2, p. 209-216.*http://www.scopus.com/inward/record.url?eid=2-s2.0-4344669460&partnerID=40&md5=2f144d885164c0b70d90fdd2582ca721*

Parkhurst, D.L., and Appelo, C.A.J., 2013, Description of input and examples for PHREEQC version 3: a computer program for speciation, batch-reaction, one-dimensional transport, and inverse geochemical calculations Techniques and Methods Techniques and Methods 6-A43, 519 p. *http://pubs.er.usgs.gov/publication/tm6A43*

Robinson Jr, G.R., and Kapo, K.E., 2003, Generalized lithology and lithogeochemical character of near-surface bedrock in the New England region, Open-File Report 2003-225, 60 p. *http://pubs.er.usgs.gov/publication/ofr03225*

Robinson Jr, G.R., Kapo, K.E., and Grossman, J.N., 2004, Chemistry of Stream Sediments and Surface Waters in New England U.S. Geological Survey Open-File Report 2004-1026, 18 p. *http://pubs.er.usgs.gov/publication/ofr20041026*

Seal, R.R., II, Kiah, R.G., Piatak, N.M., Besser, J.M., Coles, J.F., Hammarstrom, J.M., Argue, D.M., Levitan, D.M., Deacon, J.R., and Ingersoll, C.G., 2010, Aquatic assessment of the Ely Copper Mine Superfund site, Vershire, Vermont U.S. Geological Survey Scientific Investigations Report 2010-5084 [Report].*http://pubs.er.usgs.gov/publication/sir20105084*

Smith, K.S., 2007, Strategies to predict metal mobility in surficial mining environments: Reviews in Engineering Geology, v. 17, p. 25-45.*http://reg.gsapubs.org/content/17/25.abstract*

U.S. Geological Survey, 2014a, National Water Information System Web Site, at *http://waterdata.usgs.gov/nwis/qwdata.*

U.S. Geological Survey, 2014b, Reston Stable Isotope Laboratory, at *http://isotopes.usgs.gov/.*

U.S. Geological Survey, 2014c, National Water Quality Laboratory, at *http://nwql.usgs.gov/.*

Walter, D.A., 1997, Geochemistry and microbiology of iron-related well-screen encrustation and aquifer biofouling in Suffolk County, Long Island, New York U.S. Geological Survey Water-Resources Investigations Report 97-4032 [Report].*http://pubs.er.usgs.gov/publication/wri974032*

Warner, K.L., and Ayotte, J.D., 2015, The quality of our Nation's waters: water quality in the glacial aquifer system, northern United States, 1993-2009, U.S. Geological Survey Circular 1352, 128 p. *http://pubs.er.usgs.gov/publication/cir1352*

Zyl, D., 1993, Mine waste disposal, *in* Daniel, D.E., ed., Geotechnical Practice for Waste Disposal: Boston, MA, Springer US, p. 269-286.

For further information contact:

James R. Degnan, *jrdegnan@usgs.gov* or 603-226-7826

Craig J. Brown, cjbrown@usgs.gov or 860-291-6766

or Joseph Ayotte, *jayotte@usgs.gov* or 603-226-7810

FOR INTERNAL USGS USE:

Job Hazard *Analysis For New Projects*

- Check the numbered box(s) for all significant safety concerns this project should address. Significant safety concerns are commonly those that require training, purchase of safety equipment, or specialized preparation to address potentially hazardous conditions.
- Identify any unlisted safety concerns at bottom of the page.
- Provide details on the back of this page.

Proposal Number_____
Project Title (Short): NHDOT Fe
Project Chief or Proposal: Author James Degnan

☒	Safety Concerns
1.	Wading, bridge, boat, or cableway measurements or sampling
2.	Working on ice covered rivers or lakes
3.	Measuring or sampling during floods
4.	Well drilling; borehole logging
5.	Electrical hazards in the work area
6.	Construction
7.	Working in remote areas, communication, office call in procedures
8.	Ergonomics, carpal tunnel syndrome
9. x	Field Vehicles appropriate for task?- Safety screens, equipment restraints.
10.	All terrain vehicles, snowmobiles
11.	Helicopter or fixed wing aircraft usage
12.x	Site access
13.x	Hypothermia or heat stroke
14.x	Hantavirus, Lyme Disease, Histoplasmosis, Pfiesteria, Others?
15.	Contaminated water with sanitary, biological, or chemical concerns
16.	Immunizations
17.	Laboratory or mobile laboratory. Chemical hygiene plan.
18.	Hazardous waste disposal
19.	Hazardous waste site operations
20.	Confined space
21.	Radioactivity
22.	Respiratory protection
23.	Scuba Diving
24.	Electrofishing

