BUREAU OF RECLAMATION

Southeastern Colorado Water Conservancy District

Project Management Plan

Arkansas Valley Conduit Project, Colorado

Southeastern Colorado Water Conservancy District
& U.S. Department of the Interior

Version 1.0
April 2020

Mission Statements

The Department of the Interior (DOI) conserves and manages the Nation's natural resources and cultural heritage for the benefit and enjoyment of the American people, provides scientific and other information about natural resources and natural hazards to address societal challenges and create opportunities for the American people, and honors the Nation's trust responsibilities or special commitments to American Indians, Alaska Natives, and affiliated island communities to help them prosper.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

The Southeastern Colorado Water Conservancy District exists to make life better by effectively developing, protecting, and managing water resources.

Project Management Plan

Arkansas Valley Conduit Project, Colorado

prepared by

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Cover Photo: Pueblo Reservoir

As defined by the Project Management Institute's Project Management Body of Knowledge (PMBOK Guide) Fifth Edition, the Project Management Plan (PMP) is "the document that describes how the project will be executed, monitored, and controlled. It integrates and consolidates all of the subsidiary plans and baselines from the planning processes."

The PMP shall document the adopted procedures and processes to provide general and specific guidance, and information to allow the project team members to manage effectively the scope, cost, schedule, quality, and completion of the project.

The PMP is the guide for systematically implementing decisions regarding communication, coordination, direction, documentation, project management processes, execution, and overall project control.

The primary objective of the PMP is to define clearly the roles, responsibilities, procedures and processes that will result in the project being managed such that it is completed on time, within budget, and to satisfy the project's objectives.

Details of the PMP shall be commensurate with the project's cost, schedule, scope and complexity of the same, and shall be a function of the professional discretion of the project team.

The PMP is to be a dynamic or living document to which revisions will be executed as the project is developed and elaborated. These revisions will add, modify, or delete attributes and requirements that will result in the most effectively managed project to provide the required deliverables.

The success of the PMP will be dependent on the total project management and implementation of the plan, which will contribute to the project's completion as specified, to established schedules and within budget.

Typically, the PMP shall be formally authorized by a Project Charter. The Project Charter provides the project manager with the authority to apply organizational resources to project activities.

Document Revision Log

Version	Date	Description of Changes
1.0	04/16/2020	Initial approval

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Introduction

Purpose & Authority

The Arkansas Valley Conduit Project (referred to as "AVC" or "Project") was originally authorized in 1962 as a feature of the Fryingpan-Arkansas (Fry-Ark) Project under Public Law 87-590. The authorization was amended by the Omnibus Public Land Management Act of 2009 (Public Law 111-11) to provide that only 35 percent of the cost of the AVC is to be repaid.

The AVC will deliver water for municipal and industrial (M&I) use within the boundaries of the Southeastern Colorado Water Conservancy District (Southeastern). This water supply is needed to supplement or replace existing poor-quality water and to help meet projected future water demands for AVC participants.

This Project Management Plan (PMP) presents the approach to execution, monitoring and control, and project closeout for implementation of AVC through the joint efforts of the Bureau of Reclamation (Reclamation) and Southeastern. Definitions and acronyms are listed in Appendix A.

Strategic Alignment

The AVC Project directly supports the following elements from Department of the Interior's (DOI) Strategic Plan (DOI, 2018):

- *Mission Area 1 Conserving Our Land and Water*
  - *Goal #2 Manage DOI water storage and delivery to resolve conflicts and expand capacity*
    - *Strategy #1 Manage water resources and delivery*
    - Completion of the AVC will directly support this goal and strategy.
- *DOI Cross-Cutting Principles:*
  - *Engaging the Nation in Cooperative Stewardship*
    - Cooperative approach to this Project between Reclamation and Southeastern supports DOI's goal to "increase its collaborations and partnerships across all levels of government".
  - *Generating Revenue, Jobs, and Economic Activity*
    - Completion of the AVC is expected to boost economic activity in an economically challenged area of rural Colorado. Both through temporary impacts of construction activities as well as perpetual impacts from access to safe drinking water.
  - *Restoring Trust*
    - Completion of the AVC will fulfill a project authorization from 1962, which residents in rural southeastern Colorado have been waiting nearly 60 years for completion of. Trust in the federal government in this area of Colorado has been eroded by failure to complete this Project. Completion of the AVC will help restore public trust and confidence.

Additionally, AVC directly supports the missions of both Reclamation and Southeastern.

Background

The AVC was authorized in the original Fry-Ark Project legislation in 1962 (Public Law 87-590). The AVC would not increase Fry-Ark Project water diversions from the western slope of Colorado; rather, it was intended to improve drinking water quality. The AVC was not constructed with the original Fry-Ark Project primarily because of the beneficiaries' inability to repay 100 percent of construction costs as identified to be required in the Public Law 87-590. In 2009, Congress amended the original Fry-Ark Project legislation in Public Law 111-11, which authorized annual federal funding, as necessary, for constructing the AVC, and provided that only 35 percent of total Project construction costs would be repaid by local Project beneficiaries over a period of no more than 50-years.

Figure 1: August 16, 1962 – President John F. Kennedy signs bill authorizing the Fryingpan-Arkansas Project

An initial Value Planning (VP) study was completed in 2010. Reclamation's Technical Service Center (TSC) issued an Appraisal Design Report in August 2012 which compared five action alternatives (i.e., pipeline alignments) for construction of the AVC. A supplemental report was issued in June 2013 for one additional alterative, for a total of six action alternatives. A Final Environmental Impact Statement (EIS) was issued in August 2013. Seven alternatives (six action alternatives from the Appraisal Design Report plus no action) were analyzed under the Final EIS. A Record of Decision (ROD) was signed by Reclamation's Great Plains (now known as Missouri Basin) Regional Director in February 2014 which selected the "Comanche North Alterative" for implementation. This alternative then became known as the "Preferred Alternative". The TSC issued a Feasibility Design Report for the Preferred Alternative in September 2016 and a Project Cost Summary Report in October 2017. Total Estimated Cost (TEC) to construct the preferred alternative was $640 million[1] in 2016 dollars (approximately $700 million in 2019 dollars).

Through a collaborative effort between Reclamation and Southeastern in 2018 and 2019, a revised Project configuration was developed with the goal of reducing the Project TEC and requirements for Reclamation appropriations. Project TEC was reduced to a range of $564 to $610 million[2] and through alternative funding sources, the estimated requirement for additional Reclamation appropriations was reduced to a range of $355 to $414 million[2].

Federal appropriations for this Project through Fiscal Year (FY) 2019 totaled approximately $29.5 million. An additional $28 million was provided in FY 2020 to move the Project into construction.

[1] Feasibility level estimate, April 2016 unit price level
[2] Preliminary level estimate, October 2019 unit price level

Objectives

Project objectives include:

1. **Satisfy authorization:** Fully satisfy AVC authorization as described in Public Law 87-590, as amended.
2. **Timeliness:** Complete Project as quickly as possible without compromising safety or quality. Deliver AVC water to all participants by the end of 2035.
3. **Enforcement order resolution:** Deliver water which will support compliance with mandatory National Primary Drinking Water Regulations (NPDWR) as well as non-mandatory National Secondary Drinking Water Regulations set by the Environmental Protection Agency (EPA) and resolve Colorado Department of Public Health and Environment (CDPHE) enforcement orders.
4. **Effective project management:** Complete Project within approved scope, schedule, and budget. Manage Project in accordance with all applicable agreements.
5. **Quality:** Deliver an end-product which meets the quality standards as defined in approved specifications and drawings as well as Reclamation and industry standards and best practices.
6. **Safety:** Complete the Project without any lost time accidents and without any negative safety impacts to the public. Utilize engineering controls wherever possible to eliminate safety hazards. Ensure safety is addressed in all specifications and is considered as an evaluation factor in all construction contract awards.
7. **Cultural/Environmental:** Uphold all cultural and environmental commitments and agreements. Minimize, mitigate, and/or eliminate any adverse impacts.
8. **Transfer to O&M:** Ensure a smooth transfer of operation and maintenance (O&M[3]) responsibilities upon completion of construction.

[3] Note that operation and maintenance (O&M) and operation, maintenance, and replacement (OM&R) are used interchangeably in this document and are meant to convey the same concept.

Project Management Approach

This Project is being cooperatively managed by Reclamation and Southeastern. Each organization has assigned their own Project Manager (PM) and have agreed to implement an independent and neutral Project Oversight Coordinator (OC) position to act in a project management and oversight capacity for the overall Project. In the Project Charter, Reclamation and Southeastern agreed to:

1. Work together in good faith towards the shared goal of constructing the AVC and delivering clean water quickly, efficiently, and in accordance with the Project authorization.
2. Endeavor towards a positive and effective working relationship defined by transparency, accountability, collaboration, trust, and respect.

The two PMs along with the OC comprise the Project Management Team (PMT). The PMT has the overall authority and responsibility for managing and executing this Project according to this PMP. The Project Team (PT), which encompasses the PMT, will consist of personnel from both organizations, including the OC, filling various functional roles. Refer to the project organization chart in Appendix B.

The PT will be a matrix in that team members from each organization continue to report to their organizational management throughout the duration of the Project.

