

## CONDUCTING OPERATIONS AT THE SOLID WASTE MANAGEMENT DEPARTMENT AT WSRC (U)

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### ABSTRACT

The Westinghouse Savannah River Company (WSRC), as the operating contractor for the Department of Energy (DOE) at the Savannah River Site (SRS), has implemented Conduct of Operations. "Conduct of Operations" is a phrase that establishes the philosophy for achieving excellence in operation of Waste Management facilities. These standards have application in many facets of our business and shall be considered by all organizations that conduct and support Operations to improve overall organizational performance. The formality and accuracy resulting from the implementation of the elements will enhance safe operations and result in higher quality product. The elements of the Conduct of Operations Requirements For DOE Facilities (DOE Order 5480.19) are tools to do our work. The goal of this program is to promote ownership and accountability by each worker and supervisor. Evidence of success will include accountability by workers and technical inquisitiveness at all levels. Striving for excellence involves all of us and we should not wait for someone else to find our problems.

Many believe that Conduct of Operations Requirements For DOE Facilities (DOE Order 5480.19) apply to only "Operations" personnel or organizations or to nuclear facilities. The principles and philosophy of this program apply to many facets of Waste Management. They apply to Maintenance, Engineering, Environmental Science, Radiation Protection, Laboratories, Remediation, Quality Control, and other support organizations. They apply to incinerators, compactors, landfills, waste storage and disposal, treatment facilities, hazardous and mixed waste, and essentially to all segments of our operations. The same formality and discipline are required for the process of hazardous waste leak detection sumps and waste remediation as for sampling of reactor coolants. The same degree of formality and discipline are required for operating a burial ground as there is in operating a process line or laboratory.

### OVERVIEW OF THE PERFORMANCE IMPROVEMENT PLAN

*Conduct of Operations*, which is one of the entities within the Westinghouse Savannah River Company's Performance Improvement Plan, is based on commercial nuclear power industry standards that were developed to improve operations in that industry. Implementation and compliance to the Conduct of Operations requirements are enhancing the Site's Mission: *To serve the national interest of the United States by safely producing nuclear materials while protecting the employee and public health, as well as the environment.* It also contributes to our Site's Vision: *To be the recognized model of excellence for the United States Department of Energy Nuclear Weapons Complex, valuing and involving the individual to continually improve operations, safety, health and environmental protection, quality, and customer satisfaction.*

Clear definition of the responsibility of line management for facility operations and the role of supporting organizations in assisting line management in carrying out these responsibilities has been developed and has been put into practice. Inherent in operations that are conducted in the manner defined by the commercial nuclear industry guidelines and practices is the concept that the facility manager is responsible for the operation of the facility and all activities that occur in it. Implementation of the Conduct of Operations requirements will ensure that processes and procedures are put in place that will enable the facility manager and staff to carry out these responsibilities.

### FORMALITY OF DAY-TO-DAY OPERATIONS

An aggressive rational graded approach efficiently channels management attention and adequate resources into those topics that mandate definitive Conduct of Operations protocol. Major activities including Operations ownership, log keeping, round sheets, tagouts (including Independent Verification) will be discussed to provide concrete examples of applicability and effective utilization of prior practices. These are based on nuclear navy and commercial nuclear guidelines.

As an example, techniques and criteria of Shift Turn-over and Control Area Activities are not currently wholly applicable to Solid Waste Management. Operating during normal daylight working hours, Monday through Friday, does not require status communications, control panel walk downs, and face-to-face discussion customarily accomplished at relief and assumption of duties. Operational exigencies due to weather or Site interactions are defined explicitly under existing re-call or unusual operating procedures elsewhere. Similarly, since there are no control panels or control areas but rather separate working areas involving singularly operated portable (air compressors, pumps, generators, etc.) equipment or mechanical handling (cranes, earth-moving, forklifts, etc.) equipment; the requirement to maintain control is limited to common industrial best practices.

### Operations Ownership

Ownership is oft-times considered as having control through a directing or restraining influence on activities occurring in or affecting the facility. Accordingly, the Operations organization (all personnel, operators, supervisory, and staff) are the owners of the facility. An individual operator

owns that equipment (i.e., Compactor Operator is accountable for the compactor) in assigned areas; an individual supervisor owns those systems (i.e., Hazardous Waste Supervisor is responsible for the pads, sumps, transfer pumps, lighting, etc.) in assigned areas; and similarly, a staff member owns assigned functions (i.e., document control, spare parts, technical input) which support Operations. This ownership means that each person must be possessively involved. For example, unauthorized people do not operate equipment, perform maintenance, revise documents or procedures, nor effect configuration changes because of the probability of malfunction, damage, or error. Other organizations in support of facility operations, have specifically assigned responsibilities and duties. For example, Engineering owns the technical determination of equipment, system, or facility parameters, as well as the accountability of communicating this to Operations. Maintenance owns those preventive, predictive, and corrective measures that ensure safe, functional equipment is available for Operations. Operations will from time to time release a component, system, or facility to other's appropriate action; however, there must be no doubt as to final accountability. The final acceptance of a tagout, post-maintenance test, or functional surveillance test is "owned" only by Operations.

