THE MARRIAGE OF RCRA AND CERCLA AT THE ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

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I. SUMMARY

A key goal of the Rocky Flats Cleanup Agreement (RFCA) signed in July of 1996 was to provide a seamless marriage of the Resource Conservation and Recovery Act (RCRA) (and other media specific programs) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the implementing agencies of each.

This paper examines the two years since the signing of RFCA and identifies the successes, failures, and stresses of the marriage. RFCA has provided an excellent vehicle for regulatory and substantive progress at the Department of Energy's Rocky Flats facility. The key for a fully successful marriage is to build on the accomplishments to date and to continually improve the internal and external systems and relationships. To date, the parties can be proud of both the substantial accomplishment of substantive environmental work and the regulatory systems that have enabled the work.

II. BACKGROUND

In March 1951, the Atomic Energy Commission selected an area 15 miles northwest of downtown Denver, Colorado, as the site for a nuclear weapons production facility. Nuclear weapons production began in April 1952, and Rocky Flats became part of the national nuclear weapons production mission complex. From 1952 to 1989, the primary mission of Rocky Flats was the production of nuclear and non-nuclear components for the nation's nuclear weapons arsenal. In 1989, nuclear production work at Rocky Flats was abruptly halted to address environmental and safety concerns. While this suspension of operations was initially thought to be temporary, the cancellation of the W-88 Trident Warhead Program in 1992 brought a halt to Rocky Flats' nuclear production. The following year, the Secretary of Energy announced that Rocky Flats would no longer have a nuclear weapons production mission.

Nearly 40 years of nuclear weapons production at Rocky Flats has left facilities, ground water, soil, and surface waters at Rocky Flats contaminated with chemical and radioactive substances that now pose potential health and safety risks to the public and workers. Rocky Flats was placed on the CERCLA National Priorities List (NPL) in 1989. While the impacted area constitutes approximately 5% (or about 300 acres) of the 6,250 total acres at the site, the urgency is great because of the proximity and geographic relationship to the Denver metro area.

Current Mission at Rocky Flats

Today, the mission of Rocky Flats is: "Manage waste and materials, clean up and convert the Rocky Flats Site to future beneficial use in a manner that is safe, environmentally and socially responsible, and physically secure." Key mission activities include risk reduction through Special Nuclear Material (SNM) stabilization and consolidation; waste management; environmental remediation; and facility deactivation, decontamination, and decommissioning. As with the past production mission, safety remains the top priority. It is the goal of Kaiser-Hill Company, L.L.C. (K-H), the

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integrating management contractor for Rocky Flats, to safely and cost effectively clean up and close Rocky Flats.

Why Rocky Flats Needed RFCA

RFCA is an agreement between the Department of Energy (DOE), the Environmental Protection Agency (EPA), and the Colorado Department of Public Health and Environment (CDPHE) that coordinates the implementation of the environmental laws and regulations on the Site. By combining these requirements into a single agreement, costs are minimized and work is streamlined and prioritized.

From a legal perspective, RFCA is required because CERCLA requires federal facilities which are Superfund sites (included on the NPL) to enter into a Federal Facilities Interagency Agreement with the EPA. Corrective Action Orders are required by RCRA and the Colorado Hazardous Waste Act for cleaning up hazardous wastes released to the environment. RFCA then, combines the CERCLA and RCRA corrective action requirements and defines the regulatory path forward for performing the environmental remediation and decommissioning activities at the Rocky Flats Site. It creates the opportunity and mandate for regulatory streamlining and coordination of environmental laws.

From a process and political perspective, the downward pressure on funding and the public pressure to eliminate the risks require the Site to make progress and do the "right" work first. RFCA creates a framework for decisions to be made rapidly, assigns funding to the highest Site priorities, and places all Site activities in an Integrated Site-Wide Baseline (now called the Closure Project Baseline).

Finally, from a practical perspective, the then existing agreement between DOE, EPA and CDPHE, the 1991 Interagency Agreement (which RFCA replaced) had proven difficult, if not impossible to implement. To some extent, these difficulties were due to an inability to efficiently coordinate CERCLA and RFCA authorities. Also, the Site mission had changed from production to clean up and closure, and a new agreement to reflect that change was necessary.

The RFCA does not modify or control all regulatory drivers; it coordinates them. RCRA Corrective Actions and CERCLA remediation are controlled by RFCA while drivers for other regulated activities such as RCRA permitting, National Pollutant Discharge Elimination System (NPDES), Clean Air Act (CAA), worker safety, previously existing orders (Site Treatment Plan), and National Environmental Policy Act (NEPA) remain independent but coordinated activities. Many of these drivers have specific requirements as to the "right" thing to do. The RFCA parties have agreed to align the requirements of the independent authorities with the resource and planning constraints under RFCA's milestone and budget planning provisions.