The project management approach for the AVC Project generally follows this structure:

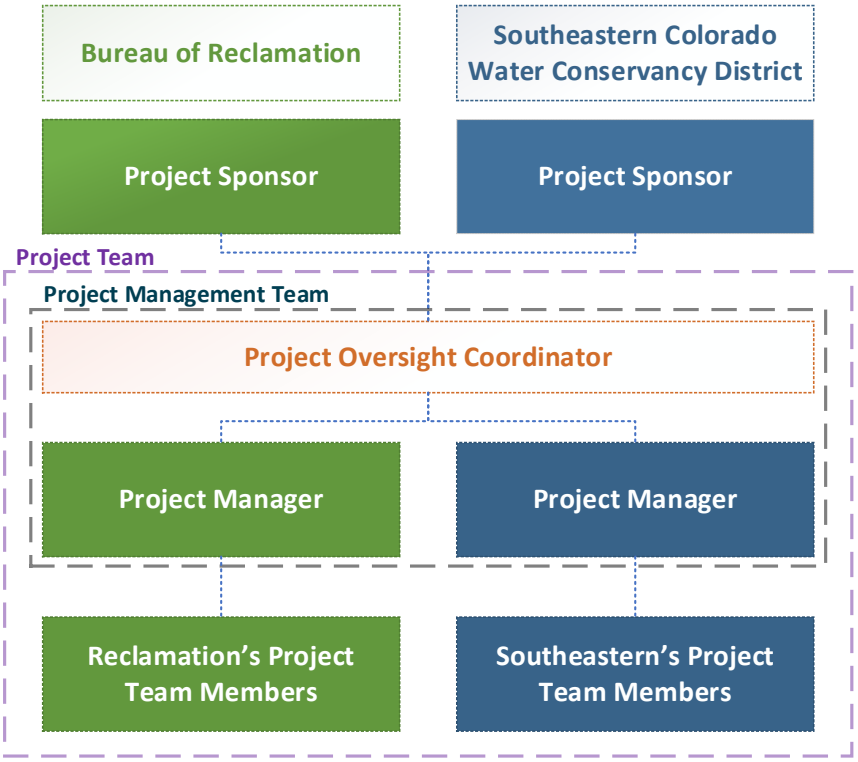

Figure 2: Project Management Structure

Dispute Resolution Process

- PMs will facilitate resolution of disputes within their respective teams as well as disputes which arise between teams working on Reclamation's tasks and Southeastern's tasks.
- The OC will facilitate the PMT's resolution of disputes which may arise should the PMs not be able to do so.
- If the PMT is not able to reach a consensus resolution, the OC will engage the Project Sponsors to resolve the issue in consultation with the full PMT.
- If the Project Sponsors are not able to reach a consensus on a resolution, they will engage the full Executive Management Team (i.e. the Project Sponsors, Reclamation's Regional Director, and Southeastern's Board President) to resolve the dispute.
- Resolution of disputes shall be documented appropriately. The PMT may decide the exact means of documentation on a case-by-case basis. If the dispute involves a Project change, the Change Management Process may be used. The Issue Tracking list on the Project SharePoint site may also be used.

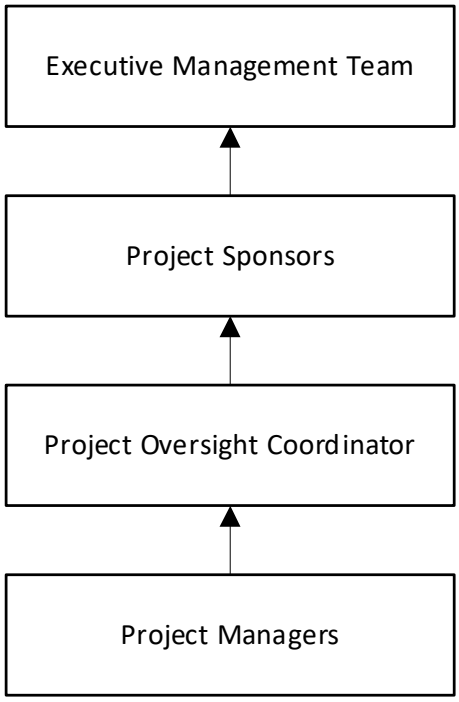

Figure 3: Dispute Elevation Path

Scope Baseline

Per PMBOK, the scope baseline is the approved version of a scope statement, work breakdown structure (WBS), and its associated WBS dictionary, that can be changed only through formal change control procedures and is used as a basis for comparison.

The scope of work includes all efforts necessary to allow water delivery of agreed-upon quantity and quality to all AVC participants. Project deliverables will include signed contracts and agreements, specification sections and drawings, and final constructed works.

Design and construction of any interim regionalization efforts is not within the scope of this PMP; however, nothing in this PMP precludes implementation of such systems – either by Reclamation, Southeastern, or other entities.

The following scope baseline represents the currently approved AVC Project scope. Changes to this scope must be completed in accordance with the Change Management Plan. Changes to Project scope which are approved through this process will result in the Project scope being re-baselined and revision of this section of the PMP.

At the highest level, the AVC has been divided into two sub-projects: The Reclamation Sub-Project and the Southeastern Sub-Project. Division into these sub-projects aligns with the funding arrangement agreed upon between Reclamation and Southeastern for completion of the AVC in which Reclamation will seek funding for and construct the "trunk line" portion of the Project and Southeastern will seek funding for and construct the "spur and delivery lines" portion. The two sub-projects require careful coordination to ensure the entire system functions properly. So, while each entity will serve as the lead on their sub-project, there will be close collaboration. Reclamation serving as the lead on certain portions of the overall Project does not preclude Southeastern from potentially providing support or taking a lead role on individual tasks (and vice versa).

The following sections define the scope baseline for each sub-project.

Reclamation Sub-Project

Reclamation will serve as lead on and seek funding for the "trunk line" portion of the Project. The trunk line is defined as the single continuous conveyance pipeline stretching from the Pueblo Connection Point to the Lamar delivery point. Also included are any treatment facilities, regulation tanks, pumping stations, and other features which are directly in line or adjacent to the trunk line and are required to convey water through the main trunk line and deliver filtered (non-potable) water to AVC participants. AVC participants would be responsible for adding a disinfectant residual at the entry points to their distribution systems. The trunk line will include turnouts consisting of a roughly 20-foot pipe section with an isolation valve and blind flange for spur and delivery line connections.

Additionally, the Reclamation Sub-Project will include the following:

- Hydraulic analysis and high-level design of the entire system including delivery and spur lines.
- Establishment of high-level design constraints for the final design of delivery and spur lines.
- Environmental and cultural compliance for the entire Project.
- Negotiating and signing of any contracts which Reclamation must be party to and are required to construct and operate the AVC.
- Design and construction of the Dechloramination Facility.
- Review of design specifications and construction plans developed for the Southeastern Sub-Project.

Southeastern Sub-Project

Southeastern will serve as lead on the "spur and delivery lines" portion of the Project. Southeastern will seek funding to design and construct this portion of the Project, $100 million of which has already been secured from the Colorado Water Conservation Board (subject to legislative approval pending as of the date of this PMP). There are three spur lines included in this sub-project which are defined as follows:

- **Sugar City Spur:** Begins at the point that the pipeline forks prior to Olney Springs and Manzanola. The Sugar City Spur follows State Highway 96 towards Sugar City.
- **La Junta Spur[4]:** Begins at the point that the pipeline forks after Rock Ford. The La Junta Spur is the pipeline which follows U.S. Route 50 towards Swink and La Junta.
- **Eads Spur:** Begins at the point that the pipeline forks prior to the Wiley delivery line. The Eads Spur approximately parallels U.S. Route 287 towards Eads. The Eads Spur also includes a pumping station required to convey water to Eads.

Delivery lines are defined as any other pipelines which branch off the trunk line or spurs. All features downstream of the points where spur and delivery lines connect to the trunk line are included in this sub-project. Close coordination and reviews will be required to ensure the non-Reclamation designed pipelines function properly with the entire system.

Project Participants & Design Guidelines

Approved Project design guidelines are described below. Any changes to the guidelines will be subject to the Change Management Plan and Scope Management Plan.

Board of Water Works of Pueblo (Pueblo Water) Requirements

- Pueblo Water system to provide AVC with 0.097-million-gallons-per-day (MGD) startup flow (estimated current 2020 Boone demand) through future maximum month demand of 10.98 MGD. After a baseline schedule has been developed, a projected water demand schedule will be developed.

[4] Previous documents and reports did not call this a spur, however based on its size relative to other spurs and delivery lines and the number of communities served, it was redefined as a spur.

- Pueblo Water to maintain pressure ranging from 75 to 90 pounds per square inch (psi) at the Pueblo Connection Point during peak hour-maximum day demand condition.
- Downtime (i.e. maintenance or fire flows) where pressure at Pueblo Connection Point is below 75 psi is not to exceed three hours.

Participant Demands

- AVC participant demands are based on the 2070 demands as presented in the Final EIS (Reclamation, 2013) and the AVC Primary Feasibility Design Report (Reclamation, 2016). The functionality of the gravity-fed system is dependent on demands and the design may not be able to accommodate modifications. Facility sizing and conveyance system components will be based on maximum month demands. AVC participants and associated demands are shown in Appendix C.

Transmission Mains

- Pipe/lining material: Reclamation's hydraulic analysis and design are based on a minimum long-term Hazen-Williams friction factor of 145 to facilitate delivery. AVC pipe must have long-term Hazen-Williams friction factor of at least 145 for specified diameters.
- Pipe size: minimum six-inch nominal diameter.
- Minimum cover: Colorado Department of Transportation (CDOT) requires any pipe within 14 feet of pavement to maintain a minimum cover depth of five feet. Pipe located more than 14 feet from pavement will maintain a minimum pipe cover depth of four feet.

Isolation Valves

- Below grade isolation valves will be included at a spacing of approximately five miles to facilitate maintenance as needed. Isolation valves will consist of buried butterfly valves, ball valves, or gate valves, depending on hydraulic conditions and available ground cover. Gate valves may require a vault.

Regulating Tanks

- The main function of a regulating tank is to provide a hydraulic break for a gravity flow transmission main to achieve the objective of limiting the pipeline design pressures downstream of the regulating tank.
- Regulating tanks are sized to have an operational volume greater than one hour of the downstream demand.

