

## **Direct Feed Low Activity Waste Program Integration – 16638**

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### **ABSTRACT**

The mission of Program Integration is to champion and steer the development and implementation of common and consistent programs between the Tank Operating Contract (TOC) contractor and the Waste Treatment Plant (WTP) contractor. TOC is managed by Washington River Protection Solutions LLC (WRPS) and WTP is managed by Bechtel National, Inc. (BNI). The DOE Office of River Protection (DOE-ORP) is the Program Owner.

WRPS has been actively managing the TOC at the Hanford Site Tank Farms (TF) since 2008. Programs are already developed, verified, and in use for the TOC, whereas WTP is still in the construction phase. WTP Programs are established for construction only, but not developed for commissioning and future operations. An extensive effort is underway at WTP to develop commissioning programs.

In order to drive consistency and minimize differences in program requirements between TF, which will feed the tank waste, and WTP, which will receive and treat the tank waste, DOE-ORP requires the two contractors to integrate and collaborate in program development. Advantages of integration are:

- Achieves cost and time savings as WTP is able to review existing TOC programs as starting points in development of its programs.
- Promotes interfaces with industry counterparts to share experiences, issues, and lessons learned.
- Minimizes difference in program requirements between the companies.
- Helps prepare for and ultimately succeed in Operational Readiness Reviews (ORR).

Program Integration is a priority for TOC and WTP, and in order to maintain the focus and drive to this effort, a unified One System Program Integration Council (OSPIC) was created in 2012. Membership of the OSPIC consists of senior managers from both companies and the OSPIC chair's report directly to their respective President. Thirty (30) programs are subject to integration, including but not limited to Conduct of Operations, Worker Safety and Health, Quality Assurance, Contractor Assurance, and Environmental Management. Progress of program development and integration efforts are tracked and monitored, and barriers to integration are resolved in a collaborative fashion within both companies.

## **INTRODUCTION**

The DOE-ORP is responsible for the management and completion of the River Protection Project (RPP) Mission, which comprises both the Hanford Site Tank Farms (TF) operations and the WTP. The RPP Mission is to safely retrieve and treat Hanford's tank waste and close the TF to protect the Columbia River.

The Hanford Federal Facility Agreement and Consent Order (Tri-Party Agreement [TPA]) requires DOE-ORP to complete the RPP Tank Waste Treatment Mission. A key aspect of implementing that mission is to construct and operate the WTP. The WTP is a multi-facility plant designed to treat and immobilize the tank waste to enable final disposition.

The RPP work scope is currently performed by two prime contracts:

- The TOC contractor, held by WRPS, includes the construction, operation, and maintenance activities necessary to safely store, retrieve, and transfer tank wastes; provide supplemental tank waste treatment; provide storage and/or disposal of primary and secondary waste streams; and support DOE-ORP to integrate WTP completion and start-up with TF operations.
- The WTP Contract, held by BNI, includes the design, construction, and commissioning of a pretreatment facility, two vitrification facilities (one for HLW and one for LAW), a dedicated laboratory, and supporting facilities to treat radioactive tank wastes by immobilizing them into glass for long-term storage or final disposal.

The One System (O/S) organization was established in late 2011, on direction from ORP, to perform the integration function between the TF and WTP necessary to ensure the safe, efficient, and successful start-up of WTP and the execution of the RPP mission. The mission of the O/S organization is to lead or perform key planning, analysis, and integration activities necessary to successfully and efficiently complete the Hanford tank waste treatment and disposition mission (See Figure 1). In accordance with the O/S Charter [1], WTP and TOC O/S organizations have been coordinating and integrating the functions necessary to ensure the safe, efficient, and successful startup of the WTP, initially focusing on the Direct Feed of Low Activity Waste (DFLAW).

## **DESCRIPTION**

The DOE-ORP is in the process of designing and building the WTP. Currently, the DOE-ORP stores approximately 56 million gallons of highly radioactive tank waste in 177 underground tanks at Hanford. The WTP will separate Hanford tank waste into a High Level Waste (HLW) fraction and a Low Activity Waste (LAW) fraction. The LAW will be vitrified and disposed of in a disposal facility on site at Hanford. The HLW will be vitrified, stored for a period on site, and ultimately disposed of in a geologic repository licensed by the NRC for that purpose.

