U.S. Department of Energy
Grand Junction Office
2597 B¾ Road
Grand Junction, CO 81503

JUN 1 2000

Mr. Thomas H. Essig, Chief
U.S. Nuclear Regulatory Commission
Uranium Recovery Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
Mailstop T7J8
Washington, D.C. 20555-0001

Subject: Request to Dispose Polychlorinated Biphenyl (PCB)/Radioactive Waste at Cheney Disposal Cell

Dear Mr. Essig:

This letter is to request the concurrence of the Nuclear Regulatory Commission (NRC) in the Department of Energy's (DOE's) planned disposal of 29 cubic yards of PCB/radioactive bulk product waste and PCB/radioactive remediation waste at the Grand Junction (a.k.a., Cheney) UMTRCA Title I Disposal Cell. The wastes were generated during remediation of the DOE-Grand Junction Office facility and UMTRA vicinity properties in the Grand Junction area.

Approval for this disposal action was obtained from the Environmental Protection Agency (EPA) in accordance with recent rules allowing risk-based disposal of PCB waste materials. Prior to the recent rulemaking allowing such disposal, DOE, the city of Grand Junction, and the owner of Grand Junction Steel managed these wastes in-place or in temporary storage facilities because a reasonable disposal option was not available. A copy of the disposal application and EPA approval is enclosed. Additionally, previous correspondence from the State of Colorado (Deckler to Kercher, dated March 3, 1998) which was copied to the NRC, and NRC's response (dated May 12, 1998) are enclosed. The information requested by the NRC is included in the EPA application.

Please call John Elmer, Remedial Action Manager for MACTEC-ERS, at (970) 248-6356 with any questions about this request. The DOE would appreciate your prompt action for concurrence in this matter so that DOE can dispose of the PCB wastes during the next scheduled opening of the cell in October 2000.

Sincerely,

Donna Bergman-Tabbert

Donna Bergman-Tabbert
Manager

Enclosures

WM-54

NMSS08

cc w/enclosures:
J. Deckler, CDPHE/Denver
W. Harpole, Grand Junction Steel
J. Shaver, City of Grand Junction
B. Young, DOE-GJO

cc w/o enclosures:
J. Elmer, MACTEC-ERS
C. Jacobson, MACTEC-ERS

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Douglas AD
Arnold U.A
Fluence

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 500
DENVER, CO 80202-2466

Ref: 8P-P3T

MAY 5 2000

Donna Bergman - Tabbert, Manager
U.S. Department of Energy
Grand Junction Office
Grand Junction, CO 81503

Re: Approval for Risk-Based Disposal of PCB/Radioactive Waste

Dear Mrs. Bergman - Tabbert:

This is in response to your letter, dated March 23, 2000, requesting an approval for risk-based disposal of approximately 29 cubic yards of PCB/radioactive remediation and PCB/radioactive bulk product waste from the Grand Junction Steel, the former Public Service Company of Colorado, and the Lewco Steel properties at the Grand Junction (Cheney) disposal cell. The Agency has reviewed the submittal and agrees that disposal of the waste at the cell may not present an unreasonable risk of injury to health or to the environment from PCBs. Therefore, the Agency approves the request for disposal of the waste as described in the application.

According to the application, the disposal site complies with EPA design requirements specified in 40 CFR 192. The aforementioned waste will be disposed in a designated area. The waste will be buried within a geomembrane fabric to segregate it from other impounded waste, and will be covered with a two-foot compacted clay liner. We understand that the Department of Energy will maintain disposal records as required and monitor ground water semi-annually for PCBs. The Department shall notify EPA in writing, within thirty (30) calendar days, of any detection of PCBs in the monitoring well system.

We request that a certification be submitted to the Agency within thirty (30) calendar days after the waste is disposed. Please contact Francis Tran of my staff at 303 312-6036 if you have any further questions regarding this letter.