Box no.	For each numbered box checked on the previous page, briefly: A. Describe the safety concern as it relates to this project. B. Describe how this safety concern will be addressed. Include training, safety equipment and other actions that will be required. C. Estimate costs.
9	Sampling equipment will be transported with restraints or a caged vehicle
12	Site access will be coordinated by NHDOT
13	Field work will be conducted in favorable weather with appropriate clothing and hydration
14	Insect repellent will be used for field work

Attachment 2 – Proposal Data Management Plan

Proposed Data Management Plan for NHDOT Fe
Prepared by James Degnan

1. Hydrologic Data Collected for Project:

   Include all new field data collection work and data collected from other sources

Data Type/Name (QW, flow, etc)	Source of Data (USGS or outside agency	Planned data collection period
Water quality field parameters	USGS	FY16 & FY17
Fe species		FY16 & FY17
Major ions		FY17
Nutrients		FY17
Isotopes		FY17
TOC		FY17
Rock cut data including (Fish and Lane, 2002)	NHDOT	FY16 & FY17

2. Data Storage Plans. Indicate where data are stored and how.

Data Type/Name (QW, flow etc)	Data storage plans	Data storage completed by?
QW	Data will be stored in NWIS	FY18
Explanatory variable	Final data will be archived	FY18

3. Describe plans for model development and the need for model archives

Preliminary geochemical and regression model development. Study makes use of models that will need to be documented and archived.

Attachment 3 - Proposal Routing Sheet:

New England WSC Proposal Routing Sheet

		What reviewed				
Reviewer	Initial column	Proposal	Staffing	Budget	Timeline	Major Comments
Author	JRD	X	X	X	X	
Supervisor	JDA	X	X	X	X	
Specialist (GW)	TJM	X				
Specialist (QW)	LD	04/14 07/07				
Specialist (SW)	GB	07/07				
Other reviewer	JBS	02/19				
Other reviewer	CB	06/17	06/17			
Administrative Officer	PB			7/28		
Associate Director	DME	7/21				
Director	KWR	8/1				
Instructions:						
-review process is to following WSC Policy Proposals						
-comments should be provided in text of proposal						
-not all specialists/section chiefs/director needs to review the proposal						
-other staff (both in and outside the office) can serve as reviewers when its appropriate						
-all reviewers should get a final copy of the proposal and the final proposal is to be saved on the internal web page,						

United States Department of the Interior

U.S. GEOLOGICAL SURVEY
New Hampshire - Vermont
Water Science Center
361 Commerce Way
Pembroke, NH 03275

March 22, 2007

Mr. Denis M. Boisvert, P.E.
NH Department of Transportation
Materials & Research Bureau
Box 483, 5 Hazen Drive
Concord NH 03302-0483

Dear Mr. Boisvert:

This letter is in response to your request for information concerning the United State Government and specifically, the US Geological Survey, being self insured. The following rules are equally applicable to any official governmental activity:

1. The Government is a self-insurer with respect to loss or damage to government property and the liability of government employees. In the absence of express statutory authority, appropriated funds are not available to purchase such insurance coverage. (Rule summarized in GAO B-158766, Feb. 3, 1977.)

2. The Federal Tort Claims Act (28 USC 2671 et seq.) provides the exclusive remedy for tort claims against the United States. Under it, the Government agrees to assume responsibility for negligent acts or omissions of USGS employees acting within the scope of their employment.

3. The Government may not accept "hold harmless" or "indemnification" clauses in its agreements because the law prohibits the Government from entering into agreements where the Government's liability is indefinite, indeterminate, or potentially unlimited. Such agreements violate both the Antideficiency Act, 31 USC 1341 and the Adequacy of Appropriations Act, 41 USC 11, the latter because it can never be said that sufficient funds have been appropriated to cover the contingency.