III. RCRA OPPORTUNITIES: SUCCESSES, STRESSES AND FAILURES

Successes

Tremendous progress has occurred in the last two years in aligning the RCRA operating program with the closure of the site under RFCA. Many instances exist which demonstrate the willingness by all parties to make the RFCA model work. As problems arise, specific solutions have been worked out in most cases. Of particular note are the following major regulatory actions.

A new RCRA permit was issued which reduced the number of permitted RCRA units from 72 to 34, while adding several new treatment processes and tank systems to facilitate preparation of legacy waste for final disposal. The new permit also simplifies the regulatory environment by embracing a "necessary and sufficient" concept; extraneous and/or redundant requirements were eliminated from the Waste Analysis Plan, the Contingency Plan, the Procedures to Prevent Hazards section, and the Personnel Training Requirements section. The permit was also designed to allow for maximum flexibility in the management of wastes from unit to unit to facilitate movement of waste to accommodate D&D operations. The Closure Plan was revised to align with the concepts established in RFCA. The new Closure Plan contains several potential methodologies that may be employed for closure of RCRA units. It establishes reasonable and achievable closure performance standards, including a removal standard whereby components

are removed and managed as hazardous debris. The new Closure Plan also allows for a phased closure approach consistent with the "RCRA Stable" concept described below. A second closure plan was developed and issued which covers all remaining interim status or non-permitted hazardous waste management units at the Site. This second closure plan incorporates all of the same options, methodologies and standards found in the permit Closure Plan.

The concept of "RCRA Stable" was developed in RFCA to enable the Site to defer final closure of a RCRA unit in a building that would be decommissioned and demolished as part of the Site closure. The concept, as developed, requires all wastes be removed from the unit using normal means; emptying equipment to the maximum extent possible (i.e., less than 1% holdup); and putting in place methods to prevent wastes from entering the system in the future. The benefit of achieving RCRA Stable is that it reduces inspection frequency and defers remaining RCRA closure activities to D&D. Potential contamination of soil and ground water associated with the unit is evaluated later as part of the remedial investigation of area under and around the building. Any necessary soil and ground water remediation will be conducted under RFCA.

Several consent orders have been signed to ensure compliance (i.e., RCRA idle equipment, closure of tanks, and management of waste chemicals) as Rocky Flats transitions to closure. These support the change in Site mission and the implementation of major decisions regarding current and future use of the Site facilities. As a result, massive changes in regulatory status were identified that could not be addressed immediately or simultaneously (e.g., the contents of an entire laboratory becoming waste in one day). The consent orders and the philosophy of a risk-based approach within RFCA provided a means for the Site to manage these changes in regulatory status in a manner that uses limited funds in an efficient and effective manner while protecting human health and the environment.

Two Corrective Action Management Units (CAMU) were designated in order to facilitate the handling of clean-up wastes. One of the units allows containerized waste to be placed in a building allowing for storage, staging, and shipping to occur without impeding remedial actions. The other CAMU allows bulk storage in a concrete lined storage cell. These cells (up to four) can be used for up to 15 years while DOE and its contractor determine how to get the waste off site, or they could be converted to disposal cells through a public permitting process at that time.

Other project specific RCRA/CERCLA resolution examples include:

1. Clarifier Tank-rinsate standard. Classic RCRA would require clean closure of the Clarifier Tank prior to disposal. In this case, however, CDPHE and the Site have agreed to a decontamination standard equal to the RFCA Action Levels Framework (ALF) Tier I levels, i.e., 100 times the drinking water standards, for the rinsate, so long as the tank, as waste, meets the disposal site's waste acceptance criteria (WAC) and Land Disposal Restrictions (LDRs).

2. Partial closure of RCRA unit associated with Building 123. The above ground unit was closed without attaining clean closure for the whole unit with the recognition that the potential under building contamination would be managed appropriately as part of the environmental remediation program.

3. Simplifying the RCRA closure process (i.e., "one stop shopping"). The RCRA closure process has been streamlined and simplified greatly by allowing the combination of the RCRA closure description documents with the CERCLA decision document.

4. Hazardous waste exit levels. The Site and CDPHE have worked together to establish RCRA exit levels for wastes from Trench T-1 (possibility of applying this concept to soil on site).

5. OU consolidation. Under RFCA, the number of Operable Units was reduced from 16 to 2.

6. Ground water monitoring. The parties worked together to eliminate unnecessary and costly ground water monitoring.

7. Action levels for soils. The parties agreed on action levels for soils related to underground storage tanks and other areas of contamination, thereby

allowing substantial clean up activities to proceed on known assumptions to achieve quick risk reduction.