Sincerely,

Judith Wong

Judith Wong, Director
Pollution Prevention, Pesticides and Toxics Program

LGRU 7.3

U.S. Department of Energy
Grand Junction Office
2597 B¾ Road
Grand Junction, CO 81503

MAR 2 3 2000

Director of Pollution Prevention, Pesticides, and Toxics Program
U.S. Environmental Protection Agency
999 18th Street, Suite 500
Denver, CO 80202
Attn.: Judy Wong

Subject: Request for Approval of Risk-Based Disposal of PCB/Radioactive Waste

Dear Ms. Wong:

As described in the enclosed application, the U.S. Department of Energy (DOE) requests approval from the U.S. Environmental Protection Agency for risk-based disposal of approximately 29 cubic yards of PCB/radioactive remediation waste and PCB/radioactive bulk product waste. The wastes were generated during remedial action conducted under the Uranium Mill Tailings Remedial Action Program and the DOE-sponsored remediation of the DOE Grand Junction, Colorado, office facility. The wastes have been managed in storage, some since as early as 1994 because, owing to dual regulation, disposal has not been possible for these commingled materials.

The DOE proposes to dispose of these wastes in the Grand Junction (a.k.a., Cheney) Disposal Cell. This facility complies with EPA design requirements specified in 40 CFR 192. The DOE will provide stewardship services in perpetuity under a license to be issued by the U.S. Nuclear Regulatory Commission under 10 CFR 40.27.

The enclosed application demonstrates compliance with EPA regulations governing risk-based disposal. The following documentation is enclosed as appendices to the application:

- Fact sheet describing the Grand Junction disposal cell and aerial photograph of the site;
- Characterization and waste stream information for the wastes proposed for disposal;
- The *Long-Term Surveillance Plan* for the disposal site;
- Engineering calculations and design for remediation of the paleochannel adjacent to the cell;
- Engineering calculations to predict infiltration and saturation within the disposal cell;
- Engineering calculations summarizing disposal cell materials properties;
- Disposal cell map and cross section showing the disposal location for the PCB/radioactive wastes;
- Report of an investigation into rising water levels and analyte concentrations in the paleochannels, with NRC concurrence with the conclusion that the observations do not indicate that leachate is escaping the disposal cell; and
- Copies of letters from the Colorado Department of Public Health and Environment and the Mesa County Commissioners supporting disposal of these wastes at the Grand Junction Disposal Site.

RECORD

Currently, the Grand Junction disposal site is scheduled to open once per year for a one-month period. The next opening will be in September 2000. Anything you can do to expedite consideration of this application will be appreciated so that we may dispose of the wastes this year.

If you have any questions, please contact Russel Edge at (970) 248-6037 or Bennett Young at (970) 248-6036.

Sincerely,

Donna Bergman-Tabbert

Donna Bergman-Tabbert
Manager

Enclosure

cc w/enclosure:
LGRJ 7.3 (thru Helen Salter, MACTEC-ERS)

cc w/o enclosure:
H. Deckler, Colorado Department of Public Health and Environment, Denver
J. Hams, Colorado Department of Public Health and Environment/Grand Junction
W. Harpole, Grand Junction Steel
J. Shaver , City of Grand Junction
J. Elmer, MACTEC-ERS
M. Widdop, MACTEC-ERS

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bcc w/o enclosure:
R. Edge
R. Plieness
M. Tucker
C. Wayman

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Application for Risk-Based Disposal of PCB/Radioactive Waste

Introduction

The U.S. Department of Energy (DOE) requests approval from the U.S. Environmental Protection Agency (EPA) for risk-based disposal of approximately 29 cubic yards of PCB/radioactive remediation waste and PCB/radioactive bulk product waste. The wastes were generated during remedial action conducted under the Uranium Mill Tailings Remedial Action (UMTRA) Program and the DOE-sponsored remediation of the DOE Grand Junction, Colorado, Office (GJO) facility. The wastes have been managed in storage since as early as 1994 because disposal has not been possible for these dual regulated materials.

DOE proposes to dispose of these wastes at the Grand Junction (a.k.a. Cheney) Disposal Cell. This facility complies with EPA design requirements specified in 40 CFR 192. The U.S. Nuclear Regulatory Commission (NRC) and the Colorado Department of Public Health and Environment have concurred that the DOE remedial action plan complies with EPA standards. DOE will provide stewardship services in perpetuity under a license to be issued by NRC at 10 CFR 40.27.

