

***Groundwater Technical Guide Development***

**Date:** January 23, 2014

**Subject:** **Steering Team Conference Call Notes**

**Invited Participants:** Liz Berger (vice Chris Carlson), Tony Erba, Joe Gurrieri, Dave Levinson, Chris Savage, Linda Spencer, Pete Kilbourne (METI), and Steve Solem (METI)

**Unable to Participate:** John Allen, Leslie Bach, Tony Crump, Katherine Smith, and Casey Giffen (METI)

**Discussion Topics and Action Items**

**Next Steering Team Call – April 16, 2014 @ 3:00 ET/1:00 MT (NEW DATE)**

# ****Project Overview**** Project Schedule

**Steve Solem discussed key tasks coming up in the project schedule (12/27/13) and their status:**

* **The Internal FS Review (Task 4.60) and Partner/Affiliate Review (Task 4.70) of the draft Inventory, Monitoring, and Assessment (IM&A) Technical Guide began on January 7, 2014 and will conclude on March 21, 2014. This allows over two full months for review and comment on the draft, which currently exceeds 400 total pages.**
* **Task 4.80 Review Comments/Reconciliation is the next major IM&A Technical Guide task, which begins at the end of March 2014 and will lead to publication of the Technical Guide in early FY15.**
* **Preliminary work to define the scope of the Revision of Managing GW Resources Technical Guide (FS-881) is ongoing.**
1. **Internal FS and Partner/Affiliate Review Process**

Joe Gurrieri reviewed the Internal FS and Partner/Affiliate Review Process. The January 7, 2014, letter from the NFS Deputy Chief formally announced and kicked off the review of the draft Technical Guide.

In addition to internal distribution, Joe is extending email invitations to agency partners and others requesting their comment on the draft Technical Guide. Key individuals in each of the major agencies (EPA, USGS, BLM, NPS) dealing with groundwater resources have agreed to facilitate review of the IM&A Technical Guide.

Once concern that was identified during the development of the Deputy Chief’s letter was the possibility of confusion that might arise if the FS groundwater policy was released during the same time as the comment period on the GW IM&A Technical Guide. As a result, Steering Team members are encouraged to personally contact members of their external networks regarding the review opportunity vs. a general email to those individuals and organizations.

Technical Guide Internal/Partner Review Website

The external website is set up for the Internal FS/Partner Review of the draft Technical Guide to serve as a common gateway to access project documentation, review guidelines, and to provide internal reviewers access to SharePoint sites. Forest Service reviewers will be directed to an Internal FS SharePoint site set up for the FS Application Dependency Assessment, and a site for review and comment on changes to the Data Dictionary/Geodatabase Design.

Steve Solem reviewed the website posted on the Ecosystem Management Coordination staff’s webpage and its structure (see <http://www.fs.fed.us/emc/rig/protocols/groundwater.shtml>). The top section of the page contains transitory material that will only be available during the review. The bottom portion of the page contains content related to the Groundwater Technical Guide Development Program and will serve as the main groundwater Technical Guide development page.

Steering Team members are encouraged to contact both internal and external members of their networks and inform them of the opportunity to comment on the draft Technical Guide and other materials.

Steve and Joe are working with Linda Spencer to set up briefings for NRM regarding the GW IM&A Technical Guide and assessment of effects on FS corporate applications and databases. Briefing materials for this session will be provided to members of the Core Team and Steering Team for use. (A copy of the presentation and a briefing paper on the Groundwater Technical Guide Development Plan will be provided to the Steering Team with these notes.)

Steve also indicated that briefings for TNC and the Utah State Geological Survey on the draft IM&A Technical Guide and supporting data dictionary changes and geo-database design are being scheduled to obtain their comments on the proposal.

ST Discussion on the Review Process

Pete Kilbourne’s briefing for the Utah Geological Survey occurred just prior to the Steering Team and he related that the Utah GS was very supportive and interested in assisting the FS with inventories using the procedures outlined in the GW IM&A Technical Guide. The Utah Geological Survey has been conducting springs and other groundwater inventories on a number of Utah National Forests under agreement with those Forests. They will provide specific feedback on the data dictionary changes, but were encouraged to see the FS provide an approach consistent with their business needs.

Joe shared with the group that given the limited expertise within the FS and other agencies regarding groundwater inventory, monitoring and assessment he was particularly encouraged by a commitment from Jim LaBaugh (USGS) to provide a thorough review and to coordinate the USGS review of the Technical Guide.

Joe also shared that he had already received positive review comments from the Riparian Service Team and other reviewers.

