Idaho National Engineering and Environmental Laboratory

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1999 ESH&Q Liability Assessment Report of Envirocare of Utah, Inc. Clive, Utah

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ABSTRACT

This report contains the results of an environment, safety, health, and quality (ESH&Q) assessment of the treatment technologies and treatment-related operations that was conducted of Envirocare of Utah, Inc. (EOU). EOU is a low-level radioactive and mixed Resource Conservation and Recovery Act (RCRA)-regulated hazardous low-level radioactive waste (mixed low-level waste) treatment/disposal facility located near Clive, Utah. An ESH&Q assessment of the EOU Clive, Utah facility treatment technologies and related treatment operations was conducted in mid-April 1999. The assessment was required as part of the technical evaluation of proposals received by Lockheed Martin Idaho Technologies Company (LMITCO) for modification of a mixed low-level radioactive waste disposal subcontract (No.K79-180572). The EOU Clive, Utah facility is proposed as a potential treatment/disposal facility for mixed low-level radioactive waste regulated under the RCRA and the Atomic Energy Act.

SUMMARY

An environment, safety, health and quality (ESH&Q) liability assessment was conducted of the Envirocare of Utah, Inc. (EOU) low-level and mixed low-level radioactive waste treatment/disposal facility located near Clive, Utah during April 1999. The assessment was required as part of the technical evaluation of a proposed modification to the Lockheed Martin Idaho Technologies Company (LMITCO) hazardous and radioactive waste treatment and disposal subcontract (K97-180572). The EOU facility is proposed as a potential treatment/disposal facility for mixed low-level radioactive and hazardous waste regulated under the Atomic Energy Act (AEA) and Environmental Protection Agency (EPA).

The ESH&Q treatment technologies assessment consisted of preassessment, onsite inspection, postassessment, a risk assessment of the facilities, and this report. The liability assessment process used observations of the facility at a single point in time. Based on these observations, the probability of future environmental problems was projected. In addition, the risk of Department of Energy (DOE) or management and operating (M&O) contractor liability, should a problem occur, was included in the risk assessment. The liability assessment was not intended to evaluate whether a facility was, or was not, in actual compliance with environmental, safety, and/or health laws or regulations.

The ESH&Q liability assessment examined compliance with regulations promulgated by the AEA, Clean Air Act (CAA), Clean Water Act (CWA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Hazardous Materials Transportation Act (HMTA), Hazardous and Solid Waste Act (HSWA), Occupational Safety and Health Act (OSHA), Resource Conservation and Recovery Act (RCRA), Safe Drinking Water Act (SDWA), Superfund Amendments and Reauthorization Act (SARA), Toxic Substances Control Act (TSCA), Nuclear Regulatory Commission (NRC) requirements, and applicable regulations promulgated by the State of Utah.

The EOU Clive, Utah facility has one current radioactive material license issued by the State of Utah, Department of Environmental Quality (DEQ), Division of Radiation Control (DRC), for the treatment, storage and disposal of low-level radioactive and mixed low-level radioactive wastes. EOU operates a laboratory; State of Utah-regulated container, tank treatment, storage units and both mixed hazardous low-level (mixed waste) and low-level radioactive waste disposal cells at the Clive, Utah facility.

The LMITCO assessment team, that evaluated the treatment technologies portion of the facility and operations, found no current federal and/or state radioactive, or hazardous waste treatment; radiation protection of the public; or personnel safety and health issues. The assessment team believes that there will not be any additional risk to the DOE and the M&O contractors while doing business with EOU. It was the impression of the LMITCO assessment team that personnel at the EOU site were knowledgeable, displayed concern for compliance with the requirements for onsite hazardous and radioactive waste

determinations and management, and with the site license conditions concerning waste treatment and disposal.

The LMITCO assessment team was confident, based on the site visit and document review, that EOU has good control of the treatment technologies and related operations for the identified waste streams that are proposed for shipment to the facility. It is also believed that the EOU facility meets the needs identified for the M&O contractor-administered DOE facilities at the Idaho National Engineering and Environmental Laboratory (INEEL). It appeared that the company presently meets the intent of the laws and regulations and will not provide any additional or unreasonable risk to the DOE if the M&O Contractors choose to utilize this facility for the treatment and disposal of mixed low level radioactive wastes.

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TABLES

ACRONYMS

AA	atomic adsorption
AEA	Atomic Energy Act
ALARA	as low as reasonably achievable
BLM	United States Department of the Interior, Bureau of Land Management
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHP	chemical hygiene plan
CWA	Clean Water Act
DEQ	Division of Environmental Quality
DOE	United States Department of Energy
DOE-ID	United States Department of Energy, Idaho Operations Office
DRC	Division of Radiation Control
e.g.	Exampli gratia (for example)
EOU	Envirocare of Utah, Inc.
EPA	United States Environmental Protection Agency
ES&H	Environment, Safety, and Health
ESH&Q	Environment, Safety, Health, and Quality
FERC	United States Federal Energy Regulatory Commission
GC/MS	gas chromatograph/mass spectrometer
HazCom	Hazard Communication
HMTA	Hazardous Materials Transportation Act
HSWA	Hazardous and Solid Waste Act
i.e.	Id est (that is)

INEEL	Idaho National Engineering and Environmental Laboratory
LDPE	low-density polyethylene
LDR	land disposal restriction
LMITCO	Lockheed Martin Idaho Technologies Company
LQG	large-quantity generator
M&O	management and operations
MSDS	material safety data sheet
NARM	naturally occurring and accelerator produced material
NOV	Notice of Violation
NOV/CO	Notice of Violation and Consent Order
NPDES	National Pollutant Discharge Elimination System
N/R	Not Reviewed
NRC	Nuclear Regulatory Commission
OSHA	Occupational Safety and Health Act
PCB	polychlorinated biphenyl
PPE	personal protective equipment
QA	Quality Assurance
QC	Quality Control
R	Reviewed
RCRA	Resource Conservation and Recovery Act
RFP	Request for Proposal
RML	radioactive material license
SAA	Satellite Accumulation Area
SARA	Superfund Amendments and Reauthorization Act
SDWA	Safe Drinking Water Act

SPCC	spill prevention control and countermeasures
TSCA	Toxic Substances Control Act
TSD	Treatment, Storage, and Disposal
TSDF	Treatment, Storage, and Disposal Facility
UDEP	Utah Department of Environmental Protection
WAC	waste acceptance criteria
WAP	waste analysis plan
WWT	wastewater treatment
WWTU	wastewater treatment unit

1999 ESH&Q Liability Assessment Report of Envirocare of Utah, Inc. Facility Clive, Utah

1. INTRODUCTION

1.1 Purpose

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Superfund Amendments and Reauthorization Act (SARA) assign joint and several liability to all responsible parties for releases of hazardous substances into the environment. Responsible parties can include treatment, storage, and disposal facilities (TSDFs) or recycler owners and operators, past owners and operators, analytical laboratory operations, transporters, and persons contracting or arranging for disposal. Therefore, the United States Department of Energy (DOE), and its management and operating (M&O) contractors which generate and contract for sample analysis and/or the disposal of hazardous waste could be liable for all or part of the cost of remedial cleanup, if the off-Site TSDF lacks the capacity to pay for cleanup. In order to reduce the potential liability inherent in dealing with an off-Site contractor, which is not under the direct control of a DOE M&O contractor, Lockheed Martin Idaho Technologies Company (LMITCO) operates an environment, safety, health, and quality (ESH&Q) liability assessment program with the purpose of evaluating potential and current off-Site contractors with respect to environmental compliance. This evaluation process provides a clearer picture of the risks associated with a contractor, which will aid the M&O contractors in making the best decisions with regard to selection of an off-Site contractor.

This report describes the results of the 1999 ESH&Q liability assessment of the Envirocare of Utah, Inc. (EOU) facility, a licensed, Resource Conservation and Recovery Act (RCRA)-regulated low-level radioactive and mixed RCRA hazardous and low-level radioactive waste TSDF located near Clive, Utah. This assessment was conducted as part of the evaluation process for the addition of specific treatment technologies to a LMITCO request for proposal (RFP) to treat and/or dispose of RCRA hazardous and low-level radioactive wastes (mixed low-level radioactive wastes).

EOU has not been used by LMITCO for the treatment of mixed low-level radioactive waste prior to disposal. The company submitted a proposal in response to a modification to an RFP (No. K79-180572) issued by LMITCO for this purpose.

1.2 Scope

An ESH&Q liability assessment for treatment technologies and related operations was conducted of the EOU facilities. The liability assessment consisted of preassessment, onsite inspection, postassessment of the mixed waste treatment technologies, a limited risk assessment of the treatment technologies, and this report. The liability assessment process uses observations of the facility at a single point in time. Based on these observations, the probability of future environmental problems is projected. In addition, the risk of DOE or M&O contractor liability, should a problem occur, is included in the risk assessment. The liability assessment is not intended to evaluate whether a facility is, or is not, in actual compliance with environmental, safety, and/or health laws or regulations.