This application for approval of risk-based disposal, as provided for under 40 CFR 761.61(c) and 761.62(c), will demonstrate that this disposal action complies with EPA requirements and that approval of this action will not result in unreasonable risk of injury to health or the environment.

Background

DOE remediated over 4,000 properties in the Grand Junction area under the UMTRA Program between 1986 and 1998. These activities were conducted to mitigate the health effects of uranium mill tailings. Concurrently, DOE remediated uranium mill tailings from the GJO facility. The tailings and residual radioactive material from these programs were codisposed in the Grand Junction Disposal Cell (Appendix A).

During the course of UMTRA remediation, residual radioactive materials were encountered on the Grand Junction Steel, the former Public Service Company of Colorado, and the Lewco Steel properties that were contaminated also with PCBs. These "commingled" materials could not be disposed of because neither commercial nor government-owned landfills were permitted to accept both radioactive and PCB-contaminated materials. Incineration options were unavailable or not economically feasible. Consequently, because DOE was not responsible for the nonradiological component of these wastes, the department could not remediate these commingled materials. However, hazardous waste screening analyses conducted at these properties resulted in generation of investigation-derived waste (IDW) and excess soil sample material that requires disposal.

The owners of Grand Junction Steel conducted remediation of PCB/radioactive waste (Appendix B) at their expense to facilitate certification that their facility complied with the UMTRA cleanup standards prescribed in 40 CFR 192. The regulated PCB commingled material has been stored in steel bins since its removal in 1997.

EPA determined that the PCB/radioactive material from the Lewco Steel property was not regulated under TSCA and the material was disposed of in the Grand Junction Disposal Cell. However, "hotspot" samples were collected for hazardous waste screening, and are now the responsibility of and stored by DOE.

The PCB commingled waste at the former Public Service Company of Colorado (Public Service) property, now owned by the city of Grand Junction, remains in place as discovered. The waste deposit was exempted from remediation by the UMTRA Program because of low risk and lack of an economically feasible disposal option, as described in the NRC-approved application for supplemental radiological standards (Appendix C). Although this waste is of small quantity and low PCB concentration, it is included in this application for disposal in the Grand Junction Disposal Cell because its continued presence on a city-owned property impedes unrestricted redevelopment of the property and imposes perpetual control requirements on a public entity.

Other PCB/radioactive waste (small electrical equipment and fluorescent light ballasts) has accumulated on the GJO facility since 1994 as a result of facility remediation.

Some PCB/radioactive waste has been approved for disposal at the Grand Junction Disposal Cell. During remediation of the GJO facility, approximately one cubic yard of uranium mill tailings were found to be

contaminated with PCBs. This material was inadvertently diluted to approximately 61 cubic yards of PCB/radioactive waste with an average PCB concentration of < 1 ppm. EPA approved disposal of this PCB/radioactive waste at the Grand Junction Disposal Cell. Subsequently, EPA determined that the waste was not regulated. The waste was removed from the GJO facility and disposed in the Grand Junction Disposal Cell in August 1998.

Notification and Certification

This section addressed notification and certification requirements set forth in 40 CFR 761.61(a)(3)(A). This information is required for an application for approval of risk-based disposal of PCB remediation waste at 761.61(c).

Nature of the Contamination, including Kinds of Materials Contaminated

The contaminated materials consist of PCB/radioactive remediation waste and PCB/radioactive bulk product waste from multiple waste streams. The radioactive component of the wastes can be accepted for disposal in the Grand Junction UMTRCA Title I Disposal Cell as either UMTRA residual radioactive material or GJO facility radioactive waste material. No free liquids are present in the waste. The PCB/radioactive remediation wastes consist of contaminated soil and gravel and investigation-derived waste (IDW). The PCB/radioactive bulk product waste consists of small electrical equipment and fluorescent light ballasts. The following table describes the individual waste streams. Additional information describing the source of these waste streams is presented in Appendix D.