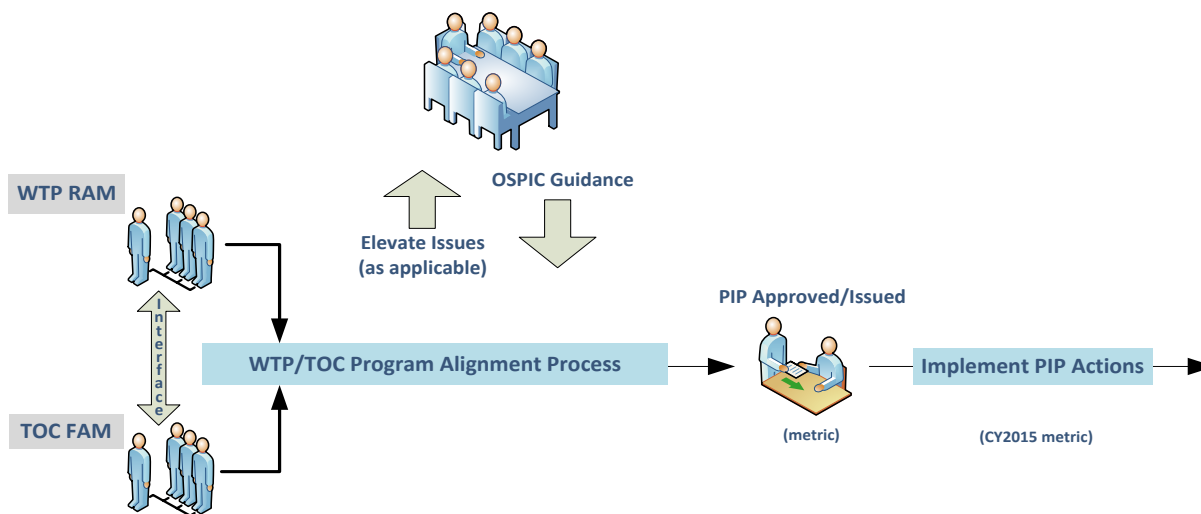
## One System Program Integration Council (OSPIC) Vision:

The OSPIC will drive integration of requirements for ~30 programs between WTP and TOC to support consistency in contract drivers, operational readiness review planning to support DOE's waste feed delivery schedules and timing, and development of interface mechanisms with other Hanford Site service contractors.

### OSPIC Team

Bill Condon (Co-Chair)  
 Kent Smith (Production Operations)  
 Jeff Van Meighem (Interface Management)  
 Martin Wheeler (WTP Start-up Integration)

Mike Hughes (Co-Chair)  
 Ken Wells (Plant Operations)  
 Bill Gay (Readiness Assurance)  
 Richard Garrett (LAW/DFLAW/ Program Integration)



### OSPIC Duties:

- Set program integration priorities and expectations
- Flow- down priorities, milestone dates, and alignment expectations to WTP/TOC program owners/ Requirement Area Manager (RAM)/Functional Area Manager (FAM)
- Ensure sufficient integration funding and resources to accomplish OSPIC vision
- Provide guidance and/or elevate integration barriers/issues, as needed, to WTP/TOC senior management
- Monitor and track development of integrated programs and program gap resolution

### RAM/FAM Duties:

- Identify schedule to develop programs and integration scope to ensure alignment
- Identify barriers or issues precluding or restricting WTP/TOC program integration
- Obtain OSPIC guidance or assistance for barrier/issue resolution, as necessary
- Prepare/approve Program Integration Plan (PIP) that identifies alignment gaps, actions, and due dates
- Track progress on scheduled actions for WTP/TOC program integration and provide status to management

October 9, 2014

Figure 1. One System Program Integration Council (OSPIC) Vision

The WTP is a highly complex facility anticipated to operate for several decades following its planned start-up of operations. As the Engineering, Procurement, Construction, and Commissioning (EPCC) contractor, BNI has full responsibility for the WTP from the transition of an existing conceptual design through the completion of hot commissioning.. WRPS has full responsibility for delivery of compliant feed to the WTP.

The mission of program integration activities is to support the successful and efficient startup of the Hanford tank waste treatment mission, with an initial focus on DFLAW startup (i.e., the combined TOC waste feed delivery and the WTP) to effectively execute the Hanford mission. Both Contractors acknowledge differences in the facilities, contract requirements, and operational considerations. However, it is a goal to achieve sufficient operational program alignment where it is beneficial by creating common or shared institutional programs, such that the interfaces between WTP and TOC are effective and seamless.