Dechloramination Facility Clearwell

- The Dechloramination Facility will have two independent channels with the provisions to facilitate O&M requirements.
- The clearwell will be sized to have a greater than three-hour flow volume of the maximum day design flow for the year 2070 conditions.

Spur Pipelines and Local Distribution Systems

- All AVC participants will receive a minimum of 20 psi at their respective delivery points. Most participants will require a pressure reducing valve (PRV) to facilitate delivery from the AVC system. Some participants may need to have a booster pump constructed if higher pressures are required. Booster pumps, if needed, are considered outside of the scope of the AVC Project and would be the responsibility of participants to meet the needs of their distribution system.
- Coordination between final design of spurs and delivery lines by others and the trunk line by Reclamation will be required. Conveyance features, flowmeters, PRVs, storage, supervisory control and data acquisition (SCADA) systems, and operation procedures designed by others will meet Reclamation standards. Communication protocol will be established to report flowmeter data to a host station at the Dechloramination Facility.
    - In accordance with standard practice for transmission lines, the AVC system will not be designed to accommodate emergency conditions. Participant storage tanks are recommended to have a total storage volume of two days based on 2070 average day demand, to meet the requirements for equalization, fire flow, and emergency conditions. Participant storage tanks are considered outside of the scope of the Project and would be the responsibility of participants.
    - Surge mitigating devices and operation procedures such as valve closure times must be included in the spur and delivery line systems.

Project Segments

The Project has been divided into "segments" from west to east (i.e. going downstream) primarily for the purposes of communicating the overall plan and status externally and in recognition of the fact that upstream segments, as they are completed, will deliver tangible benefits even though downstream segments have yet to be completed. These segments are also used for the purposes of nomenclature of pipe reach sections. The segments are shown on the map in Appendix D and defined as follows:

Segment 1 – Pueblo Dam to Connection Point

Segment 1 is the only segment that would not deliver any benefit without subsequent segments. It is also the only non-physical segment. Segment 1 primarily consists of a contract with Pueblo Water to convey raw AVC water from Pueblo Dam to its Whitlock Water Treatment Plant and then to convey treated water to the AVC trunk line at a connection point east of Pueblo near the Pueblo Airport (referred to as the Pueblo Connection Point or just Connection Point).

Segment 2 – Connection Point to Rocky Ford

Segment 2 begins at the Pueblo Connection Point and ends at Rocky Ford. It includes the Sugar City Spur as well as delivery lines to the participants south of Rocky Ford (Hill Top Water Company, Newdale-Grand Valley Water Company, and West Grand Valley Water Incorporated) and all participants between Pueblo and Rocky Ford. Segment 2 would also include the Dechloramination Facility.

Segment 3 – Rocky Ford to Las Animas

Segment 3 begins at Rocky Ford and ends at Las Animas. It includes the La Junta Spur and delivery lines to all participants between Rocky Ford and Las Animas (as well as the delivery line to Las Animas).

Segment 4 – Las Animas to Lamar/Eads

Segment 4 begins at Las Animas and includes the remainder of the Project, including the Eads Spur.

Work Breakdown Structure (WBS)

The Project will be further sub-divided into "reaches" and other major features which will be refined as the Project progresses. In general, reaches will be lengths of pipeline which align with available funding amounts and logical configurations of individual construction contracts, and which terminate at a point that makes sense for the purposes of water delivery (i.e., pipe ends at a delivery or spur line or AVC participant delivery point). For the purposes of budget tracking, each of these reaches and major features will have a dedicated accounting structure. The baseline scope for currently approved reaches and major features are detailed by the WBS in Appendix E. As reaches and major features are identified and refined, this section will be updated in accordance with the Change Management Plan and Scope Management Plan. Pipe reaches and major features are summarized in Appendix J.

Environmental Compliance

Environmental compliance activities under this PMP will follow the AVC Project ROD dated February 27, 2014. In the ROD, Reclamation committed to establish an Environmental Review Team (ERT) to ensure Project activities are completed concurrently and in full compliance with all environmental commitments. ERT members will advise Reclamation regarding implementation of and compliance with the ROD's best management practices and mitigation measures.

Environmental compliance for reconfigured portions of the AVC will also be reviewed by the ERT. The ERT will make recommendations regarding warranted additional National Environmental Policy Act (NEPA) compliance, adaptive management, mitigation, or other environmental compliance. The ERT will function during final design of the AVC Project. Cultural resource compliance activities will follow Programmatic Agreement No. R13MU60034 (included in Appendix N.1 of the Final EIS) between Reclamation and the Colorado State Historic Preservation Officer (SHPO).

The following modifications to the AVC ROD's Preferred Alternative have been identified and are generally described below.

- Under AVC Project reconfigurations, Reclamation will construct about 120 miles of trunk line and Southeastern and others would construct about 55 miles of spur pipelines and 58 miles of delivery pipeline to Final EIS delivery points. Total pipeline length of the reconfigured AVC Project is approximately 233 miles. The Final EIS Preferred Alternative identified about 227 total miles of pipeline, all constructed by Reclamation.

- Changes in AVC Project participants (deletion of St. Charles Mesa and Avondale, addition of Riverside).
- Reduction in AVC Project Annual Deliveries from 10,256 acre-feet per year (AFY) to 7,461 AFY.
- Pueblo Water Treatment and Conveyance Contract to deliver a maximum of 10.98 MGD to meet the Final EIS's 2070 projected demands. Pueblo Water can provide up to 3.5 MGD of potable water without additional improvements to their system.
- About 5.6 miles of new trunk line from the Pueblo Connection Point to Preferred Alternative alignment north of Avondale.
- Inclusion of the Dechloramination Facility north of Boone to provide filtered water to participants in accordance with the Preferred Alternative.
- Modified regulating tank and pumping plant locations to facilitate gravity flow for most of the system.
- Future upsizing of about 10 miles of Pueblo Water delivery system to deliver the full 10.98 MGD to the Pueblo Connection Point.
- Addition of about 19.2 miles of delivery pipeline from the Final EIS Preferred Alternative's identified delivery points to AVC participant connections to existing water systems.

Entry Permits and Land Acquisitions

Entry Permits

Entry permits may be needed prior to conducting any field studies, marking, appraisals, etc. Prior to accessing private property, any Project Team member (including contractors) must have any applicable entry permits with them. All entry permits received prior to the issuance of this PMP are available from Reclamation files. If a new entry permit is needed, Reclamation's Realty Specialist may be contacted for assistance. Any entry permits must be added to the existing system for future use. It is important to track expiration of the entry permits to ensure validity.

Master Crossing Agreements

The planning for the Project has identified multiple public bodies and private companies that may be impacted. Master crossing agreements (MCAs) are the most efficient way to accommodate impacts to these entities. MCAs provide the framework to move utilities, work in Public Right-of-Ways (ROWs), etc. Any MCAs that are entered as part of the initial phase of the project shall also cover any future phases that may have impacts.

Reclamation Land Acquisitions

Once a determination has been made that Reclamation will acquire a property or interest therein, Reclamation's Realty Specialist or a Reclamation-approved contractor shall begin the land acquisition process in accordance with Reclamation Manual Directive & Standard (D&S) LND 06-01 and associated laws and regulations. Costs shall be tracked and accounted for appropriately using the job numbers found in D&S FIN 07-22. A Realty Specialist with access to Reclamation's Financial and Business Management System (FBMS) will create an asset shell for each identified parcel to be acquired in accordance with the D&S and FBMS Standard Operating Procedures (SOPs). All associated costs will be charged to the appropriate asset number. The Realty Specialist will be responsible for the management of the assets and the charges associated with each.

An abstract of the land acquisition process includes the following milestones for each individual parcel:

- Asset shell for hard and soft costs created.
- Legal descriptions and exhibit map developed/procured by a Professional Land Survey or in accordance with Colorado law, and the Department of Interior Standards of Boundary Evidence (600 DM 5).
- Valuation product developed/procured.
- Title evidence developed/procured.
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) compliance developed/procured.
- Pre-acquisition title opinion received.
- Negotiations.
- Signed acquisition agreement from landowner.
- Any necessary updates to expired compliance materials or solicitor requirements.
- Approval for land acquisition (if above pre-approved amount)
- Closing (payment and recording) – may be contracted out or performed by Realty Specialist.
- Post-acquisition title opinion received.
- FBMS and plat updates.

Coordination with the PMT is critical to make them aware of any challenges that arise. The land acquisition is not completed until all land assets acquired to make a ROW corridor or fee-title owned parcel have surpassed the closing stage of the land acquisition process.

Transition to O&M

Southeastern is responsible for all operation, maintenance, and replacement (OM&R) activities on completed project features. As features are completed and commissioned, Southeastern will take over OM&R activities for those features. A detailed process to transfer OM&R responsibilities from Reclamation (during the testing and commissioning phase) to Southeastern (once each feature is determined to be substantially complete) will be developed prior to providing service to the first AVC participant(s) (currently planned to be Boone). This process will be memorialized as an "AVC O&M Transfer Template," added to this PMP as an addendum, and used for all subsequent transfers of OM&R responsibilities to Southeastern.

Schedule Baseline

A detailed Project schedule will be developed and added to this PMP later in Appendix F. The TSC is currently developing a preliminary planning, design, and construction schedule. The project schedule should be considered a working document and will be updated as the project progresses. The preliminary schedule will be used as a starting point for a schedule development workshop. This workshop is anticipated to take place in sometime in 2020 with representatives from both Reclamation and Southeastern.

Cost Baseline

Per PMBOK, the cost baseline is the approved version of the time-phased project budget, excluding any management reserves, which can only be changed through formal change control procedures and is used as a basis for comparison to actual results. It is developed as a summation of the approved budgets for the different schedule activities.