Waste Stream	Waste Description	Quantity	PCB Concentration	Status
Grand Junction Steel (GJS)	PCB-contaminated soil	8 cubic yards	22 ppm (> 50 ppm as found)	In steel bins at GJS site
	Excess soil samples[a]	22.24 kg	51 to 1600 ppm	Managed at GJO facility
	Broken sample containers in 5-gallon pail	1.83 kg	Contacted 410 ppm waste	Managed at GJO facility
	Cardboard, wipes, and PPE in plastic rad. bag	1.25 kg	Contacted 410 ppm waste	Managed at GJO facility
	IDW: PPE, containers, loose soil, disposable samplers, plastic, etc.	1 55-gallon drum	51 to 93 ppm	Managed at GJO facility
Lewco Steel	Excess soil samples	1.12 kg	579 to 1273 ppm	Managed at GJO facility
Public Service (PS)	PCB-contaminated soil[b]	16 cubic yards (estimated)	Non-detectable to 680 ppm	In place at PS site
	Excess soil samples[b]	1.44 kg	150 to 290 ppm	Managed at GJO facility
	Excess soil samples	1.73 kg	150 to 290 ppm	Managed at GJO facility
	IDW: PPE, containers, loose soil, disposable samplers, plastic, etc.	1 55-gallon drum	> 50 ppm	Managed at PSC site
DOE Grand Junction Office	PCB light ballasts and rusted parts in one 5-gallon bucket	12.80 kg	> 50 ppm	Managed at GJO facility
	PCB light ballasts (some leaking) and fixture parts in one 55-gallon drum	58.00 kg	> 50 ppm	Managed at GJO facility
	One empty 55-gallon drum historically used to contain GJS soil samples	23.02 kg	> 50 ppm	Managed at GJO facility
	One rusted empty 55-gallon drum contaminated with radioactivity and PCBs	22.68 kg	> 50 ppm	Managed at GJO facility

[a]Material will be treated to stabilize toxicity-characteristic lead before disposal.
[b]Material will be treated to remove RCRA-listed volatile organic compounds before disposal.

Sampling Procedures and Results

The PCB/radioactive waste materials were characterized in accordance with approved plans and procedures, which are archived in project records at the GJO facility. These records will be preserved in perpetuity as part of the long-term stewardship collection.

Location of Contaminated Area

The wastes managed at the GJO facility are located in a waste management facility. The Grand Junction Steel waste is contained in steel bins on site at its facility. Waste at the Public Service property remains in place, as described in the application for supplemental standards (Appendix C)

Cleanup Plan

PCB/radioactive soils will be excavated from the Public Service property in accordance with a plan to be developed by the city of Grand Junction and approved by the Colorado Department of Public Health and Environment. Because NRC has approved leaving the PCB/radioactive material in place through application of supplemental standards to the radiological component and the spill predates enactment of TSCA, the city may choose to leave the contaminated soil in place. Approval of this application for risk-based disposal will provide the city with the option to dispose of the material at the Grand Junction Disposal Cell.

Certification of Records Availability

DOE maintains all pertinent sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures at the DOE-GJO facility. These records are available for EPA inspection.

Disposal Plan

DOE will handle waste materials shipped from the GJO facility in accordance with existing procedures that result in compliance with applicable U.S. Department of Transportation, EPA, and DOE regulations, guidance, and policy. The city of Grand Junction and Grand Junction Steel will also follow all applicable waste handling procedures for loading and transporting these materials to the Grand Junction Disposal Site. DOE will not oversee their cleanup. Disposal will take place during September or October 2000, when the disposal cell is opened to receive waste, if this request is approved.

Equipment will be wipe-tested for PCB contamination and decontaminated, as necessary, before release from the Grand Junction Disposal Site.

Environmental Protectiveness

The following information is offered in accordance with the preamble to 761.62(c) found at Federal Register Volume 63 Number 124, page 35411.

Disposal of PCB/radioactive waste in the Grand Junction Disposal Cell will not result in unreasonable risk of injury to health or the environment. The Grand Junction Disposal Cell was designed to comply with the requirements of 40 CFR 192. These requirements specify that the cell will effectively isolate the contained wastes from the environment for "up to 1,000 years, to the extent reasonably achievable, and in any case for at least 200 years." Isolation is achieved by selecting an appropriate site, designing the cell to isolate the contaminants from the environment, and providing long-term stewardship to maintain the effectiveness of the impoundment and necessary institutional controls. NRC license provisions stipulate perpetual stewardship.