The ESH&Q liability assessment examined compliance with regulations, related to only the treatment technologies and related operations used at the EOU Clive, Utah facility, promulgated by the

Atomic Energy Act (AEA), Clean Air Act (CAA), Clean Water Act (CWA), CERCLA, Hazardous Materials Transportation Act (HMTA), Hazardous and Solid Waste Act (HSWA), Occupational Safety and Health Act (OSHA), RCRA, Safe Drinking Water Act (SDWA), SARA, Toxic Substances Control Act (TSCA), Nuclear Regulatory Commission (NRC) requirements, and applicable regulations promulgated by the State of Utah and local legislation.

The ESH&Q assessment included the following:

- Onsite review of the RCRA mixed waste treatment TSD facilities operations
- Examination of all applicable permits
- Examination of applicable facility records
- Review of where the waste materials were treated.

The ESH&Q liability assessment was conducted as part of the environmental oversight function of the LMITCO Environmental Affairs Branch to support the Department of Energy, Idaho Operations Office (DOE-ID). The onsite portion of the assessment was conducted on April 13 and 14, 1999. Table 1 lists the participants and their functional areas of expertise.

1.3 Content

Section 1 contains the introduction and a description of the scope of this report. Section 2 identifies the facilities. Section 3 contains the background and history of the site operations. Section 4 describes the scope of the assessment. Section 5 provides detailed analyses of data obtained for the assessment. Section 6 contains the summary and conclusions of the report.

The format of this report is designed to standardize data and observations required for a liability assessment of a TSDF. Regulatory citations will include requirements for both permitted and interim status facilities operating under RCRA regulations.

1.4 Disclaimer

The conclusions and recommendations contained in this report are based on facility background information, evaluations of information and documents from regulatory authority files and EOU files, interviews with facility personnel, and an inspection of the facility, all of which occurred during April and May, 1999. The report represents a snapshot in time of the operations of the EOU Clive, Utah facility. The purpose of this report was to identify potential ESH&Q issues associated with the prospect of the LMITCO-operated DOE facilities using the EOU facility for the treatment and disposal of mixed low-level radioactive wastes. Nothing in this report should be construed to be a statement on EOU's actual compliance or lack of compliance with any law, regulation, or requirement.

Table 1. ESH&Q liability assessment participants at Envirocare of Utah, Inc., at the Clive, Utah facility:

Name of Participant	Functional Area of Expertise
D. E. Trump (Lead)	Environmental Affairs - RCRA, SARA, Health Physics, OSHA Compliance
C. E. Vilord	Waste Generator Services – Air, RCRA, TSCA, CERCLA,

2. FACILITY/HAZARDOUS WASTE OPERATION IDENTIFICATION

2.1 Facility Name and Location

The EOU radioactive low-level and mixed radioactive waste treatment, storage, and disposal facility located near Clive, Utah.

The name and mailing address of the facility is:

Envirocare of Utah, Inc.
40 West Broadway, Suite 240
Salt Lake City, Utah 84101

The physical address of the facility is:

Envirocare of Utah, Inc. (EOU)
I-80, Clive Exit #49
Clive, UT

The legal description of the site was not identified as part of this assessment and therefore is not provided as part of this report.

2.2 Name and Location of Facility Owner

The EOU Clive facilities are owned by Envirocare of Utah, Inc., which has its corporate headquarters located at:

Envirocare of Utah, Inc.
40 West Broadway, Suite 240
Salt Lake City, Utah 84101

3. BACKGROUND AND HISTORY

3.1 Site History and Ownership

The EOU site history and ownership were not reviewed as part of this assessment of the treatment technologies and related operations utilized at the Clive, Utah site.

3.2 Current and Past Use by the Generator

The EOU Clive, Utah facility current and past uses by the Generator information were not reviewed as part of this assessment of the treatment technologies and related operations at the Clive, Utah site.

3.3 Current and Historical Methods for Residue Disposal

The EOU site history and ownership were not reviewed as part of this assessment of the treatment technologies and related operations for the Clive, Utah site.

4. DESCRIPTION OF THE ASSESSMENT

The liability assessment consisted of a preliminary written request for ESH&Q information about the company and its facilities. After these activities were complete and the EOU facility was deemed provisionally acceptable, arrangements were made with the management to visit the site, inspect the applicable treatment operations, and discuss the activities in detail. The following subsections briefly describe the preliminary assessment and onsite inspection. Detailed descriptions of the operations can be found in Section 6 of this document.

4.1 Operations Inspected

EOU operates several waste immobilization treatment processes under the provisions of a final RCRA Part B permit issued by the State of Utah. The processes observed and reviewed during the assessment include waste stabilization, and alternative treatment technologies macroencapsulation and microencapsulation. In addition, EOU is permitted to conduct waste sizing in support of these treatment operations.

4.1.1 Treatment Facilities.

EOU utilizes two units at the Clive, Utah site for treatment of mixed low-level waste. Those facilities are the Mixed Waste Treatment Building and the Mixed Waste Operations Building. 150 tons per day may be treated in the tank system at the Mixed Waste Treatment Building and 300 tons per day may be treated in the tank system at the Mixed Waste Operations Building.

The LMITCO assessment team reviewed records and procedures related to the treatment operations. The LMITCO assessment team also inspected the areas around the two treatment units at the Clive, Utah site and observed the operations performed in the tank systems at the Mixed Waste Treatment Building and the Mixed Waste Operations Building

4.1.2 Storage Facilities

The mixed-waste storage facilities at EOU at Clive, Utah were not directly observed or related site disposal operations reviewed as part of this assessment. The primary scope of this assessment was the evaluation of the applicable mixed waste treatment proposed for use to treat specific wastes generated by the INEEL at the EOU facility at Clive, Utah. The EOU storage facilities have been reviewed in other ESH&Q assessments of the Clive, Utah site. Therefore, this section was not completed.

4.1.3 Disposal Facilities

The mixed and low-level waste disposal landfill units at the Clive, Utah site were not inspected or observed as part of this assessment. The EOU disposal facilities have been reviewed in other ESH&Q assessments of the Clive, Utah site. Therefore this section was not completed.

4.1.4 Laboratory Facilities

The EOU facility operates a limited low-level and mixed low-level radioactive waste confirmation and shipment receipt profile verification analytical laboratory. There are specific procedures and applicable analytical methods both in place and use at the laboratory. The EOU facility was using site-developed task-specific standards, job descriptions, initial training, and annual refresher training requirements for laboratory personnel. A quality assurance/quality control (QA/QC) program, driven by

a corporate program, was in place. Independent audit teams perform annual laboratory compliance audits of the EOU facility at Clive, Utah.

Laboratory samples were lab packed according to the Environmental Pollution Agency (EPA) waste codes. Lab packed wastes were treated onsite or sent offsite for treatment based on the EPA waste codes. A Satellite Accumulation Area (SAA) was observed, in the EOU Clive facility laboratory. Solid and low-level radioactive wastes are sent to the onsite landfill. The EOU Clive facility radiological instrumentation source check and calibration records; the laboratory analytical and radiation detection equipment; the site inventory of analytical chemicals; storage requirements for analytical chemicals; and sample and waste management procedures were reviewed or discussed with facility personnel.

4.1.5 Transportation Facilities

Transportation operations at the EOU facility were not part of the scope and were neither observed or reviewed. Therefore, this section was not completed.

4.2 Facility Personnel Contacted

The EOU personnel listed in Table 2 were contacted during the onsite inspection of the facility.

Table 2. Envirocare of Utah, Inc., Clive site personnel interviewed by the LMITCO assessment team.

Name	Position
Allan Erichsen	Site Radiation Safety Officer
David Tolbert	Mixed Waste Treatment Site Manager
Robert Reifsnyder	Corporate Quality Assurance Manager
Kaylin Loveland	Director of Business development Government Programs

4.3 Regulatory Agencies Contacted

The U.S. EPA, Region VIII, and the State of Utah have authority to regulate the operations of the Envirocare of Utah Facility. The State of Utah, Department of Environmental Protection (UDEP) has primacy for all RCRA permitting issues and enforcement. The State of Utah has primacy for air enforcement, surface water discharges, and radiological health. Both EPA Region VIII, and the state are active in the management and enforcement of all of the environmental and safety regulations regardless of the agency which holds the primacy. The UDEP Division of Radiological Control (DRC) is authorized by the NRC to regulate NRC-licensed facilities within the State of Utah. After an evaluation of recent assessments and reports for the EOU Clive, Utah facility, it was the opinion of members of the LMITCO assessment team that there was information available to establish that contact with agencies for all of the major regulatory programs had been completed in sufficient detail. The LMITCO assessment team determined that no additional contacts with those agencies would be performed as part of this limited assessment to evaluate EOU's treatment technologies and related operations compliance.