The contract for the WTP was issued by DOE-ORP for construction and contained DOE orders and directives appropriate for construction. As the WTP nears commissioning, the DOE orders and directives require alignment with those needed for an operating contract. Alignment of contract requirements ahead of readiness activities will be critical to ensure a smooth transition to an operations contract for the WTP. Substantially shared programs between the WTP and WRPS will reduce costs in WTP Program development and help demonstrate seamless and integrated readiness. To that end, contractual alignment and program integration will continue to be a focus.

## **DISCUSSION OF METHODS**

The O/S organization was established to lead or perform the key planning, analysis and integration activities necessary to successfully and efficiently complete the Hanford tank waste treatment and disposition mission. The O/S organization is responsible for delivering an integrated work program divided into four areas:

- Flowsheet Integration – Integrated RPP flowsheet development and management; development of a gaps, risks and opportunities management plan and technical roadmap; and waste feed qualification.
- Mission Analysis and Planning – Strategic Plan, system planning and modelling integration.
- WTP Startup, Commissioning and Operations Integration – interface control document management; transition plan for facility startup-to-commissioning-to operations; contract directives/standards identification; and DFLAW program integration.
- Project Integration and Controls – Integrated schedule, metrics/dashboards monitoring, and O/S risk register.

This work program is delivered by a combined, streamlined organization, including members from both the TOC and WTP, with support from the National Laboratories.

The O/S organization monitors and reports on the integration activities of the TOC and WTP contractors in accomplishing the program.

The O/S organization comprises senior management personnel drawn from both the TOC and WTP contractors, all dedicated to RPP mission integration and accomplishment. The two contractors each have formed an O/S team within their respective company led by a designated manager. These teams interact frequently and collaborate closely with each other in achieving all areas of common program work scope. For O/S-related work scope elements unique to one contractor or the other, the plans for and performance status of such activities are also openly shared.

Institutional programs are contractually driven within the respective TOC and WTP scopes to implement established rules, regulations, and customer expectations. The development of new programs and alignment of existing programs (towards common program plans/procedures) provides several advantages to DOE-ORP and the implementing contractors, including:

- Support of the DOE-ORP Mission.
- Minimization of differences in program requirements and processes.
- Promotion of interface and integration between company subject matter experts.
- Achievement of cost savings by taking advantage of existing programs strengths.
- Maximization of DOE-ORP acceptance of WTP operational programs by Operational Readiness Review teams when based on consistent and compliant existing operations at TOC.
- Simplification of interfaces/communications during operations.
- Achievement of "O/S".

### **One System Program Integration Council (OSPIC)**

The mission of the OSPIC is to champion the development and implementation of common and consistent institutional programs for alignment between the TOC and WTP contractor operations. This mission is documented in the OSPIC Charter [2], a jointly issued document by the TOC and WTP Contractors.

The OSPIC is a joint council of appointed senior management from the TOC and WTP Contractors. Its goal is to achieve strategic alignment where it is beneficial by creating common or shared institutional programs. TOC and WTP Contractors acknowledge differences in the facilities, contract requirements, and operational considerations; however, shared programs between the two contractors during commissioning will help demonstrate seamless and integrated readiness.

The OSPIC scope:

- Facilitates current institutional program interfaces through information exchange.
- Elevates possible contract alignment issues that preclude or limit integration.
- Endorses business commitments that have an effect on requirements areas/functional areas and line organization implementation.
- Enables effective sharing and cost savings opportunities for benefit to the DOE-ORP customer.
- Recommends strategic institutional program development changes (e.g., approved Program Integration Plan (PIP) to the TOC President/Project Manager and/or WTP Project Director).

The OSPIC process drives requirement area managers for each of the contractors to review/evaluate their programs; provides alignment recommendations through presentation to the OSPIC; and requests OSPIC concurrence for issuance of high-level WTP/TOC PIP deliverables that will document/serve as resulting integration evidence for each aligned program area.

Requirement Area Managers (RAMs) for both WTP and TOC Functional Area Managers (FAMs) are actively engaged and collaborate on program integration. The OSPIC tracks progress on RAM/FAM identified alignment actions and elevates contractual or programmatic alignment issues that could preclude or limit WTP/TOC integration.