Hydrogeological Setting—The cell is situated on a broad outslope pediment west of the Grand Mesa. Surface alluvium overlies more than 700 feet of Mancos Shale, below which is the Dakota Sandstone. Groundwater has been identified in the alluvium, the Mancos Shale, and the Dakota Sandstone.

Groundwater in the alluvium occurs in thin, laterally- and vertically-discontinuous paleochannels. These consist of stream channels incised into the ancestral Mancos surface and subsequently filled with low-permeability granular material. Groundwater in the Mancos Shale occurs in discrete fracture zones between 50 and 500 feet beneath the cell. The remainder of the Mancos Shale is unsaturated. The uppermost aquifer is in the Dakota Sandstone.

Groundwater in the alluvium does not occur in sufficient quantity to qualify as a drinking water source. The saturated zones in the Mancos Shale produce less than 150 gallons per day of brackish water that is high in selenium. Groundwater in the Dakota Sandstone aquifer is not a current or potential source of drinking or livestock water because concentrations of total dissolved solids exceed water quality standards. (The groundwater in the Dakota Sandstone is classified as limited use Class III water in accordance with 40 CFR 192.11(e)).

There is no apparent hydraulic connection between these three saturated zones as evidenced by radioisotope age dating and compositional differences (Appendix E, pg. 2-9). Unsaturated Mancos Shale mudstones and shales form an effective aquitard that separates the waste materials in the cell from the uppermost aquifer in the Dakota Sandstone.

The cell footprint was adjusted prior to construction when trench explorations delineated a paleochannel within the proposed cell footprint.

The Grand Junction Disposal Cell is located in a semiarid climate. The average annual precipitation measured at the Grand Junction airport is approximately 8.5 inches.

Cell Design and Performance—The cell cover is designed to promote precipitation runoff and to minimize infiltration. Contaminated materials will be covered with a 2-feet-thick soil radon barrier compacted to a design saturated hydraulic conductivity (k_{sat}) of 2 x 10E-7 cm/sec (Appendix H). This layer is covered by a 2-feet-thick compacted soil frost protection layer, a 0.5-feet-thick granular bedding/drainage layer, and a 1-foot-thick rock erosion-protection layer. Cover surfaces are sloped to direct precipitation off the cell and into armored channels.

The cell is excavated into competent (unweathered) bedrock (k_{sat} = approximately 1 x 10E-5 to 1 x 10E-7 cm/sec). The cell floor slopes to the southwest and is approximately 35 feet below grade and 25 feet below the alluvium/shale contact at the deepest point. The sides of the excavation are lined with compacted shale (k_{sat} = 2.8 x 10E-7 cm/sec from Appendix G).

A paleochannel was delineated near the northwest side of the disposal cell footprint (Appendix F). The channel was reconstructed to ensure lateral containment of groundwater and to prevent any possible leachate from entering the paleochannel system. Reconstruction included excavating the paleochannel to bedrock, filling the channel with compacted clay, excavating a 6-feet-deep watercourse through the clay, and filling it with washed rock. The top of the channel was capped with 2 feet of compacted clay. The floor of the channel remained on existing bedrock, which contains groundwater in the undisturbed channel system.

Some seepage from the bottom of the disposal cell is anticipated. The residual radioactive material included slimes from the milling process and water that was used sparingly during construction for compaction and dust control. Modeling indicates that, at most, 2 to 3 meters of expelled tailings pore water might temporarily accumulate above the cell floor (Appendix G); the remainder of the cell should remain unsaturated.

As shown in the modeling results, the surface of the ponded water does not rise to the level of the alluvial paleochannels. The paleochannels adjacent to the southwest side of the cell are isolated from the granular cell contents by a 2-feet-thick compacted shale liner (k_{sat} = 2.8 x 10 E-8 cm/sec) and the 50-feet wide zone of native material and compacted clayey material used to reconstruct the paleochannel.