4.4 Other information

4.4.1 ESH&Q Checklists

Assessment checklists were used for part of the facility appraisal. These checklists tested compliance with regulations promulgated by the EPA, OSHA, and other regulatory agencies. Additional checklists were used to address radiological controls, laboratory operations, general quality assurance, and remedial actions.

4.4.2 Document Review

The documents and information listed in Table 3 were reviewed during the site inspection at the EOU facility.

Table 3. Documents and information reviewed concerning the EOU Facility.

DOCUMENT/INFORMATION REVIEWED (R), DISCUSSED (D), NOT REVIEWED (N/R), OR NOT APPLICABLE (N/A)	
Air Monitoring Data	R, D
Air Permits	R, D
Annual Hazardous Waste/Biennial Report	N/A
Bills of Lading	D
BLM Right-of-Way Grant	N/A
CERCLA Offsite Policy Approval	N/A
Certificates of Insurance for Sudden and Non-Sudden Incidents	R, D
Chain-of-Custody Procedures	R, D
Chemical Hygiene Plan	R, D
Closure/Postclosure Plan	R, D
Conditional Use Permit	N/A
Emergency Response/Contingency Plan, including Spill Response and Cleanup Procedures	R, D
Facility Construction Plans	N/R
Federal Energy Regulatory Commission (FERC) Approval	N/A
Final Environmental Impact Statement	D
Groundwater Monitoring Data	R, D
Groundwater Monitoring Plan	R, D
Hazardous Waste Manifests	N/A
HSWA Permit	N/A
Information concerning OSHA compliance	D
Information on assignees to which waste is transferred and final disposition of the waste	R, D

Table 3. (continued).

DOCUMENT/INFORMATION REVIEWED (R), DISCUSSED (D), NOT REVIEWED (N/R), OR NOT APPLICABLE (N/A)	
Inspection Records	R, D
Laboratory Procedures	R, D
Medical Surveillance Program	D
Notices of Violation and Consent Orders	D
Notification of Hazardous Waste Activities	R, D
Operations Record	R, D
Polychlorinated biphenyl (PCB) Annual Documents Log	N/A
PCB Annual Report	N/A
PCB Exception Reports	N/A
Pending Environmental Litigation	D, N/A
Personnel Training Records	R, D
Provisions for transport of recyclable materials/hazardous waste to and from this facility	D
Quality Assurance Plans	D
Radiation Work Permit Program	R, D
Radiation Training Course	R, D
Radioactive Materials License	R, D
Radiological surveys for contamination control	R, D
Radiological surveys for penetrating dose control	R, D
Radiological Control Program for as low as reasonably achievable (ALARA)	R, D
RCRA Facility Assessment/Investigation	D
RCRA Part A Permit Application	R, D
RCRA Part B Permit Application	R, D
RCRA Part B Permit	R, D
Sewage Permit	D, N/A
Solid Waste Disposal Permit	D, N/A
Spill Prevention Control and Countermeasures Plan	D
Standard Operating Practices	R, D
Stormwater Protection Plan for Industrial Discharges	D
TSCA Storage/Disposal Approval/Permit	N/A
Visitor's Log	R

Table 3. (continued).

DOCUMENT/INFORMATION REVIEWED (R), DISCUSSED (D), NOT REVIEWED (N/R), OR NOT APPLICABLE (N/A)	
Waste Analysis Plan	R, D
Water Discharge Data	D, N/A
Wastewater Permit	D, N/A

4.4.3 Permits

4.4.3.1 Air Permit. The scope of this assessment was limited to the review of the EOU facilities treatment technologies. The entire permit status of the EOU facility air permits was not reviewed; therefore, this section was not completed.

4.4.3.2 BLM Right-of-Way Grant. The EOU facilities do not occupy any federal lands controlled by the United States Department of the Interior, Bureau of Land Management (BLM). Therefore, this section is not applicable.

4.4.3.3 CERCLA Offsite Policy Approval. The scope of this assessment was limited to the review of the EOU facilities treatment technologies and related operations. The entire permit status of the EOU facility was not reviewed; therefore, this section is not applicable.

4.4.3.4 Conditional Use Permit. EOU has not been required to obtain a Conditional Use Permit from any regulatory agency for any activities at the Clive, Utah site. Therefore, this section is not applicable.

4.4.3.5 Federal Energy Regulatory Commission Approval. The EOU facilities at the Clive site are not self-certified power production facilities. Therefore, this section is not applicable.

4.4.3.6 Groundwater Monitoring Permit. The scope of this assessment was limited to the review of the EOU facilities treatment technologies and related operations. The entire permit status of the EOU facility was not reviewed; therefore, this section is not applicable.

4.4.3.7 Radioactive Materials License. The EOU has a current radioactive Materials License for the treatment, storage, and disposal of specified radioactive wastes. The license, number UT-2300249, Amendment 2, was issued by the State of Utah, Department of Environmental Quality, Division of Radiation Control on March 16, 1998, was reissued on October 22, 1998, and will expire October 22, 2003. The details of this license are reviewed in Section 6.7.13 of this report.

4.4.3.8 RCRA Part A/B Permit. The scope of this assessment was limited to the review of the EOU facilities treatment technologies and related operations. The entire permit status of the EOU facility was not reviewed; therefore, this section is not applicable.

4.4.3.9 Solid Waste Disposal Permit. The status of a solid waste disposal permit was not reviewed for the EOU facilities at Clive, Utah site. Therefore, this section was not completed.

4.4.3.10 Stormwater Permit. The scope of this assessment was limited to the review of the EOU facilities treatment technologies and related operations. The entire permit status of the EOU facility was not reviewed; therefore, this section is not applicable.

4.4.3.11 TSCA Storage/Disposal Approval. The company has not applied for a commercial storage/disposal permit for polychlorinated biphenyls (PCBs) from any regulatory agency. Storage of PCB wastes generated at the site is generally limited to less than 30 days prior to offsite shipment for disposal. EOU does accept PCB-contaminated mixed wastes at the Clive, Utah site for landfill disposal under specific conditions. The scope of this assessment was limited to the review of the EOU facilities treatment technologies and related operations. The entire permit status of the EOU facility at Clive, Utah was not reviewed; therefore, this section is not applicable.

4.4.3.12 Wastewater Permit. The scope of this assessment was limited to the review of the EOU facilities treatment technologies and related operations. The entire permit status of the EOU facility was not reviewed; therefore, this section is not applicable.

4.4.4 Site Inspection

The LMITCO assessment team conducted a site inspection of the EOU facility at Clive, Utah site. The purpose of the inspection was to observe and compare the operations of the facilities with their documentation and permit conditions. The site inspection consisted of documentation reviews, process flows, and operational observations.

5. FACILITY SETTING

A review of the pathway analyses of potential groundwater, surface water, and air contamination, and a receptor analysis of potential populations and environments that could be at risk from activities conducted at the EOU site were not performed as part of this limited ESH&Q liability assessment report. The requirements for a pathway analysis to determine potential paths that pollutants could take that would significantly degrade the quality of a natural resource has been completed as part of previous ESH&Q liability assessments of the facility. Similarly, the receptor analysis information from the pathway analysis that was used to determine the potential risk to neighboring populations from a release of pollutants at the facility was also completed as part of those previously identified ESH&Q liability assessments.

6. TECHNICAL DATA AND ANALYSIS

This section describes the facilities inspected and documents reviewed in detail. The facility processes and documents were evaluated against regulatory requirements and RCRA Part B permit conditions. For this inspection, the federal regulations, particularly Title 40 Code of Federal Regulations (CFR) §§ 262, 264 and 265, were used in lieu of the State of Utah Hazardous Waste Management Rules, which are promulgated as the State of Utah, Title 19, Chapter 6, Part I and R315 Environmental Quality, Solid and Hazardous Waste. The regulations promulgated at 40 CFR § 761 were cited for the TSCA-regulated PCB facilities and operations. However, the state rules will also be stated for completeness.

Whenever possible, the process descriptions in this section were extracted or reproduced verbatim from the facility's RCRA Part B permit application, plans, procedures, and RCRA Part B permit.

6.1 Treatment, Storage, and Disposal Facilities and Operations

6.1.1 Treatment Processes and Facilities

Treatment, as defined by the RCRA means "...any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume..." (40 CFR § 260). The following treatment process and facilities were evaluated.