Please give me a call at 226-7807 if you need further information on this subject, but I hope this satisfies your needs regarding the USGS being self-insured.

Sincerely,

Keith W. Robinson
Director

U.S. Geological Survey Manual

200.2 - Redelegations

12/06/10

OPR: Office of Administration and Enterprise Information

Instructions: This chapter is being revised to reflect a change in office chief, title, and office name.

1. Purpose. This chapter sets forth policy governing delegations of authority to carry out USGS activities.

2. Definitions.

A. *Authority* is the power vested in a person to approve or authorize an action. The exercise of an authority enactsa binding decision that commits the direct or indirect expenditure of funds or other resources.

B. *Delegating* is the official vesting of an authority, in whole or in part, by one person to another, in order to give legal effect or administrative approval to actions taken.

3. Policy. Authority in the USGS is to be delegated: (1) to the lowest level practicable, so that decisions can be made where the issues/problems exist; (2) so that it is not more restrictive than permitted by higher authority, unless there is good management reason for doing so; and (3) in a manner that strengthens the chain of command so that authority is commensurate with responsibility. An orderly system for approving, issuing, limiting, withdrawing, and keeping track of delegations of authority shall be in place at all levels of the Bureau.

4. Guidelines. In making decisions to delegate authority, the following guidelines are to be followed:

A. The delegation to a lower level would provide for greater efficiency.

B. Adequate guidance must exist forthe proposed recipient(s) to carry out the authority. (**NOTE**: If not, guidance must be adopted prior to, or concurrent with, the delegation of authority.)

C. Proposed recipient(s) is/are trained and qualified to exercise the authority effectively.

D. The delegation of authority would not interfere with the operations and functions of other employees or with other programs and does not conflict with other delegations of authority that demand segregation of duties or the use of checks and balances.

E. The delegating official shall monitor the use of the authority, and retains accountability for the results. (**NOTE**: An official delegating authority does not relinquish the power to exercise that authority at any time and is not relieved of the responsibility for action taken by the person(s) to whom the authority has been delegated.) The official delegating the authority may, temporarily or permanently, withdraw or limit the delegation by issuing such a decision.

F. Delegations should be in writing, and leave no doubt as to the extent or limits of the authority delegated. In emergency situations or for temporary periods, authority may be delegated verbally.

G. A delegation of authority made to an individual is also made to that individual's supervisor(s), unless stated otherwise in the delegation of authority. Also, when designated as "Acting," an individual has the same authority as the person for whom he/she is acting, unless a further restriction is documented. (See SM 205.4 for procurement authority exception.)

H. Delegatees must exercise redelegated authority in conformance with any requirements the delegator must observe.

I. Delegations should be issued to position titles rather than to named officials whenever possible. The delegating official must decide whether the authority being delegated is to a position or to an individual and so specify in the delegation of authority.

/s/ Karen D. Baker December 6, 2010

Karen D. Baker
Associate Director for Administration and
Enterprise Information

Date

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U.S. Geological Survey Manual

205.13 – Delegations of Authority to Enter into Agreements and to Accept Contributions

Date: 4/11/11

OPR: Office of Administration and Enterprise Information

Instruction: This chapter is being revised to reflect a change in the Office of Primary Responsibility--office chief, title, and office name. Appendix A is being revised to: (1) remove the contents referencing "agreements to perform work for non-Federal organizations," and replacing it with delegations of authority to sign Intergovernmental Cooperation Act agreements; (2) add two new agreement categories—collaborative and Federal Energy Regulatory Commission agreements; and (3) revise positions/titles of individuals with delegated authority based on the Bureau's realignment.

1. Purpose. This chapter establishes delegations of authority necessary to approve agreements and accept contributions at the U.S. Geological Survey. Authority is delegated in *Appendix A* of this chapter.

2. Policy. General provisions regarding policy and limitations on delegations are established in Survey Manual Chapter (SM) 200.1, Delegations; and general provisions regarding policy and guidelines on redelegations are established in SM 200.2, Redelegations. Managers and supervisors retain the power to exercise the authority that is being delegated to their subordinates. An official entering into an agreement is responsible for ensuring his or her statutory authority to enter into such an agreement.