### **One System WTP Startup, Commissioning, and Operations Integration**

The objective of O/S WTP Startup, Commissioning, and Operations Integration is to manage the coordination and integration of programmatic activities needed to more effectively and efficiently conduct the transition to WTP startup, commissioning, and operations, initially focused on DFLAW program integration. Specific strategic objectives to be achieved under this area of scope include:

- Management of the coordination and integration of programmatic activities needed to more effectively and efficiently conduct the transition to startup, commissioning, and operations, including the recommendation to ORP, TOC and WTP of any improvement actions.
- Identification of those DOE directives and order changes needed to align the WRPS and BNI contracts, and establishment of an optimum or necessary time to have each item aligned.
- Management of new waste acceptance or non-waste acceptance interface control documents, and programs such as permitting, to ensure remaining gaps/issues/actions are identified and are on track for resolution and where possible, streamlining interface processes.

### **Direct Feed Low Activity Waste Program**

One System coordinates, reports, and in some cases, performs the integration activities necessary to successfully and efficiently achieve startup and commissioning of WTP, initially focused on LAW/Balance of Facilities/Laboratory (LBL) with LAWPS and the delivery of feed directly from TF (DFLAW). In addition to establishing and leading an integrated team to manage the DFLAW Program, a vital early role for O/S is to ensure effective coordination and integration between TOC, WTP, and other Hanford Site contractors and communicating, where appropriate, through the OSPIC. The One System identifies risks and gaps that may impact successful WTP startup, including operational classification skills and qualification requirements across TOC and WTP. Subsequently, the One System develops, and where appropriate implements measures to mitigate any gaps and drive program improvements.

One System drives TOC/WTP integration by ensuring alignment between TOC and WTP DFLAW proposals/scope, identifying any DOE order or directive for TOC/WTP that would impact TOC/WTP alignment, and establishing the optimum schedule for each item to be aligned.

### **Strategy for Program Integration and Alignment**

In order to document program integration and alignment, the first step was to identify programs to be aligned. Initially forty-five programs were reviewed and a determination made to select programs necessary for WTP Integrated Safety Management Systems (ISMS) Phase 1 Verification. This resulted in a list of thirty programs identified for alignment (see Table 1).

TABLE 1: Programs for Integration

| #  | Program Areas for Integration                |
|----|--|
| 1  | Commissioning Chemical Management            |
| 2  | Conduct of Operations                        |
| 3  | Configuration Management                     |
| 4  | Document Control/Records Management          |
| 5  | Environmental Management                     |
| 6  | Fire Protection                              |
| 7  | Hoisting & Rigging                           |
| 8  | Integrated Safety Management System          |
| 9  | Maintenance/Work Control                     |
| 10 | Plant Engineering                            |
| 11 | Quality Assurance                            |
| 12 | Requirements Management                      |
| 13 | Information Technology/Software Quality      |
| 14 | Operations Training                          |
| 15 | Operations Procedures                        |
| 16 | Program Procedures                           |
| 17 | Waste Management                             |
| 18 | Worker Safety & Health                       |
| 19 | Worker Safety & Health-Electrical Safety     |
| 20 | Worker Safety & Health-Industrial Safety     |
| 21 | Worker Safety & Health-Occupational Medicine |
| 22 | Worker Safety & Health-Industrial Hygiene    |
| 23 | Nuclear Safety                               |
| 24 | Readiness Assurance                          |
| 25 | Criticality Safety                           |
| 26 | Human Factors                                |
| 27 | Radiation Protection                         |
| 28 | Information Technology/Cyber Security        |
| 29 | Contractor Assurance                         |
| 30 | Emergency Preparedness                       |

The objective of integration between WTP Project Contractor and TOC programs is to ensure alignment of program requirements, consistency in program content, and conformance with those requirements reflected in processes and procedures in compliance with the respective WTP and TOC Contracts. In support of this objective, a comparison of the WTP Contractor and TOC implementation documents was completed to develop a shared understanding of the requirements which form the basis of each program.

In order to evaluate need for alignment, a process was developed to perform a comparison of each program and document the results using a PIP document (see Figure 2) prepared in consistent format by use of a template [3]. A gap analysis was conducted for each of the thirty programs by comparing the respective



programs of WTP and TOC Contractors. The WTP and TOC contracts both require integrated programs be developed and implemented consistent with applicable requirement drivers. A comparison of requirements was jointly performed and referenced in the completed gap analysis. The gap analysis indicates the requirements forming the basis of each and identify any gaps with opportunities to enhance alignment of program activities.