6.1.1.1 Incineration. EOU does not own or operate any incinerators at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.2 Boiler and Industrial Furnace. EOU does not own or operate any boilers or industrial furnaces at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.3 Thermal Treatment. EOU does not own or operate any thermal treatment devices or systems at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.4 Fuel Blending. EOU does not own or operate any fuel blending operations at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.5 Land Treatment Units. EOU does not own or operate any land treatment units at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.6 Wastewater Treatment Unit. EOU does not own or operate any RCRA- or CWA-regulated Wastewater Treatment Units (WWTUs) at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.7 Chemical, Physical, and Biological Units. EOU does not own or operate chemical, physical, or biological methods in other than tanks, surface impoundments, and land treatment units at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.8 Drip Pads. EOU does not own or operate any drip pads at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.9 Miscellaneous Units. EOU does not own or operate any miscellaneous units at the Clive, Utah site. Therefore, this section is not applicable.

6.1.1.10 Corrective Action for Solid Waste Management Units. An evaluation of whether or not EOU has been ordered to undertake any corrective actions for solid waste management units at the Clive, Utah site was not performed as part of this assessment. Therefore, this section was not completed.

6.1.1.11 Stabilization.

6.1.1.11.1 Process Description—The EOU RCRA Part B permit application (mixed waste) provides the description of the stabilization treatment processes, that will be employed by the facility in order to prepare both offsite and EOU site-generated wastes for disposal.

Waste stabilization is conducted via chemical oxidation, reduction, or deactivation to reduce leachability of hazardous constituents. The final treated waste form may be of a soil-like consistency, or of a solid monolith, depending on the initial waste type and the treatment agent used. Recipes are developed for each specific waste stream prior to initiating full-scale treatment to ensure the final treated waste form meets land disposal restrictions (LDRs). EOU's Part B permit requires approval from the State of Utah if the ratio of treatment agent to waste exceeds 2:1 as a dilution factor.

Operators involved with a treatment campaign attend and sign-off on a preoperational briefing which outlines the specific recipe for treatment, waste handling and safety considerations. Wastes generated during the treatment process are either managed with the original waste stream, or may be considered to be an EOU-generated waste, and managed in accordance with established EOU procedures (characterized and managed in accordance with the characterization data).

***6.1.1.12* Macroencapsulation.** Macroencapsulation is conducted using molten extruded low-density polyethylene (LDPE) to completely coat the waste form. Only RCRA-defined debris, radioactive lead, or waste already meeting LDRs is accepted for treatment via macroencapsulation. When a waste is treated via macroencapsulation, it is the last treatment technology employed before disposal.

Prior to performing full-scale treatment on a new waste form (lead brick, various debris types, lead shot, etc.), a performance demonstration is conducted to identify operational parameters, waste stream-compatibility with the encapsulant, and cure times. Prior to each treatment campaign, each operator is required to attend and sign-off on a preoperational briefing, which identifies the performance demonstration criteria, safety and contingency plan considerations, material handling, documentation requirements, and applicable waste acceptance criteria. The performance demonstration is posted during the macroencapsulation treatment operations. Following treatment, all equipment surfaces that may have contacted the waste are triple rinsed using a damp cloth or other absorbent material. Any wastes generated as a result of treatment or decontamination operations are characterized and managed accordingly.

6.1.1.13 Microencapsulation. EOU, at the Clive, Utah site, treats waste via microencapsulation using either an extrusion process, or a kinetic mixer. Wastes treated in this unit are limited to those with a concentration-based treatment standard, or those with a technology-based treatment standard of deactivation. Only those wastes without free liquids are accepted for treatment in the microencapsulation unit. The extrusion is conducted by mixing the waste type and molted LDPE in a rotary screw extruder. The commingled material is discharged to a waste mold and allowed to cure. In the kinetic mixer, waste and LDPE are combined and then mixed at a high speed, resulting in the LDPE melting around the waste.

A treatment formula is developed for each waste stream. Only one waste stream is treated per treatment run. Waste streams are not commingled within the same container. The molds used for treatment are visually inspected to ensure they are clean and dry before use. Wastes to be treated in the kinetic mixer are visually inspected to ensure no free liquids or ice are present before being treated. Following treatment, both units are decontaminated by running a nonwaste plug material through the unit, such as sand or clay, to remove residual material. Plugs must be run through the units until the unit is determined to be clean. The plug materials are characterized and managed accordingly. The units are cleaned between each waste stream.

6.1.1.13.1 LMITCO Assessment Team Observations/Impressions—EOU typically uses two sizes of molds to conduct macroencapsulation, either a 55-gallon drum, or a B-12 box. Wastes are placed within the mold on standoff devices to ensure the encapsulant covers the bottom of the waste form. The Part B permit requires that a minimum of 2 inches of encapsulant surround each dimension of the waste. Following treatment, the encapsulant is allowed at least 24-hours to cure, and then the molds are removed. The treated waste form is inspected to ensure that no cracks, gaps, or voids exist. If there are cracks or gaps, they are repaired by heating the area, and melting additional LDPE over the area. No cold jointing is done over the repair areas to ensure the maximum bond-strength is achieved. The standoff devices are similarly covered with additional LDPE to completely cover them with the encapsulant. This will prevent any potential of there being a contact with the waste and the landfill environment via the standoff device.

EOU also treats waste via microencapsulation using either an extrusion process, or a kinetic mixer. Wastes treated in this unit are limited to those with a concentration-based treatment standard and only those wastes without free liquids are accepted for treatment in the microencapsulation unit. A treatment formula is developed for each waste stream. The formula is posted during treatment operations. A preoperational briefing is conducted prior to each treatment campaign that covers the following information: safety and contingency plan, treatment formula, permit requirements, sampling requirements, and documentation requirements. Only one waste stream is treated per treatment run. Waste streams are not commingled within the same container. The molds used for treatment are visually inspected to ensure they are clean and dry before use. Wastes to be treated using the extruder are screened to ensure that all particles are less than 1/4-in. Those that do not meet this criterion are size reduced prior to treatment in the extruder. In addition wastes intended for treatment in the extruder are tested to ensure that the moisture content is less than 2%. If the waste exceeds this level, it is dried using a dryer hopper until the moisture level in below 2%. Wastes to be treated in the kinetic mixer are visually inspected to ensure no free liquids or ice are present before being treated.

Following treatment in the kinetic mixer, the mixture is visually inspected to ensure that the treatment has resulted in a homogeneous matrix. If the presence of unmelted LDPE or uncovered waste is detected, the treatment campaign is halted until resolution is reached. Treated wastes from both the extruder and the kinetic mixer are physically sampled, and the samples are sent for analysis to ensure that LDR treatment standards have been met prior to disposal. A minimum of three samples is taken that are visually evaluated to ensure the sample contains a representative ratio of LDPE to waste before sending for analysis.

The operating procedures are written in a manner that thoroughly implements the RCRA Part B permit. No gaps or missing requirements were identified. The procedures also contain the required safety and training requirements needed to operate these units that are not addressed in the RCRA Part B permit. For each activity addressed in the operating procedures, there is a position title associated with the activity, and a reference to the required training. A review of the training manual indicated that all of the positions/tasks identified in the procedures as having training requirements had a documented training plan for the position or task.

EOU documented compliance with their procedures and permits by using a number of logs and forms. A random number of these were reviewed during the assessment to ensure that they were completed with the information required by the procedures. It was the opinion of the LMITCO assessment team that no additional liabilities would be incurred beyond those previously identified in other ESH&Q assessments of the EOU facilities at the Clive, Utah site. Additionally, no significant or recordable deficiencies were identified.

6.1.1.14 Neutralization System. The EOU neutralization system was not reviewed as part of this assessment. Therefore, this section was not completed.

6.1.1.13 Decanting Operations. EOU does not own or conduct any decanting operations at the Clive, Utah site. Therefore, this section is not applicable.

6.1.2 Storage Facilities

6.1.2.1 Tanks. Requirements for the construction, use, and maintenance of tanks and tank systems used for the storage and treatment of hazardous wastes are specified in 40 CFR §§ 264, Subpart J and 265, Subpart J. Requirements for the construction, use, and maintenance of tanks and tank systems used for the storage and treatment of TSCA-regulated PCB wastes are specified in 40 CFR § 761.65.

6.1.2.1.1 Process Description—The EOU RCRA Part B Permit Application, Module IV, Attachment IV-1, provides a complete description of the storage tank specifications and operations.

6.1.2.1.2 LMITCO Assessment Team Observations/Impressions—It was the opinion of the LMITCO assessment team that these tanks and the secondary containment and piping systems associated with them were in satisfactory condition. There was an ongoing maintenance program observed and it appeared that the EOU facility long-range planning was being implemented. It was the opinion of members of the LMITCO assessment team, that the tanks and the related piping and containment systems were meeting the basic requirements identified in regulatory and site procedures and plans.

6.1.2.2 Containers. Use and management of containers of hazardous waste generated by EOU Clive, Utah facility operations, such as less than 90-day accumulation areas, were not evaluated as part of the assessment. Therefore, this section of the report was not completed.