3. Deferred Publication of Analyses and Interpretive Reports. For reimbursable work, deferred publication of analyses and interpretive reports must be approved by the responsible Associate Director or Regional Executive.

Appendix A

/s/ Karen D. Baker April 11, 2011

Karen D. Baker Date
Associate Director for Administration and Enterprise Information

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USGS DELEGATIONS OF AUTHORITY TO ENTER INTO AGREEMENTS AND TO ACCEPT CONTRIBUTIONS		
AUTHORITY	AUTHORITY DELEGATED TO *(THESE AUTHORITIES MAY NOT BE REDELEGATED UNLESS SPECIFIED IN THE DELEGATION):*	DOCUMENTATION REQUIRED/REMARKS
A. Approve Agreements for work with States, Counties, Municipalities, and other Governmental Subdivisions; U.S. Territories; Native American Tribal Governments; DC Government [43 U.S.C.50]		Use of the Form 9-1366 is encouraged. The USGS Checklist for Reimbursable Agreements must be completed and a copy must be maintained with the approved agreement.
A-1. Approve Standard Joint Funding Agreement (JFA) using Form 9-1366 (without change)	Office Chiefs (see Note at bottom of page 11 for these positions) reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a Senior Executive Service (SES) Manager	
A-2. Approve Non-Standard JFA	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	Review and approval by the Office of Policy and Analysis is required prior to signing the agreement.
A-3. Approve the following Non-Standard JFA Exceptions:	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	
(a) Non-Standard JFA where the only change to the Form 9-1366 is a statement on maintaining a drug free workplace; on abiding by Federal non-discrimination laws; or that the USGS may not contract the work to another party without the prior consent of the cooperator in writing		
(b) Non-Standard JFA in following years with a cooperator if the initial JFA with that cooperator had been reviewed by the Office of Policy and Analysis. Changes to the scope of work, amount of money, and /or period of performance are authorized. Otherwise, the agreement with the cooperator should		

USGS DELEGATIONS OF AUTHORITY TO ENTER INTO AGREEMENTS AND TO ACCEPT CONTRIBUTIONS		
AUTHORITY	AUTHORITY DELEGATED TO (*THESE AUTHORITIES MAY NOT BE REDELEGATED UNLESS SPECIFIED IN THE DELEGATION*):	DOCUMENTATION REQUIRED/REMARKS
remain the same as that initially approved. The delegatee is responsible for ensuring that changes made are authorized.		
B. Intergovernmental Cooperation Act Agreements (not for use with U.S. Territories, Native American Tribal Governments) [31 U.S.C. § 6505]		See SM 500.27, Intergovernmental Cooperation Act Agreements with State and Local Units of Government and Figure 27-1, Intergovernmental Cooperation Act Agreement Template. The USGS Checklist for Reimbursable Agreements must be completed and a copy must be maintained with the approved agreement.
B-1. Approve Intergovernmental Cooperation Act Agreements using the USGS template (without change)	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	
B-2. Approve Intergovernmental Cooperation Act Agreements using terms and conditions other than those provided in the USGS template	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	Review and approval by the Office of Policy and Analysis is required prior to signing agreement.
B-3. Approve the following Intergovernmental Cooperation Act Agreement exceptions:	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	
(a) Where the only change is a statement on maintaining a drug-free workplace; on abiding by Federal non-discrimination laws; or that the USGS may not contract the work to another party without the prior consent of the cooperator in writing		