Additional infiltration will occur in the open portion of the cell. The model did not account for infiltration that might occur through the uncovered portion of the cell. However, infiltration in the open cell is controlled by maintaining positive drainage to a lined storm water retention pond and stabilizing the exposed surface with a copolymer for dust suppression; the copolymer promotes sheet flow and controls erosion during periods of intense rainfall.

Design of the Grand Junction Disposal Site is substantially equivalent to the design requirements specified in 761.75(b), as shown in the table on the following page (Appendix H).

Required Cell Properties (per 761.75(b)(1))	Grand Junction Disposal Cell Design
Minimum cover thickness: 10 inches	24 inches
Permeability: ≤1 x 10E-7 cm/sec	2 x 10E-7 to 8 x 10E-8 cm/sec
% passing #200 Screen :>30	86
Liquid Limit: >30	37
Plasticity Index: >15	20

In accordance with 761.61(b)(2), a synthetic liner is not required because the compacted soil layer meets the permeability requirement, as shown above. The site is isolated from the uppermost aquifer by a 700-feet-thick section of Mancos Shale, and there is no standing or surface water in the region, so the site conforms to the requirements of 761.75(b)(3). Flood protection has been provided that satisfies the requirements of 761.75(b)(4).

Groundwater monitoring, as required in 761.75(b)(5), will be conducted, but well placement has been optimized for the local hydrological setting; such placement will adequately indicate seepage of leachate (see discussion in "Long-Term Stewardship" below). DOE monitors groundwater semi-annually for PCBs but does not monitor groundwater for other chlorinated organic compounds. Other elements of the monitoring program are consistent with the requirements of this section. One of the analytes is uranium, which is more mobile than PCBs and is, therefore, an effective early indicator that the cell may not be limiting water infiltration as designed.

The Grand Junction Disposal Cell does not incorporate a leachate collection system. Such a system will not enhance protection of health and the environment because infiltration is controlled and seepage of PCB-contaminated leachate from the disposal cell is unlikely.

PCB Disposal Plan— PCB waste placement will be photographically documented. The location of the PCB wastes will be surveyed and recorded in the disposal cell records.

The empty drums will be crushed to eliminate void space. Void space in the remaining containers will be filled with non-compressible absorbent material.

PCB waste will be buried within a geomembrane fabric to differentiate the PCB-contaminated material from the remainder of the impounded waste. The PCB waste will be placed on existing residual radioactive material, which will be recompacted, if necessary, prior to PCB waste disposal. A 2-feet-thick layer of compacted clayey soil having a characteristic k_{sat} of less than 1 x 10E-7 will cover the wastes (weathered Mancos Shale will be used from existing radon barrier material stockpiles). This interim soil cover will be placed to prevent water infiltration and to retard movement of any leachate or drainage. All void space between containers will be filled with compacted clayey soil. The soil will be free of debris and large rocks. Positive surface drainage will be maintained over the top of the waste materials.

The PCB wastes will be placed at an elevation of approximately 5230 feet above sea level, which will provide a 50-feet-thick buffer of unsaturated compacted waste between the PCB wastes and the cell floor (Appendix I).

Transport and Fate— The total volume of PCB wastes will be approximately 29 cubic yards, which will represent approximately 0.001 percent of the 4,600,000 cubic yard capacity of the disposal cell. The weighted average concentration of the waste is less than 500 ppm.

Protection of two groundwater systems must be considered: the shallow paleochannel system and the Dakota Sandstone aquifer.

Any infiltration within the cell will move predominantly downward. Subgrade cell walls are lined with low-permeability compacted shale. The paleochannels are laterally isolated from the disposal cell and are located above the anticipated zone of saturation within the cell, as explained previously.

Recently, elevated uranium, sulfate, and nitrate concentrations were detected in the groundwater intercepted by the paleochannel monitor wells. Water levels in these wells has been 20 to 30 feet higher than the water level in the monitor well inside the cell; therefore, water can not enter the paleochannel wells from within the cell. Water levels in the paleochannel wells have been rising. DOE concluded that the paleochannel is being recharged by runoff from the disposal cell, and that the elevated constituent concentrations are caused by the rising water levels leaching the soils. NRC concurred in this finding (Appendix J).