As each organization contributes to the safe, orderly, and successful operation of the facility, their total becomes greater than the sum of the parts. This teamwork is quite singular in scope -- there is only one team operating and supporting the facility. Success of all organizations is necessary to operational success -- failure of one organization is likewise a sure precedent to potential operational disaster. Operations must be tasked with the overall responsibility of coordinating the conduct of operations.

### Logkeeping

The principle purpose of logs is to create a chronological history of operations. This has proven invaluable in investigation of events and for determining facility enhancements. A review of the facility log(s) gives an excellent "snapshot" of facility condition. Are entries timely, factually objective, concise, legible, neat, and accurate, or do they have incomplete detail, excessive write-overs, and inadequate management review? The baseline criterion for excellence of logs is such that the operating log stands alone in content, detail, and depth of information. Compare these two entries:

21:05 Late Entry During rounds observed low flow (approx. 195 gpm) waste slurry recircsystem on xxx facility. Secured pump aaa-bb; lined up pump aaabc per SOP #99. Placed system in service, flow normal (240 gpm), no leakage. Prepared work req #A-103 and tagout on pump -32; seal leaking, motor temp normal, amps stable. Rinsed area, notified Shift Suprv, hung deficiency tag on local control switch ddd-ee-ll, made entry in T/O block. 19:55 CR Operator

21:00 Swapped over to WSR pump -33. C R Operator

The differing level of detail is vitally important to an assessment of facility capability as well as effectively determining follow-up monitoring actions or plant performance appraisals. Again, the ownership subtlety is markedly obvious.

### Round Sheets

Round Sheets record key facility equipment parameters (flow, pressure, level, etc.) to provide equipment status. At Solid Waste, these consist of ground cover erosion, storage drum condition, sump levels, portable equipment fluid (fuel, oil coolant) levels, and general housekeeping serviceability. Since the operation of landfills and chemical waste storage pads entail environmental awareness, the performance of the operator rounds satisfies regulatory mandated observation tours or inspections and optimizes resources. For example, an operator round performed on a daily (or weekly) basis more than adequately meets a quarterly requirement. Additionally, this provides a built-in safety factor should operations exigencies (extended holiday periods, temporary shortage of qualified personnel, etc.) prevail. A concise brief log entry such as "... performed rounds at Haz Pad 13-69; results satisfactory. ..." provide back-up documentation as well.

Formal standardized round sheets provide maximum flexibility of personnel assignment; a qualified operator can easily perform similar rounds at an area or facility not normally staffed with only minor, physical orientation or familiarization. As fiscal resources tighten, multi-purpose adaptability (and utilization) of existing programs allow continued attainment of objectives with no loss of reliability or credibility. While performing rounds, for example, an operator could: 1) validate a proposed procedure revision, 2) walk down a tagout boundary, 3) perform a Post-maintenance test, 4) achieve periodic re-qualification, and 5) still accomplish the primary task at hand.

### Tagouts

Few evolutions entail such a combination of facility coordination efforts as a tagout (or lockout). Operations approves and authorizes (owns) the installation; engineering reviews (owns) the technical scope; maintenance accomplishes (owns) the physical work activities; HP, scheduling, and other support groups all provide (own) their particular expertise. The baseline objective is to establish a safe working boundary for the protection of personnel and adequate isolation of facility equipment or systems. The facility ownership concept takes on the role of trust, cooperation, and team impact.

Solid Waste again has a less involved scope of facility equipment requiring customary tagouts, yet the degree of review and protocol is identical to that of a processing, production facility. The element of injury from a 480 volt feed to area lighting is exactly the same as that of an essential cooling pump motor having extensive operational safety impacts. Isolating and draining flush water pumps requires the same sequence of steps as does an acid injection system. Operator component positioning, with subsequent Independent Verification, is still accomplished with the same level of attention - accepting the tagout as establishing a safe boundary requires the same personal commitment of ownership and responsibility.