USGS DELEGATIONS OF AUTHORITY TO ENTER INTO AGREEMENTS AND TO ACCEPT CONTRIBUTIONS		
AUTHORITY	AUTHORITY DELEGATED TO *(THESE AUTHORITIES MAY NOT BE REDELEGATED UNLESS SPECIFIED IN THE DELEGATION)*:	DOCUMENTATION REQUIRED/REMARKS
(b) In following years with a cooperator if the initial Intergovernmental Cooperation Act Agreement had been reviewed by the Office of Policy and Analysis. Changes to the scope of work, amount of money, and/or period of performance are authorized. Otherwise, the agreement with the cooperator should remain the same as that initially approved. The delegatee is responsible for ensuring that changes made are authorized.		
C. Approve agreements to perform work for Other Federal Agencies	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to an SES Manager	See SM 500.3. The USGS Checklist for Reimbursable Agreements must be completed and a copy must be maintained with the approved agreement.
D. Approve Collaborative Agreements with States, Counties, Municipalities, educational institutions, private entities, and non-profit organizations; [43 U.S.C. 36c]		Contact Office of Policy and Analysis for agreement template. The USGS Checklist for Reimbursable Agreements must be completed and a copy must be maintained with the approved agreement. Collaborative agreements with private entities and non-profit organizations require review by the EADR. Review and approval by the Office of Policy and Analysis is required prior to signing the agreement.

USGS DELEGATIONS OF AUTHORITY TO ENTER INTO AGREEMENTS AND TO ACCEPT CONTRIBUTIONS		
AUTHORITY	AUTHORITY DELEGATED TO *(THESE AUTHORITIES MAY NOT BE REDELEGATED UNLESS SPECIFIED IN THE DELEGATION)*:	DOCUMENTATION REQUIRED/REMARKS
D-1. Approve Standard Collaborative Agreement **D-2. Approve Non-Standard Collaborative Agreement using terms and conditions other than those provided in the USGS template** **D-3. Approve the following Non-Standard Collaborative Agreement exceptions:** (a) Non-Standard Collaborative Agreement where the only change to the template is a statement on maintaining a drug-free workplace; on abiding by Federal non-discrimination laws; or that the USGS may not contract the work to another party without the prior consent of the cooperator in writing (b) Non-Standard Collaborative Agreement in following years with a cooperator if the initial Collaborative Agreement with that cooperator had been reviewed by the Office of Policy and Analysis. Changes to the scope of work, amount of money, and/or period of performance are authorized. Otherwise, the agreement with the cooperator should remain the same as that initially approved. The delegatee is responsible for ensuring that changes made are authorized.	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager Office Chiefs reporting to the Director/Deputy Director and managers and supervisors who report directly to a SES Manager Office Chiefs reporting to the Director/Deputy Director and managers and supervisors who report directly to a SES Manager	
E. Approve Interagency Agreements involving an outflow of funds from the USGS to another Federal agency	This delegation remains in SM 205.4, Procurement	See SM 205.4E-1 and SM 405.7.

USGS DELEGATIONS OF AUTHORITY TO ENTER INTO AGREEMENTS AND TO ACCEPT CONTRIBUTIONS		
AUTHORITY	AUTHORITY DELEGATED TO *(THESE AUTHORITIES MAY NOT BE REDELEGATED UNLESS SPECIFIED IN THE DELEGATION):*	DOCUMENTATION REQUIRED/REMARKS
F. Approve Technology Transfer Agreements [15 U.S.C. 3710a and 43 U.S.C. 36c]		See SM 500.20. A Technology Transfer agreement, as defined in 15 U.S.C. 3710a, is an agreement between one or more Federal laboratories and one or more non-Federal parties under which the Government, through its laboratories, provides personnel, services, facilities, equipment, intellectual property, or other resources with or without reimbursement (but not funds to non-Federal parties); and the non-Federal parties provide funds, personnel, services, facilities, equipment, intellectual property, or other resources toward the conduct of specified research or development efforts, which are consistent with the missions of the laboratory, except that such term does not include a procurement contract or cooperative agreement as those terms are used in Sections 6303, 6304, and 6305 of Title 31. Property and equipment provided under the agreement shall be provided in accordance with established USGS Property Management policies and procedures. The USGS Checklist for Reimbursable Agreements must be completed and a copy must be maintained with the approved agreement.
F-1. Cooperative Research and Development Agreements (CRADA)	Associate Directors; Regional Executives	Review by the Office of Policy and Analysis is required prior to signing the agreement.