6.1.2.3 Containment Buildings. EOU does own and operate containment buildings at the Clive, Utah site, but they weren't evaluated as part of this assessment. Therefore, this section was not completed.

6.1.2.4 Surface Impoundment. EOU does not own or operate any surface impoundments at the Clive, Utah site. Therefore, this section is not applicable.

6.1.2.5 Waste Piles. An evaluation of EOU to determine if the facility owns or operates any waste piles at the Clive, Utah site was not performed. Therefore, this section was not completed.

6.1.2.6 Air Emissions for Process Vents. An evaluation of EOU to determine if the facility owns or operates any process vents at the Clive, Utah site was not performed. Therefore, this section was not completed.

6.1.2.7 Air Emission Standards for Equipment Leaks. An evaluation of EOU equipment that contacts hazardous wastes with organic concentrations of at least 10% by weight at the Clive, Utah site was not performed as part of this assessment. Therefore, this section was not completed.

6.1.2.8 **Air Emission Standards for Tanks, Surface Impoundments, and Containers.** An evaluation of EOU equipment against the air emission standards for the treatment tanks at the Clive, Utah site was not performed as part of this assessment. Therefore, this section was not completed.

6.1.3 Disposal Facilities

6.1.3.1 **RCRA Landfill Cells.** Requirements for the construction, use, and maintenance of landfill cells used for the disposal of hazardous wastes are specified in 40 CFR §§ 264, Subpart N and 265, Subpart N. Requirements for the construction, use, and maintenance of landfill cells used for the disposal of TSCA-regulated PCB wastes are specified in 40 CFR § 761.65(a)(8).

6.1.3.2 Industrial Waste Landfill Cells. EOU does not own or operate any industrial waste landfill cells at the Clive, Utah site. Therefore, this section is not applicable.

6.1.3.3 Mixed Low-Level Radioactive Waste Disposal Cells

6.1.3.3.1 Process Description—The descriptions of the construction of the landfill cells used at EOU can be found in the operating record for the facility. Those landfill construction subsections were not reviewed or evaluated as part of this treatment technologies assessment.

6.1.3.3.2 LMITCO Assessment Team Observations/Impressions—Observation of the landfill disposal cells at EOU was not directly part of the scope of this assessment. The following observations were made from the road areas, as no direct access into the disposal cells was made as part of this assessment. Detailed observations and reviews of operation of the EOU mixed and low-level waste disposal landfills have been made in other ESH&Q reports.

There were several closed trenches (cells) as well as an active mixed low-level radioactive waste disposal landfill cell at the EOU Clive, Utah site. Facility documentation confirmed the operational status observed during the facility tour for both the inactive and active landfill, and that no extensive weathering or erosion was noted. The closed landfill areas appeared to be in acceptable condition.

No waste emplacement activities observed were recorded for operations at the active mixed waste landfill cell. The mixed waste landfill area was observed during the facility tour portion of the assessment, but not as part of the assessment. Therefore, no observations of landfill waste placement operations were made. The general condition of the EOU Clive, Utah Facility landfills appeared to be adequate to meet INEEL requirements. The landfill units at the site appeared to be operated and maintained in accordance with internal EOU site and corporate programs and current applicable regulatory requirements. There were no documentation discrepancies noted during the limited review of mixed waste disposal information provided by EOU.

6.1.3.4 **Injection Wells.** EOU does not own or operate any injection wells at the Clive, Utah site. Therefore, this section is not applicable.

6.1.4 Security

The RCRA regulations promulgated at 40 CFR §§ 264.14 and 265.14 and as adopted by the State of Utah state that "The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons, or livestock onto the active portion of his facility...." The facility must have a 24-hour surveillance system, which continuously monitors and controls entry onto the active portion or the facility; or an artificial or natural barrier, which completely surrounds the active portion of the facility. The facility must have a means to control entry, at all times, through gates or other entrances to the facility. It must also have a sign with the legend, "Danger -- Unauthorized Personnel Keep Out" which must be posted at each entrance to the active portion of the facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The legend must be written in English and in any other language prominent in the area surrounding the facility.

6.1.4.1 Process Description. The RCRA Part B permit application, as approved by the RCRA Part B permit, describes the security measures in place at the EOU facility. The details of the security procedures and related requirements that are identified in the EOU RCRA Part B permit are recorded in other ESH&Q reports and were not repeated in this assessment report.

6.1.4.2 LMITCO Assessment Team Observations/Impressions. Members of the LMITCO assessment team were required to sign in on arrival at the facility. A logbook was maintained by EOU, at the administration building inside the fenced area past the unmanned entrance, at the facility. Authorized guests or visitors to the EOU Clive, Utah site are required to sign in on arrival, but no identification documentation was requested by the facility. Based on observations made during the assessment, requirements for sign in were in place and enforced.

Personal safety equipment, that included safety glasses, hard hats, and ear plugs, and other personal protective equipment (PPE) were issued at the administration building by EOU personnel to the LMITCO assessment team members. The applicable PPE, including full dress-out, was issued prior to admission to the mixed waste treatment operations areas. Additional PPE requirements were identified for specific work areas and assignments by EOU personnel. All visitors to operations areas required accompaniment by EOU escort(s). Entrance to the permitted active treatment and storage areas at the facility was attained by walking through a manned, controlled locker room and then through a closed door out into a fenced walkway; into the maintenance shops and out to the west side of the Mixed Waste Treatment Building; past the open storage areas, south of the treatment building; and then finally south, along the internal roadway to the Mixed Waste Operations Building.

Members of the LMITCO assessment team noted barbed wire fences in place around the working storage and treatment areas of the facility and also running along the visible portions of the site perimeter on the south and west. As a response to a question on what the required fencing was for the active portion of the site, the facility representative pointed out that the actual permitted storage areas were inside an "inner fence" which was a chain-link fence with double strands of barbwire across the top. This fence was observed at several points during the facility tour by the assessment team. All signs observed during the assessment were written in English.

No discrepancies or deficiencies were noted against EOU or regulatory requirements identified in company procedures. The assessment team found no discrepancies or deficiencies in EOU site-specific documentation reviewed or from assessment team observations during the facility tour.

6.2 Generator Operations

6.2.1 Waste Description

The types of wastes, generating operations and management of those site-generated wastes at the Clive, Utah site were not completely reviewed as part of this assessment, and are not discussed in this section. Therefore, this section was not completed.

6.2.2 Waste Management

6.2.2.1 Less Than 90-Day Accumulation. EOU Clive, Utah operations is a large-quantity generator, as defined at 40 CFR 260.10, and as such, subject to regulation under 40 CFR §§ 262 through 266, 268, 270, and 124. However, the hazardous waste management procedures in effect at the Clive, Utah site were not reviewed as part of this assessment, and are not discussed in this section. Therefore, this section was not completed.

6.3 Ancillary Operations

6.3.1 Waste Analysis and Tracking System

EOU Clive, Utah operations is a large-quantity generator, as defined at 40 CFR 260.10, and as such, was subject to regulation under 40 CFR §§ 264 and 265. EOU does track, and maintain detailed records of mixed and low-level radioactive wastes received and disposed of at the Clive, Utah site. However, the scope of this assessment was limited to a review of applicable portions of EOU procedures and operations related to treatment of mixed and low-level radioactive wastes. Therefore, the requirements and description of the waste analyses and tracking system utilized by EOU at the Clive, Utah site were not reviewed or discussed in detail with personnel at the facility. A thorough review of the waste analysis and tracking system was performed as part of another ESH&Q assessment of EOU operations and processes.

6.3.2 Laboratory Operations

The SAAs in the laboratory were marked with hazardous waste labels. There were no open container lids; lab employees were observed opening and replacing lids and the containers were sealed immediately after usage. Several SAAs were connected directly to analytical equipment and those were properly marked and sealed. Generally, the SAAs in the lab were in conformance to either regulatory or EOU QA/QC requirements. A number of housekeeping problems were noted in the cabinets, under sinks, and in the storage of chemicals and trash disposal.

Analytical equipment identified included: gas chromatographs (GC), Varian and Hewlett Packard gas chromatographs and mass spectrometers (GC/MS), plasma spectrometers, atomic adsorption (AA) units, a cold vapor atomic absorption spectrometer, and various wet chemistry equipment. Analytical process and testing was performed to standards found in 40 CFR 261, Appendix I through X. Analytical process and testing was also performed to requirements identified in the EOU manuals. RCRA and TSCA analytical methods and processes were identified and confirmed by observation in use.

Laboratory samples were lab packed and disposed according to requirements identified by the Environmental Protection Agency (EPA) waste codes. Final disposal of site-generated analytical laboratory sample wastes were handled by treatment and disposal onsite.