The Project Total Estimated Cost (TEC) is $564 – $610 million[5]. Project cost baselines are divided between the two major sub-projects as detailed below. Actual expenditures will be regularly compared to the cost baseline and change orders executed as needed. A detailed budget will be developed and included as Appendix G. This will become the cost/budget baseline for the Project and any changes will be subject to the procedures outlined in the Change Management Plan and Cost Management Plan.

Reclamation Sub-Project

The Reclamation Sub-Project TEC is $441 – $476 million[5]. The budget for this sub-project, which will be 100% funded by Reclamation through a combination of appropriated funds and Fry-Ark excess capacity revenues, is identified below. These costs are subject to the repayment terms of the Project authorization.

Total Project Budget:	$ 476,000,000.00
Available Funds:	$ 30,779,546.00

A list of cost structures, referred to as Work Breakdown Structures (WBSs) in FBMS are included in Appendix E. WBSs will be created and designated based on both key Project features and specific activities associated with the design and construction of those features. Using these WBSs, costs can be associated to specific features and activities for performance management and cost allocation purposes.

Currently available funds will be used for overall Project planning and compliance activities, final design of the Boone Reach and Dechloramination Facility, and award of a construction contract for the Boone Reach. As additional funds become available, change orders will be required to approve expenditure of these funds.

Southeastern Sub-Project

The total estimated cost of the Southeastern Sub-Project is $123 – $134 million[5]. The budget for this sub-project, which will be 100% funded by non-Reclamation sources, is identified below.

[5] Preliminary level estimate, October 2019 unit price level – indexed from 2016 feasibility-level and appraisal-level estimates

Total Project Budget:	$ 134,000,000.00
Available Funds:	$ 100,000,000.00[6]

Plans for use of the currently available funds will be developed as work on the trunk line progresses. In general, funds will be used to facilitate the earliest practicable delivery of water to AVC participants (whether AVC water from completed sections of the trunk line or treated groundwater from regional providers made available on an interim basis until the AVC trunk line reaches those AVC participants).

Validation of Project Costs

Non-Reclamation funds used for the execution of the Southeastern Sub-Project may be counted towards Project repayment subject to validation of these costs by Reclamation. As described in the Scope Baseline section, the Project will be sub-divided in major features. Costs will be tracked and reported by major feature and reported by cost category (e.g. salaries, travel, supplies, contracts, etc.). Reports will be provided monthly. Quarterly, Reclamation Finance and Repayment staff will review cost reports and as necessary work with the District to gather additional information and to resolve any concerns.

Unallowable Project Charges

Determination of what are allowable charges is made on a case by case basis. The determination is made based on what would be considered a legitimate expense if Reclamation were performing the work. Examples of unallowable charges include, but are not limited to:

- Legal
- Accounting
- Lobbying
- Interest on debt
- Double counting (e.g. paying both mileage and fuel for a vehicle)

[6] $100 million in CWCB funding is still subject to final approval by the Colorado state legislature

Change Management Plan

The Change Management Plan sets expectations on how the approach to changes will be managed, what defines a change, the purpose and role of the Change Control Board (CCB), and the overall Change Management Process. All stakeholders will be expected to submit or request changes to the AVC Project in accordance with this Change Management Plan and all requests and submissions will follow the process detailed herein.

Definitions of Change

There are several types of changes which may be requested and considered. Depending on the type and extent of proposed changes, changes to project documentation and communication of these changes will be required to ensure appropriate stakeholders are notified. Types of changes include:

- **Schedule Changes:** Changes which will impact the Project schedule. These changes may require fast tracking, crashing, or re-baselining the schedule depending on the significance of the impact.
- **Cost Changes:** Changes which will impact the Project cost. These changes may require requesting additional funding, releasing funding which would no longer be required, or adding to Project or management reserves. May require changes to the cost baseline.
- **Scope Changes:** Changes which are necessary and impact the Project's scope which may be the result of unforeseen requirements which were not initially planned for. These changes may also impact budget and schedule. These changes may require revision to WBS, Project scope statement, and project documentation as necessary.
- **Process/Procedural Changes:** Changes which do not impact schedule, budget, or scope, but do change a process or procedural item of the PMP.
- **Design Changes and Decisions:** At the PMT's discretion, design changes/decisions which do not impact the areas above may utilize this change control process to allow the CCB to formally decide on the design issue and document that decision through the Project Change Log.

The PMT must ensure that any approved changes are communicated to the Project stakeholders as described in the Change Control Process below as well as the Stakeholder Management Plan. Additionally, as changes are approved, the PM of the associated project must ensure that the changes are captured in the Project documentation where necessary – including the Project Change Log in Appendix H. These document updates must then be communicated to the Project Team and stakeholders as well and documented on the Project SharePoint site.

Minor Documentation Revisions

At the discretion of the PMT, some documentation updates may be considered minor updates and completed without going through the CCB and full Change Control Process. These types of updates will have no impact on Project scope, schedule, or cost. Additionally, they will not change approved processes and procedures. When the PMP itself or a PMP Appendix is updated this way,

the associated revision number will advance by 0.1 (i.e., a minor revision to version 1.0 would become version 1.1). The PMP and each Appendix has an independent revision number. The change will be documented in the associated Document Revision Log.

Adding items (rows) to the Project Change Log table does not require any revision. Changes to the table layout (e.g. adding or removing columns) would be considered a revision.

Change Control Board (CCB)

The CCB is the approval authority for all proposed change requests pertaining to this Project. The purpose of the CCB is to review all change requests, determine their impacts on the Project risk, scope, cost, and schedule, and to approve or deny each change request as presented in the Change Control Process in Figure 4. The following table provides a list of the CCB members:

Table 1: Change Control Board Membership

Position	CCB Role
Project Sponsor (Reclamation)	CCB Co-Chair
Project Sponsor (Southeastern)	CCB Co-Chair
Project Oversight Coordinator	CCB Member
Project Manager (Reclamation)	CCB Member
Project Manager (Southeastern)	CCB Member

The CCB will convene as needed to review all change requests identified in the Project Change Log (Appendix H). For a change request to be approved, all CCB members must be in favor of the change. In the event more information is needed for a change request, the request will be deferred and sent back to the requestor for more information or clarification. A standardized Change Request Form is included in Appendix I. This form is required to be used for all change requests.

Should the CCB be unable to reach consensus on a proposed change to the project, the dispute resolution process outlined in the Project Management Approach section of this PMP will be used.

Roles and Responsibilities

The following are the roles and responsibilities for all change management efforts related to this project:

Project Sponsors:

- Approve all changes to budget and funding allocations.
- Approve all changes to schedule baseline.
- Approve any changes in project scope.
- Chair the CCB.

Project Management Team:

- Receive and log all change requests.

- Conduct preliminary risk, cost, schedule, and scope analysis of change prior to convening the CCB.
- Seek clarification from change requestors on any open issues or concerns.
- Make documentation revisions as necessary for all approved changes.
- Participate on the CCB.

Project Team & Stakeholders:

- Submit all change requests on the standard Change Request Form.
- Provide all applicable information and detail for requested changes.
- Be prepared to address questions regarding any submitted change requests.
- Provide feedback as necessary on impact of proposed changes.

Change Control Process

Figure 4 depicts the Change Control Process to be followed for this project. The PMT has overall responsibility for executing this process for each change request. One member of the PMT may be delegated responsibility for managing this process. As change requests are submitted to the PMT by the Project Team or stakeholders, the PMT will log the requests in the Change Log (Appendix H).

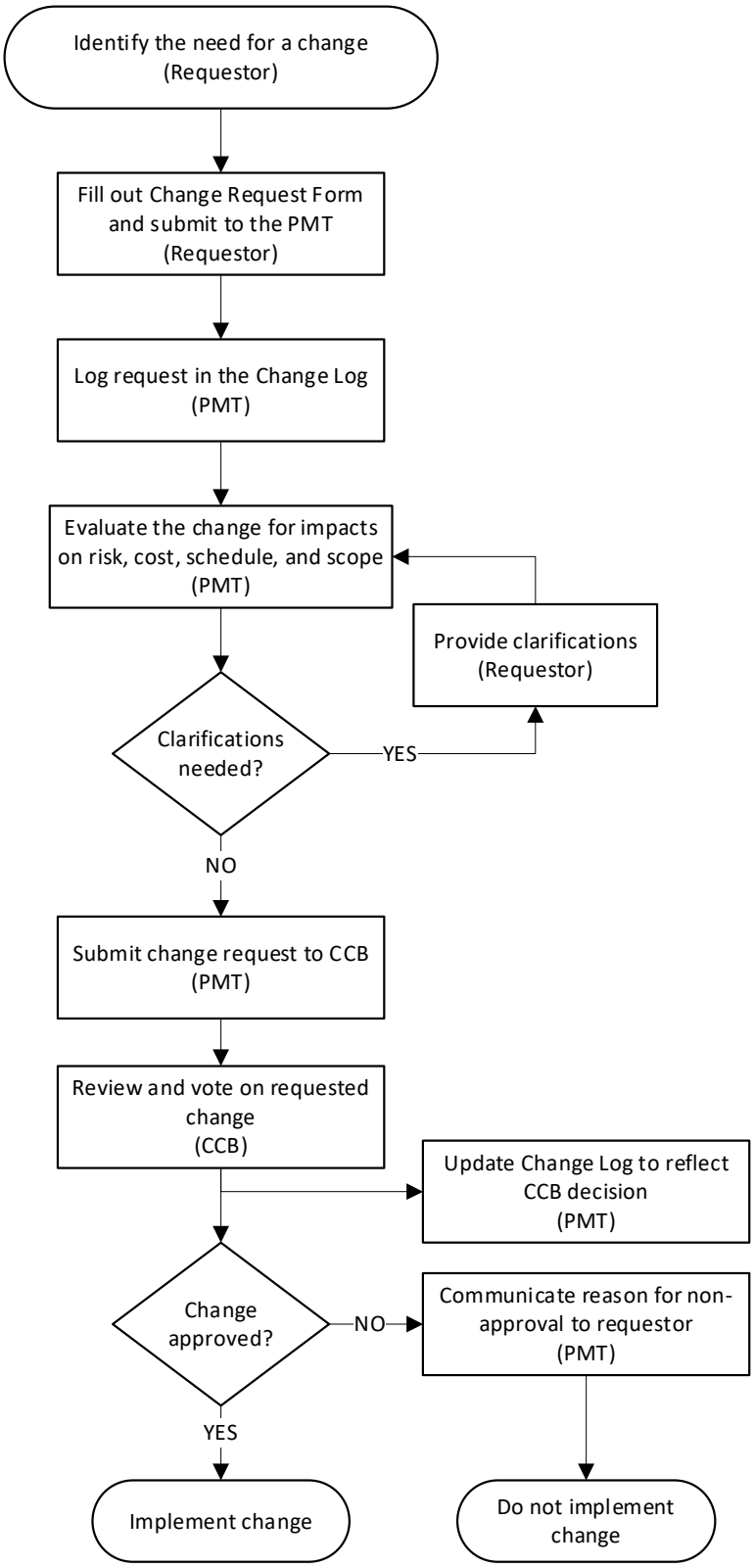

Figure 4: Change Control Process

Human Resource Management Plan

Human resources management is an important part of the AVC Project. The Human Resource Management Plan is a tool which will aid in the management of human resource activities throughout the Project until closure. The Human Resource Management Plan includes:

- Roles and responsibilities of team members throughout the Project
- Project organization charts
- Staffing management plan (not currently included – may be added later)

Roles and Responsibilities

All team members must clearly understand their roles and responsibilities in order to successfully perform their portion of the project. The following Project Team roles and responsibilities have been established:

Project Oversight Coordinator (OC): The OC will serve as a neutral party to ensure effective coordination and successful Project execution. This individual has the following specific roles and responsibilities:

- Remain neutral and un-biased – not specifically advocating for the interests of Reclamation or Southeastern, but rather advocating in the interest of successful project execution.
- Resolve disagreements between the Project Managers. When this is not possible, escalate the issue to the Project Sponsors.
- Ensure coordination between the two sub-projects to include alignment of schedules, budgets, and scope.
- Participate in Project meetings.
- Assist PMs in tracking budgets and schedules.
- Provide guidance to PMs.
- Ensure both Reclamation and Southeastern are complying with the terms agreed to in the Project Charter, PMP, and any other formal agreements.

Reclamation's Project Manager (PM): Reclamation's PM is primarily responsible for coordination and management of the Reclamation Sub-Project while also collaborating and coordinating with Southeastern's PM and the OC to ensure overall project success. This individual has the following specific roles and responsibilities:

- Directing Reclamation resources within the scope of his/her authority.
- Scope, schedule, and budget tracking for the Reclamation Sub-Project.
- Determining Reclamation's budgetary needs for future years and communicating these needs through the proper channels within Reclamation.
- Approval of all expenditures for the Reclamation Sub-Project.

- Approving that work activities meet established acceptability criteria and fall within acceptable variances.
- Reporting Project status in accordance with the Communications Management Plan.
- Evaluate performance of Project Team members and communicating their performance to organizational managers.
- Acquiring human resources for the project through coordination with organizational managers.
- Final acceptance of design specifications to be used for any Project acquisitions (including those produced for the Southeastern Sub-Project).

Southeastern's Project Manager (PM): Southeastern's PM is primarily responsible for coordination and management of the Southeastern Sub-Project while also collaborating and coordinating with Reclamation's PM and the OC to ensure overall project success. This individual has the following specific roles and responsibilities:

- Directing Southeastern resources within the scope of his/her authority.
- Scope, schedule, and budget tracking for the Southeastern Sub-Project.
- Determining Southeastern's budgetary needs for future years and communicating these needs through the proper channels within Southeastern (or other applicable entities such as CWCB).
- Approving all expenditures for the Southeastern Sub-Project.
- Approving that work activities meet established acceptability criteria and fall within acceptable variances.
- Reporting Project status in accordance with the Communications Management Plan.
- Evaluating performance of Project Team members and communicating their performance to organizational managers.
- Acquiring human resources for the project through coordination with organizational managers.

Key Reclamation Staff Resources:

TSC Client Liaison: The TSC Client Liaison is an additional resource for the Eastern Colorado Area Office (ECAO) and the Missouri Basin Region to communicate with the TSC for the AVC Project and client level reporting.

TSC Project Team Leader: The TSC Project Team Leader is responsible for technical coordination and communication of the overall completion of designs and cost estimates for the sub-projects in the TSC.

TSC Project Management Support: The TSC Project Management Support Role is responsible for coordination of the overall completion of designs and cost estimates for the various sub-projects in the TSC.

TSC Contract Team Leaders: The TSC Contract Team Leaders are responsible for completion of design and cost estimating activities and coordination of any necessary TSC resources for individual contracts.

TSC Functional Area Leaders: The TSC Functional Area Leaders or Discipline Leads are responsible for being the single point of contact between the TSC Groups and the TSC Team Leader and TSC Project Management Support roles.

TSC Discipline Team Members: The TSC team members are responsible for carrying out the project designs and cost estimates in accordance with each contract's PMP.

Public Relations Lead: Reclamation's Public Relations Lead will be responsible for coordinating Reclamation's public outreach activities (e.g. website development and maintenance, press releases, public meetings, etc.) as well as coordinating these activities with his/her counterpart at Southeastern.

Key Southeastern Staff Resources:

Engineering Lead: Southeastern's Engineering Lead will be responsible for coordinating Southeastern's contracting activities to secure consulting services for analyses and designs associated with design of those project features for which Southeastern has responsibility to design and construct. This position will coordinate Southeastern's review of all AVC designs and analyses produced by (or for) Reclamation and will coordinate the process by which designs produced by or for Southeastern are reviewed by Reclamation.

Construction Lead: Southeastern's Construction Lead will be responsible for coordinating Southeastern's contracting activities to secure supply or construction contractors required to construct those project features for which Southeastern is responsible (e.g. spurs and deliveries).

Public Relation's Lead: Southeastern's Public Relations Lead will be responsible for coordinating Southeastern's public outreach activities (e.g. website development and maintenance, press releases, public meetings, etc.) as well as coordinating these activities with his/her counterpart at Reclamation.

Project Organizational Charts

A detailed project organizational chart is included in Appendix B. Decision making authority, chain of command, and communication channels will generally follow this chart. The chart does not necessarily depict supervisory-direct report relationships, but rather just the management structure for this project. Project Team member names and contact information can be found on the Project SharePoint site.

Communications Management Plan

This Communication Management Plan provides the framework for communications among Project Team members and other Reclamation and Southeastern personnel who are involved in this Project. It identifies and defines the roles of Project Team members as they pertain to internal Project communications and will guide the conduct of internal communications throughout the life of the Project. It will be updated if and as communication requirements change. Communications with external stakeholders are covered in the Stakeholder Management Plan.

Timely and thorough communications will be critical to the success of this Project. Accordingly, the OC and PMs will be responsible for ensuring effective internal communications on this Project and all Project Team members will adhere to this plan. Communication requirements are summarized in the Communications Matrix below. The Communications Matrix will be used as the guide for what information to communicate, when it is to be communicated, and by whom and to whom.

A non-public SharePoint site accessible to both Reclamation and Southeastern Project Team members has been created and will be maintained by Reclamation. This site will be utilized for tracking action items, document sharing, and other general team collaboration tasks.

An established electronic file index will be utilized to provide a uniform method of filing documents to facilitate the successful execution of projects, intra-office communications, client communication, interfacing with data retrieval systems, and acquisition of historical data.

Table 2: Communications Matrix

Communication Type	Description	Frequency	Format	Participants & Distribution	Deliverable(s)	Owner
Monthly Status Report	Email summary of Project status	Monthly	Email	Project Sponsors, Project Team	Status report	RPM
Weekly Project Team Meeting	Meeting to review action register and status	Weekly	In-person, or phone/ virtual conference	Selected project team members*	Updated action and issue tracking lists on SharePoint, meeting notes	RPM
Other Project Team Meetings	Meetings to address issues beyond scope of weekly meetings	As needed	In-person, or phone/ virtual conference	Selected project team members*	Decision or resolution of issues being addressed	PMT
Executive Project Status Meeting	Meeting to present Project status to leadership	Quarterly	In-person, or phone/ virtual conference	Executive Project Sponsors, other executive leadership as requested	Communicated Project status to executive Project Sponsors	PMT

Communication Type	Description	Frequency	Format	Participants & Distribution	Deliverable(s)	Owner
Design Status Update	Email summary of design activities status	Monthly	Email	PMT	Design status report	TSC
Reclamation Budget & Cost Report	Email budget and cost report	Monthly	Email	PMT, Southeastern Finance & Budget Lead	Updated Reclamation budget and cost information	Reclamation Finance & Budget Lead
Southeastern Budget & Cost Report	Email budget and cost report	Monthly	Email	PMT, Reclamation Finance & Budget Lead	Updated Southeastern budget and cost information	Southeastern Finance & Budget Lead
SharePoint Updates	Updates to the Project Team SharePoint site	As needed	SharePoint	Project Team	Updated Project information	RPM

RPM = Reclamation's Project Manager
SPM = Southeastern's Project Manager
PMT = Project Management Team
OC = Project Oversight Coordinator
TSC = TSC Project Team Leader
* Not all team members are expected to be needed for every weekly meeting. The PMT will decide and notify team members needed.

Project Team Directory

A Project Team directory is maintained on the Project SharePoint site.

Communications Conduct and Documentation

Project Meetings

Reclamation and Southeastern will hold numerous Project meetings throughout the design and construction of the Project to communicate Project information or to obtain approval for an aspect of the Project.