Stresses

As expected, this marriage is not without stress. Individuals on-Site and some of the regulators who have always been "RCRA" thinkers have in some cases found it difficult to think of the Site more broadly under RFCA.

A major issue in the deactivation and decommissioning (D&D) program is the jurisdictional category of the waste produced. While buildings are operating and going through deactivation, the wastes produced will be primarily process waste subject to RCRA. RFCA recognized the need for wastes produced during decommissioning to be remediation waste under CERCLA which allows more flexible and streamlined treatment, storage and disposal while meeting the substantive environmental requirements. The issue is the transition from process waste to remediation waste. The practical problem exists because buildings do not suddenly stop all deactivation activities and transition to decommissioning. In fact, these two activities are planned to occur simultaneously in buildings as they go through closure. This leads to the very real regulatory problem of managing two regulatory types of waste (RCRA and CERCLA or process and remediation) in the same building even though the wastes themselves are not substantially different in character and the ultimate disposition is the same.

Another element of the RCRA/CERCLA relationship is the transition of RCRA to CERCLA in a facility's evolution toward demolition. The nature of the Rocky Flats Closure Project requires K-H to reduce baseline costs as rapidly as possible to apply resources to mission work. One way to do this is to place buildings in a shutdown mode where ongoing maintenance, inspections, and support is eliminated or minimized until decommissioning and demolition can occur. From a RCRA perspective, this puts the building and its RCRA units in a holding pattern not contemplated under the law or regulations. The parties are working together to find ways (using the RCRA Stable concept) to accomplish this reallocation of resources while ensuring adequate protection of workers, public health and the environment.

At some point in the future prior to final closure of Rocky Flats, the Site will transition out of RCRA altogether and all activities on Site will be conducted under CERCLA with RCRA only as an Applicable or Relevant and Appropriate Requirement (ARAR). The RCRA operating permit will be eliminated and the only requirement will be to meet the requirements of RCRA corrective action and CERCLA. From the Site's perspective, the sooner that can occur, the more efficiently the Site can be closed. Even with the best efforts and creativity of CDPHE, RCRA operating permits and regulations are really not designed to address the cost effective and efficient remediation of a complicated Site with the sole mission of closure.

Failures

In isolated instances, failures have occurred. The Site has been forced to spend substantial resources on achieving RCRA compliance where little or no worker safety or public or environmental risk exists. An example of this is the substantial expense involved in the accelerated removal of waste chemicals and draining of idle equipment throughout the Site with little regard to the relative risks posed.

Some Site employees and, to a lesser extent, regulators continue to see their jobs in a very narrow way leading to a lack of integration of activities and efforts across the Site as RFCA requires. Job security and comfort, jurisdictional turf, and resistance to change all contribute to behavior that fails to look at the opportunity for environmental successes that are associated with new and creative ways to clean up and close Rocky Flats in the next 10 years. This is not only an issue with RCRA/CERCLA, but includes other environmental programs and the integration with the nuclear culture.

In 1992, the Site and CDPHE entered into an order on consent concerning mixed residues. This order came after a long battle as to whether the residues were subject to RCRA regulation. After a court ruling, the DOE and CDPHE agreed to place the residues under a consent order that called for the permitting of storage, treatment and ultimate

disposal of the wastes. At the time of the order negotiations, the Site had no closure strategy and the CDPHE had every reason to believe that the only way timely progress would be made on the residues would be through a rigorous enforcement mechanism. Now, with the only mission of the Site being clean up and closure, the priority and risks posed by the residues compared to other site materials and activities is substantially different. Additionally, the only significant risk posed by the residues is from the radioactive component, which is not subject to RCRA jurisdiction. The parties do not wholly share this perception of change and therefore have not been able to resolve the stress between nuclear safety risks and hazardous waste requirements. While negotiations are underway which may solve this difficulty, the implementation of this order has been one of the major areas of friction in the RCRA/CERCLA relationship at Rocky Flats.

Conclusion

A primary goal of RFCA was the union of RCRA and CERCLA in a manner that would facilitate the clean up and closure of Rocky Flats. Through the excellent hard work and good intentions of the parties, much has been achieved in this marriage. Regulatory barriers have been eliminated, significant clean up has occurred, resources have been redirected to higher priority activities, and many examples exist of coordination between the environmental mandates. Continuing efforts will be required as we move toward the major activity of decommissioning and demolishing the facilities. RFCA provides the framework in which all parties and interests can succeed.