USGS DELEGATIONS OF AUTHORITY TO ENTER INTO AGREEMENTS AND TO ACCEPT CONTRIBUTIONS		
AUTHORITY	AUTHORITY DELEGATED TO (*THESE AUTHORITIES MAY NOT BE REDELEGATED UNLESS SPECIFIED IN THE DELEGATION*):	DOCUMENTATION REQUIRED/REMARKS
F-2. Technical Assistance Agreements:		
(a) Less than or equal to $100,000	Office Chiefs reporting to the Director/Deputy Director and managers and supervisors who report directly to an SES Manager	Review by the Office of Policy and Analysis is required prior to signing the agreement.
(b) More than $100,000	Deputy Associate Directors; Regional Executives; Office Chiefs reporting to the Director/Deputy Director; and Managers and Supervisors who report directly to an SES Manager	Review by the Office of Policy and Analysis is required prior to signing the agreement.
F-3. Facility Use/Service Agreements	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to an SES Manager	Review by the Office of Policy and Analysis is required prior to signing the agreement.
F-4. Material Transfer	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to an SES Manager	Typically the provider of the material only requires a simple form to be completed. The Office of Policy and Analysis is available to provide assistance if needed. Material transfer agreements may not involve any commitments (including funds) except for the transfer of materials. Consequently, USGS reimbursable agreement procedures do not apply.

G. Approve International Agreements under the Foreign Assistance Act (FAA) [22 U.S.C. 2357]		The Office of International Programs is responsible for coordinating the review of all proposed USGS international agreements with a friendly country or an international organization prior to signature.
G-1. Sign international memorandum of understanding, memorandum of cooperation, Protocol, and Exchange of Letter	Director	
G-2. Sign project annex, project annex amendment, statement of intent, memorandum of agreement, technical assistance, agreement in principal, project implementation plan, and letter of agreement, *the scope of which deals with more than one USGS mission area*	Deputy Director	
G-3. Sign a project annex, project annex amendment, statement of intent, memorandum of agreement, technical assistance, agreement in principal, project implementation plan and letter of agreement, *limited to a single mission area*	Associate Director for that mission area	

H. Approve Acceptance of Contributions		See SM 500.19. All contribution offers should be documented on the Contribution Report Form (Form 9-3089).
H-1. Acceptance of contributions from public and private sources—includes lands, buildings, equipment, money, other contributions [43 U.S.C. 36c and 16 U.S.C.742f(b)]		
(a) Money and personal property of $5,000 or less	Science Center Directors and Cost Center Managers	
(b) Money and personal property of $50,000 or less	Regional Executives and Deputy Associate Directors	
(c) Money and personal property exceeding $50,000, and all other contributions received under this authority	Associate Directors and Regional Executives	Consultation and coordination with the Ethics and Collaborative Action and Dispute Resolution (EADR) Office (gifts).
H-2. Acceptance of contributions for official travel costs for meetings or similar functions [31 USC 1353]	Officials with delegated authority to approve travel authorizations	Funds can be accepted from non-Federal sources to pay for travel costs for official travel if the travel is for the purpose of attending a meeting, conference, workshop, seminar, or similar event related to an employee's duties and responsibilities. Funds cannot be accepted to carry out the Bureau's regulatory and statutory functions, such as field or site visits. A Form DI-2000, Report of Payment Accepted from a Non-Federal Source must be completed, approved by the EADR Office, and submitted with the employee's travel authorization.
H-3. Acceptance of contributions, awards, or payments, in connection with non-Government training. [205 DM 2.1B]	Authority delegated in SM 205.1, Personnel Management, Appendix B, I-7	

I. Approve Domestic Memorandum of Understanding (MOU)		See SM 500.26, Domestic Memorandum Of Understanding.
I-1. Domestic MOUs that:	Director	
(a) Address activities that cross mission areas		
(b) Address an intent to work with a sovereign Indian Nation.		
I-2. Mission-specific Domestic MOUs of national significance	Associate Directors	
I-3. Domestic MOUs specific to assigned geographic areas of responsibility	Regional Executives	
I-4. Domestic MOUs specific to a science center or a cost center	Regional Executives and Cost Center Managers	
J. Interagency Personnel Details under the Intergovernmental Personnel Act	Authority delegated in SM 205.1, Personnel Management, Appendix B, B-33	
K. Approve Federal Energy Regulatory Commission (FERC) Agreements with non-governmental customers (private utilities) (USGS Annual Appropriations Act); States, Counties, Municipalities, Tribal Governments, and U.S. Territories [43U.S.C. 50 and 43 U.S.C. 50b]; with USGS [Economy Act and 43 U.S.C. 36c]		See Financial Operating Procedures Handbook for FERC agreement template. The USGS Checklist for Reimbursable Agreements must be completed and a copy must be maintained with the approved agreement.
K-1. Approve Standard FERC Agreement	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	
K-2. Approve Non-Standard FERC Agreement	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	Review and approval by the Office of Policy and Analysis is required prior to signing the agreement.