Overall Project Meetings: A member of the PMT will distribute a meeting agenda to participants at least two days prior to meeting and participants are expected to review the agenda prior to the meeting. A timekeeper will inform the group of times stated in the agenda to facilitate timely meetings. A recorder will take notes for distribution to the team upon completion of the meeting

that summarizes the main discussion points and identifies decisions made and action items. Action items will list responsibility and due date. Draft meeting minutes will be distributed for review by meeting participants no later than two business days after each meeting is completed and final meeting minutes will be distributed with the next meeting agenda for reoccurring meetings.

Working Project Meetings: It is anticipated that there will be many working meetings and conference calls of subsets of the PMT which will occur as needed. The PM or PMT member who identifies the need for the meeting will be responsible for informing the two PMs about the meeting, developing and distributing a meeting agenda at least one business day in advance of a meeting, and ensuring that a brief summary of the meeting is prepared and finalized. The summary should identify the main points discussed at the meeting, decisions made, and action items. Action items will list responsibility and due date.

Meetings and conference calls held by Reclamation and Southeastern internal working teams in support of the Project will be conducted on a routine basis. The team lead for these teams (e.g. Southeastern's Engineering Lead, TSC Design Team Leader, etc.) will be responsible for briefing their respective PM (either verbally or in writing as required by each PM) on issues or decisions arising from these meetings or calls. The PM will periodically provide the PMT with a summary of significant issues (e.g., issues which affect the deliverable, cost, or schedule of the team's work products) arising from these meetings or calls.

Partnering Meetings: Reclamation and Southeastern aim to work in partnership to resolve potential issues by mutual agreement through alternative dispute resolution processes. The goal of partnering is to strive for mutual trust, dedication to common goals, and understand stakeholders' individual expectations and values. Benefits include improved communication, project efficiency, and cost effectiveness leading to a quality project.

Partnering meetings can be facilitated by either a Reclamation or Southeastern employee or by an independent contractor. Partnering can follow Reclamation's Partnering Guide (January 2018). Example partnering meetings would include an initial partnering session, then can be followed by periodic sessions that focus on project management partnering, a scheduling-focused partnering, acquisition-strategy partnering, and contractor partnering.

Pre-Design Meetings: Pre-design meetings will be held for complex contractor-designed features. This meeting will take place no later than 90 days after notice of award and participants will include project managers, primary designers, and applicable contractor personnel including the responsible engineering representatives. The goal of the pre-design meeting is to discuss technical requirements of the specifications of work with potential risks in design, construction, and operation.

Lessons Learned Meetings: Lessons learned meetings will follow completion of specifications packages or construction contracts, as well as following the completion of a major phase of work, as recommended by either Reclamation's or Southeastern's PM. Participants should include the OC, applicable project managers, primary designers, and project partners. The goal of the lessons learned meetings are to discuss successes and what could be improved upon for the next steps of the project to reduce risk or uncertainty. The lessons learned agenda may include project close-out procedures, incomplete work activities, costs spent to date, issues and successes on the work, and brainstorming for recommendations in future work.

Email Communications

All email communications pertaining to the Project are official Project records. They are to be professional, free of errors, thoughtfully written, and distributed to the correct Project participants in accordance with the Communication Matrix and to others as needed to ensure full and complete communications across the Project Team. All attachments should be in one of the organization's standard software suite programs and adhere to established formats. If the email is to bring an issue forward then it should discuss what the issue is, provide a brief background on the issue, and provide a recommendation to correct the issue. The PMT should be included on any emails pertaining to the Project, unless directed otherwise.

Informal Communications

While informal communication is a part of every project and is necessary for successful project completion, any issues, concerns, or updates that arise from informal discussion between team members must be communicated to the PMT so the appropriate action may be taken.

Stakeholder Management Plan

This Stakeholder Management Plan provides the framework for how communications with external stakeholders will be managed. Stakeholders are the individuals, water providers, state and federal agencies, local governmental bodies, and non-governmental organizations and entities which are directly involved in the Project or whose interests may be affected by Project execution and implementation. They may also exert influence over the Project's objectives and outcomes and its deliverables. Stakeholders include, but are not limited to, AVC Participants, landowners whose properties and easements will be crossed by Project pipelines, and county governments.

This plan focuses on managing communications with the outside agencies and participants to satisfy their needs and resolve their issues. The PMs and Public Affairs and Communication Leads for Reclamation and Southeastern will be responsible for stakeholder management. Stakeholders other than AVC participants are listed in Appendix L. Participants are listed in the Scope Baseline and Appendix C.

Communication methods with stakeholders will include an external Project website and as-needed meetings, press releases, and distributions of other materials. The external Project website will be established and maintained by Reclamation to provide an outreach mechanism for stakeholders and other interested parties. The website information will be managed by the Public Affairs & Communications Leads. Southeastern's website will only contain general information for the Project, but it will be updated to be consistent with the website managed by Reclamation and will contain links to the Reclamation website.

An issue log or action item log will be used to document stakeholder communications and issues resolution. Stakeholder issues may result in resolved issues, a change request, a corrective action, a process update, or a PMP update.

See Appendix L for specific stakeholder information and communication methods/frequency. Communications with external stakeholders will be coordinated between Reclamation and Southeastern.

Media inquiries and public relations matters will be coordinated with the Public Affairs & Communications Leads to provide a consistent message from a project and policy perspective. Targeted press releases and media announcements will be made at the direction of the PMT or the Project Sponsors.

Table 4: Stakeholders Communications Matrix

Communication Type	Description	Frequency	Format	Participants & Distribution	Deliverable(s)	Owner
Public Meeting	Meetings open to members of the general public	As needed	In-person	General public	Communicate pertinent Project information to the public	PMT, Public Relation Leads

Communication Type	Description	Frequency	Format	Participants & Distribution	Deliverable(s)	Owner
Press Release	Press releases to media outlets	As needed	Official press release	Media outlets	Official press release to be published and available to the public	PMT, Public Relation Leads
External Website Update	Updates to publicly accessible project website	As needed	Website	General public	Website update viewable to public	PMT, Public Relation Leads
Contacts Initiated by Media	Contacts made with Reclamation or Southeastern	Ad hoc	Phone calls or emails	Public Relation Leads	NA	Public Relation Lead contacted by media

RPM = Reclamation's Project Manager
SPM = Southeastern's Project Manager
PMT = Project Management Team
OC = Project Oversight Coordinator

Press Releases

Press releases related to the Project must be approved by both Project Sponsors prior to release. The Public Relations leads should collaborate on any such releases.

External Website Updates

The PMT and Public Relations Leads are responsible for updates to the Project external website. The PMT will exercise their own judgement to decide if updates require review and approval by the Project Sponsors.

Public Meetings

All meetings with stakeholders which are open to the public must be approved by both Project Sponsors prior to being planned. The Public Relations leads should collaborate on any such meetings to ensure that they are well designed, stakeholders are informed of the meetings in a timely manner, appropriate meeting materials are prepared and distributed as needed, and meetings are conducted in an efficient and effective manner. Summaries of any such meetings will be prepared and provided to the Project Sponsors and all PMT members.

Risk Management Plan

A risk is an uncertain event or condition that, if it occurs, will affect the Project's objectives. The PMT will develop a risk management strategy to identify, assess, and manage risks throughout the duration of the Project. The following procedure will be used:

1. Conduct a Risk Assessment Workshop to identify the risks (technical, cost, schedule, scope, quality, safety, and continuity of operations). Project management and leads will participate in the workshop. Technical risks identified in the Final EIS will be reviewed and incorporated.
2. Categorize the risks according to cost, schedule, scope, quality, safety, operations, and technical.
3. Assess the probability and impact of the risks and rank the risks based on the impact to the project scope, schedule, and budget.
4. Prepare a response strategy for each risk (avoidance, mitigation, acceptance, or transference).
5. Prepare a Risk Register assigning risk rating to each risk by multiplying the risk probability by the risk impact.
6. Provide risk status updates on the assigned risks during project meetings as an agenda item.
7. Identify any improvements that can be made to the risk management process at the conclusion of the Project for future reference.

Risks will be proactively managed to ensure that the assigned risk managers take the necessary steps to implement the mitigation response at the appropriate time during the Project schedule.
The Risk Management Register (Appendix M) identifies potential risks, impacts and probability of the risks, priority, impact, response, status, date risk was resolved. This register will be maintained for the duration of the Project planning, design, and construction and will be updated to reflect both resolved risks and risks which emerge as the Project progresses.

Scope Management Plan

Scope management will be the sole responsibility of the PMT. The scope for this Project is defined by the Scope Statement, Work Breakdown Structure (WBS), and WBS Dictionary. The Project Manager, Sponsor, and Stakeholders will establish and approve documentation for measuring Project scope which includes deliverable quality checklists and work performance measurements.

Proposed scope changes may be initiated by the PMT, Stakeholders, or any member of the Project Team. All change requests will follow the process described in the Change Management Plan. Upon approval of scope changes by the Change Control Board and Project Sponsor, the PMT will update all Project documents and communicate the scope change to all stakeholders. Based on feedback and input from the PMT and Stakeholders, the Project Sponsors are responsible for the acceptance of the final Project deliverables and Project scope.

The Project Sponsors are responsible for formally accepting the Project's final deliverable. This acceptance will be based on a review of all Project documentation, testing results, and completion of all tasks/work packages and system functionality.

Schedule Management Plan

Project schedules will be created using Primavera or Microsoft Project starting with the deliverables identified in the Project's Work Breakdown Structure (WBS). Activity definition will identify the specific work packages which must be performed to complete each deliverable. Activity sequencing will be used to determine the order of work packages and assign relationships between Project activities. Activity duration estimating will be used to calculate the number of work periods required to complete work packages. Resource estimating will be used to assign resources to work packages in order to complete schedule development.