PCB migration into the Dakota Sandstone aquifer is highly unlikely. To reach this system, the PCBs would have to migrate through 50 feet of unsaturated soil-like waste and 700 feet of mostly unsaturated Mancos Shale. These earth materials are relatively impermeable. Water infiltration is controlled; therefore, there is no driving force to cause this migration. Owing to the low solubility of PCBs, the high affinity of PCBs for soil particles, the likelihood that disposal cell contents are high in organic carbon, and the long residence time and consequent opportunity for biodegradation, the possibility for PCBs to leach into the Dakota Sandstone aquifer is remote. (Approximately 50 percent of the disposal cell contents derived from vicinity properties. The typical vicinity property waste was near-surface topsoil, which typically would be high in organic carbon). The vertical isolation between the waste and the uppermost aquifer is more than 10 times the 50-feet minimum distance to the water table required for PCB disposal at 7621.75(b)(3).

Disposal Cell Operations—A 13-acre portion of the disposal cell is not covered to allow ongoing waste disposal. As the cell is filled, all surfaces within the open cell will be sloped towards a lined stormwater retention basin. Exposed waste materials are sealed with a copolymer coating to prevent wind dispersal and reduce infiltration. DOE is required by the 1998 UMTRCA amendment to close the cell no later than 2023, at which time the water-shedding cover will be completed and infiltration through the contaminated materials will be controlled.

Long-Term Stewardship—The NRC license for the Grand Junction Disposal Cell will not expire. Custody of the site has been assigned to the Long-Term Surveillance and Maintenance (LTSM) Program at GJO. The LTSM Program conducts stewardship activities at the Grand Junction Disposal Site in accordance with an NRC-approved Long-Term Surveillance Plan (LTSP) (Appendix E). This plan prescribes routine inspections and environmental monitoring and constitutes an operating plan for this disposal facility. DOE stewardship will be provided in perpetuity.

As specified in the Grand Junction Disposal Site LTSP, the groundwater monitoring network at the site consists of three monitor wells. Two wells are completed in nearby paleochannels and the third well is completed in the low point of the disposal cell above the cell floor. Samples are collected from the wells semi-annually and analyzed for a suite of constituents that indicate cell performance, including PCBs. Routine sampling will continue for 10 years after the cell is closed, at which time DOE will evaluate the need for continued groundwater monitoring.

The site is permanently withdrawn from public use and has been assigned to DOE (see Attachment 2 of the LTSP, which is attached to this application as Appendix E). Access controls for the cell (gates and signs) will be maintained in perpetuity.

Community Acceptance—Disposal of local PCB/radioactive wastes is supported by the Mesa County Commissioners and the Colorado Department of Public Health and Environment (Appendix K).

Conclusions

PCB wastes will be isolated within the Grand Junction Disposal Cell by placing a layer of low-permeability soil over the waste. The waste will be placed near the top of the disposal cell, and approximately 50 feet of unsaturated compacted residual radioactive materials will be situated beneath the PCB wastes. The disposal cell is designed to EPA standards that require effective isolation of residual radioactive materials for up to 1,000 years, and at least 200 years.

PCB migration is unlikely because water infiltration is controlled and the PCB waste will remain unsaturated. Cell contents will not become saturated because regional annual precipitation is less than 10 inches per year and because saturated hydraulic conductivities in the cover system are lower than in the cell contents or the cell foundation. PCBs exhibit a strong tendency to adhere to soil particles, resulting in low mobility. A 700-feet-thick section of Mancos Shale will isolate the cell from the Dakota Sandstone aquifer. DOE will conduct regular groundwater monitoring.

DOE will provide perpetual custody and care of the Grand Junction Disposal Site in accordance with the NRC license issued to DOE. The Grand Junction Disposal Cell will come under the general license upon cell closure.

In consideration of the above information, disposal of these PCB/radioactive wastes will not result in unreasonable risk of injury to health or the environment. Therefore, DOE requests approval from EPA to dispose of 29 cubic yards of PCB/radioactive waste at the Grand Junction Disposal Cell.