Members of the LMITCO assessment team observed the laboratory facility and operations. Operations documentation, radiological instrumentation and recordkeeping, laboratory analytical equipment, inventory and storage of analytical chemicals, and EOU sample and waste management procedures were reviewed and discussed with facility personnel. It should be noted that the laboratory personnel were very cooperative and provided every assistance requested. It was recommended that waste containers, both solid and hazardous, be covered and opened only when wastes were being deposited. The potential to improperly dispose of hazardous wastes was increased by the close proximity of the two types of waste containers and the fact that they were open and uncontrolled. There was, in the opinion of members of the LMITCO assessment team, sufficient evidence that EOU was in compliance with the identified laboratory procedures that were reviewed. No discrepancies other than in general housekeeping were noted.

6.3.3 Transportation

EOU does not own a transportation unit or operate any transportation operations at the Clive, Utah site. Therefore, this section is not applicable.

6.4 Regulatory Compliance History

6.4.1 Violations History

Review and evaluations of the RCRA violations history for the Clive, Utah site have been completed in earlier ESH&Q assessments of operations at EOU. Based on the limited scope of this assessment, the LMITCO assessment team did not review or evaluate the status of the RCRA violation history for the Clive, Utah site as part of this assessment. Therefore, this section was not completed.

6.4.2 RCRA Remediation/Corrective Actions

The status of RCRA remediation or corrective actions at the EOU Clive, Utah site were not reviewed or evaluated as part of this assessment. Therefore, this section was not completed.

6.4.3 CERCLA Remediation/Corrective Actions

The status of EOU CERCLA remediation or corrective actions at the Clive, Utah site were not reviewed or evaluated as part of this assessment. Therefore, this section was not completed.

6.4.4 Pending Litigation

The status of EOU pending litigation for the Clive, Utah site were not reviewed or evaluated as part of this assessment. Therefore, this section was not completed.

6.4.5 Involvement at "Superfund" Sites

EOU Clive, Utah operations have not been named as a potentially responsible party in any "Superfund" sites. Therefore, this section is not applicable.

6.4.6 Environmental Incidents

The status of environmental incidents for the EOU Clive, Utah site were not reviewed or evaluated as part of this assessment. Therefore, this section was not completed.

6.5 Environmental Monitoring Programs

EOU conducts a number of environmental monitoring programs at the Clive, Utah site. The monitoring programs are conducted in accordance with NRC radioactive materials license and National Pollutant Discharge Elimination System (NPDES) permit conditions.

The radiological monitoring program is designed to assure that any releases of radioactive materials can be readily detected during operation of the site or following closure. [The programs] include constant surveillance and research on all possible pathways for transport of radioactive materials through environmental media. The design of any environmental monitoring program is complex and spans the knowledge of several disciplines, including engineering, meteorology, geology, hydrology, biology, and health physics. Review and evaluations of the entire environmental monitoring programs for the Clive, Utah site have been identified in recent ESH&Q assessments of operations at EOU by other DOE operations. Based on the limited scope of this assessment the LMITCO assessment team did not review or evaluate environmental monitoring programs for the Clive, Utah site. Therefore, this section was not completed.

6.6 Facility Management Attitudes

6.6.1 Contingency Plan

The RCRA regulations promulgated at 40 CFR §§ 264, Subpart D and 265, Subpart D, and adopted by the State of Utah, require that the owners and operators of all hazardous waste facilities prepare and implement a contingency plan for the facility. This plan is designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or nonsudden release of hazardous waste or hazardous waste constituents to the air, soil, or surface water. The EOU contingency plan was not reviewed as part of this assessment. Therefore this section was not completed.

6.6.2 Employee Training Program

The RCRA regulations promulgated at 40 CFR §§ 264.16(a) and 265.16(a), and as adopted by the State of Utah, state "Facility personnel must complete a program of classroom instruction or on-the-job training that teaches them to perform their duties in a way that ensures the facility's compliance with the requirements of this part [40 CFR 264]...." EOU has an employee safety training program in place, that

has been designed to ensure that employees conduct activities in accordance with both EPA and OSHA regulations. All new EOU employees receive orientation on site rules, general facility and workplace-specific hazards (equipment, high voltage electricity, etc.), task and area-specific PPE requirements, and appropriate safe work practices for the equipment/machines in the new employee's work area. The orientation training is documented and retained in the employee's training file.

The chemical hygiene officer (CHO) or his designee is required to provide and document hazard communication training for laboratory personnel in accordance with 29 CFR § 1910.1450(f). This training is based on the training described for the HazCom program described above. Records of this training will be maintained by the laboratory manager or his designee as lifetime records.

Due to the limited scope of this assessment the full employee training program was not reviewed or evaluated as part of this assessment. Therefore, this section was not completed.

6.6.3 Inspections

EOU at the Clive, Utah site is subject to the requirements of 40 CFR § 265.15(a), however, because it stores hazardous waste in containers, the company is subject to the inspection requirements specified at 40 CFR § 265.174. The EOU of Utah, Inc. RCRA Part B Permit Application, Module I, describes the inspection program requirements. EOU RCRA facility inspection records were not reviewed as part of this assessment. Detailed reviews and evaluations of the EOU RCRA facility inspection records and compliance to regulations have been recorded in other ESH&Q liability assessments of the Clive, Utah site. Therefore, this section was not completed.

6.6.4 Occupational Safety

6.6.4.1 **Safety Program.** Requirements for the OSHA safety program are specified in 29 CFR §§ 1910.120(b) and 1910.120(p)(1). Requirements for the content of the OSHA laboratory safety program are specified at 29 CFR §§ 1910.1450(e) and (f).

6.6.4.1.1 **Process Description**—EOU has instituted a safety program, which is designed to ensure compliance with all applicable OSHA regulations. The program is defined in the EOU safety manual procedures. The purpose of the procedure is to define the minimum industrial safety standards for all EOU employees. The procedure applies to all EOU employees and contractors at controlled facilities where EOU has the primary health and safety responsibility. The Manual procedures address the following topics and specific implementing procedures for each topic: safety meetings; personal protective equipment; first aid; discipline; recognition of safe performance; housekeeping; safety harnesses, life lines/lanyards; safety color codes for marking physical hazards; equipment lockout/tagout procedure; portable electrical equipment inspections; portable ladders; entry into confined space; safety requirements for contractors; accidents involving hazardous materials; accident/injury notification; workplace inspections; safety review board; minor injury and/or fatality; new employee orientation and training; hazard communication program; emergency showers and eyewashes; and material handling.

6.6.4.1.2 **LMITCO Assessment Team Observations/Impressions**—All records generated as a result of the procedure are maintained in access-controlled files. The EOU Clive, Utah site laboratory has a chemical hygiene plan (CHP) that has been developed to describe the health and safety program at the laboratory. The procedure addresses the following general safety topics including safety meetings, glassware, general safety rules, safety showers/eyewashes, fire extinguishers, and ventilation controls, PPE, working with highly toxic/hazardous materials, chemical receipt and storage, material safety data sheets (MSDSs), medical program, and employee information and training. Records generated as a result of compliance with this procedure are maintained by the laboratory manager or his designee as lifetime records. No discrepancies were noted.

6.6.4.2 **Medical Surveillance.** The hazard communications standards implementation program was not reviewed as part of this assessment. Therefore, this section was not completed.

6.6.5 Preparedness and Prevention

Envirocare of Utah, Inc. operations at the Clive, Utah site is a large-quantity generator, and as such, are subject to these requirements. However, they were not reviewed in detail and no observations have been made as part of this assessment. Detailed review of these requirements are stated and assessment team observations of the facility and its operations are recorded in other ESH&Q assessment reports. Therefore, this section has not been completed.

6.6.6 Radiation Protection

Detailed review of the requirements of the EOU Radiation Protection Program and assessment team observations of the facility and its operations are recorded in other ESH&Q assessment reports. Due to the limited scope of this assessment, the requirements of the Radiation Protection Program at the EOU Clive, Utah site were identified and discussed with site employees, but not evaluated as part of this assessment. Therefore, this section was not completed.

6.6.7 Quality Assurance

Detailed review of the requirements of the EOU Quality Assurance Program and implementing procedures and assessment team observations of the facility and its operations are recorded in other ESH&Q assessment reports. Due to the limited scope of this assessment the requirements of the EOU Quality Assurance Program were discussed with site employees, but not evaluated as part of this assessment. Therefore this section was not completed.

6.7 Document Review

6.7.1 RCRA Part A/B Permit Application

The scope of this assessment was limited to the review of the EOU's mixed waste treatment technologies and related operations. Therefore, the entire permit status of the EOU was not reviewed. Consequently, this section is not applicable.

6.7.2 RCRA Part B Permit

EOU owns and operates a RCRA-regulated TSDF at the Clive, Utah site. The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the entire permit status of the EOU was not reviewed. Consequently, this section is not applicable.