Once a preliminary schedule has been developed, it will be reviewed by the Project Team and any resources tentatively assigned to Project tasks. The Project Team and resources must agree to the proposed work package assignments, durations, and schedule. Once this is achieved the Project Sponsor will review and approve the schedule and it will then be base-lined.

Construction contracts will be required to submit a baseline construction schedule upon Notice to Proceed (NTP) for approval showing milestones and significant activities with anticipated completion dates. Contractors will also be required to submit monthly construction schedule updates for approval showing activities that were started, continued, or completed during the update period with a narrative reporting changes to the schedule stating the reason for action taken and unresolved issues relating to the Construction Program. Schedule performance monitoring will be evaluated in the Earned Value Analysis (EVA) described in the Cost Management Plan discussion below.

Cost Management Plan

The PMT will be responsible for managing and reporting on the Project's costs throughout the duration of the Project. The PMT will present and review the project's cost performance during the monthly project status meeting. Using EVA, the PMT is responsible for accounting for cost deviations and presenting the Project Sponsors with options for getting the Project back on budget. EVA integrates project scope, schedule, and budget for monitoring work progression. All budget authority and decisions, to include budget changes, reside with the Project Sponsors.

Control accounts will be created at the fourth level of the WBS which is where all costs and performance will be managed and tracked. Financial performance of the Project will be measured through Earned Value calculations pertaining to the Project's cost accounts. Work started on work packages will grant that work package with 50% credit; whereas, the remaining 50% is credited upon completion of all work defined in that work package. Costs may be rounded to the nearest dollar and work hours rounded to the nearest whole hour.

An EVA will be performed on a monthly basis for individual work accounts. An EVA compares the baseline expected effort of the work (planned value) to the actual work performed expressed in terms of budget and scope (earned value) and the actual costs incurred. When the work account is initiated, in a TSC Service Agreement, construction contract or other type of work account, the planned costs spent on a monthly basis will be defined to provide the planned value (i.e., budget). Earned value is a measure of work performed expressed in terms of the value of the work accomplished in dollars by collecting the work performed on a task (i.e., percent complete) times the planned value of that task as shown in Figure 4.

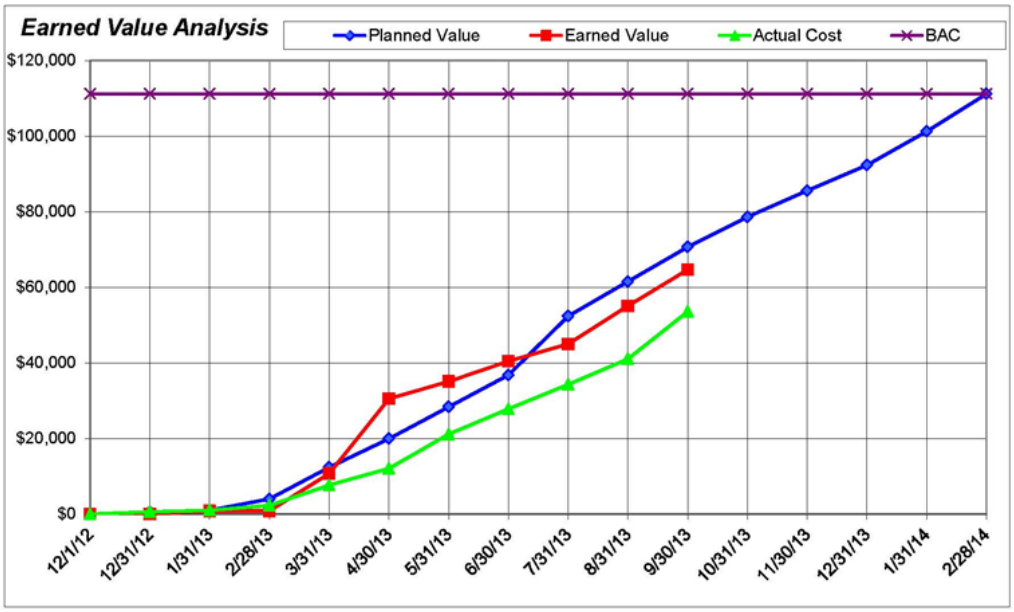

Figure 4: Example Earned Value Analysis Graph

On a monthly basis, a summary table and plot showing the actual cost spent, planned value, and earned value will be created for review by the CCB. Both long- and short-term trends of project status can be easily evaluated using EVA. Negative schedule and/or cost variances of 10 percent will trigger further evaluation. These will be highlighted in yellow and monitored for potential action. Negative variances of 20 percent in the cost and/or schedule performance indexes will change the status of the cost to red or critical. These will be reported to the PMT and require corrective action to bring the cost and/or schedule performance indexes back in line with the allowable variance. Positive cost or schedule variances will be monitored to evaluate whether individual work account performance would impact other work accounts (e.g., construction of one reach will be complete earlier than anticipated leading to advancement of another project or limitations of funding). Corrective actions will require a Project Change Request or re-baselining the work account and be must approved by the CCB before it can be implemented.

Construction contractors on complex contracts will be required to provide a monthly report with a cost-loaded schedule. The cost-loaded schedule provides the Government with anticipated payments based on the schedule of work completed in appropriate activities. The contract value will be allocated to the Contractor construction schedule per Contract Line Item Number (CLIN) amounts in accordance with contract requirements and measurement and payment statements in the specifications. Additionally, the contractor will be required to provide monthly earned value reports of activities completed with assigned values for contract modification activities.

Earned value calculations on active work accounts will be compiled by the PMs and reported at the monthly project status meeting. If there are indications that these values will approach or reach the critical stage before a subsequent meeting, the PMT will communicate this to the Project Sponsors immediately.

Quality Management Plan

The PMT will be tasked with ensuring quality assurance and quality control once the Project is underway. Project reviews should be conducted during the review process of all deliverables. Requirements for quality design deliverables include applicable codes, standards, guidance, regulations, laws and statutes.

Requirements for quality construction deliverables include drawings, specifications, and applicable supplementation guidance developed by or for Reclamation for individual construction contracts issued for each constructed feature of the trunk line and by or for Southeastern7 for each constructed feature of the spurs and delivery lines. These construction documents shall establish the quality requirements by clearly defining the quality, including salient and essential characteristics, of materials and equipment, and the performance of all constructed works.

Quality Management including Quality Assurance (QA) and Quality Control (QC) is the shared responsibility of Reclamation, Southeastern[7], and their respective contractors. Quality Management must be achieved through cooperation and collaboration.

Quality Assurance

Reclamation and Southeastern Work Products

Reclamation and Southeastern recognize the need to integrate the design, construction, and operation of those Project features for which their organization is responsible with the project features that the other organization designs, constructs, and operates. To that end, each organization retains a QA authority/responsibility to review the other's designs, construction specifications, and operational plans. These QA reviews are for the sole benefit of Reclamation or Southeastern respectively and do not relieve the other organization of responsibility for providing adequate QC for their respective work products. Quality Assurance Review Form Templates are shown in Appendix N.

Examples of the QA role for each organization includes the following major phases of Project development:

> **Hydraulic Analysis:** Reclamation will assume responsibility for the overall hydraulic analysis of the AVC including the trunk line as well as the spurs and deliveries. Southeastern will review this analysis to evaluate the design assumptions used and fully understand the results of the analysis including its impacts on the system operations and the potential implications related to the design of the spurs and deliveries.
>
> **Civil, Hydraulic, Structural, Mechanical, & Electrical Design:** Reclamation will conduct or contract for the design of all Project features associated with the project trunk line and make design documents/drawings/technical specifications available for review by

[7] Southeastern (either directly or through and in coordination with AVC participants) will be responsible for ensuring these reviews will be completed. All references to Southeastern in this document are intended to include this role on behalf of the AVC participants.

Southeastern at key Project milestones as outlined in Reclamation's Final Design Process (typically at the 30%, 60%, and 90% final design milestones - see Appendix O). Results of each QA review will be documented as outlined in Reclamation's Final Design Process document (see Appendix N for form templates).

Southeastern will conduct or contract for the design of all Project features associated with the Project spurs and delivery lines and make design documents/drawings/technical specifications available for review by Reclamation at key project milestones as outlined in Reclamation's Final Design Process (typically at the 30%, 60%, and 90% final design milestones – see Appendix O). Results of each QA review will be documented as outlined in Reclamation's Final Design Process document (see Appendix N for form templates).

In addition to the 30%, 60%, and 90% design milestone concurrence memoranda, both Project Managers must concur any design specifications produced for the Southeastern Sub-Project are acceptable to proceed to development of a solicitation for a supply or construction contract before Southeastern proceeds with development of such solicitations. (See Appendix N for a form template).

Solicitations for Construction and Supply Contracts: Reclamation will issue construction and/or supply contracts for all Project features associated with the Project trunk line. General information on the solicitations will be coordinated with Southeastern subject to Federal Acquisition Regulations (FAR) limitations.

Southeastern will issue construction and/or supply contracts for all Project features associated with the project spurs and delivery lines. General information on the solicitations will be coordinated with Reclamation subject to state and local government procurement regulations limitations.

Both PMs must concur any solicitations for a supply or construction contract produced for the Southeastern Sub-Project are acceptable to put out for bid before Southeastern advertises the solicitation. (See Appendix N for a form template).

System Operation and Maintenance Plans: Reclamation will develop a Hydraulic Designer's Operating Criteria for the entire project to document their findings and assumptions used to complete the hydraulic analysis of the trunk line, spurs, and delivery lines. This document will inform final designs of those elements of the AVC which will affect hydraulic flows and pressures (e.g., pipe size, pipe pressure ratings, regulating tank sizing, valve operations, and potential pumping plant operations). Guidelines for developing this document are included in Appendix P.