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| **Action:**  | * Steering Team members should contact members of their networks to provide them notice of the opportunity to review and comment on the draft GW IM&A Technical Guide and to refer them to the project website for information.
* Steering Team comments on the review materials should be submitted to Joe Gurrieri and Steve Solem and are due March 21, 2014.
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# Revision of TG for Managing Groundwater Resources

**The effort to revise this Technical Guide begins in May 2014 following agreement on the revision scope by the Steering Team. As the first step of this process defining the scope of the revision effort identifies development/revision needs and sets the stage for organizing the revision effort.**

**Joe Gurrieri developed a preliminary outline of the Technical Guide using the outline from the existing Technical Guide to assist in defining the revision scope and requested CT review and feedback on the proposed outline. The revised outline of the Technical Guide was distributed to the Steering Team with the agenda for this call. (A copy of the revised outline is appended to these notes.)**

**The process for the revising Management Technical Guide will be similar to that used to develop the Groundwater IM&A Technical Guide. However, from Joe’s perspective, he believes the revision of the Management Technical Guide will require additional involvement from multiple program areas because the revision effort will involve developing guidance regarding the assessment of projects and activities affecting groundwater. Without agreement during the development phase on how the assessment and analysis of project effects should be framed, staff in these program areas may not agree to the guidance and the development effort could get bogged down.**

This the composition of Working Groups involved in the revision effort should be include representatives from these key program areas and that membership of the Core Team and Steering Teams may need to be expanded. However, **Joe suggests waiting to pursue changes in the Core Team and Steering Team membership until the scope of the revision document is better defined.**

**Steve Solem wrapped up the general overview of the revision effort by pointing out that during their April 10 call the Core Team will develop a recommendation on the proposed outline for the Steering Team’s approval. The Steering Team will review and approve the revision scope during their April 16 call. In the meantime, Steering Team members should provide suggestions to Joe regarding the preliminary outline, with a focus on missing content or suggestions on the overall structure.**

**ST Comments on Revision Scope Outline**

**Members of the Steering Team provided positive feedback on the proposed outline and agreed that the overall organization of proposed content made sense. During the ensuing discussion, the following topics received additional discussion.**

* **Framing Project NEPA considerations – Steve Solem asked Tony Erba for his perspective on how best to frame NEPA considerations for NEPA analysis and documentation for various projects affecting groundwater resources and systems. As drafted, NEPA “guidance” or “considerations” is identified as a topic in a number of places throughout the document. The primary concern involves how to provide recommendations in the Technical Guide for NEPA without establishing an agency “requirement” that could become an issue in objections, appeals, or litigation.**

**Joe Gurrieri shared with the group that Regions 4 and 2 have provided review comments on two papers he has been working on regarding NEPA considerations for oil and gas and hardrock mineral exploration. These papers are a direct result of field requests for information on how groundwater-related effects should be analyzed and considered for these types of projects.**

**Tony agreed that this is a concern and offered to consult with Region 9 staff regarding different options that could be pursued. Joe agreed to provide Tony with drafts of the papers he has been working on and offer comments on the drafts.**

* **Best Management Practices – Steve Solem pointed out that BMPs were currently a separate subsection (1.2.3) in Section 1 and should probably be discussed in general in the “Application of Water Quality Regulations to Groundwater (1.2.4) because they are an extension of state water quality regulations. Steve suggested a general discussion of BMPs in Section 1 and specific discussions of BMPs as they apply to different activities and projects in Section 3.**

**Steve asked Chris Savage and Liz Berger for their perspective on this approach and they agreed that it made sense. Steve asked Chris and Liz to think about how to deal with the “evolution” of BMPs as a product of this development effort so they could be integrated into the overall BMP process.**

* **Infrastructure – Linda Spencer pointed out that infrastructure related effects on groundwater and groundwater systems (e.g., roads affecting groundwater flow) should be added to the outline. Linda suggested that there might be other infrastructure related effects to groundwater and offered to provide more detailed comments for the group to consider.**
* **Groundwater Quality – Linda Spencer also mentioned that effects to groundwater quantity were discussed, but not effects to groundwater quality.**

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| **Actions:**  | * Steering Team members should provide feedback to Joe Gurrieri on the revision scope outline by February 7.
* Steering Team members are asked to send Joe Gurrieri suggestions for potential membership to the Core or Steering Teams for the revision effort and potential Working groups by February 28.
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# Wrap Up

Joe Gurrieri thanked Steering Team members for their continued participation and interest as the team moves into the final phases of completing the Groundwater IM&A Technical Guide and begins the revision effort.

**Technical Guide for Managing Groundwater Resources**

Preliminary Outline

# FRAMEWORK FOR MANAGING GROUNDWATER RESOURCES

This section provides an overview of the framework for managing GW on NFS lands and the various roles of the players involved.