Documentation of the complexity of the program functional area, ongoing alignment, and contractual/guidance/orders/standards alignment is documented in a PIP. Also included is a summary of the major findings (e.g., alignment areas underway, significant gaps, barriers, high-level schedule of implementation activities, etc.).

The PIP serves as documented integration evidence of alignment and is issued as a joint O/S document in both the WTP and TOC document record systems.

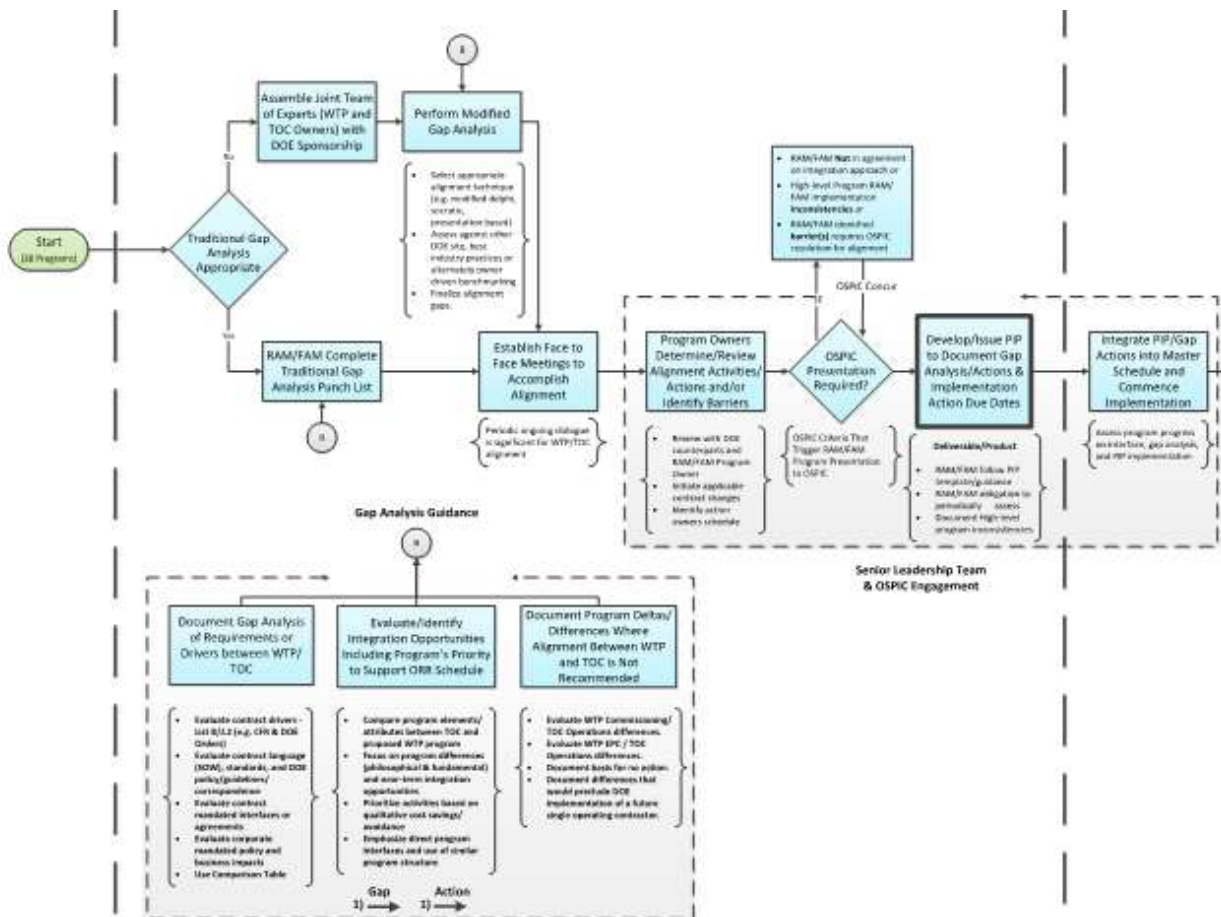


Figure 2. One System WTP/TOC Program Integration Alignment Process.

Each gap is presented and addressed in the PIP. The gap is described, a resolution proposed, and actions for the WTP Contractor and TOC are identified. These actions are tracked as an open item by the responsible RAM and FAM and managed through closure (see Figure 3). The RAM and FAM will interface periodically to achieve integration (i.e., alignment and consistency) for a program.