K-3. Approve the following Non-Standard FERC Agreement Exceptions: **(a)** Non-Standard FERC Agreement where the only change to the template is a statement on maintaining a drug-free workplace; on abiding by Federal non-discrimination laws; or that the USGS may not contract the work to another party without the prior consent of the cooperator in writing **(b)** Non-Standard FERC Agreement in following years with a cooperator if the initial FERC Agreement with that cooperator had been reviewed by the Office of Policy and Analysis. Changes to the scope of work, amount of money, and /or period of performance are authorized. Otherwise, the agreement with the cooperator should remain the same as that initially approved. The delegatee is responsible for ensuring that changes made are authorized.	Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to a SES Manager	

Note:

Office Chiefs reporting to the Director/Deputy Director and Managers and Supervisors who report directly to an SES Manager include positions such as:

(A) Associate Directors and Regional Executives
(B) Deputy Associate Directors and Deputy Regional Executives
(C) Director, Office of Budget, Planning, and Integration; Director, Office of Communications and Publishing; and Director, Office of Science Quality and Integrity
(D) Chief, Office of Equal Opportunity; Chief, Office of International Programs
(E) Science Center Directors
(F) AEI Office Chiefs
(G) HC Office Chiefs

U.S. Geological Survey Manual

200.2 - Redelegations

12/06/10

OPR: Office of Administration and Enterprise Information

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B. *Delegating* is the official vesting of an authority, in whole or in part, by one person to another, in order to give legal effect or administrative approval to actions taken.

3. Policy. Authority in the USGS is to be delegated: (1) to the lowest level practicable, so that decisions can be made where the issues/problems exist; (2) so that it is not more restrictive than permitted by higher authority, unless there is good management reason for doing so; and (3) in a manner that strengthens the chain of command so that authority is commensurate with responsibility. An orderly system for approving, issuing, limiting, withdrawing, and keeping track of delegations of authority shall be in place at all levels of the Bureau.

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B. Adequate guidance must exist forthe proposed recipient(s) to carry out the authority. (**NOTE**: If not, guidance must be adopted prior to, or concurrent with, the delegation of authority.)

C. Proposed recipient(s) is/are trained and qualified to exercise the authority effectively.

D. The delegation of authority would not interfere with the operations and functions of other employees or with other programs and does not conflict with other delegations of authority that demand segregation of duties or the use of checks and balances.

E. The delegating official shall monitor the use of the authority, and retains accountability for the results. (**NOTE**: An official delegating authority does not relinquish the power to exercise that authority at any time and is not relieved of the responsibility for action taken by the person(s) to whom the authority has been delegated.) The official delegating the authority may, temporarily or permanently, withdraw or limit the delegation by issuing such a decision.

F. Delegations should be in writing, and leave no doubt as to the extent or limits of the authority delegated. In emergency situations or for temporary periods, authority may be delegated verbally.

G. A delegation of authority made to an individual is also made to that individual's supervisor(s), unless stated otherwise in the delegation of authority. Also, when designated as "Acting," an individual has the same authority as the person for whom he/she is acting, unless a further restriction is documented. (See SM 205.4 for procurement authority exception.)

H. Delegatees must exercise redelegated authority in conformance with any requirements the delegator must observe.

I. Delegations should be issued to position titles rather than to named officials whenever possible. The delegating official must decide whether the authority being delegated is to a position or to an individual and so specify in the delegation of authority.

/s/ Karen D. Baker December 6, 2010

Karen D. Baker
Associate Director for Administration and
Enterprise Information

Date

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