What differs is the quantity of review, the extent of notifications, the complexity of technical safety documentation, in short, the administrative package. An objective, professional evaluation (graded-approach) by engineering determines the necessary degree of assurance required. Thus, there is an "independent verification" being performed in-process that furthers the attention of safety and configuration. As with round sheets, training all personnel to the process ensures maximum success and availability. An operator trained and

qualified to isolate and tagout electro-mechanical systems requires direction only as to the particular component(s) needed. For example, pump seal maintenance requires an operator to isolate the electrical circuits (control-power) first; then, the mechanical (piping-coupling) portion. The smallest drain pump is identical to the largest transfer pump; only the size and system change. Ownership, again, is reinforced and demonstrated through performance by all participants.

### LOOK AHEAD

After approximately six months of site-wide consistent implementation, many irrefutable facets remain. Conduct of Operations represents a "mind-set" as opposed to an aesthetically worded program or bag-of-tricks. The success or strengths are exponentially proportional to the practices, adoption, and support of each successively higher level of management. A working level operator, technician, or employee must be held to specified levels of performance, ownership, and accountability. Subsequent levels of supervision and management must conform to yet more stringent degrees of adherence and practice. In the previous log keeping entries, supervisory review of the logs would have prompted immediate corrective action. The degree of involvement varies; not excellence. In short, leadership is by example.

A site-wide Conduct of Operations philosophy has been communicated across the board through a multi-faceted approach. Utilization of subcontract Shift Advisors to coach personnel and smooth out implementation hard spots have made the transition between field operations and published directives more efficient. Emphasis on a quality loop of evolution (Total Quality, Performance Improvement Program, et al) has reinforced the interaction and independence of unit, facility, as well as department operations. This has promulgated a configuration-management based approach.

To monitor levels of achievement, effective review, and timely comments of management tours, assessments (both internal and external), and a department-wide "lessons learned" program must be routine duties. An operator compares round sheets for parameter trending, a supervisor reviews logs and completed procedures for compliance accuracy, facility management owns a more global review.

### Lessons Learned

In implementing an effective lessons learned program the historic attitude of privacy must be replaced with that of sharing. Each evolution requiring a critique represents an opportunity for improvement. Sharing of these, in turn, creates additional paths of inquiry. Conduct of Operations has as a basic tenet the circular concept of feedback questioning; tank transfer pump flow agrees with tank level changes; indication setpoint correspond to field parameters and are anticipated; when anomalies do occur the reason is the issue. This is Lessons Learned.

The tone of inquiry presents a single-failure criteria of success or immediate failure. A backdrop of rationalization, or culpability completely sidetracks the focus. To summarily assume that an event involving an instrument-related tank release has no facility relevance because "we have no tanks here" deflects such considerations as timely calibrations (preventative maintenance or M&TE), adequate procedural coverage, personnel training and qualifications, and facility design. Similarly, personnel errors do not require only punitive actions; ownership and accountability must provide positive reinforcement.

Comments from lessons learned "the hard way" will create and further a less stressful response atmosphere. With ever tightening budgetary and regulatory bounds, the practice of re-inventing the wheel is unprofessional. The review and evaluation phases determine applicability to a specific facility. Sharing of this data will assist other facilities in further refinement and necessary resolution. Tip of the iceberg or simply an ice cube represents a wide span.

### Self-Assessment

It cannot be refuted that awareness of facility shortcomings is preferable to total surprise. A hallmark of human nature is to be more severe introspectively. Self-assessment provides a modicum for identification, improvement, and resolution. Frank, objective self-assessment leads to increased ownership and performance based on personnel involvement. Consider a facility self-assessment finding the previous log keeping entries -- presenting and discussing both with facility operators and staff would doubtlessly require minimal imposed corrective actions. The self-awareness element (that's me?) would predicate the accountability role (my log) and the ownership role (that's mine!) provides resolution. Note the identity of the positions "operator", "technician", "engineer", "supervisor", or "manager". Discovery of these log entries at an external audit would be diametrically opposed in presentation and reception. Preventive and predictive maintenance is always preferred to corrective measures.

Use of pre-formatted assessment checklists will ensure that successive results will be repeatable and comparative. The cliché of apples and oranges cannot be emphasized too strongly. An evaluation of "Adequate" for a criteria of "Complies with applicable requirements" is an order of magnitude different from a prepared listing of criteria having specific levels of attainment with corresponding numerical ratings. The former is dependent to a great deal on the depth of expertise of the assessor and the subjectivity of what exactly is adequate. In the latter, a criterion for the review of the preceding month's logs with a numerical rating corresponding to the number (or percentage) of technique errors is fairly cut and dry. This may be then evaluated for appropriate action. The use of the Shift Advisors Checklist characterizes this objective approach by limiting the subjectivity. The uses of such standards provide management an excellent training opportunity for junior or entry-level personnel. Similar to round sheets, the facility has received multiple returns for a singular input.