While consistency is the preferred choice, resolution of each gap can lead to one of four possible outcomes as described below:

- Both the WTP Contractor and TOC will utilize a common program that satisfies the needs of both organizations.
- The WTP Contractor practices will be modified to achieve greater alignment.
- The TOC practices will be modified to achieve greater alignment.
- Neither the WTP Contractor nor the TOC will change existing practices but rather continue forward with separate and somewhat independent practices, based on implementation of the program at specific facilities. The PIP will document those differences and provide a justification for non-alignment.

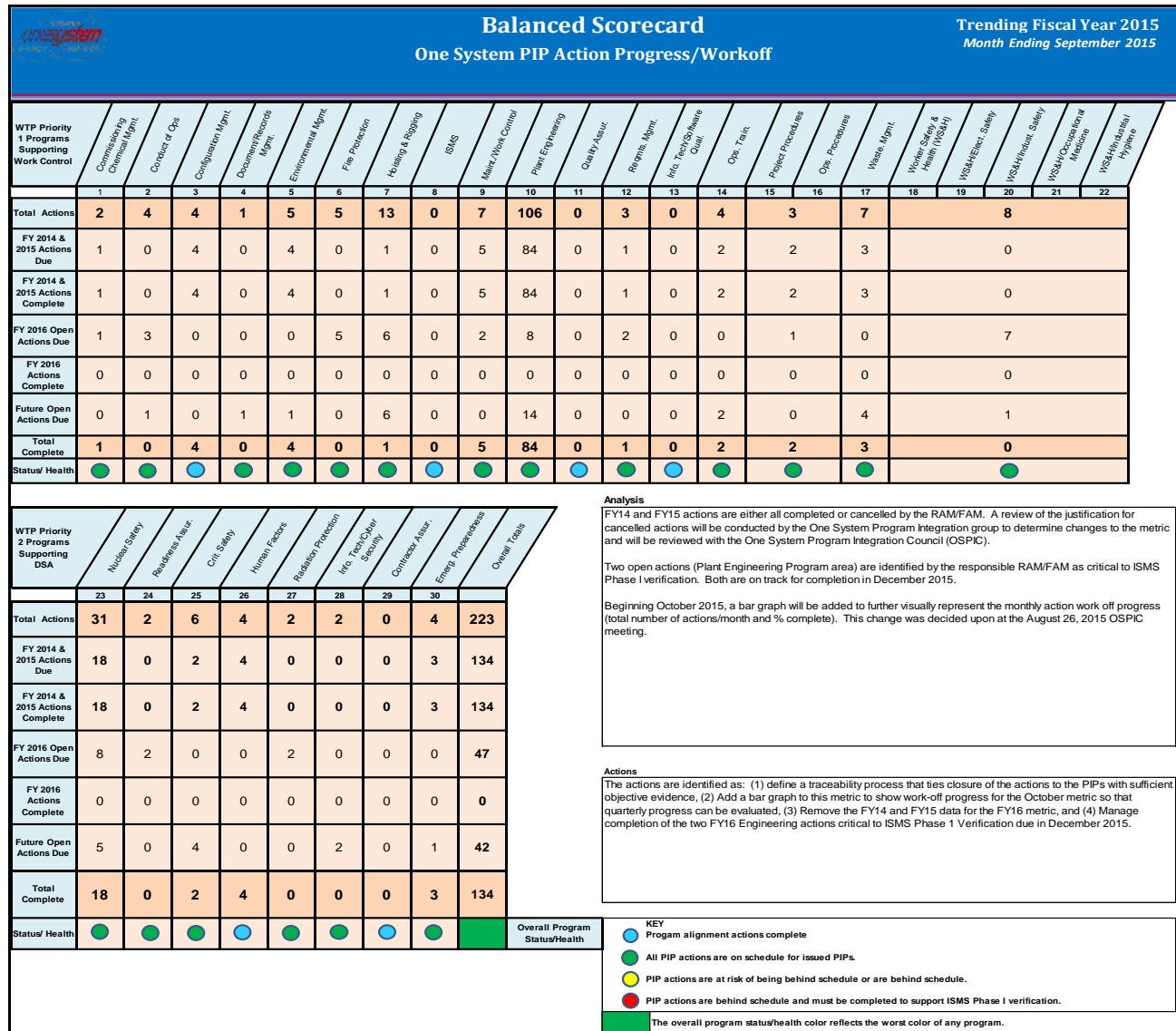


Figure 3. Program Integration Actions

### DOE Order/Directive Alignment

The specific goal for DOE Order/Directive Alignment is to the extent possible, achieve alignment between the WTP contract and the TOC contract on the DOE Orders/Directives applicable and listed in the relevant contract sections, including Revision number. The objective of this goal is to ensure consistency in the requirements to be implemented by the two contractors, to the extent possible, in order to simplify the programmatic interfaces between contractors during the preparations for operational startup. A benefit to the Government exists for WTP commissioning program development to take advantage of existing ISMS and Voluntary Protection Program (VPP) certified programs in use by TOC. In addition, contract strategies for completion of the future RPP operational mission can take advantage of efforts to align DOE Order and Directives between WTP and TOC contractors. The goal can be achieved by having contract modifications in place to

support development of commissioning programs as defined on the WTP Readiness/Commissioning Schedule to support DFLAW startup and ultimate full operation of WTP. In order to have programs in place, procedures prepared, and training conducted, it is imperative to have any planned contract modifications identified as soon as possible.

Alignment of the WTP and TOC contracts allows for those DOE Orders and Directives applicable to WTP design and construction efforts to be transitioned to the appropriate set of Order and Directives to allow for WTP commissioning operations and alignment with ongoing TOC operations. Contract alignment entails identification of those DOE Orders and Directives that would benefit alignment between the WTP and TOC in order to simplify the programmatic interfaces during the preparations for operational startup, and pursuing that alignment. In FY 2013, the initial list for alignment included acts, laws, standards, FAR clauses, orders, directives, and manuals, which identified a total of 926 items. Representatives from WTP, TOC, and DOE-ORP worked together in FY 2014 to consolidate the list pertinent for alignment to 91 Orders and Directives.