Reclamation will develop Operations and Maintenance Plans for all Project features associated with the project trunk line (including interim operations for those portions of the project able to operate while construction of other Project features continues). Southeastern will review and provide input on Reclamation's draft Operational and Maintenance Plan for both interim and final project operations before the plan is finalized and operations commence.

Southeastern will develop Operations and Maintenance Plans for all Project features associated with the project spurs and deliveries (including interim operations for those portions of the Project able to operate while construction of other Project features continues). Reclamation will review and provide input on Southeastern's draft Operational and Maintenance Plan for both interim and final project operations before the plan is finalized and operations commence.

The preceding general division of responsibilities will apply to all portions of the AVC. Detailed procedures and form templates to document review comments and resolution of comments will be developed for these QA reviews during the initial review of the hydraulic analysis and as the initial phase of the Project (currently projected to be the Boone Reach of the trunk line) progresses. These procedures and documents will be added to this PMP and/or Appendices for use on future reaches of the Project.

The preceding QA activities are different and separate from each organization's QA role in reviewing work or items provided by consultants or contractors hired by Reclamation or Southeastern (Issuing Organization). The following sections describe in general terms QA roles for the Issuing Organization for these contracts.

Design Contractors

Reclamation and Southeastern may choose to contract with consultants to complete all or part of the analyses and/or designs of those project components for which each organization has responsibility. In these cases each Issuing Organization will be responsible for implementing adequate QA processes to ensure the products and services provided by these consultants meet the criteria outlined in the Quality Management section of this PMP including but not limited to accommodating & addressing comments received as part of the QA reviews noted above by Reclamation or Southeastern respectively.

Construction and Supply Contractors

The Issuing Organization shall be responsible for QA of Construction or Supply Contracts to the extent required to determine whether the contractor has fulfilled the contract requirements and shall confirm that the specified deliverables are obtained. QA may include inspection, monitoring, sampling, checking, destructive and non-destructive testing, peer and independent reviews, third party verification, and may be based on statistical methods, empirical observations and/or other specification requirements (the extent of QA shall be commensurate with the value, complexity, sensitivity, criticality, and other factors of the contract requirements).

The Issuing Organization QA is for the sole benefit of the Issuing Organization and does not relieve the contractor of responsibility for providing adequate QC, relieve the contractor of responsibility for damage or loss of supplies before acceptance, or affect the continuing rights of the Issuing Organization after acceptance of the completed work as stipulated in the contract requirements.

QA shall be performed during any phase of services or manufacturing, and at any place including the performance site of the contractor's own organization, suppliers, manufacturers, subcontractors, technical laboratories and consultants as necessary to determine that the services or supplies conform to contract requirements. Final inspection and acceptance of supplies shall only be made at the Project site after installation and testing.

QA shall commence before the performance of services or manufacturing and includes planning; reviews of the contract requirements for biddability, manufacturability, constructability, operability and environmental responsibility; site reviews; coordination with applicable stakeholders; establishment of performance periods; preparation of QA plans; establishment of QC requirements; and reviews of QC plans.

QA personnel qualifications including training and certifications shall be commensurate with the contract requirements. All personnel shall be appropriately trained and certified for the means and methods of QA they are executing.

Quality Control

Reclamation and Southeastern Work Products

Reclamation and Southeastern are each responsible for QC of their respective work products in the planning, design, procurement, construction management, and operations of their respective Project features.

Each organization will be responsible for ensuring the work products developed by or for them are developed in accordance with all applicable local, state, and national codes and standards of practice (including utilization of appropriate internal design criteria and design standards provided those criteria and standards meet the minimum requirements of local, state, and national codes).

Development of work products that meet the Colorado licensing board criteria for preparation by a registered professional shall comply with applicable state or internal organizational requirements. Development of these work products shall follow applicable state or internally mandated processes for review or preparation by a registered professional in responsible charge of the work.

Design Contractors

Reclamation and Southeastern may choose to contract with consultants to complete all or part of the analyses and/or designs of those project components for which each organization has responsibility. In these cases, each Issuing Organization will be responsible for ensuring their contracts with these consultants require QC measures employed by the consultant meet the criteria outlined in this Section of the PMP.

Construction and Supply Contractors

The contractor shall be responsible for QC to the extent required to deliver the services or supplies in accordance with the contract requirements. QC includes a system to manage, control and document work to ensure compliance with the contract requirements. The contractor's responsibility includes ensuring adequate QC services are provided for work accomplished on- and off-site by the contractor's own organization, suppliers, manufacturers, subcontractors, technical laboratories and consultants. The work activities include safety, submittal management, and all other functions relating to the requirements.

Specific QC requirements shall be established in the specifications, on the drawings, and in other contract documents.

The contractor's QC staff must be of sufficient size and have the qualifications necessary to ensure contract compliance, whether work is performed by the contractor's own organization, suppliers, manufacturers, subcontractors, technical laboratories or consultants. The size and composition of the QC organization may vary as the job progresses. At all times, the organization shall be compatible with the level of effort required by the contract requirements, including the schedule. The contractor shall be required to prepare and submit for review and acceptance a QC Plan demonstrating a thorough understanding of and capabilities to satisfy the contract requirements. The QC Plan shall address the requirements for the contractor's, supplier's, manufacturers', subcontractors', technical laboratories' and consultants' quality actions. The QC Plan shall address receipt and control of material, equipment and service data; preparation and use of inspection and test plans and reports; acceptance inspections and tests; use and calibration of measure and test equipment; and handling of non-conforming supplies or services.

Construction Inspection Reporting

Detailed procedures for construction inspection and form templates to document those inspections will be developed no later than when Notice to Proceed (NTP) is issued for the construction contract for the initial phase of the project (currently projected to be the Boone Reach of the trunk line). These procedures and documents will be added to this PMP for use on future reaches of the Project.

Procurement Management Plan

The Acquisitions Office in Reclamation's Missouri Basin Regional Office (MB-5000) will serve as the lead for all federal procurement actions associated with this project. It is anticipated that all major construction contracts will be Negotiated Competitive awards, although each contracting action will be evaluated individually. Reclamation's PM will coordinate the supply of all necessary documentation and information to MB-5000 to complete procurements. The Regional Acquisitions Manager has committed to providing resources to ensure timely completion of all procurement actions associated with this Project. If adequate resources are not available, MB-5000 will be responsible for coordinating with other acquisitions offices to obtain the necessary resources.

All contracts and procurements issued by Southeastern will be processed by Southeastern's Executive Director or Board of Directors based on internal financial thresholds of the contract or procurement. Outside services may include land acquisition, pipeline design, and construction management. Southeastern's Project Manager and/or PMT will provide support by supplying the necessary documentation and information to complete the procurements.

Project Assets

The purpose of this section is to define asset interdependencies and substantial completion criteria as it applies to Reclamation's Asset Under Construction (AUC) requirements.

Asset Interdependencies

Asset interdependencies are defined as the aggregation of multiple assets that are functionally or operationally dependent.

All subsequent assets are operationally dependent on these assets being completed:

- Boone Reach Conveyance Pipeline ROW
- Boone Reach Conveyance Pipeline
- Dechloramination Facility Land Acquisition
- Dechloramination Facility

In general, all spur lines and delivery lines are dependent on completion of the trunk line and appurtenant features associated with the trunk line.

Substantial Completion Criteria

Substantial completion occurs when a determination has been made that a stage of construction, construction activity, or designated portion of the construction activity is sufficiently complete, so that the asset may operate for the intended purpose. This determination is made based on the following general criteria. Criteria specific to each feature broken down by WBS is included in the WBS Dictionary in Appendix E.

Land Right-of-Ways (ROWs)

ROWs required for pipeline reaches will be considered substantially complete when all ROWs for that reach are recorded and construction can begin.

Land Parcels

Land parcels required to be owned in fee-title by Reclamation will be considered substantially complete when construction can begin on them.

Conveyance Features

Conveyance features such as pipeline reaches, dechloramination facility, regulating tanks, and pumping plant will be considered substantially complete when all applicable testing has been completed and the asset could be put into operation to convey water assuming downstream features allow for it. Based on the status of downstream features, the feature may not actually be able to convey water at the time of substantial completion.

Project Completion

Upon completion of the Project, the PMT will review the deliverables to ensure objectives have been met and proper Project closeout procedures are complete. Contractor furnished documents such as as-built drawings, instructions, and operations and maintenance manuals will be distributed to the end user.

The final task for the Project will be to prepare a closeout report/survey. The report will include a planned versus actual analysis in terms of schedule and budget and will request feedback from the client and/or sponsor regarding the successes and failures of the project. Lessons learned will be discussed with the team summarizing the work account lessons learned meetings discussed in the Communications Management Plan above, saved with the project files, and, if applicable, saved as a Lessons Learned Register and/or sent to Central Files/Records.

The following documents are critical to the completion/closeout process and required for the successful function of the completed Project.

1. Project Accounting Report
2. Construction Report
3. As-built drawings
4. Design Summary

Prior to acceptance, commissioning and turnover to Operations and Maintenance, the following documents are required:

1. Standard Operating Procedures (SOP)
2. Designers Operating Criteria (DOC)

Approvals – Reclamation

These signatures indicate approval of the Project Management Plan and commitment to provide resources as described.

SAMUEL BRAVERMAN
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Project Manager Date
Samuel Braverman
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Approvals – Southeastern

These signatures indicate approval of the Project Management Plan and commitment to provide resources as described.

J. William McDonald Digitally signed by J. William McDonald Date: 2020.04.17 14:54:29 -07'00'

Project Manager Date
J. William McDonald

James Broderick Digitally signed by James Broderick Date: 2020.04.17 14:55:00 -07'00'

Project Sponsor Date
Jim Broderick
Executive Director

Bill Long Digitally signed by Bill Long Date: 2020.04.17 14:55:26 -07'00'

Executive Project Sponsor Date
Bill Long
Chairman, Board of Directors