6.7.3 Air Permits/Monitoring Reports

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the entire permit/monitoring reporting status of the EOU was not reviewed. Consequently, this section is not applicable.

6.7.4 Annual Hazardous Waste/Biennial Report

EOU is required to prepare a biennial report in accordance with 40 CFR §§ 264.75, 265.75, or 262.41. EOU also tracks, and maintains detailed records of mixed and low-level radioactive wastes received and disposed at the EOU Clive, Utah Site. EOU is required by Condition 29 of the site Radioactive Materials License, Number UT-2300249, to submit monthly disposal reports for naturally

occurring and accelerator produced material (NARM), low-level, mixed, and uranium/thorium mine tailings to the Utah DRC. A copy of a monthly submittal to the DRC was reviewed, but not evaluated as part of this assessment. It appeared to be a very comprehensive report of site activities. Due to the limited scope of this assessment to the review of the EOU's mixed wastes treatment technologies and related operations, a complete review of the annual hazardous waste/biennial report was not performed. Therefore, the entire reporting status of the EOU was not reviewed.

6.7.5 CERCLA Off-Site Policy Approval

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the CERCLA status of the EOU was not reviewed. Consequently, this section is not applicable.

6.7.6 Chemical Hygiene Plan

The EOU Clive, Utah laboratory has a CHP entitled *"Laboratory Chemical Hygiene Plan,"* S&H-15.0, Revision 3, dated April 17, 1999, that is designed to address the OSHA laboratory standard. This plan, in the opinion of members of the LMITCO assessment team, meets the requirements for the CHP and has been developed to describe the health and safety program at the EOU Clive, Utah facility. The contents of the CHP were compared with the regulatory requirements as part of this assessment. The following deficiencies were recorded with respect to CHP content:

- The CHP did not contain a list of procedures relevant to safety and health considerations to be followed when laboratory work involves the use of hazardous chemicals
- The CHP lacked a designation of personnel responsible for implementation of the CHP, particularly identification of the individual to be the CHO
- Provisions for additional employee protection for work with particularly hazardous materials was lacking
- No indication that the effectiveness of the plan was reviewed at least annually was identified.

6.7.7 Closure/PostClosure Plan

The scope of this assessment was limited to the review of the EOU's mixed-wastes treatment technologies and related operations. Therefore, the closure/postclosure plan for the EOU was not reviewed. Consequently, this section is not applicable.

6.7.8 Emergency Response/Contingency Plan

The scope of this assessment was limited to the review of the EOU's mixed-wastes treatment technologies and related operations. Therefore, the emergency response/contingency plan for the EOU was not reviewed. Consequently, this section is not applicable.

6.7.9 Facility Construction Plans

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the facility construction plans for the EOU Clive, Utah site were not reviewed. Consequently, this section is not applicable.

6.7.10 Groundwater Monitoring Plan

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the groundwater monitoring plan for the EOU was not reviewed. Consequently, this section is not applicable.

6.7.11 Hazardous Waste Manifests

Members of the assessment team reviewed a limited number of manifests with respect to the requirements of 40 CFR §§ 262, Subpart D; 264.71; 264.72; 265.71; 265.72, and 268 for LDR certifications. The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the hazardous waste manifests submitted by EOU were not thoroughly reviewed, and were not evaluated against regulatory requirements. Consequently, this section is not applicable.

6.7.12 Operations Record

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the complete operational record of the EOU Clive, Utah site was not reviewed. Consequently, this section is not applicable.

6.7.13 Quality Assurance/Quality Control Plan

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the full quality assurance/quality control plan for the Clive, Utah site of EOU was not reviewed. Consequently, this section is not applicable.

6.7.14 Radioactive Materials License(s)

EOU supplied the LMITCO assessment team with a copy of its radioactive material license for review at the Clive, Utah site. The license was issued to EOU by the State of Utah, which is an NRC Agreement State.

Radioactive Materials License, No. UT2300249 was reissued to EOU on October 22, 1998. The license will expire October 22, 2003. The license has been amended 29 times since the original issuance. The license permits EOU of Utah, Inc. to receive, store, and dispose by land burial the radionuclides shown in Table 4. There were several conditions that directly affect customers doing business with EOU at the Clive, Utah site.

The license permits EOU to possess the radionuclides shown in Table 4, as contamination upon surfaces, contained within tools, equipment, or components and radioactive wastes for receipt and treatment at the EOU Clive, Utah site.

6.7.15 Radiation Protection Plan

Detailed review of the requirements of the EOU radiation protection plan and implementing procedures and the assessment team observations of the facility and its operations are recorded in other ESH&Q assessment reports. Due to the limited scope of this assessment the requirements of the radiation protection plan at the EOU Clive, Utah site were identified and discussed with site employees, but not evaluated as part of this assessment. Therefore, this section was not completed.

Table 4. Radioactive materials and quantity limits for EOU of Utah, Inc. (License UT2300249).

Item	Radioactive Material	Chemical and/or Physical Form	Maximum Radioactivity and/or Quantity of Material Which Licensee May Possess at Any One Time
A to AAA	See radioactive material license (RML) for complete list of radio nuclides	A1. Through AAA inclusive. Notwithstanding Conditions 9 (authorized use), 16 (prohibitions), 52 (debris size), and 55 (containerized waste), typically large volume (greater than 1000 cubic feet), bulky or containerized soil or debris (as defined in Condition 56). Debris can include both decommissioning (cleanup) and routinely generated operational waste including but not limited to radiologically contaminated paper, piping, rocks, glass, metal, concrete, wood, bricks, resins, sludges, tailings, slag, residues, PPE that conforms to the size limitations in Condition 52.	See RML for complete list of radio nuclides with individual curie total

Authorized Use:

A. Licensee may receive, store, and dispose by land burial, radioactive material as naturally occurring and accelerator produced material (NARM) and low-level radioactive waste. Prior to receiving an initial, low-level radioactive waste shipment for disposal from a generator, the licensee shall submit to the executive secretary, documentation that demonstrates that the low-level radioactive wastes have been approved for export to the licensee. Approval is required from the low-level radioactive waste compact of origin (including the Northwest Compact), or for states unaffiliated with a low-level radioactive waste compact, the state of origin, to the extent a state can exercise such approval.

B. In accordance with Utah Code Annotated 19-3-105, the licensee may not receive Class B or Class C low-level radioactive waste without first submitting a new license application and receiving approval from the executive secretary of the Utah Radiation Control Board and also receiving approval from the governor and the legislature.

C. The licensee shall fulfill and maintain compliance with all conditions and shall meet all compliance schedules stipulated by the Ground Water Discharge Permit Number UGW450005, issued by the executive secretary of the Utah Water Quality Board.

D. Notwithstanding Conditions 6 and 8, the licensee, with prior written approval from the executive secretary on a case-by-case basis, may accept radionuclides additional to those listed in Condition 6, if the concentration of the unlisted radionuclide is less than or equal to 500 pCi/g and in the waste forms specified by Condition 7.

6.7.16 Sample Analysis Plan

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the sample analysis plan for EOU was discussed with laboratory and other site personnel, but not reviewed in detail for this assessment. Consequently, this section was not completed.

6.7.17 SARA Reports

Compliance with the various SARA regulatory requirements was discussed with the facility representatives, but not reviewed as part of this assessment. The EOU, Clive, Utah SARA Section 311, 312 and 313 reports and the Section 302 and 304 emergency planning and notifications to the State of Utah were reviewed in previous ESH&Q assessments of the EOU Clive, Utah facility. Therefore, this section was not completed.

6.7.18 Spill Prevention Control and Countermeasures Plan

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. The contents of the EOU of Utah, Inc. spill prevention control and countermeasures (SPCC) plan were discussed with facility personnel, but not reviewed as part of this assessment. The SPCC plan was reviewed and evaluated in a previous ESH&Q liability assessment of the facility. Therefore, this section was not completed.

6.7.19 Storm Water Pollution Prevention Plan

The scope of this assessment was limited to the review of the EOU mixed waste treatment technologies and related operations. Therefore, the storm water pollution prevention plan for the EOU Clive, Utah site was not reviewed. Consequently, this section is not applicable.

6.7.20 TSCA Storage/Disposal Approval

As previously stated, EOU has not applied for a commercial storage/disposal permit for PCBs from any regulatory agency. Storage of PCB mixed waste generated at the site is generally limited and disposal is performed at the mixed waste disposal landfill onsite. EOU does accept some PCB-contaminated wastes at the Clive, Utah site (see requirements identified in the part B permit and the site RML). The TSCA storage/disposal requirements were not evaluated as part of this assessment. TSCA regulatory requirements and site documentation have been reviewed as part of previous ESH&Q liability assessments of the EOU Clive, Utah site. Therefore, this section was not completed.