## Overview and Purpose

### Importance of Groundwater Resources on NFS Lands

### Scope and Organization

## Statutory and Policy Framework

### Federal and State Law

### Overview of the National Groundwater Policy

### Best Management Practices – May want to combine with 1.2.4

### Application of Water Quality Regulations to Groundwater

#### Groundwater Standards & Classification

#### Groundwater Discharge Permits

#### Drinking water regulations (GW course)

## Roles and Responsibilities

### National

### Regions, Area, and Stations

### National Forests and Grasslands

## Groundwater Program Management

### Staffing and Resource Needs – Expertise, Training

### Technical Support

#### National Minerals Operation Center

#### Hardware/Software

#### Field and Laboratory Requirements

## Data Management

### Data Stewardship

### Quality Assurance and Quality Controls

### Corporate Data Storage - Water Quality Data Bases

### Metadata Requirements

### Data Quality and Continuity

## Change Management

# MANAGING GROUNDWATER AND GROUNDWATER SYSTEMS

This section describes the management superstructure for integrating GW into FS management. It should contain some of the same content as the IM&A Technical Guide or at least a summary oriented toward application to management of GW and activities affecting GW and GW systems.

## Important Groundwater Concepts – Much of the same content from the IM&A TG

## Hydrogeologic Conceptual Model – Much of the same content from the IM&A TG

### Geologic Framework

### Hydraulic Properties

### Flow System

### Water Budgets

### Climate Change – How it affects the conceptual model, water budgets and flows

### Hydrogeologic Mapping – Much of the same content from the IM&A TG

## Groundwater Dependent Ecosystems

### Groundwater-Dependent Ecosystems – Use IM&A TG Section 3.3.1 and Appendix Here

### Stewardship and Management of GDEs - Use SMNRA Stewardship Paper

#### Stewardship Program Development

#### Project Proposal Formulation

### Environmental Flows and Levels – Use IM&A TG 5.3.3 Here

### Inventory, Monitoring and Assessment – Link to the IM&A TG Methods and Procedures Here

### Monitoring Design (GW course) – What isn’t in the IM&A TG or Technical Notes?

# MANAGING ACTIVITIES AFFECTING GROUNDWATER AND GROUNDWATER SYSTEMS

This section describes how you apply the concepts from Section 2 and use information and guidance from the IM&A Technical Guide in the management of activities that affect GW

## Integrating Groundwater Resource Considerations into Forest Service Decision Making

### Land Management Planning

### Projects and Activity Decisions

### Project and Activity Administration

## Groundwater Extraction and Use

These uses extract, consume/use GW under specific authorizations. GW pumping may apply to other activities such as mining or oil and gas development, but those uses are authorized under an APD, operating plan, etc.

### Groundwater Pumping –

#### Declining Water Levels

#### Land Subsidence

#### Influence of Wells on Streams (how to assess)

#### Wells adjacent to NFS lands

#### EFL

### Public Drinking Water Supplies (GW course)

#### Source-Water Protection

#### Coordination with Public Water Supply Purveyors

#### Protecting Public Water Supplies Through Forest Planning

#### Protecting Public Water Systems – Homeland Security Directive

### Special Use Authorizations of Water Wells and Pipelines (GW course)

#### Initial Screening for Well and Pipeline Development.

#### Second-level Screening

#### Environmental Analysis

#### Exploratory Drilling Procedures

#### Construction and Production Permitting

#### Monitoring and Mitigation

#### Considerations in contracting for well drilling

#### Dowsing

#### NEPA Guidance

### Domestic Livestock Grazing Authorizations of Water Use and Water Sources

#### Stockwater development and maintenance

#### Groundwater Dependent Ecosystems

## Managing Effects of Projects and Activities on Groundwater Resources and Systems

These are projects, activities and uses that are authorized on NFS lands or affecting NFS lands and resources where the effects and their mitigation are addressed in project NEPA decisions. In some cases, the FS may be a cooperating agency on NEPA decisions by other Federal Agencies

### Hardrock Mining

#### Exploration phase (NEPA guidance)

#### Operational Phase

#### Groundwater depletion (evaluating impacts to GDEs and stream baseflows)

#### Groundwater contamination (waste rock, tailings, workings)

#### Closure Phase (options, hydraulic effects from plugging or free draining)

#### Placer mining

#### NEPA Guidance

#### Case Study: Depletion of Streamflow by Underground Mining, Stillwater Mine, Montana

### Oil and Gas Exploration and Development

#### Shallow groundwater contamination

#### Secondary Removal and Recovery/Fracking **-NEW**

### Coal-bed methane

#### Disposal of Production Water

#### NEPA guidance

### Coal Mining

#### Subsidence effects on groundwater flow

#### Groundwater and Slope Stability

#### Groundwater and Stream/Wetland/Spring Restoration

### Effects of Vegetation Management on Groundwater

#### Phreatophyte Management

#### Upland Forest Management

#### Case Study: Effects of Acidic Precipitation on Ground Water in the Northeastern U.S.

### Wildland Fire

# REFERENCES

# APPENDICIES

Case Studies would go here