Self-assessment is applied not only to existing operations but to future extensions. A prerequisite to the start-up of new facilities is a Readiness Self-Assessment (RSA). This is followed by an internal oversight appraisal before client approval. The degree of diligence and depth of detail pursued in the self-assessment checklist definitively determines the subjective limit of credibility, accountability, commitment, and level of professionalism; in short, Conduct of Operations. This results in working **toward** the goal, instead of **around** it. The quantity of findings from an RSA is not the critical mass; rather the quality of the activity.

### Management Tours

Formal, scheduled management tours permit the two-way visibility of overall program functioning. This includes the usual review of programmatic adequacy and compliance with established goals and requirements. In general, management tours are effected through senior managers in a similar fashion

as self-assessments are performed by working level and cognizant managers. The level of inquiry is directed to areas compatible and commensurate with the overall management of the Solid Waste Management Department. In like fashion, senior site managers are assigned to site-wide tours.

A formal schedule of tours by named individual, topic of concern, date, and unique tracking number definitively communicates the emphasis and importance of this program. Assigned managers are tasked, in writing, with conducting an extremely structured tour including back shift coverage, facility history, a prepared checklist including familiarity with requirements (i.e., DOE orders, operating procedures, references, etc.), and a formal entrance, exit, and report protocol.

The visibility of senior managers to all personnel is positive reinforcement of "top down" involvement and commitment. Open discussions during the tours give both parties an opportunity to ensure key attributes of Conduct of Operations, Maintenance, Training, and Technical are being implemented, communicated, and continually improved. One of the responsibilities of management is monitoring personnel performance and potential. Direct Task-related measurements are objective, quantitative, and more easily repeated than do more subjective case-study or "what do you do if . . ." type scenarios. Covert qualities such as morale, awareness, and commitment are easily disclosed in relation to an overt review of day-to-day duties. The back shift and same shift at differing times tour requirement provides a more total facility status than the traditional "next Tuesday at 0900" tour. The log keeping example as discussed in Self-Assessment is equally applicable at the level considered here; comments and communication are major determinants in organizational success.

#### **Resources Required**

The adage of "no free lunch" becomes as viable a requirement in the implementation of the Conduct of Operations program as does spare parts or tools to maintenance. While material resources are programmatically minimal, the determination and allocation of budget, personnel, and time become the linchpin. Initially, a Conduct of Operations billet must be established to centralize, review, coordinate, and distribute publications, manuals, and training matter. As this advances, this function is reduced in singularity and assumed within each respective (operations, maintenance, engineering, HP, etc.) organization. The ultimate measure of success is the speed this position works itself out of existence. Self-assessment and management tour programs provide all levels of

management with an objective yardstick to accurately measure actual position.

During the "ramp up" stage of implementation, sub-contract Shift Advisors with prior naval nuclear-commercial nuclear power plant experience were used to coach and mentor personnel at all facility levels. This has provided, in many instances, the spirit and intent interpretation or translation between the printed word and the desired final action. For example, combining multiple round sheets into one to reduce the number of records, ticklers, and varying frequency reflects also a "lessons learned" input the Shift Advisors have already experienced. The example log entry ". . . performed rounds at Haz Pad 13-69; results satisfactory . . ." reflects comments learned "the hard way". As the implementation progresses, attention is focused toward more global departmental integration -- in some instances repeating the cycle.

Considering the assignment of personnel and fiscal budgeting as administrative details attention is focused on the singular resource required: commitment to excellence. This is not a simplistic concept or philosophy but the very core of the program. Even with limited support personnel available, the spirit of conducting operations correctly will still be evident. Even with limited budgets, a positive approach and philosophy will ensure optimal performance.

#### **CONCLUSION**

First glance of "Conduct of Operations" leads to initially assuming this applies to only Operations personnel or organizations or even nuclear facilities. Conduct of Operations is a philosophy applicable to all facets of all businesses. Definitive programs, accountability, and exacting responsibilities are identical for the neighborhood grocery or the most complex industrial facility. Preparing for an extended vacation involves the same Conduct of Operation phases as does scheduled facility refueling and maintenance outages. In short, we are individually and collectively, Conduct of Operations.

To truly master effective implementation of Conduct of Operations there must be a fundamental benchmark of reference. Slogans such as "train for excellence", "expect what you inspect", "proper prior planning prevents . . .", "right job-right way-right tools" allude to the result. This achievement is asymptotic -- not fully met; but continually approaching. Excellence is not measured by the point of attainment regardless of magnitude; it is measured by the amount that yet to be accomplished.