6.7.21 Waste Analysis Plan

EOU has an approved waste analysis plan (WAP) in place for the facility at Clive, Utah. The WAP was issued on November 30, 1990, and the last revision was October 17, 1997. The WAP is identified as Attachment II-1 to the EOU RCRA Part B permit, for the Clive, Utah site. Due to the limited scope of this assessment to review EOU mixed waste treatment technologies and related operations, the WAP was discussed with facility personnel, but not reviewed in detail. Consequently, this section was not completed as part of this assessment.

6.7.22 Waste Minimization Certification/Plan

Due to the limited scope of this assessment to review only EOU mixed waste treatment technologies and related operations, the waste minimization certification/plan was not reviewed. Consequently, this section of this assessment was not completed.

6.7.23 Wastewater Monitoring Reports

Wastewater monitoring reports were not reviewed as part of this assessment. Therefore, this section was not completed.

7. FINANCIAL STRENGTH

The purpose of this section is to provide documentation verifying EOU's ability to respond quickly to environmental, safety, and health incidents; provide adequate financial assurances for facility closure costs; and maintain financial assurances for any potential litigation. The evaluation of those requirements identified for this section were not covered as part of this assessment report, due to the limited scope assigned for this assessment. Details of the evaluation of the financial strengths, liability insurance, closure and postclosure care, financial assurance, history and experience of the facility owners, and capacity and capital of the company are available in a previously identified ESH&Q liability assessment completed on the EOU facilities.

8. RISK ASSESSMENT AND SUMMARY OF PERTINENT INFORMATION

All offsite commercial treatment, storage, and disposal facilities will present some level of risk to a waste generator. The handling and treatment of hazardous and toxic wastes is by nature fraught with environmental, human health, and regulatory-related risks. The purpose of an ESH&Q liability assessment is to facilitate the proper management of those risks.

8.1 Public Health Risks

An analysis of the management and operational controls of the activities at the EOU facilities was undertaken in order to determine if public health risks were apparent. The most reasonable potential risk, to public health would be to the site employees. The training programs in place at the facility are designed to reduce this risk by instructing employees in the proper operations of the facilities, as well as the risks associated with these operations.

It is the opinion of the LMITCO assessment team, based on the analysis and information presented in the health physics manual; the safety and health program manual; and the mixed waste treatment operations manual that the company has taken steps to ensure that its operations do not present a public health risk either to its own employees or the general public at large.

8.2 Environmental Risks

8.2.1 Air Quality

Air emission sources and controls from the operations of the EOU Clive, Utah facilities were not examined as part of this assessment. The LMITCO assessment team made no review of operations or observations with respect to the transport media and spatial relationship to the general environment. Based on other recent ESH&Q reports reviewed, no especially sensitive environments were identified. The LMITCO assessment team did not identify any new environmental risks with respect to air quality.

8.2.2 Surface Water

Sources of potential surface water contamination and controls of these sources from the operations of the EOU were not examined with respect to transport media and spatial relationship to the general environment. Based on other recent ESH&Q reports reviewed, no especially sensitive environments were identified. The LMITCO assessment team did not identify any new environmental risks with respect to surface water.

8.2.3 Groundwater

No groundwater contamination has been identified for the EOU facility at the Clive, Utah site, and no groundwater monitoring is being performed at this time. All activities appear to be contained within the facilities. It appears that both the loading and unloading areas associated with the Mixed Waste Treatment Building and Mixed Waste Operations Building are situated to limit access to soils. Therefore, the risk of groundwater contamination from activities at the facility appears to be low. The LMITCO assessment team did not identify any new environmental risks with respect to groundwater.

8.2.4 Spills

No especially sensitive environments were identified. At the time of this assessment, no environmental risks were identified with respect to spills or lax spill control. No apparent contamination has been identified in or around the facility, which is the direct result of a reported release from the EOU

facilities at the Clive, Utah site. The LMITCO assessment team did not identify any new environmental risks with respect to spills to the soils or groundwater at the site.

8.3 Financial Risks

Due to the limited scope of this assessment to review only EOU mixed waste treatment technologies and related operations, the financial risks were not reviewed. Consequently, this section of this assessment was not applicable.

8.4 Summary of Other Risk-Related Information

8.4.1 Violations History

No Notices of Violation (NOVs), Consent Orders, or Agreements were reviewed for the EOU facilities at the Clive, Utah site. Therefore, no risks were assigned.

8.4.2 Pending Litigation

No pending litigation was reviewed as part of this assessment. Therefore, no risks were assigned.

8.4.3 Environmental Incidents

No environmental incidents were identified or reviewed for the Clive, Utah facilities. Therefore, no risks were assigned.

8.4.4 Management Attitudes

It was the opinion of the LMITCO assessment team that EOU exhibited strong commitment to management involvement in maintaining facility compliance with both regulatory and corporate ESH&Q requirements. The mixed waste treatment site manager and the corporate QA manager appeared to the LMITCO assessment team to have detailed knowledge of the appropriate federal and state regulations. Equally, those EOU Clive, Utah site employees interviewed seemed to have sufficient understanding of how the state/federal regulations applied to their specific operations.

An excellent level of commitment and a "pride in work" was obvious around the site. General housekeeping was good in most areas of the site. The LMITCO assessment team observed very little uncontrolled wastes or trash anywhere at the site. It was the opinion of the LMITCO assessment team that compliance issues might not be totally avoided, but EOU management oversight and controls were strongly in evidence.

8.5 Rating of Facility, Based on Risks and Comparison to Other Similar Operations

There did not appear to be any problems or discrepancies related to the treatment operations that were found during the assessment. There does not appear to be any conditions related to the treatment operations that could adversely affect LMITCO or the DOE, if low-level radioactive or mixed low-level radioactive wastes were to be sent to the EOU Utah site for treatment and disposal. It was the opinion of members of the LMITCO assessment team that this site was well managed and operated at the time of the assessment. The treatment operations assessed appeared to present minimal environmental liability concerns.

9. SUMMARY AND CONCLUSIONS

An ESH&Q and financial liability assessment was conducted of the EOU low-level and mixed radioactive waste treatment and disposal facility, located near Clive, Utah, in April 1999. The assessment was required as part of the technical evaluation of proposals received by LMITCO for a low-level radioactive waste disposal subcontract (K79-180572). The EOU of Utah, Inc. facility was proposed as a potential treatment/disposal facility for mixed low-level radioactive waste regulated under the AEA and RCRA.

The ESH&Q liability assessment consisted of preassessment, onsite inspection, postassessment, a risk assessment of the facilities, and this report. The liability assessment process used observations of the facility at a single point in time. Based on these observations, the probability of future environmental problems was projected. In addition, the risk of DOE or M&O contractor liability, should a problem occur, was included in the risk assessment. The liability assessment was not intended to evaluate whether a facility was, or was not, in actual compliance with environmental, safety, and/or health laws or regulations.

The LMITCO assessment team that evaluated the facility and operations, found no current Federal and/or State mixed radioactive waste treatment, storage, or disposal issues; radiation protection of the public; or personnel safety and health issues; which the Assessment Team believes would place DOE and the M&O Contractors at risk while doing business with Envirocare of Utah, Inc. It was the impression of the Assessment Team that personnel at the EOU facility were knowledgeable and displayed concern for compliance with the requirements for hazardous and radioactive waste determinations and management of on-site generated wastes; and with specific license conditions concerning waste management and disposal.

The LMITCO assessment team was confident, based upon the site visit and documents reviewed, that EOU has good control of the waste streams at its Clive, Utah facility to meet the needs of the M&O Contractor administered DOE facilities. It is the opinion of the Assessment Team that the company presently meets the intent of the laws and regulations, and will not provide an unreasonable risk to the DOE if the M&O Contractors choose to utilize this facility for the treatment of low level and mixed radioactive wastes.

10. REFERENCES

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Atomic Energy Act, as amended, 42 U.S.C. § 2011 *et seq.*

Clean Air Act, as amended, 42 U.S.C. §§ 1857 and 7401 *et seq.*

Clean Water Act, as amended, 33 U.S.C. § 1251 *et seq.*

Comprehensive Environmental Response, Compensation, and Liability Act, as amended, 42 U.S.C. §§ 9601 *et seq.*

Emergency Planning and Community Right-To-Know Act, as amended, 42 U.S.C. § 11001, *et seq.*

Hazardous and Solid Waste Amendments of 1984, (amending RCRA cited below)

Hazardous Materials Transportation Act of 1974, 49 U.S.C. § 1801 *et seq.*

National Environmental Policy Act, as amended 42 U.S.C. § 4321 *et seq.*

Occupational Safety and Health Act, as amended 29 U.S.C. § 651 *et seq.*

Resource Conservation and Recovery Act, as amended, 42 U.S.C. §§ 6901 *et seq.*

Safe Drinking Water Act, as amended 42 U.S.C. § 300f *et seq.*

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