In FY 2015, a consistent process was established for review of each DOE Order or Directive and a "Master Order List" was created to capture these 91 Orders and Directives, and the list was placed under configuration control. Decisions were made on each Order or Directive and these decisions were reviewed by an overarching board chaired by O/S senior management. The implementation approach and schedule was documented and a metric was established which included final recommendations on which DOE Orders and Directives were to be the same in both contracts and which did not need to be added to the WTP contract. The objective of DOE Order/Directive alignment was for required contract modifications to be identified and agreed to by TOC, WTP, and DOE-ORP representatives.

## **CONCLUSION**

The mission of program integration activities is to support the successful and efficient startup of the Hanford tank waste treatment mission, with an initial focus on DFLAW startup [i.e., the combined TOC waste feed delivery and the WTP] to effectively execute the Hanford RPP mission. Both WTP and TOC Contractors acknowledge differences in the facilities, contract requirements, and operational considerations. However, it is a goal to achieve sufficient operational program alignment where it is beneficial by creating common or shared institutional programs, such that the interfaces between WTP and TOC are effective and seamless.

The strategic objective to achieve DOE Order/Directive Alignment contains the specific goal to achieve alignment between the WTP and TOC contracts, to the extent possible. To achieve this goal, contract modifications are needed to be in place to support development of programs as defined on the WTP readiness/commissioning schedule for DFLAW operations and ultimately full operation of WTP. Commissioning programs are foundational to implementing

ISMS for the commissioning and operations phase of the WTP Project. Benefit can be gained for the Government if DOE Order/Directive requirement alignment enables taking advantage of existing ISMS and VPP certified programs in TOC during WTP commissioning program development.

Substantially shared programs between the two contractors during commissioning will reduce costs in WTP Program development and help demonstrate seamless and integrated readiness. To that end, DOE Order/Directive alignment and program integration will continue to be a focus.

## **REFERENCES**

1. W.A. Condon, WRPS, et.al, *One System Charter*, TOC Document #: RPP-51471 Rev 5, WTP Document #: 24590-WTP-CH-MGT-11-008, Rev 5, dated September 24, 2014.
2. Bill Condon, WRPS and Mike Hughes, WTP, *One System Program Integration Council Charter*, TOC Document #: RPP-RPT-53085 Rev 4, WTP Document #: 24590-WTP-MGT-12-005 Rev 2, dated March 9, 2015.
3. A. G. Miskho, WRPS, *One System WTP/TOC Program Integration Plan Format and Content*, TOC Document #: RPP-PLAN-60119 Rev 0A, WTP Document #: 24590-WTP-MGT-14-0039, Rev 0, dated September 25, 2015.